MEMORANDUM

To: Gayle Wilson, Solid Waste Management Director

From: Cody Marshall, Recycling Programs Manager

Subject: FY 12-13 Single Steam Transition

Date: November 4, 2011

The purpose of this memo is to provide a brief analysis of Orange County's transition to single stream recycling for Fiscal Year 12-13. Currently, Orange County Solid Waste provides curbside recycling collection service to all single family homes in the corporate limits of Carrboro, Chapel Hill, and Hillsborough. Curbside Service began in 1989 and there are currently about 18,400 single family homes eligible for this service. Orange County Solid Waste also provides curbside recycling to about 65 percent of the unincorporated portion of the County and there are currently about 12,500 single family homes eligible for this service.

Starting July 1, 2012 we plan to transition urban and rural curbside collection to single stream. Urban curbside will change to a cart based collection while rural curbside will continue to use the existing 18 gallon bins. Each recycling program will transition to single stream, along with curbside collection. These programs include: multi-family, commercial, drop-off sites, and schools. We are still evaluating the practicality of keeping government buildings collection dual stream and will make a decision before we begin our education and outreach. Curbside collection will be the most noticeable change for residents; therefore the majority of this memo will focus on curbside collection.

We are referring to single stream as bottles, cans, and paper products, including cardboard, commingled in the same recycling receptacle. Transitioning to single stream has several advantages including a decrease in total collection and hauling costs and increases in route efficiencies. This will also have the potential to increase the total material collected and could possibly add new materials to curbside collection. Furthermore, the material preparation for each resident will be much easier and convenient. For example, we plan to tell residents that we will accept as much cardboard as they have as long as it fits in the cart. Currently residents are only allowed ten pieces or less and the material must be less than 3'x 3'.

Over the past decade regional material recovery facilities (MRFs) have evolved to accept and efficiently process single stream material. The increased demands for post-consumer material as feedstock for new products and new technologies have allowed MRFs to accept all the material mixed together while still being profitable. In fact, many of the MRFs in the area are designed as single stream MRFs. The idea being, if the collection service becomes more convenient for the individual resident the overall material tonnage will increase.

Currently, the County is contracted with Waste Industries for the collection of urban curbside recycling. This contract expires June 30, 2012 which will align well with the new collection

process. The RFP for a new collection contract will go out in December 2011 or January 2012 and we hope to award the bid in February or March of 2012. Due to the new single stream collection process, the contract cost should decrease significantly. We hope to purchase the carts with this savings and pay them off within five to six years. The RFP for curbside collection will include the possibility of purchasing carts through the collection contract, but we are also looking into purchasing the carts directly through a cart vendor and will pursue the most economical option. Our special services policy will continue to be the same, and those citizens that are unable to take their recycling to the curb because of age or disability will still get collection at their home.

The size of the cart has not been determined. The two options are 65 gallon or 95 gallon. Each option will have wheels and a lid. The difference in cost between the sizes varies, but is usually $3 or $4 per cart. An example of both sizes will be provided at the meeting. The Solid Waste office recommends the 95 gallon cart. This will allow plenty of room for a typical single family home. This size of container will provide enough space for bulky cardboard which we continue to see more of at the curb. If we are able to accept large bulky plastics or other material at some point in the future, there will be enough capacity. If the County chooses to collect every other week in the future, the 95 gallon will provide enough capacity to do this. In our research a 65 gallon cart would not be enough for two weeks of material for many households.

We will also be looking to receive a grant from the North Carolina Department of Natural Resources to help purchase the carts. Right now, local governments have a chance to receive up to $75,000 towards the purchase of recycling carts. We will be working on this application in the coming months. In order to receive the funding, one stipulation is that each cart be equipped with a radio-frequency identification (RFID) chip. The chip does not necessarily need to be used immediately but it should be in place for future use.

An RFID chip is basically a technology that uses radio waves to transfer data. This technology is something the Solid Waste Department would like to use immediately and make sure that our collection provider has the equipment on their truck to read the information. This allows us to track the location of the carts, participation rate, set out rate, and other statistics that will help us improve our overall waste diversion. By knowing participation rate, we will be able to target our education by sending out brochures to low performing areas opposed to sending out educational material to the entire community.

We do a great deal of education and outreach explaining the current preparation for recycling collection. With single stream, the message will be more clear and concise. The single stream message is easier to understand and makes the preparation for collection more convenient. The roll carts for single stream recycling will have up to 60 gallons more capacity than the two bins that are offered now and the carts will have a lid. The lid will prevent material from blowing and deter the possibility of vermin more-so than the current open top bin system. Since the carts will have wheels, the goal is that the material will be easier to take to the curb for collection for the large majority of users.

The contract cost for urban curbside collection is likely to drop for several reasons. Right now there are four trucks collecting a route each day. Each truck is running ten hours per day to

collect. It takes ten hours because each truck fills up and dumps twice each day. The current bodies of the trucks are divided in two (paper accumulates in the back, and bottles/cans accumulate in front) and do not have the capability to compact the material. Given that two different materials need to be separated in the truck, one compartment of the truck will fill up faster than the other. For example, a truck may be completely filled with bottles and cans, but the paper is only ¾ full. Even though there is still more room in the paper compartment, the truck must drive back and empty because he or she could not collect more bottles and cans. Thus, the truck is hauling material back to the property to dump with a lot of air space. A single stream truck has the ability to compact the material and utilize a lot of space in the truck body. Therefore, that same driver can stay out on route much longer and only drive back to dump when there is no airspace left in the body of the truck.

