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ACKNOWLEDGEMENTS

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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>
<thead>
<tr>
<th>Table ES.1 Overall Waste Reduction Short-Term and Long-Term Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline FY98/99*</td>
</tr>
<tr>
<td>Population</td>
</tr>
<tr>
<td>Disposal tons if NO new programs</td>
</tr>
<tr>
<td>Disposal tons with PROPOSED short-term programs</td>
</tr>
<tr>
<td>Disposal tons with PROPOSED short-term and long-term programs</td>
</tr>
<tr>
<td>Proposed rate tons/person/year</td>
</tr>
<tr>
<td>Rate reduction % of baseline year</td>
</tr>
<tr>
<td>Proposed tons diverted from disposal</td>
</tr>
</tbody>
</table>

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

* 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>
<thead>
<tr>
<th>Table ES.3 Commercial Waste Reduction Short-Term and Long-Term Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td>Population</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Baseline FY98/99*</td>
</tr>
<tr>
<td>618,853</td>
</tr>
<tr>
<td>Disposal tons if NO new programs</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>641,072</td>
</tr>
<tr>
<td>Disposal tons with PROPOSED short-term programs</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>N/A</td>
</tr>
<tr>
<td>Disposal tons with PROPOSED short-term and long-term programs</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>N/A</td>
</tr>
<tr>
<td>Proposed rate tons/person/year</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>1.04</td>
</tr>
<tr>
<td>Rate reduction % of baseline year</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>N/A</td>
</tr>
<tr>
<td>Proposed tons diverted from disposal</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>N/A</td>
</tr>
</tbody>
</table>

* 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>
<thead>
<tr>
<th>Table ES.4 C&amp;D Waste Reduction Short-Term and Long-Term Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Population</strong></td>
</tr>
<tr>
<td>Baseline FY98/99*</td>
</tr>
<tr>
<td>Current FY10/11*</td>
</tr>
<tr>
<td>Short-Term Plan Year FY16/17</td>
</tr>
<tr>
<td>Long-Term Plan Year FY21/22</td>
</tr>
<tr>
<td>Population</td>
</tr>
<tr>
<td>618,853</td>
</tr>
<tr>
<td>923,944</td>
</tr>
<tr>
<td>1,027,829</td>
</tr>
<tr>
<td>1,114,398</td>
</tr>
<tr>
<td>Disposal tons if NO new programs</td>
</tr>
<tr>
<td>315,134</td>
</tr>
<tr>
<td>195,661</td>
</tr>
<tr>
<td>244,212</td>
</tr>
<tr>
<td>264,781</td>
</tr>
<tr>
<td>Disposal tons with PROPOSED short-term programs</td>
</tr>
<tr>
<td>N/A</td>
</tr>
<tr>
<td>195,661</td>
</tr>
<tr>
<td>94,901</td>
</tr>
<tr>
<td>102,894</td>
</tr>
<tr>
<td>Disposal tons with PROPOSED short-term and long-term programs</td>
</tr>
<tr>
<td>N/A</td>
</tr>
<tr>
<td>N/A</td>
</tr>
<tr>
<td>N/A</td>
</tr>
<tr>
<td>94,570</td>
</tr>
<tr>
<td>Proposed rate tons/person/year</td>
</tr>
<tr>
<td>0.51</td>
</tr>
<tr>
<td>0.21</td>
</tr>
<tr>
<td>0.09</td>
</tr>
<tr>
<td>0.08</td>
</tr>
<tr>
<td>Rate reduction % of baseline year</td>
</tr>
<tr>
<td>N/A</td>
</tr>
<tr>
<td>58%</td>
</tr>
<tr>
<td>82%</td>
</tr>
<tr>
<td>83%</td>
</tr>
<tr>
<td>Proposed tons diverted from disposal</td>
</tr>
<tr>
<td>N/A</td>
</tr>
<tr>
<td>N/A</td>
</tr>
<tr>
<td>149,311</td>
</tr>
<tr>
<td>170,211</td>
</tr>
</tbody>
</table>

* 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...
Executive Summary

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.

![Material Disposal Breakdown by Generator](chart)

**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.

![Steering Committee Meeting](photo)
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.

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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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

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 (NC DENR).
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.

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),
Chapter 1
Introduction

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.

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.

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.
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>
<thead>
<tr>
<th>Table 1.1 Charrette Sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Friday</strong></td>
</tr>
<tr>
<td><strong>Series 1</strong></td>
</tr>
<tr>
<td>Expand Mandatory Business Recycling Ordinance</td>
</tr>
<tr>
<td>Food Scraps and Other Organics – Commercial and Institutional</td>
</tr>
<tr>
<td>Alternative Disposal / Mixed Waste Processing Technologies</td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Municipality</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlotte</td>
<td>734,873</td>
</tr>
<tr>
<td>Cornelius</td>
<td>24,984</td>
</tr>
<tr>
<td>Davidson(Part)</td>
<td>10,693</td>
</tr>
<tr>
<td>Huntersville</td>
<td>46,994</td>
</tr>
<tr>
<td>Matthews</td>
<td>27,326</td>
</tr>
<tr>
<td>Mint Hill(Part)</td>
<td>22,777</td>
</tr>
<tr>
<td>Pineville</td>
<td>7,513</td>
</tr>
<tr>
<td>Unincorporated Mecklenburg</td>
<td>48,784</td>
</tr>
<tr>
<td><strong>Total in Mecklenburg County</strong></td>
<td><strong>923,944</strong></td>
</tr>
</tbody>
</table>

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.
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

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

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 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.
    - 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.

\[
Commercial_{\text{waste}} = \text{Total}_{\text{waste}} - \text{Residential}_{\text{waste}} - C \& D_{\text{waste}}
\]

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%.
Chapter 1
Introduction

Figure 1.5 Material Disposal Breakdown by Generator

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>
<thead>
<tr>
<th>Municipality</th>
<th>FY 2009</th>
<th>FY 2010</th>
<th>FY 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlotte</td>
<td>24%</td>
<td>22%</td>
<td>25%</td>
</tr>
<tr>
<td>Cornelius</td>
<td>36%</td>
<td>36%</td>
<td>35%</td>
</tr>
<tr>
<td>Davidson</td>
<td>34%</td>
<td>20%</td>
<td>33%</td>
</tr>
<tr>
<td>Huntersville</td>
<td>36%</td>
<td>37%</td>
<td>44%</td>
</tr>
<tr>
<td>Matthews</td>
<td>37%</td>
<td>33%</td>
<td>35%</td>
</tr>
<tr>
<td>Mint Hill</td>
<td>44%</td>
<td>30%</td>
<td>30%</td>
</tr>
<tr>
<td>Pineville</td>
<td>Not available(^1)</td>
<td>Not available(^1)</td>
<td>Not available(^1)</td>
</tr>
</tbody>
</table>

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.)

<table>
<thead>
<tr>
<th></th>
<th>98/99</th>
<th>05/06</th>
<th>06/07</th>
<th>07/08</th>
<th>08/09</th>
<th>09/10</th>
<th>10/11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>258,558</td>
<td>385,577</td>
<td>370,607</td>
<td>364,458</td>
<td>374,525</td>
<td>368,399</td>
<td>380,882</td>
</tr>
<tr>
<td>Commercial</td>
<td>641,072</td>
<td>760,428</td>
<td>790,650</td>
<td>752,550</td>
<td>572,785</td>
<td>491,669</td>
<td>513,081</td>
</tr>
<tr>
<td>C&amp;D</td>
<td>315,134</td>
<td>362,948</td>
<td>377,120</td>
<td>329,461</td>
<td>253,326</td>
<td>186,502</td>
<td>195,661</td>
</tr>
<tr>
<td>Total</td>
<td>1,214,764</td>
<td>1,508,953</td>
<td>1,538,377</td>
<td>1,442,987</td>
<td>1,200,636</td>
<td>1,046,570</td>
<td>1,089,624</td>
</tr>
</tbody>
</table>

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.

Table 2–2 Waste Reduction as Measured Against Baseline Data

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

In the last ten years, Mecklenburg County has reduced its landfill waste by 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.

![Figure 2.1 Comparison of Change in Local GDP to Change in Tonnage Disposed](image)

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

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.

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%).

![Residential Waste Characterization Estimates](image)

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>
<thead>
<tr>
<th>Topic</th>
<th>Key Items</th>
<th>Consensus Conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family Recycling</td>
<td>Mandatory use of curbside recycling service</td>
<td>We want to increase diversion in the curbside recycling program</td>
</tr>
<tr>
<td></td>
<td>Should volume-based-pay be considered? (economic incentive)</td>
<td>Mandatory use of curbside recycling service should be considered:</td>
</tr>
<tr>
<td></td>
<td>Consider timing: just changed to single stream, give it time before more changes.</td>
<td>Terminology should be considered (mandatory vs. universal vs. banned from garbage container) – what is most effective?</td>
</tr>
<tr>
<td></td>
<td>Education: What is most effective?</td>
<td>PAY-T should remain a long-term consideration for the future</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Education approaches:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Get the word out more locally: home owners associations (HOA), children in the community</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Use school program to promote what should be going on at home</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Solid waste staff presentations to HOA’s</td>
</tr>
<tr>
<td>Multifamily Recycling</td>
<td>There are challenges at multifamily complexes: space constraints, types of containers, color-coding, reaching out to tenants</td>
<td>Should study mandatory as a future option – Support for carrots rather than sticks as incentives</td>
</tr>
<tr>
<td></td>
<td>Property managers survey indicated need for more guidance</td>
<td>Lots of opportunities for education and outreach first</td>
</tr>
<tr>
<td></td>
<td>Would like more frequent pickups</td>
<td>Recycling Ambassadors: grassroots volunteers or paid staff working with code compliance, recycling champions within each complex</td>
</tr>
<tr>
<td></td>
<td>Majority feel that the recycling program is important or very important</td>
<td>Profile model complexes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Provide best practices</td>
</tr>
<tr>
<td>Topic</td>
<td>Key Items</td>
<td>Consensus Conclusions</td>
</tr>
<tr>
<td>-------</td>
<td>-----------</td>
<td>-----------------------</td>
</tr>
<tr>
<td><strong>Food Scraps and Other Organics (Single Family and Multifamily)</strong></td>
<td>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?</td>
<td>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.</td>
</tr>
<tr>
<td><strong>Alternative Technology/Mixed Waste Processing Technologies</strong></td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td><strong>Zero Waste</strong></td>
<td>Maximizing waste prevention, recycling, and composting. Changing the culture of wasting. Recognizing that waste is not inevitable. It is a verb, not a noun.</td>
<td>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.</td>
</tr>
<tr>
<td><strong>Residential Yard Trimmings Collection</strong></td>
<td>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.</td>
<td>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.</td>
</tr>
</tbody>
</table>
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>
<thead>
<tr>
<th>Table 2–4 Residential Waste Reduction Short-Term and Long-Term Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
</tr>
<tr>
<td>Disposal Tons if NO New Programs</td>
</tr>
<tr>
<td>Disposal Tons with PROPOSED Short-Term Programs</td>
</tr>
<tr>
<td>Disposal Tons with PROPOSED Short-Term and Long-Term Programs</td>
</tr>
<tr>
<td>Proposed Rate Tons/Person/Year</td>
</tr>
<tr>
<td>Rate Reduction % of Baseline Year</td>
</tr>
<tr>
<td>Proposed Tons Diverted from Disposal</td>
</tr>
</tbody>
</table>

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

Figure 2.5 Commercial Waste Characterization Estimates

<table>
<thead>
<tr>
<th>Topic</th>
<th>Key Items</th>
<th>Consensus Conclusions</th>
</tr>
</thead>
</table>
| 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. |
Table 2–5 Friday Session Key Items and Consensus Conclusions

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

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

<table>
<thead>
<tr>
<th></th>
<th>Baseline FY98/99*</th>
<th>Current FY10/11*</th>
<th>Short-Term Plan Year FY16/17</th>
<th>Long-Term Plan Year FY21/22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>618,853</td>
<td>923,944</td>
<td>1,027,829</td>
<td>1,114,398</td>
</tr>
<tr>
<td>Disposal Tons if NO New Programs</td>
<td>641,072</td>
<td>513,081</td>
<td>637,665</td>
<td>691,373</td>
</tr>
<tr>
<td>Disposal Tons with PROPOSED Short-Term Programs</td>
<td>N/A</td>
<td>N/A</td>
<td>575,376</td>
<td>623,837</td>
</tr>
</tbody>
</table>
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](image)

### Table 2–6 Commercial Waste Reduction Short-Term and Long-Term Goals

<table>
<thead>
<tr>
<th></th>
<th>Disposal Tons with PROPOSED Short-Term and Long-Term Programs</th>
<th>Proposed Rate Tons/Person/Year</th>
<th>Rate Reduction % of Baseline Year</th>
<th>Proposed Tons Diverted from Disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N/A</td>
<td>1.04</td>
<td>47%</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>N/A</td>
<td>0.56</td>
<td>46%</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>N/A</td>
<td>0.56</td>
<td>56%</td>
<td>62,289</td>
</tr>
<tr>
<td></td>
<td>N/A</td>
<td>0.46</td>
<td></td>
<td>178,485</td>
</tr>
</tbody>
</table>

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

### 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%).

![Figure 2.7 C&D Waste Characterization Estimates](source)

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.
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.
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.

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

Figure 2.8 Impact of Waste Reduction Strategies on C&D Tonnage
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>
<thead>
<tr>
<th>Table 2–9 EPA WARM Model Results: Metric Tons of Carbon Dioxide Equivalent (MTCO2E)1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Effects on Carbon Emissions with Short-Term Strategies (Plan Year 2016/2017)</strong></td>
</tr>
<tr>
<td>Source Reduction</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Residential</td>
</tr>
<tr>
<td>No New Programs2</td>
</tr>
<tr>
<td>With Short-Term Programs</td>
</tr>
<tr>
<td>Commercial</td>
</tr>
<tr>
<td>No New Programs2</td>
</tr>
<tr>
<td>With Short-Term Programs</td>
</tr>
<tr>
<td>C&amp;D</td>
</tr>
<tr>
<td>No New Programs2</td>
</tr>
<tr>
<td>With Short-Term Programs</td>
</tr>
<tr>
<td>Overall Carbon Emissions3</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Source Reduction</th>
<th>Recycling</th>
<th>Composting</th>
<th>Total</th>
<th>Cumulative Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No New Programs2</td>
<td></td>
<td></td>
<td></td>
<td>(163,548)</td>
</tr>
<tr>
<td>With Short-Term Programs3</td>
<td>(219,411)</td>
<td>(43,474)</td>
<td>(8,796)</td>
<td>(271,681)</td>
</tr>
<tr>
<td>Commercial</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No New Programs2</td>
<td></td>
<td></td>
<td></td>
<td>(166,518)</td>
</tr>
<tr>
<td>With Short-Term Programs3</td>
<td>(352,745)</td>
<td>(17,866)</td>
<td>19,704</td>
<td>(350,907)</td>
</tr>
<tr>
<td>C&amp;D</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No New Programs2</td>
<td></td>
<td></td>
<td></td>
<td>274,539</td>
</tr>
<tr>
<td>With Short-Term Programs3</td>
<td>(17,373)</td>
<td>(71)</td>
<td>(17,444)</td>
<td>(86,614)</td>
</tr>
<tr>
<td>Overall Carbon Emissions4</td>
<td>(572,156)</td>
<td>(78,713)</td>
<td>10,837</td>
<td>(640,032)</td>
</tr>
</tbody>
</table>

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

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

* 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.

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
Chapter 2
Goals

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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Figure 3.3 Wipe Out Waste Logo

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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>
<thead>
<tr>
<th>Table 3.1 Source Reduction 2009 Recommended Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recommendations from the 2009 Plan</strong></td>
</tr>
<tr>
<td>Expand composting training programs.</td>
</tr>
<tr>
<td>Revise, reduce, and update <a href="http://www.wipeoutwaste.com">www.wipeoutwaste.com</a> to become more user friendly.</td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td>Conduct pilot projects of organic (food) waste.</td>
</tr>
<tr>
<td>Continue to survey the effectiveness of these programs by traditional survey tools and website hits.</td>
</tr>
<tr>
<td>Continue to educate businesses on source reduction alternatives.</td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td>Study results should be utilized to help educate and promote policy development within municipalities throughout the County.</td>
</tr>
</tbody>
</table>
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>
<thead>
<tr>
<th>Table 3.2 Environmental Considerations In Purchasing Decisions for Goods and Services (Short-Term and Long-Term Goals)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2012 Goal</strong></td>
</tr>
<tr>
<td>EPPG update</td>
</tr>
<tr>
<td>Purchase printer/copy paper products that contain 100% recycled material with a minimum 30% post-consumer content; 90% compliance</td>
</tr>
<tr>
<td>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</td>
</tr>
<tr>
<td>Purchase remanufactured inkjet, laser, and toner cartridges; 30% compliance</td>
</tr>
<tr>
<td>Purchase cleaning products that meet the Green Seal standards; 60% compliance</td>
</tr>
<tr>
<td>Purchase paint with low level of VOCs; 80% compliance</td>
</tr>
</tbody>
</table>

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.

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.
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](http://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>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Don’t Dispose It, Donate It</td>
<td>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.</td>
</tr>
<tr>
<td>Environmental Shopping</td>
<td>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.</td>
</tr>
<tr>
<td>Junk Mail Reduction</td>
<td>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.</td>
</tr>
<tr>
<td>HHW Reduction</td>
<td>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</td>
</tr>
</tbody>
</table>

2012 Solid Waste Management Plan
Mecklenburg County, NC
Table 3.3 Source Reduction Programs Promoted by the County

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holiday Waste Reduction/Use Less Stuff Campaign</td>
<td>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.</td>
</tr>
</tbody>
</table>

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.

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.

In 2009, 767 people participated in the County’s PLANT and outreach classes.
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 biodigesters; 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.

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

<table>
<thead>
<tr>
<th>Class</th>
<th>Year</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLANT and outreach classes</td>
<td>Fall and Spring 2009</td>
<td>767</td>
</tr>
<tr>
<td>MCPLANT</td>
<td>Spring and Summer 2009</td>
<td>53</td>
</tr>
<tr>
<td>PLANT and outreach classes</td>
<td>Fall and Spring 2010</td>
<td>896</td>
</tr>
<tr>
<td>MCPLANT</td>
<td>Fall 2010</td>
<td>16</td>
</tr>
<tr>
<td>Home composting and outreach</td>
<td>Fall and Spring 2011</td>
<td>950</td>
</tr>
<tr>
<td>Master Composter Training Program</td>
<td>Spring 2011</td>
<td>16</td>
</tr>
<tr>
<td>Master Composter Training Program</td>
<td>Spring 2012</td>
<td>14</td>
</tr>
</tbody>
</table>

#### 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.

In 2011, an inter-agency task force was created. CMS representatives met with staff from Mecklenburg County’s Environmental Health 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.

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.

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

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Composting/ Bin Sale Initiative</td>
<td>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.</td>
</tr>
<tr>
<td>Home Composting Class Initiatives</td>
<td>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.</td>
</tr>
<tr>
<td>Use Less Stuff Holiday Initiative</td>
<td>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.</td>
</tr>
<tr>
<td>Eb blast Marketing Initiative</td>
<td>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.</td>
</tr>
</tbody>
</table>

### 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.
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.

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.
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).
Chapter 3
Source Reduction and Reuse

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

<table>
<thead>
<tr>
<th>Recommendations from the 2009 Plan</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efforts to promote commercial recycling drop-off center programs should be continued.</td>
<td>Continuous</td>
</tr>
<tr>
<td>To encourage identification of commercial recycling in the area, the branding of the commercial recycling drop-off center program should be investigated and implemented.</td>
<td>Continuous</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recycling Space Allocation in Non-Residential Buildings</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Continue working with the remaining towns to get a text amendment approved that meets the intentions of the 2000 Plan.</td>
<td>Incomplete</td>
</tr>
<tr>
<td>Convene a working group to develop zoning code specifications for enclosures (both recycling and solid waste).</td>
<td>Decided against²</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Business Recognition and Mentor Program</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Continue and expand the Mecklenburg County Business Recognition and Mentor Program:</td>
<td>Continuous</td>
</tr>
<tr>
<td>– Opportunities exist to further expand this program to the PaperChase recycling program.</td>
<td></td>
</tr>
<tr>
<td>– The program should further expand its outreach through multimedia and increased opportunities for networking and promotion of its membership.</td>
<td></td>
</tr>
<tr>
<td>– The vision and purpose of this program should continue to address both voluntary and mandatory recycling efforts.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recycling in Public Schools and PaperChase</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Continue and expand CMS and City/County facility recycling programs, as described below.</td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td>Complete</td>
</tr>
<tr>
<td>Seek alternative funding sources in order to grow programs.</td>
<td>Continuous</td>
</tr>
<tr>
<td>Identify and develop contacts at collection sites to assist in sustaining the waste reduction and recycling program.</td>
<td>Continuous</td>
</tr>
<tr>
<td>Annually review the collection frequency of garbage and recycling dumpsters.</td>
<td>Continuous</td>
</tr>
<tr>
<td>Develop a reward system for County program participants.</td>
<td>Incomplete</td>
</tr>
<tr>
<td>Enforcement of SSO at CMS, City, and County facilities.</td>
<td>Continuous</td>
</tr>
<tr>
<td>Work with the County’s Park &amp; Recreation Department to expand recycling of beverage containers at the parks.</td>
<td>Complete</td>
</tr>
<tr>
<td>Work with the City and all the municipalities to expand recycling programs.</td>
<td>Continuous</td>
</tr>
<tr>
<td>Recommendations from the 2009 Plan</td>
<td>Status</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td><strong>Commercial Outreach &amp; Education</strong></td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td>Continuous</td>
</tr>
<tr>
<td><strong>Drop-off Recycling Centers</strong></td>
<td></td>
</tr>
<tr>
<td>Continue to expand services and promotion of all County drop-off centers.</td>
<td>Continuous</td>
</tr>
<tr>
<td><strong>Other Commercial Waste Reduction Programs</strong></td>
<td></td>
</tr>
<tr>
<td>Continue to expand services: design and provide programs that assist and encourage recycling, and promote throughout Mecklenburg County.</td>
<td>Continuous</td>
</tr>
<tr>
<td><strong>Food Waste</strong></td>
<td></td>
</tr>
<tr>
<td>Research successful programs across the country to gain knowledge of the infrastructure needed to develop a successful food waste composting program for this County.</td>
<td>Complete</td>
</tr>
<tr>
<td>Gain greater knowledge of food waste disposal practices through field studies to support estimated food waste characterization quantities.</td>
<td>Incomplete</td>
</tr>
<tr>
<td>Investigate and identify barriers to the development and implementation of food waste reduction and composting programs in this county.</td>
<td>Complete</td>
</tr>
<tr>
<td>Increased education on food waste reduction, reuse, and composting are needed in the commercial sector.</td>
<td>Continuous</td>
</tr>
<tr>
<td><strong>Metals</strong></td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td>Decided against³</td>
</tr>
<tr>
<td><strong>Small Business Recycling</strong></td>
<td></td>
</tr>
<tr>
<td>Local governments should continue to pursue mechanisms for collecting materials from businesses where contracting with private haulers would be uneconomical.</td>
<td>Continuous</td>
</tr>
<tr>
<td>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.</td>
<td>Incomplete</td>
</tr>
<tr>
<td>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.</td>
<td>Incomplete</td>
</tr>
</tbody>
</table>
### Table 4–1 Recycling 2009 Recommended Strategies

<table>
<thead>
<tr>
<th>Recommendations from the 2009 Plan</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consider assessing upon all improved properties a generator fee per unit to fund recycling in Mecklenburg County.</td>
<td>Complete</td>
</tr>
<tr>
<td>Grant recycling space allocation for commercial buildings throughout the County.</td>
<td>Incomplete</td>
</tr>
<tr>
<td>Studies should be performed to project the potential recovery rates and anticipated participation levels of small businesses in a single stream recycling system.</td>
<td>Complete</td>
</tr>
<tr>
<td><strong>Event Recycling</strong></td>
<td></td>
</tr>
<tr>
<td>Revise toolkit and educational pieces.</td>
<td>Continuous</td>
</tr>
<tr>
<td>Develop and maintain a tracking tool that lists the event name, contact, and other relevant information.</td>
<td>Continuous</td>
</tr>
<tr>
<td>Share information with the towns on the resources available from this program.</td>
<td>Continuous</td>
</tr>
<tr>
<td>Study the viability of composting options for food and compostable utensils as it relates to event recycling.</td>
<td>Incomplete</td>
</tr>
<tr>
<td>Work with the private sector on recyclable collections methods (be it providing the large roll off or smaller, individual containers).</td>
<td>Continuous</td>
</tr>
<tr>
<td>Continue to explore ways to expand and improve the program.</td>
<td>Continuous</td>
</tr>
<tr>
<td>Develop stronger partnerships with the County’s Park and Recreation Department and Health Department to pinpoint and service upcoming events in the area.</td>
<td>Continuous</td>
</tr>
<tr>
<td><strong>Recycling Requirements for Businesses with ABC Permits</strong></td>
<td></td>
</tr>
<tr>
<td>Continue to educate and encourage ABC permit holders regarding permit requirements and methods to meets the recycling requirements of the law.</td>
<td>Continuous</td>
</tr>
<tr>
<td><strong>Recycling Facilities – Full-Service Centers</strong></td>
<td></td>
</tr>
<tr>
<td>Reconfigure the Foxhole Landfill with drop walls to increase both the safety and the efficiency of the site.</td>
<td>Incomplete</td>
</tr>
<tr>
<td>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.</td>
<td>Complete</td>
</tr>
<tr>
<td>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.</td>
<td>Continuous</td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Municipality</th>
<th>Fiscal Year 2009</th>
<th>Fiscal Year 2010</th>
<th>Fiscal Year 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlotte</td>
<td>38,727</td>
<td>34,253</td>
<td>44,587</td>
</tr>
<tr>
<td>Cornelius</td>
<td>4,974</td>
<td>4,988</td>
<td>2,086</td>
</tr>
<tr>
<td>Davidson</td>
<td>619</td>
<td>526</td>
<td>449</td>
</tr>
<tr>
<td>Huntersville</td>
<td>5,394</td>
<td>5,500</td>
<td>3,833</td>
</tr>
<tr>
<td>Matthews</td>
<td>1,972</td>
<td>1,495</td>
<td>1,519</td>
</tr>
<tr>
<td>Mint Hill</td>
<td>1,221</td>
<td>1,163</td>
<td>1,231</td>
</tr>
<tr>
<td>Pineville</td>
<td>188</td>
<td>130</td>
<td>131</td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Table 4–3 Annual Survey Highlights</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Question</strong></td>
</tr>
<tr>
<td>How important is protecting environment to overall quality of life in the County?</td>
</tr>
<tr>
<td>How important is protecting environment to overall quality of life in the County?</td>
</tr>
<tr>
<td>Do you participate in curbside recycling?</td>
</tr>
<tr>
<td>Would you support higher taxes to better protect the environment in the County?</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Table 4–4 U.S. Programs with Exceptional Curbside Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>City</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>Mandatory Curbside</td>
</tr>
<tr>
<td>Volume Based Pay</td>
</tr>
</tbody>
</table>
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.
- 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

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Re•think Recycling Single Stream Initiative</td>
<td>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.</td>
</tr>
<tr>
<td>America Recycles Day</td>
<td>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.</td>
</tr>
<tr>
<td>Great American Cleanup</td>
<td>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.</td>
</tr>
<tr>
<td>Recycle and Win</td>
<td>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.</td>
</tr>
</tbody>
</table>
### Table 4–5 Recycling Publications and Other Initiatives

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wipe Out Waste Paper Shredding Events</td>
<td>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.</td>
</tr>
<tr>
<td>Landfill Ban</td>
<td>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.</td>
</tr>
</tbody>
</table>

### 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
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>
<thead>
<tr>
<th>Facility</th>
<th>Vendor</th>
<th>Customer Count</th>
<th>Weights</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2010/2011</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North Mecklenburg</td>
<td>Shred-it</td>
<td>400</td>
<td>12,750 lbs</td>
</tr>
<tr>
<td>West Mecklenburg</td>
<td>Shred-it</td>
<td>123</td>
<td>5,250 lbs</td>
</tr>
<tr>
<td>Foxhole</td>
<td>Automated Shredding</td>
<td>220</td>
<td>16,900 lbs</td>
</tr>
<tr>
<td>Hickory Grove</td>
<td>Data Chambers</td>
<td>350</td>
<td>11,250 lbs</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td><strong>1093</strong></td>
<td><strong>46,150 lbs/23 Tons</strong></td>
</tr>
<tr>
<td><strong>2011-2012</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North Mecklenburg</td>
<td>Shred-it</td>
<td>396</td>
<td>15,800 lbs</td>
</tr>
<tr>
<td>West Mecklenburg</td>
<td>Shred-it</td>
<td>97</td>
<td>2,200 lbs</td>
</tr>
<tr>
<td>Foxhole</td>
<td>Cintas/Caraustar</td>
<td>147</td>
<td>15,900 lbs</td>
</tr>
<tr>
<td>Hickory Grove</td>
<td>ProShred</td>
<td>199</td>
<td>8,820 lbs</td>
</tr>
<tr>
<td>Downtown Charlotte ARD event</td>
<td>ProShred</td>
<td>50</td>
<td>125 lbs</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td><strong>889</strong></td>
<td><strong>42,845 lbs/21.5 tons</strong></td>
</tr>
</tbody>
</table>

**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>
<thead>
<tr>
<th>Municipality</th>
<th>Collection Frequency</th>
<th>Type of Collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlotte</td>
<td>Every other week</td>
<td>Single stream, semiautomated</td>
</tr>
<tr>
<td>Cornelius</td>
<td>Every other week</td>
<td>Single stream, automated</td>
</tr>
<tr>
<td>Davidson</td>
<td>Once a week</td>
<td>Manual 18-gallon bin</td>
</tr>
<tr>
<td>Huntersville</td>
<td>Every other week</td>
<td>Single stream, automated</td>
</tr>
<tr>
<td>Matthews</td>
<td>Every other week</td>
<td>Single stream, automated</td>
</tr>
<tr>
<td>Mint Hill</td>
<td>Once a week</td>
<td>Manual 18-gallon bin</td>
</tr>
<tr>
<td>Pineville</td>
<td>Every other week</td>
<td>Single stream, automated</td>
</tr>
</tbody>
</table>

Table 4.8 shows recycling container metrics for each municipality. Most municipalities now offer recyclables services with 96-gallon roll out carts.
## Table 4-8 Containers

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

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.

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>
<thead>
<tr>
<th>Table 4–9 Exceptional Multifamily Recycling Policies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Alameda County, CA</td>
</tr>
<tr>
<td>Atlanta, GA</td>
</tr>
<tr>
<td>Austin, TX</td>
</tr>
<tr>
<td>Boulder, CO</td>
</tr>
<tr>
<td>Oakland, CA</td>
</tr>
<tr>
<td>Orange County, NC</td>
</tr>
<tr>
<td>Portland, OR</td>
</tr>
<tr>
<td>San Francisco, CA</td>
</tr>
<tr>
<td>San Jose, CA</td>
</tr>
<tr>
<td>Seattle, WA</td>
</tr>
</tbody>
</table>
### Table 4–9 Exceptional Multifamily Recycling Policies

<table>
<thead>
<tr>
<th>Recycling</th>
<th>Description</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toronto, Canada</td>
<td>Required participation, city provides in-unit recycling containers for residents</td>
<td>Free centralized e-waste collection container for each building. City provides free in-unit kitchen catchers.</td>
</tr>
</tbody>
</table>

### 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>
<thead>
<tr>
<th>Table 4–10 Multifamily Program Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Municipality</strong></td>
</tr>
<tr>
<td>Charlotte</td>
</tr>
<tr>
<td>Cornelius</td>
</tr>
<tr>
<td>Davidson</td>
</tr>
<tr>
<td>Huntersville</td>
</tr>
</tbody>
</table>
### Table 4–10 Multifamily Program Descriptions

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Service Provider (Municipal, Contract, Open)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matthews</td>
<td>Recycling collection at central drop-off sites within the property.</td>
</tr>
<tr>
<td>Mint Hill</td>
<td>Not provided</td>
</tr>
<tr>
<td>Pineville</td>
<td>Recycling collection via contract with the private sector for townhome and condo properties.</td>
</tr>
</tbody>
</table>

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

### Table 4–11 Multifamily Recycling Tonnage

<table>
<thead>
<tr>
<th>Month</th>
<th>FY09</th>
<th>FY10</th>
<th>FY11</th>
<th>FY12</th>
</tr>
</thead>
<tbody>
<tr>
<td>July</td>
<td>283.80</td>
<td>242.13</td>
<td>223.76</td>
<td>313.78</td>
</tr>
<tr>
<td>Aug</td>
<td>245.03</td>
<td>235.68</td>
<td>242.34</td>
<td>360.95</td>
</tr>
<tr>
<td>Sept</td>
<td>273.12</td>
<td>260.49</td>
<td>254.13</td>
<td>312.38</td>
</tr>
<tr>
<td>Oct</td>
<td>289.06</td>
<td>246.20</td>
<td>237.01</td>
<td>252.77</td>
</tr>
<tr>
<td>Nov</td>
<td>244.07</td>
<td>276.80</td>
<td>274.67</td>
<td>307.22</td>
</tr>
<tr>
<td>Dec</td>
<td>272.25</td>
<td>282.04</td>
<td>300.21</td>
<td>292.67</td>
</tr>
<tr>
<td>Jan</td>
<td>255.11</td>
<td>239.43</td>
<td>266.60</td>
<td>309.14</td>
</tr>
<tr>
<td>Feb</td>
<td>215.59</td>
<td>222.44</td>
<td>260.75</td>
<td></td>
</tr>
<tr>
<td>March</td>
<td>237.61</td>
<td>245.93</td>
<td>311.16</td>
<td></td>
</tr>
<tr>
<td>April</td>
<td>236.91</td>
<td>235.99</td>
<td>298.46</td>
<td></td>
</tr>
<tr>
<td>May</td>
<td>233.44</td>
<td>227.77</td>
<td>303.42</td>
<td></td>
</tr>
<tr>
<td>June</td>
<td>283.08</td>
<td>251.66</td>
<td>348.50</td>
<td></td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Table 4–12 Exceptional Commercial Recycling Policies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recycling</strong></td>
</tr>
<tr>
<td>Alameda County, CA</td>
</tr>
<tr>
<td>Austin, TX</td>
</tr>
<tr>
<td>Boulder, CO</td>
</tr>
<tr>
<td>Chicago, IL</td>
</tr>
</tbody>
</table>
### Table 4–12 Exceptional Commercial Recycling Policies

<table>
<thead>
<tr>
<th>Recycling</th>
<th>Description/ Notes</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fairfax County, VA</td>
<td>Mandatory</td>
<td>Must include cardboard and mixed paper. If annual waste stream of 100 tons or avg. occupancy of 200, additional recyclable material required.</td>
</tr>
<tr>
<td>Fresno, CA</td>
<td>Mandatory if 50% or greater recyclable materials in their waste stream</td>
<td>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</td>
</tr>
<tr>
<td>King County, WA</td>
<td>Required service</td>
<td></td>
</tr>
<tr>
<td>Orange County, FL</td>
<td>Mandatory, same materials as residential</td>
<td>There has been no dedicated budget or staff for commercial recycling education or enforcement for past five years.</td>
</tr>
<tr>
<td>Orange County, NC</td>
<td>County collects recyclables at 210 locations (free)</td>
<td>“3-R” (reduce, reuse, recycle) fee helps finance. Landfill bans and waste audits. 900 tons/yr recyclables diverted</td>
</tr>
<tr>
<td>Philadelphia, PA</td>
<td>Mandatory</td>
<td>Submit recycling plan (including education program), which is linked to property tax database.</td>
</tr>
<tr>
<td>Portland, OR</td>
<td>Must recycle paper and containers</td>
<td>City provides assistance &amp; resources. Progress measured thru quarterly reports from haulers. Business recognition program w/certification. Polystyrene &amp; single use bag ban for restaurants, grocery stores &amp; retailers. Recycling rate of 64%</td>
</tr>
<tr>
<td>San Francisco, CA</td>
<td>Mandatory PAYT</td>
<td>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</td>
</tr>
<tr>
<td>San Jose, CA</td>
<td>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.</td>
<td>Recycling rate of 22%</td>
</tr>
</tbody>
</table>
Table 4–12 Exceptional Commercial Recycling Policies

<table>
<thead>
<tr>
<th>Recycling</th>
<th>Description/ Notes</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seattle, WA</td>
<td>Paper &amp; cardboard not allowed in garbage, customers with City-contracted cart-based service receive recycling for free</td>
<td>Self-hauling to recycling stations, free consulting services, disposal ban: paper old corrugated containers, yard waste - $50 fine if 10% found in garbage</td>
</tr>
<tr>
<td>Toronto, Canada</td>
<td>Businesses using city services. receive free organics and recycling collection service (mandatory)</td>
<td>12,000 tons recyclables</td>
</tr>
</tbody>
</table>

4.4.2 COMMERCIAL WASTE QUANTITIES AND CHARACTERIZATION

The commercial sector in Mecklenburg County consists of approximately 20,1301 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.

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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

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Tons of Commercial Waste</th>
<th>Commercial Waste Generated/Person/Year</th>
<th>% Decrease from Base Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 1998/99 (Base Year)</td>
<td>641,072</td>
<td>1.04 Tons</td>
<td>Base Line</td>
</tr>
<tr>
<td>FY 1999/00</td>
<td>663,607</td>
<td>1.03 Tons</td>
<td>0.96% Decrease</td>
</tr>
<tr>
<td>FY 2000/01</td>
<td>535,654</td>
<td>0.77 Tons</td>
<td>26% Decrease</td>
</tr>
<tr>
<td>FY 2001/02</td>
<td>615,519</td>
<td>0.86 Tons</td>
<td>17% Decrease</td>
</tr>
<tr>
<td>FY 2002/03</td>
<td>613,230</td>
<td>0.84 Tons</td>
<td>19% Decrease</td>
</tr>
<tr>
<td>FY 2003/04</td>
<td>601,925</td>
<td>0.80 Tons</td>
<td>23% Decrease</td>
</tr>
<tr>
<td>FY 2004/05</td>
<td>548,338</td>
<td>0.73 Tons</td>
<td>30% Decrease</td>
</tr>
<tr>
<td>FY 2005/06</td>
<td>760,428</td>
<td>0.96 Tons</td>
<td>8% Decrease</td>
</tr>
<tr>
<td>FY 2006/07</td>
<td>790,650</td>
<td>0.96 Tons</td>
<td>8% Decrease</td>
</tr>
<tr>
<td>FY 2007/08</td>
<td>752,550</td>
<td>0.87 Tons</td>
<td>16% Decrease</td>
</tr>
<tr>
<td>FY 2008/09</td>
<td>572,785</td>
<td>0.65 Tons</td>
<td>53% Decrease</td>
</tr>
<tr>
<td>FY 2009/10</td>
<td>491,669</td>
<td>0.55 Tons</td>
<td>45% Decrease</td>
</tr>
<tr>
<td>FY 2010/11</td>
<td>513,084</td>
<td>0.56 Tons</td>
<td>46% Decrease</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Material Categories</th>
<th>Mecklenburg Estimated Tonnage (Mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper</td>
<td>Newsprint, high grade office paper, magazines/catalogs, corrugated cardboard, boxboard, mixed paper</td>
</tr>
<tr>
<td>Plastic</td>
<td>PET &amp; HDPE bottles, PVC, polystyrene, film – transport packaging, other film, other containers, other noncontainers</td>
</tr>
<tr>
<td>Metals</td>
<td>Aluminum beverage containers, other aluminum, ferrous containers, other ferrous, other nonferrous</td>
</tr>
<tr>
<td>Glass</td>
<td>Containers, other glass</td>
</tr>
<tr>
<td>Organic Materials</td>
<td>Yard trimmings - grass and leaves, food scraps, wood pallets, treated wood, untreated wood, diapers, other organic material</td>
</tr>
<tr>
<td>Electronic &amp; Related</td>
<td>Computer equipment &amp; peripherals, electric &amp; electronic products, batteries, other</td>
</tr>
<tr>
<td>HHW</td>
<td>Oil paint, unused cleaners and solvents, compressed fuel containers, other</td>
</tr>
<tr>
<td>Other Waste</td>
<td>Textiles, carpet, rubber, C&amp;D, sharps &amp; infectious waste, household bulky items, empty HHW containers, misc.</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
</tr>
</tbody>
</table>


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

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

Source: [www.wipeoutwaste.com](http://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:
  o Include all businesses with 8 cubic yards or more of service.
  o Expand the list of eligible or required materials to include plastic and aluminum beverage containers.
  o Change the paper recycling requirement from office paper to mixed paper.
  o Remove the 500-pound paper and cardboard exemption, and add bottles and cans to the list of materials impacted by the SSO.
  o 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:
  o Include requirement to recycle.
  o Limit the materials that can be allowed into the event to items that can be easily recycled or composted.
  o 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>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Know Where It Goes – SSO Initiative</td>
<td>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.</td>
</tr>
<tr>
<td>Wipe Out Waste Ambassador Program</td>
<td>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).</td>
</tr>
<tr>
<td>Re•think Recycling Single Stream Initiative</td>
<td>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.</td>
</tr>
<tr>
<td>Be Cool Recycle In School Initiative</td>
<td>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.</td>
</tr>
</tbody>
</table>
Table 4-17 Source Reduction Publications and Other Initiatives

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secure Your Load Initiative</td>
<td>A Secure Your Load brochure/survey/mailer was developed for use as a primary tool to solicit conversation with C&amp;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&amp;D conference directing them to the C&amp;D site for additional recycling information and opt in for C&amp;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.</td>
</tr>
<tr>
<td>Faith-Based Organizations Initiative</td>
<td>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 8¾”x 11” two-sided flyers.</td>
</tr>
<tr>
<td>Landfill Ban</td>
<td>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.</td>
</tr>
</tbody>
</table>

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.

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.

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.
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.

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.

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 Services 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.

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 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.

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.

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:

“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.”
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 4.9 Carton Recycling Program

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

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.

![Pie chart showing waste composition](image)

**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).

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.

**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
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.

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 study, 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

<table>
<thead>
<tr>
<th>In the short term (2013 – 2017), the County and municipalities should:</th>
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<tbody>
<tr>
<td>- Continue to provide recycling technical assistance to multifamily, commercial, and institutional generators.</td>
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<tr>
<td>- 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.</td>
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<tr>
<td>- Research the best approach for instituting reporting requirements to better understand commercial waste and recycling tonnages:</td>
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<tr>
<td>- Through the haulers, via hauling license regulation.</td>
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<tr>
<td>- Through businesses, via business license regulation.</td>
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<tr>
<td>- Through recycling facilities.</td>
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§ 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:
  o Include all businesses with 8 cubic yards or more of service,
  o Remove the 500-pound paper and cardboard exemption,
  o Expand the list of eligible or required materials to include plastic and aluminum beverage containers.
  o Change the paper recycling requirement from office paper to mixed paper.
  o 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:
  o Include requirement to recycle.
  o Limit the materials that can be allowed into the event to items that can be easily recycled or composted.
  o 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
<table>
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<th>(mandatory source separation).</th>
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<tr>
<td>- Place recycling bins wherever there are trash cans in all public locations, including temporary locations or special events, to the extent possible.</td>
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<tr>
<td>- Increase enforcement of the SSO, including assessing fines.</td>
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<tr>
<td>- Require businesses to meet an established recycling rate.</td>
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<td>- Require leases with recycling requirements/clauses.</td>
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<td>- Require all businesses to submit a recycling plan to the County.</td>
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<tr>
<td>- Implement a generator fee to fund recycling in the County.</td>
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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 into 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.
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.
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

### Fiber Materials
- Bulky HDPE
- Aluminum
- Ferrous metals
- 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.

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.
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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>
<thead>
<tr>
<th>Material</th>
<th>Contractor/Vendor</th>
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<tbody>
<tr>
<td>Garbage</td>
<td>Republic Waste</td>
</tr>
<tr>
<td>Scrap Tires</td>
<td>US Tire</td>
</tr>
<tr>
<td>HHW</td>
<td>Ecoflo</td>
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</tbody>
</table>
Table 4–19 Contracted Operations

<table>
<thead>
<tr>
<th>Material</th>
<th>Contractor/Vendor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic Recycling</td>
<td>Creative Recycling Systems, Inc</td>
</tr>
<tr>
<td>Cooking Oil/Grease</td>
<td>Eco-Solutions</td>
</tr>
<tr>
<td>Oil Filters</td>
<td>Clean Green</td>
</tr>
<tr>
<td>Lead-acid Batteries</td>
<td>Interstate Battery</td>
</tr>
<tr>
<td>Motor Oil/Antifreeze</td>
<td>Safety Kleen</td>
</tr>
</tbody>
</table>

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.

![HHW Collection at Full-Service Recycling Centers](image)

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

![Electronic Waste Recovered at Full Service Recycling Centers](image)

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
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

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

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>
<thead>
<tr>
<th>Recommendation 2009 Plan</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site changes need to be evaluated at Compost Central to assure the long-term effectiveness and efficiencies of the operation.</td>
<td>Continuous</td>
</tr>
</tbody>
</table>

#### 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.

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

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

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

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>
<thead>
<tr>
<th>Municipality</th>
<th>Frequency of Collection</th>
<th>Style of Collection</th>
<th>Container provided? (Y/N)</th>
<th>Set-Out Limits</th>
<th>Preparation Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlotte</td>
<td>Weekly</td>
<td>Collected from the curb by a two person crew using a rear loader truck.</td>
<td>No</td>
<td>None</td>
<td>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.</td>
</tr>
<tr>
<td>Cornelius</td>
<td>Weekly</td>
<td>Manual</td>
<td>No</td>
<td>Seasonal leaf collection (November 1 – February) with vacuum truck.</td>
<td>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.</td>
</tr>
<tr>
<td>Davidson</td>
<td>Weekly</td>
<td>Manual</td>
<td>No</td>
<td>Brush and limbs not to exceed pickup truck load per week. Up to twenty 40-gallon bags of leaves.</td>
<td>Limbs not to exceed 4” diameter and 6’ in length; bags up to 40 gallons in size, no more than 50 lbs when full.</td>
</tr>
</tbody>
</table>
## Table 5.5 More Yard Trimmings Collection Information

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Frequency of Collection</th>
<th>Style of Collection</th>
<th>Container provided?</th>
<th>Set-Out Limits</th>
<th>Preparation Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Huntersville</td>
<td>Weekly</td>
<td>Automated</td>
<td>Yes, 96-gallon</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>Matthews</td>
<td>Weekly</td>
<td>Collected from the curb by a two person crew using a rear loader truck (manual).</td>
<td>No</td>
<td>Collection is limited to no more than what one man can load in 20 minutes. Limit of 20 bags per week.</td>
<td>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.</td>
</tr>
<tr>
<td>Mint Hill</td>
<td>Weekly</td>
<td>Manual</td>
<td>No</td>
<td>10 bag limit.</td>
<td>Grass clippings and leaves in bags/cans; limbs and brush not more than 5’ in length and not over 6” in diameter.</td>
</tr>
<tr>
<td>Pineville</td>
<td>Weekly</td>
<td>Manual</td>
<td>No</td>
<td>None</td>
<td>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.</td>
</tr>
</tbody>
</table>
Table 5.6 shows to where each community currently delivers its collected yard trimmings.

<table>
<thead>
<tr>
<th>Table 5.6 Residential Curbside Yard Trimmings Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlotte</td>
</tr>
<tr>
<td>Yard Trimmings Delivered to:</td>
</tr>
<tr>
<td>Exceptions</td>
</tr>
</tbody>
</table>

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 FOODSCRAPS

5.3.1 EXISTING COUNTY RESIDENTIAL FOODSCRAPS POLICIES

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

5.3.2 POTENTIAL NEW COUNTY RESIDENTIAL FOODSCRAPS 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](http://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](http://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.
  o Requires a permitted food scraps compost facility.
  o Start with pilot study to test feasibility.
• Implement separate food scraps collection (not mixed with yard trimmings).
  o Does not affect yard trimmings collection, processing.
  o Requires a permitted food scraps compost facility.
  o More uniform with what is feasible for multifamily.
  o 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.
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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.
5.5.5 EXISTING COUNTY COMMERCIAL FOODSCRAPS
PROGRAMS

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

5.5.6 POTENTIAL NEW COUNTY COMMERCIAL FOODSCRAPS
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 FOODSCRAPS
PROGRAMS

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

5.5.8 POTENTIAL NEW MUNICIPAL COMMERCIAL FOODSCRAPS 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.
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- 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
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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.

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.
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 INFRASTRUCTURE

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 uninterrupted 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.

