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 peelings, 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:

M A Bethune
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

Res. No.: 2012 - 00687

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. Tarte, Mayor

ATTEST:

Lori A. Pearson, Town Clerk

APPROVED AS TO FORM:

William L. Brown, Town Attorney

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Exhibit P

R2012-15

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 entitled "Mecklenburg County Solid Waste Management Plan" in 1990, 1992, 1997, 2000, 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.

Mayor
John M. Woods

ATTEST:

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 Town of Huntersville approved changes to the Plan in documents entitled "Mecklenburg County Solid Waste Management Plan" in 1990, 1992, 1997, 2000, 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

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 Pleiman
Town Clerk

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 "Mecklenburg County Solid Waste Management Plan" in 1990, 1992, 1997, 2000, 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

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

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

APPROVED AS TO FORM:

Town Attorney

Town Clerk

(SEAL)

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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 Town of Pineville approved changes to the Plan in documents entitled "Mecklenburg County Solid Waste Management Plan" in 1990, 1992, 1997, 2000, 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

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 May, 2012.

APPROVED AS TO FORM:

Town Attorney E.F. Parnell

Barbara Monticello

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}

Affidavit of Publication

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.

Public Hearing
To receive comments pertaining to the 2012 Update of the Ten Year Solid Waste Management Plan. The Plan is for Mecklenburg County, the City of Charlotte, and the Towns of Cornelius, Davidson, Huntersville, Matthews, Mint Hill and Pineville. The public meeting will take place from 1:00 to 2:00 pm on April 17, 2012, in the Auditorium of the Hal Marshall Service Center, 700 N. Tryon Street, Charlotte, NC 28202. A copy of the plan will be available online at www.WipeOutWaste.com the week of April 9, 2012. You may also post your comments on the Solid Waste Management Plan webpage.
LP9411

PUBLISHED ON: 03/11

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

NAME: Cassandra Cassell TITLE: Acct. Clerk
DATE: 03/14/2012

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

Notary: Leslie M Glenn My Commission Expires: _/_/_

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.

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

Population Link: http://www.osbm.state.nc.us/ncosbm/facts_and_figures/socioeconomic_data/population_estimates/demog/cpa2010p.html

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 acknowldeging 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

COMPLETED ACTIONS	**INCOMPLETE ACTIONS**		**NEW / REVISED ACTIONS**		
KEY ACTIONS	KEY ACTIONS	WHY INCOMPLETE?	KEY ACTIONS	DATE DUE	ESTIMATED TONS DIVERTED IN 10TH YEAR
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.	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.	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
- ☒ 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	INCOMPLETE ACTIONS		NEW / REVISED ACTIONS		
KEY ACTIONS	KEY ACTIONS	WHY INCOMPLETE?	KEY ACTIONS	DATE DUE	ESTIMATED TONS DIVERTED IN 10TH YEAR
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.	None	N/A	The assessment of the current condition in the County, found in Section 7.5.1, states current infrastructure meets the needs for the planning period. No new key actions were identified.	N/A	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
- ☐ 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	**INCOMPLETE ACTIONS**		**NEW / REVISED ACTIONS**		
KEY ACTIONS	KEY ACTIONS	WHY INCOMPLETE?	KEY ACTIONS	DATE DUE	ESTIMATED TONS DIVERTED IN 10TH YEAR
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.	A master plan for the Compost Central site has been completed.	N/A	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.	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 107,869 tons will be diverted through organics diversion efforts. 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
- ☐ Management of Abandoned Manufactured Homes
- ☐ Disposal
- ☐ Purchasing Recycled Products
- ☐ Recycling and Reuse
- ☐ Collection
- ☐ Special Waste

COMPLETED ACTIONS	**INCOMPLETE ACTIONS**		**NEW / REVISED ACTIONS**		
KEY ACTIONS	KEY ACTIONS	WHY INCOMPLETE?	KEY ACTIONS	DATE DUE	ESTIMATED TONS DIVERTED IN 10TH YEAR
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.	None	N/A	No new changes to disaster management were deemed necessary. Appendix G of the plan provides relevant emergency management information.	N/A	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
- ☐ 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	**INCOMPLETE ACTIONS**		**NEW / REVISED ACTIONS**		
KEY ACTIONS	KEY ACTIONS	WHY INCOMPLETE?	KEY ACTIONS	DATE DUE	ESTIMATED TONS DIVERTED IN 10TH YEAR
Chapter 3 (Source Reduction and Reuse), Chapter 4 (Recycling), Chapter 5 (Organics), Chapter 6 (C&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.	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	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.	Each of the recommendations sections listed below contain elements of education and outreach. Chapter 3, Section 3.3.6 outlines recommendations for residential source reduction; Section 3.4.6 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. Chapter 5, Sections	Recommended strategies are broken down into short term (through 2017) and long term (through 2022).	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
- ☐ Management of Abandoned Manufactured Homes
- ☐ Disposal
- ☐ Purchasing Recycled Products
- ☐ Recycling and Reuse
- ☐ Collection
- ☐ Special Waste

COMPLETED ACTIONS	INCOMPLETE ACTIONS		NEW / REVISED ACTIONS		
KEY ACTIONS	KEY ACTIONS	WHY INCOMPLETE?	KEY ACTIONS	DATE DUE	ESTIMATED TONS DIVERTED IN 10TH YEAR
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.	None	N/A	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.	N/A	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
- ☐ 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	INCOMPLETE ACTIONS		NEW / REVISED ACTIONS		
KEY ACTIONS	KEY ACTIONS	WHY INCOMPLETE?	KEY ACTIONS	DATE DUE	ESTIMATED TONS DIVERTED IN 10TH YEAR
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 8.2the 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
- ☐ 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	**INCOMPLETE ACTIONS**		**NEW / REVISED ACTIONS**		
KEY ACTIONS	KEY ACTIONS	WHY INCOMPLETE?	KEY ACTIONS	DATE DUE	ESTIMATED TONS DIVERTED IN 10TH YEAR
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. Chapter 3 (Source Reduction and Reuse), Section 3.2 describes the County's "Re-Think" campaign, which encourages the reuse of computers and televisions. A network of two dozen electronic take back centers have been established in the County.	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 on-going.	Chapter 4, Section 4.5.4 outlines recommendations for recycling infrastructure, including the promotion and expansion of existing infrastructure.	Recommended strategies are broken down into short term (through 2017) and long term (through 2022).	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
- ☒ Management of Abandoned Manufactured Homes
- ☐ Disposal
- ☐ Purchasing Recycled Products
- ☐ Recycling and Reuse
- ☐ Collection
- ☐ Special Waste

COMPLETED ACTIONS	**INCOMPLETE ACTIONS**		**NEW / REVISED ACTIONS**		
KEY ACTIONS	KEY ACTIONS	WHY INCOMPLETE?	KEY ACTIONS	DATE DUE	ESTIMATED TONS DIVERTED IN 10TH YEAR
It was determined abandoned manufactured homes were not an issue in the County during the previous plan update. Therefore, no key actions were identified.	None	N/A	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 abaondoned manufactured homes.	N/A	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
- ☐ 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	INCOMPLETE ACTIONS		NEW / REVISED ACTIONS		
KEY ACTIONS	KEY ACTIONS	WHY INCOMPLETE?	KEY ACTIONS	DATE DUE	ESTIMATED TONS DIVERTED IN 10TH YEAR
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.	None.	N/A	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.	N/A	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
- ☐ 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	**INCOMPLETE ACTIONS**		**NEW / REVISED ACTIONS**		
KEY ACTIONS	KEY ACTIONS	WHY INCOMPLETE?	KEY ACTIONS	DATE DUE	ESTIMATED TONS DIVERTED IN 10TH YEAR
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.	Table 3.1 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.	Section 3.3.6 of the plan outlines recommendations for residential source reduction efforts, which contain elements of purchasing recycled products. Chapter 3, Section 3.4.6 of the Plan outlines recommendations for commercial source reduction effort, which contain elements of purchasing recycled products.	Recommended strategies are broken down into short term (through 2017) and long term (through 2022).	See Appendix: F Diversion Model Summary of Result

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	INCOMPLETE ACTIONS		NEW / REVISED ACTIONS		
KEY ACTIONS	KEY ACTIONS	WHY INCOMPLETE?	KEY ACTIONS	DATE DUE	ESTIMATED TONS DIVERTED IN 10TH YEAR
Chapter 3 (Source Reduction and Reuse), Table 3.1 and Chapter 4 (Recycling) Table 4.1, list key actions identified in the previous plan.	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.	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 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.	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 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
- ☐ Management of Abandoned Manufactured Homes
- ☐ Disposal
- ☐ Purchasing Recycled Products
- ☐ Recycling and Reuse
- ☒ Collection
- ☐ Special Waste

COMPLETED ACTIONS	**INCOMPLETE ACTIONS**		**NEW / REVISED ACTIONS**		
KEY ACTIONS	KEY ACTIONS	WHY INCOMPLETE?	KEY ACTIONS	DATE DUE	ESTIMATED TONS DIVERTED IN 10TH YEAR
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. 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 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.	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. 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.	Recommended strategies are broken down into short term (through 2017) and long term (through 2022).	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
- ☐ Management of Abandoned Manufactured Homes
- ☐ Disposal
- ☐ Purchasing Recycled Products
- ☐ Recycling and Reuse
- ☐ Collection
- ☒ Special Waste

COMPLETED ACTIONS	**INCOMPLETE ACTIONS**		**NEW / REVISED ACTIONS**		
KEY ACTIONS	KEY ACTIONS	WHY INCOMPLETE?	KEY ACTIONS	DATE DUE	ESTIMATED TONS DIVERTED IN 10TH YEAR
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.	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 on-going	Chapter 3, Section 3.3.6 includes along 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.	Recommended strategies are broken down into short term (through 2017) and long term (through 2022).	Please see Appendix: F Diversion Model Summary of Results.

