



Recycling Works

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Study Recommends C&D Recycling Development at Private Facilities

by *Danielle Peacock, Graduate Student Intern, UNC-Chapel Hill*

A recent graduate student study examined construction and demolition recycling activities at privately-owned construction and demolition landfills and transfer stations. The purpose of the study is to provide recommendations to the state in order to guide efforts to increase C&D recycling at private facilities.

The study's major findings include:

- Private facilities are growing in prevalence and management of C&D streams.
- Ninety percent of these private facilities recycle a portion of the C&D materials they receive, with a median recycling rate of 13.45 percent of incoming materials.

- Markets are limited or declining for the two most commonly recycled materials: clean wood waste and aggregates.
- The top three motivations to recycle C&D waste include saving landfill space, customer demand for green or LEED services and revenue from selling recycled materials.
- New materials are entering the C&D recycling market, but not without difficulties.

Data for this study was collected for 20 facilities from facility annual reports and voluntary telephone interviews. Figure 1 highlights the counties containing facilities

(C&D Recycling continued on page 4)

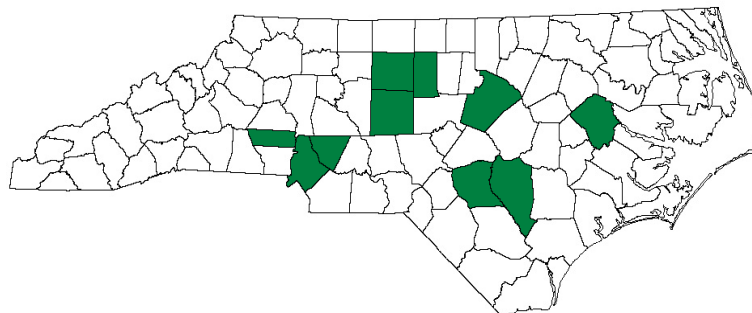


Figure 1. Counties of Location of Study Facilities (Private C&D Landfill and Transfer Stations).

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Recycling Works

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Sonoco Recycling Inc. Opens Single-Stream MRF in Charlotte

by Matt Ewadinger, RBAC Manager

In the summer of 2010, Sonoco Recycling Inc. opened its second North Carolina-based full-scale material recovery facility on Barringer Drive in Charlotte. With the completion of the \$2.6 million project, the Charlotte MRF became the third such Sonoco Recycling facility in the Southeast along with those in Raleigh and Columbia, S.C.

Sonoco began its aggressive expansion project when it determined that, like Raleigh (see [Paper Stock Dealers Opens New MRE](#), *Recycling Works*, summer 2006), the ever increasing feedstock supply had outgrown the Charlotte processing operation.

“We’ve added high-tech equipment that allows us to further grow our capacity and more effectively sort residential single-stream waste,” said Marcy Thompson, vice president and general manager, Sonoco Recycling Inc. Additions include new sorting screens, separators, high-speed conveyors, steel disks, custom steel bunkers and other state-of-the-art equipment.

“While Mecklenburg County is already served by a materials recovery facility, the area needed a second MRF because of the tremendous growth throughout the region,” she continued. “These upgrades, along with the upgrades that we completed last fall, better position us to meet the recycling needs of this growing market.”

The previous upgrades that Thompson refers to include a \$2 million project that expanded the facility’s



A collection vehicle unloads single-stream recyclables on the Sonoco tipping floor.



Workers sort materials prior to further processing by a newspaper sorting screen.

footprint by 23,500 square feet and included the installation of new commercial sorting and baling equipment. In addition, the facility’s outside space was redesigned to improve traffic flow.

Sonoco Recycling’s Charlotte facility accepts and processes corrugated boxes and other grades of paper, as well as curbside recyclables. The facility also offers flatbed pick up of baled material and van pick up for loose, palletized or baled material. Sonoco processes and uses many of these recyclables to produce recycled paperboard at its paper mills in the Southeast. It then uses that paperboard to produce new consumer and industrial packaging, making Sonoco a true closed-loop supplier of packaging in the industry.

The Charlotte operation currently employs 45 full-time people. The company hopes to increase its throughput of single-stream to 2,500 tons per month within the next two years and hire 15-20 additional employees.