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

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/yr, 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>
<thead>
<tr>
<th>Recommendation 2009 Plan</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work with the private sector and regulatory agencies to create opportunities for asphalt shingle recycling.</td>
<td>Continuous</td>
</tr>
<tr>
<td>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.</td>
<td>Continuous</td>
</tr>
<tr>
<td>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.</td>
<td>Continuous</td>
</tr>
<tr>
<td>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.</td>
<td>Complete</td>
</tr>
</tbody>
</table>
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>
<thead>
<tr>
<th>Government</th>
<th>Disposal Bans</th>
<th>Recycling</th>
<th>Facilities</th>
<th>Notes</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alameda County, CA</td>
<td>County C&amp;D Ordinance (applies to County projects). All but one community within Alameda have C&amp;D ordinance requiring 50% or greater diversion rates.</td>
<td>Under contract with WM to handle this material. One C&amp;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).</td>
<td>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.</td>
<td>From 2000-2010, the percentage of C&amp;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.</td>
<td></td>
</tr>
<tr>
<td>Boulder, CO</td>
<td>50% diversion required for construction. 65% diversion required for demolition.</td>
<td>No mixed C&amp;D processors in Boulder, but several specialty recyclers are available.</td>
<td>C&amp;D waste counted separately from overall residential and commercial tonnage.</td>
<td>83% diversion, in 2010.</td>
<td></td>
</tr>
</tbody>
</table>
### Table 6.3 US Programs with Exceptional C&D Debris Reduction Policies.

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

<table>
<thead>
<tr>
<th>Government</th>
<th>Disposal Bans</th>
<th>Recycling</th>
<th>Facilities</th>
<th>Notes</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orange County, NC</td>
<td>Clean wood waste and metal.</td>
<td>Regulated recyclable material ordinance.</td>
<td>Four certified mixed C&amp;D materials reclamation facilities.</td>
<td>Adding shingles later this year to required list. The economic downturn has had effect on C&amp;D recycling tonnage.</td>
<td>Volume of C&amp;D waste fell almost 50% after ordinance implemented &amp; continues to fall.</td>
</tr>
<tr>
<td>Portland, OR</td>
<td>Concrete, asphalt, land clearing, cardboard, metal, wood.</td>
<td>75% recycling required if total job cost is greater than $50,000. Pre-construction recycling plan required. $500 fine for non-compliance</td>
<td>Three mixed C&amp;D materials processors.</td>
<td>Operates voluntary C&amp;D reuse program at transfer stations.</td>
<td></td>
</tr>
<tr>
<td>San Francisco, CA</td>
<td>All C&amp;D is banned from disposal.</td>
<td>All C&amp;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.</td>
<td>Two registered facilities located inside city limits of San Francisco. 10 additional facilities located in the region.</td>
<td>Diversion rate hard to calculate due to lack of tracking mechanisms for private sector source separated C&amp;D materials.</td>
<td></td>
</tr>
<tr>
<td>Government</td>
<td>Disposal Bans</td>
<td>Recycling</td>
<td>Facilities</td>
<td>Notes</td>
<td>Results</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------</td>
</tr>
<tr>
<td>San Jose, CA</td>
<td>Incentive program. Deposit required, refund if they recycle 50% of waste.</td>
<td>21 city-certified recovery facilities.</td>
<td>11 source separated. Five other/specialty mixed C&amp;D. Three transfer stations. Four landfills with mixed C&amp;D operations. Four processors focused on mixed C&amp;D.</td>
<td>The 21 city-certified recovery facilities must divert 50% of material generated from new construction and demolition projects.</td>
<td>Nearly 100% diversion on source separated material; average of 55% diversion on mixed C&amp;D. In 2008, diverted 866,000 tons of C&amp;D, (79% of total materials received).</td>
</tr>
<tr>
<td>Seattle, WA</td>
<td>Metal, asphalt, bricks, old corrugated cardboard, concrete by 2012. Clean wood, carpet, gypsum, plastic film by 2013. Tear-off asphalt shingles by 2014.</td>
<td>Recycling rate goal of 60% (2012), goal of 70% (2025). 90/10 Rule: C&amp;D recycling collection containers cannot contain more than 10% nonrecyclable materials.</td>
<td>Three permitted commingled C&amp;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.</td>
<td>Recycling rate: 61.4% Diversion rate: 65.6% Waste diversion rate consists of recycling and beneficial use (boiler fuel).</td>
<td>80% diversion.</td>
</tr>
<tr>
<td>Metro Vancouver, BC</td>
<td>Clean wood (2015).</td>
<td>2015 mandatory on-site.</td>
<td>At least two privately operated mixed processing facilities. Numerous small recycling depots are in operation.</td>
<td>All private mixed waste processing, licensed by Metro.</td>
<td>80% diversion.</td>
</tr>
</tbody>
</table>
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.

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

<table>
<thead>
<tr>
<th>Recoverable</th>
<th>Potentially Recoverable</th>
<th>Unrecoverable</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td>Vinyl siding, dirt, sand, gravel, bulky wastes, furniture.</td>
<td>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&amp;D, electronics, other unclassified.</td>
</tr>
</tbody>
</table>

**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>
<thead>
<tr>
<th>Challenges</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separation by material type</td>
<td>Removal of brick for recycling</td>
</tr>
<tr>
<td>Worker training</td>
<td>Reuse of fixtures</td>
</tr>
<tr>
<td>Contamination and illegal disposal</td>
<td>Recycling of concrete and hardscape</td>
</tr>
<tr>
<td>Space constraints</td>
<td></td>
</tr>
</tbody>
</table>

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.
Chapter 6
Construction and Demolition Debris

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>
<thead>
<tr>
<th>Table 6.6 Benefits of Recycling Commercial C&amp;D Debris</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced landfill disposal costs</td>
</tr>
<tr>
<td>Large volume of divertable materials</td>
</tr>
<tr>
<td>High value materials, including metal</td>
</tr>
<tr>
<td>Larger, secure sites for ease of separating materials</td>
</tr>
</tbody>
</table>

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.

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 on 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 ASSESSMENT

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>
<thead>
<tr>
<th>Landfill</th>
<th>FY 07/08</th>
<th>% of Waste Stream</th>
<th>FY 2010/11</th>
<th>% of Waste Stream</th>
</tr>
</thead>
<tbody>
<tr>
<td>Republic Lake Norman C&amp;D Landfill</td>
<td>70,190</td>
<td>21</td>
<td>16,745</td>
<td>8.6</td>
</tr>
<tr>
<td>Foxhole MSW/C&amp;D Landfill</td>
<td>124,253</td>
<td>38</td>
<td>52,331</td>
<td>27</td>
</tr>
<tr>
<td>Gaston County C&amp;D Landfill</td>
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<td>&lt;1</td>
<td>25</td>
<td>&lt;1</td>
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<tr>
<td>Griffin C&amp;D Landfill</td>
<td>8,127</td>
<td>2.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Highway 49 C&amp;D Landfill</td>
<td>8,717</td>
<td>2.6</td>
<td>12,730</td>
<td>6.5</td>
</tr>
<tr>
<td>North Mecklenburg C&amp;D Landfill</td>
<td>115,678</td>
<td>35</td>
<td>113,601</td>
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<tr>
<td>Cabarrus</td>
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<td>&lt;1</td>
</tr>
<tr>
<td>Rowan</td>
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</tr>
<tr>
<td>Total</td>
<td>329,461</td>
<td>100.0</td>
<td>195,444</td>
<td>100.0</td>
</tr>
</tbody>
</table>

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.

**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.
Carpent 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.
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>
<thead>
<tr>
<th>Table 7.1 MSW 2009 Recommended Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommendation 2009 Plan</td>
</tr>
<tr>
<td>Continue and expand collection service. Develop verifiable data collection and tracking protocols for all of the governmental entities within the Planning Area.</td>
</tr>
<tr>
<td>Private and public sectors should continue MSW collection to multifamily units while increasing efforts to provide recycling and waste reduction programs.</td>
</tr>
</tbody>
</table>
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>
<thead>
<tr>
<th>Table 7.2 Historical Mecklenburg County Residential MSW Disposed (tons/yr.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>98/99</td>
</tr>
<tr>
<td>Residential</td>
</tr>
<tr>
<td>06/07</td>
</tr>
<tr>
<td>Residential</td>
</tr>
</tbody>
</table>

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).
Chapter 7  
Municipal Solid Waste Collection and Disposal

### Table 7.3 Tons of MSW Collected

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Fiscal Year 2009</th>
<th>Fiscal Year 2010</th>
<th>Fiscal Year 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlotte</td>
<td>297,988</td>
<td>296,073</td>
<td>296,239</td>
</tr>
<tr>
<td>Cornelius</td>
<td>25,319</td>
<td>25,920</td>
<td>7,400</td>
</tr>
<tr>
<td>Davidson</td>
<td>2,093</td>
<td>2,803</td>
<td>2,530</td>
</tr>
<tr>
<td>Huntersville</td>
<td>27,555</td>
<td>28,000</td>
<td>12,120</td>
</tr>
<tr>
<td>Matthews</td>
<td>8,527</td>
<td>8,246</td>
<td>8,025</td>
</tr>
<tr>
<td>Mint Hill</td>
<td>7,208</td>
<td>7,190</td>
<td>7,112</td>
</tr>
<tr>
<td>Pineville</td>
<td>Not available</td>
<td>Not available</td>
<td>Not available</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Frequency</th>
<th>Style of Collection</th>
<th>Service Provider (Municipal or Contract)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlotte</td>
<td>Weekly</td>
<td>Automated (96-gallon container)</td>
<td>Municipal</td>
</tr>
<tr>
<td>Cornelius</td>
<td>Weekly</td>
<td>96-gallon container</td>
<td>Contract</td>
</tr>
<tr>
<td>Davidson</td>
<td>Weekly</td>
<td>96-gallon container</td>
<td>Contract</td>
</tr>
<tr>
<td>Huntersville</td>
<td>Weekly</td>
<td>Automated (96-gallon container)</td>
<td>Contract</td>
</tr>
<tr>
<td>Matthews</td>
<td>Weekly</td>
<td>Automated (96-gallon container)</td>
<td>Contract</td>
</tr>
<tr>
<td>Mint Hill</td>
<td>Weekly</td>
<td>96-gallon container</td>
<td>Contract</td>
</tr>
<tr>
<td>Pineville</td>
<td>Weekly</td>
<td>96-gallon container</td>
<td>Contract</td>
</tr>
</tbody>
</table>
7.2.2 CURBSIDE BULKY ITEMS COLLECTION

Table 7.5 summarizes bulky item services provided by municipalities in the Planning Area.

<table>
<thead>
<tr>
<th>Local Government</th>
<th>Service Provided by the Municipality or Its Contractor</th>
<th>Collection by Appointment Only</th>
<th>Separate Usage Fee Charged?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlotte</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Cornelius</td>
<td>No</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Davidson</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Huntersville</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Matthews</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Mint Hill¹</td>
<td>White Goods Only</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Pineville</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

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.
Chapter 7
Municipal Solid Waste Collection and Disposal

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.
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.

- 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.
7.3.2 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>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998/99</td>
<td>641,072</td>
</tr>
<tr>
<td>01/02</td>
<td>615,519</td>
</tr>
<tr>
<td>02/03</td>
<td>613,230</td>
</tr>
<tr>
<td>03/04</td>
<td>601,925</td>
</tr>
</tbody>
</table>
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%.

### Table 7.6 Historical Mecklenburg County Commercial Waste Disposed (tons/yr.)

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>04/05</td>
<td>548,338</td>
</tr>
<tr>
<td>05/06</td>
<td>760,428</td>
</tr>
<tr>
<td>06/07</td>
<td>790,650</td>
</tr>
<tr>
<td>07/08</td>
<td>734,949</td>
</tr>
<tr>
<td>08/09</td>
<td>572,785</td>
</tr>
<tr>
<td>09/10</td>
<td>491,669</td>
</tr>
<tr>
<td>10/11</td>
<td>513,084</td>
</tr>
</tbody>
</table>

**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 compactor 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.

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>
<thead>
<tr>
<th>Landfill</th>
<th>Tonnage</th>
<th>% of Waste Stream</th>
</tr>
</thead>
<tbody>
<tr>
<td>Republic Charlotte Motor Speedway Landfill</td>
<td>610,972</td>
<td>73%</td>
</tr>
<tr>
<td>Chambers Development MSWLF</td>
<td>162,703</td>
<td>20%</td>
</tr>
<tr>
<td>Richland</td>
<td>45,957</td>
<td>6%</td>
</tr>
<tr>
<td>Lee (SC)</td>
<td>4,488</td>
<td>1%</td>
</tr>
<tr>
<td>Gaston County Landfill</td>
<td>2,471</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Rowan County Landfill</td>
<td>2314</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Uwharrie Environmental Landfill</td>
<td>1,645</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Palmetto</td>
<td>1,300</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Union County Regional MSWLF (SC)</td>
<td>44</td>
<td>&lt;1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>831,894</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Transfer Stations</th>
<th>Tonnage</th>
<th>% of Waste Stream</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queen City Transfer Station</td>
<td>145,675</td>
<td>70%</td>
</tr>
<tr>
<td>Republic MSW TS (Fort Mill)</td>
<td>44,556</td>
<td>21%</td>
</tr>
<tr>
<td>Waste Management of Carolinas</td>
<td>17,019</td>
<td>8%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>207,251</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

### 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.

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.

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
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 inert materials 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)

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 highways 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>
<thead>
<tr>
<th>Program Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Big Sweep</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Adopt-A-Stream</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Litter Sweep</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>
8.1.1 RECOMMENDATIONS FROM 2009 SWMP

<table>
<thead>
<tr>
<th>Table 8.2 Litter 2009 Recommended Strategies</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recommendation 2009 Plan</strong></td>
<td><strong>Status</strong></td>
</tr>
<tr>
<td><strong>Contracted Services</strong></td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td>Continuous</td>
</tr>
<tr>
<td><strong>Adopt-A-Highway</strong></td>
<td></td>
</tr>
<tr>
<td>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. 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.</td>
<td>Decided Against¹</td>
</tr>
<tr>
<td><strong>Adopt-A-City Street</strong></td>
<td></td>
</tr>
<tr>
<td>Continue and expand program.</td>
<td>Continuous</td>
</tr>
<tr>
<td><strong>Neighborhood Improvement</strong></td>
<td></td>
</tr>
<tr>
<td>Investigate partnerships with inspectors to further litter prevention efforts and to expand the resource base.</td>
<td>Continuous</td>
</tr>
<tr>
<td><strong>Inmate Labor</strong></td>
<td></td>
</tr>
<tr>
<td>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. Develop relationship with NCDOT so that the bags from the litter removal are picked up in a timely manner.</td>
<td>Incomplete</td>
</tr>
<tr>
<td><strong>Litter Sweep</strong></td>
<td></td>
</tr>
<tr>
<td>To promote the participation of volunteers in the biannual Litter Sweep in partnership with NCDOT.</td>
<td>Continuous</td>
</tr>
<tr>
<td><strong>Keep Mecklenburg Beautiful</strong></td>
<td></td>
</tr>
<tr>
<td>Pursue more public/private partnerships to expand the Keep Mecklenburg Beautiful message.</td>
<td>Continuous</td>
</tr>
<tr>
<td>Continue the successful candidate pledge sign removal campaign.</td>
<td>Complete</td>
</tr>
<tr>
<td>Continue, in association with North Carolina Keep America Beautiful to participate in the Annual Tarp Day event held in October.</td>
<td>Continuous</td>
</tr>
<tr>
<td>Maintain certification status.</td>
<td>Continuous</td>
</tr>
<tr>
<td>Develop sustainable programs to engage greater public participation.</td>
<td>Continuous</td>
</tr>
<tr>
<td>Build volunteer base and increase participation of board members.</td>
<td>Continuous</td>
</tr>
<tr>
<td>Build a strong relationship between Keep Mecklenburg Beautiful and Keep Charlotte Beautiful.</td>
<td>Continuous</td>
</tr>
</tbody>
</table>
Table 8.2 Litter 2009 Recommended Strategies

<table>
<thead>
<tr>
<th>Recommendation 2009 Plan</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Keep Charlotte Beautiful</strong></td>
<td></td>
</tr>
<tr>
<td>Investigate partnership opportunities with Keep Charlotte Beautiful and coordinate efforts to maximize cleanup, beautification, and promotional activities.</td>
<td>Complete</td>
</tr>
<tr>
<td><strong>Swat-A-Litterbug</strong></td>
<td></td>
</tr>
<tr>
<td>Continue to grow the program through <a href="http://www.swatalitterbug.com">www.swatalitterbug.com</a>.</td>
<td>Continuous</td>
</tr>
<tr>
<td>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.</td>
<td>Complete</td>
</tr>
<tr>
<td><strong>Promotion</strong></td>
<td></td>
</tr>
<tr>
<td>Develop long-term communication strategies. Develop and disseminate multilingual materials.</td>
<td>Incomplete</td>
</tr>
<tr>
<td>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.</td>
<td>Complete</td>
</tr>
<tr>
<td>Recommend promotional programs to reach out to the commercial sector regarding recycling and litter awareness.</td>
<td>Continuous</td>
</tr>
<tr>
<td><strong>Litter Stings</strong></td>
<td></td>
</tr>
<tr>
<td>Investigate feasibility of conducting stings in townships in conjunction with Charlotte- Mecklenburg Police Department (CMPD) and Keep Charlotte Beautiful.</td>
<td>Complete</td>
</tr>
<tr>
<td>NC Keep America Beautiful to investigate a statewide sting with local, county, and state enforcement agencies.</td>
<td>Complete</td>
</tr>
<tr>
<td>Build relationship with CMPD to link to <a href="http://www.swatalitterbug.com">www.swatalitterbug.com</a>.</td>
<td>Decided Against¹²³</td>
</tr>
<tr>
<td><strong>Commercial Sector</strong></td>
<td></td>
</tr>
<tr>
<td>Develop educational tools for distribution to the construction community.</td>
<td>Incomplete</td>
</tr>
<tr>
<td>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.</td>
<td>Continuous</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td>Continuous</td>
</tr>
<tr>
<td>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.</td>
<td>Continuous</td>
</tr>
</tbody>
</table>

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.

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>
<thead>
<tr>
<th>Year</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY01</td>
<td>2.6</td>
</tr>
<tr>
<td>FY02</td>
<td>2.3</td>
</tr>
<tr>
<td>FY03</td>
<td>2.3</td>
</tr>
<tr>
<td>FY04</td>
<td>2.3</td>
</tr>
<tr>
<td>FY05</td>
<td>2.1</td>
</tr>
<tr>
<td>FY06</td>
<td>1.6</td>
</tr>
<tr>
<td>FY07</td>
<td>1.9</td>
</tr>
<tr>
<td>FY08</td>
<td>1.6</td>
</tr>
<tr>
<td>FY09</td>
<td>1.47</td>
</tr>
<tr>
<td>FY10</td>
<td>1.55</td>
</tr>
<tr>
<td>FY11</td>
<td>1.35</td>
</tr>
</tbody>
</table>

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).

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.

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.
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.

**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.

105,225 pounds of litter have been removed by AAH volunteers in the County.
8.4.3 PUBLICATIONS AND OTHER INITIATIVES

Table 8.4 summarizes additional publications and efforts related to litter management.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Litter / North Tryon St. Every Little Butt Helps Campaign</td>
<td>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.</td>
</tr>
<tr>
<td>Get Your Ashes off Charlotte Streets</td>
<td>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”.</td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Location Worked</th>
<th>Hours Worked</th>
<th>Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community</td>
<td>416</td>
<td>$4,222</td>
</tr>
<tr>
<td>Roadside</td>
<td>188</td>
<td>$1,908</td>
</tr>
<tr>
<td>MCSO Jails</td>
<td>832</td>
<td>$8,445</td>
</tr>
<tr>
<td>Total</td>
<td>1,436</td>
<td>$14,575</td>
</tr>
</tbody>
</table>
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>
<thead>
<tr>
<th>Service</th>
<th>FY2011</th>
<th>FY2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROW Cleaning (litter)</td>
<td>$1,244,816</td>
<td>$404,367</td>
</tr>
<tr>
<td>Street Cleaning</td>
<td>$1,086,690</td>
<td>$309,003</td>
</tr>
<tr>
<td>Dead Animals</td>
<td>$57,113</td>
<td>$21,876</td>
</tr>
<tr>
<td>Neighborhood Support</td>
<td>$69,697</td>
<td>$31,649</td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Recommendation 2009 Plan</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continue the current enforcement program, which includes aggressive enforcement, cleanup, and education.</td>
<td>Continuous</td>
</tr>
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Chapter 9  REGULATORY ACTIVITIES

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9.1.1  RECOMMENDATIONS FROM 2009 SWMP

<table>
<thead>
<tr>
<th>Table 9.1 Regulatory Activities 2009 Recommended Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommendation 2009 Plan</td>
</tr>
<tr>
<td>Continue the current enforcement program, which includes aggressive enforcement, cleanup, and education.</td>
</tr>
</tbody>
</table>
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.

  - 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.
Chapter 9
Regulatory Activities

- 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.
      - 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.
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>
<thead>
<tr>
<th>Year</th>
<th>Compliant Initial Inspection</th>
<th>Exempt</th>
<th>Total Initial Inspections</th>
<th>% Initially Compliant</th>
<th>Aware of Ordinance</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>434</td>
<td>226</td>
<td>792</td>
<td>74%</td>
<td>(31%)</td>
</tr>
<tr>
<td>2005</td>
<td>338</td>
<td>263</td>
<td>733</td>
<td>72%</td>
<td>(38%)</td>
</tr>
<tr>
<td>Year</td>
<td>Compliant Initial Inspection</td>
<td>Exempt</td>
<td>Total Initial Inspections</td>
<td>% Initially Compliant</td>
<td>Aware of Ordinance</td>
</tr>
<tr>
<td>------</td>
<td>-----------------------------</td>
<td>--------</td>
<td>---------------------------</td>
<td>-----------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>2006</td>
<td>201</td>
<td>244</td>
<td>566</td>
<td>62%</td>
<td>(43%)</td>
</tr>
<tr>
<td>2007</td>
<td>78</td>
<td>250</td>
<td>490</td>
<td>56%</td>
<td>(70%)</td>
</tr>
<tr>
<td>2008</td>
<td>272</td>
<td>8</td>
<td>657</td>
<td>42%</td>
<td>(68%)</td>
</tr>
<tr>
<td>2009</td>
<td>449</td>
<td>219</td>
<td>726</td>
<td>92%</td>
<td>(63%)</td>
</tr>
<tr>
<td>2010</td>
<td>414</td>
<td>292</td>
<td>956</td>
<td>74%</td>
<td>(55%)</td>
</tr>
<tr>
<td>2011</td>
<td>222</td>
<td>572</td>
<td>867</td>
<td>92%</td>
<td>(43%)</td>
</tr>
</tbody>
</table>

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.
- 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 municipalities 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 municipalities 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 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](image)

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 recovered 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>
<thead>
<tr>
<th>Table 10.1 City of Charlotte Annual Operating Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item</td>
</tr>
<tr>
<td>Collection</td>
</tr>
<tr>
<td>Special Maintenance Services</td>
</tr>
<tr>
<td>Neighborhood Services</td>
</tr>
<tr>
<td>Community Education</td>
</tr>
<tr>
<td><strong>Total Budget</strong></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Service</th>
<th>Single Family Monthly Cost per Household</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid Waste Collection</td>
<td>$4.70</td>
</tr>
<tr>
<td>Recyclables Collection</td>
<td>$1.56</td>
</tr>
<tr>
<td>Yard Trimmings Collection</td>
<td>$2.90</td>
</tr>
<tr>
<td>Bulky Items Collection (basic service)</td>
<td>$0.82</td>
</tr>
<tr>
<td>Bulky Items Collection (additional service)</td>
<td>N/A</td>
</tr>
<tr>
<td>Total Monthly Cost per Household</td>
<td>$9.98</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Item</th>
<th>Annual Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dumpster Collection</td>
<td>$104,445</td>
</tr>
<tr>
<td>Residential Collection</td>
<td>$974,154</td>
</tr>
<tr>
<td>Yard Debris</td>
<td>$423,390</td>
</tr>
<tr>
<td>Recycling</td>
<td>$337,553</td>
</tr>
<tr>
<td>Total Budget</td>
<td>$1,839,542</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Service</th>
<th>Single Family Monthly Cost per Household</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid Waste Collection</td>
<td>$7.43</td>
</tr>
<tr>
<td>Recyclables Collection</td>
<td>$3.27</td>
</tr>
<tr>
<td>Yard Trimmings Collection</td>
<td>$4.40</td>
</tr>
<tr>
<td>Bulky Items Collection (basic service)</td>
<td>N/A</td>
</tr>
<tr>
<td>Bulky Items Collection (additional service)</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Total Monthly Cost per Household</strong></td>
<td><strong>$15.10</strong></td>
</tr>
</tbody>
</table>

#### 10.4 TOWN OF DAVIDSON

Solid waste services in Davidson are managed by the Town of Davidson Public Works Department. The services are provided through 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

<table>
<thead>
<tr>
<th>Item</th>
<th>Annual Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid Waste Collection</td>
<td>$609,000</td>
</tr>
<tr>
<td>Recycling</td>
<td>$120,160</td>
</tr>
<tr>
<td><strong>Total Budget</strong></td>
<td><strong>$729,160</strong></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Service</th>
<th>Single Family Monthly Cost per Household</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid Waste Collection</td>
<td>$8.40</td>
</tr>
<tr>
<td>Recyclables Collection</td>
<td>$3.00</td>
</tr>
<tr>
<td>Yard Trimmings Collection</td>
<td>$4.42</td>
</tr>
<tr>
<td>Bulky Items Collection (basic service)</td>
<td>Included in solid waste cost</td>
</tr>
<tr>
<td>Bulky Items Collection (additional service)</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Total Monthly Cost per Household</strong></td>
<td><strong>$15.82</strong></td>
</tr>
</tbody>
</table>
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>
<thead>
<tr>
<th>Table 10.7 Town of Huntersville Annual Operating Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Item</strong></td>
</tr>
<tr>
<td>Garbage</td>
</tr>
<tr>
<td>Landfill</td>
</tr>
<tr>
<td>Recyclling</td>
</tr>
<tr>
<td>Yard Trimmings</td>
</tr>
<tr>
<td><strong>Total Budget</strong></td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Table 10.8 Town of Huntersville Collections Cost per Household</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Service</strong></td>
</tr>
<tr>
<td>Solid Waste Collection</td>
</tr>
<tr>
<td>Recyclables Collection</td>
</tr>
<tr>
<td>Yard Trimmings Collection</td>
</tr>
<tr>
<td>Bulky Items Collection (basic service)</td>
</tr>
<tr>
<td>Total Monthly Cost per Household</td>
</tr>
</tbody>
</table>

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 categories 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>
<thead>
<tr>
<th>Table 10.9 Town of Matthews Annual Operating Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Item</strong></td>
</tr>
<tr>
<td>Residential Garbage</td>
</tr>
<tr>
<td>Small Business Garbage</td>
</tr>
<tr>
<td>Residential Recycling</td>
</tr>
<tr>
<td>Small Business Recycling</td>
</tr>
<tr>
<td>Yard Trimmings Collection</td>
</tr>
<tr>
<td>County Landfill Fees &amp; Compost Central Fees</td>
</tr>
<tr>
<td>Misc Services</td>
</tr>
<tr>
<td><strong>Total Budget</strong></td>
</tr>
</tbody>
</table>

For the current fiscal year, the monthly cost per single family household for the various solid waste services breaks down as follows.

<table>
<thead>
<tr>
<th>Table 10.10 Town of Matthews Collections Cost per Household</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Service</strong></td>
</tr>
<tr>
<td>Solid Waste Collection</td>
</tr>
<tr>
<td>Recyclables Collection</td>
</tr>
<tr>
<td>Yard Trimmings Collection</td>
</tr>
<tr>
<td>Bulky Items Collection (basic service)</td>
</tr>
<tr>
<td>Bulky Items Collection (additional service)</td>
</tr>
<tr>
<td><strong>Total Monthly Cost per Household</strong></td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Table 10.11 Town of Mint Hill Annual Operating Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Item</strong></td>
</tr>
<tr>
<td>Solid Waste Collection</td>
</tr>
<tr>
<td>Disposal</td>
</tr>
<tr>
<td><strong>Total Budget</strong></td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Table 10.12 Town of Mint Hill Collections Cost per Household</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Service</strong></td>
</tr>
<tr>
<td>Solid Waste Collection</td>
</tr>
<tr>
<td>Recyclables Collection</td>
</tr>
<tr>
<td>Yard Trimnings Collection</td>
</tr>
<tr>
<td>Bulky Items Collection (basic service)</td>
</tr>
<tr>
<td>Bulky Items Collection (additional service)</td>
</tr>
<tr>
<td><strong>Total Monthly Cost per Household</strong></td>
</tr>
</tbody>
</table>

* $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

<table>
<thead>
<tr>
<th>Service</th>
<th>Single Family Monthly Cost per Household</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid Waste Collection</td>
<td>$7.46</td>
</tr>
<tr>
<td>Recyclables Collection</td>
<td>$3.00</td>
</tr>
<tr>
<td>Yard Trimmings Collection</td>
<td>Included in solid waste cost</td>
</tr>
<tr>
<td>Bulky Items Collection (basic service)</td>
<td>$3.00</td>
</tr>
<tr>
<td>Bulky Items Collection (additional service)</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Total Monthly Cost per Household</strong></td>
<td><strong>$13.46</strong></td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Strategy</th>
<th>Municipal Costs</th>
<th>County Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disposal Ban for Residential Generators</td>
<td>-</td>
<td>$2,177</td>
</tr>
<tr>
<td>Volume-Based Pay&lt;sup&gt;1&lt;/sup&gt;</td>
<td>$4,387,832</td>
<td>$250,000.00</td>
</tr>
<tr>
<td>Incentive Program&lt;sup&gt;1&lt;/sup&gt;</td>
<td>-</td>
<td>$250,000.00</td>
</tr>
<tr>
<td>Recycling Provided at All Multifamily Complexes, Expand Education</td>
<td>-</td>
<td>$2,465</td>
</tr>
<tr>
<td>Commercial</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expand Mandatory Recycling Ordinance</td>
<td>-</td>
<td>$2,177</td>
</tr>
<tr>
<td>Education, Outreach, and Enforcement</td>
<td>-</td>
<td>$143,750</td>
</tr>
<tr>
<td>C&amp;D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mandatory C&amp;D Recycling Ordinance</td>
<td>-</td>
<td>$2,177</td>
</tr>
<tr>
<td>Education, Outreach, and Enforcement</td>
<td>-</td>
<td>$18,750</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
<th>Units</th>
<th>Time Frame</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assumes 30% of residents elect 65-gallon cart:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charlotte</td>
<td>54,902</td>
<td>Carts</td>
<td>One time</td>
<td>$2,745,120</td>
</tr>
<tr>
<td>Huntersville</td>
<td>4,734</td>
<td>Carts</td>
<td>One time</td>
<td>$236,715</td>
</tr>
<tr>
<td>Cornelius</td>
<td>2,209</td>
<td>Carts</td>
<td>One time</td>
<td>$110,445</td>
</tr>
<tr>
<td>Matthews</td>
<td>2,395</td>
<td>Carts</td>
<td>One time</td>
<td>$119,760</td>
</tr>
<tr>
<td>Mint Hill</td>
<td>2,279</td>
<td>Carts</td>
<td>One time</td>
<td>$113,970</td>
</tr>
<tr>
<td>Davidson</td>
<td>724</td>
<td>Carts</td>
<td>One time</td>
<td>$36,180</td>
</tr>
<tr>
<td>Pineville</td>
<td>261</td>
<td>Carts</td>
<td>One time</td>
<td>$13,065</td>
</tr>
<tr>
<td><strong>Assumes 10% of residents elect 35-gallon cart:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charlotte</td>
<td>18,301</td>
<td>Carts</td>
<td>One time</td>
<td>$823,536</td>
</tr>
<tr>
<td>Huntersville</td>
<td>1,578</td>
<td>Carts</td>
<td>One time</td>
<td>$71,015</td>
</tr>
<tr>
<td>Cornelius</td>
<td>736</td>
<td>Carts</td>
<td>One time</td>
<td>$33,134</td>
</tr>
<tr>
<td>Matthews</td>
<td>798</td>
<td>Carts</td>
<td>One time</td>
<td>$35,928</td>
</tr>
<tr>
<td>Mint Hill</td>
<td>760</td>
<td>Carts</td>
<td>One time</td>
<td>$34,191</td>
</tr>
<tr>
<td>Davidson</td>
<td>241</td>
<td>Carts</td>
<td>One time</td>
<td>$10,854</td>
</tr>
<tr>
<td>Pineville</td>
<td>87</td>
<td>Carts</td>
<td>One time</td>
<td>$3,920</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
<th>Units</th>
<th>Time Frame</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Staff Administration</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charlotte</td>
<td>0.1</td>
<td>FTE</td>
<td>Annual</td>
<td>$7,500</td>
</tr>
<tr>
<td>Huntersville</td>
<td>0.1</td>
<td>FTE</td>
<td>Annual</td>
<td>$7,500</td>
</tr>
<tr>
<td>Cornelius</td>
<td>0.1</td>
<td>FTE</td>
<td>Annual</td>
<td>$7,500</td>
</tr>
<tr>
<td>Matthews</td>
<td>0.1</td>
<td>FTE</td>
<td>Annual</td>
<td>$7,500</td>
</tr>
<tr>
<td>Mint Hill</td>
<td>0.1</td>
<td>FTE</td>
<td>Annual</td>
<td>$7,500</td>
</tr>
<tr>
<td>Davidson</td>
<td>0.1</td>
<td>FTE</td>
<td>Annual</td>
<td>$7,500</td>
</tr>
<tr>
<td>Pineville</td>
<td>0.1</td>
<td>FTE</td>
<td>Annual</td>
<td>$7,500</td>
</tr>
<tr>
<td><strong>Cost of Program</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charlotte</td>
<td>2.73</td>
<td>$/SF HH</td>
<td>Annual</td>
<td>$500,000</td>
</tr>
<tr>
<td>Huntersville</td>
<td>2.73</td>
<td>$/SF HH</td>
<td>Annual</td>
<td>$43,116</td>
</tr>
</tbody>
</table>
Table 10.16 Incentive Program Cost Estimates by Municipality

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
<th>Units</th>
<th>Time Frame</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cornelius</td>
<td>2.73</td>
<td>$/SF HH</td>
<td>Annual</td>
<td>$20,117</td>
</tr>
<tr>
<td>Matthews</td>
<td>2.73</td>
<td>$/SF HH</td>
<td>Annual</td>
<td>$21,813</td>
</tr>
<tr>
<td>Mint Hill</td>
<td>2.73</td>
<td>$/SF HH</td>
<td>Annual</td>
<td>$20,759</td>
</tr>
<tr>
<td>Davidson</td>
<td>2.73</td>
<td>$/SF HH</td>
<td>Annual</td>
<td>$6,590</td>
</tr>
<tr>
<td>Pineville</td>
<td>2.73</td>
<td>$/SF HH</td>
<td>Annual</td>
<td>$2,380</td>
</tr>
</tbody>
</table>

Table 10.17 shows the summary of cost estimates, by long-term strategy.

Table 10.17 Summary of Long-Term Planning Level Cost Estimates

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Municipal</th>
<th>County</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>One Time Costs</td>
<td>Annual Costs</td>
</tr>
<tr>
<td>Residential</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mandatory Single Family Curbside Recycling1</td>
<td>-</td>
<td>$168,763</td>
</tr>
<tr>
<td>Food Scraps &amp; Organics Diversion1</td>
<td>$11,507,980</td>
<td>-</td>
</tr>
<tr>
<td>Mandatory Multifamily Recycling, Continue Education1</td>
<td>-</td>
<td>$115,878</td>
</tr>
<tr>
<td>Commercial</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organics Diversion</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Recycling Containers Where Public Garbage Containers</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>C&amp;D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase Mandatory Recycling Percentage</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Extended Producer Responsibility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Efforts Associated with EPR</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
<th>Units</th>
<th>Time Frame</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enforcement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charlotte</td>
<td>0.00001</td>
<td>FTE/SF HH</td>
<td>Annual</td>
<td>$137,256</td>
</tr>
<tr>
<td>Huntersville</td>
<td>0.00001</td>
<td>FTE/SF HH</td>
<td>Annual</td>
<td>$11,836</td>
</tr>
<tr>
<td>Cornelius</td>
<td>0.00001</td>
<td>FTE/SF HH</td>
<td>Annual</td>
<td>$5,522</td>
</tr>
<tr>
<td>Matthews</td>
<td>0.00001</td>
<td>FTE/SF HH</td>
<td>Annual</td>
<td>$5,988</td>
</tr>
<tr>
<td>Mint Hill</td>
<td>0.00001</td>
<td>FTE/SF HH</td>
<td>Annual</td>
<td>$5,699</td>
</tr>
<tr>
<td>Davidson</td>
<td>0.00001</td>
<td>FTE/SF HH</td>
<td>Annual</td>
<td>$1,809</td>
</tr>
<tr>
<td>Pineville</td>
<td>0.00001</td>
<td>FTE/SF HH</td>
<td>Annual</td>
<td>$653</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
<th>Units</th>
<th>Time Frame</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carts - 96 gallon</td>
<td>100%</td>
<td>SF HH</td>
<td>One time</td>
<td>$10,065,440</td>
</tr>
<tr>
<td>Charlotte</td>
<td>183,008</td>
<td>Carts</td>
<td>One time</td>
<td>-</td>
</tr>
<tr>
<td>Huntersville</td>
<td>0</td>
<td>Carts</td>
<td>One time</td>
<td>$10,065,440</td>
</tr>
<tr>
<td>Cornelius</td>
<td>7,363</td>
<td>Carts</td>
<td>One time</td>
<td>$404,965</td>
</tr>
<tr>
<td>Matthews</td>
<td>7,984</td>
<td>Carts</td>
<td>One time</td>
<td>$439,120</td>
</tr>
<tr>
<td>Mint Hill</td>
<td>7,598</td>
<td>Carts</td>
<td>One time</td>
<td>$417,890</td>
</tr>
<tr>
<td>Davidson</td>
<td>2,412</td>
<td>Carts</td>
<td>One time</td>
<td>$132,660</td>
</tr>
<tr>
<td>Pineville</td>
<td>871</td>
<td>Carts</td>
<td>One time</td>
<td>$47,905</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
<th>Units</th>
<th>Time Frame</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enforcement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charlotte</td>
<td>0.00001</td>
<td>FTE/MF HH</td>
<td>Annual</td>
<td>$104,337</td>
</tr>
<tr>
<td>Huntersville</td>
<td>0.00001</td>
<td>FTE/MF HH</td>
<td>Annual</td>
<td>$2,153</td>
</tr>
</tbody>
</table>
Table 10.20 Mandatory Multifamily Cost Estimates by Municipality

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
<th>Units</th>
<th>Time Frame</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cornelius</td>
<td>0.00001</td>
<td>FTE/MF HH</td>
<td>Annual</td>
<td>$3,429</td>
</tr>
<tr>
<td>Matthews</td>
<td>0.00001</td>
<td>FTE/MF HH</td>
<td>Annual</td>
<td>$1,769</td>
</tr>
<tr>
<td>Mint Hill</td>
<td>0.00001</td>
<td>FTE/MF HH</td>
<td>Annual</td>
<td>$773</td>
</tr>
<tr>
<td>Davidson</td>
<td>0.00001</td>
<td>FTE/MF HH</td>
<td>Annual</td>
<td>$1,200</td>
</tr>
<tr>
<td>Pineville</td>
<td>0.00001</td>
<td>FTE/MF HH</td>
<td>Annual</td>
<td>$2,218</td>
</tr>
</tbody>
</table>

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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11.2  Assessment ........................................................................................................ 11-1
11.3  Recommendation .............................................................................................. 11-1
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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://charmckem.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://charmock.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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Appendix A

GLOSSARY OF TERMS
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Appendix A – GLOSSARY OF TERMS AND ACRONYMS

The terms listed below are used in the Plan, and have the meaning defined herein unless otherwise stated elsewhere in the Plan.

**Bulky Items** – means large items of reuse or waste including, but not limited to large appliances, furniture, large auto parts, non-hazardous, household construction and demolition materials, trees, branches and stumps that cannot be handled by normal solid waste processing, collection or disposal method, and also may be referred to as ‘bulky waste’.

**Commercial** – means any business establishment including, but not limited to, stores, markets, office buildings, restaurants, hotels, motels, shopping centers and theaters, but not including multi-family housing customers.

**Commercial Recycling Drop-off Centers** – means the dumpsters provided by the County to businesses to be used for recyclables collection.

**Composting** – the biological decomposition of organic materials such as leaves, grass clippings, brush, and food waste into a soil amendment.

**Construction and Demolition Debris (C&D)** – as defined by NCGS, means 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.

**County** – for the purpose of this Plan, refers to Mecklenburg County, unless otherwise stated.

**County Drop-off Centers** – means the four staffed and nine self service drop-off centers located throughout the County, which accept residential solid waste, residential and commercial recyclables, and household hazardous waste. The four staffed centers include: North Mecklenburg Recycling Center; West Mecklenburg Recycling Center; Hickory Grove Recycling Center (East); and Foxhole Recycling Center (South). The nine self service centers include: Uptown Recycling Center; Davidson Recycling Center; Rozzelle’s Ferry Road Recycling Center; Park Road Park Recycling Center; McAlpine Creek Park Recycling Center; William R. Davie Park Recycling Center; Blythe Landing Recycling Center; Reedy Creek Park Recycling Center; and Renaissance Park Recycling Center.

**Disposal** – as defined by NCGS means the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste into or on any land or water so that the solid waste or any constituent part of the solid waste may enter the environment or be emitted into the air or discharged into any waters, including ground waters.

**Fiscal Year (FY)** – means the time period of July 1 of the previous year through June 30 of the stated year.
**Food Scrap** – means any form of waste derived from food materials. Typically consists of vegetable peeling, meat scraps, excess or spoiled prepared food, and other discards from domestic or commercial kitchens, and can be referred to as ‘food waste’.

**Land Clearing Debris** – as defined by NCGS, means solid waste which is generated solely from land-clearing activities, including stumps, limbs, leaves, and untreated wood.

**Litter** – means trash, such as paper, cans, and bottles that is left lying in an open or public place; objects strewn or scattered about; scattered rubbish.

**LUESA** - refers to the Land Use & Environmental Services Agency of Mecklenburg County.

**Material Recovery Facility (MRF)** – means a facility where recyclables are sorted into specific categories and processed, or transported to processors, for remanufacturing.

**Mecklenburg County** - the Mecklenburg County Planning Area, which consists of Mecklenburg County (unincorporated area), the City of Charlotte and the Towns of Cornelius, Davidson, Huntersville, Matthews, Mint Hill, and Pineville.

**Multi-Family Residential** – includes residential buildings or complexes that have dumpster or detachable container service.

**Municipal and Municipalities** – for the purpose of this Plan, refers to the incorporated areas of the County, including the City of Charlotte and the Towns of Cornelius, Davidson, Huntersville, Matthews, Mint Hill and Pineville.

**Municipal Solid Waste (MSW)** – 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. Municipal solid waste does not include hazardous waste, sludge, industrial waste managed in a solid waste management facility owned and operated by the generator of the industrial waste for management of that waste, or solid waste from mining or agricultural operations.

**NCDENR** – is an acronym for the North Carolina Department of Environment and Natural Resources.

**NCGS** – is an acronym for the North Carolina General Statutes.

**Organics** – means material containing carbon compounds and typically originating from plant or animal sources, which may be degraded by other living organisms.

**Planning Area** – includes the jurisdictions of Mecklenburg County, the City of Charlotte, and the Towns of Cornelius, Davidson, Huntersville, Mint Hill, Matthews and Pineville.

**Product Stewardship** – refers to a concept whereby environmental protection centers on the product itself, and everyone involved in the lifespan of the product is called upon to take up responsibility to reduce its environmental impact.

**Product Stewardship Institute (PPI)** – refers to 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.

**Recycling** — as defined by NCGS, means any process by which solid waste, or materials which would otherwise become solid waste, are collected, separated, or processed, and reused or returned to use in the form of raw materials or products.

**Reuse** – as defined by NCGS, means a process by which resources are reused or rendered usable.

**Single-Family Residential** - includes homes that have bins, cans, or carts picked up at the curb. These are typically detached homes or buildings.

**Single-stream Recycling** – means a system in which all paper fibers, plastics, metals, and other containers are mixed in a collection truck, instead of being sorted into separate commodities by the resident and handled separately throughout the collection process. In single-stream recycling, both the collection and processing systems are designed to handle this fully commingled mixture of recyclables, with materials being separated for reuse at a materials recovery facility.

**Solid Waste** - as defined by NCGS, means any hazardous or nonhazardous garbage, refuse or sludge from a waste treatment plant, water supply treatment plant or air pollution control facility, domestic sewage and sludges generated by the treatment thereof in sanitary sewage collection, treatment and disposal systems, and other material that is either discarded or is being accumulated, stored or treated prior to being discarded, or has served its original intended use and is generally discarded, including solid, liquid, semisolid or contained gaseous material resulting from industrial, institutional, commercial and agricultural operations, and from community activities.

In order to promote the notion that waste is not waste until it is wasted, the term ‘discarded materials' has been used in certain instances in the Plan.

**Source Reduction** – means the practice of minimizing waste through responsible product design, production, purchasing and consumerism, to reduce or prevent the generation of waste.

**Source Separation Ordinance (SSO)** - Mecklenburg County ordinance to require the source separation of designated materials from the commercial waste stream.

**Waste Diversion** – means the combined efforts of source reduction, reuse, and recycling practices.

**Yard Trash** - as defined by NCGS, means solid waste consisting solely of vegetative matter resulting from landscaping maintenance such as brush, grass, and tree limbs.

**Yard Trimmings** – this term includes Yard Trash and Yard Waste, and is used in the Plan to promote the notion that waste is not waste until it is wasted.

**Yard Waste** – means the part of solid waste composed of grass clippings, leaves, twigs, branches, and other vegetative refuse. Yard waste can be “Yard Trash” or “Land-Clearing Debris”.
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Appendix B

RESOLUTIONS FROM PARTICIPATING MUNICIPALITIES
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MECKLENBURG COUNTY
BOARD OF COMMISSIONERS
RESOLUTION APPROVING THE MECKLENBURG COUNTY
SOLID WASTE MANAGEMENT PLAN 2012-2022

WHEREAS, committed community planning for solid waste will protect public health and the environment, provide for an improved solid waste management system, better utilize our natural resources, and control the cost of solid waste management; and

WHEREAS, N.C. General Statute 130A-309.09A(b) requires each unit of local government, either individually or in cooperation with other units of local government, to develop a 10-year comprehensive solid waste management plan; and

WHEREAS, the 2012 Mecklenburg County Ten-Year Solid Waste Management Plan (the “Plan”) represents the fifth update drafted under the current statute and encompasses all eight local jurisdictions within the County, including the City of Charlotte, the Towns of Cornelius, Davidson, Huntersville, Matthews, Mint Hill, Pineville and Mecklenburg County; and

WHEREAS, the Waste Management Advisory Board has recommended revisions to the Plan in the attached document entitled “Mecklenburg County Solid Waste Management Plan 2012-2022”; now, therefore, be it

RESOLVED that the Mecklenburg County Board of Commissioners hereby approves the revisions to the Plan as outlined in the attached document entitled “Mecklenburg County Solid Waste Management Plan, 2012-2022”.

ADOPTED by the Mecklenburg County Board of Commissioners during regular session on the 1st day of May, 2012.

APPROVED AS TO FORM:

County Attorney

Clerk to the Board

(SEAL)
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15. Mecklenburg County 10 Year Solid Waste Management Plan

**Action:** Adopt a resolution approving the Mecklenburg County 10 Year Solid Waste Management Plan dated July 1, 2012.

**Staff Resources:** Victoria Johnson, Solid Waste Services
Bruce Gledhill, Mecklenburg County Solid Waste Services

**Ten Year Plan 2012-2022**

- The Mecklenburg County 10 Year Solid Waste Management Plan (Plan) proposes policies, programs, and infrastructure to meet the solid waste management needs of the City and County and includes short and long term waste reduction goals.
- Local governments included within this Plan are Mecklenburg County and the cities of Charlotte, Cornelius, Davidson, Huntersville, Matthews, Mint Hill and Pineville.
- Adoption of the Plan fulfills a State requirement. Adoption indicates the participating entities’ intent to review the proposals but is not a commitment to implementation. Implementation of the proposals would require policy changes and have budgetary implications.
- Charlotte waste management policies and services are driven by the Council-adopted Environment Focus Area Plan, industry best practices, cost-benefit analysis and available resources.
- The 10-Year Plan emphasizes waste reduction programs in the residential, commercial and construction & demolition (C&D) waste sectors. If the recommended proposals were implemented in their entirety, it is estimated there would be a 58% overall reduction in per capita waste disposal by FY2021 compared to FY1999. As of FY2012, of total waste disposed, Commercial generates 47%; Residential 35%; Construction & Demolition 18%.
- Residential proposals include prohibiting the placement of banned items in garbage containers and requiring all multifamily complexes to provide recycling services for residents.
- Commercial proposals include expanding the mandatory recycling ordinance and placing recycling containers everywhere there are public trash containers.
- Construction & Demolition proposals include implementing a mandatory C&D recycling ordinance and expanding education, outreach, and enforcement.
- On May 1, 2012, the Mecklenburg County Board of Commissioners adopted Solid Waste Management Plan 2012-2022.