Appendix F

DIVERSION MODEL SUMMARY RESULTS

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Overall Waste Reduction Goals Through FY 21-22

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

Residential Waste Reduction Goals Through FY 21-22

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

Commercial Waste Reduction Goals Through FY 21-22

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

C&D Waste Reduction Goals Through FY 21-22

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

Short Term Residential Diversion Strategies Summary

			Percent Diverted				
Material Group	Material	FY 16-17 Tonnage (Projected)	Disposal Ban for Residential Generators	Volume-Based Pay	Incentive Program	Recycling Provided at All MF Complexes, Expand Education	Cumulative Tonnage Diverted
Paper		**106,736**					**69,592**
	Newspaper/Print	6,641	0%	20%	10%	5%	4,317
	Glossy Magazines	8,065	0%	20%	10%	5%	5,242
	Recyclable Corrugated Cardboard	8,539	0%	20%	10%	5%	5,550
	Non-Recyclable Cardboard	1,423	0%	20%	0%	0%	1,139
	Phone Books	949	0%	20%	10%	5%	617
	Paperboard	13,283	0%	20%	10%	5%	8,634
	Other Books	1,423	0%	20%	10%	5%	925
	White Ledger	3,795	0%	20%	10%	5%	2,467
	Mixed Office Paper	18,975	0%	20%	10%	5%	12,334
	Other Paper (includes hardback books)	43,643	0%	20%	10%	5%	28,368
Plastics		**86,812**					**72,049**
	All Plastic Bottles	10,436	10%	20%	10%	5%	6,105
	Film	37,476	0%	0%	0%	0%	37,476
	All Cups & Tubs	12,334	10%	20%	10%	5%	7,215
	All Other Plastic (includes styrofoam)	26,565	0%	20%	0%	0%	21,252
Organics		**175,996**					**145,730**
	Food Waste	99,146	0%	20%	0%	0%	79,317
	Textiles/Leather	29,886	0%	20%	0%	0%	23,909
	Diapers	24,668	0%	0%	0%	0%	24,668
	Other Organics (includes rubber)	22,296	0%	20%	0%	0%	17,837
Ferrous Metal		**17,078**					**9,990**
	Food Containers/Bi-Metal	5,218	10%	20%	10%	5%	3,053
	Aerosols	2,372	10%	20%	10%	5%	1,388
	Other Ferrous	9,488	10%	20%	10%	5%	5,550
Non Ferrous Metal		**9,962**					**7,920**
	Aluminum Cans	3,321	10%	20%	10%	5%	1,943
	Aluminum Foil	3,321	0%	0%	0%	0%	3,321
	Other Non-Ferrous	3,321	0%	20%	0%	0%	2,657
Glass		**17,078**					**11,243**
	All Bottles & Jars	16,129	0%	20%	10%	5%	10,484
	Other Glass	949	0%	20%	0%	0%	759
Wood		**26,091**					**20,873**
	Pallets	0	10%	20%	0%	0%	0
	Lumber	13,283	0%	20%	0%	0%	10,626
	Painted/Treated	12,808	0%	20%	0%	0%	10,247
	Stumps/Heavy Sections	0	10%	20%	0%	0%	0
Inert		**14,231**					**11,385**
	Brick, concrete, dirt, asphalt, etc.	14,231	0%	20%	0%	0%	11,385
Yard Waste		**12,334**					**8,880**
	Yard Waste (includes grass, leaves, small branches)	12,334	10%	20%	0%	0%	8,880
Special Waste		**1,898**					**1,898**
	Lead-Acid Batteries	0	10%	20%	0%	0%	0
	Dry Cell Batteries	0	10%	20%	0%	0%	0
	Oil Filters	0	10%	20%	0%	0%	0
	Other Hazardous Waste	0	0%	20%	0%	0%	0
	Infectious Waste	1,898	0%	0%	0%	0%	1,898
	Reusable Waste	0	0%	20%	0%	0%	0
Brown Goods		**6,641**					4,782
	Electronic Goods	6,641	10%	20%	0%	0%	4,782
TOTAL		**474,857**					**364,342**
Diversion Tons			**6,214**	**86,470**	**22,244**	**14,229**	**110,515**
Percent of Projected Waste Stream Diverted			**1.3%**	**18.2%**	**4.7%**	**3.0%**	**23.3%**

Long Term Residential Diversion Strategies Summary

			Percent Diverted				
Material Group	Material	FY 21-22 Tonnage (Projected) with short term diversion	Mandatory SF Curbside Recycling	Food Scraps & Organics Diversion	Mandatory MF Recycling, Continue Education	EPR Residential Effect	Cumulative Tonnage Diverted
Paper		**88,793**					**73,560**
	Newspaper/Print	5,525	20%	0%	5%	0%	4,144
	Glossy Magazines	6,709	20%	0%	5%	0%	5,032
	Recyclable Corrugated Cardboard	7,103	20%	0%	5%	0%	5,328
	Non-Recyclable Cardboard	1,184	0%	50%	0%	0%	592
	Phone Books	789	20%	0%	5%	0%	592
	Paperboard	11,050	20%	0%	5%	0%	8,287
	Other Books	1,184	20%	0%	5%	0%	888
	White Ledger	3,157	20%	0%	5%	0%	2,368
	Mixed Office Paper	15,785	20%	0%	5%	0%	11,839
	Other Paper (includes hardback books)	36,306	0%	0%	5%	0%	34,491
Plastics		**72,218**					**47,475**
	All Plastic Bottles	8,682	20%	0%	5%	0%	6,511
	Film	31,176	0%	0%	0%	50%	15,588
	All Cups & Tubs	10,260	20%	0%	5%	0%	7,695
	All Other Plastic (includes styrofoam)	22,100	0%	0%	0%	20%	17,680
Organics		**146,409**					**105,170**
	Food Waste	82,479	0%	50%	0%	0%	41,239
	Textiles/Leather	24,862	0%	0%	0%	0%	24,862
	Diapers	20,521	0%	0%	0%	0%	20,521
	Other Organics (includes rubber)	18,548	0%	0%	0%	0%	18,548
Ferrous Metal		**14,207**					**12,628**
	Food Containers/Bi-Metal	4,341	20%	0%	5%	0%	3,256
	Aerosols	1,973	20%	0%	5%	0%	1,480
	Other Ferrous	7,893	0%	0%	0%	0%	7,893
Non Ferrous Metal		**8,287**					**7,597**
	Aluminum Cans	2,762	20%	0%	5%	0%	2,072
	Aluminum Foil	2,762	0%	0%	0%	0%	2,762
	Other Non-Ferrous	2,762	0%	0%	0%	0%	2,762
Glass		**14,207**					**10,852**
	All Bottles & Jars	13,418	20%	0%	5%	0%	10,063
	Other Glass	789	0%	0%	0%	0%	789
Wood		**21,705**					**21,705**
	Pallets	0	0%	0%	0%	0%	0
	Lumber	11,050	0%	0%	0%	0%	11,050
	Painted/Treated	10,655	0%	0%	0%	0%	10,655
	Stumps/Heavy Sections	0	0%	0%	0%	0%	0
Inert		**11,839**					**11,839**
	Brick, concrete, dirt, asphalt, etc.	11,839	0%	0%	0%	0%	11,839
Yard Waste		**10,260**					**10,260**
	Yard Waste (includes grass, leaves, small branches)	10,260	0%	0%	0%	0%	10,260
Special Waste		**1,579**					**1,579**
	Lead-Acid Batteries	0	0%	0%	0%	0%	0
	Dry Cell Batteries	0	0%	0%	0%	0%	0
	Oil Filters	0	0%	0%	0%	0%	0
	Other Hazardous Waste	0	0%	0%	0%	0%	0
	Infectious Waste	1,579	0%	0%	0%	0%	1,579
	Reusable Waste	0	0%	0%	0%	0%	0
Brown Goods		**5,525**					**2,210**
	Electronic Goods	5,525	0%	0%	0%	60%	2,210
TOTAL		**395,029**					**304,875**
Diversion Tons			**18,548**	**41,831**	**6,452**	**23,323**	**90,154**
Percent of Projected Waste Stream Diverted			**4.7%**	**10.6%**	**1.6%**	**5.9%**	**22.8%**

Short Term Commercial Diversion Strategies Summary

			Percent Diverted		
Material Group	Material	FY 16-17 Tonnage (Projected)	Expand Mandatory Recycling Ordinance (lower threshold, no 500 lb exemption; expand materials to those banned)	Education, Outreach and Enforcement	Cumulative Tonnage Diverted
Paper		**193,121**			**158,480**
	Newsprint (ONP)	16,700	10%	10%	13,360
	High Grade Office	22,800	10%	10%	18,240
	Magazines/Catalogs	8,470	10%	10%	6,776
	Uncoated OCC - recyclable	57,687	20%	10%	40,381
	Uncoated OCC - nonrecyclable	3,059	0%	0%	3,059
	Coated OCC	513	10%	10%	410
	Boxboard	6,455	10%	10%	5,164
	Mixed Paper - recyclable	31,739	10%	10%	25,391
	Mixed Paper - nonrecyclable	45,699	0%	0%	45,699
Glass		**17,119**			**15,407**
	Clear Containers	**6,397**	0%	10%	**5,757**
	Green Containers	2,625	0%	10%	2,363
	Brown Containers	3,746	0%	10%	3,372
	Other Glass	4,350	0%	10%	3,915
Plastic		**81,737**			**80,857**
	PET Bottles	**2,934**	10%	20%	**2,054**
	HDPE Bottles	3,147	0%	0%	3,147
	PVC	61	0%	0%	61
	Polystyrene	3,145	0%	0%	3,145
	Film - transport packaging	1,274	0%	0%	1,274
	Other Film	**32,721**	0%	0%	**32,721**
	Other Containers	2,102	0%	0%	2,102
	Other non-containers	36,354	0%	0%	36,354
Metal		**48,070**			**46,779**
	Aluminum Beverage Containers	**3,227**	20%	20%	**1,936**
	Other Aluminum	1,916	0%	0%	1,916
	Ferrous Containers	4,845	0%	0%	4,845
	Other Ferrous 2.	32,748	0%	0%	32,748
	Other Non-Ferrous	**5,335**	0%	0%	**5,335**
Organics		**196,320**			**179,940**
	Yard Ward Waste - Grass and Leaves	15,369	20%	10%	10,758
	Yard Waste - woody material	**0**	0%	0%	**0**
	Food Waste	66,749	0%	0%	66,749
	Wood Pallets	16,813	60%	10%	5,044
	Untreated Wood	41,528	0%	0%	41,528
	Treated Wood	23,691	0%	0%	23,691
	Diapers	**5,306**	0%	0%	**5,306**
	Other Organic Material	26,864	0%	0%	26,864
Hazardous Waste		**2,687**			**2,483**
	Latex Paint	0	0%	0%	0
	Oil Paint	**1,021**	0%	20%	**817**
	Unused Pesti/Fungi/Herbicides	0	0%	0%	0
	Unused Cleaners and Solvents	108	0%	0%	108
	Compressed Fuel Containers	25	0%	0%	25
	Automotive - Antifreeze	0	0%	0%	0
	Automotive - Used oil filters	0	0%	0%	0
	Other	1,532	0%	0%	1,532
Other Waste		**85,384**			**85,384**
	Textiles	9,664	0%	0%	9,664
	Waste Carpet	11,297	0%	0%	11,297
	Sharps and Infectious Waste	213	0%	0%	213
	Rubber	6,369	0%	0%	6,369
	Construction & Demolition Debris	25,580	0%	0%	25,580
	Household Bulky Items	9,436	0%	0%	9,436
	Empty Hazardous Waste Containers	213	0%	0%	213
	Miscellaneous	22,613	0%	0%	22,613
Problem Materials		**13,227**			**6,046**
	Televisions	0	0%	0%	0
	Computer Monitors	0	0%	0%	0
	Computer Equipment/Peripherals	2,928	75%	10%	439
	Electric and Electronic Products	5,520	75%	10%	828
	Batteries	295	0%	0%	295
	Other	4,484	0%	0%	4,484
TOTAL		**637,665**			**575,376**
Diversion Tons			**40,642**	**21,648**	**62,289**
Percent of Projected Waste Stream Diverted			**6.4%**	**3.4%**	**9.8%**