Sonoco Recycling currently has eight recycling locations in North Carolina and serves more than 125 cities and towns throughout the United States.

For more information, contact Judy Caldwell at judy.caldwell@sonoco.com.

2011 Recycling Business Development Grant Winners Announced

by Matt Todd, Recycling Business Development Specialist

The N.C. Recycling Business Assistance Center awarded 29 Recycling Business Development Grants, totaling \$750,000. The pledged investment from the selected grantees in cash match is more than \$3.1 million, or well over three times the total grant dollars awarded. The additional market capacity created by these grants will assist the expansion of local government recycling programs and enhance cost-effective recycling opportunities for citizens, businesses and industries across the state.

For the 2011 grant round, criteria were included to give some weight to proposals that address construction and demolition waste recycling, food waste collection, electronics recycling and recyclers providing services to underserved communities or sectors.

The grants ranged from \$10,000 to \$40,000, and if all the projects are successful, will create more than 186,000 tons of additional recycling capacity in North Carolina. Overall, DEAO received 58 proposals requesting \$1.8 million in funds. Selected projects include:

- AOK Sanitations
- American Greenz Inc.
- American Recycling
- APAC - Greensboro
- Barham Farms
- Benfield Sanitation
- Clear Path Recycling
- Danny's Dumpster Inc.
- Earth Farms
- eCycleSecure
- FCR LLC
- Foothills Connect
- Goodwill Industries of the Southern Piedmont
- Greencycle Materials
- Green Pieces Recycling
- Greenville Paving
- ICAN
- M'Powered Waste & Recycling
- Nelon Garbage Service

- P&S Waste Management
- Roll-Tech
- Simply Green Recycling
- Suburban Sanitation
- Synergy Recycling
- Unifi Manufacturing
- Union County Habitat
- Wake County Habitat
- Wellmark Plastics
- Waste Stream Innovations

For a summary of 2011 Recycling Business Development Grant projects funded, visit <http://www.p2pays.org/rbac/2011grantssummary.html>.

TOGETHER

Through shared effort we can provide a foundation of targeted advertising that "brands" recycling with the public in every community.






Contact Scott Mouw for sponsorship information at Scott.Mouw@ncden.gov

C&D RECYCLING continued from page 1

that are part of the study. Sixteen facilities participated in the telephone interviews, creating an exceptionally high response rate.

Both the number of private C&D facilities and the percentage of the C&D waste stream that they manage increased over the past 10 years. While private facilities currently make up about 25 percent of all C&D landfills and transfer stations, they manage 50 percent of C&D waste going into all C&D landfills and transfer stations statewide. As private facilities continue to grow, the state faces increasing need to work with these private business owners to develop C&D recycling.

Fortunately, 18 out of 20 private facilities currently recycle a portion of the C&D materials they receive. The top five materials collected for recycling are:

- aggregates
- clean wood
- metals
- shingles
- cardboard

Figure 2 displays survey responses for the state of the C&D materials market. Unfortunately, the two materials that are most frequently collected for recycling — clean wood and aggregates — currently have limited markets.

Facilities used a combination of machinery or hand sorting to separate out the desired materials. Among the facilities that recycled the highest per-

centage of their C&D waste, there was no common sorting method. However, this study did find that top recyclers offered a reduced fee for homogenous or source-separated loads such as concrete.

The study also found regional trends in the materials markets, with clean wood struggling in the Triad region and aggregates struggling in the Triangle. No other regional trends were found.

Finally, facilities responded positively to receiving more information on C&D recycling and grants via electronic or written communication.

The report recommends that the state:

- develop clean wood and aggregates markets;
- develop recycling programs for key emerging materials; and
- increase outreach activities to increase overall recycling rates at privately-owned construction and demolition landfills and transfer stations.

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For more information on the UNC-Chapel Hill Master of Public Administration program, please visit <http://www.mpa.unc.edu>.

This paper represents work done by a UNC-Chapel Hill Master of Public Administration student. It is not a formal report of the Institute of Government, nor is it the work of School of Government faculty.