**Public Input**

- The Plan steering committee had representatives from each local government, CMS, UNC-Charlotte and the Charlotte Chamber of Commerce. The County-appointed Waste Management Advisory Board also participated in Plan development.
- Direct input was obtained from citizens and businesses during charrettes (focus groups) convened on January 26-28, 2012. Public outreach was conducted through social media, email blasts, City and County websites.

**Background**

- Solid Waste Management Act of 1989, NCGS 130A-309.09A (b), requires each unit of local government, either individually or in cooperation with other units of
local government, to develop a 10 year comprehensive solid waste management plan.
- The State mandated in 1996 that the Plan be updated every three years. The 1997-2007 Plan was the first update. The 2012-2022 Plan is the fifth update.
- The Solid Waste Interlocal Agreement with Mecklenburg County requires the County to prepare and submit the Plan to the North Carolina Department of Environment and Natural Resources by June 30, 2012.

Attachment 14
Resolution
Executive Summary Mecklenburg County Solid Waste Management Plan 2012-2022
TOWN OF CORNELIUS
BOARD OF COMMISSIONERS
RESOLUTION ADOPTING THE MECKLENBURG COUNTY
10-YEAR SOLID WASTE MANAGEMENT PLAN
DATED JULY 1, 2012

WHEREAS, better planning for solid waste will help protect public health and the environment, provide for an improved solid waste management system, better utilize our natural resources, and control the cost of solid waste management; and

WHEREAS, N.C. General Statute 130A-309.09A(b) requires each unit of local government, either individually or in cooperation with other units of local government, to develop a 10-year comprehensive solid waste management plan; and

WHEREAS, the Town of Cornelius has approved the Mecklenburg County Solid Waste Plan, dated July 1, 2012.

NOW THEREFORE IT BE RESOLVED that the Town of Cornelius Board of Commissioners hereby approves the “Mecklenburg County Solid Waste Management Plan, 2012-2022” dated July 1, 2012.

Adopted this 4th day of June, 2012.

Jeffery P. Tate, Mayor

ATTEST:

Lori A. Pearson, Town Clerk

APPROVED AS TO FORM:

William L. Brown, Town Attorney
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RESOLUTION 2012-15
APPROVING THE MECKLENBURG COUNTY
SOLID WASTE MANAGEMENT PLAN 2012-2022

WHEREAS, committed community planning for solid waste will protect public
health and the environment, provide for an improved solid waste management system,
better utilize our natural resources, and control the cost of solid waste management; and

WHEREAS, N.C. General Statute 130A-309.09A(b) requires each unit of local
government, either individually or in cooperation with other units of local government, to
develop a 10-year comprehensive solid waste management plan; and

WHEREAS, the Town of Davidson approved the Mecklenburg County Solid Waste
Management Plan, dated September, 1988 (the “Plan”); and

WHEREAS, the Town of Davidson approved changes to the Plan in documents
2003, 2006 and 2009; and

WHEREAS, the Mecklenburg County Board of Commissioners on May 1, 2012
approved a revised Plan entitled “Mecklenburg County Solid Waste Management Plan
2012-2022”; now, therefore, be it

NOW THEREFORE, BE IT RESOLVED that the Davidson Board of Commissioners
hereby approves the Mecklenburg County Solid Waste Management Plan, 2012-2022.

ADOPTED by the Davidson Board of Commissioners during regular session on the
15th day of May, 2012.

[Signature]
Mayor
John M. Woods

ATTEST:
[Signature]
Town Clerk
Heather Birch
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TOWN OF HUNTERSVILLE
RESOLUTION APPROVING THE MECKLENBURG COUNTY
SOLID WASTE MANAGEMENT PLAN 2012-2022

WHEREAS, committed community planning for solid waste will protect public health and the environment, provide for an improved solid waste management system, better utilize our natural resources, and control the cost of solid waste management; and

WHEREAS, N.C. General Statute 130A-309.09A(b) requires each unit of local government, either individually or in cooperation with other units of local government, to develop a 10-year comprehensive solid waste management plan; and

WHEREAS, the Town of Huntersville approved the Mecklenburg County Solid Waste Management Plan, dated September, 1988 (the “Plan”); and


WHEREAS, the Mecklenburg County Board of Commissioners on May 1, 2012 approved a revised Plan entitled “Mecklenburg County Solid Waste Management Plan 2012-2022”; now, therefore, be it

RESOLVED that the Huntersville Board of Commissioners hereby approves the Mecklenburg County Solid Waste Management Plan, 2012-2022.

ADOPTED by the Huntersville Board of Commissioners during regular session on the 21st day of May 2012.

APPROVED AS TO FORM:

Town Attorney

Town Clerk

(SEAL)
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TOWN OF MATTHEWS
RESOLUTION APPROVING THE MECKLENBURG COUNTY
SOLID WASTE MANAGEMENT PLAN 2012-2022

WHEREAS, committed community planning for solid waste will protect public health and the environment, provide for an improved solid waste management system, better utilize our natural resources, and control the cost of solid waste management; and

WHEREAS, N.C. General Statute 130A-309.09A(b) requires each unit of local government, either individually or in cooperation with other units of local government, to develop a 10-year comprehensive solid waste management plan; and

WHEREAS, the Town of Matthews entered into a Solid Waste Interlocal Agreement with Mecklenburg County on June 30, 2008 which, among other responsibilities, calls for the County to draft and submit the required Solid Waste Management Plan; and

WHEREAS, the Town of Matthews approved the Mecklenburg County Solid Waste Management Plan, dated July 1, 2009 (the “Plan”); and

WHEREAS, the Mecklenburg County Board of Commissioners on May 1, 2012 approved a revised Plan entitled “Mecklenburg County Solid Waste Management Plan 2012-2022”; now, therefore, be it

RESOLVED that the Town of Matthews Board of Commissioners hereby approves the Mecklenburg County Solid Waste Management Plan, 2012-2022.

ADOPTED by the Matthews Board of Commissioners during regular session on the 11th day of June 2012.

Jill Plimann
Town Clerk

[Signature]
Mayor

(SEAL)
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TOWN OF MINT HILL
RESOLUTION APPROVING THE MECKLENBURG COUNTY
SOLID WASTE MANAGEMENT PLAN 2012-2022

WHEREAS, committed community planning for solid waste will protect public health and
the environment, provide for an improved solid waste management system, better utilize our natural
resources, and control the cost of solid waste management; and

WHEREAS, N.C. General Statute 130A-309.09A(b) requires each unit of local government,
either individually or in cooperation with other units of local government, to develop a 10-year
comprehensive solid waste management plan; and

WHEREAS, the Town of Mint Hill approved the Mecklenburg County Solid Waste
Management Plan, dated September, 1988 (the “Plan”); and

WHEREAS, the Town of Mint Hill approved changes to the Plan in documents entitled
2009; and

WHEREAS, the Mecklenburg County Board of Commissioners on May 1, 2012 approved
a revised Plan entitled “Mecklenburg County Solid Waste Management Plan 2012-2022”; now,
therefore, be it

RESOLVED that the Mint Hill Board of Commissioners hereby approves the Mecklenburg

ADOPTED by the Mint Hill Board of Commissioners during regular session on the 24th day
of May 2012.

APPROVED AS TO FORM:

Town Attorney

[Signature]

[Signature]
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RESOLUTION NO. 2012-03
TOWN OF PINEVILLE
RESOLUTION APPROVING THE MECKLENBURG COUNTY
SOLID WASTE MANAGEMENT PLAN 2012-2022

WHEREAS, committed community planning for solid waste will protect public health and the environment, provide for an improved solid waste management system, better utilize our natural resources, and control the cost of solid waste management; and

WHEREAS, N.C. General Statute 130A-309.09A(b) requires each unit of local government, either individually or in cooperation with other units of local government, to develop a 10-year comprehensive solid waste management plan; and

WHEREAS, the Town of Pineville approved the Mecklenburg County Solid Waste Management Plan, dated September, 1988 (the “Plan”); and


WHEREAS, the Mecklenburg County Board of Commissioners on May 1, 2012 approved a revised Plan entitled “Mecklenburg County Solid Waste Management Plan 2012-2022”; now, therefore, be it

RESOLVED that the Pineville Town Council hereby approves the Mecklenburg County Solid Waste Management Plan, 2012-2022.

ADOPTED by the Pineville Town Council during regular session on the 8th day of November 2012.

APPROVED AS TO FORM:

Town Attorney E.F. Parnell

Town Clerk Barbara Monticello

(SEAL)
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Appendix C

NOTICE OF PUBLIC MEETING
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The Charlotte Observer Publishing Co.
Charlotte, NC
North Carolina } ss
Mecklenburg County

MECK NEIGHBORS CITY

SPITFIRE MKTG MECK CO.
DIANE
5710 HIGH POINT RD STE256
GREENSBORO NC 27407

REFERENCE: 40513330 X
009411/6643030 PUBLIC HEARING TO RE

Before the undersigned, a Notary Public of said County and State, duly authorized to administer oaths affirmations, etc., personally appeared, being duly sworn or affirmed according to law, doth depose and say that he/she is a representative of The Charlotte Observer Publishing Company, a corporation organized and doing business under the laws of the State of Delaware, and publishing a newspaper known as The Charlotte Observer in the city of Charlotte, County of Mecklenburg, and State of North Carolina and that as such he/she is familiar with the books, records, files, and business of said Corporation and by reference to the files of said publication, the attached advertisement was inserted. The following is correctly copied from the books and files of the aforesaid Corporation and Publication.

PUBLISHED ON: 03/11

AD SPACE: 26 LINE
FILED ON: 03/14/12

NAME: Joanne A. Cacau TITLE: Ad. Clerk
DATE: 03/14/2012

In Testimony Whereof I have hereunto set my hand and affixed my seal, the day and year aforesaid.

Notary:

My Commission Expires: May 27, 2016
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Appendix D

WASTE REDUCTION GOAL SHEET
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WASTE REDUCTION GOAL SHEET
NC LOCAL GOVERNMENT TEN YEAR SOLID WASTE MANAGEMENT PLAN

Local Government Name: Mecklenburg County

Previously established waste reduction goal: 35 %

After considering your government’s current and projected solid waste activities, resources, population, and economic growth have you reached your previously established goal? □ Yes □ No

Establish a new waste reduction goal: 58 %

WASTE REDUCTION CALCULATION
To provide 10 years of solid waste management planning, as per G.S. 130A-309.09A(b), waste reduction goals need to be updated. Use the following chart to determine the tonnage needed to be diverted from landfills in order to reach the new waste reduction goal.

<table>
<thead>
<tr>
<th>CALCULATION</th>
<th>FY 2021/2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Baseline year per capita disposal rate</td>
<td>1.96</td>
</tr>
<tr>
<td>(FY 1991-1992 unless alternate approved by Section)</td>
<td></td>
</tr>
<tr>
<td>2. Percent waste reduction goal</td>
<td>58 %</td>
</tr>
<tr>
<td>3. Targeted per capita disposal rate</td>
<td>0.82</td>
</tr>
<tr>
<td>(Subtract line 2 from 1.0 and multiply result by line 1)</td>
<td></td>
</tr>
<tr>
<td>4. Estimated population in the new waste reduction goal year</td>
<td>1,114,398</td>
</tr>
<tr>
<td>(Available at Office of State Budget and Management website: Projected Annual County Population Totals 2010-2019)</td>
<td></td>
</tr>
<tr>
<td>5. Projected tonnage for disposal at baseline disposal rate</td>
<td>2,184,220</td>
</tr>
<tr>
<td>(Multiply line 1 by line 4)</td>
<td></td>
</tr>
<tr>
<td>6. Targeted annual tonnage for disposal</td>
<td>913,806</td>
</tr>
<tr>
<td>(Multiply line 3 by line 4)</td>
<td></td>
</tr>
<tr>
<td>7. Targeted annual tonnage to reduce</td>
<td>1,270,414</td>
</tr>
<tr>
<td>(Subtract line 6 from line 5)</td>
<td></td>
</tr>
</tbody>
</table>


WASTE REDUCTION PLAN
Given the targeted annual tonnage amount to be reduced, explain how you plan to reach the goal:

The County intends to reach the 58% goal through a combination of improving upon and expanding source reduction and recycling programs, continuing to take steps to foster food scraps diversion, and more aggressively pursuing C&D recycling. The 2012 SWMP document describes these strategies in greater detail. In summary, the diversion model developed for this update estimates diversion of: 376,353 tons by recycling; 65,964 tons by source reduction; 107,869 tons by organics diversion, for a total of an additional 550,186 tons diverted with the new recommended strategies. The remaining 720,228 tons (subtracting 550,186 from line 7 above) of the overall targeted tonnage to reduce is addressed through estimating that per capita disposal will not return to 1998/1999 levels due to economy, and acknowledging progress already made in diversion in the County through existing programs.
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Appendix E

PLANNING ELEMENT SHEETS
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PLANNING ELEMENTS
NC LOCAL GOVERNMENT 10 YEAR SOLID WASTE MANAGEMENT PLAN
PLANNING YEARS 2012 through 2022

Check appropriate element

- Reduction
- Transfer outside geographic area
- Composting and Mulching
- Disaster Response
- Education with community & through schools
- Incineration with/without energy recovery
- Illegal Disposal/Litter
- Collection of Computer Equipment and Televisions
- Management of Abandoned Manufactured Homes
- Disposal
- Purchasing Recycled Products
- Recycling and Reuse
- Collection
- Special Waste

<table>
<thead>
<tr>
<th>COMPLETED ACTIONS</th>
<th>INCOMPLETE ACTIONS</th>
<th>NEW / REVISED ACTIONS</th>
</tr>
</thead>
</table>

**KEY ACTIONS**

- Chapter 3 (Source Reduction and Reuse), Table 3.1 shows key actions identified in the previous plan. Some completed actions included researching food diversion in other communities and sharing EPPG study results with municipalities. See Table 3.1 for a complete list of previously identified key actions and their status.

- Table 3.1 shows the status of key actions. Status of each action is noted as: complete, continuous, incomplete, or decided against.

- The continuous status is reflective of the nature of the key actions, and indicate that many of the efforts should be on-going efforts. Incomplete status indicates that efforts have been initiated but are not yet complete. Items with a status of 'decided against' were not initiated, and a footnote describes the reason for the decision.

**NEW / REVISED ACTIONS**

- Chapter 3, Section 3.3.6 of the plan outlines recommendations for residential source reduction efforts.

- Chapter 3, Section 3.4.6 of the plan outlines recommendations for commercial source reduction efforts.

<table>
<thead>
<tr>
<th>DATE DUE</th>
<th>ESTIMATED TONS DIVERTED IN 10TH YEAR</th>
</tr>
</thead>
</table>

- Recommended strategies are broken down into short term (through 2017) and long term (through 2022).

- Per diversion model results, it is estimated that an additional 65,964 tons will be diverted through source reduction efforts. Please see Appendix: F Diversion Model Summary of Results.
**PLANNING ELEMENTS**

**NC LOCAL GOVERNMENT 10 YEAR SOLID WASTE MANAGEMENT PLAN**

**PLANNING YEARS 2012 through 2022**

**Check appropriate element**

- [ ] Reduction
- [X] Transfer outside geographic area
- [ ] Composting and Mulching
- [ ] Disaster Response
- [ ] Education with community & through schools
- [ ] Incineration with/without energy recovery
- [ ] Illegal Disposal/Litter
- [ ] Collection of Computer Equipment and Televisions
- [ ] Management of Abandoned Manufactured Homes
- [ ] Disposal
- [ ] Purchasing Recycled Products
- [ ] Recycling and Reuse
- [ ] Collection
- [ ] Special Waste

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<tbody>
<tr>
<td><strong>KEY ACTIONS</strong></td>
<td><strong>KEY ACTIONS</strong></td>
<td><strong>WHY INCOMPLETE?</strong></td>
</tr>
<tr>
<td>Chapter 7 (MSW Collection and Disposal), Table 7.7 shows a list of landfills accepting County waste, and Table 7.8 shows a list of transfer stations accepting County waste. Section 7.5 describes the agreement the County has with the Speedway Landfill in Cabarrus County for accepting residential waste. There were no key actions identified in the previous plan specific to transferring waste outside the geographic area.</td>
<td>None</td>
<td>N/A</td>
</tr>
</tbody>
</table>
PLANNING ELEMENTS
NC LOCAL GOVERNMENT 10 YEAR SOLID WASTE MANAGEMENT PLAN

Check appropriate element
☐ Reduction
☐ Transfer outside geographic area
☒ Composting and Mulching
☐ Disaster Response
☐ Education with community & through schools
☐ Incineration with/without energy recovery
☐ Illegal Disposal/Litter
☐ Collection of Computer Equipment and Televisions
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☐ Purchasing Recycled Products
☐ Recycling and Reuse
☐ Collection
☐ Special Waste

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<td>WHY INCOMPLETE?</td>
<td>KEY ACTIONS</td>
<td></td>
</tr>
<tr>
<td>Chapter 5 (Organics), Table 5.2 of the plan shows key actions identified in the previous plan. Site change evaluations to Compost Central were recommended.</td>
<td>A master plan for the Compost Central site has been completed.</td>
<td>N/A</td>
<td>Chapter 5, Sections 5.2.10, and 5.3.10 describe recommendations for residential organics collection. Sections 5.4.10 and 5.5.10 describe recommendations for commercial organics collection. Sections 5.6.5 and 5.7.5 describe recommendations for organics infrastructure.</td>
<td>Recommended strategies are broken down into short term (through 2017) and long term (through 2022).</td>
</tr>
</tbody>
</table>
# PLANNING ELEMENTS
## NC LOCAL GOVERNMENT 10 YEAR SOLID WASTE MANAGEMENT PLAN

### PLANNING YEARS 2012 through 2022

#### Check appropriate element
- Reduction
- Transfer outside geographic area
- Composting and Mulching
- Disaster Response
- Education with community & through schools
- Incineration with/without energy recovery
- Illegal Disposal/Litter
- Collection of Computer Equipment and Televisions
- Management of Abandoned Manufactured Homes
- Disposal Purchasing Recycled Products
- Recycling and Reuse
- Collection
- Special Waste

### COMPLETED ACTIONS

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<th>INCOMPLETE ACTIONS</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Chapter 11 (Disaster Debris Management and Diversion) describes the County's approach to management of disaster debris. No key actions were identified in the previous plan.</td>
<td>None</td>
<td>No new changes to disaster management were deemed necessary. Appendix G of the plan provides relevant emergency management information.</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>DATE DUE</th>
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</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
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</table>
### COMPLETED ACTIONS

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Chapter 3 (Source Reduction and Reuse), Chapter 4 (Recycling), Chapter 5 (Organics), Chapter 6 (C&amp;D), Chapter 8 (Litter) each include elements of education and outreach. Tables 3.1, 4.1, 5.2, 6.2 and 8.2, respectively, describe the key actions identified in the previous plan.</td>
</tr>
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</table>

### INCOMPLETE ACTIONS

<table>
<thead>
<tr>
<th>KEY ACTIONS</th>
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</thead>
<tbody>
<tr>
<td>Tables 3.1, 4.1, 5.2, 6.2, and 8.2 show the status of key actions. Status of each action is noted as: complete, continuous, incomplete, or decided against.</td>
</tr>
</tbody>
</table>

<table>
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<tr>
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<tr>
<td>The continuous status is reflective of the nature of the key actions, and indicate that many of the efforts should be on-going. Incomplete indicates that efforts have been initiated but are not yet complete. Items with a status of ‘decided against’ were not initiated, and a footnote describes the reason for the decision.</td>
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### NEW / REVISED ACTIONS

<table>
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<tr>
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<tbody>
<tr>
<td>Each of the recommendations sections listed below contain elements of education and outreach.</td>
</tr>
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<tbody>
<tr>
<td>Recommended strategies are broken down into short term (through 2017) and long term (through 2022).</td>
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</table>

<table>
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<tr>
<th>ESTIMATED TONS DIVERTED IN 10TH YEAR</th>
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<tbody>
<tr>
<td>See Appendix: F Diversion Model Summary of Results.</td>
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</tbody>
</table>
# PLANNING ELEMENTS

**NC LOCAL GOVERNMENT 10 YEAR SOLID WASTE MANAGEMENT PLAN**

**PLANNING YEARS 2012 through 2022**

## Check appropriate element

- [ ] Reduction
- [ ] Transfer outside geographic area
- [x] Composting and Mulching
- [ ] Disaster Response
- [ ] Education with community & through schools
- [ ] Illegal Disposal/Litter
- [ ] Collection of Computer Equipment and Televisions
- [ ] Management of Abandoned Manufactured Homes
- [ ] Disposal of Purchasing Recycled Products
- [ ] Recycling and Reuse
- [ ] Collection of Special Waste

## COMPLETED ACTIONS

### KEY ACTIONS

Chapter 7 (MSW Collection and Disposal), Table 7.1 shows key actions identified in the previous plan update. There were no key actions identified in the previous plan related to incineration.

### INCOMPLETE ACTIONS

- None
- N/A

### WHY INCOMPLETE?

- N/A

## NEW / REVISED ACTIONS

### KEY ACTIONS

Chapter 7, Section 7.5.2 provides recommendations for MSW disposal, including continuing to monitor and assess alternative technologies. However, there are no identified needs, therefore no alternatives to current disposal practices are recommended.

Section 7.6 provides an overview of alternative technologies that were discussed as part of a charrette held during the plan development process. Chapter 2 provides an overview of the charrette session on alternative technologies.

### DATE DUE

- N/A

### ESTIMATED TONS DIVERTED IN 10TH YEAR

- N/A
PLANNING ELEMENTS
NC LOCAL GOVERNMENT 10 YEAR SOLID WASTE MANAGEMENT PLAN
PLANNING YEARS 2012 through 2022

Check appropriate element

- [ ] Reduction
- [ ] Transfer outside geographic area
- [ ] Composting and Mulching
- [ ] Disaster Response
- [ ] Education with community & through schools
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</table>
| Chapter 8 (Litter), Table 8.2 provides an overview of key actions identified in the previous plan and the status of those key items. | As shown in Table 8.2, key actions identified in the previous plan update are shown as 'complete', 'continuous' 'incomplete', or 'decided against'. See Table 8.2 the plan for a complete list of previously identified key actions and their status. | The continuous status is reflective of the nature of the key actions, and indicate that many of the efforts should be on-going efforts. Incomplete status indicates that efforts have been initiated but are not yet complete. Items with a status of 'decided against' were not initiated, and a footnote describes the reason for the decision. | Section 8.7 outlines the recommendations for litter management. | Recommended strategies are broken down into short term (through 2017) and long term (through 2022). | See Appendix: F Diversion Model Summary of Res...
**PLANNING ELEMENTS**
**NC LOCAL GOVERNMENT 10 YEAR SOLID WASTE MANAGEMENT PLAN**
**PLANNING YEARS 2012 through 2022**

Check appropriate element

- [ ] Reduction
- [ ] Transfer outside geographic area
- [ ] Composting and Mulching
- [ ] Disaster Response
- [ ] Education with community & through schools
- [ ] Incineration with/without energy recovery
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</tr>
<tr>
<td>Chapter 4 (Recycling), Section 4.4.2.2 describes electronics collected and processed by the County. Section 4.5.1.4 describes the items accepted at County Recycling Drop-off Centers, including scrap electronics. Table 4.1 includes key actions identified in the previous plan, including expanding services at the County Drop-off Centers.</td>
<td>Expanding service at County Recycling Drop-off Centers is shown as 'continuous'.</td>
<td>The continuous status is reflective of the nature of the key action, and indicate that the effort is on-going.</td>
</tr>
<tr>
<td><strong>KEY ACTIONS</strong></td>
<td><strong>DATE DUE</strong></td>
<td><strong>ESTIMATED TONS DIVERTED IN 10TH YEAR</strong></td>
</tr>
<tr>
<td>Chapter 4, Section 4.5.4 outlines recommendations for recycling infrastructure, including the promotion and expansion of existing infrastructure.</td>
<td>Chapter 4, Section 4.5.4 outlines recommendations for recycling infrastructure, including the promotion and expansion of existing infrastructure.</td>
<td>Recommended strategies are broken down into short term (through 2017) and long term (through 2022).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Please see Appendix: F Diversion Model Summary of Results.</td>
</tr>
</tbody>
</table>
PLANNING ELEMENTS
NC LOCAL GOVERNMENT 10 YEAR SOLID WASTE MANAGEMENT PLAN
PLANNING YEARS 2012 through 2022

Check appropriate element
☐ Reduction
☐ Transfer outside geographic area
☐ Composting and Mulching
☐ Disaster Response
☐ Education with community & through schools
☐ Incineration with/without energy recovery
☐ Illegal Disposal/Litter
☐ Collection of Computer Equipment and Televisions
☐ Management of Abandoned Manufactured Homes
☐ Disposal
☐ Purchasing Recycled Products
☐ Recycling and Reuse
☐ Collection
☐ Special Waste

<table>
<thead>
<tr>
<th>COMPLETED ACTIONS</th>
<th>INCOMPLETE ACTIONS</th>
<th>NEW / REVISED ACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>KEY ACTIONS</td>
<td>KEY ACTIONS</td>
<td>WHY INCOMPLETE?</td>
</tr>
<tr>
<td>It was determined abandoned manufactured homes were not an issue in the County during the previous plan update. Therefore, no key actions were identified.</td>
<td>None</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>It was again determined that abandoned manufactured homes are not currently an issue in the County. As stated in Chapter 7, Section 7.7, the County will continue to monitor the need for a program to manage abandoned manufactured homes.</td>
<td>N/A</td>
</tr>
</tbody>
</table>
PLANNING ELEMENTS
NC LOCAL GOVERNMENT 10 YEAR SOLID WASTE MANAGEMENT PLAN

PLANNING YEARS 2012 through 2022

Check appropriate element

☐ Reduction
☐ Transfer outside geographic area
☐ Composting and Mulching
☐ Disaster Response
☐ Education with community & through schools
☐ Incineration with/without energy recovery
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☒ Disposal
☒ Purchasing Recycled Products
☐ Recycling and Reuse
☐ Collection
☐ Special Waste

<table>
<thead>
<tr>
<th>COMPLETED ACTIONS</th>
<th>INCOMPLETE ACTIONS</th>
<th>NEW / REVISED ACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>KEY ACTIONS</td>
<td>KEY ACTIONS</td>
<td>WHY INCOMPLETE?</td>
</tr>
<tr>
<td>Chapter 7 (MSW Collection and Disposal), Table 7.1 describes the key actions identified in the previous plan. There were no key actions identified in the previous plan specific to disposal.</td>
<td>None.</td>
<td>N/A</td>
</tr>
</tbody>
</table>
### PLANNING ELEMENTS
**NC LOCAL GOVERNMENT 10 YEAR SOLID WASTE MANAGEMENT PLAN**

**CHECK APPROPRIATE ELEMENT**

- Reduction
- Transfer outside geographic area
- Composting and Mulching
- Disaster Response
- Education with community & through schools
- Incineration with/without energy recovery
- Illegal Disposal/Litter
- Collection of Computer Equipment and Televisions
- Management of Abandoned Manufactured Homes
- Disposal
- Purchasing Recycled Products
- Recycling and Reuse
- Collection
- Special Waste

**PLANNING YEARS 2012 through 2022**

---

<table>
<thead>
<tr>
<th>COMPLETED ACTIONS</th>
<th>INCOMPLETE ACTIONS</th>
<th>NEW / REVISED ACTIONS</th>
<th>ESTIMATED TONS DIVERTED IN 10TH YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>KEY ACTIONS</strong></td>
<td><strong>KEY ACTIONS</strong></td>
<td><strong>WHY INCOMPLETE?</strong></td>
<td><strong>KEY ACTIONS</strong></td>
</tr>
<tr>
<td>Chapter 3 (Source Reduction and Reuse), Table 3.1 outlines key actions identified in the previous plan. Several of these items relate to purchasing recycled products.</td>
<td>Table 3.1 show the status of key actions. Status of each action is noted as: complete, continuous, incomplete, or decided against.</td>
<td>The continuous status is reflective of the nature of the key actions, and indicate that many of the efforts should be on-going efforts. Incomplete status indicates that efforts have been initiated but are not yet complete. Items with a status of 'decided against' were not initiated, and a footnote describes the reason for the decision.</td>
<td>Section 3.3.6 of the plan outlines recommendations for residential source reduction efforts, which contain elements of purchasing recycled products.</td>
</tr>
</tbody>
</table>
### PLANNING ELEMENTS
#### NC LOCAL GOVERNMENT 10 YEAR SOLID WASTE MANAGEMENT PLAN

**PLANNING YEARS 2012 through 2022**

Check appropriate element

- [ ] Reduction
- [ ] Transfer outside geographic area
- [ ] Composting and Mulching
- [ ] Disaster Response
- [ ] Education with community & through schools
- [ ] Illegal Disposal/Litter
- [ ] Collection of Computer Equipment and Televisions
- [ ] Management of Abandoned Manufactured Homes
- [ ] Disposal
- [ ] Purchasing Recycled Products
- [X] Recycling and Reuse
- [ ] Collection
- [ ] Special Waste

### COMPLETED ACTIONS

**KEY ACTIONS**

Chapter 3 (Source Reduction and Reuse), Table 3.1 and Chapter 4 (Recycling) Table 4.1, list key actions identified in the previous plan.

### INCOMPLETE ACTIONS

**KEY ACTIONS**

Tables 3.1 and 4.1 show the status of key actions. Status of each action is noted as: complete, continuous, incomplete, or decided against.

**WHY INCOMPLETE?**

The continuous status is reflective of the nature of the key actions, and indicate that many of the efforts should be on-going efforts. Incomplete status indicates that efforts have been initiated but are not yet complete. Items with a status of 'decided against' were not initiated, and a footnote describes the reason for the decision.

### NEW / REVISED ACTIONS

**KEY ACTIONS**

Chapter 3, Section 3.3.6 of the plan outlines recommendations for residential source reduction efforts; Section 3.4.6 of the Plan outlines recommendations for commercial source reduction efforts.

Chapter 4, Section 4.2.12 describes recommendations for single family recycling; Section 4.3.11 describes recommendations for multi-family recycling; and Section 4.4.12 describes recommendations for commercial recycling.

**DATE DUE**

Recommended strategies are broken down into short term (through 2017) and long term (through 2022).

**ESTIMATED TONS DIVERTED IN 10TH YEAR**

Per diversion model results, it is estimated that an additional 376,353 tons will be diverted through recycling efforts. Please see Appendix: F Diversion Model Summary of Results.
PLANNING ELEMENTS
NC LOCAL GOVERNMENT 10 YEAR SOLID WASTE MANAGEMENT PLAN
PLANNING YEARS 2012 through 2022

Check appropriate element
☐ Reduction
☐ Transfer outside geographic area
☐ Composting and Mulching
☐ Disaster Response
☐ Education with community & through schools
☐ Incineration with/without energy recovery
☐ Illegal Disposal/Litter
☐ Collection of Computer Equipment and Televisions
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☐ Disposal
☐ Purchasing Recycled Products
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☐ Collection
☐ Special Waste

<table>
<thead>
<tr>
<th>COMPLETED ACTIONS</th>
<th>INCOMPLETE ACTIONS</th>
<th>NEW / REVISED ACTIONS</th>
<th>ESTIMATED TONS DIVERTED IN 10TH YEAR</th>
</tr>
</thead>
</table>
| KEY ACTIONS       | KEY ACTIONS        | WHY INCOMPLETE?        | KEY ACTIONS                        | DATE DUE | ESTIMATED TONS
<p>| Chapter 4 (Recycling), Table 4.1 of the plan shows key actions identified in the previous plan that have been completed including single stream recycling collection and studies related to multi-family recycling. See Table 4.1 in the plan for a complete list of key actions. | Tables 4.1, 5.2, and 7.1 show the status of key actions. Status of each action is noted as: complete, continuous, incomplete, or decided against. The continuous status is reflective of the nature of the key actions, and indicate that many of the efforts should be on-going efforts. Incomplete status indicates that efforts have been initiated but are not yet complete. Items with a status of 'decided against' were not initiated, and a footnote describes the reason for the decision. | Chapter 4, Section 4.2.12 describes recommendations for single family recycling. Section 4.3.11 describes recommendations for multi-family recycling; and Section 4.4.12 describes recommendations for commercial recycling. Each are broken down into short term and long term strategies, for the County and the municipalities included in the planning area. | Recommended strategies are broken down into short term (through 2017) and long term (through 2022). | See Appendix: F Diversion Model Summary of Results. |
| Chapter 5 (Organics), Table 5.2 of the plan shows key actions identified in the previous plan, but did not include key actions related to collection. Table 5.5 describes current collection practices for yard trimmings. | Chapter 5, Sections 5.2.10, and 5.3.10 describe recommendations for residential organics collection. Sections 5.4.10 and 5.5.10 describe recommendations for commercial organics collection. | | | |
| Chapter 7 (MSW Collection and Disposal), Table 7.1 of the plan shows key actions identified in the previous plan, including continuous expansion and improvement of collection services. | | | | |</p>
<table>
<thead>
<tr>
<th>COMPLETED ACTIONS</th>
<th>INCOMPLETE ACTIONS</th>
<th>NEW / REVISED ACTIONS</th>
<th>DATE DUE</th>
<th>ESTIMATED TONS DIVERTED IN 10TH YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>KEY ACTIONS</td>
<td>KEY ACTIONS</td>
<td>WHY INCOMPLETE?</td>
<td>KEY ACTIONS</td>
<td>DATE DUE</td>
</tr>
<tr>
<td>Chapter 4 (Recycling), Section 4.5.1.4 describes the items accepted at County Recycling Drop-off Centers, including special wastes. Table 4.1 includes key actions identified in the previous plan, including expanding services at the County Drop-off Centers. Table 4.19 shows contractual relationships for handling these items.</td>
<td>Expanding service at County Recycling Drop-off Centers is shown as 'continuous'. The continuous status is reflective of the nature of the key action, and indicate that the effort is ongoing.</td>
<td>Chapter 3, Section 3.3.6 includes long term strategy for EPR mandates including HHW. Chapter 4, Section 4.5.4 outlines recommendations for recycling infrastructure, including the promotion and expansion of existing infrastructure, and expanding HHW collection where feasible.</td>
<td></td>
<td>Please see Appendix: F Diversion Model Summary of Results.</td>
</tr>
</tbody>
</table>

**PLANNING ELEMENTS**

**NC LOCAL GOVERNMENT 10 YEAR SOLID WASTE MANAGEMENT PLAN**

**PLANNING YEARS 2012 through 2022**

- Reducing
- Transfer outside geographic area
- Composting and Mulching
- Disposal
- Collection
- Purchasing Recycled Products
- Recycling and Reuse
- Instruction Response
- Education with community & through schools
- Incineration with/without energy recovery
- Illegal Disposal/Litter
- Collection of Computer Equipment and Televisions
- Management of Abandoned Manufactured Homes

- Collection
- Special Waste
Appendix F

DIVERSION MODEL SUMMARY RESULTS
### Overall Waste Reduction Goals Through FY 21-22

<table>
<thead>
<tr>
<th></th>
<th>Baseline FY 98-99</th>
<th>Current FY 10-11</th>
<th>Plan Year FY 16-17</th>
<th>Plan Year FY 21-22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>618,853</td>
<td>923,944</td>
<td>1,027,829</td>
<td>1,114,398</td>
</tr>
<tr>
<td>Disposal tons if no new programs</td>
<td>1,214,764</td>
<td>1,089,624</td>
<td>1,356,734</td>
<td>1,471,005</td>
</tr>
<tr>
<td>Disposal tons with proposed short-term programs</td>
<td>N/A</td>
<td>N/A</td>
<td>1,034,619</td>
<td>1,121,760</td>
</tr>
<tr>
<td>Disposal tons with proposed short-term and long-term programs</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>912,332</td>
</tr>
<tr>
<td>Proposed rate (tons/person/year)</td>
<td>1.96</td>
<td>1.18</td>
<td>1.01</td>
<td>0.819</td>
</tr>
<tr>
<td>Rate reduction [percent of baseline year]</td>
<td>N/A</td>
<td>40%</td>
<td>49%</td>
<td>58.3%</td>
</tr>
<tr>
<td>Proposed tons diverted</td>
<td>N/A</td>
<td>N/A</td>
<td>322,115</td>
<td>558,673</td>
</tr>
</tbody>
</table>

### Residential Waste Reduction Goals Through FY 21-22

<table>
<thead>
<tr>
<th></th>
<th>Baseline FY 98-99</th>
<th>Current FY 10-11</th>
<th>Plan Year FY 16-17</th>
<th>Plan Year FY 21-22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>618,853</td>
<td>923,944</td>
<td>1,027,829</td>
<td>1,114,398</td>
</tr>
<tr>
<td>Disposal tons if no new programs</td>
<td>258,558</td>
<td>380,882</td>
<td>474,857</td>
<td>514,852</td>
</tr>
<tr>
<td>Disposal tons with proposed short-term programs</td>
<td>N/A</td>
<td>N/A</td>
<td>364,342</td>
<td>395,029</td>
</tr>
<tr>
<td>Disposal tons with proposed short-term and long-term programs</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>304,875</td>
</tr>
<tr>
<td>Proposed rate (tons/person/year)</td>
<td>0.42</td>
<td>0.41</td>
<td>0.35</td>
<td>0.27</td>
</tr>
<tr>
<td>Rate reduction [percent of baseline year]</td>
<td>N/A</td>
<td>2%</td>
<td>16%</td>
<td>35%</td>
</tr>
<tr>
<td>Proposed tons diverted</td>
<td>N/A</td>
<td>N/A</td>
<td>110,515</td>
<td>209,977</td>
</tr>
</tbody>
</table>

### Commercial Waste Reduction Goals Through FY 21-22

<table>
<thead>
<tr>
<th></th>
<th>Baseline FY 98-99</th>
<th>Current FY 10-11</th>
<th>Plan Year FY 16-17</th>
<th>Plan Year FY 21-22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>618,853</td>
<td>923,944</td>
<td>1,027,829</td>
<td>1,114,398</td>
</tr>
<tr>
<td>Disposal tons if no new programs</td>
<td>641,072</td>
<td>513,081</td>
<td>637,665</td>
<td>691,373</td>
</tr>
<tr>
<td>Disposal tons with proposed short-term programs</td>
<td>N/A</td>
<td>N/A</td>
<td>575,376</td>
<td>623,837</td>
</tr>
<tr>
<td>Disposal tons with proposed short-term and long-term programs</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>512,888</td>
</tr>
<tr>
<td>Proposed rate (tons/person/year)</td>
<td>1.04</td>
<td>0.56</td>
<td>0.56</td>
<td>0.46</td>
</tr>
<tr>
<td>Rate reduction [percent of baseline year]</td>
<td>N/A</td>
<td>47%</td>
<td>46%</td>
<td>56%</td>
</tr>
<tr>
<td>Proposed tons diverted</td>
<td>N/A</td>
<td>N/A</td>
<td>62,289</td>
<td>178,485</td>
</tr>
</tbody>
</table>

### C&D Waste Reduction Goals Through FY 21-22

<table>
<thead>
<tr>
<th></th>
<th>Baseline FY 98-99</th>
<th>Current FY 10-11</th>
<th>Plan Year FY 16-17</th>
<th>Plan Year FY 21-22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>618,853</td>
<td>923,944</td>
<td>1,027,829</td>
<td>1,114,398</td>
</tr>
<tr>
<td>Disposal tons if no new programs</td>
<td>315,134</td>
<td>195,661</td>
<td>244,212</td>
<td>264,781</td>
</tr>
<tr>
<td>Disposal tons with proposed short-term programs</td>
<td>N/A</td>
<td>N/A</td>
<td>94,901</td>
<td>102,894</td>
</tr>
<tr>
<td>Disposal tons with proposed short-term and long-term programs</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>94,570</td>
</tr>
<tr>
<td>Proposed rate (tons/person/year)</td>
<td>0.51</td>
<td>0.21</td>
<td>0.09</td>
<td>0.08</td>
</tr>
<tr>
<td>Rate reduction [percent of baseline year]</td>
<td>N/A</td>
<td>58%</td>
<td>82%</td>
<td>83%</td>
</tr>
<tr>
<td>Proposed tons diverted</td>
<td>N/A</td>
<td>N/A</td>
<td>149,311</td>
<td>170,211</td>
</tr>
</tbody>
</table>
# Summary of Residential Diversion Projections

## Short Term Residential Diversion Strategies Summary

<table>
<thead>
<tr>
<th>Material Group</th>
<th>Material</th>
<th>FY 16-17 Tonnage (Projected)</th>
<th>Disposal Ban for Residential Generators</th>
<th>Volume-Based Pay</th>
<th>Incentive Program</th>
<th>Recycling Provided at All MF Complexes, Expand Education</th>
<th>Cumulative Tonnage Diverted</th>
<th>Percent Diverted</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Paper</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>106,746</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Newspaper/Print</td>
<td>6,641</td>
<td>0%</td>
<td>20%</td>
<td>10%</td>
<td>5%</td>
<td>69,592</td>
<td>6.5%</td>
</tr>
<tr>
<td></td>
<td>Glossy Magazines</td>
<td>8,065</td>
<td>0%</td>
<td>20%</td>
<td>10%</td>
<td>5%</td>
<td>5,242</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Recyclable Corrugated Cardboard</td>
<td>8,539</td>
<td>0%</td>
<td>20%</td>
<td>10%</td>
<td>5%</td>
<td>5,550</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-Recyclable Cardboard</td>
<td>1,423</td>
<td>0%</td>
<td>20%</td>
<td>0%</td>
<td>0%</td>
<td>1,139</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Phone Books</td>
<td>949</td>
<td>0%</td>
<td>20%</td>
<td>10%</td>
<td>5%</td>
<td>617</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Paperboard</td>
<td>13,283</td>
<td>0%</td>
<td>20%</td>
<td>10%</td>
<td>5%</td>
<td>8,634</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other Books</td>
<td>1,423</td>
<td>0%</td>
<td>20%</td>
<td>10%</td>
<td>5%</td>
<td>925</td>
<td></td>
</tr>
<tr>
<td></td>
<td>White Ledger</td>
<td>1,795</td>
<td>0%</td>
<td>20%</td>
<td>10%</td>
<td>5%</td>
<td>2,467</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mixed Office Paper</td>
<td>18,975</td>
<td>0%</td>
<td>20%</td>
<td>10%</td>
<td>5%</td>
<td>12,334</td>
<td></td>
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<tr>
<td></td>
<td>Other Paper (includes hardback books)</td>
<td>43,643</td>
<td>0%</td>
<td>20%</td>
<td>10%</td>
<td>5%</td>
<td>28,368</td>
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<tr>
<td><strong>Plastics</strong></td>
<td></td>
<td>86,812</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>72,049</td>
<td></td>
</tr>
<tr>
<td></td>
<td>All Plastic Bottles</td>
<td>30,436</td>
<td>10%</td>
<td>20%</td>
<td>10%</td>
<td>5%</td>
<td>6,105</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Film</td>
<td>37,476</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>37,476</td>
<td></td>
</tr>
<tr>
<td></td>
<td>All Cups &amp; Tubs</td>
<td>12,334</td>
<td>10%</td>
<td>20%</td>
<td>10%</td>
<td>5%</td>
<td>7,215</td>
<td></td>
</tr>
<tr>
<td></td>
<td>All Other Plastic (includes styrofoam)</td>
<td>26,565</td>
<td>0%</td>
<td>20%</td>
<td>0%</td>
<td>0%</td>
<td>21,252</td>
<td></td>
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<tr>
<td><strong>Organics</strong></td>
<td></td>
<td>175,396</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>145,730</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Food Waste</td>
<td>99,146</td>
<td>0%</td>
<td>20%</td>
<td>0%</td>
<td>0%</td>
<td>79,317</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Textiles/Leather</td>
<td>29,886</td>
<td>0%</td>
<td>20%</td>
<td>0%</td>
<td>0%</td>
<td>23,909</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diapers</td>
<td>24,668</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>24,668</td>
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</tr>
<tr>
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<td>Other Organics (includes rubber)</td>
<td>22,296</td>
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<td>0%</td>
<td>17,837</td>
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<td><strong>Ferrous Metal</strong></td>
<td></td>
<td>17,078</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9,990</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Food Containers/Bi-Metal</td>
<td>5,218</td>
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<td>10%</td>
<td>5%</td>
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<td></td>
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<tr>
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<td><strong>Non-ferrous Metal</strong></td>
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<td>Aluminum Cans</td>
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<td>Other Non-Ferrous</td>
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<td>All Bottles &amp; Jars</td>
<td>16,129</td>
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<td>10%</td>
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<td>10,484</td>
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<td>0%</td>
<td>759</td>
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<td><strong>Wood</strong></td>
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<td>20,873</td>
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<td>0%</td>
<td>0</td>
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</tr>
<tr>
<td></td>
<td>Lumber</td>
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<td>0%</td>
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<td>Painted/Treated</td>
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<td>0%</td>
<td>0%</td>
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<td>Stumps/Heavy Sections</td>
<td>0</td>
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<td>20%</td>
<td>0%</td>
<td>0%</td>
<td>0</td>
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<tr>
<td><strong>Inert</strong></td>
<td></td>
<td>14,231</td>
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<td></td>
<td></td>
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<td>11,385</td>
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</tr>
<tr>
<td></td>
<td>Brick, concrete, dirt, asphalt, etc.</td>
<td>12,334</td>
<td>0%</td>
<td>20%</td>
<td>0%</td>
<td>0%</td>
<td>8,880</td>
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<tr>
<td><strong>Yard Waste</strong></td>
<td></td>
<td>12,334</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8,880</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yard Waste (includes grass, leaves, small branches)</td>
<td>12,334</td>
<td>10%</td>
<td>20%</td>
<td>0%</td>
<td>0%</td>
<td>8,880</td>
<td></td>
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<tr>
<td><strong>Special Waste</strong></td>
<td></td>
<td>1,898</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,898</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lead-Acid Batteries</td>
<td>0</td>
<td>10%</td>
<td>20%</td>
<td>0%</td>
<td>0%</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dry Cell Batteries</td>
<td>0</td>
<td>10%</td>
<td>20%</td>
<td>0%</td>
<td>0%</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oil Filters</td>
<td>0</td>
<td>10%</td>
<td>20%</td>
<td>0%</td>
<td>0%</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other Hazardous Waste</td>
<td>0</td>
<td>0%</td>
<td>20%</td>
<td>0%</td>
<td>0%</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Infectious Waste</td>
<td>1,898</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>1,898</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reusable Waste</td>
<td>0</td>
<td>0%</td>
<td>20%</td>
<td>0%</td>
<td>0%</td>
<td>0</td>
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<tr>
<td><strong>Brown Goods</strong></td>
<td></td>
<td>6,641</td>
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<td></td>
<td></td>
<td></td>
<td>4,782</td>
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</tr>
<tr>
<td></td>
<td>Electronic Goods</td>
<td>6,641</td>
<td>10%</td>
<td>20%</td>
<td>0%</td>
<td>0%</td>
<td>4,782</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>474,857</td>
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<td>364,342</td>
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### Diversion Tons

<table>
<thead>
<tr>
<th></th>
<th>FY 16-17 Tonnage (Projected)</th>
<th>Disposal Ban for Residential Generators</th>
<th>Volume-Based Pay</th>
<th>Incentive Program</th>
<th>Recycling Provided at All MF Complexes, Expand Education</th>
<th>Cumulative Tonnage Diverted</th>
<th>Percent Diverted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6,214</td>
<td>86,470</td>
<td>22,244</td>
<td>14,229</td>
<td>110,515</td>
<td>23.3%</td>
<td></td>
</tr>
</tbody>
</table>

### Percent of Projected Waste Stream Diverted

|                        | 1.3%                        | 18.2%                                  | 4.7%             | 3.0%             | 23.3%                                                   | 6.214                       | 86,470          | 22,244          | 14,229          | 110,515 | 23.3% |
# Long Term Residential Diversion Strategies Summary