Long Term Commercial Diversion Strategies Summary

Material Group	Material	FY 21-22 Tonnage (Projected) with short term diversion	Percent Diverted: Organics Diversion (add to SSO)	Percent Diverted: EPR Commercial Effect	Percent Diverted: Recycling Containers Where Public Garbage Containers	Cumulative Tonnage Diverted
Paper		**188,933**				**155,791**
	Newsprint (ONP)	16,337	0%	0%	5%	15,521
	High Grade Office	22,306	0%	10%	5%	18,960
	Magazines/Catalogs	8,286	0%	0%	5%	7,872
	Uncoated OCC - recyclable	56,436	0%	0%	5%	53,614
	Uncoated OCC - nonrecyclable	2,992	50%	0%	0%	1,496
	Coated OCC	502	0%	0%	5%	477
	Boxboard	6,315	0%	0%	5%	6,000
	Mixed Paper - recyclable	31,051	0%	0%	5%	29,498
	Mixed Paper - nonrecyclable	44,708	50%	0%	0%	22,354
Glass		**16,748**				**16,123**
	Clear Containers	6,258	0%	0%	5%	5,946
	Green Containers	2,568	0%	0%	5%	2,440
	Brown Containers	3,665	0%	0%	5%	3,482
	Other Glass	4,256	0%	0%	0%	4,256
Plastic		**79,965**				**60,336**
	PET Bottles	2,870	0%	0%	5%	2,727
	HDPE Bottles	3,078	0%	0%	5%	2,925
	PVC	60	0%	50%	5%	27
	Polystyrene	3,076	0%	50%	0%	1,538
	Film - transport packaging	1,246	0%	50%	0%	623
	Other Film	32,012	0%	50%	0%	16,006
	Other Containers	2,056	0%	50%	5%	925
	Other non-containers	35,566	0%	0%	0%	35,566
Metal		**47,028**				**46,633**
	Aluminum Beverage Containers	3,157	0%	0%	5%	2,999
	Other Aluminum	1,874	0%	0%	0%	1,874
	Ferrous Containers	4,740	0%	0%	5%	4,503
	Other Ferrous 2.	32,038	0%	0%	0%	32,038
	Other Non-Ferrous	5,219	0%	0%	0%	5,219
Organics		**192,062**				**149,875**
	Yard Ward Waste - Grass and Leaves	15,036	20%	0%	0%	12,029
	Yard Waste - woody material	0	0%	0%	0%	0
	Food Waste	65,301	60%	0%	0%	26,120
	Wood Pallets	16,448	0%	0%	0%	16,448
	Untreated Wood	40,627	0%	0%	0%	40,627
	Treated Wood	23,177	0%	0%	0%	23,177
	Diapers	5,191	0%	0%	0%	5,191
	Other Organic Material	26,282	0%	0%	0%	26,282
Hazardous Waste		**2,629**				**2,076**
	Latex Paint	0	0%	50%	0%	0
	Oil Paint	999	0%	50%	0%	500
	Unused Pesti/Fungi/Herbicides	0	0%	0%	0%	0
	Unused Cleaners and Solvents	106	0%	50%	0%	53
	Compressed Fuel Containers	25	0%	0%	0%	25
	Automotive - Antifreeze	0	0%	0%	0%	0
	Automotive - Used oil filters	0	0%	0%	0%	0
	Other	1,499	0%	0%	0%	1,499
Other Waste		**83,532**				**73,391**
	Textiles	9,454	0%	0%	0%	9,454
	Waste Carpet	11,052	0%	50%	0%	5,526
	Sharps and Infectious Waste	208	0%	0%	0%	208
	Rubber	6,230	0%	0%	0%	6,230
	Construction & Demolition Debris	25,026	0%	0%	0%	25,026
	Household Bulky Items	9,231	0%	50%	0%	4,616
	Empty Hazardous Waste Containers	208	0%	0%	0%	208
	Miscellaneous	22,122	0%	0%	0%	22,122
Problem Materials		**12,940**				**8,663**
	Televisions	0	0%	50%	0%	0
	Computer Monitors	0	0%	50%	0%	0
	Computer Equipment/Peripherals	2,865	0%	50%	0%	1,432
	Electric and Electronic Products	5,400	0%	50%	0%	2,700
	Batteries	288	0%	50%	0%	144
	Other	4,387	0%	0%	0%	4,387
TOTAL		**623,837**				**512,888**
Diversion Tons			**66,038**	**36,427**	**8,484**	**110,949**
Percent of Projected Waste Stream Diverted			**10.6%**	**5.8%**	**1.4%**	**17.8%**

Short Term C&D Diversion Strategies Summary

Material Group	Material	FY 16-17 Tonnage (Projected)	Percent Diverted: Mandatory C&D Recycling Ordinance (Expand SSO to include separate mandate for 50% of C&D; lifts temporary exemptions)	Percent Diverted: Education, Outreach and Enforcement	Cumulative Tonnage Diverted
Paper		**10,990**			**2,931**
	OCC/Kraft	9,280	75%	10%	1,392
	Other Paper	1,709	0%	10%	1,539
Plastic		**2,686**			**2,491**
	PVC Pipe	244	30%	10%	147
	Plastic Film	733	0%	0%	733
	Vinyl Siding	244	30%	10%	147
	Other Plastic	1,465	0%	0%	1,465
Glass		**2,198**			**1,978**
	Glass	2,198	0%	10%	1,978
Metal		**16,851**			**2,601**
	Appliances	244	60%	10%	73
	Other Ferrous Metals	13,676	75%	10%	2,051
	HVAC Ducting	244	60%	10%	73
	Other Non-Ferrous Metals	2,686	75%	10%	403
Green Waste		**4,884**			**1,465**
	Land Clearing / Limbs / Stumps	2,198	60%	10%	659
	Other Yard Waste	2,686	60%	10%	806
Inerts		**71,798**			**10,770**
	Concrete/ Block/ Brick/ Stone/ Tile	56,901	75%	10%	8,535
	Dirt/Sand/Gravel	14,897	75%	10%	2,235
Wood		**77,904**			**44,483**
	Pallets	5,128	75%	10%	769
	Crates	1,221	60%	10%	366
	Untreated Wood	40,295	60%	10%	12,089
	Oriented Strandboard (OSB)	14,653	0%	0%	14,653
	Treated/ Painted/ Processed Wood	16,606	0%	0%	16,606
C&D Materials		**48,354**			**20,514**
	Drywall – Unpainted	16,606	60%	10%	4,982
	Drywall – Painted	977	0%	0%	977
	Asphalt Roofing	15,630	60%	10%	4,689
	Insulation	1,954	0%	0%	1,954
	Ceiling Tiles	244	30%	10%	147
	Carpet & Carpet Backing	12,943	30%	10%	7,766
Bulky/Other		**8,547**			**7,668**
	Bagged MSW	3,175	0%	0%	3,175
	Electronics	0	30%	10%	0
	Bulky Wastes/ Furniture	2,198	30%	10%	1,319
	Mixed C&D/ Other Unclassified	3,175	0%	0%	3,175
TOTAL		**244,212**			**94,901**
Diversion Tons			**129,164**	**20,148**	**149,311**
Percent of Projected Waste Stream Diverted			**52.9%**	**8.3%**	**61.1%**

Long Term C&D Diversion Strategies Summary

Material Group	Material	FY 21-22 Tonnage (Projected) with short term diversion	Percent Diverted: Increase Mandatory Recycling Percentage to 60%	Cumulative Tonnage Diverted
Paper		**4,630**		**4,239**
	OCC/Kraft	3,910	10%	3,519
	Other Paper	720	0%	720
Plastic		**1,132**		**1,111**
	PVC Pipe	103	10%	93
	Plastic Film	309	0%	309
	Vinyl Siding	103	10%	93
	Other Plastic	617	0%	617
Glass		**926**		**926**
	Glass	926	0%	926
Metal		**7,100**		**6,390**
	Appliances	103	10%	93
	Other Ferrous Metals	5,762	10%	5,186
	HVAC Ducting	103	10%	93
	Other Non-Ferrous Metals	1,132	10%	1,019
Green Waste		**2,058**		**1,852**
	Land Clearing / Limbs / Stumps	926	10%	833
	Other Yard Waste	1,132	10%	1,019
Inerts		**30,251**		**27,226**
	Concrete/ Block/ Brick/ Stone/ Tile	23,974	10%	21,577
	Dirt/Sand/Gravel	6,277	10%	5,649
Wood		**32,823**		**30,858**
	Pallets	2,161	10%	1,945
	Crates	514	10%	463
	Untreated Wood	16,977	10%	15,280
	Oriented Strandboard (OSB)	6,174	0%	6,174
	Treated/ Painted/ Processed Wood	6,997	0%	6,997
C&D Materials		**20,373**		**18,459**
	Drywall – Unpainted	6,997	10%	6,297
	Drywall – Painted	412	0%	412
	Asphalt Roofing	6,585	10%	5,927
	Insulation	823	0%	823
	Ceiling Tiles	103	10%	93
	Carpet & Carpet Backing	5,453	10%	4,908
Bulky/Other		**3,601**		**3,509**
	Bagged MSW	1,338	0%	1,338
	Electronics	0	10%	0
	Bulky Wastes/ Furniture	926	10%	833
	Mixed C&D/ Other Unclassified	1,338	0%	1,338
TOTAL		**102,894**		**94,570**
Diversion Tons			**8,324**	**8,324**
Percent of Projected Waste Stream Diverted			**8.1%**	**8.1%**

EPA WARM Model Results - Metric Tons of Carbon Dioxide Equivalent (MTCO2E) [1]

	(Plan Year 16-17)					(Plan Year 21-22)				
	Effect on Carbon Emissions Due to Short Term Strategies					Effect on Carbon Emissions Due to Long Term Strategies				
	Source Reduction	Recycling	Composting	Total	Cumulative Emissions	Source Reduction	Recycling	Composting	Total	Cumulative Emissions
Residential										
No New Programs [2]					(117,933)					(163,548)
With Short Term Programs [3]	(79,692)	(107,113)	(6,883)	(193,688)	(311,621)					(98,107)
With Short & Long Term Programs						(219,411)	(43,474)	(8,796)	(271,681)	(369,788)
Commercial										
No New Programs [2]					(241,840)					(166,518)
With Short Term Programs [3]		(138,963)	99	(138,864)	(380,704)					(236,596)
With Short & Long Term Programs						(352,745)	(17,866)	19,704	(350,907)	(587,503)
C&D										
No New Programs [2]					246,975					274,539
With Short Term Programs [3]		(278,413)	(18,383)	(296,796)	(49,821)					104,058
With Short & Long Term Programs							(17,373)	(71)	(17,444)	86,614
Overall Carbon Emissions [4]	(79,692)	(524,489)	(25,167)	(629,348)	**(742,146)**	(572,156)	(78,713)	10,837	(640,032)	**(870,677)**

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

Strategy	Implementation Period	Municipal		County	
		One Time Costs [1]	Annual Costs [1]	One Time Costs	Annual Costs [2]
Residential					
Disposal Ban for Residential Generators	Short-Term	$ -	$ -	$ 2,177	$250,000.00
Volume-Based Pay [1]	Short-Term	$ 4,387,832	$ -	$ -	$250,000.00
Incentive Program [1]	Short-Term	$ -	$ 667,274	$ -	$250,000.00
Recycling Provided at All Multi-family Complexes, Expand Education	Short-Term	$ -	$ -	$ 2,465	$250,000.00
Mandatory Single Family Curbside Recycling [1]	Long-Term	$ -	$ 168,763	$ 2,177	$250,000.00
Food Scraps & Organics Diversion [1]	Long-Term	$ 11,507,980	$ -	$ -	$250,000.00
Mandatory Multi-family Recycling, Continue Education [1]	Long-Term	$ -	$ 115,878	$ 2,177	$250,000.00
Commercial					
Expand Mandatory Recycling Ordinance	Short-Term	$ -	$ -	$ 2,177	$ 143,750
Education, Outreach and Enforcement	Short-Term	$ -	$ -	$ -	$ 218,750
Organics Diversion	Long-Term	$ -	$ -	$ 2,177	$ 143,750
Recycling Containers Where Public Garbage Containers	Long-Term	$ -	$ -	$500-1,500 per container	$125,000.00
C&D					
Mandatory C&D Recycling Ordinance	Short-Term	$ -	$ -	$ 2,177	$ 18,750
Education, Outreach and Enforcement	Short-Term	$ -	$ -	$ -	$ 18,750
Increase Mandatory Recycling Percentage	Long-Term	$ -	$ -	$ 2,177	$ -
Extended Producer Responsibility					
Efforts Associated with EPR	Long-Term	$ -	$ -	$ 2,465	$ 18,750
Total		$ 15,895,812	$ 951,914	$ 20,169	$2,437,500.00

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.