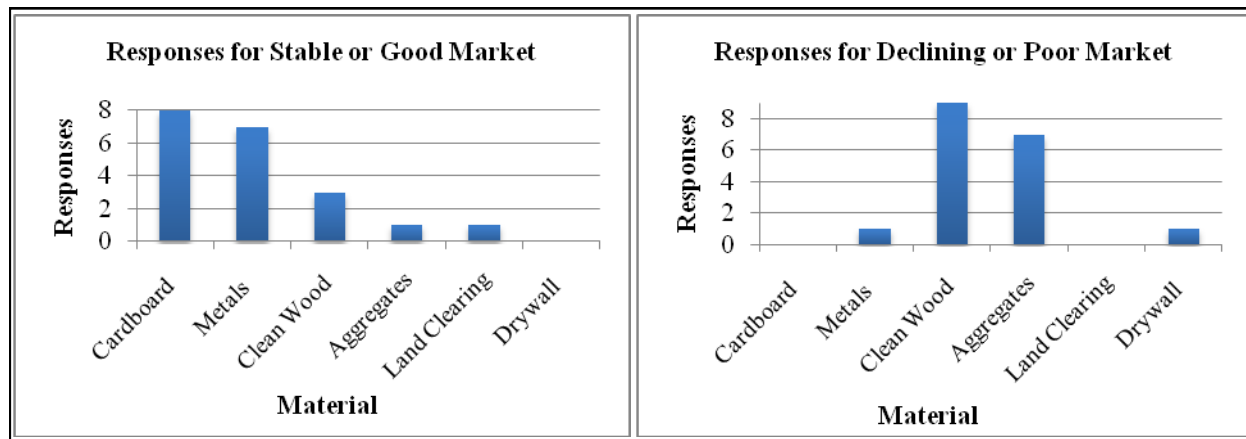


Figure 2. Responses for Status of Materials Market.

Plastic Bottle Recycling Jumps after 2009 Landfill Ban

by Scott Mouw, Community and Business Assistance Section Chief



The Division of Environmental Assistance and Outreach (DEAO) recently analyzed the effects of the plastic bottle ban on local government recycling efforts. As demonstrated in Figure 1 below, there has been a steady rise in plastic bottle recovery by municipal and county programs, with a 22 percent jump in the fiscal year the ban took effect.

DEAO will continue to evaluate the effects of the plastic bottle disposal ban, however, preliminary results show increased supplies available to plastic reclaimers.

Overall, North Carolina has been making steady progress on its plastic bottle recycling rate, as shown in Table 1 below.

For more information, contact Scott Mouw at scott.mouw@ncdenr.gov or (919) 716-6512.