<table>
<thead>
<tr>
<th>Material Group</th>
<th>Material</th>
<th>FY 21-22 Tonnage (Projected) with short term diversion</th>
<th>Mandatory SF Curbside Recycling</th>
<th>Food Scraps &amp; Organics Diversion</th>
<th>Mandatory MF Recycling, Continue Education</th>
<th>EPR Residential Effect</th>
<th>Cumulative Tonnage Diverted</th>
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<tbody>
<tr>
<td>Paper</td>
<td>Newspaper/Print</td>
<td>5,525</td>
<td>20%</td>
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<td>5%</td>
<td>0%</td>
<td>4,144</td>
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<td>Glossy Magazines</td>
<td>6,709</td>
<td>20%</td>
<td>0%</td>
<td>5%</td>
<td>0%</td>
<td>5,032</td>
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<tr>
<td></td>
<td>Recyclable Corrugated Cardboard</td>
<td>7,303</td>
<td>20%</td>
<td>0%</td>
<td>5%</td>
<td>0%</td>
<td>5,328</td>
</tr>
<tr>
<td></td>
<td>Non-Recyclable Cardboard</td>
<td>1,184</td>
<td>0%</td>
<td>50%</td>
<td>0%</td>
<td>0%</td>
<td>592</td>
</tr>
<tr>
<td></td>
<td>Phone Books</td>
<td>789</td>
<td>20%</td>
<td>0%</td>
<td>5%</td>
<td>0%</td>
<td>592</td>
</tr>
<tr>
<td></td>
<td>Paperboard</td>
<td>11,050</td>
<td>20%</td>
<td>0%</td>
<td>5%</td>
<td>0%</td>
<td>8,287</td>
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<tr>
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<td>Other Books</td>
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<td>5%</td>
<td>0%</td>
<td>888</td>
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<tr>
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<td>White Ledger</td>
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<td>Mixed Office Paper</td>
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<td>5%</td>
<td>0%</td>
<td>11,839</td>
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<td>Other Paper (includes hardback books)</td>
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<td>5%</td>
<td>0%</td>
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<td>Plastics</td>
<td>All Plastic Bottles</td>
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<td>5%</td>
<td>0%</td>
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<td>Film</td>
<td>31,176</td>
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<td>0%</td>
<td>0%</td>
<td>50%</td>
<td>15,588</td>
</tr>
<tr>
<td></td>
<td>All Cups &amp; Tubes</td>
<td>10,260</td>
<td>20%</td>
<td>0%</td>
<td>5%</td>
<td>0%</td>
<td>7,699</td>
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<tr>
<td></td>
<td>All Other Plastic (includes styrofoam)</td>
<td>22,100</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>20%</td>
<td>17,680</td>
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<td>Organics</td>
<td>Paperboard</td>
<td>5,476</td>
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<td>0%</td>
<td>50%</td>
<td>0%</td>
<td>3,256</td>
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<td>Diapers</td>
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<td>0%</td>
<td>0%</td>
<td>50%</td>
<td>10,260</td>
</tr>
<tr>
<td></td>
<td>Other Organics (includes rubber)</td>
<td>18,548</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>15,588</td>
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<tr>
<td>Ferrous Metal</td>
<td>Food Containers/Bi-Metal</td>
<td>4,841</td>
<td>20%</td>
<td>0%</td>
<td>5%</td>
<td>0%</td>
<td>3,256</td>
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<tr>
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<td>Aerosols</td>
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<td>0%</td>
<td>1,480</td>
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<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>7,893</td>
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<tr>
<td>Non-Ferrous Metal</td>
<td>Aluminum Cans</td>
<td>2,762</td>
<td>0%</td>
<td>0%</td>
<td>5%</td>
<td>0%</td>
<td>2,072</td>
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<tr>
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<td>Aluminum Foil</td>
<td>2,762</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>2,072</td>
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<tr>
<td></td>
<td>Other Non-Ferrous</td>
<td>2,762</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>2,762</td>
</tr>
<tr>
<td>Glass</td>
<td>All Bottles &amp; Jars</td>
<td>13,418</td>
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<td>5%</td>
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<td>10,063</td>
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<td>Other Glass</td>
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<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>789</td>
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<td>Wood</td>
<td>Pallets</td>
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<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0</td>
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<tr>
<td></td>
<td>Lumber</td>
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<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>11,050</td>
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<tr>
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<td>Painted/Treated</td>
<td>10,655</td>
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<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>10,655</td>
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<tr>
<td></td>
<td>Stumps/Heavy Sections</td>
<td>0</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0</td>
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<tr>
<td>Inert</td>
<td>11,839</td>
<td>11,839</td>
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<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>11,839</td>
</tr>
<tr>
<td>Yard Waste</td>
<td>Yard Waste (includes grass, leaves, small branches)</td>
<td>10,260</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>10,260</td>
</tr>
<tr>
<td>Special Waste</td>
<td>Lead-Acid Batteries</td>
<td>0</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Dry Cell Batteries</td>
<td>0</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Oil Filters</td>
<td>0</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Other Hazardous Waste</td>
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<td>0%</td>
<td>0%</td>
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<td>0</td>
</tr>
<tr>
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<td>1,579</td>
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<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>1,579</td>
</tr>
<tr>
<td></td>
<td>Reusable Waste</td>
<td>0</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Brown Goods</td>
<td>Electronic Goods</td>
<td>5,525</td>
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<td>0%</td>
<td>60%</td>
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<td>TOTAL</td>
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<td>304,875</td>
<td>6,452</td>
<td>23,323</td>
<td>90,154</td>
<td>33,029</td>
<td>23,323</td>
</tr>
</tbody>
</table>

| Diversion Tons | 18,404 | 41,831 | 6,452 | 23,323 | 90,154 | 23,323 |

| Percent of Projected Waste Stream Diverted | 4.7% | 10.6% | 1.6% | 5.9% | 22.8% |
### Summary of Commercial Diversion Projections

#### Short Term Commercial Diversion Strategies Summary

<table>
<thead>
<tr>
<th>Material Group</th>
<th>Material</th>
<th>FY 16-17 Tonnage (Projected)</th>
<th>Expand Mandatory Recycling Ordinance (lower threshold, no 500 lb exemption; expand materials to those banned)</th>
<th>Education, Outreach and Enforcement</th>
<th>Cumulative Tonnage Diverted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paper</td>
<td></td>
<td></td>
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<td>Newsprint (IDP)</td>
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<td>10%</td>
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<td>High Grade Office</td>
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<td>22,800</td>
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<td>Magazines/Catalogs</td>
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<td>Uncolored OCE - nonrecyclable</td>
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<td>Coated OCE</td>
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<td>45,599</td>
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<td>Clear Containers</td>
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**TOTAL** 637,665 21,648 62,289
Summary of Commercial Diversion Projections

Long Term Commercial Diversion Strategies Summary

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<th>Material</th>
<th>Tonnage (Projected) with short term diversion</th>
<th>Organics Diversion to SSD</th>
<th>EPR Commercial Effect</th>
<th>Recycling Containers Where Public Garbage Containers Diverted</th>
<th>Cumulative Tonnage Diverted</th>
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<td></td>
</tr>
</tbody>
</table>

Percent Diverted of Projected Waste Stream Diverted

<table>
<thead>
<tr>
<th>Material Group</th>
<th>Material</th>
<th>Tonnage Tons</th>
<th>Diversion Tons</th>
<th>Percent Diverted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>66,038</td>
<td>36,427</td>
<td>54.8%</td>
</tr>
</tbody>
</table>

Percent of Projected Waste Stream Diverted

<table>
<thead>
<tr>
<th>Material Group</th>
<th>Material</th>
<th>Tonnage Tons</th>
<th>Diversion Tons</th>
<th>Percent Diverted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10.8%</td>
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</table>

Page 2 of 2
## Short Term C&D Diversion Strategies Summary

<table>
<thead>
<tr>
<th>Material Group</th>
<th>Material</th>
<th>FY 16-17 Tonnage (Projected)</th>
<th>Mandatory C&amp;D Recycling Ordinance (Expand SSO to include separate mandate for 50% of C&amp;D; lifts temporary exemptions)</th>
<th>Education, Outreach and Enforcement</th>
<th>Cumulative Tonnage Diverted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper</td>
<td>OCC/Kraft</td>
<td>9,280</td>
<td>75% 10%</td>
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<td>1,392</td>
</tr>
<tr>
<td></td>
<td>Other Paper</td>
<td>1,709</td>
<td>0% 10%</td>
<td></td>
<td>1,539</td>
</tr>
<tr>
<td>Plastic</td>
<td>PVC Pipe</td>
<td>244</td>
<td>30% 10%</td>
<td></td>
<td>147</td>
</tr>
<tr>
<td></td>
<td>Plastic Film</td>
<td>733</td>
<td>0% 10%</td>
<td></td>
<td>733</td>
</tr>
<tr>
<td></td>
<td>Vinyl Siding</td>
<td>244</td>
<td>30% 10%</td>
<td></td>
<td>147</td>
</tr>
<tr>
<td></td>
<td>Other Plastic</td>
<td>1,465</td>
<td>0% 10%</td>
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<td>1,465</td>
</tr>
<tr>
<td>Glass</td>
<td>Glass</td>
<td>2,198</td>
<td>0% 10%</td>
<td></td>
<td>1,978</td>
</tr>
<tr>
<td>Metal</td>
<td>Appliances</td>
<td>244</td>
<td>60% 10%</td>
<td></td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>Other Ferrous Metals</td>
<td>13,676</td>
<td>75% 10%</td>
<td></td>
<td>2,051</td>
</tr>
<tr>
<td></td>
<td>HVAC Ducting</td>
<td>244</td>
<td>60% 10%</td>
<td></td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>Other Non-Ferrous Metals</td>
<td>2,686</td>
<td>75% 10%</td>
<td></td>
<td>402</td>
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<tr>
<td>Green Waste</td>
<td>Land Clearing / Limbs / Stumps</td>
<td>2,198</td>
<td>60% 10%</td>
<td></td>
<td>659</td>
</tr>
<tr>
<td></td>
<td>Other Yard Waste</td>
<td>2,686</td>
<td>60% 10%</td>
<td></td>
<td>806</td>
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<tr>
<td>Inerts</td>
<td>Concrete/ Block/ Brick/ Stone/ Tile</td>
<td>56,901</td>
<td>75% 10%</td>
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<td>8,535</td>
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<tr>
<td></td>
<td>Dirt/Sand/Gravel</td>
<td>14,897</td>
<td>75% 10%</td>
<td></td>
<td>2,235</td>
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<tr>
<td>Wood</td>
<td>Pallets</td>
<td>5,128</td>
<td>75% 10%</td>
<td></td>
<td>769</td>
</tr>
<tr>
<td></td>
<td>Crates</td>
<td>1,221</td>
<td>60% 10%</td>
<td></td>
<td>366</td>
</tr>
<tr>
<td></td>
<td>Untreated Wood</td>
<td>40,295</td>
<td>60% 10%</td>
<td></td>
<td>12,089</td>
</tr>
<tr>
<td></td>
<td>Oriented Strandboard (OSB)</td>
<td>14,653</td>
<td>0% 10%</td>
<td></td>
<td>14,653</td>
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<tr>
<td></td>
<td>Treated/ Painted/ Processed Wood</td>
<td>16,606</td>
<td>0% 0%</td>
<td></td>
<td>16,606</td>
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<tr>
<td>C&amp;D Materials</td>
<td>Drywall – Unpainted</td>
<td>16,606</td>
<td>60% 10%</td>
<td></td>
<td>4,982</td>
</tr>
<tr>
<td></td>
<td>Drywall – Painted</td>
<td>977</td>
<td>0% 10%</td>
<td></td>
<td>977</td>
</tr>
<tr>
<td></td>
<td>Asphalt Roofing</td>
<td>15,630</td>
<td>60% 10%</td>
<td></td>
<td>4,689</td>
</tr>
<tr>
<td></td>
<td>Insulation</td>
<td>1,954</td>
<td>0% 10%</td>
<td></td>
<td>1,954</td>
</tr>
<tr>
<td></td>
<td>Ceiling Tiles</td>
<td>244</td>
<td>30% 10%</td>
<td></td>
<td>147</td>
</tr>
<tr>
<td></td>
<td>Carpet &amp; Carpet Backing</td>
<td>12,943</td>
<td>30% 10%</td>
<td></td>
<td>7,766</td>
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<tr>
<td>Bulky/Other</td>
<td>Bagged MSW</td>
<td>3,175</td>
<td>0% 0%</td>
<td></td>
<td>3,175</td>
</tr>
<tr>
<td></td>
<td>Electronics</td>
<td>0</td>
<td>10% 0%</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Bulky Wastes/ Furniture</td>
<td>2,198</td>
<td>30% 10%</td>
<td></td>
<td>1,319</td>
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<tr>
<td></td>
<td>Mixed C&amp;D/ Other Unclassified</td>
<td>3,175</td>
<td>0% 0%</td>
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<td>3,175</td>
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<tr>
<td>TOTAL</td>
<td></td>
<td>244,212</td>
<td>129,164 20,148 149,311</td>
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<td>94,901</td>
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<tr>
<td>Diversion Tons</td>
<td></td>
<td></td>
<td>52.9% 8.3% 61.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent of Projected Waste Stream Diverted</td>
<td></td>
<td></td>
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</table>
## Long Term C&D Diversion Strategies Summary

<table>
<thead>
<tr>
<th>Material Group</th>
<th>Material</th>
<th>FY 21-22 Tonnage (Projected)</th>
<th>Increase Mandatory Recycling Percentage to 60%</th>
<th>Cumulative Tonnage Diverted</th>
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<tbody>
<tr>
<td>Paper</td>
<td>OCC/Kraft</td>
<td>3,910</td>
<td>10%</td>
<td>3,519</td>
</tr>
<tr>
<td></td>
<td>Other Paper</td>
<td>720</td>
<td>0%</td>
<td>720</td>
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<tr>
<td>Plastic</td>
<td>PVC Pipe</td>
<td>103</td>
<td>10%</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>Plastic Film</td>
<td>309</td>
<td>0%</td>
<td>309</td>
</tr>
<tr>
<td></td>
<td>Vinyl Siding</td>
<td>103</td>
<td>10%</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>Other Plastic</td>
<td>617</td>
<td>0%</td>
<td>617</td>
</tr>
<tr>
<td>Glass</td>
<td>Glass</td>
<td>926</td>
<td>0%</td>
<td>926</td>
</tr>
<tr>
<td>Metal</td>
<td>Appliances</td>
<td>103</td>
<td>10%</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>Other Ferrous Metals</td>
<td>5,762</td>
<td>10%</td>
<td>5,186</td>
</tr>
<tr>
<td></td>
<td>HVAC Ducting</td>
<td>103</td>
<td>10%</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>Other Non-Ferrous Metals</td>
<td>1,132</td>
<td>10%</td>
<td>1,019</td>
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<tr>
<td>Green Waste</td>
<td>Land Clearing / Limbs / Stumps</td>
<td>926</td>
<td>10%</td>
<td>833</td>
</tr>
<tr>
<td></td>
<td>Other Yard Waste</td>
<td>1,132</td>
<td>10%</td>
<td>1,019</td>
</tr>
<tr>
<td>Inerts</td>
<td>Concrete/ Block / Brick / Stone / Tile</td>
<td>23,974</td>
<td>10%</td>
<td>21,577</td>
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<tr>
<td></td>
<td>Dirt/Sand/Gravel</td>
<td>6,277</td>
<td>10%</td>
<td>5,649</td>
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<tr>
<td>Wood</td>
<td>Pallets</td>
<td>2,161</td>
<td>10%</td>
<td>1,945</td>
</tr>
<tr>
<td></td>
<td>Crates</td>
<td>514</td>
<td>10%</td>
<td>463</td>
</tr>
<tr>
<td></td>
<td>Untreated Wood</td>
<td>16,977</td>
<td>10%</td>
<td>15,280</td>
</tr>
<tr>
<td></td>
<td>Oriented Strandboard (OSB)</td>
<td>6,174</td>
<td>0%</td>
<td>6,174</td>
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<tr>
<td></td>
<td>Treated/ Painted / Processed Wood</td>
<td>6,997</td>
<td>0%</td>
<td>6,997</td>
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<tr>
<td>C&amp;D Materials</td>
<td>Drywall – Unpainted</td>
<td>6,997</td>
<td>10%</td>
<td>6,297</td>
</tr>
<tr>
<td></td>
<td>Drywall – Painted</td>
<td>412</td>
<td>10%</td>
<td>412</td>
</tr>
<tr>
<td></td>
<td>Asphalt Roofing</td>
<td>6,585</td>
<td>10%</td>
<td>5,927</td>
</tr>
<tr>
<td></td>
<td>Insulation</td>
<td>823</td>
<td>0%</td>
<td>823</td>
</tr>
<tr>
<td></td>
<td>Ceiling Tiles</td>
<td>103</td>
<td>10%</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>Carpet &amp; Carpet Backing</td>
<td>5,453</td>
<td>10%</td>
<td>4,908</td>
</tr>
<tr>
<td>Bulky/Other</td>
<td>Bagged MSW</td>
<td>1,338</td>
<td>0%</td>
<td>1,338</td>
</tr>
<tr>
<td></td>
<td>Electronics</td>
<td>0</td>
<td>10%</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Bulky Wastes/ Furniture</td>
<td>926</td>
<td>10%</td>
<td>833</td>
</tr>
<tr>
<td></td>
<td>Mixed C&amp;D/ Other Unclassified</td>
<td>1,338</td>
<td>0%</td>
<td>1,338</td>
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<tr>
<td>TOTAL</td>
<td>Diversion Tons</td>
<td>102,894</td>
<td></td>
<td>94,570</td>
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<tr>
<td></td>
<td>Percent of Projected Waste Stream Diverted</td>
<td>8.324</td>
<td></td>
<td>8.324</td>
</tr>
</tbody>
</table>
## EPA WARM Model Results - Metric Tons of Carbon Dioxide Equivalent (MTCO2E) [1]

<table>
<thead>
<tr>
<th>Source Reduction</th>
<th>Recycling</th>
<th>Composting</th>
<th>Total</th>
<th>Cumulative Emissions</th>
<th>Source Reduction</th>
<th>Recycling</th>
<th>Composting</th>
<th>Total</th>
<th>Cumulative Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No New Programs  [2]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With Short Term Programs  [3]</td>
<td>(79,692)</td>
<td>(107,113)</td>
<td>(6,883)</td>
<td>(193,688)</td>
<td>(311,621)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With Short &amp; Long Term Programs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No New Programs  [2]</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With Short Term Programs  [3]</td>
<td>(138,963)</td>
<td>99</td>
<td>(138,864)</td>
<td>(380,704)</td>
<td>(236,596)</td>
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<tr>
<td>With Short &amp; Long Term Programs</td>
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<td></td>
<td></td>
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<tr>
<td>C&amp;D</td>
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<td></td>
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<tr>
<td>With Short Term Programs  [3]</td>
<td>(278,413)</td>
<td>(18,383)</td>
<td>(296,796)</td>
<td>(49,821)</td>
<td>(104,058)</td>
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</tr>
<tr>
<td>With Short &amp; Long Term Programs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Notes:

[1] Represents 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 represent emissions 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.

[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] For the long term, this 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.
# Summary of Recommended Strategy Costs

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Implementation Period</th>
<th>Municipal</th>
<th>County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disposal Ban for Residential Generators</td>
<td>Short-Term</td>
<td>$ -</td>
<td>$ 2,177</td>
</tr>
<tr>
<td>Volume-Based Pay [1]</td>
<td>Short-Term</td>
<td>$ 4,387,832</td>
<td>$ -</td>
</tr>
<tr>
<td>Incentive Program [1]</td>
<td>Short-Term</td>
<td>$ -</td>
<td>$ 667,274</td>
</tr>
<tr>
<td>Recycling Provided at All Multi-family Complexes, Expand Education</td>
<td>Short-Term</td>
<td>$ -</td>
<td>$ 2,465</td>
</tr>
<tr>
<td>Mandatory Single Family Curbside Recycling [1]</td>
<td>Long-Term</td>
<td>$ -</td>
<td>$ 168,763</td>
</tr>
<tr>
<td>Food Scraps &amp; Organics Diversion [1]</td>
<td>Long-Term</td>
<td>$ 11,507,980</td>
<td>$ -</td>
</tr>
<tr>
<td>Mandatory Multi-family Recycling, Continue Education [1]</td>
<td>Long-Term</td>
<td>$ -</td>
<td>$ 115,878</td>
</tr>
<tr>
<td>Commercial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expand Mandatory Recycling Ordinance</td>
<td>Short-Term</td>
<td>$ -</td>
<td>$ 2,177</td>
</tr>
<tr>
<td>Education, Outreach and Enforcement</td>
<td>Short-Term</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td>Organics Diversion</td>
<td>Long-Term</td>
<td>$ -</td>
<td>$ 2,177</td>
</tr>
<tr>
<td>Recycling Containers Where Public Garbage Containers</td>
<td>Long-Term</td>
<td>$ -</td>
<td>$500-1,500 per container</td>
</tr>
<tr>
<td>C&amp;D</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mandatory C&amp;D Recycling Ordinance</td>
<td>Short-Term</td>
<td>$ -</td>
<td>$ 2,177</td>
</tr>
<tr>
<td>Education, Outreach and Enforcement</td>
<td>Short-Term</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td>Increase Mandatory Recycling Percentage</td>
<td>Long-Term</td>
<td>$ -</td>
<td>$ 2,177</td>
</tr>
<tr>
<td>Extended Producer Responsibility</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Efforts Associated with EPR</td>
<td>Long-Term</td>
<td>$ -</td>
<td>$ 2,465</td>
</tr>
<tr>
<td>Total</td>
<td>$ 15,895,812</td>
<td>$ 951,914</td>
<td>$ 20,169</td>
</tr>
</tbody>
</table>

Notes:
[1] See Planning Level Cost Estimates worksheet for residential programs for a breakdown of one time and annual costs by municipality, where applicable.
[2] The cost of education and outreach is estimated to be $250,000 for each new residential initiative and $125,000 for each new commercial initiative. 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.
## Planning Level Cost Estimates

### Inputs

<table>
<thead>
<tr>
<th>Staff Expenses</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg Annual Salary &amp; Benefit Expense - Manager</td>
<td>$75,000.00</td>
</tr>
<tr>
<td>Avg Annual Salary &amp; Benefits - IT</td>
<td>$75,000.00</td>
</tr>
<tr>
<td>Avg Annual Salary &amp; Benefits - Enforcement</td>
<td>$75,000.00</td>
</tr>
<tr>
<td>Avg Hourly salary &amp; benefits</td>
<td>$36.06</td>
</tr>
<tr>
<td>Avg Hourly Cost for Legal Review</td>
<td>$200.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Equipment Purchase Price</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg. 96-gallon cart</td>
<td>$55.00</td>
</tr>
<tr>
<td>Avg. 65-gallon cart</td>
<td>$50.00</td>
</tr>
<tr>
<td>Avg. 35-gallon cart</td>
<td>$45.00</td>
</tr>
<tr>
<td>Avg. cost per public recycling containers</td>
<td>$500.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education/Outreach Material</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg. Annual Commercial Education/Outreach</td>
<td>$125,000.00</td>
</tr>
<tr>
<td>Avg. Annual Residential Education/Outreach</td>
<td>$250,000.00</td>
</tr>
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</table>

### Number of Residential Units by Type (2011)

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>SF</th>
<th>MF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlotte</td>
<td>183,008</td>
<td>139,116</td>
</tr>
<tr>
<td>Huntersville</td>
<td>15,781</td>
<td>2,870</td>
</tr>
<tr>
<td>Cornelius</td>
<td>7,363</td>
<td>4,572</td>
</tr>
<tr>
<td>Matthews</td>
<td>7,984</td>
<td>2,359</td>
</tr>
<tr>
<td>Mint Hill</td>
<td>7,598</td>
<td>1,030</td>
</tr>
<tr>
<td>Davidson</td>
<td>2,412</td>
<td>1,600</td>
</tr>
<tr>
<td>Pineville</td>
<td>871</td>
<td>2,957</td>
</tr>
<tr>
<td>Unincorporated</td>
<td>17,011</td>
<td>2,417</td>
</tr>
<tr>
<td>Total</td>
<td>242,028</td>
<td>156,921</td>
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</table>
### Residential Strategies
#### Short-Term

**Disposal Ban for Residential Generators**

<table>
<thead>
<tr>
<th>Position/Item</th>
<th>Number</th>
<th>Units</th>
<th>Time Frame</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff time to revise ordinance</td>
<td>16</td>
<td>Hours</td>
<td>One time</td>
<td>$ 577</td>
</tr>
<tr>
<td>Legal review / ordinance revisions</td>
<td>8</td>
<td>Hours</td>
<td>One time</td>
<td>$ 1,600</td>
</tr>
<tr>
<td>Total Annual Costs</td>
<td></td>
<td></td>
<td></td>
<td>$ -</td>
</tr>
<tr>
<td>Total One Time Costs</td>
<td></td>
<td></td>
<td></td>
<td>$ 2,177</td>
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</tbody>
</table>

**Volume-Based Pay**

<table>
<thead>
<tr>
<th>Position/Item</th>
<th>Number</th>
<th>Units</th>
<th>Time Frame</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carts: 65-gallon</td>
<td>30%</td>
<td>of SF HHs</td>
<td>One time</td>
<td>$ 2,745,120</td>
</tr>
<tr>
<td>Charlotte</td>
<td>54,902</td>
<td>Carts</td>
<td>One time</td>
<td>$ 236,715</td>
</tr>
<tr>
<td>Huntersville</td>
<td>4,734</td>
<td>Carts</td>
<td>One time</td>
<td>$ 110,445</td>
</tr>
<tr>
<td>Cornelius</td>
<td>2,209</td>
<td>Carts</td>
<td>One time</td>
<td>$ 119,760</td>
</tr>
<tr>
<td>Matthews</td>
<td>2,395</td>
<td>Carts</td>
<td>One time</td>
<td>$ 113,970</td>
</tr>
<tr>
<td>Mint Hill</td>
<td>2,279</td>
<td>Carts</td>
<td>One time</td>
<td>$ 36,180</td>
</tr>
<tr>
<td>Davidson</td>
<td>724</td>
<td>Carts</td>
<td>One time</td>
<td>$ 13,065</td>
</tr>
<tr>
<td>Pineville</td>
<td>261</td>
<td>Carts</td>
<td>One time</td>
<td>$ 34,191</td>
</tr>
<tr>
<td>Carts: 35-gallon</td>
<td>10%</td>
<td>of SF HHs</td>
<td>One time</td>
<td>$ 823,536</td>
</tr>
<tr>
<td>Charlotte</td>
<td>18,301</td>
<td>Carts</td>
<td>One time</td>
<td>$ 71,015</td>
</tr>
<tr>
<td>Huntersville</td>
<td>1,578</td>
<td>Carts</td>
<td>One time</td>
<td>$ 33,134</td>
</tr>
<tr>
<td>Cornelius</td>
<td>736</td>
<td>Carts</td>
<td>One time</td>
<td>$ 35,928</td>
</tr>
<tr>
<td>Matthews</td>
<td>798</td>
<td>Carts</td>
<td>One time</td>
<td>$ 34,191</td>
</tr>
<tr>
<td>Mint Hill</td>
<td>760</td>
<td>Carts</td>
<td>One time</td>
<td>$ 10,854</td>
</tr>
<tr>
<td>Davidson</td>
<td>241</td>
<td>Carts</td>
<td>One time</td>
<td>$ 3,920</td>
</tr>
<tr>
<td>Total Annual Costs</td>
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<td></td>
<td></td>
<td>$ -</td>
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<tr>
<td>Total One Time Costs</td>
<td></td>
<td></td>
<td></td>
<td>$ 4,387,832</td>
</tr>
</tbody>
</table>
### Incentive Program

<table>
<thead>
<tr>
<th>Position/Item</th>
<th>Number</th>
<th>Units</th>
<th>Time Frame</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff Administration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charlotte</td>
<td>0.1</td>
<td>FTE</td>
<td>Annual</td>
<td>$7,500</td>
</tr>
<tr>
<td>Huntersville</td>
<td>0.1</td>
<td>FTE</td>
<td>Annual</td>
<td>$7,500</td>
</tr>
<tr>
<td>Cornelius</td>
<td>0.1</td>
<td>FTE</td>
<td>Annual</td>
<td>$7,500</td>
</tr>
<tr>
<td>Matthews</td>
<td>0.1</td>
<td>FTE</td>
<td>Annual</td>
<td>$7,500</td>
</tr>
<tr>
<td>Mint Hill</td>
<td>0.1</td>
<td>FTE</td>
<td>Annual</td>
<td>$7,500</td>
</tr>
<tr>
<td>Davidson</td>
<td>0.1</td>
<td>FTE</td>
<td>Annual</td>
<td>$7,500</td>
</tr>
<tr>
<td>Pineville</td>
<td>0.1</td>
<td>FTE</td>
<td>Annual</td>
<td>$7,500</td>
</tr>
<tr>
<td><strong>Cost of Program</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charlotte</td>
<td>2.73</td>
<td>$/SF HH</td>
<td>Annual</td>
<td>$500,000</td>
</tr>
<tr>
<td>Huntersville</td>
<td>2.73</td>
<td>$/SF HH</td>
<td>Annual</td>
<td>$43,116</td>
</tr>
<tr>
<td>Cornelius</td>
<td>2.73</td>
<td>$/SF HH</td>
<td>Annual</td>
<td>$20,117</td>
</tr>
<tr>
<td>Matthews</td>
<td>2.73</td>
<td>$/SF HH</td>
<td>Annual</td>
<td>$21,813</td>
</tr>
<tr>
<td>Mint Hill</td>
<td>2.73</td>
<td>$/SF HH</td>
<td>Annual</td>
<td>$20,759</td>
</tr>
<tr>
<td>Davidson</td>
<td>2.73</td>
<td>$/SF HH</td>
<td>Annual</td>
<td>$6,590</td>
</tr>
<tr>
<td>Pineville</td>
<td>2.73</td>
<td>$/SF HH</td>
<td>Annual</td>
<td>$2,380</td>
</tr>
<tr>
<td><strong>Total Annual Costs</strong></td>
<td></td>
<td></td>
<td></td>
<td>$667,274</td>
</tr>
<tr>
<td><strong>Total One Time Costs</strong></td>
<td></td>
<td></td>
<td></td>
<td>$-</td>
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</table>

### Recycling Provided at All Multi-family Complexes, Expand Education

<table>
<thead>
<tr>
<th>Position/Item</th>
<th>Number</th>
<th>Units</th>
<th>Time Frame</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff time to develop model contract/ordinance</td>
<td>24</td>
<td>Hours</td>
<td>One time</td>
<td>$865</td>
</tr>
<tr>
<td>Legal review</td>
<td>8</td>
<td>Hours</td>
<td>One time</td>
<td>$1,600</td>
</tr>
<tr>
<td><strong>Total Annual Costs</strong></td>
<td></td>
<td></td>
<td></td>
<td>$-</td>
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<tr>
<td><strong>Total One Time Costs</strong></td>
<td></td>
<td></td>
<td></td>
<td>$2,465</td>
</tr>
</tbody>
</table>
## Long-Term

### Mandatory Single Family Curbside Recycling

<table>
<thead>
<tr>
<th>Position/Item</th>
<th>Number</th>
<th>Units</th>
<th>Time Frame</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal review / ordinance revisions</td>
<td>8</td>
<td>Hours</td>
<td>One time</td>
<td>$1,600</td>
</tr>
<tr>
<td>Staff time to revise ordinance</td>
<td>16</td>
<td>Hours</td>
<td>One time</td>
<td>$577</td>
</tr>
<tr>
<td>Enforcement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charlotte</td>
<td>0.00001</td>
<td>FTE/SF HH</td>
<td>Annual</td>
<td>$137,256</td>
</tr>
<tr>
<td>Huntersville</td>
<td>0.00001</td>
<td>FTE/SF HH</td>
<td>Annual</td>
<td>$11,836</td>
</tr>
<tr>
<td>Cornelius</td>
<td>0.00001</td>
<td>FTE/SF HH</td>
<td>Annual</td>
<td>$5,522</td>
</tr>
<tr>
<td>Matthews</td>
<td>0.00001</td>
<td>FTE/SF HH</td>
<td>Annual</td>
<td>$5,988</td>
</tr>
<tr>
<td>Mint Hill</td>
<td>0.00001</td>
<td>FTE/SF HH</td>
<td>Annual</td>
<td>$5,699</td>
</tr>
<tr>
<td>Davidson</td>
<td>0.00001</td>
<td>FTE/SF HH</td>
<td>Annual</td>
<td>$1,809</td>
</tr>
<tr>
<td>Pineville</td>
<td>0.00001</td>
<td>FTE/SF HH</td>
<td>Annual</td>
<td>$653</td>
</tr>
<tr>
<td>Total Annual Costs</td>
<td></td>
<td></td>
<td></td>
<td>$168,763</td>
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<tr>
<td>Total One Time Costs</td>
<td></td>
<td></td>
<td></td>
<td>$2,177</td>
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</table>

### Food Scraps & Organics Diversion

<table>
<thead>
<tr>
<th>Position/Item</th>
<th>Number</th>
<th>Units</th>
<th>Time Frame</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carts - 96 gallon</td>
<td>100%</td>
<td>SF HHs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charlotte</td>
<td>183,008</td>
<td>Carts</td>
<td>One time</td>
<td>$10,065,440</td>
</tr>
<tr>
<td>Huntersville</td>
<td>0</td>
<td>Carts</td>
<td>One time</td>
<td>$-</td>
</tr>
<tr>
<td>Cornelius</td>
<td>7,363</td>
<td>Carts</td>
<td>One time</td>
<td>$404,965</td>
</tr>
<tr>
<td>Matthews</td>
<td>7,984</td>
<td>Carts</td>
<td>One time</td>
<td>$439,120</td>
</tr>
<tr>
<td>Mint Hill</td>
<td>7,598</td>
<td>Carts</td>
<td>One time</td>
<td>$417,890</td>
</tr>
<tr>
<td>Davidson</td>
<td>2,412</td>
<td>Carts</td>
<td>One time</td>
<td>$132,660</td>
</tr>
<tr>
<td>Pineville</td>
<td>871</td>
<td>Carts</td>
<td>One time</td>
<td>$47,905</td>
</tr>
<tr>
<td>Total Annual Costs</td>
<td></td>
<td></td>
<td></td>
<td>$</td>
</tr>
<tr>
<td>Total One Time Costs</td>
<td></td>
<td></td>
<td></td>
<td>$11,507,980</td>
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</table>

### Mandatory Multi-family Recycling, Continue Education

<table>
<thead>
<tr>
<th>Position/Item</th>
<th>Number</th>
<th>Units</th>
<th>Time Frame</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal review of ordinance</td>
<td>8</td>
<td>Hours</td>
<td>One time</td>
<td>$1,600</td>
</tr>
<tr>
<td>Staff time to revise ordinance</td>
<td>16</td>
<td>Hours</td>
<td>One time</td>
<td>$577</td>
</tr>
<tr>
<td>Staff outreach/ presentations</td>
<td>0.25</td>
<td>FTE</td>
<td>Annual</td>
<td>$18,750</td>
</tr>
<tr>
<td>Enforcement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charlotte</td>
<td>0.00001</td>
<td>FTE/MF HH</td>
<td>Annual</td>
<td>$104,337</td>
</tr>
<tr>
<td>Huntersville</td>
<td>0.00001</td>
<td>FTE/MF HH</td>
<td>Annual</td>
<td>$2,153</td>
</tr>
<tr>
<td>Cornelius</td>
<td>0.00001</td>
<td>FTE/MF HH</td>
<td>Annual</td>
<td>$3,429</td>
</tr>
<tr>
<td>Matthews</td>
<td>0.00001</td>
<td>FTE/MF HH</td>
<td>Annual</td>
<td>$1,769</td>
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<tr>
<td>Mint Hill</td>
<td>0.00001</td>
<td>FTE/MF HH</td>
<td>Annual</td>
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<tr>
<td>Davidson</td>
<td>0.00001</td>
<td>FTE/MF HH</td>
<td>Annual</td>
<td>$1,200</td>
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<td>Pineville</td>
<td>0.00001</td>
<td>FTE/MF HH</td>
<td>Annual</td>
<td>$2,218</td>
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<tr>
<td>Total Annual Costs</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Total One Time Costs</td>
<td></td>
<td></td>
<td></td>
<td>$2,177</td>
</tr>
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</table>
## Planning Level Cost Estimates

### Commercial Strategies

#### Short-Term

**Expand Mandatory Recycling Ordinance**

<table>
<thead>
<tr>
<th>Position/Item</th>
<th>Number</th>
<th>Units</th>
<th>Time Frame</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal review / ordinance development</td>
<td>8</td>
<td>Hours</td>
<td>One time</td>
<td>$1,600</td>
</tr>
<tr>
<td>Staff time to revise ordinance</td>
<td>16</td>
<td>Hours</td>
<td>One time</td>
<td>$577</td>
</tr>
<tr>
<td>Staff technical assistance</td>
<td>0.25</td>
<td>FTE</td>
<td>Annual</td>
<td>$18,750</td>
</tr>
<tr>
<td>Total Annual Costs</td>
<td></td>
<td></td>
<td></td>
<td>$18,750</td>
</tr>
<tr>
<td>Total One Time Costs</td>
<td></td>
<td></td>
<td></td>
<td>$2,177</td>
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</tbody>
</table>

**Education, Outreach and Enforcement**

<table>
<thead>
<tr>
<th>Position/Item</th>
<th>Number</th>
<th>Units</th>
<th>Time Frame</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff presentations</td>
<td>0.25</td>
<td>FTE</td>
<td>Annual</td>
<td>$18,750</td>
</tr>
<tr>
<td>Enforcement</td>
<td>1</td>
<td>FTE</td>
<td>Annual</td>
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<td>$93,750</td>
</tr>
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<td>Total One Time Costs</td>
<td></td>
<td></td>
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<td>-</td>
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</table>

### Long-Term

**Organics Diversion (add to SSO)**

<table>
<thead>
<tr>
<th>Position/Item</th>
<th>Number</th>
<th>Units</th>
<th>Time Frame</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal review / ordinance revisions</td>
<td>8</td>
<td>Hours</td>
<td>One time</td>
<td>$1,600</td>
</tr>
<tr>
<td>Staff time to revise ordinance</td>
<td>16</td>
<td>Hours</td>
<td>One time</td>
<td>$577</td>
</tr>
<tr>
<td>Staff presentations</td>
<td>0.25</td>
<td>FTE</td>
<td>Annual</td>
<td>$18,750</td>
</tr>
<tr>
<td>Total Annual Costs</td>
<td></td>
<td></td>
<td></td>
<td>$18,750</td>
</tr>
<tr>
<td>Total One Time Costs</td>
<td></td>
<td></td>
<td></td>
<td>$2,177</td>
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</tbody>
</table>

**Recycling Containers Where Public Garbage Containers**

<table>
<thead>
<tr>
<th>Position/Item</th>
<th>Number</th>
<th>Units</th>
<th>Time Frame</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recycling containers</td>
<td>900</td>
<td>Containers</td>
<td>One time</td>
<td>$500-1,500 per</td>
</tr>
<tr>
<td>Total Annual Costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total One Time Costs</td>
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<td></td>
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<td></td>
</tr>
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</table>
## C&D Strategies

### Short-Term

#### Mandatory C&D Recycling Ordinance

<table>
<thead>
<tr>
<th>Position/Item</th>
<th>Number</th>
<th>Units</th>
<th>Time Frame</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal review / ordinance revisions</td>
<td>8</td>
<td>Hours</td>
<td>One time</td>
<td>$1,600</td>
</tr>
<tr>
<td>Staff time to revise ordinance</td>
<td>16</td>
<td>Hours</td>
<td>One time</td>
<td>$ 577</td>
</tr>
<tr>
<td>Staff technical assistance</td>
<td>0.25</td>
<td>FTE</td>
<td>Annual</td>
<td>$18,750</td>
</tr>
<tr>
<td>Total Annual Costs</td>
<td></td>
<td></td>
<td></td>
<td>$18,750</td>
</tr>
<tr>
<td>Total One Time Costs</td>
<td></td>
<td></td>
<td></td>
<td>$ 2,177</td>
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#### Education, Outreach and Enforcement

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<td>Total Annual Costs</td>
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<tr>
<td>Total One Time Costs</td>
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### Long-Term

#### Increase Mandatory Recycling Percentage

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<tbody>
<tr>
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<td></td>
<td>$  -</td>
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<tr>
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<td></td>
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<td>$ 2,177</td>
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### Extended Producer Responsibility

#### Long-Term

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<tr>
<td>Total Annual Costs</td>
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<td>Total One Time Costs</td>
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<td></td>
<td>$2,465</td>
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Appendix G

EMERGENCY RESPONSE
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MECKLENBURG COUNTY HAZARD MITIGATION PLAN

2010 Plan Update

Adopted By:

Mecklenburg County
City of Charlotte
Town of Cornelius
Town of Davidson
Town of Huntersville
Town of Matthews
Town of Mint Hill
Town of Pineville

Planning Assistance Provided By:
AECOM
6201 Fairview Road, Suite 400
Charlotte, North Carolina 28210
INTRODUCTION

This section provides a general introduction to the Mecklenburg County Multi-jurisdictional Hazard Mitigation Plan and consists of the following five subsections:

- BACKGROUND
- PURPOSE
- SCOPE
- AUTHORITY
- PLAN OUTLINE

BACKGROUND

Natural hazards, such as floods, tornadoes and severe winter storms are a part of the world around us. Their occurrence is natural and inevitable, and there is little we can do to control their force and intensity.

Mecklenburg County and the municipalities participating in this planning process are vulnerable to a wide range of natural hazards that threaten the safety of county residents, and have the potential to damage or destroy both public and private property and disrupt the local economy and overall quality of life.

While the threat from hazards may never be fully eliminated, there is much we can do to lessen their potential impact. The concept and practice of reducing risks associated with known hazards is referred to as hazard mitigation.

Hazard mitigation techniques include both structural measures, such as strengthening or protecting buildings and infrastructure from the destructive forces of potential hazards, and non-structural measures, such as the adoption of sound land use or floodplain management policies and the creation of public awareness programs. Effective mitigation measures are often implemented at the county or municipal level, where decisions on the regulation and control of development are made. A comprehensive mitigation approach addresses hazard vulnerabilities that exist today and in the foreseeable future. Therefore it is essential that projected patterns of future development are evaluated and considered in terms of how that growth will increase or decrease a community’s hazard vulnerability over time.

As a community formulates a comprehensive approach to reduce the impacts of hazards, a key means to accomplish this task is through the development, adoption, and regular update of a local hazard mitigation plan. A hazard mitigation plan establishes the community vision, guiding principles and the specific actions designed to reduce current and future hazard vulnerabilities.

The Mecklenburg County Multi-jurisdictional Hazard Mitigation Plan (hereinafter referred to as “Hazard Mitigation Plan” or “Plan”) is an effective means to incorporate hazard mitigation principles and practices into the day-to-day activities of county and municipal governments. The Plan recommends specific actions designed to protect Mecklenburg County’s residents as well as the built environment from those hazards that pose the greatest risk. Identified mitigation actions go beyond recommending structural solutions to reduce existing vulnerability, such as elevation, retrofitting and acquisition projects. Local policies on community growth and development, incentives tied to natural resource protection, and public awareness
and outreach activities are examples of other actions intended to reduce Mecklenburg County’s future vulnerability to identified hazards.

**DISASTER MITIGATION ACT OF 2000**

In an effort to reduce the Nation’s mounting natural disaster losses, the U.S. Congress passed the Disaster Mitigation Act of 2000 (DMA 2000) to amend the Robert T. Stafford Disaster Relief and Emergency Assistance Act. Section 322 of the Act requires that state and local governments develop and routinely update a hazard mitigation plan in order to remain eligible for pre- and post-disaster mitigation funding. These funds include the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) program, Flood Mitigation Assistance (FMA) program, Repetitive Flood Claims (RFC) program, and the Severe Repetitive Loss (SRL) program, all of which are administered by the Federal Emergency Management Agency (FEMA) under the Department of Homeland Security. Communities with an adopted and federally approved hazard mitigation plan thereby become pre-positioned and more apt to receive available mitigation funds before and after the next disaster strikes.

This Plan was prepared using current FEMA planning guidance and in coordination with the North Carolina Division of Emergency Management in order to ensure that it meets all applicable state and federal mitigation planning requirements. This includes conformance with FEMA’s latest Local Multi-Hazard Mitigation Planning Guidance (dated July 1, 2008). A Local Hazard Mitigation Plan Update Checklist, found in Appendix B, provides a summary of FEMA and NCEM’s current minimum standards of acceptability and notes the location within the Plan where each planning requirement is met.

**PURPOSE**

The general purpose of this Hazard Mitigation Plan is to:

- protect life and property by reducing the potential for future damages and economic losses that result from natural hazards;
- qualify for additional grant funding, in both the pre-disaster and post-disaster environment;
- speed recovery and redevelopment following future disasters;
- integrate existing flood mitigation documents;
- sustain and enhance existing governmental coordination in Mecklenburg County and demonstrate a firm local commitment to hazard mitigation principles; and
- comply with state and federal requirements tied to local hazard mitigation planning.

**SCOPE**

This Hazard Mitigation Plan will be updated and maintained to continually address those natural hazards determined to be of high and moderate risk as defined by the results of the risk assessment (see “Conclusions on Hazard Risk” in Section 6: Vulnerability Assessment). Other natural hazards that pose a low or negligible risk will continue to be evaluated during future updates to the Plan in order to determine if they warrant additional attention, including the development of specific mitigation measures intended to reduce their impact.
The planning area includes unincorporated areas of Mecklenburg County, the City of Charlotte and the towns of Cornelius, Davidson, Huntersville, Matthews, Mint Hill and Pineville.

**AUTHORITY**

This Hazard Mitigation Plan has been adopted by Mecklenburg County in accordance with the authority and police powers granted to counties as defined by the State of North Carolina (N.C.G.S., Chapter 153A). This Hazard Mitigation Plan has also been adopted by the City of Charlotte, Town of Cornelius, Town of Davidson, Town of Huntersville, Town of Matthews, Town of Mint Hill and the Town of Pineville under the authority granted to cities and towns as defined by the State of North Carolina (N.C.G.S., Chapter 160A). Copies of all local resolutions to adopt the Plan are included in Appendix A.

This Plan was developed in accordance with current state and federal rules and regulations governing local hazard mitigation plans. The Plan shall be monitored and updated on a routine basis to maintain compliance with the following legislation:


**PLAN OUTLINE**

This Hazard Mitigation Plan is divided into ten major sections, each of which is briefly introduced and described below. It also includes several appendices for additional or supplemental items not included in the main body of the plan, including copies of local adoption resolutions and a completed Local Hazard Mitigation Plan Update Checklist.

This *Introduction* (Section 1) provides some background on hazard mitigation planning and the Disaster Mitigation Act of 2000, and then defines the purpose, scope and authority of the plan as adopted by Mecklenburg County and its incorporated municipalities. It also provides the following outline of each section making up the plan.

The *Planning Process*, found in Section 2, fully documents the process by which Mecklenburg County and its participating municipal jurisdictions have prepared and updated this plan. This includes describing the key steps involved in the processes followed, who was involved (the planning team) and full descriptions of community meetings and workshops, how the public and other stakeholders were notified and involved, and how each of the municipal jurisdictions participated in the process.

The *Community Profile*, located in Section 3, describes the general makeup of Mecklenburg County and participating municipalities, including prevalent geographic, demographic and economic characteristics. In addition, building characteristics and land use patterns are discussed along with some general historical

---

1 Refer to Section 3: *Community Profile* for an overview map of Mecklenburg County and other specific details of the planning area.
disaster data. This baseline information provides a snapshot of the countywide planning area and thereby assists participating officials recognize those social, environmental and economic factors that ultimately play a role in determining community vulnerability to natural hazards.

The Risk Assessment is presented in three separate sections: Section 4: Hazard Identification; Section 5: Hazard Analysis; and Section 6: Vulnerability Assessment. Together, these sections serve to identify, analyze and assess Mecklenburg County’s overall risk to natural hazards. The risk assessment also attempts to define any hazard risks that may uniquely or exclusively affect localized areas within the participating jurisdictions. The risk assessment builds on available historical data from past hazard occurrences, establishes hazard-by-hazard profiles, and culminates in a hazard risk ranking based on conclusions about the frequency of occurrence, potential impact, spatial extent, warning time and duration of each hazard. FEMA’s HAZUS™ loss estimation methodology was also used in evaluating known hazard risks according to their relative long-term cost, measured in expected damages. The risk assessment is designed to assist communities seek the most appropriate mitigation actions to pursue and implement—focusing their efforts on those hazards of greatest concern and those assets, structures or planning areas facing the greatest risk.

The Capability Assessment, found in Section 7, provides a comprehensive examination of Mecklenburg County and participating jurisdictions capacity to implement meaningful mitigation strategies and identifies existing opportunities to increase and enhance that capacity. Specific capabilities addressed in this section include planning and regulatory capability, staff and organizational (administrative) capability, technical capability, fiscal capability, and political capability. Information was obtained through the use of detailed survey questionnaires and an inventory and analysis of existing plans, ordinances and relevant documents. The purpose of this assessment is to identify any existing gaps, weaknesses or conflicts in programs or activities that may hinder mitigation efforts, and to identify those activities that should be built upon in establishing a successful hazard mitigation program.

The Community Profile, Risk Assessment, and Capability Assessment collectively serve as a basis for determining the goals for the Hazard Mitigation Plan, each contributing to the development, adoption and implementation of a meaningful Mitigation Strategy that is based on accurate background information.

The Mitigation Strategy, found in Section 8, consists of broad goal statements as well as the identification and evaluation of mitigation techniques for each jurisdiction participating in the planning process to consider in addressing their own unique hazard risks. The strategy provides the foundation for detailed Mitigation Action Plans, found in Section 9, that link jurisdictionally specific mitigation actions to locally assigned implementation mechanisms and target completion dates. Together, these sections are designed to make the Plan both strategic and functional through the identification of long-term goals and near-term actions that will guide day-to-day decision-making and project implementation.