Inputs

Staff Expenses	
Avg Annual Salary & Benefit Expense - Manager	$75,000.00
Avg Annual Salary & Benefits - IT	$75,000.00
Avg Annual Salary & Benefits - Enforcement	$75,000.00
Avg Hourly salary & benefits	$36.06
Avg Hourly Cost for Legal Review	$200.00
Equipment Purchase Price	
Avg. 96-gallon cart	$55.00
Avg. 65-gallon cart	$50.00
Avg. 35-gallon cart	$45.00
Avg. cost per public recycling containers	$500.00
Education/Outreach Material	
Avg. Annual Commercial Education/Outreach	$125,000.00
Avg. Annual Residential Education/Outreach	$250,000.00

Number of Residential Units by Type (2011)		
Jurisdiction	**SF**	**MF**
Charlotte	183,008	139,116
Huntersville	15,781	2,870
Cornelius	7,363	4,572
Matthews	7,984	2,359
Mint Hill	7,598	1,030
Davidson	2,412	1,600
Pineville	871	2,957
Unincorporated	17,011	2,417
Total	242,028	156,921

Residential Strategies
Short-Term

Disposal Ban for Residential Generators

Position/Item	Number	Units	Time Frame	Cost
Staff time to revise ordinance	16	Hours	One time	$ 577
Legal review / ordinance revisions	8	Hours	One time	$ 1,600
Total Annual Costs				$ -
Total One Time Costs				$ 2,177

Volume-Based Pay

Position/Item	Number	Units	Time Frame	Cost
Carts: 65-gallon	**30%**	**of SF HHs**		
Charlotte	54,902	Carts	One time	$ 2,745,120
Huntersville	4,734	Carts	One time	$ 236,715
Cornelius	2,209	Carts	One time	$ 110,445
Matthews	2,395	Carts	One time	$ 119,760
Mint Hill	2,279	Carts	One time	$ 113,970
Davidson	724	Carts	One time	$ 36,180
Pineville	261	Carts	One time	$ 13,065
Carts: 35-gallon	**10%**	**of SF HHs**		
Charlotte	18,301	Carts	One time	$ 823,536
Huntersville	1,578	Carts	One time	$ 71,015
Cornelius	736	Carts	One time	$ 33,134
Matthews	798	Carts	One time	$ 35,928
Mint Hill	760	Carts	One time	$ 34,191
Davidson	241	Carts	One time	$ 10,854
Pineville	87	Carts	One time	$ 3,920
Total Annual Costs				$ -
Total One Time Costs				$ 4,387,832

Incentive Program

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

Recycling Provided at All Multi-family Complexes, Expand Education

Position/Item	Number	Units	Time Frame	Cost
Staff time to develop model contract/ordinance	24	Hours	One time	$ 865
Legal review	8	Hours	One time	$ 1,600
Total Annual Costs				$ -
Total One Time Costs				$ 2,465

Long-Term

Mandatory Single Family Curbside Recycling

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

Food Scraps & Organics Diversion

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

Mandatory Multi-family Recycling, Continue Education

Position/Item	Number	Units	Time Frame	Cost
Legal review of ordinance	8	Hours	One time	$ 1,600
Staff time to revise ordinance	16	Hours	One time	$ 577
Staff outreach/ presentations	0.25	FTE	Annual	$ 18,750
Enforcement				
Charlotte	0.00001	FTE/MF HH	Annual	$ 104,337
Huntersville	0.00001	FTE/MF HH	Annual	$ 2,153
Cornelius	0.00001	FTE/MF HH	Annual	$ 3,429
Matthews	0.00001	FTE/MF HH	Annual	$ 1,769
Mint Hill	0.00001	FTE/MF HH	Annual	$ 773
Davidson	0.00001	FTE/MF HH	Annual	$ 1,200
Pineville	0.00001	FTE/MF HH	Annual	$ 2,218
Total Annual Costs				$ 134,628
Total One Time Costs				$ 2,177

Commercial Strategies

Short-Term

Expand Mandatory Recycling Ordinance

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

Education, Outreach and Enforcement

Position/Item	Number	Units	Time Frame	Cost
Staff presentations	0.25	FTE	Annual	$ 18,750
Enforcement	1	FTE	Annual	$ 75,000
Total Annual Costs				$ 93,750
Total One Time Costs				$ -

Long-Term

Organics Diversion (add to SSO)

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

Recycling Containers Where Public Garbage Containers

Position/Item	Number	Units	Time Frame	Cost
Recycling containers	900	Containers	One time	$500-1,500 per
Total Annual Costs				
Total One Time Costs				

C&D Strategies

Short-Term

Mandatory C&D Recycling Ordinance

Position/Item	Number	Units	Time Frame	Cost
Legal review / ordinance revisions	8	Hours	One time	$ 1,600
Staff time to revise ordinance	16	Hours	One time	$ 577
Staff technical assistance	0.25	FTE	Annual	$ 18,750
Total Annual Costs				$ 18,750
Total One Time Costs				$ 2,177

Education, Outreach and Enforcement

Position/Item	Number	Units	Time Frame	Cost
Staff technical assistance	0.25	FTE	Annual	$ 18,750
Total Annual Costs				$ 18,750
Total One Time Costs				$ -

Long-Term

Increase Mandatory Recycling Percentage

Position/Item	Number	Units	Time Frame	Cost
Legal review / ordinance revisions	8	Hours	One time	$ 1,600
Staff time to revise ordinance	16	Hours	One time	$ 577
Total Annual Costs				$ -
Total One Time Costs				$ 2,177

Extended Producer Responsibility
Long-Term

Extended Producer Responsibility

Position/Item	Number	Units	Time Frame	Cost
Staff presentations	0.25	FTE	Annual	$ 18,750
Staff time reviewing mandates	24	Hours	One time	$ 865
Legal review	8	Hours	One time	$ 1,600
Total Annual Costs				$ 18,750
Total One Time Costs				$ 2,465

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

1 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.

FEMA Definition of Hazard Mitigation

"Any sustained action taken to reduce or eliminate the long-term risk to human life and property from [natural] hazards."

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[1] 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:

- Section 322, Mitigation Planning, of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as enacted by Section 104 of the Disaster Mitigation Act of 2000 (P.L. 106-390) and by FEMA's Interim Final Rule published in the Federal Register on February 26, 2002, at 44 CFR Part 201.
- North Carolina General Statutes, Chapter 166A: North Carolina Emergency Management Act, as amended by Senate Bill 300: An Act to Amend the Laws Regarding Emergency Management as Recommended by the Legislative Disaster Response and Recovery Commission (2001).

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®MH 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 Country 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	
WBT Radio	**704-374-3500**
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.

USAirways: 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

Law/Code/Statute/Regulation/Ordinance	Lead Agency
Federal Law/Regulations	
Resource Conservation and Recovery Act	USEPA
Code of Federal Regulations (CFR), Volume 40, Parts 240-257	USEPA
North Carolina General Statutes (NCGS)	
Chapter 113A, Article 1, Environmental Policy	NCDENR
Chapter 153A, Article 6, Delegation Powers	Secretary of State
Chapter 130A, Article 9, Solid Waste Management	NCDENR
North Carolina Administrative Code	
1 NCAC 25, Environmental Policy	NCDENR
15A NCAC 13B, North Carolina Solid Waste Management Rules	NCDENR
Local Code/Ordinance – City of Charlotte	
Health and Sanitation - Chapter 10	Community Improvement Dept.
Zoning Ordinance	Zoning Adm.
Local Code/Ordinance – Town of Cornelius	
Cornelius Solid Waste Ordinance – Chapter 10	Town Administrator
Local Code/Ordinance – Town of Davidson	
Davidson Solid Waste Ordinance - Chapter 15	Superintendent of Public Works
Local Code/Ordinance – Town of Huntersville	
Refuse Policy Code of Ordinances - Title IX - Section 93.41 - Item 10	Town Manager
Local Ordinance – Town of Matthews	
Town Code of Ordinances, Chapter 50A – Solid Waste	Town Manager
Town Code of Ordinances of Mint Hill	
Property Maintenance - Chapter 5, Article II	Town Administrator
Solid Waste - Chapter 10	Town Administrator
Zoning - Appendix A	Town Administrator
Town Ordinance – Town of Pineville	
Town Ordinance, Chapter 51 – Solid Waste Ordinance	Town Administrator
Mecklenburg County Ordinances/Regulations	
Ordinance to Provide for the Removal of Trash, Garbage, Litter and Debris	LUESA, MCHD
Ordinance to Require the Source Separation of Designated Materials from the MSW Stream (SSO)	LUESA
Solid Waste Management Regulations	LUESA, MCHD
Medical Waste Disposal Ordinance	LUESA
Zoning Ordinance	LUESA

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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Harry L. Jones, Sr.
County Manager

MECKLENBURG COUNTY
Office of the County Manager

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

Table of Contents

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?

- 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:

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 as 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 consumption 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 Low Volatile Organic Compounds (VOC)	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.
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).
Bulk / Concentrate	Purchases in bulk or concentrate have the primary benefit of less expense per unit. Bulk purchases also have environmental benefit of reducing the amount of manufacturing and disposal of Ready to Use (RTU) packaging materials. Concentrate includes the additional benefit of reduced transportation energy and container cost for many products. To avoid pitfalls with this environmental attribute, see "Writing Specifications" section of this document.

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

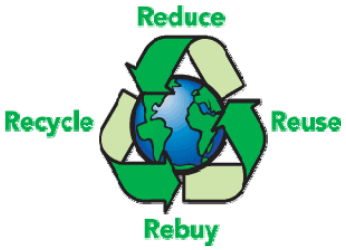
Reduce: is the best of the four R's—because preventing waste in the first place means you have less waste to worry about in the end!

- 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.



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.

	Green Seal 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. **www.greenseal.org**
	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. **www.energystar.gov**
	United States Environmental Protection Agency (EPA) 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. **www.epa.gov/cpg**
	American Society for Testing and Materials (ASTM) 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: **www.astm.org**
	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. **http://www.greenguard.org/**

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 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.