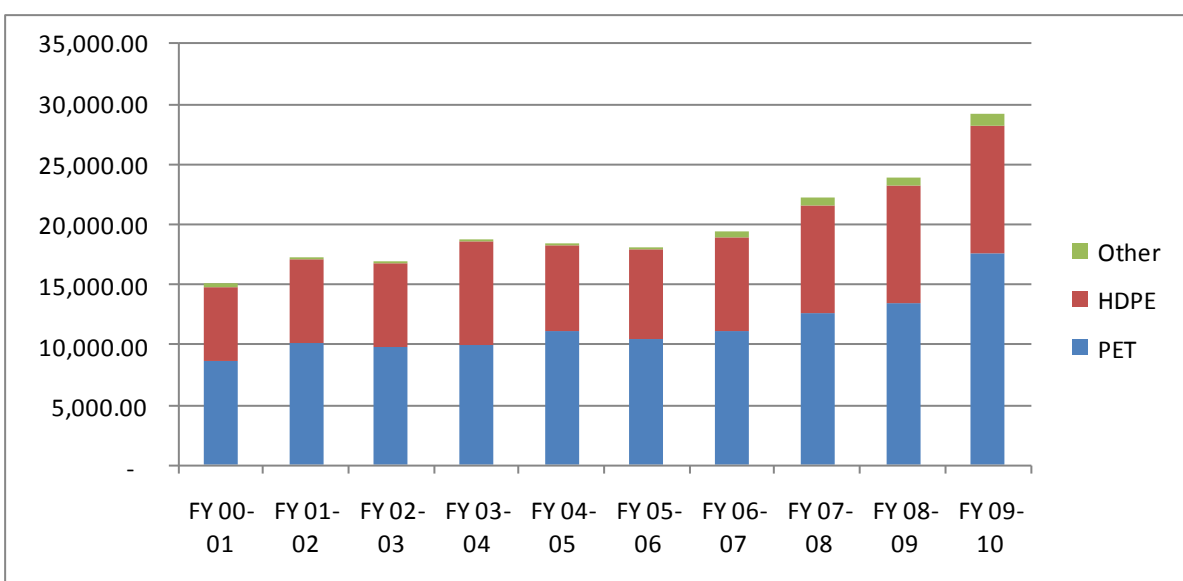


Figure 1. Growth of Plastic Bottle Recovery by North Carolina Local Governments, FY00 – FY10.

Table 1. N.C. Plastic Bottle Recovery Rate Through Local Government Collection Programs, FY 06 – FY10 (in tons).

Year	Recovery	Generation	% Recovery
FY05-06	18,176.49	139,815.00	13%
FY06-07	19,373.10	129,960.00	15%
FY07-08	22,297.52	143,685.00	16%
FY08-09	23,946.54	133,950.00	18%
FY09-10	29,205.75	132,660.00	22%

Impacts of Landfill Disposal Ban on Wooden Pallet and Oil Filter Recycling Businesses

by Sherry Yarkosky, Recycling Business Development Specialist

In 2005, the North Carolina General Assembly passed House Bill 1465 placing a landfill disposal ban on wood pallets, oil filters, plastic bottles and oyster shells. The ban became effective on Oct. 1, 2009, giving communities, waste generators and recyclers sufficient time to institute recycling efforts that ensure compliance with the disposal ban.

Now that the ban has been in place for more than 1.5 years, how has the disposal ban affected recycling businesses? This spring, RBAC staff contacted pallet and oil recycling businesses and the results are very positive.

Pallet Recycling Businesses

Despite the recent recession that heavily affected manufacturing and pallet use by those manufacturers, total pallet recovery by private recycling businesses increased in 2009 and 2010 respectively by 16 percent and 9 percent (Figure 1). Pallet recovery in 2011 is projected to be approximately 43 percent greater than pre-ban figures of 2008.

Pallet recycling businesses were asked if the wooden pallet ban helped their business grow. More than 51 percent indicated that the disposal ban helped their

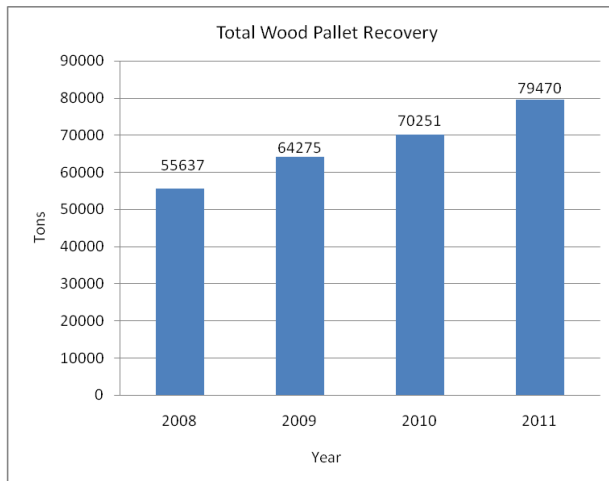


Figure 1. Total Wooden Pallet Recovery by Pallet Recycling Businesses.

business grow. Approximately 49 percent of respondents indicated that their business growth remained neutral or stayed the same as a result of the ban. None of the companies surveyed indicated that the ban hurt their business.

Figure 2 indicates that pallet recyclers experienced strong business growth in a number of areas: employment growth (38 percent of respondents), increased customers (91 percent), increased revenue (62 percent) and increased tonnage recycled (81 percent). Job growth ranged from 1-15 employees. In addition, at least two companies indicated that they started their business as a result of the pallet landfill ban law.