When transitioning the urban curbside program to single stream, there will be a substantial route re-organization and slight service disruptions. The company that is awarded the contract will be responsible for the re-routing and will work closely with the Solid Waste office. Part of our education piece will include the details of the re-route to minimize citizen confusion. Since there will be significant change in service, we are anticipating citizen concerns (i.e. how to place carts at curb, when the new recycling day is, what is and is not accepted, etc.) and plan to work with any issues that may occur in the months following implementation.

In the fall of 2009 the Solid Waste Department tested two single stream trucks with compaction. A typical dual stream truck that is full of material can have a little more than three tons of material on the truck. Both single stream trucks that were tested filled with over six tons of material. This suggests that the contractor could use three trucks on route opposed to the four trucks used now. The ability to throw all the material in one compartment of the truck allows for compaction (creating higher payloads), less time for collection because each truck will either be semi automated where the driver must get out and roll the cart over to the truck to dump it, or fully automated where the truck has an arm on the side that extends and collects the cart automatically. Either way, the contractor's employees will not need to spend time manually picking up 18 gallon bins, putting bottles/cans in the front and walking paper to the back. As a whole, single stream collection contracts are more affordable because they use less fuel, have less workers compensation claims, and collect the routes much faster.

The rural curbside program will also transition to single stream. However, each home in this program will continue to use the 18 gallon bins. The rural citizens should see an added convenience to recycling since they will no longer need to keep bottles and cans separate in the orange bins. Instead of using two bins to separate, some citizens may be able to put items in one bin and carry it down to the curb. The drivers on these routes will also see some collection efficiencies. They will no longer need to make a special trip back if one compartment fills faster than the other, they will no longer need to dump in separate compartments of the truck and will no longer need to worry about separating the little material that sometimes becomes mixed in citizen's bins. Nevertheless, the full potential and efficiencies of single stream collection will not be gained until carts and single stream trucks are acquired.

The rural program will not receive carts during the initial implementation of single stream because several citizens with long driveways or private lanes have expressed concern about

taking carts to the curb. Also, our current collection vehicles do not have the ability to collect carts. These trucks are made to collect bins, where you fill up a side hopper with material, and then the hopper dumps into the body of the vehicle with a long cycle time. The rural program will hope to provide carts to areas of the County in 2013 or 2014 as we audit the routes and find where carts are most practical and where bins are most practical. Furthermore, scheduled replacement of existing trucks with trucks with roll-cart capabilities will need to be purchased before collecting carts on the rural program to gain efficiencies. As efficiencies are gained, we will be able to expand our rural program to collect more areas of the County. People on the outlying areas of our existing routes continue to call and express interest in curbside recycling. Transitioning to single stream with more efficiency in collection will allow us to do this without adding resources.

All of the material is currently brought back to 1514 Eubanks Road in Chapel Hill and consolidated with all of the other recycling collection routes. Paper is dumped in one area of the property and bottles and cans are dumped in another area of the property. The bottles and cans are currently shipped to a MRF in Greensboro on a walking floor trailer and the paper is shipped to Durham using 40-yard roll-off containers transported by a hook lift truck. Once urban curbside changes to single stream, all other programs will need to change to single stream as well due to space constraints and hauling capability. There will no longer be the capability of keeping bottles/cans separate in an area of the property, paper products separated in another area, and single stream in a different area of the property. Furthermore, we will not have the ability to haul all three materials to market. Once the collection trucks start bringing single stream to our facility, we really only have one area of material to manage.

Heavier payloads of single stream material will be shipped on walking floor trailers to one market, opposed to light loads of bottles and cans shipped to Greensboro and light loads of paper shipped to Durham. We are currently shipping four to five loads of mixed paper to Durham each day with a hook lift truck at 15 tons per load and two loads of bottles and cans to Greensboro each day at 10 tons each load. Once we transition to single stream, we hope to ship four loads of material each day to a market to be determined at 15 to 20 tons each load, thus, decreasing fuel consumption and truck miles. Not only will there be less hauling to market, there will only be one place with bottle, cans, and paper for our staff to maintain, and the route trucks will have a much quicker turnaround time when only dumping material in one location.

With a more clear, concise, and focused message, and a more convenient service, we also hope to receive more tonnage by going to single stream. The trend across the country is that each community that changes to single stream sees an increase in participation and overall tonnage. This is because of the easy to interpret message and convenience of no separation.

Between March and June we will be working with the vendors to establish new routes and we hope to start delivering carts to residents by mid-June. Also, by mid-June we will start painting our containers at the drop-off sites and preparing them to accept single stream by July 1, 2012. We have already started thinking about the education and outreach piece and hope to start designing literature, labels, brochures, and other education and outreach measures by the end of winter. We will do our standard advertisements in the area newspapers and update our website with important information as we move forward.

Single Stream Transition Timeline (tentative)

- November 9, 2011: Discuss transition with SWAB
- December: Update and inform commissioners
- December – January: Initiation of RFP for collection
- December – January: Evaluate cart piggy-back options
- February – March: Award urban curbside collection bid and finalize acquisition of carts
- March – June: Collection route and cart distribution analysis
- May - June: Education and outreach (newspaper ads, postcards, newsletter)
- Mid-Late June: Distribution of Carts
- July 2012: Start collecting single stream recycling
- July – Dec: Work through issues related to transition, refine collection and hauling