Guidelines for Buying Environmentally Preferable Products

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 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 the 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

- Reference the Green Seal standard for paints found at http://www.greenseal.org/certification/standards/paints.cfm.
- Architectural paints, coatings and primers applied to interior walls and ceilings: Do not exceed the VOC content limits established in Green Seal Standard GS-11, Paints, First Edition, May 20, 1993.
    - Flats: 50 g/L
    - Non-Flats: 150 g/L
- Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates: Do not exceed the VOC content limit of 250 g/L established in Green Seal Standard GC-03, Anti-Corrosive Paints, Second Edition, January 7, 1997.
- 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**
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 or 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
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.

2.2.3 Plastic Trash Bags (continued)
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.

Mecklenburg County Environmental Policy Requirements:
Computers and monitors should be Energy Star® certified. **www.energystar.gov**
The County's 2010 goal is 95% compliance.

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

Prohibited invasive exotic species and suggestions for native alternatives

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

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**

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 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, Esselite, 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 vender 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)**

1. Vendor: **Sunbelt Office & Data Supplies**
   Contact: Bryan Burns
   Phone: 704.525.3813 X205
   e-mail: bryan@sunbeltofficesupply.com

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

Phone: 704.361.6761
e-mail: thorne@oiteam.com

2.6 Furniture and Panel Systems (continued)

4. Manufacturer: **KI**
   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

5. Manufacturer: **Allsteel**
   Local Vendor: MacThrift Office Furniture
   Contact: S. Casuccio
   Phone: 800.261.1250
   e-mail: s.casuccio@macthrift.com

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 mush 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.

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

2.8.3 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.

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

2.9 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**

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.

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

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

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-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.

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.

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**

North Carolina Recycling Business Assistance Centers / Recycling Markets Directory
www.pepays.org/rbac

CITY OF CHARLOTTE

PURCHASING GUIDE for ENVIRONMENTAL PREFERABLE PRODUCTS

Provided by Business Support Services
Procurement Services Division

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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.

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.

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:

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 Low Volatile Organic Compounds (VOC)	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.
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.

	Green Seal 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. **www.greenseal.org**
	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. **www.energystar.gov**
	United States Environmental Protection Agency (EPA) 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. **www.epa.gov/cpg**
	American Society for Testing and Materials (ASTM) 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: **www.astm.org**
	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. **http://www.greenguard.org/**

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.

Guidelines for Buying Environmentally Preferable Products

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:

Modular Design 227 Southside Drive Charlotte, NC 28217 704.523.4950 Contact: Charles Hollar	**Bonitz Flooring Group, Inc** 5025 W W.T.Harris BV Charlotte, NC 28269 Tel: (704) 598-0094 Fax: (704) 598-0339 Contact: Gary Mead

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

- Reference the Green Seal standard for paints found at .http://www.greenseal.org/certification/standards/GS-11_Paints_and_Coatings.pdf
    - 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
            - Pigminted – 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 purchases 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, Polyisocyanurate/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**
- 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 or 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

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

Overview

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 in the circuit boards of the computer.

Potential Environmental Impacts

- Improper disposal of computer equipment can release lead or other toxins into the environment.
- Can consume excessive energy when the machines are on but not in use.
- Computers should be recycled through the Business Support Services/Asset and Recovery Division (ARD)

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

- Business Support Services/ Information Technology (IT) Department should be consulted before configuring or ordering any computer equipment.
- Computers and monitors should be Energy Star® certified. **www.energystar.gov**

Availability

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.

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 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)
- 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 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

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

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

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

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.

Section 6 of the City of Charlotte Environmental Purchasing Policy (BSS 17) requires City employees to purchase 30% recycled content copying and printing paper.

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.
- Whenever practicable, paper products should contain a minimum 20% post consumer recovered material and at least 30% total recovered material.
- 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.

Availability
The City of Charlotte currently has the following Council approved contract in effect for office supplies, which includes copy paper:

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 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 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:

Office Depot	**Sunbelt Office & Data Supplies**
Rob Doyle Phone: (888) 213-8948 x5717 rob.doyle@officedepot.com	Bryan Burns Phone: 704.525.3813 X205 e-mail: bryan@sunbeltofficesupply.com

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:

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: Alfred Williams, Inc.
   Contact: Russ Cox
   Phone: 704.338.9373
   e-mail:

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 mush 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 fixures. 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:

Graybar Tina Fajner Office: (704) 398-6260 Tina.fajner@graybar.com	**Home Depot** Tony Hill (803)-720-7294 tony_hill@homedepot.com

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:

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

2.9 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**
- 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.

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

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

3. Vendor: **Safety Products, Inc. (SPI)**
   Contact: Stan Bialecki
   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**

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**

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

Responsible Purchasing Network (RPN) is an international network of buyers dedicated to socially responsible and environmentally sustainable purchasing. 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**

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**

North Carolina Recycling Business Assistance Centers / Recycling Markets Directory
www.pepays.org/rbac

ENVIRONMENTALLY PREFERABLE PURCHASING
MODEL POLICY

PREPARED BY STOPWASTE.ORG

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

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.

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.

7.16 "Federal Energy Management Program" is a program of the Department of Energy that issues a series of *Product Energy Efficiency Recommendations* that identify recommended efficiency levels for energy-using products.

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	
6 pm to 8 pm	Opening remarks, overview and background of the planning process, charrette process

FRIDAY, JANUARY 27TH		
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.*	
TIME	**SERIES 1 TOPICS**	**SERIES 2 TOPICS**
8:30 – 10:00 am	**Extended Producer Responsibility** 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 reuseable, recyclable, or compostable; and the possible roles the County could play in affecting extended producer responsibility.	**C&D Recycling** This session will cover the benefits and drawbacks of a mandatory C&D recycling ordinance versus the use of voluntary incentives; the viability of mixed C&D processing in the County; and infrastructure needs related to C&D processing.
10- 10:30 am	**BREAK**	
10:30 am – 12:00 pm	**Expand Mandatory Business Recycling Ordinance** 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.	**Special Event Recycling** This session will cover the potential for mandatory (vs. voluntary) special event recycling; at which locations and events; and what materials could potentially be recycled.
12-1:30 pm	**LUNCH, OPEN HOUSE**	
1:30 – 3:00 pm	**Food Scraps and Other Organics – Commercial and Institutional** 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.	
3 – 3:30 pm	**BREAK**	
3:30 – 5:00 pm	**Alternative Disposal / Mixed Waste Processing Technologies** 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.	
5 – 6:00 pm	**BREAK**	

FRIDAY, JANUARY 27TH	
6- 7:30 or 8 pm	**General Sessions Recap** 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.*	
TIME	**SERIES 1 TOPICS**	**SERIES 2 TOPICS**
8:30 – 10:00 am	**Mandatory Residential Recycling – Single Family** This session will cover current single-family recycling participation; possible enforcement issues associated with mandatory recycling; potential impacts of mandatory; and the potential for adding new materials to the existing residential program.	**Mandatory Residential Recycling – Multi-Family** This session will cover current multi-family recycling participation; possible enforcement issues associated with mandatory recycling; potential impacts of mandatory recycling; and the potential for adding new materials to the existing residential program.
10- 10:30 am	**BREAK**	
10:30 am – 12:00 pm	**Food Scraps and Other Organics Composting – Residential (SF and MF)** This session will cover building upon existing backyard composting programs to increase residential organics composting; the potential for residential organics collection services; infrastructure requirements associated with anaerobic digestion technologies for composting organic waste; and what is feasible for Mecklenburg County in the next ten years.	**Alternative Disposal / Mixed Waste Processing Technologies** 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.
12-1:30 pm	**LUNCH, OPEN HOUSE**	
1:30 – 3:00 pm	**Zero Waste** This session will cover the definition of zero waste; how local government can have an impact in moving toward a zero waste goal; and the types of efforts (policies, programs and infrastructure) it takes to achieve a zero waste goal.	**Residential Yard Waste** This session will cover the potential for changes in curbside collection technologies; changes in set-out requirements; and processing of the material.
3 – 3:30 pm	**BREAK**	
3:30 – 5:00 pm	**Goal Setting** This session will review the goals outlined in the 2009 Solid Waste Management Plan; potential diversion strategies that came out of earlier charrette sessions; and potential revisions to existing goals for the 2012 Solid Waste Management Plan.	
5 – 6:00 pm	**BREAK**	
6 – 7:30 or 8 pm	**General Session – Charrette wrap-up** This session will cover strategies that rose to the top in earlier sessions and the potential impacts of those strategies; potential goals for the 2012 Solid Waste Management Plan; implementation timing for the various goals identified through this process; naming of the 2012 Plan; and next steps in development of the 2012 Plan including how the information gathered in the charrette will be utilized, and when a draft version of the Plan will be available for review.	

Mecklenburg County
Solid Waste Management Plan
Planning Charrette

Charrette Opening Session

Thursday, January 26th

6:00 pm – 8:00 pm

SOLID WASTE MANAGEMENT PLAN

INTRODUCTIONS

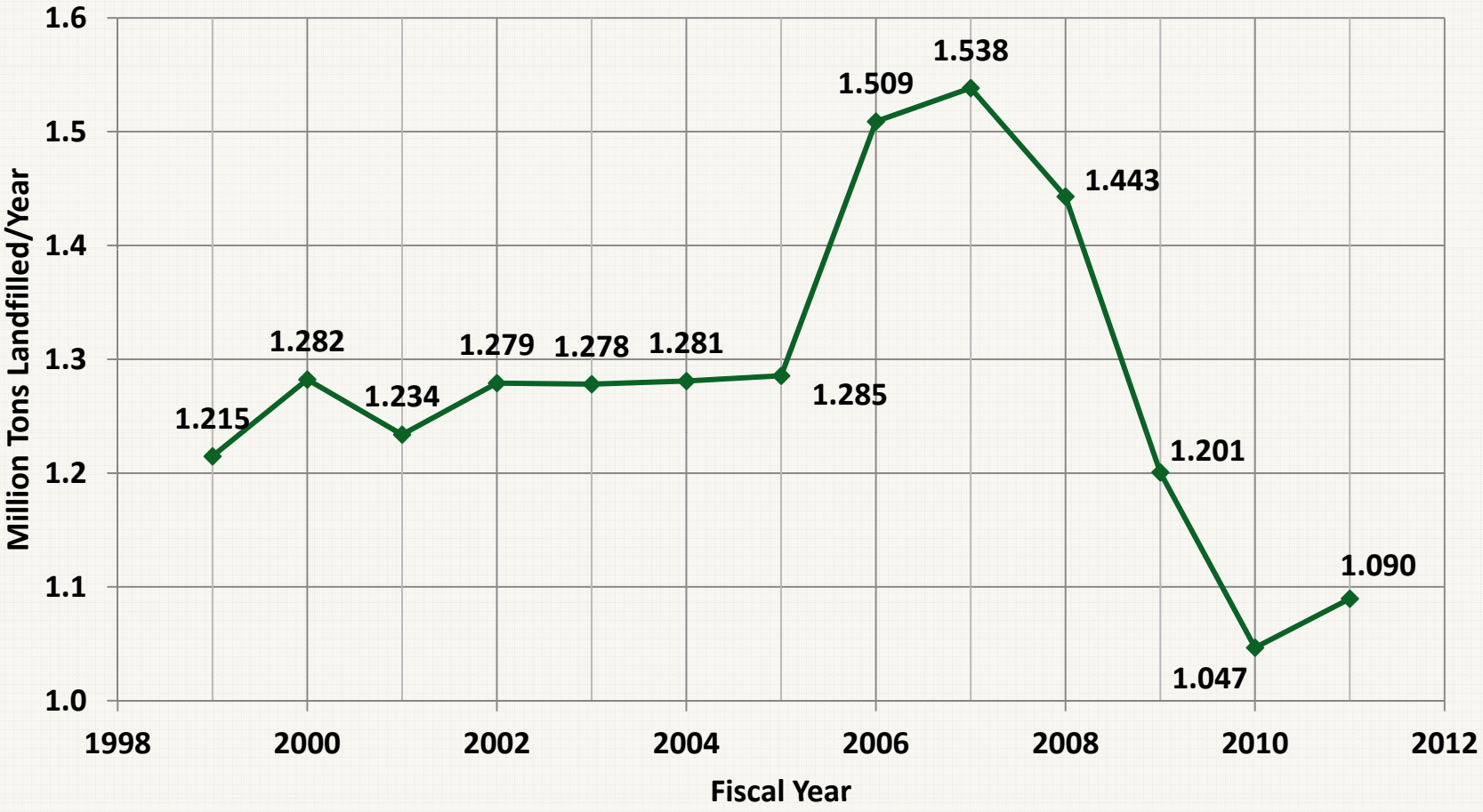
Why are we here?