In addition to the identification and prioritization of possible mitigation projects, emphasis is placed on the use of program and policy alternatives to help make Mecklenburg County and participating municipalities less vulnerable to the damaging forces of nature while improving the economic, social and environmental health of the community. The concept of multi-objective planning was emphasized throughout the plan development and update process, with local representatives from each jurisdiction being encouraged to seek ways to link hazard mitigation policies and programs with other complimentary community goals that may be related to housing, economic development, downtown revitalization, recreational opportunities, transportation improvements, environmental quality, land development, and public health and safety. Specific examples already proven effective in Mecklenburg County include the acquisition of flood-prone properties, the creation of urban greenways and open space in the floodplain, improving water quality through the reduction in non-point source pollution, and the delineation of floodplain boundaries that account for the impact of future development. Each of these proactive and interconnected measures
represents a concerted effort to make Mecklenburg County and participating jurisdictions more livable communities.

Lastly, the Plan Maintenance Procedures, found in Section 10, includes the measures Mecklenburg County and participating jurisdictions will take to ensure the Plan’s continuous long-term implementation. The procedures also include the manner in which the Plan will be regularly monitored, reported upon, evaluated and updated to remain a current and meaningful planning document.

There are several appendices to the Plan, including Appendix A (Plan Adoption) which includes copies of the local adoption resolutions passed by the governing bodies for each of Mecklenburg County’s local jurisdictions requesting approval of the Plan. Appendix B (Public Participation Survey) includes a general summary of the results and findings of the public participation survey along with a copy of the survey instrument used to collect the data during the 2010 plan update process. Appendix C (Key Federal Mitigation Funding Sources) includes a listing of some of the key, well-established federal hazard mitigation funding programs available to implement future mitigation projects. Appendix D (Local Hazard Mitigation Plan Update Checklist) includes a completed copy of the Local Hazard Mitigation Plan Update Checklist as provided by the North Carolina Division of Emergency Management.
Life Threatening Emergencies 911
City/County Information 311
Water Emergency 704-336-2564
Sewer Emergency 704-357-6064
Electric Emergency 800-796-3766
Natural Gas Emergency 800-356-2593
Telephone Emergency 611 or 704-780-2500
Animal Control Hotline 704-336-3840
Poison Control 704-355-4000
Mecklenburg County Health Department 704-336-4700
Environmental Health 704-336-5500
Emergency Management Office 704-336-2461

Media Stations

WBTV 704-374-3500
WSOC-TV 704-338-9999
WCNC-TV 704-329-3636
WCCB-TV 704-374-3500
WBT Radio 704-358-5000
Charlotte Observer 704-358-5000

Road Conditions

Highway Patrol, Communications 800-572-8765
Western Carolina and Foothills 800-445-1779
Asheville and Points West 800-445-1772
Carolinas, Virginia, Georgia and Tennessee 886-299-7623

For flight information, call your specific airline.

US Airways: Charlotte Douglas International Airport 704-376-0235

Others

Charlotte Mecklenburg Schools Hotline 980-343-6192
American Red Cross 704-376-1661
Duke Energy 800-777-9898
CATS & LYNX Schedules 704-336-RIDE
Health & Safety Tips After a Flood 311 or 704-336-7600
Report Water Pollution 704-336-5500
Flood Insurance 800-427-4661
Repair and Building Permits 704-336-2831
Flooding or Drain Problems 704-336-RAIN

Need information added or changed? Use this contact form to notify for additions or corrections.
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Appendix H

ORDINANCES AND POLICIES
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# Table of Laws, Rules, Codes Governing Solid Waste Management in North Carolina and Participating Local Jurisdictions

<table>
<thead>
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<td>Resource Conservation and Recovery Act</td>
<td>USEPA</td>
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<td>Code of Federal Regulations (CFR), Volume 40, Parts 240-257</td>
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<td>Chapter 153A, Article 6, Delegation Powers</td>
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<td><strong>Local Ordinance – Town of Matthews</strong></td>
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<td>Town Code of Ordinances, Chapter 50A – Solid Waste</td>
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<td><strong>Town Code of Ordinances of Mint Hill</strong></td>
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<tr>
<td>Property Maintenance - Chapter 5, Article II</td>
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<td>Solid Waste - Chapter 10</td>
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<td>Zoning - Appendix A</td>
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**Notes:**

LUESA = Mecklenburg County Land Use & Environmental Services Agency  
MCHD = Mecklenburg County Health Department  
NCDENR = North Carolina Dept. of Environment and Natural Resources
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MEMORANDUM

To: Department/Agency Directors

From: Harry L. Jones, Sr., County Manager

Date: December 1, 2011

Subject: Environmentally Preferred Purchasing Policy

I am writing to update you on progress we have made in the County’s Environmental Sustainability Plan and to reinforce the need for your ongoing leadership in achieving the Plan’s goals.

Mecklenburg County is a large consumer of goods and services. The decisions that our employees and vendors make regarding procurement of goods and services can impact the environment.

The County’s Environmental Sustainability Plan has specific goals regarding the environmentally responsible yet fiscally sound procurement of paper, ink and toner cartridges, office supplies, cleaning products and paints. The long-term 2020 goal for these products is that 85% meet the specifications found in the Environmentally Preferable Purchasing Guide. Efforts to meet this goal have included:

- Embedding the EPPG into the County’s Procurement Policy,
- Training available for staff, and
- Available on-line shopping for these products through the County’s vendors.

The result of these efforts has been to improve our EPPG purchasing from 53% to 68% between FY2010 and FY2011. However, in an effort to acknowledge the extra effort necessary to reach our 85% goal, the following policy shall be enacted.

County employees shall purchase the following environmentally preferred products that contain recycled content or are made with less toxic materials:

- Copying and Printing Paper (30% recycled content)
- Office Paper Products (file folders, pads, post-it notes, envelopes, labels, etc.) (recycled content)
- Bankers Boxes (recycled content)
- 3-ring Binders (recycled content)
- Pens and other writing instruments (recycled content)
- Inkjet, Toner, and Printer Cartridges (remanufactured)
In addition, County employees shall adhere to the Environmentally Preferable Purchasing Guide regarding items and services not listed above.

I am directing all County departments to adhere to the Environmentally Preferable Purchasing Guide and procurement of specific products as included in this memorandum. Staff may contact Heidi Pruess, Environmental Policy Administrator at (704) 336-5597 for additional information.

cc: Executive Team
MECKLENBURG COUNTY

PURCHASING GUIDE for
ENVIRONMENTALLY PREFERABLE PRODUCTS

Provided by Business Support Services: Procurement Services Division and the Mecklenburg County Green Purchasing Team

Updated: September 2009
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Introduction
The Business Support Services, Procurement Services Division (PSD) is responsible for ensuring that all City of Charlotte and Mecklenburg County purchases are made in compliance with current federal, state, and local laws and City/County policies. PSD is charged with the oversight, administration, and monitoring of the Procurement Policy and Procedures Manual which is posted at: http://cnet/psd/default.aspx.

The Mecklenburg County Green Purchasing Team is a volunteer group of County employees representing County Departments and their varying purchasing interests. This team has provided input and oversight for development of this guide.

Disclaimer: Users of this guide are responsible for complying with all applicable law (including without limitation North Carolina General Statutes 143-129 and 143-131), the Procurement Services Policy and Procedure Manual, the Recycled Product and Waste Reduction Policy adopted by the Board of County Commissioners on August 13, 1996 and other Board or County Manager directives. Any specifications presented in this guide are not intended to constitute or render engineering, architectural, legal or other professional services or advice. Nor should they be a substitute for such services or advice from an experienced professional directed to a specific design situation. While information in any specifications is believed to be accurate, the Procurement Services Division, and its consultants on this project shall not be liable for damages arising from errors or omissions in specifications.

Purpose
This guide introduces and defines "environmentally preferable purchasing" and is intended to support the principle of “including environmental considerations in purchasing decision for goods and services” stated within the Mecklenburg County Environmental Leadership Policy. This guide provides departments with valuable information and resources to incorporate environmental considerations when making purchasing decisions.

Included in this guide are the basics of environmentally preferable purchasing, suggested purchasing resources and purchasing recommendations for many product groups to help you make environmentally preferable buying decisions.

How will this purchasing reference guide help me?
It is not always easy finding or deciding which product is better for our employees and environment. Every item we buy has an impact on our health and environment, no matter whether we are buying cleaning products, furniture, lights, motor oil, office supplies, paint, cars, and the list goes on.

We hope you find this reference guide a helpful resource when looking for products with environmental attributes or deciding between products. Most of all, it should encourage buyers to ask the right questions.

What is environmentally preferable purchasing?
Environmentally preferable goods and services are those that have a lesser or reduced effect on human health and the environment when specifically compared with other goods and services that serve the same purpose.

Questions to ask before purchasing a product include:
- Is the product less hazardous?
- Is it reusable or more durable?
- Is it made from recycled materials?
- What happens to the product at the end of its life? Can it be recycled? Will the manufacturer take the product back? Will it need special disposal?
Section 1 – Environmental Preferable Purchasing Guide

- Does it conserve energy or water?
- Is it made from plant-based raw materials?

The United States Environmental Protection Agencies offers the following advice on their website http://www.epa.gov/epp/index.htm, “The overall best value takes into account performance, price, availability, regulatory requirements, and environmental impact. Purchasers should examine as many relevant product attributes as possible, recognizing that tradeoffs are inevitable. For example, one product may be made with renewable resources (a desirable characteristic), while another product has a lower VOC content (also a desirable characteristic).

Purchasers should be especially careful in interpreting vague or generic claims such as "environmentally friendly," "eco safe," etc. Purchasers should ask vendors and manufacturers offering green products to clearly and specifically define their green claims.

In addition, purchasers should ask manufacturers if they have conducted life cycle studies on their products. In the absence of comprehensive life cycle data, purchasers must simply make the best decision possible with the information available. Purchasers have to make a decision about the overall best value, taking into account their own organization's policies and priorities.

Depending upon which product you are buying, all or only a few of these questions will apply. One challenge in buying wisely is knowing which questions to ask. With this Guide helping to put environmental issues in context, asking these questions will become second nature.

What are environmental attributes?

Environmental attributes are those features of a product that make it preferable to purchase over other products. Some of the environmental attributes to consider are as follows:

<table>
<thead>
<tr>
<th>Environmental Attributes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recycled Content</td>
<td>Buying products made with recycled materials save energy and resources, and keeps waste out of landfills. Recycled content products can be made with pre-consumer content, post-consumer content, or a mixture of both. Pre-consumer content utilizes materials from manufacturer’s scrap. Post-consumer content utilizes materials collected from recycling programs.</td>
</tr>
<tr>
<td>Less Hazardous</td>
<td>Avoiding products containing hazardous chemicals reduces potential serious health risks to people and damage to the environment. As a general rule, always try to use the least amount of a hazardous product. Avoid products with the following precautionary words such as Caution, Danger, Warning or Poison. Many alternative products are available that are less hazardous.</td>
</tr>
<tr>
<td>Conserves Energy</td>
<td>Reducing energy use is one of the simplest things we can do to curb impacts to the air we breathe and our environment. Energy production can contribute to emissions of carbon dioxide. Hydroelectric dams can degrade habitat and impede fish passage. By buying energy-efficient products, you will keep utility consumption down and protect the environment. The federal Energy Star label helps buyers identify energy-efficient products.</td>
</tr>
<tr>
<td>Prevents Waste</td>
<td>Preventing waste can conserve natural resources. Our state generates millions of tons of municipal solid waste annually. You can prevent waste when you reduce the amount of material you buy to accomplish any task, buy repairable items, and find multiple uses for items.</td>
</tr>
</tbody>
</table>
Selecting products with low or no VOCs reduces indoor air quality hazards for employees. VOCs are chemicals that evaporate easily (volatilize) at room temperature and often have unhealthy and unpleasant vapors. They come from many products such as adhesives, carpeting, upholstery, paints, solvents, pesticides and cleaning products. Some VOCs may cause cancer, especially, when they are concentrated indoors. When VOCs hit sunlight it creates ozone, an air pollutant harmful to both people and plants.

Choosing products and services that conserve water can save money on water and sewer bills. Less than one percent of the Earth’s water is available for human consumption. Dry spells and pollution remind us that our water supply can be threatened.

Considering the product’s end of life issues when you buy can prevent costly disposal bills. Sometimes saving money up-front on a purchase results in spending more in the long term for proper disposal or injuries related to use of a product or disposal. It also encourages manufacturers to reduce their product’s environmental burden.

Packaging is a large component of municipal solid waste landfills. A product’s packaging can account for a significant portion of the product’s contribution to municipal solid waste. EPA’s recommended approach to managing solid waste is to first reduce packaging of products, and second, recycle packaging materials.

A "biodegradable" product has the ability to break down, safely and relatively quickly, by biological means, into the raw materials of nature and disappear into the environment. These products can be solids biodegrading into the soil or liquids biodegrading into water. Biodegradable plastic is intended to break up when exposed to microorganisms (a natural ingredient such as cornstarch or vegetable oil is added to achieve this result).

Why is environmentally preferable purchasing important?

The purchase and use of environmentally preferable products can have a profound impact – and not just on the environment. From worker safety to budget savings, wise purchasing has a number of additional tangible benefits:

- Buying less-hazardous products can reduce regulatory liability, improve worker safety, and lower disposal costs.
- Using energy-efficient and water-conserving products can save money.
- Products that are reusable, refillable, more durable, or repairable create less waste and are more cost-effective in the long run than disposable or single-use products.
- Buying recycled products conserves valuable landfill space by using goods made from materials that otherwise would have been discarded. Using recycled products and packaging also conserves natural resources and energy.
- Environmentally preferable purchasing compliments other Mecklenburg County environmental policies including: practicing waste minimization and requiring environmentally sensitive design (USGBC LEED certification) for all new and retrofitted facilities.
Practice the Four R’s – Reduce, Reuse, Recycle, and Rebuy

**Reduce:** is the best of the four R’s—because preventing waste in the first place means you have less waste to worry about in the end!

- Shop for products that have the least amount of packaging
- Buy in bulk quantities whenever possible.
- Rent or borrow items that are used infrequently.
- Maintain and repair items to ensure a long product life.

**Reuse** is the next best—if you can reuse your waste, it is longer considered waste! Giving away old clothes and other unwanted items to charities and thrift stores keeps good items out of the trash and can save you money. Why pay extra to dump good usable items when you can donate them for free?

**Recycle:** Sometimes things can’t be reused. Recycling keeps raw material in the system and keeps us less dependent on virgin ore, oil and trees for raw materials. If we can keep recycling our products, not only will we reduce the amount of material going to the landfill, we will also reduce the necessity of mining and chopping down trees! All Mecklenburg County employees are required to participate in the PaperChase program for paper and cardboard recycling. Additionally, beverage container recycling is encouraged as an addition to the PaperChase program. Get a blue bin and start recycling!

**Rebuy:** Close the loop! What good is recycling if nobody buys the recycled products? Buying recycled products creates a larger demand for them. More demand means more manufacturers will try selling more recycled products. You also might want to consider only buying products that can be recycled.
There are a number of organizations that are putting considerable time and effort into evaluating products and services based on environmental impacts. Below are a few of the most widely recognized organizations that have established environmentally preferable product standards.

<table>
<thead>
<tr>
<th><strong>Green Seal</strong></th>
<th>is a nationally recognized nonprofit organization that certifies a variety of environmental products that pass stringent testing standards. Approved products carry a Green Seal logo that is well recognized throughout industry and government as a leading environmental standard. Green Seal bases its work on thorough, state-of-the-art scientific evaluations using internationally accepted methodologies. Product evaluations are conducted using a life-cycle approach to ensure that all significant environmental impacts of a product are considered, from raw materials extraction through manufacturing to use and disposal. <a href="http://www.greenseal.org">www.greenseal.org</a></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ENERGY STAR</strong></td>
<td>is sponsored by the U.S. Department of Energy and the U.S. Environmental Protection Agency. ENERGY STAR labels products such as computer CPUs, monitors, printers, copiers, and other devices that exceed US energy efficiency standards. ENERGY STAR also includes lighting, appliances, windows and many other products. <a href="http://www.energystar.gov">www.energystar.gov</a></td>
</tr>
<tr>
<td><strong>United States Environmental Protection Agency (EPA)</strong></td>
<td>works to develop and enforce regulations that implement environmental laws enacted by Congress. EPA is responsible for researching and setting national standards for a variety of environmental programs, and delegates to states and tribes the responsibility for issuing permits and for monitoring and enforcing compliance. Where national standards are not met, EPA can issue sanctions and take other steps to assist the states and tribes in reaching the desired levels of environmental quality. The EPA provides Comprehensive Procurement Guidelines (CPG) that is updated every two years. Through the CPG, EPA designates items that must contain recycled materials when purchased with appropriated federal funds by federal, state, and local agencies. <a href="http://www.epa.gov/cpg">www.epa.gov/cpg</a></td>
</tr>
<tr>
<td><strong>American Society for Testing and Materials (ASTM)</strong></td>
<td>is one of the largest voluntary standards development organizations in the world and a trusted source for technical standards for materials, products, systems, and services. Known for their high technical quality and market relevancy, ASTM International standards have an important role in the information infrastructure that guides design, manufacturing and trade in the global economy. Standards for over 12,000 items can be downloaded at: <a href="http://www.astm.org">www.astm.org</a></td>
</tr>
<tr>
<td><strong>Greenguard Environmental Institute (GEI)</strong></td>
<td>is an industry-independent, nonprofit organization that oversees the GREENGUARD Certification Program. As an ANSI Authorized Standards Developer, GEI establishes acceptable indoor air standards for indoor products, environments, and buildings. <a href="http://www.greenguard.org/">http://www.greenguard.org/</a></td>
</tr>
</tbody>
</table>
Writing Specifications

When putting together your bid requirements for products and services consider how environmental attributes can be included in your specifications. Taking some time to consider environmental impacts before purchasing can result in lasting benefit for people and the environment.

Here are a few strategies:

- Require all products have a low impact to human health and environment.
- Require recycled content in products and products that can be easily recycled.
- Require packaging or containers that are refillable, returnable, or recyclable.
- Specify those environmental attributes that make sense to a product, such as non-toxic, recycled content, mercury-free, biodegradable, energy efficient, low VOC, Energy Star, or vendor recycling and take-back programs.
- Ask vendors to identify environmental attributes that are common to a product and then think about using them when preparing your specifications.
- Avoid specifications that would limit the purchase of certain products, e.g. requiring new equipment or virgin materials when refurbished or recycled products would work.
- Watch for over-specification; only specify product qualities that are critical to performance and leave other features open to alternatives, by specifying color of plastic items you may eliminate recycled-content items.
- Take into account the life-cycle costs, not just the purchase price of a product; consider long-term savings on maintenance, replacement and disposal costs.
- Give an evaluation preference to products that offer the environmental attribute that you are looking for, e.g. additional points based an environmental attribute.
- Award contracts using a good, better and best ranking for products and let the customer choose, this method allows for pricing differences for environmentally preferable products.
- Buy in bulk or in concentrate when feasible. Facilities can often realize significant cost-savings by buying certain items in bulk. Be sure to identify proper:
  - “Unit of Use” - to address the issue of large quantities of hazardous materials expiring before being used or being wasted due to improper mixing or handling, clearly identify the intended use of the item to be purchased on a daily basis; and
  - “Just in Time Delivery” – to eliminate overstocking, expiration, and storage concerns, indicate the frequency with which products should be delivered. Rather than order a year's worth of supplies in large containers to be delivered at once, receive smaller shipments of smaller-quantity products only when needed, either quarterly, monthly, or weekly—”just in time” for the project at hand. This method ensures the products are on hand when they are needed rather than having them sit in a warehouse, possibly expiring before they can be used.
- Packaging should be recycled or recyclable materials and kept to a minimum to avoid waste.
- Keep track of what works well and any difficulties you encountered in purchasing these products for future purchases.
- Set environmental purchasing goals and track them for your office, department and agency.
- Limit the use of Styrofoam in packaging and food utensils.
## 2.1 GENERAL BUILDING MAINTENANCE

### 2.1.1 Carpeting

#### An Overview
Most commercial carpet is made by bonding a face fiber to a backing fiber, using one of a variety of strong bonding agents. Recycled content and recyclable carpet options each have their own merits and considerations, depending on specific need, location, and use. Nylon, polyester, and plastic are made from petroleum, a non-renewable resource. Since the face fiber backing can contribute up to 60% of the carpet material, purchasing a nylon face fiber with 100% recycled content backing is worth consideration. Closed loop systems, where used carpet fiber and backing are made into new carpet and backing (and can be recycled into new carpet after its useful life) are important to consider.

### Mecklenburg County Environmental Policy Requirements:
All quantities > 2000 sq ft must meet or exceed Collaborative for High Performance Schools Section 01350 or better. The 2010 goal is 100% compliance.

### Potential Environmental Impacts
- Indoor air quality concerns from fumes given off by new or recycled synthetic materials may favor natural materials such as wool, cocoa matting, hemp and similar materials.
- Conventional synthetic carpets are made from non-renewable resources.
- Disposal issues at the end of product life span.

### Things to Consider Before Buying or If You Write Your Own Specifications
- Look for the highest recycled content.
- Recyclable products with “seals of approval.”
- Products that minimize volatile organic compound (VOC) emissions.
- Carpet that is not SB latex-backed.
- Product that contains natural or vegetable dyes and additives.
- Colors that match natural soiling to hide dirt and stains.
- Minimum 10 year warranty.
- Minimum of 28 ounces per square yard for loop pile carpet and 34 ounces per square yard for cut pile carpet.
- Recycle carpet and/or carpet padding. Go to [www.wipeoutwaste.com](http://www.wipeoutwaste.com) for additional information.

### Availability
Carpet with recycled-content face fibers and/or backing is readily available through many distributors and is available in many different colors and patterns. Green Seal recommends the following carpet brands: **Beaulieu of America, Brintons, Colin Campbell & Sons, Collins & Aikman, Interface, J&J Industries, Mannington Mills, Milliken Carpet, Mohawk, Shaw, and Talisman Mills.**
2.1.2 Ceiling Tiles

An Overview
Ceiling tiles generally fall under the product category of acoustical products. Ceiling tiles are generally designed to be light, to be acoustically deadening and to be durable and low maintenance. At one time ceiling tiles had high asbestos content but they are continuing to improve with the advent of new recycling technologies. Some products now on the market have a minimum of 80% recycled content (mineral fibers). They are durable and tear resistant, so they can be reused.

Mecklenburg County Environmental Policy Requirements
Ceiling tiles should meet or exceed Collaborative for High Performance Schools Section 01350 or better.

Potential Environmental Impacts
- Health hazards from dust and fumes during and after insulation.
- Hazardous materials may enter the waste stream when disposed of.
- Paints used in ceiling tiles could contain high VOC.

Things to Consider Before Buying or If You Write Your Own Specifications
- Look for tiles made from cellulose fibers, mineral and slag wool by-products and/or recycled fiberglass.
- NO asbestos fibers are acceptable.
- Specify products that meet Collaborative for High Performance Schools Section 01350 or other nationally recognized environmental organization.
- Tiles should contain a high percentage of recycled content. The EPA recommends a minimum recycled content of 80%.
- Look for durable construction and low maintenance tiles.
- Products must meet all building and fire codes.

Availability
The EPA recommends the following ceiling tile manufacturers: Armstrong, and USG Corporation. Ceiling tiles with recycled-content materials are available through many distributors. Please check the Vendor Management System (VMS), or Advantage for a complete listing of registered vendors and always require the vendor to quote environmental preferable products when practicable.
2.1.3 Paint Products

An Overview
Paints are among the most widely purchased products in the area of building maintenance. These products range in environmental impact, but all have the potential to adversely affect the environment through improper use, waste, and end disposal.

Mecklenburg County Environmental Policy Requirements:
Paint should have low level of Volatile Organic Compounds (VOC). The 2010 goal is a minimum of 50% compliance.

Potential Environmental Impacts
- Volatile organic compounds (VOC) and fumes reduce air quality and are less hazardous.
- Unused product disposal, if not performed properly could lead to environmental problems.

Things to Consider Before Buying or If You Write Your Own Specifications
  - Flats: 50 g/L
  - Non-Flats: 150 g/L
- Clear wood finishes, floor coatings, stains, and shellacs applied to interior elements: Do not exceed the VOC content limits established in South Coast Air Quality Management District (SCAQMD) Rule 1113, Architectural Coatings, rules in effect on January 1, 2004.
  - Clear wood finishes: varnish 350 g/L; lacquer 550 g/L
  - Floor coatings: 100 g/L
  - Sealers: waterproofing sealers 250 g/L; sanding sealers 275 g/L; all other sealers 200 g/L
  - Shellacs: Clear 730 g/L; pigmented 550 g/L
  - Stains: 250 g/L
- Require low or no fumes and preferably no volatile organic compounds (VOC).
- Absence of mercury or mercury compounds is desired.
- Absence of pigments of lead, cadmium, chrome is desired.
- Longevity of application.
- Buying the right amount of paint reduces waste.
- Recycle paints at any of the County’s four staffed Recycling Centers. Go to www.wipeoutwaste.com for additional information.

Availability
Nationally, recycled paint is a relatively new product. However, Low-VOC and less-toxic paint are available from numerous local and national manufacturers. Green Seal lists low VOC paints by the following paint manufacturers: Benjamin Moore, Dutch Boy, Olympic Paint and Stain, Sico, Inc., PPG, Rodda, and Miller Paint Co. Please check the Vendor Management System (VMS), or Advantage for a complete listing of registered vendors and always require the vendor to quote environmental preferable products when practicable.
### 2.1.4 Insulation

#### An Overview
There are many thermal insulation materials on the market. They may be purchased as two types: plastic foam insulation or fibrous material. The use of thermal insulation is increasing to help curb the use of energy and non-renewable resources. In addition, the use of recycled materials will reduce the amount of materials entering the waste stream and reduce total resource consumption.

#### Mecklenburg County Environmental Policy Requirements:
Insulation should contain recycled materials.

#### Potential Environmental Impacts
- Health hazards from dust and fumes during and after insulation reduce air quality.
- Energy and resource consumption in manufacturing the product.
- Incorporation of ozone depleting substances in the manufacture of the product.

#### Things to Consider Before Buying or If You Write Your Own Specifications
- Low or no fumes and preferably no volatile organic compounds (VOC).
- Require highest recycled content materials.
- Specify products that meet Greenguard Environmental Institute or EPA standards or other nationally recognized environmental organization.

#### Availability
Please check the Vendor Management System (VMS), or Advantage for a complete listing of registered vendors and always require the vendor to quote products that meet the EPA standards whenever practicable.
2.1.5 Roofing

An Overview
For a properly constructed structure, weather protection begins at the ridge of the roof, continuing down to form an unbroken barrier that keeps out the elements -- rain, snow, and the sun's light and heat. Currently, there is a multitude of roofing materials available, ranging from asphalt shingles, wood shingles and shakes, to roll-roofing and plastic membranes, to slate and tiles (clay and concrete), and finally to aluminum, copper and steel panels.

Mecklenburg County Environmental Policy Requirements:
EPA recommends that procuring agencies refer to the 186 standards for roofing products maintained by ASTM's Committee D08 on Roofing, Waterproofing, and Bituminous Materials.

Potential Environmental Impacts
- Depending on material specified, air quality may be impacted adversely during time of installation.
- Some materials may contain high VOC that may have a negative impact over longer term.
- Some materials used are non-renewable resources.
- Disposal issues at the end of product life's span.

Things to Consider Before Buying or If You Write Your Own Specifications
- It’s important to consider the climate, the buildings requirements and potential health issues of residents and the environment.
- Require the highest recycled content.
- Preference for products with “seals of approval.”
- Require low or no fumes and preferably no VOCs.
- Longevity of application.
- Product should meet all building and fire codes.
- Mecklenburg County has a certified Construction and Demolition landfill for proper disposal of construction and demolition materials and recycling of selected materials. Visit www.wipeoutwaste.com.

Availability
Please check the Vendor Management System (VMS), or Advantage for a complete listing of registered vendors and always require the vendor to quote environmental preferable products when practicable.

W.P. Hickman offers Green Roofing materials and can be purchased through the U.S. Communities Cooperative Purchasing Program. For more information please contact:

W.P. Hickman
Walter McGee
Bus: 440.248.7760
Cell: 828.273.4700
wmcgee@wphickman.com
### 2.2 JANITORIAL PRODUCTS

#### 2.2.1 Industrial and Commercial Cleaners

**Overview**
The primary function of industrial and commercial cleaners is for facility and machinery cleaning. The selection of a cleaner is influenced primarily by the nature of the surface to be cleaned, the nature of the soiling, and the degree of cleanliness required.
The major ingredients in cleaners are surfactants, builders, solvents, scouring abrasives, and alkalis.

**Mecklenburg County Environmental Policy Requirements:**
Products should meet Green Seal Standards. [http://www.greenseal.org/certification/environmental.cfm](http://www.greenseal.org/certification/environmental.cfm)
The 2010 goal is a minimum of 40% compliance.

**Potential Environmental Impacts**
- End of life management is essential. Products may be a burden on the environment in terms of wastewater loading and treatment, emissions of VOCs and resource consumption.
- If surfactants are not easily biodegraded, they may persist and harm ecosystems.
- May be toxic. County employees and contracted cleaning staff who use these products are exposed to hazards and potential injury on the job.

**Things to Consider Before Buying or If You Write Your Own Specifications**
- Preference should be for products that are biodegradable, not toxic or chlorinated, and standardized as much as possible to reduce the number of chemicals in use.
- Avoid petroleum based products. Instead specify products that are made from natural or bio-based materials like plants, fruits or trees (i.e. citrus and pine oil).
- Require current MSDS sheets on all products as a Purchase Order request to be delivered with the product.
- Chose pump sprays instead of aerosols. Aerosols produce a finer mist that is likelier to be inhaled by workers, and their containers may be hazardous if punctured.
- Low volatile organic compound (VOC) emissions.
- Minimal packaging in refillable or recyclable containers.
- Specify products that meet Green Seal or EPA standards or other nationally recognized environmental organization.
- Require flashpoint >200°F.
- Buy in a concentrated form. Buying cleaners in concentrates with appropriate handling safeguards, and reusable, reduced, or recyclable packaging, reduces packaging waste and transportation energy.
- Read the labels and avoid products that include the following cautions:
  - Warning: Mild to moderate hazard
  - Danger: extremely flammable, corrosive, or highly toxic
  - Poison: highly toxic
- Recycle cleaners at any of the County’s four staffed Recycling Centers. Go to [www.wipeoutwaste.com](http://www.wipeoutwaste.com) or [www.charmeck.org/Departments/LUESA/solid+waste/household+hazardous+waste/home.htm](http://www.charmeck.org/Departments/LUESA/solid+waste/household+hazardous+waste/home.htm) for additional information.

**Availability**
Green Seal compliant cleaners are widely available through various vendors, distributors, and catalogs including, but not limited to, **Spartan, Buckeye, Johnson Wax, W.W. Grainger, Inc. and Safesource** manufactured products. For a complete listing visit: [http://www.greenseal.org/findaproduct/index.cfm](http://www.greenseal.org/findaproduct/index.cfm)
There are many vendors that offer cleaning products that have registered with Charlotte Mecklenburg. Please check the Vendor Management System (VMS), or Advantage for a complete listing and require the vendor to quote Green Seal approved or EPA compliant products when feasible.
## 2.2.2 Janitorial Paper Products

### Overview
What products do we use a lot, can use only once, and never use again? The answer is bathroom & facial tissues, paper towels and toilet seat covers. These products cannot be recycled, thereby eliminating the potential to replenish what has been consumed. According to Green Seal, use of post consumer fibers reduces the impact on landfills by saving 3.3 cubic yards of space for every ton of paper that is re-channeled.

### Mecklenburg County Environmental Policy Requirements:
Products must contain 100% recycled content material and meet the Green Seal standards as follows:
- Bath & Facial Tissues must contain a minimum 20% post consumer content.
- Paper Towels must contain a minimum 40% post consumer content.
The 2010 goal is 75% compliance.

### Potential Environmental Impacts
- Manufacture of products may release substances that contaminate the environment and enter the solid waste stream.
- Land resources can be degraded due to the manufacture process.

### Things to Consider Before Buying or If You Write Your Own Specifications
- Products must be 100% recycled and contain a minimum 20% post consumer content.
- Request minimum packaging of all products. Packaging should be recyclable.
- Require bleach free products.

### Availability
Green Seal lists the following paper manufacturers, among others: **AmSan, Cascades, Hillyard, and Wausau/Baywest**.
Mecklenburg County has installed Green Seal certified Wausau/Baywest products in all facilities. Please check with the Real Estate Services / Building and Grounds Department for all janitorial paper product needs.
# 2.2.3 Plastic Trash Bags (Can Liners)

## Overview
A staple in most workplaces, plastic waste bags are used in trash cans or recycling bins. Their use conserves energy and promotes recycling. Workplaces can save money by instructing staff to replace bags only when they are too dirty or full for the work setting in which they are used.

### Mecklenburg County Environmental Policy Requirements:
Products must contain minimum 10% post-consumer recycled content.

### Potential Environmental Impacts
- Use of recycled plastic trash bags conserves energy and promotes recycling.
- Manufacture of products may release substances that contaminate the environment and enter the solid waste stream.
- Land resources can be degraded due to the manufacture process.

### Things to Consider Before Buying or If You Write Your Own Specifications
- Products must contain a minimum 10% post-consumer content.
- Any bag can fail if stressed beyond its intended use. Performance features such as puncture and tear resistance should be reviewed before choosing any bag, regardless of whether it has recycled content.
- When purchasing bags, work with the vendor to determine the size, thickness, durability and other performance requirements that are appropriate for your application.
- Bags should be lead free.
- Bags should be non-toxic when incinerated, disposed of in a landfill, or decomposed in composting.

## Availability
The availability of bags featuring recycled content is somewhat dependent on the type of bag. For bags ranging in capacity from 7 to 56 gallons and in thickness from 0.35 to 1.35 millimeters, products are widely available with up to 100% post-consumer recycled-content plastic. However, recycled content may be difficult to find in certain colors, sizes, and thicknesses.

Mecklenburg County currently has the following BOCC approved contract in place for trash bags:

**Calico Industries, Inc.**
Ben Early
P.O. Box 2005
9045 Junction Drive
Annapolis Junction, MD 20701
Phone: 800.638.0828
Fax: 301.498.2056
### 2.3 Computers and Monitors

**Overview**
Computers are an integral part of most County offices but most contain materials that can pose a threat to the environment if not managed carefully at the end of their useful life. Desktop color monitors typically contain about two or more pounds of lead and lead can also be found inside in the circuit boards of the computer.

<table>
<thead>
<tr>
<th>Mecklenburg County Environmental Policy Requirements:</th>
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<tbody>
<tr>
<td>Computers and monitors should be Energy Star® certified. <a href="http://www.energystar.gov">www.energystar.gov</a></td>
</tr>
<tr>
<td>The County’s 2010 goal is 95% compliance.</td>
</tr>
</tbody>
</table>

**Potential Environmental Impacts**
- Improper disposal of computer equipment can release lead and/or other toxins into the environment.
- Can consume excessive energy when the machines are on but not in use.

**Things to Consider Before Buying or If You Write Your Own Specifications**
- Mecklenburg County IST Department should be consulted before configuring or ordering any computer equipment.
- Equipment should be Energy Star® certified.
- Computers should be recycled through the County’s surplus furniture and electronics recycling program. IST 2HELP should be contacted for disposal of all IT assets.

**Availability**
Many computer manufacturers participate in the Energy Star® program. Please consult with Mecklenburg County’s IST Department before purchasing any computer.
2.4 Landscape Materials

2.4.1 Mulch

Overview
Mulch is an insulating material that is spread over the ground and is largely used as a decorative soil surface cover but actually has many horticultural benefits. Shredded wood or chips, and straw are just some of the materials that can be used as mulch. In landscaping and construction projects, mulch is used as a surface material for erosion control or as a temporary road base.

Mecklenburg County Environmental Policy Requirements:
Horticultural mulch made with recycled land clearing and other wood debris should be used.

Potential Environmental Impacts
- Reduces erosion
- Suppresses weeds
- Improves water retention

Things to Consider Before Buying or If You Write Your Own Specifications
- Consider the size of material, texture, composition of material, aesthetics, water-holding capacity, and odor. Specifications vary according to type of mulch and intended use.

Availability
Mecklenburg County Yard Waste facilities produce hardwood, pallet, and red mulch for sale in bulk and bags. Visit http://www.charmeck.org/Departments/LUESA/Solid+Waste for pricing and to find the nearest facility. Mulch is also available from many local landscape companies. Please check the Vendor Management System (VMS), or Advantage for a complete listing and require the vendor to quote environmental preferable products when feasible.

2.4.2 Compost

Overview
Compost is a valuable soil amendment that is produced from composting the decomposition of organic materials such as yard trimmings, food scraps, and animal waste...or waste products no one else wants or needs. From both an environmental and an economic viewpoint, recycling wastes for use as raw material in the manufacture of compost products makes sense. But beyond the obvious benefits of compost manufacture are the equally impressive advantages of compost use in conjunction with or instead of synthetic products for farming, gardening, and landscaping.

Mecklenburg County Environmental Policy Requirements:
Compost should meet the US Composting Council Seal of Testing Assurance. (www.compostingcouncil.org)

Potential Environmental Impacts
- Improves soil porosity for clay soils
- Improves water retention for sandy soils
- Makes soil more resistant to disease
- Reduces pests and the need for pesticides
- Reduces erosion
- Suppresses weeds
- Enhances storage and slow release of nutrients

Things to Consider Before Buying or If You Write Your Own Specifications
Compost produced at Mecklenburg County yard waste facilities meets the US Composting Council Seal of Testing Assurance Program requirements.

2.4.2 Compost (continued)
Availability
Compost is available for sale in bulk and bags. Call 704-588-9070 for deliveries. Visit http://www.charmeck.org/Departments/LUESA/Solid+Waste for pricing and to find the nearest yard waste facility.

2.4.3 Native Plants

Overview
Native plants are generally defined as those that occurred in North America before European settlement. Approximately 25% of the plants growing wild in the US are naturalized exotics plants from Asia or Western Europe. These plants are invasive and grow unabatedly where native plants otherwise would occur. Invasive exotic plants compete with native plants and pose a great risk to the survival of North Carolina's native species.

Mecklenburg County Environmental Policy Requirements:
Retain as much native vegetation as possible during land clearing and construction. In areas where plants are cleared during development, landscape using native plants. The County's goal is to use native plants 100% while continually reducing and eliminating the use of invasive exotics.

Potential Environmental Impacts
- Native plants are resistant to most pests and diseases which decreases the need for pesticides and herbicides.
- Native plants typically do not require irrigation, which conserves water and saves money.
- Native vegetarian buffers are particularly effective along streams, lakes and wetlands where they help to improve water quality.
- North Carolina's native plants provide well adapted food and cover for North Carolina's native animals.
- Native plants attract a diversity of wildlife to the area. This diversity allows native animals and other native plants to maintain a natural lifestyle, thus reducing the extinction of native species.
- Native plants provide diversity to the native species' food chain by hosting butterfly caterpillars larvae.
- Native plants are well-suited to the state's soil and climate and require relatively little upkeep, which conserves water.

Availability
The following list gives some of the more popular invasive plants used in this area and available for purchase, and the preferred native plant alternative. For more information on native plants, including suggested vendors, visit http://www.charmeck.org/Departments/LUESA/Solid+Waste/PLANT+Program/native-plants.htm
### 2.4.3 Things to Consider Before Buying or If You Write Your Own Specifications

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Suggested Native Alternatives</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Ailanthus altissima</em></td>
<td>Tree-of-Heaven</td>
<td><em>Juglans nigra</em> (Black Walnut)</td>
</tr>
<tr>
<td><em>Akebia quintata</em></td>
<td>Five-leaf Akebia</td>
<td><em>Gelsemium sempervirens</em> (Carolina Jessamine)</td>
</tr>
<tr>
<td><em>Albizia julibrissin</em></td>
<td>Mimosa</td>
<td><em>Amorpha fruticosa</em> (Leadplant), <em>Pinckneya pubesens</em> (Georgia Feverbark Tree), <em>Robinia hispida</em> (Rose-acacia Locust)</td>
</tr>
<tr>
<td><em>Ampelopsis brevipedunculata</em></td>
<td>Porcelain Berry</td>
<td><em>Callicarpa americana</em> (American Beautyberry)</td>
</tr>
<tr>
<td><em>Bambusa spp.</em></td>
<td>Bamboo Species</td>
<td></td>
</tr>
<tr>
<td><em>Berberis thunbergii</em></td>
<td>Japanese Barberry</td>
<td><em>Callicarpa americana</em> (Beautyberry)</td>
</tr>
<tr>
<td><em>Clerodendron bungei</em></td>
<td>Harlequin / Rose Glorybower</td>
<td><em>Rhododendron prinifolium</em> (Plumleaf Azalea)</td>
</tr>
<tr>
<td><em>Elaeagnus spp.</em></td>
<td>Silverberry, Autumn olive</td>
<td><em>Ilex opaca</em> (American holly), <em>Lindera banzoin</em> (Spicebush)</td>
</tr>
<tr>
<td><em>Euonymus alatus</em></td>
<td>Winged Euonymus</td>
<td><em>Itea virginica</em> (Virginia Sweetspire)</td>
</tr>
<tr>
<td><em>Euonymus fortunei</em></td>
<td>Creeping Wintercreeper</td>
<td><em>Antennaria plantaginifolia</em> (Southern Pussytoes)</td>
</tr>
<tr>
<td><em>Hedera helix</em></td>
<td>English ivy</td>
<td><em>Bignonia capreolata</em> (Crossvine), <em>Gelsemium sempervirens</em> (Carolina jessamine), <em>Mitchella repens</em> (Partridge berry)</td>
</tr>
<tr>
<td><em>Hibiscus syriacus</em></td>
<td>Rose of Sharon</td>
<td></td>
</tr>
<tr>
<td><em>Lespedeza bicolor</em></td>
<td>Bicolor Lespedeza</td>
<td></td>
</tr>
<tr>
<td><em>Lespedeza cuneata</em></td>
<td>Sericia Lespedeza</td>
<td></td>
</tr>
<tr>
<td><em>Liriope spicata</em></td>
<td>Creeping liriope</td>
<td></td>
</tr>
<tr>
<td><em>Lonicera spp.</em></td>
<td>Sweet-breath-of-spring, Japanese honeysuckle, Amur honeysuckle</td>
<td><em>Callicarpa americana</em> (Beautyberry), <em>Gelsemium sempervirens</em> (Carolina jessamine)</td>
</tr>
<tr>
<td><em>Lygodium japonicum</em> (American Climbing Fern)</td>
<td>Japanese Climbing Fern</td>
<td><em>Lygodium platatum</em> (American Climbing Fern)</td>
</tr>
<tr>
<td><em>Mahonia bealei</em></td>
<td>Leatherleaf Mahonia</td>
<td><em>Viburnum nudum</em> (Possumhaw Viburnum), <em>Viburnum bracteatum</em> 'Emerald Lustre' (Emeral Luster Viburnum), <em>Callicarpa americana</em> (American Beautyberry)</td>
</tr>
<tr>
<td><em>Miscanthus sinense</em></td>
<td>Chinese silver grass</td>
<td><em>Panicum virgatum</em> (Switchgrass), <em>Sorghastrum nutans</em> (Indian grass)</td>
</tr>
<tr>
<td><em>Nandina domestica</em></td>
<td>Nandina, Sacred-bamboo</td>
<td><em>Xanthorhiza simplicissima</em> (Yellowroot), <em>Callicarpa americana</em> (Beautyberry), <em>Sambucas canadensis</em> (Common elderberry), <em>Itea virginica</em> (Virginia willow)</td>
</tr>
<tr>
<td><em>Paulownia tomentosa</em></td>
<td>Princess tree</td>
<td><em>Chionanthus virginiana</em> (Fringe-tree), <em>Cercis canadensis</em> (Redbud), <em>Tilia americana</em> (Basswood)</td>
</tr>
<tr>
<td><em>Phyllostachys spp.</em></td>
<td>Running Bamboo</td>
<td><em>Arundinaria gigantea</em> (Switch Cane)</td>
</tr>
<tr>
<td><em>Pyrus calleryana</em></td>
<td>Bradford pear</td>
<td><em>Cornus florida</em> (Flowering dogwood), <em>Cercis canadensis</em> (Redbud)</td>
</tr>
<tr>
<td><em>Spirea japonica</em></td>
<td>Japanese Spirea</td>
<td></td>
</tr>
<tr>
<td><em>Vinca spp.</em></td>
<td>Periwinkle species</td>
<td><em>Bignonia capreolata</em> (Crossvine), <em>Gelsemium sempervirens</em> (Carolina jessamine), <em>Mitchella repens</em> (Partridge berry)</td>
</tr>
<tr>
<td><em>Wisteria floribunda</em></td>
<td>Japanese wisteria</td>
<td><em>Wisteria frutescens</em> (American wisteria)</td>
</tr>
<tr>
<td><em>Wisteria sinensis</em></td>
<td>Chinese wisteria</td>
<td><em>Wisteria frutescens</em> (American wisteria)</td>
</tr>
</tbody>
</table>
### 2.5 OFFICE SUPPLIES

#### 2.5.1 Copy Paper and Paper Products

**Overview**

Paper products include, but are not limited to, copy paper, hanging file folders, envelopes, note pads, post it notes and pre-printed forms, brochures, business cards, and archiving boxes. Recycled paper products are available in many colors, are equal in quality and performance and cost the same or less as virgin products.

**Mecklenburg County Environmental Policy Requirements:**

Whenever practicable, paper products should contain a minimum 20% post consumer recovered material and at least 30% total recovered material. The 2010 goal is 75% compliance.

Employees are required to participate and adhere to the PaperChase program guidelines. For more details visit [http://www.charmeck.org/departments/LUESA/solid+waste](http://www.charmeck.org/departments/LUESA/solid+waste)

**Potential Environmental Impacts**

- Discarded paper products can create a contamination problem and decreases the value of the recycled material.
- In most cases, paper products placed in the trash would be disposed of in a landfill instead of marketed as a commodity as intended.

**Things to Consider Before Buying or If You Write Your Own Specifications**

- Look for products made from recycled contents.
- Request printing companies to use recycled paper for all pre-printed forms, brochures or other custom printed materials.
- Evaluate the need for multi part forms. A one-part form may suffice.
- Consider reformatting forms to decrease the size.
- Duplex all copies when practicable.
- Recycle paper and paper products through the County’s PaperChase program.

**Availability**

Mecklenburg County currently has the following BOCC approved contract in effect for office supplies, which includes copy paper:

**Office Depot**

Dava Biggerstaff  
888.213.8948x5701  
dava.biggerstaff@officedepot.com

Office supplies should be ordered on-line by authorized users. County Finance will provide a form to County employees designated to order supplies for their department. Upon Finance approval, Office Depot will set up the user and provide a user ID and password. All orders placed on line at [https://bsd.officedepot.com](https://bsd.officedepot.com) are invoiced monthly on a Countywide summary billing submitted directly to the County Finance Department.
### 2.5.2 Miscellaneous Office Supplies (non-paper)

**Overview**
Office supplies manufacturers are increasingly offering a wide range of products made from recycled materials. Many items made from metal or plastic such as 3-ring binders, desk accessories, CDs and diskettes, mouse pads, paper clips and pens & pencils are available with recycled content materials.

**Mecklenburg County Environmental Policy Requirements:**
Office supply items made of metal, plastic, or paper (other than copy/printer paper) should contain a minimum 10% recycled content and/or be Green Seal certified materials whenever practicable. 2010 goal is 30%

**Potential Environmental Impacts**
- Buying recycled products conserves natural resources; saves energy; reduces solid waste; and reduces air and water pollutants.

**Things to Consider Before Buying or If You Write Your Own Specifications**
- Look for products that contain post-consumer material contents.
- Consider refillable products such as pens and pencils.
- Consider non-toxic highlighters, markers, correction fluid, and other items identified in the supply catalogs with environmental symbols for easy recognition.
- The ability to reuse or donate the product within your department or within the County.

**Availability**
Many manufacturers of various office products offer recycled content items including, Esselte, Glove-Weis, Bic, Paper Mate, ACCO, Sanford, Eberhard Faber, 3M, Kraft, and DuPont. These manufacturers are offered by Office Depot.

Mecklenburg County currently has the following BOCC approved contract in effect for office supplies:

**Office Depot**
- Dava Biggerstaff
- 888.213.8948x5701
dava.biggerstaff@officedepot.com

Office supplies should be ordered on-line by authorized users. County Finance will provide a form to County employees designated to order supplies for their department. Upon Finance approval, Office Depot will set up the user and provide a user ID and password. All orders placed on line at https://bsd.officedepot.com are invoiced monthly on a Countywide summary billing submitted directly to the County Finance Department.
### 2.5.3 Printing Cartridges

**Overview**
- Printing cartridges are widely used in photocopy and facsimile equipment, as well as in laser printers.
- Cartridges are often thrown away once the toner inside the cartridge is used up, typically after several thousand copies have been made, depending on the make and model of the printing cartridge.
- Cartridges contain many components that are in great condition at the end of the expected life of the cartridge. The practice of re-manufacturing printing cartridges involves disassembling the unit, inspecting and cleaning components, and replacing or refurbishing the unit’s organic photoreceptor cell and replacing the supply of toner.

**Mecklenburg County Environmental Policy Requirements:**
- Inkjet cartridges and laser toner cartridges bought by Mecklenburg County should be remanufactured cartridges when ever available. Please note that remanufactured cartridges are not available for all models of printers. The County’s 2010 goal is 75% compliance.