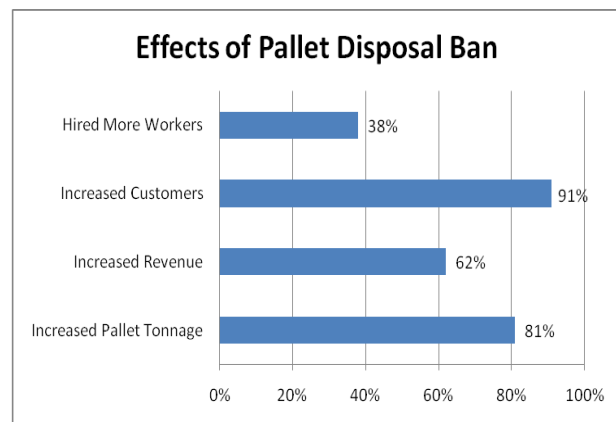


Figure 2. Impacts of the Wooden Pallet Landfill Ban on N.C. Pallet Recycling Businesses.

While the wood pallet disposal ban has had a positive affect on pallet recycling businesses, several open-ended comments by pallet businesses indicate that ongoing education is needed for generators of pallets and pallet recycling companies. Seven businesses said that they believe wood pallets are still being disposed of in landfills, and ongoing enforcement of the ban is needed. There were also several comments that the wood pallet ban should apply to all landfills not just municipal solid waste landfills.

(IMPACT OF BANS continued on page 9)

'God Bless the USA' Growing with Compressed Natural Gas



by Matt Todd, Recycling Business Development Specialist

[God Bless the USA Inc.](#) is a residential curbside trash and recycling service provider located in Indian Trail. Growing rapidly over the past few years, the company currently serves 4,300 households in the Union County area just outside of Charlotte.

In the summer of 2009, GB USA had slightly more than 3,000 curbside trash customers. Owner Erik Blowers was looking for a way to grow his business and began to offer recycling collection to his curbside customers in July 2009. In November 2009, Blowers partnered with [RecycleBank](#) — a recycling rewards program — and has since seen steady growth.

“We can’t keep carts in stock,” said Blowers. “Customers want RecycleBank. I attribute our growth of curbside recycling to the RecycleBank program.”

This growth led Blowers to consider other environmental impacts of his business. After adding recycling collection services in 2009, GB USA began going green with its collection fleet as well.

Blowers has one hybrid truck as part of his fleet. This truck is a hydraulic hybrid with launch assist. The vehicle has a diesel engine and energy is captured in a separate hydraulic system during braking — well-suited for this application because of the weight of the collection vehicles. The hydraulic system launches the truck from a start, improving gas mileage by 25-30 percent.

The hybrid truck was a good first step into the world of more-efficient, less-polluting collection vehicles. But, Blowers has a new love. This love is in the form of two compressed natural gas-powered collection trucks.

Both new CNG trucks are used for recycling routes. Material collected on these routes is taken to the Sonoco Recycling material recovery facility in Char-

lotte for processing. The Sonoco facility is about a half-mile from the City of Charlotte CNG fueling station, fitting in perfectly with GB USA’s operations.

Some of the benefits of converting to a CNG collection truck include:

- cleaner burning fuel (water vapor is exhaust for CNG trucks);
- better gas mileage than diesel;
- less expensive gallons of gas equivalent (e.g., \$1.60/gal for CNG vs. \$3+/gal for diesel);
- less frequent oil changes needed (CNG oil change at 20,000 miles vs. diesel oil change at 3,000-5,000 miles).

The main barrier to converting to a CNG collection truck is the cost — approximately \$48,000 more per truck. The engine must be retrofitted from diesel to CNG and five or six tanks per truck are required at a cost of \$5,000-\$6,000 per tank.

However, GB USA’s cost for the CNG trucks was made more affordable through the receipt of a federal grant obtained through the Centralina Council of Governments [Carolina Blues Skies and Green Jobs Initiative](#) and coordinated by the Centralina Clean Fuels Coalition. The grant covered the cost difference of purchasing a standard diesel truck. The benefits in efficiency, operational cost and environmental impact make this a win-win for GB USA.

Separate from the grant, there was a general \$32,000 tax credit available per CNG vehicle that expired Jan 1, 2011. Blowers is watching and waiting to see if this tax credit will be extended. “I would like to have an entire fleet of CNG trucks,” said Blowers.