- 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?

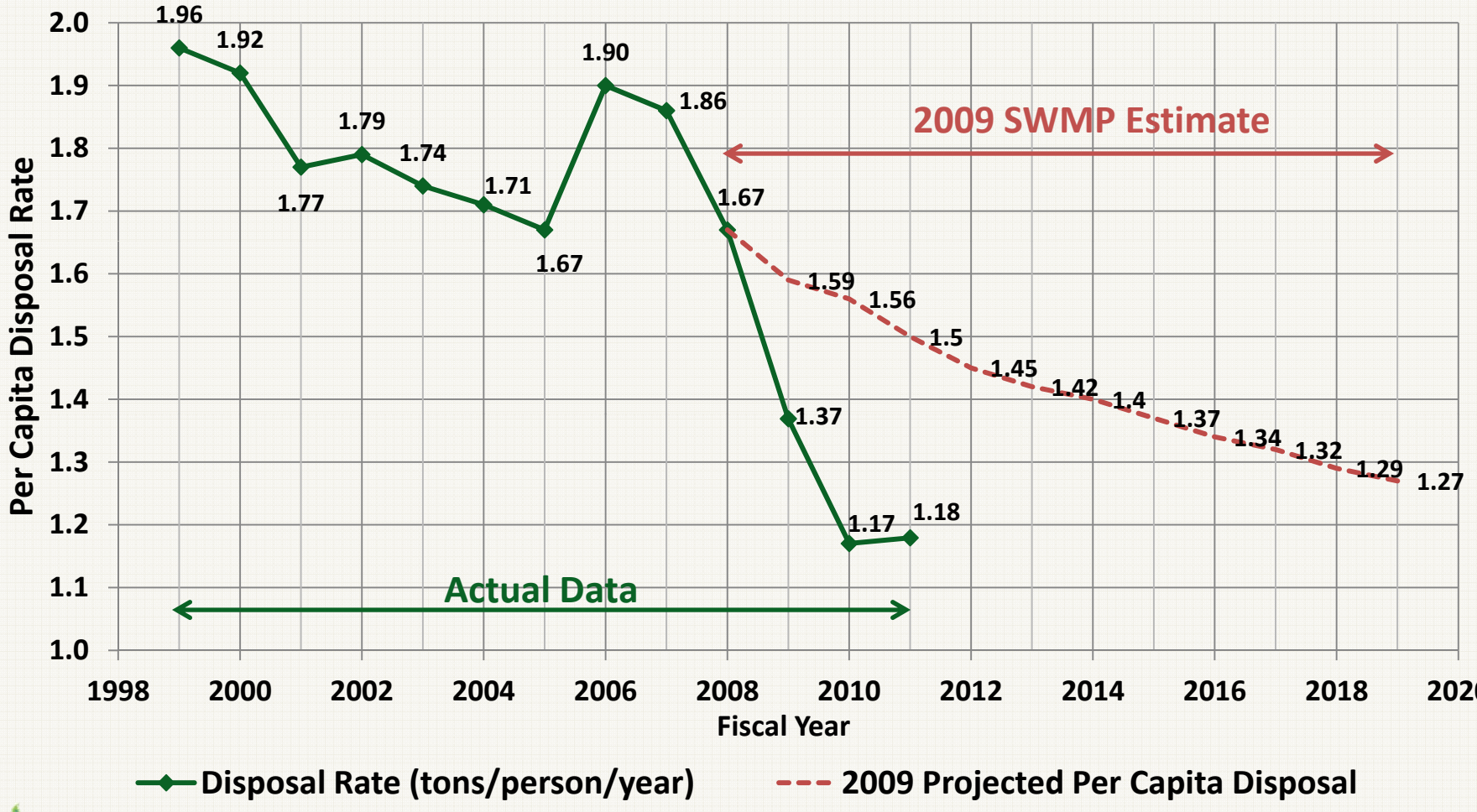
- Bylaws of the Mecklenburg Waste Management Advisory Board – Article II - Purpose
  - *"To assist Mecklenburg County and participating local city and town governments in the development …… the Solid Waste Management Plan"*
  - *"To monitor progress in implementing the Plan and to provide recommendations for change to the BOCC every three years…."*

Waste Landfilled Annually



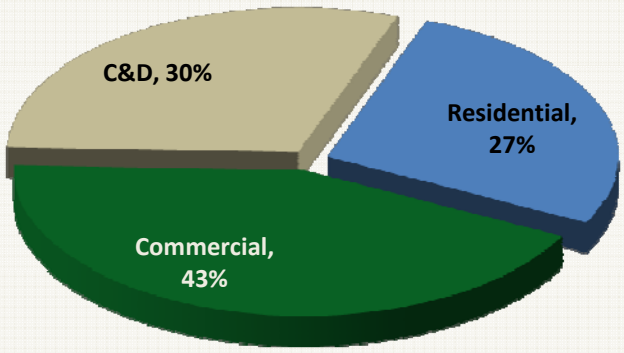
FY 2011 represents draft data

Per Capita Disposal

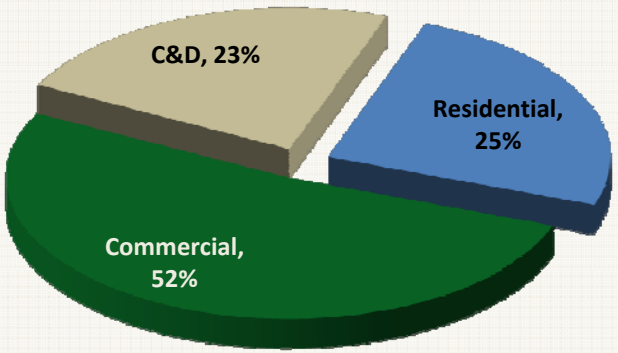


Solid Waste Disposal Breakdown

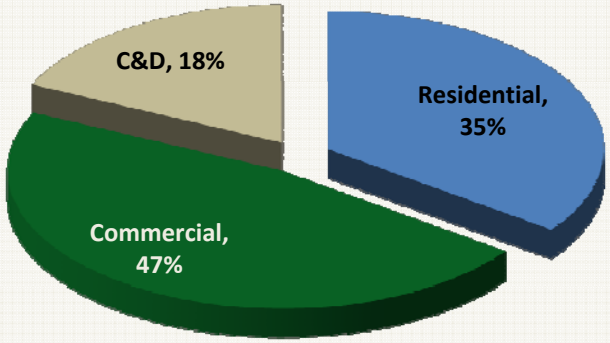
FY 2005



FY 2008



FY 2011



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

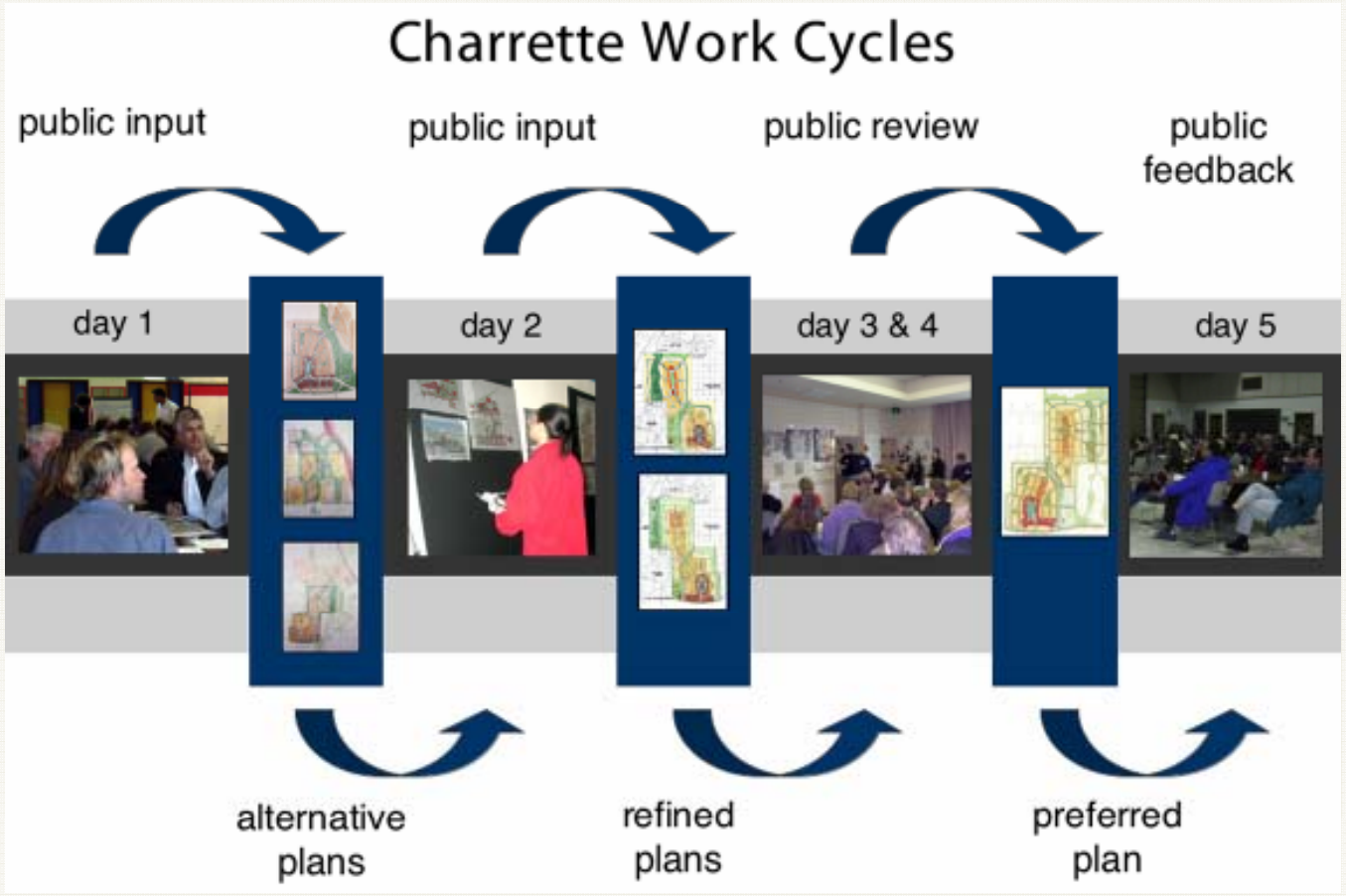
- The Plan considers:
  - Vision and goals of our communities
  - Waste management needs of our customers
  - What we can effect
  - Environmental impacts
  - Economic impacts
- The Plan provides:
  - Clear goals and objectives
  - Path toward implementation
  - Flexibility