**Potential Environmental Impacts**
- End of use disposal creates non-recyclable waste.
- Plastics and toners can be detrimental to land and water resources.
- Remanufactured toner cartridges save resources by reusing components instead of disposing of them after one use.

**Things to Consider Before Buying or If You Write Your Own Specifications**
- One of the clearest advantages of remanufactured printing cartridges is cost savings. Compared to new cartridges, remanufactured cartridges cost an average of 30% to 50% less, depending upon the model.
- Should staff find that remanufactured cartridges for a specific model of printer perform poorly, or that a specific manufacture/part number of cartridge performs poorly, use of the offending cartridge should be halted.
- All used cartridges must be returned to the manufacture of the cartridge or the vendor the department is buying cartridges from, so they can be refurbished or recycled. For Mecklenburg County, Sunbelt will collect all used cartridges when contacted.

**Availability**
- Mecklenburg County currently has the following BOCC approved contract in effect for office supplies:

#### 2.5.3 Printer Cartridges (continued)

<table>
<thead>
<tr>
<th>Vendor: Sunbelt Office &amp; Data Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact: Bryan Burns</td>
</tr>
<tr>
<td>Phone: 704.525.3813 X205</td>
</tr>
<tr>
<td>e-mail: <a href="mailto:bryan@sunbeltofficesupply.com">bryan@sunbeltofficesupply.com</a></td>
</tr>
</tbody>
</table>

This vendor provides the County with inkjet, laser jet and toner cartridges, and offer recycled or remanufactured cartridges.

This vendor also provides a free pick up service of used cartridges. Cartridges are recycled or remanufactured which keeps them from becoming waste in our landfills.
2.6 Furniture and Panel Systems

Overview
Office furniture and panel systems are made with a variety of materials including gypsum board, metal, wood and wood based products, plastic and fabric. As a result of the different materials that may be used in manufacture, various environmental issues must be taken into account.

Mecklenburg County Environmental Policy Requirements: Please refer to the County’s Property Disposal and Reuse Policy. Look for GREENGUARD ® certified or Green Seal compliant furniture products.

Potential Environmental Impacts
- Materials used in office furniture and panel systems may emit VOCs when installed, immediately impacting indoor air quality.
- Building agents such as resins used in composite wood products can affect indoor air quality.
- The design and manufacture of furniture can effect resource utilization, pollution and worker health and safety.
- Waste generated from the manufacture and disposal of these products can be minimized through reuse, remanufacture and recycling.

Things to Consider Before Buying or If You Write Your Own Specifications
- Re-use existing furniture where possible and refurbish if desired.
- Look for classic designs that will last without looking dated.
- Consider quality carefully. Low-cost products may break more readily and offer fewer repair options.
- Avoid products containing ozone depleting substances and volatile organic compounds.
- Require reusable and demountable panel systems.
- Look for the highest recycled contents.
- Avoid fiberglass reinforcements.

Refurbished vs. Remanufactured Office Furniture
Refurbished office furniture is first touched up or otherwise cosmetically improved before being resold. By comparison, remanufactured office furniture typically has had greater value added to the product and is commonly completely disassembled; its parts are inspected, cleaned, repaired or replaced.

New Office Furniture with Recycled Content
New furniture is composed entirely of original equipment manufacturer parts. Recycled content may be found in many manufacturers’ components, including metal, pressboard, and fabric.
- Furniture should be recycled in county’s surplus furniture and electronics recycling program. See your departmental coordinator for program specifics.

Availability
GREENGUARD ® certified furniture includes many manufacturers such as Knoll, Allsteel, Herman Miller, Dar-Ran, and Steelcase. The County currently utilizes several of these manufacturers through the U.S. Communities Cooperative Purchasing Program as follows:

1. Manufacturer: Knoll
   Local Vendor: Carolina Business Interiors (CBI)
   Contact: Todd Wilson or Jack Hunter
   Phone: 704.525.7630 X232
   e-mail: toddw@cbi-nc.com or jack.hunter@cbi-nc.com

2. Manufacturer: Herman Miller
   Local Vendor: Klingman Williams, Inc.
   Contact: Russ Cox
   Phone: 704.338.9373
   e-mail:

3. Manufacturer: Haworth
   Local Vendor: Office Interiors Inc
   Contact: Trisha Horne
<table>
<thead>
<tr>
<th></th>
<th>Manufacturer</th>
<th>Local Vendor</th>
<th>Contact</th>
<th>Phone</th>
<th>e-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.</td>
<td>KI</td>
<td>Carolina Business Interiors (CBI)</td>
<td>Todd Wilson or Jack Hunter</td>
<td>704.525.7630 X232</td>
<td><a href="mailto:toddw@cbi-nc.com">toddw@cbi-nc.com</a> or <a href="mailto:jack.hunter@cbi-nc.com">jack.hunter@cbi-nc.com</a></td>
</tr>
<tr>
<td></td>
<td>Allsteel</td>
<td>MacThrift Office Furniture</td>
<td>S. Casuccio</td>
<td>800.261.1250</td>
<td><a href="mailto:s.casuccio@macthrift.com">s.casuccio@macthrift.com</a></td>
</tr>
</tbody>
</table>
## 2.7 LIGHTING PRODUCTS

### Overview
With lighting typically accounting for 30% to 50% of energy use in most buildings, finding ways to increase lighting efficiency can result in significant savings. With the use of energy efficient lighting products, such as fluorescent lamps and energy efficient ballasts, electric lighting costs can be reduced by as much as 60%. Newer lamps and ballasts generate less heat than older models and last longer.

According to ENERGY STAR, if every American home replaced just one light bulb with an ENERGY STAR certified bulb, we would save enough energy to light more than 2.5 million homes for a year and prevent greenhouse gases equivalent to the emissions of nearly 800,000 cars.

### Mecklenburg County Environmental Policy Requirements:
All lighting should be Energy Star equivalent low mercury fluorescent lamps. Exterior lighting should consider the use of light shields, otherwise known as full cut-off lights.

### Potential Environmental Impacts
- Higher energy costs with inefficient lighting fixtures or inefficient lighting design
- End of use disposal problems

### Things to Consider Before Buying or If You Write Your Own Specifications
- Use a qualified design professional to assist with layout and selection or lighting fixtures. Require a lifecycle analysis as part of the design deliverables. Compare the use of T-8’s vs T-5’s for fluorescents. For high bay fixtures, consider T5HO as one of the options. As new technologies become available, they should be considered as applicable.
- Use low wattage and reflective fluorescent bulbs whenever possible
- Instant start ballasts consume less energy than rapid start ballasts. Soft start technology gives the tubes a longer lifespan. Electronic ballasts are preferred.
- Electronic ballasts consume substantially less energy when operating at very high frequencies; they hum less and do not flicker.
- When ballasts need replaced on fixtures with T-12 lamps, replace with electronic ballasts and T-8 lamps or better.
- Use task lighting to minimize the need for overhead lighting when possible. At a minimum, use of T-8 lamps and compact fluorescents are preferred.
- Recycle lamps/bulbs at any of the County’s four staffed Recycling Centers. Go to www.wipeoutwaste.com or www.charmeck.org/Departments/LUESA/solid+waste/household+hazardous+waste/home.htm for additional information.

### Availability
There are many vendors that offer Energy Star approved lighting that have registered with Charlotte Mecklenburg. Please check the Vendor Management System (VMS), or Advantage for a complete listing and require the vendor to quote Energy Star approved when feasible.
2.8 PARK AND RECREATION EQUIPMENT AND MATERIALS

2.8.1 Playground Systems and Components

Overview
Slides, swings, climbing equipment, merry-go-rounds, and seesaws are all different types of playground equipment. These items can be made with recovered wood, steel, and aluminum. A typical set of playground equipment made with recovered-content plastic can contain plastic recovered from between 31,500 and 63,000 milk and water jugs.

Mecklenburg County Environmental Policy Requirements:
Playground Equipment must be made with a minimum 20% recycled content (steel, rubber, aluminum, and plastic). The County’s 2010 goal is 100% compliance.

Potential Environmental Impacts
- Treated wood products may contain chemicals that are hazardous to children’s health.
- Paint used to coat playground components may contain lead or other health hazard chemicals.

Things to Consider Before Buying or If You Write Your Own Specifications
When buying park and recreation items look for products made with the following environmentally preferable attributes:
- Recycled steel tubing, sheets and wire
- Recycled aluminum uprights and castings
- 100% post consumer recycled plastic curbing options
- Several options for 100% post consumer recycled rubber surfacing
- 100% post consumer recycled roof and deck options
- Recycled packaging materials
- EPA recommends that procuring agencies use the specifications found in the US Consumer Product Safety Commission (CPSC) Publication No. 325 (Handbook for Public Playground Safety) and ASTM standard F-1487-95, Safety Performance Specifications for Playground Equipment for Public Use, when procuring playground equipment. Playground equipment may also be subject to state and local codes and standards as well as Federal child safety laws.
- Recycle Park and Recreation products in department’s specified program. Additional resources can be found at www.wipeoutwaste.com.

Availability
Mecklenburg County currently has three (3) BOCC approved contracts in place as follows:

1. Manufacturer: GameTime
   Local Vendor: Cunningham & Associates
   Contact: Scott Cunningham
   Phone: 704.525.5174 X127
   e-mail: scott@cunninghamassoc.com

2. Manufacturer: Landscape Structures
   Local Vendor: Carolina Recreational Products
   Contact: Russ Cox
   Phone: (800) 542-3887
   e-mail: rcox@carolinarec.com

3. Manufacturer: Little Tikes
   Local Vendor: Peggs Recreation
   Contact: Eric Lowder
   Phone: 704-933-0008
   e-mail: www.peggsrecreation.com
### 2.8.2 Site Furnishings

#### Overview
Park benches, picnic tables, and recycling containers are found in most of the Mecklenburg County’s parks, outdoor recreational facilities, and on the grounds of office buildings. Recycled milk jugs and aluminum and steel cans can be used to manufacture these items.

**Mecklenburg County Environmental Policy Requirements:** Site Furnishings should be made with a minimum 20% recycled content (steel, rubber, plastic and aluminum). The County’s 2010 goal is 100% compliance.

#### Potential Environmental Impacts
- Buying recycled content products conserves natural resources, reduces solid waste, saves energy, reduces air and water pollutants and greenhouse gases.

#### Things to Consider Before Buying or If You Write Your Own Specifications
When buying park and recreation items look for products made with the following environmentally preferable attributes:
- Recycled steel tubing, sheets and wire
- Recycled aluminum uprights and castings
- 100% post consumer recycled plastic curbing options
- Several options for 100% post consumer recycled rubber surfacing
- 100% post consumer recycled roof and deck options
- Recycled packaging materials
- EPA recommends that procuring agencies use the specifications found in the US Consumer Product Safety Commission (CPSC) Publication No. 325 (Handbook for Public Playground Safety) and ASTM standard F-1487-95, *Safety Performance Specifications for Playground Equipment for Public Use*, when procuring playground equipment. Playground equipment may also be subject to state and local codes and standards as well as Federal child safety laws.

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   **Contact:** Russ Cox  
   **Phone:** (800) 542-3887  
   **e-mail:** rccox@carolinarec.com

3. **Manufacturer:** Little Tikes  
   **Local Vendor:** Peggs Recreation  
   **Contact:** Eric Lowder  
   **Phone:** 704-933-0008  
   **e-mail:** www.peggsrecreation.com
### 2.8.3 Surfacing Materials

#### Overview
Playground surfaces can contain recovered rubber and PVC materials that are often more desirable than wood chips, sand, or asphalt, because they can provide more cushioning and thereby may be safer for children. You can find playground surfaces at most County parks and many schools.

**Mecklenburg County Environmental Policy Requirements:**
Surfacing must be made from a minimum 50% recycled content materials (rubber). The County’s 2010 goal is 100% compliance.

**Potential Environmental Impacts**
Surfacing made from shredded tires may release toxic chemicals in certain conditions (water runoff).

**Things to Consider Before Buying or If You Write Your Own Specifications**
When buying park and recreation items look for products made with the following environmentally preferable attributes:

- Recycled steel tubing, sheets and wire
- Recycled aluminum uprights and castings
- 100% post consumer recycled plastic curbing options
- Several options for 100% post consumer recycled rubber surfacing
- 100% post consumer recycled roof and deck options
- Recycled packaging materials
- EPA recommends that procuring agencies use the specifications found in the US Consumer Product Safety Commission (CPSC) Publication No. 325 (Handbook for Public Playground Safety) and ASTM standard F-1487-95, Safety Performance Specifications for Playground Equipment for Public Use, when procuring playground equipment. Playground equipment may also be subject to state and local codes and standards as well as Federal child safety laws.

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   **Local Vendor:** Peggs Recreation  
   **Contact:** Eric Lowder  
   **Phone:** 704-933-0008  
   **e-mail:** www.peggsrecreation.com
2.9 Traffic Control Products

Overview
Traffic cones are used to mark a road hazard or to direct traffic. These are typically made from plastic, and/or rubber. Traffic barricades can be used to redirect or restrict traffic in areas of highway construction or repair. They are typically made from wood, steel, plastic, fiberglass, or a combination of these materials.

Mecklenburg County Environmental Policy Requirements: N/A
The EPA recommends 50% - 100% total recovered materials content. [www.epa.gov/cpg](http://www.epa.gov/cpg)

Potential Environmental Impacts
- Recycled products conserve natural resources, reduce solid waste and reduce air and water pollutants.

Things to Consider Before Buying or If You Write Your Own Specifications
- Transportation products containing recovered materials must conform to the Manual on Uniform Highway Traffic Control Devices used by the Federal Highway Administration, and NC Department of Transportation.
- Parking stops made from recycled plastics or rubbers are maintenance free. Unlike concrete stops, they will not crack or crumble.
- Heavier than their plastic-only counterparts, recycled rubber bases on products including traffic cones, safety posts (delineators), and barrels offer greater durability.
- Many of these products have multi-year warranties.
- Recycle vehicle maintenance products in department’s specified program. Additional information and resources can be found at [www.wipeoutwaste.com](http://www.wipeoutwaste.com).

Use the following federal guidelines when purchasing traffic control products and require subcontractors to comply with these guidelines also.

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>RECOVERED MATERIAL CONTENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Traffic Cones</strong></td>
<td></td>
</tr>
<tr>
<td>Plastic (PVC and LDPE)</td>
<td>50% to 100% total recovered content</td>
</tr>
<tr>
<td>Rubber</td>
<td>50% to 100% total recovered content</td>
</tr>
<tr>
<td><strong>Traffic Barricades (type I and II only)</strong></td>
<td></td>
</tr>
<tr>
<td>Plastic</td>
<td>80% to 100% post-consumer recycled content</td>
</tr>
<tr>
<td>Steel</td>
<td>16% to 67% post-consumer recycled content</td>
</tr>
<tr>
<td><strong>Parking Stops, plastic or rubber</strong></td>
<td>100% post-consumer recycled content</td>
</tr>
<tr>
<td><strong>Channelizers</strong></td>
<td></td>
</tr>
<tr>
<td>Plastic</td>
<td>25% to 95% post-consumer recycled content</td>
</tr>
<tr>
<td>Rubber base</td>
<td>100% post-consumer recycled content</td>
</tr>
<tr>
<td><strong>Delineators</strong></td>
<td></td>
</tr>
<tr>
<td>Plastic</td>
<td>25% to 90% post-consumer recycled content</td>
</tr>
<tr>
<td>Rubber base</td>
<td>100% post-consumer recycled content</td>
</tr>
<tr>
<td>Steel base</td>
<td>25% to 50% post-consumer recycled content</td>
</tr>
<tr>
<td><strong>Flexible Delineators</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>25% to 85% post-consumer recycled content</td>
</tr>
</tbody>
</table>

Availability
2.10 Vehicle Maintenance Products

2.10.1 Oils and Lubricants

An Overview
This category includes motor oil, hydraulic fluids, chassis grease, and transmission fluids. Statistics show that over one billion quarts of lubricating and related oils are sold in the United States annually. Less than half of these oils are available for reclamation. Over 50,000 gallons of used motor oil are collected at Mecklenburg County recycling centers annually. Used oil can be collected, cleaned and re-refined into new oil products. Re-refined oil has been used throughout the United States with great success for many years, even in high-performance, mission-critical safety vehicles. Nationally, the U.S. Postal Service has been using re-refined oil for over a decade in its fleet of almost 73,000 vehicles.

Mecklenburg County Environmental Policy Requirements:
Products must meet EPA standards. A proper disposal plan is required.

Potential Environmental Impacts
- Improper disposal of used oil and lubricants into garbage cans, sewers and backyards result in contamination of soil, drinking water supplies and ground water.
- Used motor oil contains pollutants, including organic chemicals and metals which are toxic to humans, wildlife and vegetation.
- Just one gallon of used oil has the potential of contaminating up to one million gallons of drinking water.
- Used motor oil can be reprocessed into heating fuels, re-refined into lubricating oils or cleaned and reused.

Things to Consider Before Buying or If You Write Your Own Specifications
- Used engine oil and solvents are considered waste and must be transported accordingly under applicable federal and state regulations.
- Re-refined engine oil conserves resources while saving your agency money.
- This environmentally preferable and cost-effective product is manufactured to the same high quality standards for refining, compounding, and performance as virgin oil. In fact, according to the Environmental Protection Agency (EPA), extensive testing from the National Institute of Standards and Technology and the U.S. Army shows that it can even out-perform virgin oil.
- Generally, re-refined engine oils can be used without warranty concerns in vehicles made by Ford, General Motors, Chrysler, Caterpillar, and Detroit Diesel. These manufacturers have issued written statements declaring that vehicle warranties will be honored as long as the re-refined engine oil meets requirements. Warranty requirements are based on performance criteria and not on the origin of the base oil.
- Recycle vehicle maintenance products in department’s specified program. Additional information and resources can be found at www.wipeoutwaste.com.

Availability
Re-refined oil comes in a variety of blends suitable for different types of gas and diesel engines. Two refineries in the U.S. produce the base oil: Evergreen Oil in California and Safety-Kleen in Illinois. Oil blenders purchase the base stock, combine it with additives, and sell it as a finished product under various brand names. Re-refined oil is available through oil dealers, auto service centers, and retailers. **Auto Zone** currently offers re-refined motor oils through their U.S. Communities contract for automotive parts and accessories. You may purchase at any **Auto Zone** location.
### 2.10.2 Antifreeze

#### An Overview
According to Federal EPA guidelines, recycled engine coolants, also known as antifreeze, might actually be purer than virgin coolant because the recycling process reduces the chlorides that come from hard water. Testing shows that, like new coolant, recycled coolant meets nationally recognized performance specifications established by the American Society for Testing Materials (ASTM) and the Society of Automotive Engineers (SAE).

#### Mecklenburg County Environmental Policy Requirements:
Products must meet EPA standards. A proper disposal plan is required.

#### Potential Environmental Impacts
- Toxic to small children and may be deadly to animals attracted by its sweet taste.
- Spent antifreeze may contain metals from the engine (lead, zinc, copper).
- Can disturb the biological action of sewage treatment and septic systems.
- Special rules apply to waste antifreeze and precautions must be taken to ensure its proper management.

#### Things to Consider Before Buying or If You Write Your Own Specifications
- Extended-life antifreeze is designed to last five years/150,000 miles or longer, which greatly reduces the need to purchase new and manage used antifreeze.
- Waste antifreeze can be recycled using your own equipment or a recycling service. This solves a waste disposal problem while providing a high quality reformulated product to use in vehicles.
- Extensive testing indicates that when properly formulated, recycled coolants meet or exceed nationally recognized performance specifications from the American Society for Testing Materials (ASTM) and the Society of Automotive Engineers (SAE).
- Auto makers are embracing recycled coolants. General Motors (GM) endorses several coolant recycling systems; it also stipulates that the engine warranty will be unaffected if engine coolant recycling is performed as described by the manufacturer and with GM-approved recycling equipment. Ford expressly authorizes the use of certain engine coolant recycling processes and chemicals that meet its specifications. Chrysler allows any coolant to be used as long as it meets Chrysler’s and ASTM’s specifications. Check with your vehicle manufacturer or dealer to see which coolant recycling equipment or process is appropriate.
- Whether you recycle your own antifreeze or use a service, the recycled product should include the addition of chemicals to recondition the antifreeze. Check with the manufacturer to see which type of recycled product is appropriate for each vehicle.

#### Availability
EPA does not recommend one type of engine coolant over another. EPA recommends, however, that procuring agencies purchase engine coolant containing only one base chemical, typically ethylene glycol or propylene glycol, to prevent the commingling of incompatible types of engine coolant. Mecklenburg County currently purchases antifreeze through NAPA.
## 2.10.3 Solvents and Cleaners

### An Overview
In the course of routine cleaning, many shops use parts washing systems for engines and other equipment parts. Parts washing systems include standard reticulating parts washers, distillation units, and those with multiple filters. In choosing the right parts cleaning system, shops should evaluate both the equipment and the cleaning solvent it uses.

Solvents clean by using a surfactant (such as soap or detergent), a corrosive or alkaline ingredient, or another type of chemical to remove soil from parts.

### Mecklenburg County Environmental Policy Requirements:
Solvents and Cleaners must meet EPA Standards. A proper disposal plan is required.

### Potential Environmental Impacts
- Whether water based or petroleum based, cleaning solvents often pose exposure risks to employees, along with the waste produced during usage.
- In most instances, shops must manage wastes produced during parts cleaning as hazardous.
- Improper end-of-use disposal is a potential hazard to the land, water and human health.
- Exposure to concentrated vapors from these solvents can cause breathing problems and headaches.
- Many solvents are also ignitable.

### Things to Consider Before Buying or If You Write Your Own Specifications
- Water-based solvents are usually less hazardous to the user than their petroleum-based counterparts. Although water-based cleaners are often touted as being "non-hazardous," or "environmentally friendly," they must be managed as a hazardous waste unless the waste has been evaluated and found not to exhibit hazardous characteristics.
- Most petroleum-based systems use mineral spirits, Stoddard, or similar petroleum-based solvents.
- Cleaners with higher flashpoints (>140°F) are available to reduce the risk of ignition.
- Shops using petroleum-based cleaners must take extra precautions when using and storing the product and managing the wastes.

### Availability
EPA recommends BioChem System cleaners and solvents. There are many different kinds of equipment, cleaners, and services employing Stoddard solvent, spray cabinets and services that lease equipment and collect waste cleaners. Equipment is available to purchase or lease through both manufacturers and local distributors. Cleaners are available through vehicle maintenance supply outlets, equipment manufacturers, and dealers.
Section 3 – Environmental Preferable Purchasing Guide

How can I Get More Information?

Other sources of information on Environmentally Preferable Purchasing are available from the following agencies and websites:

The Clean Environment Company has been manufacturing and distributing an excellent line of environmentally preferable and effective commercial cleaning products for over twelve (12) years. For more product information or environmental reports visit: www.cleanenvironmentco.com

EPPNET is a list server linked to federal, state, local and private procurement and environmental officials established by the Northeast Recycling Council. See what they have to offer at: www.nerc.org/eppnet.html

Office of the Federal Environmental Executive serves to implement stronger the federal government’s commitment to recycling and buying recycled content and environmentally preferable products. The web site contains various reports and resources: www.eren.doe.gov/femp/

North Carolina Division of Purchase and Contract supports the environmentally preferable purchasing and provides information on available products, contracts and vendors. Information can be viewed at: http://www.doa.state.nc.us/PandC/recycled.htm

GREENGUARD Environmental Institute (GEI) is an industry-independent, non-profit organization that oversees the GREENGUARD Certification Program. As an ANSI Authorized Standards Developer, GEI establishes acceptable indoor air standards for indoor products, environments, and buildings. GEI’s mission is to improve public health and quality of life through programs that improve indoor air. www.greenguard.org

Commission for Environmental Cooperation (CEC) is an international organization created by Canada, Mexico and the United States under the North American Agreement on Environmental Cooperation (NAAEC). The CEC was established to address regional environmental concerns, help prevent potential trade and environmental conflicts, and to promote the effective enforcement of environmental law. The Agreement complements the environmental provisions of the North American Free Trade Agreement (NAFTA). www.cec.org

The Plastics Division of the American Chemistry Council (ACC) represents leading manufacturers of plastic resins. We may not think about them often, but versatile plastics inspire countless innovations that help make life better, healthier and safer every day. www.americanplasticscouncil.org

Mecklenburg County Ordinance to Require the Source Separation Of Designated Materials from the Municipal Solid Waste Stream: On August 15, 2000, the Mecklenburg County Board of County Commissioners (BOCC) adopted the Solid Waste Management 10-Year Plan which established a 2006 per capita waste reduction goal of 19% from fiscal year 1999 and a 2010 per capita waste reduction goal of 23% from fiscal year 1999. To view complete details visit: http://www.charmeck.org/Departments/LUESA/Solid+Waste/Business+Recycling/ordinance.

Canada’s Environmental Choice Program (ECP) is a comprehensive, national environmental labeling program initiated by Environment Canada. Certification of products and services is based on compliance with stringent environmental criteria that are established in consultation with industry, environmental groups and independent experts and are based on research into the life cycle impacts of a product or service. The Program’s official symbol of certification is the EcoLogo™ which has been awarded to over 1,750 products, services, and technologies as an indication of their positive environmental attributes. www.environmentalchoice.com

CITY OF CHARLOTTE

PURCHASING GUIDE for
ENVIRONMENTAL PREFERABLE PRODUCTS

Provided by Business Support Services
Procurement Services Division

November 13, 2008
Amended January 1, 2011
Introduction

The Business Support Services, Procurement Services Division (PSD) is responsible for ensuring that all City of Charlotte and Mecklenburg County purchases are made in compliance with current federal, state, and local laws and City/County policies. PSD is charged with the oversight, administration, and monitoring of the Procurement Policy and Procedures Manual which is posted at: http://cnet/psd/default.aspx.

Disclaimer: Users of this guide are responsible for complying with all applicable law (including without limitation North Carolina General Statutes 143-129 and 143-131), the Citywide Procurement Policy (BSS 14) approved on June 15, 2007, The Business Support Services Procurement Services Policy and Procedure Manual (amended February, 2009), the Environmental Purchasing Policy (BSS17) effective December 1, 2010, and other City Council or City Manager directives. Any specifications presented in this guide are not intended to constitute or render engineering, architectural, legal or other professional services or advice. Nor should they be a substitute for such services or advice from an experienced professional directed to a specific design situation. While information in any specifications is believed to be accurate, the Procurement Services Division, and its consultants on this project shall not be liable for damages arising from errors or omissions in specifications.

Purpose

This guide introduces and defines “environmentally preferable purchasing” and is intended to support the City of Charlotte’s Strategic Focus Area Plan for Environmental Stewardship by providing Key Business Units with valuable information and resources as they work to include environmental considerations when making purchasing decisions that are better for their employees and our environment.

Included in this guide are the basics of environmentally preferable purchasing, suggested purchasing resources and purchasing recommendations for many product groups to help you make environmentally preferable buying decisions.

How will this purchasing reference guide help me?

It is not always easy finding or deciding which product is better for our employees and environment. Every item we buy has an impact on our health and environment, no matter whether we are buying cleaning products, furniture, lights, motor oil, office supplies, paint, cars, and the list goes on.

We hope you find this reference guide a helpful resource when looking for products with environmental attributes or deciding between products. Most of all, it should encourage buyers to ask the right questions.

What is environmentally preferable purchasing?

Environmentally preferable goods and services are those that have a lesser or reduced effect on human health and the environment when specifically compared with other goods and services that serve the same purpose.

Questions to ask before purchasing a product include:

➤ Is the product less hazardous?
➤ Is it reusable or more durable?
➤ Is it made from recycled materials?
➤ What happens to the product at the end of its life? Can it be recycled? Will the manufacturer take the product back? Will it need special disposal?
➤ Does it conserve energy or water?
➤ Is it made from plant-based raw materials?

Depending upon which product you are buying, all or only a few of these questions will apply. One challenge in buying wisely is knowing which questions to ask. With this Guide helping to put environmental issues in context, asking these questions will become second nature.
Environmental attributes are those features of a product that make it preferable to purchase over other products. Some of the environmental attributes to consider are as follows:

**Recycled Content**
Buying products made with recycled materials save energy and resources, and keeps waste out of landfills. Recycled content products can be made with pre-consumer content, post-consumer content, or a mixture of both. Pre-consumer content utilizes materials from manufacturer’s scrap. Post-consumer content utilizes materials collected from recycling programs.

**Less Hazardous**
Avoiding products containing hazardous chemicals reduces potential serious health risks to people and damage to the environment. As a general rule, always try to use the least amount of a hazardous product. Avoid products with the following precautionary words such Caution, Danger, Warning or Poison. Many alternative products are available that are less hazardous.

**Conserves Energy**
Reducing energy use is one of the simplest things we can do to curb impacts to the air we breathe and our environment. Energy production can contribute to emissions of carbon dioxide. Hydroelectric dams can degrade habitat and impede fish passage. By buying energy-efficient products, you will keep utility costs down and protect the environment. The federal Energy Star label helps buyers identify energy-efficient products.

**Prevents Waste**
Preventing waste can conserve natural resources. Our state generates millions of tons of municipal solid waste annually. You can prevent waste when you reduce the amount of material you buy to accomplish any task, buy repairable items, and find multiple uses for items.

**Air Quality**
Selecting products with low or no VOCs reduces indoor air quality hazards for employees. VOCs are chemicals that evaporate easily (volatile) at room temperature and often have unhealthy and unpleasant vapors. They come from many products such as adhesives, carpeting, upholstery, paints, solvents, pesticides and cleaning products. Some VOCs may cause cancer, especially, when they are concentrated indoors. When VOCs hit sunlight it creates ozone, an air pollutant harmful to both people and plants.

**Conserves Water**
Choosing products and services that conserve water can save money on water and sewer bills. Less than one percent of the Earth’s water is available for human consumption. Dry spells and pollution remind us that our water supply can be threatened.

**End of Life Management**
Considering the product's end of life issues when you buy can prevent costly disposal bills. Sometimes saving money up-front on a purchase results in spending more in the long term for proper disposal or injuries related to use of a product or disposal. It also encourages manufacturers to reduce their product's environmental burden.

**Reduced Packaging**
Packaging is a large component of municipal solid waste landfills. A product’s packaging can account for a significant portion of the product’s contribution to municipal solid waste. EPA’s recommended approach to managing solid waste is to first reduce packaging of products, and second, recycle packaging materials.

**Biodegradable**
A "biodegradable" product has the ability to break down, safely and relatively quickly, by biological means, into the raw materials of nature and disappear into the environment. These products can be solids biodegrading into the soil or liquids biodegrading into water. Biodegradable plastic is intended to break up when exposed to microorganisms (a natural ingredient such as cornstarch or vegetable oil is added to achieve this result).
Why is environmentally preferable purchasing important?

The purchase and use of environmentally preferable products can have a profound impact – and not just on the environment. From worker safety to budget savings, wise purchasing has a number of additional tangible benefits:

- Buying less-hazardous products can reduce regulatory liability, improve worker safety, and lower disposal costs.
- Using energy-efficient and water-conserving products can save money.
- Products that are reusable, refillable, more durable, or repairable create less waste and are more cost-effective in the long run than disposable or single-use products.
- Buying recycled products conserves valuable landfill space by using goods made from materials that otherwise would have been discarded. Using recycled products and packaging also conserves natural resources and energy.

Purchase Price Considerations

One of the most effective ways to purchase environmentally preferable items is to incorporate life cycle costing into your bidding practices. Unfortunately, government contracts are often awarded solely for the lowest purchase price. Since the initial purchase price may not reflect the recurring price of energy, operations and maintenance, government agencies can end up with a piece of equipment that costs much more in the long run than a product with a higher purchase price but lower life cycle costs. Agencies can avoid this predicament by using life cycle costing.

Even where energy-efficient products have a higher purchase price than their less efficient counterparts, these products usually save money because they use less energy, often have a longer life, and typically incur less maintenance cost.

There are specific examples of measurable reduced costs associated with environmentally preferable products. These include a lower purchase price (e.g. remanufactured products), reduced operational costs (e.g. energy efficiency), reduced disposal costs (e.g. more durable products) and reduced hazardous management costs (e.g. less toxic products). In addition, purchasing environmentally preferable products may reduce an organization's potential future liability, improve the work environment and minimize risks to workers.

Department Heads are advised that the purchase of some Environmentally Responsible products may exceed the costs of comparable products. This factor alone should not determine whether an Environmentally Responsible product should be purchased, although it should be a factor in the decision. All purchases shall be handled in a fiscally responsible manner.

Nothing contained in this policy shall be construed as requiring a department, buyer or contractor to procure products that do not perform adequately for their intended use, exclude adequate competition, or are not available at a reasonable price in a reasonable period of time.

Practice the Four R’s – Reduce, Reuse, Recycle, and Rebuy

**Reduce**: is the best of the four R’s—because preventing waste in the first place means you have less waste to worry about in the end!

- Shop for products that have the least amount of packaging
- Buy in bulk quantities whenever possible.
- Rent or borrow items that are used infrequently.
- Maintain and repair items to ensure a long product life.

**Reuse** is the next best—if you can reuse your waste, it is longer considered waste! Giving away old clothes and other unwanted items to charities and thrift stores keeps good items out of the trash and can save you money. Why pay extra to dump good usable items when you can donate them for free?

**Recycle**: Sometimes things can't be reused. Recycling keeps raw material in the system and keeps us less dependent on virgin ore, oil and trees for raw materials. If we can keep recycling our products, not only will we
reduce the amount of material going to the landfill, we will also reduce the necessity of mining and chopping down trees!

**Rebuy:** Close the loop! What good is recycling if nobody buys the recycled products? Buying recycled products creates a larger demand for them. More demand means more manufacturers will try selling more recycled products. You also might want to consider only buying products that can be recycled.
### Third Party Certification and Acceptable Standards & Guidelines

There are a number of organizations that are putting considerable time and effort into evaluating products and services based on environmental impacts. Below are a few of the most widely recognized organizations that have established environmentally preferable product standards.

<table>
<thead>
<tr>
<th>Organization</th>
<th>Description</th>
<th>Website</th>
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</thead>
<tbody>
<tr>
<td><strong>Green Seal</strong></td>
<td>A nationally recognized nonprofit organization that certifies a variety of environmental products that pass stringent testing standards. Approved products carry a Green Seal logo that is well recognized throughout industry and government as a leading environmental standard. Green Seal bases its work on thorough, state-of-the-art scientific evaluations using internationally accepted methodologies. Product evaluations are conducted using a life-cycle approach to ensure that all significant environmental impacts of a product are considered, from raw materials extraction through manufacturing to use and disposal.</td>
<td><a href="http://www.greenseal.org">www.greenseal.org</a></td>
</tr>
<tr>
<td><strong>ENERGY STAR</strong></td>
<td>Sponsored by the U.S. Department of Energy and the U.S. Environmental Protection Agency, ENERGY STAR labels products such as computer CPUs, monitors, printers, copiers, and other devices that exceed US energy efficiency standards. ENERGY STAR also includes lighting, appliances, windows and many other products.</td>
<td><a href="http://www.energystar.gov">www.energystar.gov</a></td>
</tr>
<tr>
<td><strong>United States Environmental Protection Agency</strong></td>
<td>Works to develop and enforce regulations that implement environmental laws enacted by Congress. EPA is responsible for researching and setting national standards for a variety of environmental programs, and delegates to states and tribes the responsibility for issuing permits and for monitoring and enforcing compliance. Where national standards are not met, EPA can issue sanctions and take other steps to assist the states and tribes in reaching the desired levels of environmental quality. The EPA provides Comprehensive Procurement Guidelines (CPG) that is updated every two years. Through the CPG, EPA designates items that must contain recycled materials when purchased with appropriated federal funds by federal, state, and local agencies.</td>
<td><a href="http://www.epa.gov/cpg">www.epa.gov/cpg</a></td>
</tr>
<tr>
<td><strong>American Society for Testing and Materials</strong></td>
<td>One of the largest voluntary standards development organizations in the world and a trusted source for technical standards for materials, products, systems, and services. Known for their high technical quality and market relevancy, ASTM International standards have an important role in the information infrastructure that guides design, manufacturing and trade in the global economy. Standards for over 12,000 items can be downloaded at:</td>
<td><a href="http://www.astm.org">www.astm.org</a></td>
</tr>
<tr>
<td><strong>Greenguard Environmental Institute</strong></td>
<td>Greenguard Environmental Institute (GEI) is an industry-independent, non-profit organization that oversees the GREENGUARD Certification Program. As an ANSI Authorized Standards Developer, GEI establishes acceptable indoor air standards for indoor products, environments, and buildings.</td>
<td><a href="http://www.greenguard.org/">http://www.greenguard.org/</a></td>
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Writing Specifications

When putting together your bid requirements for products and services consider how environmental attributes can be included in your specifications. Taking some time to consider environmental impacts before purchasing can result in lasting benefit for people and the environment.

Here are a few strategies:

- Require all products have a low impact to human health and environment.
- Require recycled content in products and products that can be easily recycled.
- Require packaging or containers that are refillable, returnable, or recyclable.
- Specify those environmental attributes that make sense to a product, such as non-toxic, recycled content, mercury-free, biodegradable, energy efficient, low VOC, Energy Star, or vendor recycling and take-back programs.
- Ask vendors to identify environmental attributes that are common to a product and then think about using them when preparing your specifications.
- Avoid specifications that would limit the purchase of certain products, e.g. requiring new equipment or virgin materials when refurnished or recycled products would work.
- Watch for over-specification; only specify product qualities that are critical to performance and leave other features open to alternatives, by specifying color of plastic items you may eliminate recycled-content items.
- Take into account the life-cycle costs, not just the purchase price of a product; consider long-term savings on maintenance, replacement and disposal costs.
- Give an evaluation preference to products that offer the environmental attribute that you are looking for, e.g. additional points based an environmental attribute.
- Award contracts using a good, better and best ranking for products and let the customer choose, this method allows for pricing differences for environmentally preferable products.
- Buy in bulk when feasible. Facilities can often realize significant cost-savings by buying certain items in bulk.
- Packaging should be recycled or recyclable materials and kept to a minimum to avoid waste.
- Keep track of what works well and any difficulties you encountered in purchasing these products for future purchases.
- Set environmental purchasing goals and track them for your office, department and agency.
2.1. GENERAL BUILDING MAINTENANCE

2.1.1 Carpeting

An Overview
Most commercial carpet is made by bonding a face fiber to a backing fiber, using one of a variety of strong bonding agents. Recycled content and recyclable carpet options each have their own merits and considerations, depending on specific need, location, and use. Nylon, polyester, and plastic are made from petroleum, a non-renewable resource. Since the face fiber backing can contribute up to 60% of the carpet material, purchasing a nylon face fiber with 100% recycled content backing is worth consideration. Closed loop systems, where used carpet fiber and backing are made into new carpet and backing (and can be recycled into new carpet after its useful life) are important to consider.

Potential Environmental Impacts
- Indoor air quality concerns from fumes given off by new or recycled synthetic materials may favor natural materials such as wool, cocoa matting, hemp and similar materials.
- Conventional synthetic carpets are made from non-renewable resources.
- Disposal issues at the end of product life span.

Things to Consider Before Buying or If You Write Your Own Specifications
- Look for the highest recycled content.
- Recyclable products with “seals of approval.”
- Products that minimize volatile organic compound (VOC) emissions.
- Carpet that is not SB latex-backed.
- Product that contains natural or vegetable dyes and additives.
- Colors that match natural soiling to hide dirt and stains.
- Minimum 10 year warranty.
- Minimum of 28 ounces per square yard for loop pile carpet and 34 ounces per square yard for cut pile carpet.

Availability
Carpet with recycled-content face fibers and/or backing is readily available through many distributors and is available in many different colors and patterns. Green Seal recommends the following carpet brands: Beaulieu of America, Brintons, Colin Campbell & Sons, Collins & Aikman, Interface, J&J Industries, Mannington Mills, Milliken Carpet, Mohawk, Shaw, and Talisman Mills. Interface and Shaw brand carpets can be purchased through the G.S.A. contracts. The local distributors in Charlotte are:

<table>
<thead>
<tr>
<th>Modular Design</th>
<th>Bonitz Flooring Group, Inc</th>
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<tbody>
<tr>
<td>227 Southside Drive</td>
<td>5025 W W.T.Harris BV</td>
</tr>
<tr>
<td>Charlotte, NC 28217</td>
<td>Charlotte, NC 28269</td>
</tr>
<tr>
<td>704.523.4950</td>
<td>Tel: (704) 598-0094</td>
</tr>
<tr>
<td>Contact: Charles Hollar</td>
<td>Fax: (704) 598-0339</td>
</tr>
<tr>
<td></td>
<td>Contact: Gary Mead</td>
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</tbody>
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### 2.1.2 Ceiling Tiles

#### An Overview
Ceiling tiles generally fall under the product category of acoustical products. Ceiling tiles are generally designed to be light, to be acoustically deadening and to be durable and low maintenance. At one time ceiling tiles had high asbestos content but they are continuing to improve with the advent of new recycling technologies. Some products now on the market have a minimum of 80% recycled content (mineral fibers). They are durable and tear resistant, so the can be reused.

#### Potential Environmental Impacts
- Health hazards from dust and fumes during and after insulation.
- Hazardous materials may enter the waste stream when disposed of.
- Paints used in ceiling tiles could contain high VOC.

#### Things to Consider Before Buying or If You Write Your Own Specifications
- Look for tiles made from cellulose fibers, mineral and slag wool by-products and/or recycled fiberglass.
- NO asbestos fibers are acceptable.
- Specify products that meet Collaborative for High Performance Schools Section 01350 or other nationally recognized environmental organization.
- Tiles should contain a high percentage of recycled content. The EPA recommends a minimum recycled content of 80%.
- Look for durable construction and low maintenance tiles.
- Products must meet all building and fire codes.

#### Availability
The EPA recommends the following ceiling tile manufacturers: Armstrong, and USG Corporation. Ceiling tiles with recycled-content materials are available through many distributors. Please check the Vendor Management System (VMS), for a complete listing of registered vendors and always require the vendor to quote environmental preferable products when practicable.
2.1.3 Paint Products

An Overview
Paints are among the most widely purchased products in the area of building maintenance. These products range in environmental impact, but all have the potential to adversely affect the environment through improper use, waste, and end disposal.

Potential Environmental Impacts
- Volatile organic compounds (VOC) and fumes reduce air quality and are less hazardous.
- Unused product disposal, if not performed properly could lead to environmental problems.

Things to Consider Before Buying or If You Write Your Own Specifications
  - The product shall not contain the following ingredients:
    - 1,2-dichlorobenzene
    - Alkylphenol ethoxylates (APEs)
    - Formaldehyde-donors
    - Heavy metals, including lead, mercury, cadmium, hexavalent chromium and antimony in the elemental form or compounds
    - Phthalates
    - Triphenyl tins (TPT) and tributyl tins (TBT)
- Require low or no fumes and preferably no volatile organic compounds (VOC). The VOC concentration of the product shall not exceed those listed below in grams of VOC per liter of product as determined by ASTM D6886-03 Standard Test Method. The calculation of VOC shall exclude water and colorants added at the point of sale:
  - Product Type VOC level (in g/L)
    - Flat Topcoat - 50
    - Non-Flat Topcoat - 100
    - Primer or Undercoat - 100
    - Floor Paint - 100
    - Anti Corrosive Coating - 250
    - Reflective Wall Coating - 50
    - Reflective Roof Coating – 100
    - Stains - 250
    - Shellacs
      - Clear – 730
      - Pigmented – 550
    - Sealers
      - Waterproofing - 250
      - Sanding - 275
      - All other sealers - 200
    - Clear Wood Finishes
      - Varnish - 350
      - Lacquer – 550
- Longevity of application.
- Consider recycled paint
- Buying the right amount of paint reduces waste.

Availability
Nationally, recycled paint is a relatively new product. However, Low-VOC and less-toxic paint are available from numerous local and national manufacturers.
Green Seal lists low VOC paints by the following paint manufacturers: Benjamin Moore, Dutch Boy, Olympic Paint and Stain, Sico, Inc., PPG, Rodda, and Miller Paint Co. Please check the Vendor Database (Compass) for a complete listing of registered vendors and always require the vendor to quote environmental preferable products when practicable.
2.1.4 Insulation

An Overview
There are many thermal insulation materials on the market. They may be purchased as two types: plastic foam insulation or fibrous material. The use of thermal insulation is increasing to help curb the use of energy and non-renewable resources. In addition, the use of recycled materials will reduce the amount of materials entering the waste stream and reduce total resource consumption.

Potential Environmental Impacts
- Health hazards from dust and fumes during and after insulation reduce air quality.
- Energy and resource consumption in manufacturing the product.
- Incorporation of ozone depleting substances in the manufacture of the product.

Things to Consider Before Buying or If You Write Your Own Specifications
- Low or no fumes and preferably no volatile organic compounds (VOC).
- Require highest recycled content materials.
- Specify products that meet Greenguard Environmental Institute or EPA standards or other nationally recognized environmental organization.

EPA's CPG Recommended Recovered Materials Content Levels for Building Insulation
- Rock Wool – 75% recovered slag
- Fiberglass – 20-25% recovered glass cullet
- Cellulose Loose-Fill and Spray-On – 75% post-consumer paper
- Perlite Composite Board – 23% post-consumer paper
- Plastic Rigid Foam, Polysiocyanurate/Polyurethane:
  - Rigid Foam – 9%
  - Foam-in-Place – 5%
  - Glass Fiber Reinforced – 6%
  - Phenolic Rigid Foam – 5%
  - Plastic, Non-Woven Batt – 100%

Availability
Please check the Vendor Database (Compass) for a complete listing of registered vendors and always require the vendor to quote products that meet the EPA standards whenever practicable.
2.1.5 Roofing

An Overview
For a properly constructed structure, weather protection begins at the ridge of the roof, continuing down to form an unbroken barrier that keeps out the elements - rain, snow, and the sun's light and heat. Currently, there is a multitude of roofing materials available, ranging from asphalt shingles, wood shingles and shakes, to roll-roofing and plastic membranes, to slate and tiles (clay and concrete), and finally to aluminum, copper and steel panels.

Potential Environmental Impacts
- Depending on material specified, air quality may be impacted adversely during time of installation.
- Some materials may contain high VOC that may have a negative impact over longer term.
- Some materials used are non-renewable resources.
- Disposal issues at the end of product life’s span.

Things to Consider Before Buying or If You Write Your Own Specifications
- It’s important to consider the climate, the buildings requirements and potential health issues of residents and the environment.
- Require the highest recycled content.
- Preference for products with “seals of approval.”
- Require low or no fumes and preferably no VOCs.
- Longevity of application.
- Product should meet all building and fire codes.
- Mecklenburg County has a certified Construction and Demolition landfill for proper disposal of construction and demolition materials and recycling of selected materials. Visit www.wipeoutwaste.com.

Availability
Hickman Community Services (HCS) Roofing offers Green Roofing materials and can be purchased through the U.S. Communities Cooperative Purchasing Program. For more information please contact:

HCS Roofing
Todd Lewers
Bus: 240.731.9085
tlewers@hcsroofing.com
## 2.2 JANITORIAL PRODUCTS

### 2.2.1 Industrial and Commercial Cleaners

#### Overview
The primary function of industrial and commercial cleaners is for facility and machinery cleaning. The selection of a cleaner is influenced primarily by the nature of the surface to be cleaned, the nature of the soiling, and the degree of cleanliness required. The major ingredients in cleaners are surfactants, builders, solvents, scouring abrasives, and alkalis.

#### Potential Environmental Impacts
- End of life management is essential. Products may be a burden on the environment in terms of wastewater loading and treatment, emissions of VOCs and resource consumption.
- If surfactants are not easily biodegraded, they may persist and harm ecosystems.
- May be toxic. City employees and contracted cleaning staff who use these products are exposed to hazards and potential injury on the job.

#### Things to Consider Before Buying or If You Write Your Own Specifications
- Preference should be for products that are biodegradable, not toxic or chlorinated, and standardized as much as possible to reduce the number of chemicals in use. Please reference Green Seal Standards: [http://www.greenseal.org/certification/environmental.cfm](http://www.greenseal.org/certification/environmental.cfm)
- Avoid petroleum based products. Instead specify products that are made from natural or bio-based materials like plants, fruits or trees (i.e. citrus and pine oil).
- Require MSDA sheets on all products
- Chose pump sprays instead of aerosols. Aerosols produce a finer mist that is likelier to be inhaled by workers, and their containers may be hazardous if punctured.
- Low volatile organic compound (VOC) emissions.
- Minimal packaging in refillable or recyclable containers.
- Specify products that meet Green Seal or EPA standards or other nationally recognized environmental organization.
- Require flashpoint >200°F.
- Buy in a concentrated form.
- Read the labels and avoid products that include the following cautions:
  - Warning: Mild to moderate hazard
  - Danger: extremely flammable, corrosive, or highly toxic
  - Poison: highly toxic
- Recycle cleaners at any of the County’s four staffed Recycling Centers. Go to [www.wipeoutwaste.com](http://www.wipeoutwaste.com) or [www.charmeck.org/Departments/LUESA/solid+waste/household+hazardous+waste/home.htm](http://www.charmeck.org/Departments/LUESA/solid+waste/household+hazardous+waste/home.htm) for additional information.