For more information about God Bless the USA Inc., visit www.gbusainc.com or 704-708-5USA (5872).

North Carolina's Local Recycling Programs Show Strong Growth

by Rob Taylor, Senior Environmental Specialist

The Division of Environmental Assistance and Outreach (DEAO) completed the state's Solid Waste and Materials Management Report for Fiscal Year 2009-10. Data from this period reveals important progress toward improving the recovery of recyclable materials in North Carolina. Local government recycling programs are responding to the economics of disposal and to state disposal bans by starting and expanding recovery programs, and by delivering more recovered materials into the state's growing materials economy.

The following are key findings from the information compiled by DEAO in this year's report:

- During FY 2009-10, the recovery of traditional recyclable materials increased compared to previous years, and the proportion of materials recovered and returned to the economy compared to disposal was the highest on record. As seen in Figure 1, the ratio of recycling to disposal (derived by comparing tons of materials recovered by local governments to all tons disposed) jumped to an all-time high of 0.14 during FY 2009-10.¹

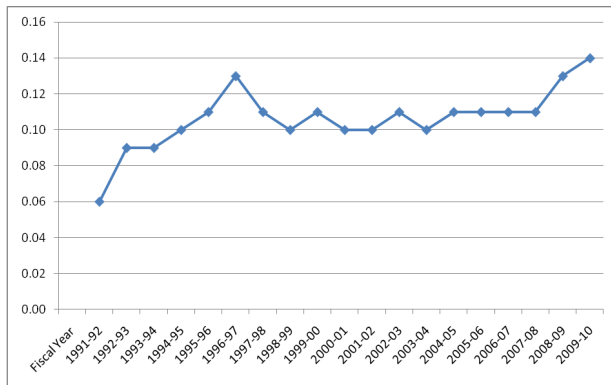


Figure 1. Ratio of Recycling to Disposal, FY 1992-2010.

- The disposal bans on plastic bottles, oil filters and wooden pallets that became effective on

Oct. 1, 2009, contributed significantly to the implementation of recovery programs and led to the highest recovery of oil filters and plastic bottles on record. Plastic bottle recovery increased by 22 percent over the previous year, resulting in the sharpest gain in plastics recovery measured during the last 10 years.

- Publicly-operated curbside recycling programs experienced significant growth for the second year in a row, climbing to 259 programs from 214 the previous year (Figure 2). This continues last year's reversal of a decreasing trend in

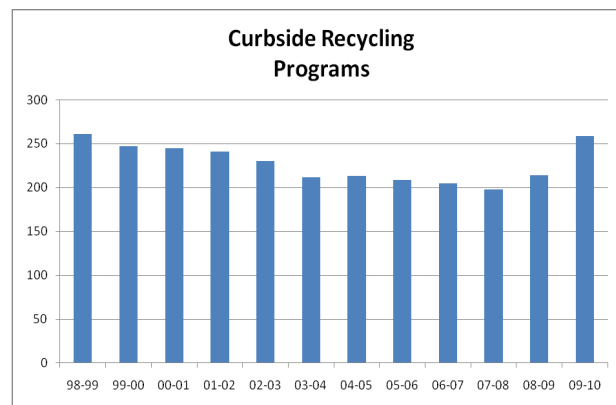


Figure 2. Number of Curbside Recycling Programs in North Carolina, FY 1999-2010.

the number of units served that ran from 1998 to 2007. The number of households served by curbside recycling in North Carolina grew to 1.62 million, up from 1.52 million during FY 2008-09. More than a third or 37.9 percent of households in the state have access to curbside recycling service.

- Market prices for recyclable materials were strong through FY 2009-10 and have thoroughly rebounded from the dramatic drop experienced in late 2008 brought on by onset of

[\(LOCAL RECYCLING continued on page 9\)](#)

¹Local government recycling tonnages discussed in this article constitute only a portion of all materials recovered in North Carolina. Substantial material tonnages are also recycled by private and not-profit companies, with that total tonnage likely exceeding the amount collected by municipalities and counties in the state.