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

SOLID WASTE MANAGEMENT PLAN

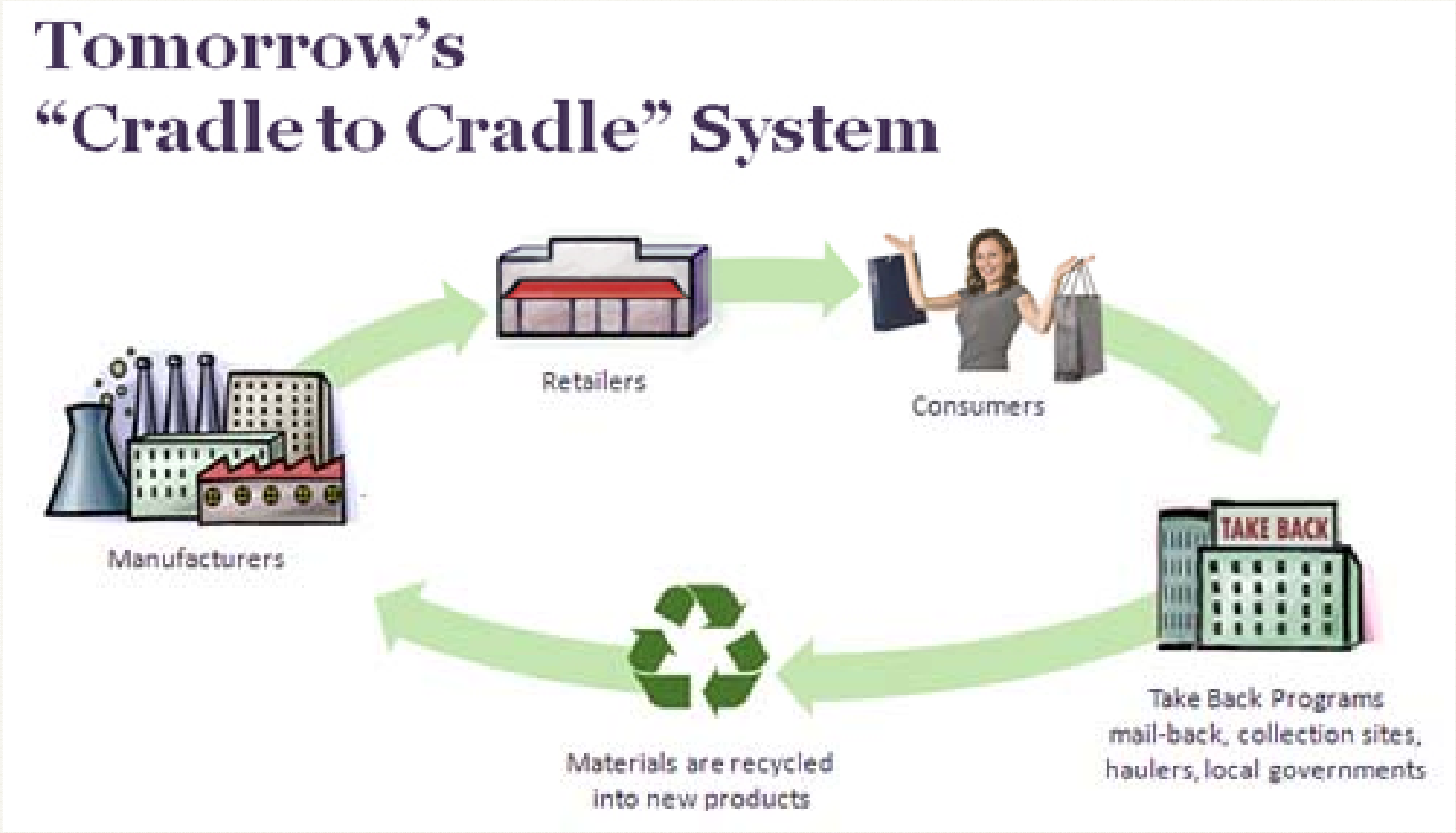
THE CHARRETTE PROCESS


Charrette Work Cycles
public input
public input
public review
public feedback
day 1
day 2
day 3 & 4
day 5
alternative plans
refined plans
preferred plan

Charrette Schedule

FRIDAY, JANUARY 27TH		
TIME	**SERIES 1 TOPICS**	**SERIES 2 TOPICS**
8:30 – 10:00 am	Extended Producer Responsibility	C&D Recycling
10- 10:30 am	BREAK	
10:30 am – 12:00 pm	Expand Mandatory Business Recycling Ordinance	Special Event Recycling
12-1:30 pm	LUNCH, OPEN HOUSE	
1:30 – 3:00 pm	Food Scraps and Other Organics – Commercial and Institutional	
3 – 3:30 pm	BREAK	
3:30 – 5:00 pm	Alternative Disposal / Mixed Waste Processing Technologies	Institutional Waste Diversion
5 – 6:00 pm	BREAK	
6- 7:30 or 8 pm	General Sessions Recap	

Extended Producer Responsibility

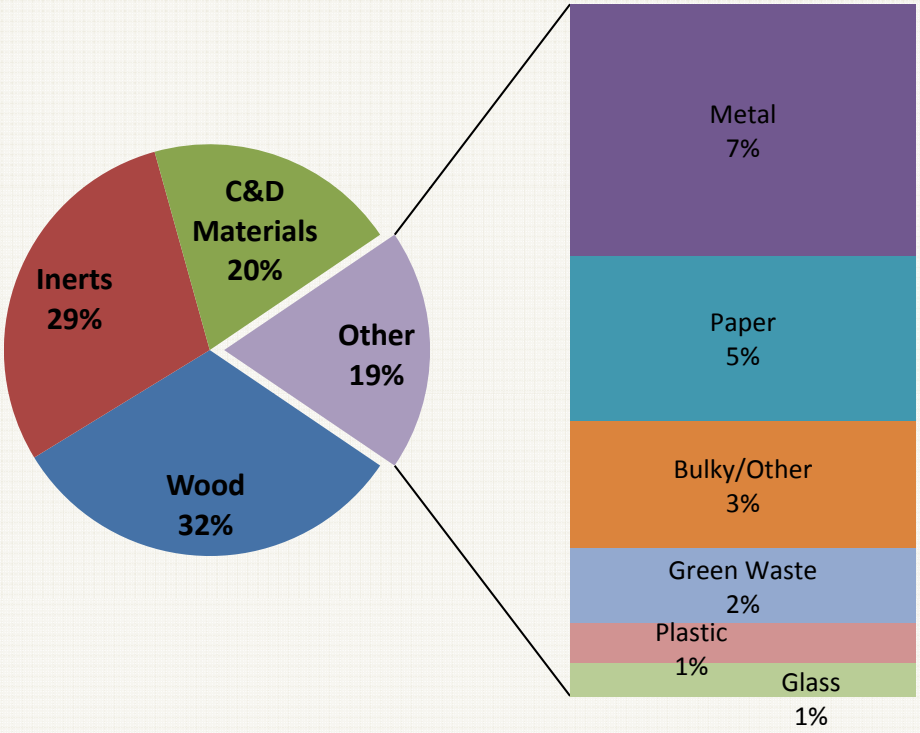


--California Product Stewardship Council

C&D Recycling

C&D in Mecklenburg County

2007 C&D Composition



Recoverability of C&D Material Categories

Recoverable

Corrugated Cardboard, Appliances, Other Ferrous Metals, HVAC Ducting, Other Non-ferrous Metal, Land Clearing/Limbs/Stumps, Other Yard Waste, Concrete/ Block/ Brick/ Stone/ Tile, Pallets, Drywall – Unpainted, Untreated Wood

Potentially Recoverable

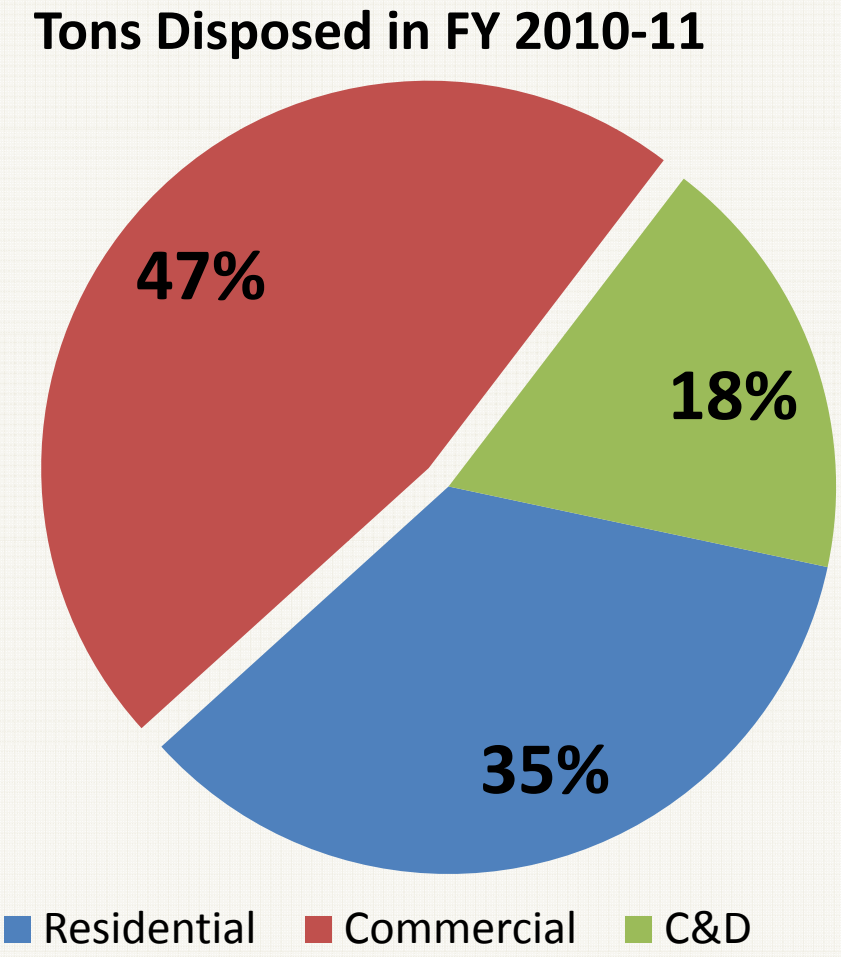
PVC Pipe, Vinyl Siding, Dirt/Sand/Gravel, Asphalt Roofing, Ceiling Tiles, Carpet and Carpet Backing, Electronics, Bulky Wastes/ Furniture

Unrecoverable

Other Paper, Film Plastic, Other Plastic, All Glass, Oriented Strandboard (OSB), Treated/ Painted/ Processed Wood, Drywall – Painted, Insulation, Mixed MSW, Mixed C&D/ Other Unclassified

Source: Construction and Demolition Debris Composition Study for Mecklenburg County by MSW Consultants dated September 2008.