#### Availability
Green Seal compliant cleaners are widely available through various vendors, distributors, and catalogs including, but not limited to, *Spartan, Buckeye, Johnson Wax, and Safesource* manufactured products. For a complete listing visit: [http://www.greenseal.org/findaproduct/index.cfm](http://www.greenseal.org/findaproduct/index.cfm)

There are many vendors that offer cleaning products that have registered with Charlotte Mecklenburg. Please check the Vendor Database (Compass) for a complete listing and require the vendor to quote Green Seal approved or EPA compliant products when feasible.
### 2.2.2 Janitorial Paper Products

**Overview**
What products do we use a lot, can use only once, and never use again? The answer is bathroom & facial tissues, paper towels and toilet seat covers. These products cannot be recycled, thereby eliminating the potential to replenish what has been consumed. According to Green Seal, use of post consumer fibers reduces the impact on landfills by saving 3.3 cubic yards of space for every ton of paper that is re-channeled.

**Potential Environmental Impacts**
- Manufacture of products may release substances that contaminate the environment and enter the solid waste stream.
- Land resources can be degraded due to the manufacture process.

**Things to Consider Before Buying or If You Write Your Own Specifications**
- Products should be 100% recycled and contain a minimum 20% post consumer content.
- Request minimum packaging of all products. Packaging should be recyclable.
- Require bleach free products.
- Include these requirements in all Janitorial Cleaning Service contracts.

**Availability**
Green Seal recommends the following paper manufacturers: *AmSan, Cascades, Hillyard, and Wausau/Baywest*.

### 2.2.3 Plastic Trash Bags (Can Liners)

**Overview**
A staple in most workplaces, plastic waste bags are used in trash cans or recycling bins. Their use conserves energy and promotes recycling. Workplaces can save money by instructing staff to replace bags only when they are too dirty or full for the work setting in which they are used.

**Potential Environmental Impacts**
- Use of recycled plastic trash bags conserves energy and promotes recycling.
- Manufacture of products may release substances that contaminate the environment and enter the solid waste stream.
- Land resources can be degraded due to the manufacture process.

**Things to Consider Before Buying or If You Write Your Own Specifications**
- Products must contain a minimum 10% post consumer content.
- Any bag can fail if stressed beyond its intended use. Performance features such as puncture and tear resistance should be reviewed before choosing any bag, regardless of whether it has recycled content.
- When purchasing bags, work with the vendor to determine the size, thickness, durability and other performance requirements that are appropriate for your application.
- Bags should be lead free.
- Bags should be non-toxic when incinerated, disposed of in a landfill, or decomposed in composting.

**Availability**
The availability of bags featuring recycled content is somewhat dependent on the type of bag. For bags ranging in capacity from 7 to 56 gallons and in thickness from 0.35 to 1.35 millimeters, products are widely available with up to 100% post-consumer recycled-content plastic. However, recycled content may be difficult to find in certain colors, sizes, and thicknesses.
### 2.3. Office Electronics and Computers

#### 2.3.1 Computers and Monitors

<table>
<thead>
<tr>
<th>Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computers are an integral part of most City offices but most contain materials that can pose a threat to the environment if not managed carefully at the end of their useful life. Desktop color monitors typically contain about two or more pounds of lead and lead can also be found inside the circuit boards of the computer.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Potential Environmental Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Improper disposal of computer equipment can release lead or other toxins into the environment.</td>
</tr>
<tr>
<td>• Can consume excessive energy when the machines are on but not in use.</td>
</tr>
<tr>
<td>• Computers should be recycled through the Business Support Services/Asset and Recovery Division (ARD)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Things to Consider Before Buying or If You Write Your Own Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Business Support Services/Information Technology (IT) Department should be consulted before configuring or ordering any computer equipment.</td>
</tr>
<tr>
<td>• Computers and monitors should be Energy Star® certified. <a href="http://www.energystar.gov">www.energystar.gov</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Many computer manufacturers participate in the Energy Star® program. The City currently purchases Dell computers and monitors. Please consult with Business Support Services Information Technology (BSS/IT) before purchasing any computer.</td>
</tr>
</tbody>
</table>
## 2.3.2 Office Electronics

### Overview
Electronics like printers, copiers, fax machines, scanners, multifunction devices, telephones, radios, TVs, computers, cell phones and the batteries that power most of these are items we rely on daily. These products make up the bulk of electronics that have the potential to cause the most environmental damage because of their hazardous ingredients. This section of waste is referred to as electronic waste, or e-waste. The environmental benefits of purchasing Energy Star electronics include: reducing the amount of energy needed to power electronics, reducing the amount of raw natural resources necessary to create electronics by purchasing products with recycled content, and increasing the use of non-hazardous or less hazardous substitutes.

### Potential Environmental Impacts
The specific dangers of electronic waste are the effects that lead, cadmium, mercury, hexavalent chromium, plastics, PVC, and brominated flame retardants have on human health and the environment.

- **Lead** - can cause damage to both the central and peripheral nervous systems and the kidneys. It can also cause damage to the blood system. The effects of lead to the endocrine system have also been observed and its serious negative effects on the development of the brain in children have been well documented. In addition, lead accumulates in the environment and has high acute and chronic toxic effects on plants, animals and microorganisms.
- **Cadmium** - Cadmium compounds are classified as “toxic” with a possible risk of irreversible effects on human health since cadmium and cadmium compounds accumulate in the body, particularly in the kidneys. In addition, cadmium is also absorbed through respiration and is taken up with food.
- **Mercury** - Methylated mercury has been found to cause chronic damage to the brain.
- **Hexavalent chromium** - has been found to produce various toxic effects within the cells. For example, it has been found to cause strong allergic reactions in humans, even in small concentrations. Asthmatic bronchitis is a common allergic reaction that is linked to hexavalent chromium. Hexavalent chromium can also cause DNA damage.
- **PVC** - PVC is a difficult plastic to recycle and it also contaminates other plastics in the recycling process. Of more importance, however, is the fact that the production and burning of PVC products generates dioxins and furans, which are persistent organic pollutants. PVC, which is commonly used in packaging and household products, is a major cause of dioxin formation in open burning and garbage incinerators.
- **Brominated flame retardants** - are a class of brominated chemicals that are commonly used in electronic products as a means for reducing flammability. BFR’s act as endocrine disrupters. They also cause an increased risk of cancer to the digestive and lymph systems.
- **Energy use** - less energy use results in production of fewer GHG emissions.

### Things to Consider Before Buying or If You Write Your Own Specifications:
- Do the products that will be purchased meet the Energy Star specifications for energy efficiency?
- For products where there is not a Energy Star rating: Are the products being purchased among the most energy efficient in their product category?
- Reduction/elimination of environmentally sensitive materials
- Materials selection
- Design for end of life
- Product longevity/life cycle extension
- Energy conservation
- Packaging.

### Availability
Most consumer electronics manufacturers participate in the Energy Star® and/or EPEAT programs.
# 2.4 Landscape Materials

## 2.4.1 Mulch

### Overview
Mulch is an insulating material that is spread over the ground and is largely used as a decorative soil surface cover but actually has many horticultural benefits. Shredded wood or chips, and straw are just some of the materials that can be used as mulch. In landscaping and construction projects, mulch is used as a surface material for erosion control or as a temporary road base.

### Potential Environmental Impacts
- Reduces erosion
- Suppresses weeds
- Improves water retention

### Things to Consider Before Buying or If You Write Your Own Specifications
- Consider the size of material, texture, composition of material, aesthetics, water-holding capacity, and odor. Specifications vary according to type of mulch and intended use.

### Availability
Mecklenburg County Landfill facilities produce hardwood, pallet, and red mulch for sale in bulk and bags. Visit [http://www.charmeck.org/Departments/LUESA/Solid+Waste](http://www.charmeck.org/Departments/LUESA/Solid+Waste) for pricing and to find the nearest facility. Mulch is also available from many local landscape companies. Please check the Vendor Management System (VMS), for a complete listing and require the vendor to quote environmental preferable products when feasible.

## 2.4.2 Compost

### Overview
Compost is a valuable soil amendment that is produced from composting the decomposition of organic materials such as yard trimmings, food scraps, and animal waste…or waste products no one else wants or needs. From both an environmental and an economic viewpoint, recycling wastes for use as raw material in the manufacture of compost products makes sense. But beyond the obvious benefits of compost manufacture are the equally impressive advantages of compost use in conjunction with or instead of synthetic products for farming, gardening, and landscaping.

### Potential Environmental Impacts
- Improves soil porosity for clay soils
- Improves water retention for sandy soils
- Makes soil more resistant to disease
- Reduces pests and the need for pesticides
- Reduces erosion
- Suppresses weeds
- Enhances storage and slow release of nutrients

### Things to Consider Before Buying or If You Write Your Own Specifications
- Compost should meet the US Composting Council Seal of Testing Assurance. ([www.compostingcouncil.org](http://www.compostingcouncil.org))
- Compost produced at Mecklenburg County yard waste facilities meets the US Composting Council Seal of Testing Assurance Program requirements.

### Availability
Compost is available for sale in bulk and bags. Call 704-588-9070 for deliveries. Visit [http://www.charmeck.org/Departments/LUESA/Solid+Waste](http://www.charmeck.org/Departments/LUESA/Solid+Waste) for pricing and to find the nearest yard waste facility.
2.4.3 Native Plants

Overview
Native plants are those that evolved naturally in North America. More specifically, plants in a particular area are those that were growing naturally in the area before humans introduced plants from distant places.

Potential Environmental Impacts
- Native plants have evolved and adapted to local conditions over thousands of years. They are vigorous and hardy, therefore can survive winter cold and summer heat.
- Native plants are resistant to most pests and diseases which decreases the need for pesticides and herbicides.
- They typically do not require irrigation, which conserves water and saves money.
- Native vegetarian buffers are particularly effective along streams, lakes and wetlands where they help to improve water quality.

Things to Consider Before Buying or If You Write Your Own Specifications
The list below is not a comprehensive list of invasive species but intended to identify those invasive species that are available for purchase. Mecklenburg County Land Use & Environmental Services Agency (LUESA) has compiled a listing of North Carolina vendors that can provide native plants. This list is available at: http://www.charmeck.org/Departments/LUESA/Solid+Waste/PLANT+Program/Home.htm

Prohibited invasive exotic species and suggestions for native alternatives

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Suggested Native Alternatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ailanthus altissima</td>
<td>Tree-of-Heaven</td>
<td>Juglans nigra (Black Walnut)</td>
</tr>
<tr>
<td>Akebia quintata</td>
<td>Five-leaf Akebia</td>
<td>Gelsemium sempervirens (Carolina Jessamine)</td>
</tr>
<tr>
<td>Albizia julibrissin</td>
<td>Mimosa</td>
<td>Amorpha fruticosa (Leadplant), Pinckneya pubesens (Georgia Feverbark Tree), Robinia hispida (Rose-acacia Locust)</td>
</tr>
<tr>
<td>Ampelopis brevipedunculata</td>
<td>Porcelain Berry</td>
<td>Callicarpa americana (American Beautyberry)</td>
</tr>
<tr>
<td>Bambusa spp.</td>
<td>Bamboo Species</td>
<td></td>
</tr>
<tr>
<td>Berberis thunbergii</td>
<td>Japanese Barberry</td>
<td>Callicarpa americana (Beautyberry)</td>
</tr>
<tr>
<td>Buddleia davidii</td>
<td>Butterfly Bush</td>
<td>Aesculus parviflora (Bottlebrush Buckeye)</td>
</tr>
<tr>
<td>Clerodendron bungei</td>
<td>Harlequin Glorybower</td>
<td>Rhododendron prunifolium (Plumleaf Azalea)</td>
</tr>
<tr>
<td>Elaeagnus spp.</td>
<td>Autumn silverberry, Spring silverberry, Autumn olive</td>
<td>Ilex opaca (American holly), Lindera banzoin (Spicebush)</td>
</tr>
<tr>
<td>Euonymus alatus</td>
<td>Winged Euonymus</td>
<td>Itea virginica (Virginia Sweetspire)</td>
</tr>
<tr>
<td>Euonymus fortunei</td>
<td>Creeping Wintercreeper</td>
<td>Antennaria plantaginifolia (Southern Pussytoes)</td>
</tr>
<tr>
<td>Hedera helix</td>
<td>English ivy</td>
<td>Bignonia capreolata (Crossvine), Gelsemium sempervirens (Carolina jessamine), Mitchell repens (Partridge berry)</td>
</tr>
<tr>
<td>Ilex cornuta</td>
<td>Chinese Holly</td>
<td>Ilex glabra (Inkberry)</td>
</tr>
<tr>
<td>Lespedeza bicolor</td>
<td>Bicolor Lespedeza</td>
<td></td>
</tr>
<tr>
<td>Lespedeza cuneata</td>
<td>Sericia Lespedeza</td>
<td></td>
</tr>
<tr>
<td>Ligustrum spp.</td>
<td>Japanese privat, Chinese privat</td>
<td>Sambucus canadensis (Common elderberry), Ilex opaca (American holly), Lindera banzoin (Spicebush)</td>
</tr>
<tr>
<td>Liriope muscari</td>
<td>Liriope</td>
<td>Carex plantaginoida (Plantain-leaved Sedge), Sesryrinchium angustifolium (Blue-eyed grass)</td>
</tr>
<tr>
<td>Lonicera spp.</td>
<td>Sweet-breath-of-spring, Japanese honeysuckle, Amur honeysuckle</td>
<td>Callicarpa americana (Beautyberry), Gelsemium sempervirens (Carolina jessamine)</td>
</tr>
<tr>
<td>Lygodium japonicum</td>
<td>Japanese Climbing Fern</td>
<td>Lygodium planatum (American Climbing Fern)</td>
</tr>
<tr>
<td>(American Climbing Fern)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mahonia bealei</td>
<td>Leatherleaf Mahonia</td>
<td>Viburnum nudum (Passumhaw Viburnum), Viburnum bracteatum 'Emerald Lustre' (Emeral Luster Viburnum), Callicarpa americana (American Beautyberry)</td>
</tr>
<tr>
<td>Miscanthus sinense</td>
<td>Chinese silver grass</td>
<td>Panicum virgatum (Switchgrass), Sorghastrum nutans</td>
</tr>
</tbody>
</table>
## Section 2 – Environmental Preferable Purchasing Guide

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indian grass</td>
<td>Nandina domestica</td>
<td><em>Nandina domestica</em> (Indian grass)</td>
</tr>
<tr>
<td>Nandina domestica</td>
<td>Nandina, Sacred-bamboo</td>
<td><em>Xanthorrhiza simplicissima</em> (Yellowroot), <em>Callicarpa americana</em> (Beautyberry), <em>Sambucus canadensis</em> (Common elderberry), <em>Itea virginica</em> (Virginia willow)</td>
</tr>
<tr>
<td>Paulownia tomentosa</td>
<td>Princess tree</td>
<td><em>Chionanthus virginiana</em> (Fringe-tree), <em>Cercis canadensis</em> (Redbud), <em>Tilia americana</em> (Basswood)</td>
</tr>
<tr>
<td>Phyllostachys spp</td>
<td>Running Bamboo</td>
<td><em>Arundinaria gigantea</em> (Switch Cane)</td>
</tr>
<tr>
<td>Polygonum perfoliatum</td>
<td>Mile-a-minute</td>
<td></td>
</tr>
<tr>
<td>Polygonum cuspidatum</td>
<td>Japanese Knotweed</td>
<td></td>
</tr>
<tr>
<td>Pyrus calleryana</td>
<td>Bradford pear</td>
<td><em>Cornus florida</em> (Flowering dogwood), <em>Cercis canadensis</em> (Redbud)</td>
</tr>
<tr>
<td>Rosa multiflora</td>
<td>Multiflora Rose</td>
<td><em>Itea virginica</em> (Virginia Sweetspire)</td>
</tr>
<tr>
<td>Spirea japonica</td>
<td>Japanese Spirea</td>
<td></td>
</tr>
<tr>
<td>Vinca spp.</td>
<td>Periwinkle species</td>
<td><em>Bignonia capreolata</em> (Crossvine), <em>Gelsemium sempervirens</em> (Carolina jessamine), <em>Mitchella repens</em> (Partridge berry)</td>
</tr>
<tr>
<td>Wisteria spp.</td>
<td>Wisteria species</td>
<td><em>Wisteria frutescens</em> (American wisteria)</td>
</tr>
</tbody>
</table>

### Availability

Mecklenburg County Land Use & Environmental Services Agency (LUESA) has compiled a listing of North Carolina vendors that can provide native plants. This list is available at:

http://www.charmeck.org/Departments/LUESA/Solid+Waste/PLANT+Program/Home.htm
## 2.5 OFFICE SUPPLIES

### 2.5.1 Copy Paper and Paper Products

<table>
<thead>
<tr>
<th><strong>Overview</strong></th>
<th>Paper products include, but are not limited to, copy paper, hanging file folders, envelopes, note pads, post it notes and pre-printed forms, brochures, business cards, and archiving boxes. Recycled paper products are available in many colors, are equal in quality and performance and cost the same or less as virgin products.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Section 6 of the City of Charlotte Environmental Purchasing Policy (BSS 17) requires City employees to purchase 30% recycled content copying and printing paper.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Potential Environmental Impacts</strong></td>
<td>Discarded paper products can create a contamination problem and decreases the value of the recycled material.</td>
</tr>
<tr>
<td></td>
<td>In most cases, paper products placed in the trash would be disposed of in a landfill instead of marketed as a commodity as intended.</td>
</tr>
<tr>
<td><strong>Things to Consider Before Buying or If You Write Your Own Specifications</strong></td>
<td>Look for products made from recycled contents.</td>
</tr>
<tr>
<td></td>
<td>Whenever practicable, paper products should contain a minimum 20% post consumer recovered material and at least 30% total recovered material.</td>
</tr>
<tr>
<td></td>
<td>Request printing companies to use recycled paper for all pre-printed forms, brochures or other custom printed materials.</td>
</tr>
<tr>
<td></td>
<td>Evaluate the need for multi part forms. A one-part form may suffice.</td>
</tr>
<tr>
<td></td>
<td>Consider reformatting forms to decrease the size.</td>
</tr>
<tr>
<td></td>
<td>Duplex all copies when practicable.</td>
</tr>
<tr>
<td><strong>Availability</strong></td>
<td>The City of Charlotte currently has the following Council approved contract in effect for office supplies, which includes copy paper:</td>
</tr>
<tr>
<td></td>
<td><strong>Office Depot</strong></td>
</tr>
<tr>
<td></td>
<td>Rob Doyle</td>
</tr>
<tr>
<td></td>
<td>Phone: (888) 213-8948 x5717</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:rob.doyle@officedepot.com">rob.doyle@officedepot.com</a></td>
</tr>
</tbody>
</table>

Office supplies should be ordered on-line by authorized users. Procurement Services will provide a form to City employees designated to order supplies for their department. Office Depot will set up the user and provide a user ID and password. All orders placed on line at [https://bsd.officedepot.com](https://bsd.officedepot.com) are invoiced monthly on a Citywide summary billing submitted directly to the City Finance Department.
### 2.5.2 Miscellaneous Office Supplies (non-paper)

#### Overview
Office supplies manufacturers are increasingly offering a wide range of products made from recycled materials. Many items made from metal or plastic such as 3-ring binders, desk accessories, CDs and diskettes, mouse pads, paper clips and pens & pencils are available with recycled content materials.

Section 6 of the City of Charlotte Environmental Purchasing Policy (BSS 17) requires employees to purchase environmentally preferred office supplies that are sustainably produced, contain recycled content or are made with less toxic material.

#### Potential Environmental Impacts
- Buying recycled products conserves natural resources; saves energy; reduces solid waste; and reduces air and water pollutants.

#### Things to Consider Before Buying or If You Write Your Own Specifications
- Office supply items made of metal, plastic, or paper (other than copy/printer paper) should contain a minimum 10% recycled content materials whenever practicable.
- Look for products that contain post-consumer material contents.
- Consider refillable products such as pens and pencils.
- Consider non-toxic highlighters, markers, correction fluid, and other items identified in the supply catalogs with environmental symbols for easy recognition.

#### Availability
Many manufacturers of various office products offer recycled content items including, Esselite, Glove-Weis, Bic, Paper Mate, ACCO, Sanford, Eberhard Faber, 3M, Kraft, and DuPont. These manufacturers are offered by Office Depot.

The City currently has the following Council approved contract in effect for office supplies:

**Office Depot**
- Rob Doyle
- Phone: (888) 213-8948 x5717
- rob.doyle@officedepot.com

Office supplies should be ordered on-line by authorized users. Procurement Services will provide a form to City employees designated to order supplies for their department. Office Depot will set up the user and provide a user ID and password. All orders placed on line at [https://bsd.officedepot.com](https://bsd.officedepot.com) are invoiced monthly on a Citywide summary billing submitted directly to the City Finance Department.
### 2.5.3 Printing Cartridges

**Overview**

Printing cartridges are widely used in photocopy and facsimile equipment, as well as in laser printers. Cartridges are often thrown away once the toner inside the cartridge is used up, typically after several thousand copies have been made, depending on the make and model of the printing cartridge. Cartridges contain many components that are in great condition at the end of the expected life of the cartridge. The practice of re-manufacturing printing cartridges involves disassembling the unit, inspecting and cleaning components, and replacing or refurbishing the unit’s organic photoreceptor cell and replacing the supply of toner.

Section 6 of the City of Charlotte Environmental Purchasing Policy (BSS 17) requires employees to purchase remanufactured inkjet, toner, and printer cartridges.

**Potential Environmental Impacts**

- End of use disposal creates non-recyclable waste.
- Plastics and toners can be detrimental to land and water resources.
- Remanufactured toner cartridges save resources by reusing components instead of disposing of them after one use.

**Things to Consider Before Buying or If You Write Your Own Specifications**

- One of the clearest advantages of remanufactured printing cartridges is cost savings. Compared to new cartridges, remanufactured cartridges cost an average of 30% to 50% less, depending upon the model.
- Purchase remanufactured print cartridges whenever practicable.
- Used cartridges should be returned to the vendor to be refurbished or recycled. SunBelt Office Supplies collects all used cartridges when contacted.

**Availability**

The City of Charlotte currently has the following Council approved contracts in effect for purchasing toner/ink cartridges:

<table>
<thead>
<tr>
<th>Office Depot</th>
<th>Sunbelt Office &amp; Data Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rob Doyle</td>
<td>Bryan Burns</td>
</tr>
<tr>
<td>Phone: (888) 213-8948 x5717</td>
<td>Phone: 704.525.3813 X205</td>
</tr>
<tr>
<td><a href="mailto:rob.doyle@officedepot.com">rob.doyle@officedepot.com</a></td>
<td>e-mail: <a href="mailto:bryan@sunbeltofficesupply.com">bryan@sunbeltofficesupply.com</a></td>
</tr>
</tbody>
</table>

This vendor provides the City with inkjet, laser jet and toner cartridges, and offer recycled or remanufactured cartridges and also provides a free pick up service of used cartridges. Cartridges are recycled or remanufactured which keeps them from becoming waste in our landfills.
### 2.6. Furniture and Panel Systems

**Overview**
Office furniture and panel systems are made with a variety of materials including gypsum board, metal, wood and wood-based products, plastic and fabric. As a result of the different materials that may be used in manufacture, various environmental issues must be taken into account.

**Potential Environmental Impacts**
- Materials used in office furniture and panel systems may emit VOCs when installed, immediately impacting indoor air quality.
- Building agents such as resins used in composite wood products can affect indoor air quality.
- The design and manufacture of furniture can effect resource utilization, pollution and worker health and safety.
- Waste generated from the manufacture and disposal of these products can be minimized through reuse, remanufacture and recycling.

**Things to Consider Before Buying or If You Write Your Own Specifications**
- Re-use existing furniture where possible and refurbish if desired.
- Look for classic designs that will last without looking dated.
- Consider quality carefully. Low-cost products may break more readily and offer fewer repair options.
- Avoid products containing ozone depleting substances and volatile organic compounds.
- Require reusable and demountable panel systems.
- Look for the highest recycled contents.
- Avoid fiberglass reinforcements.

**Refurbished vs. Remanufactured Office Furniture**
Refurbished office furniture is first touched up or otherwise cosmetically improved before being resold. By comparison, remanufactured office furniture typically has had greater value added to the product and is commonly completely disassembled; its parts are inspected, cleaned, repaired or replaced.

**New Office Furniture with Recycled Content**
New furniture is composed entirely of original equipment manufacturer parts. Recycled content may be found in many manufacturers’ components, including metal, pressboard, and fabric.

**Availability**
GREENGUARD® certified or Green Seal compliant furniture includes many manufacturers such as **Knoll**, **Herman Miller**, and **Haworth**. The City has Council approved contracts in place for purchasing furniture as follows:

<table>
<thead>
<tr>
<th></th>
<th>Manufacturer:</th>
<th>Local Vendor:</th>
<th>Contact:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Knoll</td>
<td>Carolina Business Interiors (CBI)</td>
<td>Todd Wilson or Jack Hunter</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Phone: 704.525.7630 X232</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>e-mail: <a href="mailto:toddw@cbi-nc.com">toddw@cbi-nc.com</a> or <a href="mailto:jack.hunter@cbi-nc.com">jack.hunter@cbi-nc.com</a></td>
</tr>
<tr>
<td>2.</td>
<td>Herman Miller</td>
<td>Alfred Williams, Inc.</td>
<td>Russ Cox</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Phone: 704.338.9373</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>e-mail:</td>
</tr>
</tbody>
</table>
2.7. LIGHTING PRODUCTS

Overview
With lighting typically accounting for 30% to 50% of energy use in most buildings, finding ways to increase lighting efficiency can result in significant savings. With the use of energy efficient lighting products, such as fluorescent lamps and energy efficient ballasts, electric lighting costs can be reduced by as much as 60%. Newer lamps and ballasts generate less heat than older models and last longer.

According to ENERGY STAR, if every American home replaced just one light bulb with an ENERGY STAR certified bulb, we would save enough energy to light more than 2.5 million homes for a year and prevent greenhouse gases equivalent to the emissions of nearly 800,000 cars.

Potential Environmental Impacts
- Higher energy costs with inefficient lighting fixtures or inefficient lighting design
- End of use disposal problems

Things to Consider Before Buying or If You Write Your Own Specifications
- All lighting should be Energy Star equivalent low mercury fluorescent lamps. Exterior lighting should consider the use of light shields, otherwise known as full cut-off lights.
- Use a qualified design professional to assist with layout and selection or lighting fixtures. Require a lifecycle analysis as part of the design deliverables. Compare the use of T-8’s vs T-5’s for fluorescents. For high bay fixtures, consider T5HO as one of the options. As new technologies become available, they should be considered as applicable.
- Use low wattage and reflective fluorescent bulbs whenever possible
- Instant start ballasts consume less energy than rapid start ballasts. Soft start technology gives the tubes a longer lifespan. Electronic ballasts are preferred.
- Electronic ballasts consume substantially less energy when operating at very high frequencies; they hum less and do not flicker.
- When ballasts need replaced on fixtures with T-12 lamps, replace with electronic ballasts and T-8 lamps or better.
- Use task lighting to minimize the need for overhead lighting when possible. At a minimum, use of T-8 lamps and compact fluorescents are preferred.
- Recycle lamps/bulbs at any of the County’s four staffed Recycling Centers. Go to www.wipeoutwaste.com for additional information.

Availability
There are many vendors that offer Energy Star approved lighting that have registered with Charlotte Mecklenburg. The City has the following Council approved contracts for lighting products:

<table>
<thead>
<tr>
<th>Graybar</th>
<th>Home Depot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tina Fajner</td>
<td>Tony Hill</td>
</tr>
<tr>
<td>Office: (704) 398-6260</td>
<td>(803)-720-7294</td>
</tr>
<tr>
<td><a href="mailto:Tina.fajner@graybar.com">Tina.fajner@graybar.com</a></td>
<td><a href="mailto:tony_hill@homedepot.com">tony_hill@homedepot.com</a></td>
</tr>
</tbody>
</table>
### 2.8 PARK AND RECREATION PRODUCTS

#### 2.8.1 Playground Systems and Components

**Overview**

Slides, swings, climbing equipment, merry-go-rounds, and seesaws are all different types of playground equipment. These items can be made with recovered wood, steel, and aluminum. A typical set of playground equipment made with recovered-content plastic can contain plastic recovered from between 31,500 and 63,000 milk and water jugs.

**Potential Environmental Impacts**

- Treated wood products may contain chemicals that are hazardous to children’s health.
- Paint used to coat playground components may contain lead or other health hazard chemicals.

**Things to Consider Before Buying or If You Write Your Own Specifications**

When buying park and recreation items look for products made with the following environmentally preferable attributes:

- Recycled steel tubing, sheets and wire
- Recycled aluminum uprights and castings
- 100% post consumer recycled plastic curbing options
- Several options for 100% post consumer recycled rubber surfacing
- 100% post consumer recycled roof and deck options
- Recycled packaging materials
- EPA recommends that procuring agencies use the specifications found in the US Consumer Product Safety Commission (CPSC) Publication No. 325 (Handbook for Public Playground Safety) and ASTM standard F-1487-95, *Safety Performance Specifications for Playground Equipment for Public Use*, when procuring playground equipment. Playground equipment may also be subject to state and local codes and standards as well as Federal child safety laws.

**Availability**

Mecklenburg County currently has two (2) BOCC approved contracts in place that are available to the City as follows:

1. **Manufacturer:** GameTime  
   **Local Vendor:** Cunningham & Associates  
   **Contact:** Scott Cunningham  
   **Phone:** 704.525.5174 X127  
   **e-mail:** scott@cunninghamassoc.com

2. **Manufacturer:** KOMPAN  
   **Local Vendor:** Bliss Products  
   **Contact:** Gregg Bliss  
   **Phone:** (770) 920-9944  
   **e-mail:** Gregg@blissproducts.com
2.8.2 Site Furnishings

Overview
Park benches, picnic tables, and recycling containers are found in most of the Mecklenburg County’s parks, outdoor recreational facilities, and on the grounds of office buildings. Recycled milk jugs and aluminum and steel cans can be used to manufacture these items.

Potential Environmental Impacts
- Buying recycled content products conserves natural resources, reduces solid waste, saves energy, reduces air and water pollutants and greenhouse gases.

Things to Consider Before Buying or If You Write Your Own Specifications
When buying park and recreation items look for products made with the following environmentally preferable attributes:
- Recycled steel tubing, sheets and wire
- Recycled aluminum uprights and castings
- 100% post consumer recycled plastic curbing options
- Several options for 100% post consumer recycled rubber surfacing
- 100% post consumer recycled roof and deck options
- Recycled packaging materials
- EPA recommends that procuring agencies use the specifications found in the US Consumer Product Safety Commission (CPSC) Publication No. 325 (Handbook for Public Playground Safety) and ASTM standard F-1487-95, Safety Performance Specifications for Playground Equipment for Public Use, when procuring playground equipment. Playground equipment may also be subject to state and local codes and standards as well as Federal child safety laws.

Availability
Mecklenburg County currently has three (3) BOCC approved contracts in place that the City may utilize as follows:

1. Manufacturer: GameTime  
   Local Vendor: Cunningham & Associates  
   Contact: Scott Cunningham  
   Phone: 704.525.5174 X127  
   e-mail: scott@cunninghamassoc.com

2. Manufacturer: KOMPAN  
   Local Vendor: Bliss Products  
   Contact: Gregg Bliss  
   Phone: (770) 920-9944  
   e-mail: Gregg@blissproducts.com
## 2.8.3 Surfacing Materials

### Overview
Playground surfaces can contain recovered rubber and PVC materials that are often more desirable than wood chips, sand, or asphalt, because they can provide more cushioning and thereby may be safer for children. You can find playground surfaces at most County parks and many schools.

### Potential Environmental Impacts
Surfacing made from shredded tires may release toxic chemicals in certain conditions (water runoff).

### Things to Consider Before Buying or If You Write Your Own Specifications
When buying park and recreation items look for products made with the following environmentally preferable attributes:

- Recycled steel tubing, sheets and wire
- Recycled aluminum uprights and castings
- 100% post consumer recycled plastic curbing options
- Several options for 100% post consumer recycled rubber surfacing
- 100% post consumer recycled roof and deck options
- Recycled packaging materials
- EPA recommends that procuring agencies use the specifications found in the US Consumer Product Safety Commission (CPSC) Publication No. 325 (Handbook for Public Playground Safety) and ASTM standard F-1487-95, Safety Performance Specifications for Playground Equipment for Public Use, when procuring playground equipment. Playground equipment may also be subject to state and local codes and standards as well as Federal child safety laws.

### Availability
Mecklenburg County currently has three (3) BOCC approved contracts in place that can be utilized by the City as follows:

<table>
<thead>
<tr>
<th>Number</th>
<th>Manufacturer</th>
<th>Local Vendor</th>
<th>Contact</th>
<th>Phone</th>
<th>e-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>GameTime</td>
<td>Cunningham &amp; Associates</td>
<td>Scott Cunningham</td>
<td>704.525.5174 X127</td>
<td><a href="mailto:scott@cunninghamassoc.com">scott@cunninghamassoc.com</a></td>
</tr>
<tr>
<td>2.</td>
<td>KOMPAN</td>
<td>Bliss Products</td>
<td>Gregg Bliss</td>
<td>(770) 920-9944</td>
<td><a href="mailto:Gregg@blissproducts.com">Gregg@blissproducts.com</a></td>
</tr>
</tbody>
</table>
2.9 Traffic Control Products

Overview
Traffic cones are used to mark a road hazard or to direct traffic. These are typically made from plastic, and/or rubber. Traffic barricades can be used to redirect or restrict traffic in areas of highway construction or repair. They are typically made from wood, steel, plastic, fiberglass, or a combination of these materials.

Potential Environmental Impacts
- Recycled products conserve natural resources, reduce solid waste and reduce air and water pollutants.

Things to Consider Before Buying or If You Write Your Own Specifications
- The EPA recommends 50% - 100% total recovered materials content. [www.epa.gov/cpg](http://www.epa.gov/cpg)
- Transportation products containing recovered materials must conform to the Manual on Uniform Highway Traffic Control Devices used by the Federal Highway Administration, and NC Department of Transportation.
- Parking stops made from recycled plastics or rubbers are maintenance free. Unlike concrete stops, they will not crack or crumble.
- Heavier than their plastic-only counterparts, recycled rubber bases on products including traffic cones, safety posts (delineators), and barrels offer greater durability.
- Many of these products have multi-year warranties.

Use the following federal guidelines when purchasing traffic control products and require subcontractors to comply with these guidelines also.

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>RECOVERED MATERIAL CONTENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Traffic Cones</strong></td>
<td></td>
</tr>
<tr>
<td>Plastic (PVC and LDPE)</td>
<td>50% to 100% total recovered content</td>
</tr>
<tr>
<td>Rubber</td>
<td>50% to 100% total recovered content</td>
</tr>
<tr>
<td><strong>Traffic Barricades (type I and II only)</strong></td>
<td></td>
</tr>
<tr>
<td>Plastic</td>
<td>80% to 100% post-consumer recycled content</td>
</tr>
<tr>
<td>Steel</td>
<td>16% to 67% post-consumer recycled content</td>
</tr>
<tr>
<td><strong>Parking Stops, plastic or rubber</strong></td>
<td>100% post-consumer recycled content</td>
</tr>
<tr>
<td><strong>Channelizers</strong></td>
<td></td>
</tr>
<tr>
<td>Plastic</td>
<td>25% to 95% post-consumer recycled content</td>
</tr>
<tr>
<td>Rubber base</td>
<td>100% post-consumer recycled content</td>
</tr>
<tr>
<td><strong>Delineators</strong></td>
<td></td>
</tr>
<tr>
<td>Plastic</td>
<td>25% to 90% post-consumer recycled content</td>
</tr>
<tr>
<td>Rubber base</td>
<td>100% post-consumer recycled content</td>
</tr>
<tr>
<td>Steel base</td>
<td>25% to 50% post-consumer recycled content</td>
</tr>
<tr>
<td><strong>Flexible Delineators</strong></td>
<td>25% to 85% post-consumer recycled content</td>
</tr>
</tbody>
</table>

Availability
Charlotte Department of Transportation (CDOT) currently purchases cones and barricades from the following vendors:

1. **Vendor:** American Safety Utility Corp  
   **Contact:** Murray Walker  
   **Phone:** 704.482.0601  
   **e-mail:** mwalker@americansafety.com

2. **Vendor:** Safety Products, Inc. (SPI)  
   **Contact:** Stan Bialecki  
   **Phone:** 863.665.3601  
   **e-mail:** sbialecki@spisafety.com
2.10 Vehicle Maintenance Products

2.10.1 Oils and Lubricants

An Overview
This category includes motor oil, hydraulic fluids, chassis grease, and transmission fluids. Statistics show that over one billion quarts of lubricating and related oils are sold in the United States annually. Less than half of these oils are available for reclamation. Over 50,000 gallons of used motor oil are collected at Mecklenburg County recycling centers annually. Used oil can be collected, cleaned and re-fined into new oil products. Re-refined oil has been used throughout the United States with great success for many years, even in high-performance, mission-critical safety vehicles. Nationally, the U.S. Postal Service has been using re-refined oil for over a decade in its fleet of almost 73,000 vehicles.

Potential Environmental Impacts
- Improper disposal of used oil and lubricants into garbage cans, sewers and backyards result in contamination of soil, drinking water supplies and ground water.
- Used motor oil contains pollutants, including organic chemicals and metals which are toxic to humans, wildlife and vegetation.
- Just one gallon of used oil has the potential of contaminating up to one million gallons of drinking water.
- Used motor oil can be reprocessed into heating fuels, re-refined into lubricating oils or cleaned and reused.

Things to Consider Before Buying or If You Write Your Own Specifications
- Used engine oil and solvents are considered waste and must be transported accordingly under applicable federal and state regulations.
- Re-refined engine oil conserves resources while saving your agency money.
- This environmentally preferable and cost-effective product is manufactured to the same high quality standards for refining, compounding, and performance as virgin oil. In fact, according to the Environmental Protection Agency (EPA), extensive testing from the National Institute of Standards and Technology and the U.S. Army shows that it can even out-perform virgin oil.
- Generally, re-refined engine oils can be used without warranty concerns in vehicles made by Ford, General Motors, Chrysler, Caterpillar, and Detroit Diesel. These manufacturers have issued written statements declaring that vehicle warranties will be honored as long as the re-refined engine oil meets requirements. Warranty requirements are based on performance criteria and not on the origin of the base oil.

Availability
Re-refined oil comes in a variety of blends suitable for different types of gas and diesel engines. Two refineries in the U.S. produce the base oil: Evergreen Oil in California and Safety-Kleen in Illinois. Oil blenders purchase the base stock, combine it with additives, and sell it as a finished product under various brand names. Re-refined oil is available through oil dealers, auto service centers, and retailers. Auto Zone currently offers re-refined motor oils through the City’s/U.S. Communities contract for automotive parts and accessories. You may purchase at any Auto Zone location.
2.10.2 Antifreeze

An Overview
According to Federal EPA guidelines, recycled engine coolants, also known as antifreeze, might actually be purer than virgin coolant because the recycling process reduces the chlorides that come from hard water. Testing shows that, like new coolant, recycled coolant meets nationally recognized performance specifications established by the American Society for Testing Materials (ASTM) and the Society of Automotive Engineers (SAE).

Potential Environmental Impacts
- Toxic to small children and may be deadly to animals attracted by its sweet taste.
- Spent antifreeze may contain metals from the engine (lead, zinc, copper).
- Can disturb the biological action of sewage treatment and septic systems.
- Special rules apply to waste antifreeze and precautions must be taken to ensure its proper management.

Things to Consider Before Buying or If You Write Your Own Specifications
- Extended-life antifreeze is designed to last five years/150,000 miles or longer, which greatly reduces the need to purchase new and manage used antifreeze.
- Waste antifreeze can be recycled using your own equipment or a recycling service. This solves a waste disposal problem while providing a high quality reformulated product to use in vehicles.
- Extensive testing indicates that when properly formulated, recycled coolants meet or exceed nationally recognized performance specifications from the American Society for Testing Materials (ASTM) and the Society of Automotive Engineers (SAE).
- Auto makers are embracing recycled coolants. General Motors (GM) endorses several coolant recycling systems; it also stipulates that the engine warranty will be unaffected if engine coolant recycling is performed as described by the manufacturer and with GM-approved recycling equipment. Ford expressly authorizes the use of certain engine coolant recycling processes and chemicals that meet its specifications. Chrysler allows any coolant to be used as long as it meets Chrysler’s and ASTM’s specifications. Check with your vehicle manufacturer or dealer to see which coolant recycling equipment or process is appropriate.
- Whether you recycle your own antifreeze or use a service, the recycled product should include the addition of chemicals to recondition the antifreeze. Check with the manufacturer to see which type of recycled product is appropriate for each vehicle.
- A proper disposal plan is required.

Availability
EPA does not recommend one type of engine coolant over another. EPA recommends, however, that procuring agencies purchase engine coolant containing only one base chemical, typically ethylene glycol or propylene glycol, to prevent the commingling of incompatible types of engine coolant.

Auto Zone currently offers re-refined motor oils through the City’s/ U.S. Communities contract for automotive parts and accessories. You may purchase at any Auto Zone location.

2.10.3 Solvents and Cleaners

An Overview
In the course of routine cleaning, many shops use parts washing systems for engines and other equipment parts. Parts washing systems include standard reticulating parts washers, distillation units, and those with multiple filters. In choosing the right parts cleaning system, shops should evaluate both the equipment and the cleaning solvent it uses.

Solvents clean by using a surfactant (such as soap or detergent), a corrosive or alkaline ingredient, or another type of chemical to remove soil from parts.

Potential Environmental Impacts
- Whether water based or petroleum based, cleaning solvents often pose exposure risks to employees, along with the waste produced during usage.
• In most instances, shops must manage wastes produced during parts cleaning as hazardous.
• Improper end-of-use disposal is a potential hazard to the land, water and human health.
• Exposure to concentrated vapors from these solvents can cause breathing problems and headaches.
• Many solvents are also ignitable.

**Things to Consider Before Buying or If You Write Your Own Specifications**

• Water-based solvents are usually less hazardous to the user than their petroleum-based counterparts. Although water-based cleaners are often touted as being "non-hazardous," or "environmentally friendly," they must be managed as a hazardous waste unless the waste has been evaluated and found not to exhibit hazardous characteristics.
• Most petroleum-based systems use mineral spirits, Stoddard, or similar petroleum-based solvents.
• Cleaners with higher flashpoints (>140°F) are available to reduce the risk of ignition.
• Shops using petroleum-based cleaners must take extra precautions when using and storing the product and managing the wastes.

**Availability**

EPA recommends BioChem System cleaners and solvents. There are many different kinds of equipment, cleaners, and services employing Stoddard solvent, spray cabinets and services that lease equipment and collect waste cleaners. Equipment is available to purchase or lease through both manufacturers and local distributors. Cleaners are available through vehicle maintenance supply outlets, equipment manufacturers, and dealers.

### 2.11 Demolition

#### An Overview

Moving, renovating and demolishing facilities can generate significant waste. Construction and demolition waste accounts for up to 25% of the waste stream. Reorganizations in offices and facilities both add to the challenge and open new opportunities to apply sound environmental practices. These practices can lead to improved energy efficiency and workplace and public facility standards.

#### Potential Environmental Impacts

• Poor waste management practices throughout any demolition project will add to disposal volumes and their impacts on the environment.

#### Things to Consider Before Buying or If You Write Your Own Specifications

Contractors should be required to submit a Waste Management Plan with their quotations. The plan should include:

• Procedures for educating workers and subcontractors in order to ensure adherence to the Waste Management Plan.
• Methods for reducing waste such as ordering material only as required, using up excess materials on site when possible, or prefabricating sections off site.
• The percentage of recycled content in materials used.
• Methods and techniques for collecting, separating, and recycling waste materials and packaging, including a list of materials to be recycled and percentage expected to be recycled or sent to landfills.
• Provisions for dealing with hazardous waste, including procedures for handling, clean-up and disposal.
• A list of carriers and disposal destinations for each material to be disposed of or recycled.
• The cost associated with the recovery of the material and the anticipated revenues from sale of such materials.

#### Availability

The City has a list of qualified companies and receives quotes from each as needed. Please contact Genetta Carothers in Business Support Services/Procurement Services Division at 704.336.5195.
How can I Get More Information?

Other sources of information on Environmentally Preferable Purchasing are available from the following agencies and websites:

**EPPNET** is a list server linked to federal, state, local and private procurement and environmental officials established by the Northeast Recycling Council. See what they have to offer at: [www.nerc.org/eppnet.html](http://www.nerc.org/eppnet.html)

**Office of the Federal Environmental Executive** serves to implement stronger the federal government’s commitment to recycling and buying recycled content and environmentally preferable products. The web site contains various reports and resources: [www.eren.doe.gov/femp/](http://www.eren.doe.gov/femp/)

**North Carolina Division of Purchase and Contract** supports the environmentally preferable purchasing and provides information on available products, contracts and vendors. Information can be viewed at: [http://www.doa.state.nc.us/PandC/recycled.htm](http://www.doa.state.nc.us/PandC/recycled.htm)

**GREENGUARD Environmental Institute (GEI)** is an industry-independent, non-profit organization that oversees the GREENGUARD Certification Program. As an ANSI Authorized Standards Developer, GEI establishes acceptable indoor air standards for indoor products, environments, and buildings. GEI’s mission is to improve public health and quality of life through programs that improve indoor air. [www.greenguard.org](http://www.greenguard.org)

**U.S. Communities Going Green Program** is a source to access a broad line of responsible purchasing products, services and resources and also provide valuable information to help lower environmental impacts. [www.gogreencommunities.org](http://www.gogreencommunities.org)

**Responsible Purchasing Network (RPN)** is an international network of buyers dedicated to socially responsible and environmentally sustainable purchasing. [www.responsiblepurchasing.org](http://www.responsiblepurchasing.org)

**Commission for Environmental Cooperation (CEC)** is an international organization created by Canada, Mexico and the United States under the North American Agreement on Environmental Cooperation (NAAEC). The CEC was established to address regional environmental concerns, help prevent potential trade and environmental conflicts, and to promote the effective enforcement of environmental law. The Agreement complements the environmental provisions of the North American Free Trade Agreement (NAFTA). [www.cec.org](http://www.cec.org)

**The Plastics Division of the American Chemistry Council** (ACC) represents leading manufacturers of plastic resins. We may not think about them often, but versatile plastics inspire countless innovations that help make life better, healthier and safer every day. [www.americanplasticscouncil.org](http://www.americanplasticscouncil.org)

**Mecklenburg County Ordinance to Require the Source Separation Of Designated Materials from the Municipal Solid Waste Stream:** On August 15, 2000, the Mecklenburg County Board of County Commissioners (BOCC) adopted the Solid Waste Management 10-Year Plan which established a 2006 per capita waste reduction goal of 19% from fiscal year 1999 and a 2010 per capita waste reduction goal of 23% from fiscal year 1999. To view complete details visit: [http://www.charmeck.org/Departments/LUESA/Solid+Waste/Business+Recycling/ordinance](http://www.charmeck.org/Departments/LUESA/Solid+Waste/Business+Recycling/ordinance).

**Canada’s Environmental Choice Program (ECP)** is a comprehensive, national environmental labeling program initiated by Environment Canada. Certification of products and services is based on compliance with stringent environmental criteria that are established in consultation with industry, environmental groups and independent experts and are based on research into the life cycle impacts of a product or service. The Program’s official symbol of certification is the EcoLogo™ which has been awarded to over 1,750 products, services, and technologies as an indication of their positive environmental attributes. [www.environmentalchoice.com](http://www.environmentalchoice.com)

1.0 STATEMENT OF POLICY

It is the policy of [Organization] to:

- Institute practices that reduce waste by increasing product efficiency and effectiveness;
- Purchase products that minimize environmental impacts, toxics, pollution, and hazards to worker and community safety;
- Purchase products that reduce greenhouse gas emissions in their production, shipping, use and discard; and
- Purchase products that include recycled content, are durable and long-lasting, conserve energy and water, use agricultural fibers and residues, use unbleached or chlorine free manufacturing processes, are lead-free and mercury-free, and use wood from sustainably harvested forests.

2.0 PURPOSE

This Policy is adopted in order to:

- Conserve natural resources,
- Minimize environmental impacts such as pollution and use of water and energy,
- Eliminate or reduce toxics that create hazards to workers and our community,
- Support strong recycling markets,
- Reduce materials that are landfilled,
- Increase the use and availability of environmentally preferable products that protect the environment,
- Identify environmentally preferable products and distribution systems,
- Reward manufacturers and vendors that reduce environmental impacts in their production and distribution systems or services, and
- Create a model for successfully purchasing environmentally preferable products that encourages the use of agricultural fibers, chlorine-free manufacturing processes, wood from sustainably harvested forests, and other environmentally friendly practices, and that encourages other purchasers in our community to adopt similar goals.