Oil Filter Recycling

Oil filter recycling companies surveyed reported an increase in tons of oil filters collected and an increase in customers. As seen in Figure 3, the tonnage of oil filters recycled increased from 2,990 tons in 2008 to 6,087 tons in 2010, an increase of 104 percent. The number of oil filter recycling customers has increased 145 percent from 1,717 customers in 2008 to 4,210 in 2010 (Figure 4).

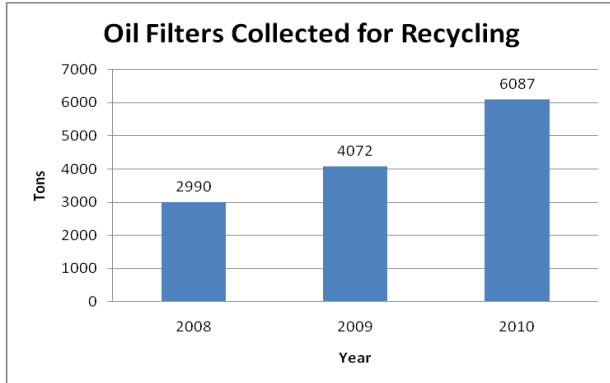


Figure 3. Tonnage of oil filters collected for recycling, 2008-2010.

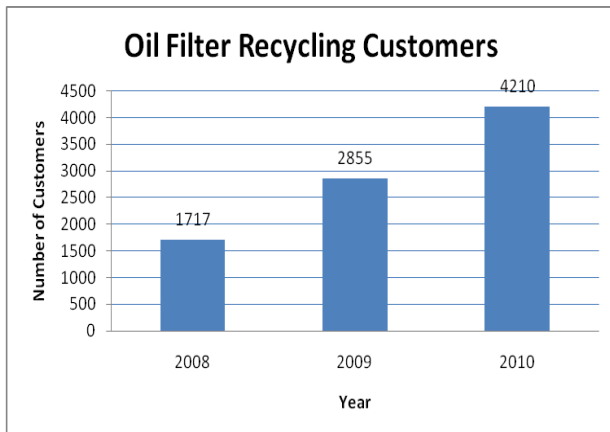


Figure 4. Growth of Oil Filter Recycling Customers, 2008-2010.

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Figure 5 illustrates that oil filter recyclers experienced positive business growth in a number of areas: increase in filters recycled by garages, auto parts stores, dealerships and other businesses (90 percent of respondents), increase in filters recycled by local governments (40 percent), expanded service area (20 percent), and increased customers (90 percent).

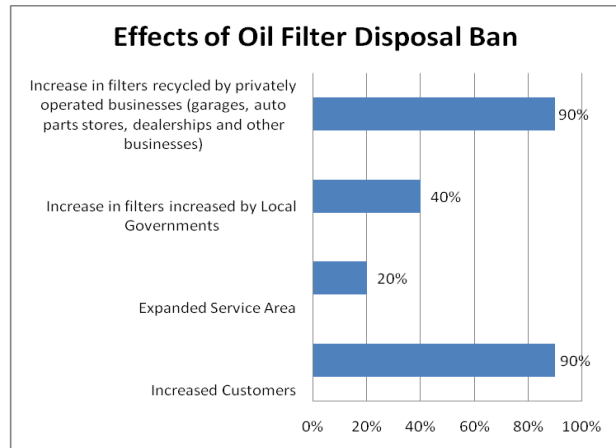


Figure 5. Impacts of the oil filter landfill ban on N.C. oil filter recycling businesses.

Similar to the pallet recyclers' open-ended responses, a few oil filter recyclers also commented on the need for on-going enforcement and education about the oil filter ban due to lack of awareness by generators of used oil filters.

For more information, contact Sherry Yarkosky at sherry.yarkosky@ncdenr.gov, or Tom Rhodes at tom.rhodes@ncdenr.gov.

the economic recession. Prices rose for most commodities in 2010 before declining slightly toward the end of the fiscal year. Spring 2010 was a high water mark for the whole range of materials with a doubling or greater of prices for steel cans, PET, newsprint and mixed paper from the beginning of the year.

For more information, visit www.p2pays.org, or contact Scott Mouw at scott.mouw@ncdenr.gov or Rob Taylor at rob.taylor@ncdenr.gov.