Expand Mandatory Business Recycling



Source: NC DENR Solid Waste Management Annual Report - Mecklenburg County Waste Disposal Report dated December 16, 2011

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")

Rainbow Disposal, Huntington Beach

Tons per day	200-400
Cost per ton	$40-60
Acres required	5-7

Mixed Material Processing

Products/By-Products

Recyclables

Compostables

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

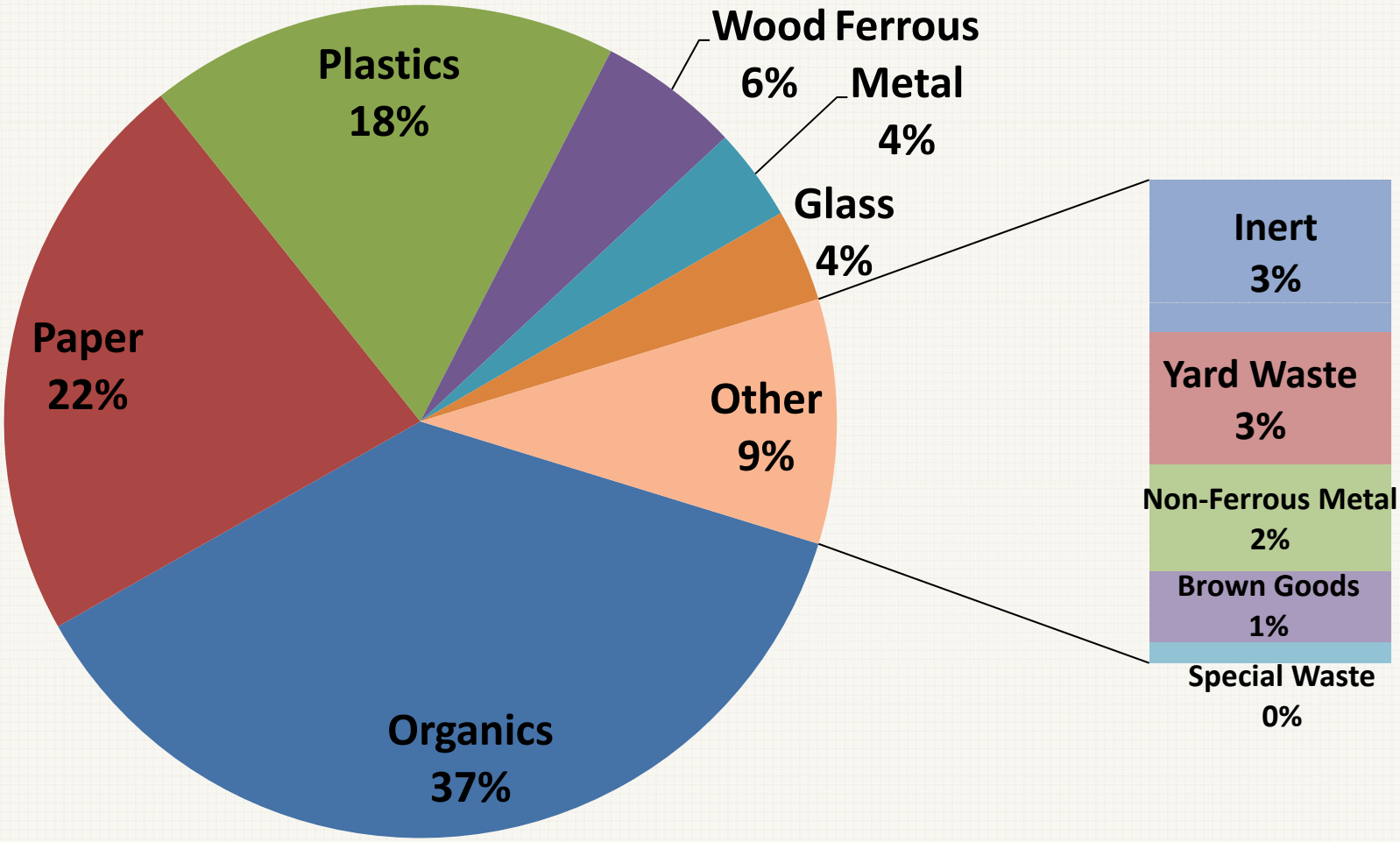
- Issues Discussed
  - Strategies
  - Diversion Potential (where available)
  - Cost Range (where available)
- Where we found consensus or not
- Where we found more research is needed

Charrette Schedule

SATURDAY, JANUARY 28TH		
TIME	**SERIES 1 TOPICS**	**SERIES 2 TOPICS**
8:30 – 10:00 am	Mandatory Residential Recycling – Single Family	Mandatory Residential Recycling – Multi-Family
10- 10:30 am	BREAK	
10:30 am – 12:00 pm	Food Scraps and Other Organics Composting – Residential (SF and MF)	Alternative Disposal / Mixed Waste Processing Technologies
12-1:30 pm	LUNCH, OPEN HOUSE	
1:30 – 3:00 pm	Zero Waste	Residential Yard Waste
3 – 3:30 pm	BREAK	
3:30 – 5:00 pm	Goal Setting	
5 – 6:00 pm	BREAK	
6 – 7:30 or 8 pm	General Session – Charrette wrap-up	

Mandatory Residential Recycling – Single Family

Current Residential Waste Disposed



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...

bones
bread
cactus
cereal
cheese
chopsticks (wooden)
coffee cups (paper)
coffee grounds
coffee filters (paper)
dairy products
egg shells
facial tissue
flowers
frozen food boxes
fruit
grains
grass cuttings
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 wands)
sawdust
shrubs
tea bags/tea bags with staples
tree twigs and branches up to 6" in diameter
trees (holiday, unflocked)
vegetables
waxed cardboard
waxed paper (food-soiled)
waxed paper containers/cups
weeds
wine corks (natural only)
wood (uncoated, untreated)
wood chips
yard waste

Helpful Tips...

Do not bag, tie, or bundle yard trimmings before placing them in the cart. No dirt, rock, concrete, or palm fronds.

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 discarding, please consider reusing or donating.
Please make sure all materials fit inside the cart with the lid closed.

Alternative Disposal / Mixed Waste Processing Technologies
Mixed Material Processing ("Dirty MRF")

Rainbow Disposal, Huntington Beach

Tons per day	200-400
Cost per ton	$40-60
Acres required	5-7

Mixed Material Processing

Products/By-Products

Recyclables

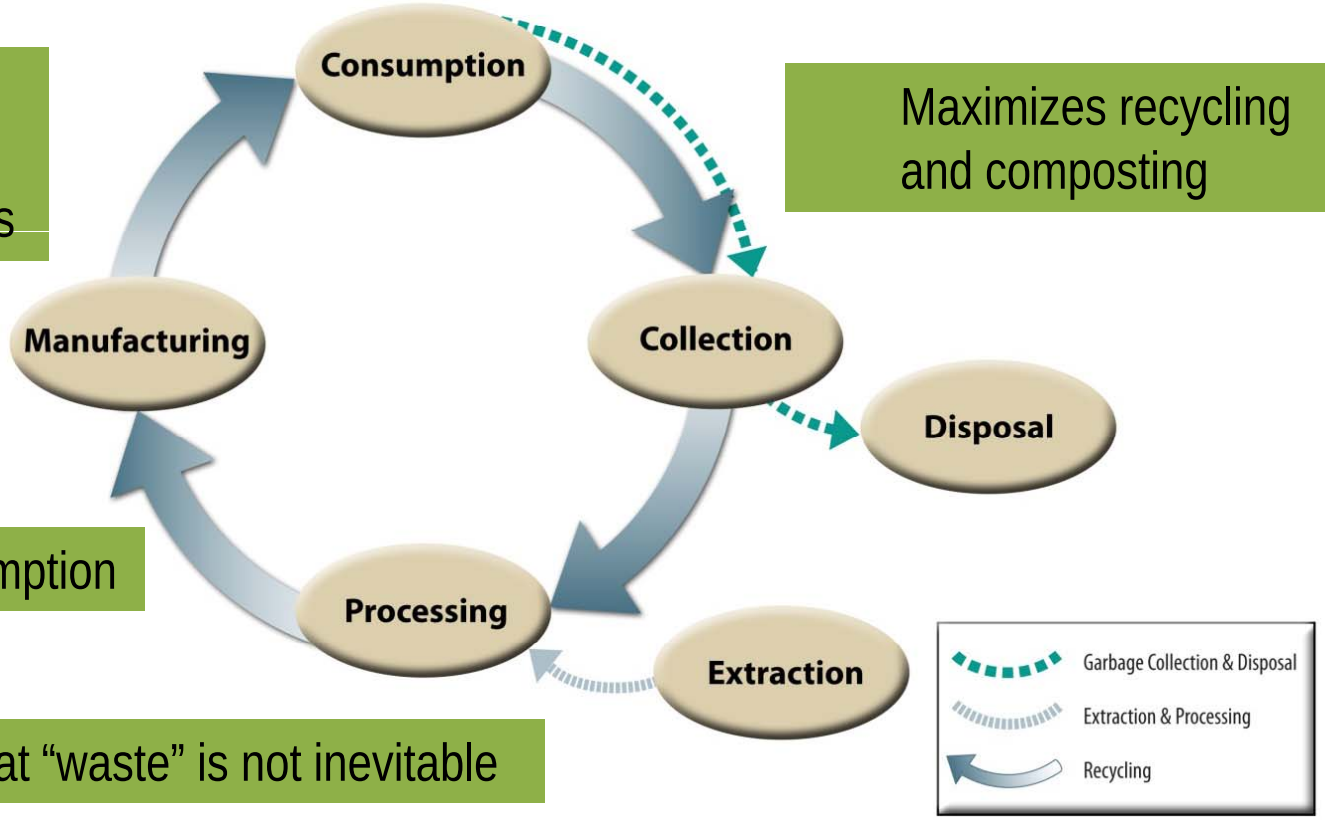
Compostables

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

- Issues Discussed
  - Strategies
  - Diversion Potential (where available)
  - Cost Range (where available)
- Where we found consensus or not
- Where we found more research is needed

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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 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.

CONTRACT # 110126

NORTH CAROLINA **SERVICE AGREEMENT**

MECKLENBURG COUNTY

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.

I. 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, CPU's (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 (5^{th}) 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

	Cost and Credits
CRT Recycling	$ 0
PC Recycling	$ 0.20/lb CREDIT
Peripheral & Consumer Electronic Recycling	$ 0.05/lb CREDIT
TV (small to medium) Recycling	$ 0.00
TV (large) Recycling	$ 0.00
Cable and Wire	$ 0.05/lb CREDIT
Cards and Circuit Boards	$ 1.00/lb CREDIT
Cell Phones	$ 0.75/lb CREDIT
Hard Drives (whole)	$ 0.40/lb CREDIT
Transportation	No Charge

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

General Manager

Clerk To The Board

Approved as to Form:

County Attorney

This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act.

Approved as to Insurance:

Insurance and Risk Management

Finance Director

CREATIVE RECYCLING SERVICES, INC

By: VP, Sales & Procurement

NO PRE-AUDIT REQUIRED.
BY: DIRECTOR OF FINANCE

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.
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