3.0 STRATEGIES FOR IMPLEMENTATION

3.1 Source Reduction

3.1.1 Institute practices that reduce waste, encourage reuse, and result in the purchase of fewer products.
3.1.2 Purchase remanufactured products such as toner cartridges, tires, furniture, equipment and automotive parts.

3.1.3 Consider short-term and long-term costs in comparing product alternatives. This includes evaluation of total costs expected during the time a product is owned, including, but not limited to, acquisition, extended warranties, operation, supplies, maintenance and replacement parts, disposal costs and expected lifetime compared to other alternatives.

3.1.4 Purchase products that are durable, long lasting, reusable or refillable and avoid purchasing one-time use or disposable products.

3.1.5 Request vendors eliminate packaging or use the minimum amount necessary for product protection. Vendors shall be encouraged to take back packaging for reuse. A vendor’s willingness to take back packaging will be used as part of the consideration in the bid process.

3.1.6 Specify a preference for packaging that is reusable, recyclable or compostable, when suitable uses and programs exist.

3.1.7 Encourage vendors to take back and reuse pallets and other shipping materials.

3.1.8 Encourage suppliers of electronic equipment, including but not limited to computers, monitors, printers, and copiers, to take back equipment for reuse or environmentally sound recycling when [the Organization] discards or replaces such equipment, whenever possible. Suppliers will be required to state their take back, reuse or recycling programs during the bidding process.

3.1.9 Consider provisions in contracts with suppliers of non-electronic equipment that require suppliers to take back equipment for reuse or environmentally sound recycling when [the Organization] discards or replaces such equipment, whenever possible. Suppliers will be required to state their take back, reuse or recycling programs during the bidding process.

3.1.10 Print and copy all documents on both sides to reduce the use and purchase of paper. Printers and copiers shall be set to default to duplex.

3.1.11 Provide employees the capability to fax directly from their computers. Reduce the number of fax machines leased or owned by [the Organization].

3.2 Recycled Content Products

3.2.1 Purchase products for which the United States Environmental Protection Agency (U.S. EPA) has established minimum recycled content standard guidelines, such as those for printing paper, office paper, janitorial paper, construction, landscaping, parks and recreation, transportation, vehicles, miscellaneous, and non-paper office products, that contain the highest post-consumer content available, but no less than the minimum recycled content standards established by the U.S. EPA Comprehensive Procurement Guidelines.
3.2.2 Purchase copiers and printers compatible with the use of recycled content and remanufactured products.

3.2.3 In accordance with California Public Contract Code, Sec. 10409, purchase re-refined lubricating and industrial oil for use in its vehicles and other equipment, as long as it is certified by the American Petroleum Institute (API) as appropriate for use in such equipment. This section does not preclude the purchase of virgin-oil products for exclusive use in vehicles whose warranties expressly prohibit the use of products containing recycled oil.

3.2.4 When specifying asphalt, concrete, aggregate base or portland cement concrete for road construction projects, use recycled, reusable or reground materials.

3.2.5 Specify and purchase recycled content traffic control products, including signs, cones, parking stops, delineators, channelizers and barricades.

3.2.6 Ensure pre-printed recycled content papers intended for distribution that are purchased or produced contain a statement that the paper is recycled content and indicate the percentage of post-consumer recycled content.

3.3 Energy Efficient and Water Saving Products

3.3.1 Purchase energy-efficient equipment with the most up-to-date energy efficiency functions. This includes, but is not limited to, high efficiency space heating systems and high efficiency space cooling equipment.

3.3.2 Replace inefficient interior lighting with energy-efficient equipment.

3.3.3 Replace inefficient exterior lighting, street lighting and traffic signal lights with energy-efficient equipment. Minimize exterior lighting where possible to avoid unnecessary lighting of architectural and landscape features while providing adequate illumination for safety and accessibility.

3.3.4 Purchase U. S. EPA Energy Star certified products when available. When Energy Star labels are not available, choose energy-efficient products that are in the upper 25% of energy efficiency as designated by the Federal Energy Management Program.

3.3.5 Purchase water-saving products. This includes, but is not limited to, high-performance fixtures like toilets, low-flow faucets and aerators, and upgraded irrigation systems.

3.4 Green Building Products and Practices

3.4.1 Consider Green Building practices for design, construction, and operation as described in the LEED™ Rating System for all building and renovations undertaken by [the Organization].
3.5 Landscaping Products and Practices

3.5.1 Employ Bay-Friendly Landscaping or sustainable landscape management techniques for all landscape renovations, construction and maintenance performed by [the Organization], including workers and contractors providing landscaping services for [the Organization], including, but not limited to, integrated pest management, grasscycling, drip irrigation, computerized central irrigation linked with the local weather station, composting, and procurement and use of mulch and compost that give preference to those produced from regionally generated plant debris and/or food scrap programs.

3.5.2 Choose a Bay-Friendly Qualified Landscape Professional for landscape design and maintenance services. Training and qualifications shall include landscaping locally, landscaping for less to the landfill, nurturing the soil, conserving water, conserving energy, protecting water and air quality, and creating wildlife habitat.

3.5.3 Select plants to minimize waste by choosing species for purchase that are appropriate to the microclimate, species that can grow to their natural size in the space allotted them, and perennials rather than annuals for color. Native and drought-tolerant plants that require no or minimal watering once established are preferred.

3.5.4 Hardscapes and landscape structures constructed of recycled content materials are encouraged. Limit the amount of impervious surfaces in the landscape. Permeable substitutes, such as permeable asphalt or pavers, are encouraged for walkways, patios and driveways.

3.5.5 Create swales in all landscape renovations and construction performed by [the Organization] to assist in water run-off management. Develop outreach programs to instruct the public in the proper maintenance of swales.

3.6 Toxics and Pollution Prevention Products and Practices

3.6.1 Manage pest problems through prevention and physical, mechanical and biological controls when [the Organization] and its contractors maintain buildings and landscapes. The [Organization] may either adopt and implement an Organic Pest Management (OPM) policy and practices or adopt and implement an Integrated Pest Management (IPM) policy and practices using the least toxic pest control as a last resort.

3.6.2 Use products with the lowest amount of volatile organic compounds (VOCs), highest recycled content, low or no formaldehyde and no halogenated organic flame retardants when purchasing building maintenance materials such as paint, carpeting, adhesives, furniture and casework.

3.6.3 Purchase or require janitorial contractors to supply, industrial and institutional cleaning products that meet Green Seal or EcoLogo certification standards for environmental preferability and performance.
3.6.4 Purchase, or require janitorial contractors to supply, vacuum cleaners that meet the requirements of the Carpet and Rug Institute “Green Label” Testing Program – Vacuum Cleaner Criteria, are capable of capturing 96% of particulates 0.3 microns in size, and operate with a sound level less than 70dBA. Other janitorial cleaning equipment should be capable of capturing fine particulates, removing sufficient moisture so as to dry within 24 hours, operate with a sound level less than 70dBA, and use high-efficiency, low-emissions engines.

3.6.5 Purchase paper, paper products, and janitorial paper products that are unbleached or are processed without chlorine or chlorine derivatives.

3.6.6 Prohibit the purchase of products that use polyvinyl chloride (PVC) such as, but not limited to, furniture and flooring.

3.6.7 Purchase products and equipment with no lead or mercury whenever possible. For products that contain lead or mercury, [the Organization] should give preference to those products with lower quantities of these metals and to vendors with established lead and mercury recovery programs. In addition, whenever lead- or mercury-containing products require disposal, [the Organization] will dispose of those products in the most environmentally safe manner possible. All fluorescent lamps and batteries will be recycled.

3.6.8 Specify that desktop computers, notebooks and monitors purchased meet, at a minimum, all Electronic Product Environmental Assessment Tool (EPEAT) environmental criteria designated as “required” as contained in the IEEE 1680 Standard for the Environmental Assessment of Personal Computer Products.

3.6.9 When replacing vehicles, consider less-polluting alternatives to diesel such as compressed natural gas, bio-based fuels, hybrids, electric batteries, and fuel cells, as available.

3.7 Bio-Based Products

3.7.1 Encourage the use of vehicle fuels made from non-wood, plant-based contents such as vegetable oils whenever practicable.

3.7.2 Use paper, paper products and construction products made from non-wood, plant-based contents such as agricultural crops and residues.

3.7.3 Use bio-based plastic products that are biodegradable and compostable, such as bags, film, food and beverage containers, and cutlery.

3.7.4 Purchase compostable plastic products that meet American Society for Testing and Materials (ASTM) standards as found in ASTM D6400-04. Meet ASTM D6868-03 standards for biodegradable plastics used as coatings on paper and other compostable substrates.

3.7.5 Ask vendors to provide proof of compliance with ASTM standards for compostable, biodegradable and degradable plastic products upon request. One
ENVIRONMENTALLY PREFERABLE PURCHASING
MODEL POLICY

acceptable proof of compliance for compostable plastic products will be certification by the Biodegradable Products Institute (BPI).

3.8 Forest Conservation Products

3.8.1 To the greatest extent practicable, do not procure wood products such as lumber and paper that originate from forests harvested in an environmentally unsustainable manner. When possible, give preference to wood products that are certified to be sustainably harvested by a comprehensive, performance-based certification system. The certification system shall include independent third-party audits, with standards equivalent to, or stricter than, those of the Forest Stewardship Council certification.

3.8.2 Encourage the purchase or use of previously used or salvaged wood and wood products whenever practicable.

4.0 RESPONSIBILITIES

4.1 The health and safety of workers and citizens is of utmost importance and takes precedence over all other practices. Nevertheless, [the Organization] recognizes its duty to act in a fiscally responsible as well as a timely manner.

4.2 Nothing contained in this policy shall be construed as requiring a department, purchaser or contractor to procure products that do not perform adequately for their intended use, exclude adequate competition, risk the health or safety of workers and citizens, or are not available at a reasonable price in a reasonable period of time.

4.3 Nothing contained in this policy shall be construed as requiring [the Organization], department, purchaser, or contractor to take any action that conflicts with local, state or federal requirements.

4.4 [Organization] has made significant investments in developing a successful recycling system and recognizes that recycled content products are essential to the continuing viability of that recycling system and for the foundation of an environmentally sound production system. Therefore, to the greatest extent practicable, recycled content shall be included in products that also meet other specifications, such as chlorine free or bio-based.

4.5 Utilize Measure D Funds, Waste Import Mitigation Funds, or Recycled Product Procurement Funds, to support and implement the Environmentally Preferable Practices Policy to the extent allowable and eligible.

5.0 IMPLEMENTATION

5.1 The [Director of Purchasing, Director of Finance, other responsible director] shall implement this policy in coordination with other appropriate [Organization] personnel.
ENVIRONMENTALLY PREFERABLE PURCHASING
MODEL POLICY

5.2 Require successful bidders to certify in writing that the environmental attributes claimed in competitive bids are accurate. In compliance with State law, vendors shall be required to specify the minimum or actual percentage of recovered and post-consumer material in their products, even when such percentages are zero.

5.3 Upon request, buyers making the selection from competitive bids shall be able to provide justification for product choices that do not meet the environmentally preferable purchasing criteria in this policy.

5.4 Include businesses certified by the Bay Area Green Business Program in purchasing requests for products and services.

5.5 Encourage vendors, contractors and grantees to comply with applicable sections of this policy for products and services provided to [the Organization].

6.0 PROGRAM EVALUATION

6.1 The [Director of Finance, Director of Purchasing, other position responsible for implementing this policy] shall periodically evaluate the success of this policy’s implementation and report to the [Board/Council of the Organization].

7.0 DEFINITIONS

7.1 “American Society for Testing and Materials” means ASTM International, an open forum for the development of high quality, market relevant international standards use around the globe.

7.2 “Bay Area Green Business Program” is a partnership of governments and businesses that certifies the environmental performance of government agencies and businesses.

7.3 “Bay-Friendly Landscaping” means working with the natural ecosystems of the San Francisco Bay Area to foster soil health, to reduce runoff and pollution, prevent and reuse plant waste, and conserve water and other natural resources. Bay-Friendly Landscaping practices are described in the Bay-Friendly Landscape Guidelines, by StopWaste.Org.

7.4 “Bio-Based Products” means commercial or industrial products (other than food or feed) that utilize agricultural crops or residues but does not include products made from forestry materials.

7.5 “Biodegradable plastic” means the degradation of the plastic must occur as a result of the action of naturally occurring microorganisms.

7.6 “Biodegradable Products Institute” (BPI) is a multi-stakeholder association of key individuals and groups from government, industry and academia, which promotes the use, and recycling of biodegradable polymeric materials (via composting). BPI does not create standards but certifies products that demonstrate they meet the requirements in ASTM D6400 or D6868, based on testing in an approved laboratory.
7.7 “Buyer” means anyone authorized to purchase or contract for purchases on behalf of this jurisdiction or its subdivisions.

7.8 “The Carpet and Rug Institute” (CRI) is the national trade association representing the carpet and rug industry. CRI has developed and administered the “Green Label” indoor air quality testing and labeling program for carpet, adhesives, cushion materials and vacuum cleaners. The “Green Label Plus” testing program incorporates additional requirements to meet California’s Collaborative for High Performance Schools low-emitting materials criteria.

7.9 “Compostable plastic” means plastic that is biodegradable during composting to yield carbon dioxide, water and inorganic compounds and biomass, at a rate consistent with other known compostable materials and leaves no visually distinguishable or toxic residues.

7.10 “Contractor” means any person, group of persons, business, consultant, designing architect, association, partnership, corporation, supplier, vendor or other entity that has a contract with [the Organization] or serves in a subcontracting capacity with an entity having a contract with [the Organization] for the provision of goods or services.

7.11 “Degradable plastic” means plastic that undergoes significant changes in its chemical structure under specific environmental conditions.

7.12 “EcoLogo™” is a third-party, multi-attribute eco-labeling program founded by the Canadian government in 1988. The Program compares products / services with others in the same category, develops rigorous and scientifically relevant criteria, and awards the EcoLogo to those that are environmentally preferable throughout their entire lifecycle.

7.13 “Electronic Product Environmental Assessment Tool” (EPEAT) is a procurement tool to help institutional purchasers in the public and private sectors evaluate, compare and select desktop computers, notebooks and monitors based on their environmental attributes.

7.14 “Energy Star” means the U.S. EPA’s energy efficiency product labeling program.

7.15 “Energy-Efficient Product” means a product that is in the upper 25% of energy efficiency for all similar products, or that is at least 10% more efficient than the minimum level that meets Federal standards.


7.17 “Forest Stewardship Council” is a global organization that certifies responsible, on-the-ground forest management according to rigorous standards developed by a broad variety of stakeholder groups.
7.18 “Green Seal” is an independent, non-profit environmental labeling organization. Green Seal standards for products and services meet the U.S. EPA’s criteria for third-party certifiers. The Green Seal is a registered certification mark that may appear only on certified products.

7.19 “Integrated Pest Management” is an ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. Pesticides are used only after monitoring indicates they are needed according to established guidelines, and treatments are made with the goal of removing only the target organism. Pest control materials are selected and applied in a manner that minimizes risks to human health, beneficial and nontarget organisms, and the environment.

7.20 “LEED™ Rating System” means the most recent version of the Leadership in Energy and Environmental Design (LEED™) Commercial Green Building Rating System, or other related LEED™ Rating System, approved by the U.S. Green Building Council and designed for rating new and existing commercial, institutional, and residential buildings.

7.21 “Organic Pest Management” prohibits the use and application of toxic chemical pesticides and strives to prevent pest problems through the application of natural, organic horticultural and maintenance practices. All pest control products shall be in keeping with, but not limited to, those products on the approved list of California Certified Organic Foods (CCOF).

7.22 "Post-consumer Material" means a finished material which would normally be disposed of as a solid waste, having reached its intended end-use and completed its life cycle as a consumer item, and does not include manufacturing or converting wastes.

7.23 “Pre-consumer Material” means material or by-products generated after manufacture of a product is completed but before the product reaches the end-use consumer. Pre-consumer material does not include mill and manufacturing trim, scrap, or broke which is generated at a manufacturing site and commonly reused on-site in the same or another manufacturing process.

7.24 “Recovered Material” means fragments of products or finished products of a manufacturing process, which has converted a resource into a commodity of real economic value, and includes pre-consumer and post-consumer material but does not include excess resources of the manufacturing process.

7.25 “Recycled Content” means the percentage of recovered material, including pre-consumer and post-consumer materials, in a product.

7.26 “Recycled Content Standard” means the minimum level of recovered material and/or post-consumer material necessary for products to qualify as “recycled products.”
7.27 “Recycled Product” means a product that meets [the Organization's] recycled content policy objectives for post-consumer and recovered material.

7.28 “Remanufactured Product” means any product diverted from the supply of discarded materials by refurbishing and marketing said product without substantial change to its original form.

7.29 “Reused Product” means any product designed to be used many times for the same or other purposes without additional processing except for specific requirements such as cleaning, painting or minor repairs.

7.30 “Source Reduction” refers to products that result in a net reduction in the generation of waste compared to their previous or alternate version and includes durable, reusable and remanufactured products; products with no, or reduced, toxic constituents; and products marketed with no, or reduced, packaging.

7.31 “U.S. EPA Guidelines” means the Comprehensive Procurement Guidelines established by the U.S. Environmental Protection Agency for federal agency purchases as of May 2002 and any subsequent versions adopted.

7.32 “Water-Saving Products” are those that are in the upper 25% of water conservation for all similar products, or at least 10% more water-conserving than the minimum level that meets the Federal standards.

8.0 EFFECTIVE DATES

8.1 This policy shall take effect on [date].
Appendix I

CHARRETTE OVERVIEW
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### Mecklenburg County
#### Solid Waste Management Charrette
January 26-28, 2012
700 North Tryon Street, Charlotte, NC 28202
Charlotte, NC 28202

**THURSDAY, JANUARY 26TH**: Opening Reception

<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
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<tbody>
<tr>
<td>6 pm to 8 pm</td>
<td>Opening remarks, overview and background of the planning process, charrette process</td>
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**FRIDAY, JANUARY 27TH**

<table>
<thead>
<tr>
<th>Small Group Sessions</th>
<th>Series 1 Topics</th>
<th>Series 2 Topics</th>
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<tr>
<td></td>
<td><strong>TIME</strong></td>
<td><strong>SERIES 1 TOPICS</strong></td>
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<td></td>
<td>8:30 – 10:00 am</td>
<td>Extended Producer Responsibility</td>
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<td>This session will cover how to effectively engage the industry to make them aware of materials and products that are problems for the County, and to establish a process for resolving those problems; ways in which the County can affect the design of new manufactured products to be reusable, recyclable, or compostable; and the possible roles the County could play in affecting extended producer responsibility.</td>
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<td>10:30 am – 12:00 pm</td>
<td>Expand Mandatory Business Recycling Ordinance</td>
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<td>This session will cover the potential for expanded material requirements in the mandatory business recycling ordinance; the possibility of lower minimum thresholds for mandatory business recycling; the potential for expanding the mandatory business recycling ordinance to include more businesses; and the feasibility of a universal requirement in the ordinance.</td>
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<td>1:30 – 3:00 pm</td>
<td>Food Scraps and Other Organics – Commercial and Institutional</td>
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<td>This session will cover existing and needed infrastructure for commercial and institutional organics collection and processing; obstacles and opportunities for composting; infrastructure requirements for anaerobic digestion of organic waste; large facility versus site specific solutions; and what is feasible for Mecklenburg County in the next ten years.</td>
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<td>3:30 – 5:00 pm</td>
<td>Alternative Disposal / Mixed Waste Processing Technologies</td>
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<td>This session will cover disposal using traditional Waste to Energy technology; new technologies for disposal and processing; infrastructure needs related to various alternative disposal and mixed waste processing technologies; and the status of various emerging technologies including context and cost ranges.</td>
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**Additional Series 2 topics TBD on Thursday 26th.**
**FRIDAY, JANUARY 27TH**

<table>
<thead>
<tr>
<th>Time</th>
<th>General Sessions Recap</th>
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<tr>
<td>6- 7:30 or 8 pm</td>
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This session will review the information received from the day's small group sessions; and determine if additional sessions need to be added on Saturday, and for which topics.

**SATURDAY, JANUARY 28TH**

**Small Group Sessions**

Each session will include discussion on: potential policies, programs, infrastructure; advantages and disadvantage (economic, environmental, social); education and outreach

*Additional Series 2 topics TBD On Thursday 26th and Friday 27th.*

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<thead>
<tr>
<th>Time</th>
<th>SERIES 1 TOPICS</th>
<th>SERIES 2 TOPICS</th>
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<tbody>
<tr>
<td>8:30 – 10:00 am</td>
<td>Mandatory Residential Recycling – Single Family</td>
<td>Mandatory Residential Recycling – Multi-Family</td>
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<td>This session will cover current single-family</td>
<td>This session will cover current multi-family</td>
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<td>recycling participation; possible enforcement</td>
<td>recycling participation; possible enforcement</td>
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<td>issues associated with mandatory recycling;</td>
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<td>residential program.</td>
<td>existing residential program.</td>
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<td>10- 10:30 am</td>
<td>BREAK</td>
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<tr>
<td>10:30 am – 12:00 pm</td>
<td>Food Scraps and Other Organics Composting –</td>
<td>Alternative Disposal / Mixed Waste Processing</td>
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<td>Residential (SF and MF)</td>
<td>Technologies</td>
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<td>This session will cover building upon existing</td>
<td>This session will cover disposal using traditional</td>
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<td>backyard composting programs to increase</td>
<td>Waste to Energy technology; new technologies</td>
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<td>residential organics composting; the potential for</td>
<td>for disposal and processing; infrastructure needs</td>
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<td>residential organics collection services;</td>
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<td>waste processing technologies; and the status of</td>
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<td>anaerobic digestion technologies for composting</td>
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<td>organic waste; and what is feasible for</td>
<td>and cost ranges.</td>
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<td>Mecklenburg County in the next ten years.</td>
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<td>12-1:30 pm</td>
<td>LUNCH, OPEN HOUSE</td>
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<td>1:30 – 3:00 pm</td>
<td>Zero Waste</td>
<td>Residential Yard Waste</td>
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<td>This session will cover the definition of zero</td>
<td>This session will cover the potential for changes</td>
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<td>waste; how local government can have an impact in</td>
<td>in curbside collection technologies; changes in</td>
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<td>moving toward a zero waste goal; and the types of</td>
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<td>efforts (policies, programs and infrastructure) it</td>
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<td>takes to achieve a zero waste goal.</td>
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<td>3 – 3:30 pm</td>
<td>BREAK</td>
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<td>3:30 – 5:00 pm</td>
<td>Goal Setting</td>
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<td>This session will review the goals outlined in the</td>
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<td>2009 Solid Waste Management Plan; potential</td>
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<td>existing goals for the 2012 Solid Waste</td>
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<td>Management Plan.</td>
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<td>5 – 6:00 pm</td>
<td>BREAK</td>
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<td>6 – 7:30 or 8 pm</td>
<td>General Session – Charrette wrap-up</td>
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<td>This session will cover strategies that rose to the</td>
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<td>Solid Waste Management Plan; implementation</td>
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<td>the information gathered in the charrette will be</td>
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<td>utilized, and when a draft version of the Plan will</td>
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<td>be available for review.</td>
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Mecklenburg County
Solid Waste Management Plan
Planning Charrette

Charrette Opening Session
Thursday, January 26th
6:00 pm – 8:00 pm
INTRODUCTIONS
Why are we here?

- A requirement of NCGS 130A-309.09A
  - “each unit of local government ...... shall be updated at least every three years”

- Solid Waste Interlocal Agreements
  - “County shall prepare and submit the Solid Waste Management Plan(s)”
  - “Any such Solid Waste Management Plan shall be approved by the governing bodies of both the County and the Town.”
Why are we here?

- Bylaws of the Mecklenburg Waste Management Advisory Board – Article II - Purpose
  - “To assist Mecklenburg County and participating local city and town governments in the development ….. the Solid Waste Management Plan”
  - “To monitor progress in implementing the Plan and to provide recommendations for change to the BOCC every three years....”
Waste Landfilled Annually

FY 2011 represents draft data
Solid Waste Disposal Breakdown

FY 2005
- C&D: 30%
- Commercial: 43%
- Residential: 27%

FY 2008
- C&D: 23%
- Commercial: 52%
- Residential: 25%

FY 2011
- C&D: 18%
- Commercial: 47%
- Residential: 35%
Plan Sets the Stage for Change

- **Source Separation Ordinance (SSO)**
  - 1997 Plan recommends voluntary commercial recycling and zoning changes
  - 2000 Plan recommends mandatory SSO
  - BOCC enacts SSO in 2000

- **Single Stream Recycling (SS)**
  - 2006 Plan recommends SS, along with additional materials collected
  - Included in 2008 Solid Waste Interlocal Agreements
Plan Attributes

- The Plan considers:
  - Vision and goals of our communities
  - Waste management needs of our customers
  - What we can effect
  - Environmental impacts
  - Economic impacts

- The Plan provides:
  - Clear goals and objectives
  - Path toward implementation
  - Flexibility
2012 Plan Update

- Steering Committee monthly meetings
  - Representation by each municipality, UNC-Charlotte, Chamber of Commerce, County PI
- Social Media
  - Like us on Facebook!
- Charrette
- Draft plan reviews throughout the process
  - County staff, municipalities, steering committee
- Public comment on the draft Plan
THE CHARRETTE PROCESS
# Charrette Schedule

**FRIDAY, JANUARY 27**

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<tr>
<th>TIME</th>
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<td>General Sessions Recap</td>
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</tr>
</tbody>
</table>
Extended Producer Responsibility

Tomorrow’s “Cradle to Cradle” System

Manufacturers ➔ Retailers ➔ Consumers ➔ Take Back ➔ Take Back Programs

- Materials are recycled into new products
- Take Back Programs: mail-back, collection sites, haulers, local governments

--California Product Stewardship Council
C&D Recycling
C&D in Mecklenburg County

2007 C&D Composition

Recoverability of C&D Material Categories

<table>
<thead>
<tr>
<th>Recoverable</th>
<th>Potential Recoverable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrugated Cardboard, Appliances, Other Ferrous Metals, HVAC Ducting,</td>
<td>PVC Pipe, Vinyl Siding, Dirt/Sand/Gravel, Asphalt Roofing, Ceiling Tiles, Carpet</td>
</tr>
<tr>
<td>Other Non-ferrous Metal, Land Clearing/Limbs/Stumps, Other Yard Waste,</td>
<td>and Carpet Backing, Electronics, Bulky Wastes/Furniture</td>
</tr>
<tr>
<td>Concrete/Block/Brick/Stone/Tile, Pallets, Drywall – Unpainted, Untreated</td>
<td></td>
</tr>
<tr>
<td>Wood</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unrecoverable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Paper, Film Plastic, Other Plastic, All Glass, Oriented Strandboard</td>
</tr>
<tr>
<td>(OSB), Treated/Processed Wood, Drywall – Painted, Insulation, Mixed MSW,</td>
</tr>
<tr>
<td>Mixed C&amp;D/Other Unclassified</td>
</tr>
</tbody>
</table>

Source: Construction and Demolition Debris Composition Study for Mecklenburg County by MSW Consultants dated September 2008.
Expand Mandatory Business Recycling

Tons Disposed in FY 2010-11

- Residential: 35%
- Commercial: 47%
- C&D: 18%

Special Event Recycling

Clear Stream, Matthews Alive

Speed Street Volunteers
Food Scraps and Other Organics – Commercial and Institutional
Alternative Disposal / Mixed Waste Processing Technologies
Mixed Material Processing (“Dirty MRF”)

<table>
<thead>
<tr>
<th>Tons per day</th>
<th>200-400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost per ton</td>
<td>$40-60</td>
</tr>
<tr>
<td>Acres required</td>
<td>5-7</td>
</tr>
</tbody>
</table>

Rainbow Disposal, Huntington Beach

**Products/By-Products**
- Recyclables
- Compostables

Mixed Material Processing
Institutional Waste Diversion

CMS Students assist with recycling

Containers Available to CMS, CPCC, and City/County Facilities
General Session – Recap the Day

For Each Session

- Issues Discussed
  - Strategies
  - Diversion Potential (where available)
  - Cost Range (where available)
- Where we found consensus or not
- Where we found more research is needed
# Charrette Schedule

**SATURDAY, JANUARY 28TH**

<table>
<thead>
<tr>
<th>TIME</th>
<th>SERIES 1 TOPICS</th>
<th>SERIES 2 TOPICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 – 10:00 am</td>
<td>Mandatory Residential Recycling – Single Family</td>
<td>Mandatory Residential Recycling – Multi-Family</td>
</tr>
<tr>
<td>10- 10:30 am</td>
<td>BREAK</td>
<td></td>
</tr>
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<td>10:30 am – 12:00 pm</td>
<td>Food Scraps and Other Organics Composting – Residential (SF and MF)</td>
<td>Alternative Disposal / Mixed Waste Processing Technologies</td>
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<tr>
<td>12-1:30 pm</td>
<td>LUNCH, OPEN HOUSE</td>
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<td>1:30 – 3:00 pm</td>
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<td>General Session – Charrette wrap-up</td>
<td></td>
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</tbody>
</table>
Mandatory Residential Recycling – Single Family
Current Residential Waste Disposed

- Organics: 37%
- Paper: 22%
- Plastics: 18%
- Wood: 6%
- Metal: 4%
- Glass: 4%
- Other: 9%
- Inert: 3%
- Yard Waste: 3%
- Non-Ferrous Metal: 2%
- Brown Goods: 1%
- Special Waste: 0%

Source: Residential Waste composition data from the 2010 Orange County North Carolina Waste Composition Study applied to Mecklenburg County residential tons disposed.
Mandatory Residential Recycling – Multi-Family

- 30% of housing units County-wide are Multi-family units
- Mandatory recycling advantages:
  - Uniform approach, education
  - High diversion potential
- Mandatory recycling disadvantages:
  - Logistics issues
  - Enforcement
  - High turnover rate (education challenge)
Food Scraps and Other Organics Composting – Residential (SF and MF)

Green Cart Organics

Yes...
- boxes
- bread
- cactus
cereal
- cheese
- chopsticks (wooden)
- coffee cups (paper)
crushed bones
- coffee grounds
coffee filters (paper)
dairy products
egg shells
- facial tissue
- flowers
- frozen food boxes
- fruit
- grains
- grass clippings
- houseplants
- ice cream cartons
- ice cream sticks (wooden)
leaves
- meat
- milk cartons (paper)
- newspaper (food-soiled)
- paper take-out cartons without metal handles
- paper towels & napkins (food-soiled)
- pasta
- pizza boxes (and leftover pizza)
- prunings
- Q-tips (with paper or wooden wand)
sawdust
- shrubs
- tea bags/tea bags with staples
tree twigs and branches up to 6" in diameter
- trees (holiday, untrimmed)
- vegetables
- waxed cardboard
- waxed paper (food-soiled)
- waxed paper containers/soup cups
- woods
- wine corks (natural only)
- wood (uncoated, unbleached)
- wood chips
- yard waste

Helpful Tips...
- Do not bag, tie, or bundle yard trimmings before placing them in the cart. No dirt, rocks, ceramics, or plastic frames.

Kitchen Pail...
For your convenience, ACI has provided you a green kitchen pail for the collection of food scraps and food-soiled paper. Simply deposit the contents of the green kitchen pail into the green organics cart.

No Recyclable Materials or Solid Waste
Before disposing, please consider romance or donating.
Please make sure all materials fit inside the cart with the lid closed.

On your scheduled collection day, please place your green cart curbside by 5 AM.
Alternative Disposal / Mixed Waste Processing Technologies
Mixed Material Processing (“Dirty MRF”)

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Rainbow Disposal, Huntington Beach

Products/By-Products
Recyclables
Compostables

Mixed Material Processing
Zero Waste

Designs “waste” out of the system

Goes beyond “end of pipe” strategies

Discarded materials are potentially valuable resources

Maximizes recycling and composting

Reduces consumption

Recognizes that “waste” is not inevitable
Residential Yard Waste
Discussion Strategies

- Plastic bag ban at Compost Central
- Changes to collection frequency
- Changes to collection set-out requirements
- Changes to collection technology
- Potential for
  - Greater use as biomass fuel
  - Additional products
- Site location for
  - Composting facility
  - Future technologies
Goal Setting

- Goals and Attributes
  - Aspirational
    - Visionary, our world as we would like to see it
  - Performance
    - Specific and clear
    - Challenging but attainable
    - Measurable
General Session – Recap the Day
For Each Session

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Appendix J

ELECTRONICS MANAGEMENT
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Appendix J – ELECTRONICS MANAGEMENT PROGRAM SUMMARY

As described in Chapter 9 of the Plan, a new element required for the 2012 triennial update includes the collection of discarded computer equipment and televisions, which requires that the Plan describe 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, counties and municipalities with population greater than 25,000 are affected. A complete and approved solid waste management plan with electronics management component is required to be eligible for distribution out of the Electronics Management Fund.

Per the NCDENR Electronics Management Program website, found at http://portal.ncdenr.org/web/wm/sw/electronics/localgov, specific requirements for the electronics management component include the following six items. In order to summarize the County's efforts relating to electronics management, brief descriptions as well as Plan section references, as applicable, have been included under each of the six items below.

1. Information on existing programs within the jurisdiction to recycle or reuse discarded computer equipment, televisions, and other electronic devices, or information on a plan to begin such a program on a certain date. This information shall include a description of the implemented or planned practices for collection of the equipment and a description of the types of equipment to be collected and how the equipment will be marketed for recycling.
   a. Section 3.2.1, under the subsection titled Source Reduction and Product Stewardship of the Plan discusses the measurable positive impacts of the new program in and around Mecklenburg County.
   b. Section 4.4.2.2 of the Plan (Electronics) further describes the landfill ban and programs in place for residents and businesses to properly handle the material, including free options for residents to drop off the material and direction for businesses to arrange for proper handling through the County's website where a list of electronics recyclers is available. Tonnages recycled by material type are summarized in Table 4-15.
   c. Section 4.5.1.4, under the subsection titled Electronic Scrap of the Plan describes the materials accepted at the full service drop-off centers, the certified vendor processing the materials, and describes the reporting method in place with the certified vendor. This section also includes a brief description of the vendor’s certification. A copy of the vendor’s certification is included in this Appendix J, as is a full copy of the contract with the vendor.

2. Information on a public awareness and education program concerning the recycling and reuse of discarded computer equipment, televisions, and other electronic devices.
a. Section 3.3.1.3 of the Plan (Internet Homepage and Social Media) discusses the education and outreach initiatives of the County through its [www.WipeOutWaste.com](http://www.WipeOutWaste.com) site and social media, which includes information on electronics recycling.

b. Section 4.2.7, Table 4-5 discusses the County’s landfill ban education initiatives including the electronics banned from landfills.

c. Section 4.4.7, Table 4-17 discusses the Wipe Out Waste Ambassador program which is described in more detail below Table 4-17.

3. Information on methods to track and report total tonnage of computer equipment, televisions, and other electronic devices collected and recycled in the jurisdiction.

   a. Section 4.5.1.4, under the subsection titled Electronic Scrap of the Plan describes the materials accepted at the full service drop-off centers, the certified vendor processing the materials, and describes the reporting method in place with the certified vendor. This section also includes a brief description of the vendor’s certification. A copy of the vendor’s certification is included in this Appendix J, as is a full copy of the contract with the vendor.

4. Information on interactions with other units of local government to provide or receive services concerning disposal of discarded computer equipment, televisions, and other electronic devices.

   a. Each of the municipalities have access to the County’s WipeOutWaste website page for information on programs and registered electronics recyclers, and residents anywhere in the County can use the County’s drop-off centers.

   b. Section 7.2.2 of the Plan (Curbside Bulky Items Collection) also includes descriptions of municipal bulky items collection services that may include electronics. Any of the seven (7) municipalities within the County may choose to individually provide direct collection of discarded electronics and deliver those materials to the County’s Metal and Tire Recovery Facility at no charge to the municipality. At the time of the writing of the Plan, the City of Charlotte is the only municipality providing such service.

5. Information on how the unit of local government will account for the expenditure of funds received pursuant to this section. Establish a separate local budget account for the receipt and expenditure of funds received pursuant to this section.

   a. Section 10.1 of the Plan (Financing) describes the use and tracking of funds received through the Electronics Management Fund.

6. Documentation that your program is using an electronics recycler/vendor that holds the required e-Stewards or R2 certifications, plus attestation that all of the covered equipment that is managed by your program is managed by the recycler(s)/vendor(s) in question. Acceptable documentation could include copies of contracts or service agreements with your electronics recycling vendor and a copy of their certification document as issued by R2 Solutions or e-Stewards or an accredited 3rd party auditor.

   a. Section 4.5.1.4, under the subsection titled Electronic Scrap of the Plan describes the materials accepted at the full service drop-off centers, the certified vendor processing the materials, and describes the reporting method in place with the certified vendor. This section also includes a brief description of the vendor’s certification. A copy of the vendor’s certification is included in this Appendix J, as is a full copy of the contract with the vendor.
NORTH CAROLINA

MECKLENBURG COUNTY

SERVICE AGREEMENT

THIS AGREEMENT, made as of July 1, 2010, by and between Mecklenburg County, a political subdivision of the State of North Carolina (the "County"), party of the first part; and Creative Recycling Services, Inc., a North Carolina limited liability company (the "Provider"), party of the second part;

WITNESSETH:

For the purpose and subject to the terms and conditions hereinafter set forth, the County hereby contracts for the services of the Provider, and the Provider agrees to provide the services to the County in accordance with the terms of this Agreement.

1. SCOPE OF SERVICES TO BE PROVIDED

The services to be performed by the Provider shall be as follows:

A. Pick up all "Recyclable Materials", regardless of the blend of materials, for recycling from each of the County's four (4) staffed recycling centers at least once a week on a schedule to be mutually agreed to from time to time. If the parties fail to agree on a schedule, the pick-up shall be on Wednesday of each week. Provider will provide additional pick-ups as requested by the County, within one business day after the request is made. Such additional/between scheduled pick-up requests can be made by telephone to Provider's Mooresville facility. No minimum volume is necessary for a pick-up.

B. All equipment will be handled, recycled and processed under the following management hierarchy:
   a. Return Equipment and Parts to market for use
   b. Recycle Raw Material for manufacturing
   c. Recycle Raw Material for Energy
   d. All equipment will be recycled domestically.

C. Equipment to include:
   a. Computers, monitors, telephones, printers, televisions and all office electronics
   b. Exercise equipment, electronic and arcade games, vending machines, point of sale systems, all interactive entertainment equipment and consumer electronics

D. Provide permanently stationed, all-weather plastic collection containers at each of the four (4) facilities; North Mecklenburg Recycling Center, Hickory Grove Recycling Center, Foxhole Recycling Center, and West Mecklenburg Recycling Center.

E. Provide all requested insurance, including Workers Compensation, General Liability and Commercial Vehicle

F. Invoice County Monthly with weights and count data

G. Provide detailed quarterly reports of reports of the equipment received detailed tonnages in each category
H. Comply with all other duties of Provider as contained in Provider’s Response dated May 10, 2010 to the County’s Request for Proposals (“Provider’s Response”), which is attached hereto as Exhibit A and incorporated herein by reference.

The Provider shall accept televisions, monitors, printers, CPUs (Computer Processing Units), keyboards, related home computer equipment such as scanners, CD-ROM’s, dumb terminals, assemblies, speakers, mouse pads, fax machines (including those fax machines which also have the capacity to make copies or scan documents), telephone equipment, cables, cards, power supplies, typewriters, VCR’s, stereos, projection equipment, headphones, speakers, cameras, copiers, and all other equipment listed as “Acceptable Equipment” in Provider’s Response for recycling purposes that originate from designated Mecklenburg County Solid Waste Management Division recycling facilities (“Recyclable Materials”). The Provider shall process, transport, and market the Recyclable Materials and will comply with all federal, state, and local regulations in this process. No employees of the Provider will be involved in the day-to-day operation of collecting, sorting or loading of the Recyclable Materials for transport by Provider to the Provider’s facility in Mooresville, North Carolina. The Provider shall pick up Recyclable Materials from County designated facilities during the following hours: Mondays-Saturdays 7:00 a.m.-4:00 p.m. The Provider may reject any Gaylord box (and return same to County) having more than 10% contamination by volume. The Provider shall provide trailers as necessary to allow the County to continue operations at Mecklenburg County Solid Waste Management Division Facilities if Provider’s pick-up schedule is not frequent enough for County to be able to store all Recyclable Materials it receives at such Facilities. Upon request, the Provider will provide the County with a certificate of destruction for the Recyclable Materials. The Provider shall weigh all material received and provide monthly statements to the County for the amount of Recyclable Material received (in pounds) and related cost (per pound) received by each type of Recyclable Material.

Uncured Missed Collections are considered an event of default. Accordingly, the Provider agrees to the conditions set forth and will pay a penalty in accordance with the following:

The Provider shall have twenty-four (24) working hours to pick up Recyclable Materials after missing either a scheduled pick-up or a non-scheduled pick-up. If the Provider fails to meet the twenty-four (24) working hour cure period, each such failure shall be classified as an “Uncured Missed Collection” and a penalty in the amount of two hundred dollars ($200.00) per occurrence for the first four (4) Uncured Missed Collections in any calendar month shall be assessed and paid by Provider to the County within fifteen (15) days after the end of the month. Starting with the fifth (5th) Uncured Missed Collection in any thirty (30) day period, a penalty in the amount of four hundred dollars ($400.00) per Uncured Missed Collection shall be assessed and paid by Provider to the County within fifteen (15) days after the end of the month.

The penalties set forth above are not intended to compensate the County for any damages other than inconvenience and loss of use or delay of the Services. The existence or payment of such penalties shall not preclude the County from recovering damages which the County can document as being attributable to the above referenced Uncured Missed Collections, including,
but not limited to, the cost of internal staff hours or amounts paid to third parties as a result of such Uncured Missed Collections.
II. TERM

The services of the Provider shall begin on or after July 1, 2010, and unless sooner terminated by mutual consent or as hereinafter provided, shall be provided through June 30, 2013. The County may, at its sole option, renew this Agreement for two (2) extensions of one (1) year each. The County shall have the right to terminate this Agreement immediately for unsatisfactory performance by the Provider, as determined by the County in its sole discretion. The County or Provider may terminate this Agreement by giving the other party at least one hundred eighty (180) days written notice for any reason.

III. PAYMENT TO COUNTY BY PROVIDER

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost and Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT Recycling</td>
<td>$ 0</td>
</tr>
<tr>
<td>PC Recycling</td>
<td>$ 0.20/lb CREDIT</td>
</tr>
<tr>
<td>Peripheral &amp; Consumer Electronic Recycling</td>
<td>$ 0.05/lb CREDIT</td>
</tr>
<tr>
<td>TV (small to medium) Recycling</td>
<td>$ 0.00</td>
</tr>
<tr>
<td>TV (large) Recycling</td>
<td>$ 0.00</td>
</tr>
<tr>
<td>Cable and Wire</td>
<td>$ 0.05/lb CREDIT</td>
</tr>
<tr>
<td>Cards and Circuit Boards</td>
<td>$ 1.00/lb CREDIT</td>
</tr>
<tr>
<td>Cell Phones</td>
<td>$ 0.75/lb CREDIT</td>
</tr>
<tr>
<td>Hard Drives (whole)</td>
<td>$ 0.40/lb CREDIT</td>
</tr>
<tr>
<td>Transportation</td>
<td>No Charge</td>
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</table>

IV. RELATIONSHIP OF PARTIES

The officers, employees, subcontractors, agents and all personnel of the Provider are the officers, employees, subcontractors and agents of the Provider and are not officers, employees, subcontractors or agents of the County. The Provider shall insure that all personnel engaged in work under this Agreement shall be fully qualified and shall be authorized under state and local law to perform the services under this Agreement. Any subcontractors must be approved in writing by the County.
The Provider is an independent contractor of the County. It is agreed by the Provider that it and its officers, employees, subcontractors, and agents shall obey all State and federal statutes, rules and regulations which are applicable to the services to be provided by the Provider.

V. INDEMNIFICATION

The Provider hereby (i) releases the County from, (ii) agrees that the County, and each commissioner, officer, and employee shall not be liable for, and (iii) agrees to indemnify and hold harmless the County and each commissioner, officer or employee thereof from, any and all of the following: liabilities, obligations, claims; damages (including but not limited to any civil or criminal penalties); litigation costs and expenses (including attorneys’ fees and expenses) imposed on, incurred by or asserted against the County or any commissioner, officer, or employee thereof for any reason whatsoever pertaining to this Contract or arising out of the activities of the Provider under this Contract (including but not limited to accident or other occurrence causing injury or death, sickness or disease to any person or damage or destruction of property).

VI. INSURANCE

The Provider agrees to purchase and maintain during the life of this Agreement with an insurance company acceptable to the County, authorized to do business in the State of North Carolina the following insurance:

a. **Automobile Liability** - Bodily injury and property damage liability covering all owned, non-owned and hired automobiles for limits of not less than $1,000,000 bodily injury each person, each accident and $1,000,000 property damage, or $1,000,000 combined single limit each occurrence/aggregate.

b. **Commercial General Liability** - Bodily injury and property damage liability as shall protect the Provider and any person performing work under this contract from claims of bodily injury or property damage which arise from operation of this contract whether such operations are performed by Provider, any person or any one directly or indirectly employed by either. The amounts of such insurance shall not be less than $1,000,000 bodily injury each occurrence/aggregate and $1,000,000 property damage each occurrence/aggregate or $2,000,000 bodily injury and property damage combined single limits each occurrence/aggregate. This insurance shall include coverage for products/completed operations, personal injury liability and contractual liability assumed under the indemnity provision of this contract.

c. **Workers’ Compensation Insurance** - Meeting the Coverage A statutory requirements of the State of North Carolina and Coverage B Employers Liability - $500,000 per accident, disease per policy limit, and disease each employee limit.

County will be named as an additional insured under the commercial general liability insurance for operations or services rendered under this Agreement.
Certificates of all required insurance shall be furnished to County and shall contain the provision that the County will be given 30 days written notice of any intent to amend or terminate by either the insured or the insuring company. Provider agrees to notify the County by telephone and by providing written notice within two (2) days after receipt of information that the insurance company either intends to amend or terminate a policy or has amended or terminated an insurance policy providing the coverage referred to above.

VII. NON-ASSIGNMENT

The Provider shall not assign all or any portion of this Agreement, including rights to payments, to any other party without the prior written consent of the County.

VIII. ENTIRE AGREEMENT

The Provider and the County agree that this document constitutes the entire agreement between the two parties and may only be modified by a written mutual agreement signed by the parties. Modifications may be evidenced by telefacsimile signatures.

IX. GOVERNING LAW

Both parties agree that this Agreement shall be governed by the laws of the State of North Carolina.

X. WAIVER

Failure of the County to enforce, at any time, any of the provisions of this Agreement, or to request at any time performance by Provider of any of the provisions hereof, shall in no way be construed to be a waiver of such provisions, nor in any way affect the validity of this Agreement or any part thereof, or the right of the County to enforce each and every provision.

XI. NOTICES

Any notice required or permitted to be given under this Agreement shall be in writing and shall be deemed to have been given when telecopied or personally delivered one (1) business day following the sending by overnight courier (next-day delivery), or two (2) days following the posting of same in the United States mail, registered or certified mail, postage prepaid, return receipt requested, and delivered or addressed as follows:

County: Steve Hoffman
Mecklenburg County Solid Waste Services
700 North Tryon Street
Charlotte, North Carolina 28202
Provider: Jim Kristof  
8108 Krauss Blvd. Ste 110  
Tampa, FL 33619

Either party may from time to time, by notices herein provided, designate a different person or address, or both, to which notice to them or it shall be delivered or mailed.

IN WITNESS WHEREOF, the County and the Provider have set their hands as of the day and year first above written.

MECKLENBURG COUNTY

[Signature]
General Manager

Approved as to Form:
[Signature]
County Attorney

Approved as to Insurance:
[Signature]
Insurance and Risk Management

This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act.

Finance Director

CREATIVE RECYCLING SERVICES, INC

By: [Signature]
VP Sales & Procurement

[Signature]
DIRECTOR OF FINANCE

7
Certificate US10/55591

The management system of

Creative Recycling Systems
of North Carolina LLC

619 Distribution Drive
Morrisville, North Carolina, 27560, U.S.A.

has been audited by a certification body that is in conformance with ISO/IEC 17021 requirements and applicable ANAB requirements. This organization is found to be in conformance with all requirements of:

Responsible Recycling©:2008

The scope of registration is as follows:

Electronics Recycling – The diversion of end-of-life / surplus devices from the waste stream by the re-use and / or recycling of such electronic devices.

Further clarifications regarding the scope of this certificate and the applicability of Responsible Recycling©:2008 requirements may be obtained by consulting the organization.

This certificate is valid from 18 February 2010 until 17 February 2013 and remains valid subject to satisfactory surveillance audits. Recertification audit due a minimum of 30 days before the expiration date.

Issue 1.

Authorized by

Zachary C. Pivarnik
Accreditation Manager, North America
SGS Systems & Services Certification
Division of SGS U.S. Testing Company Inc.
201 Route 17 North, Rutherford, NJ 07070, USA
t 201-508-3000 1 201-935-4555 www.us.sgs.com

This certificate remains the property of SGS and shall be returned upon request.