



# CARE 2013 Annual Report

Carpet America Recovery Effort (CARE)



# CARE 2013 Annual Report

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## **Mission Statement**

The mission of CARE is to advance market-based solutions that increase landfill diversion and recycling of post-consumer carpet, encourage design for recyclability and meet meaningful goals as approved by the CARE Board of Directors.

## **Vision**

Post-consumer carpet diversion and recycling are economically, socially and environmentally sustainable for all stakeholders.

## **Core Values**

We believe in:

- Market-Based solutions
- Entrepreneurship
- Hierarchy of Waste Management
- Sustainable practices (economic, social and environmental)
- Resource conservation
- Transparency
- Multi-stakeholder collaboration
- Professional ethics and integrity
- Anti-trust compliance



## **CARE 2013 Leaders**

### **Sustainability Leaders**

Aquafil USA  
Beaulieu of America  
Interface  
J & J Industries  
Masland Carpets  
Milliken & Company  
The Mohawk Group  
Shaw Industries  
Tandus Flooring  
Universal Fibers  
Wellman Plastics

### **Friend of CARE**

Polymers Center of Excellence

### **CARE Members**

CARE now has 452 members - please go to [www.carpetrecovery.org](http://www.carpetrecovery.org) for a complete list of CARE members.



## Message from the Chairman of the CARE Board of Directors

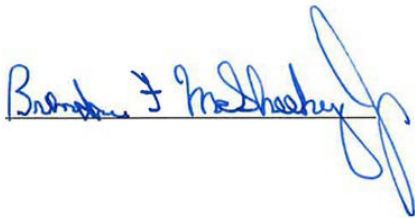
The Carpet America Recovery Effort turned twelve this year. It has been an honor to be a part of this organization for 2/3 of that time. It has been another big year for CARE – again, significant increases in recycling and diversion. As the ten quarters of data from California AB 2398 undergo analysis, we already see positive effects from changes made. Some allude to “experimentation,” others speak to “adaptation” – which correctly implies a changing environment and landscape.

Several states continue to consider legislation that would mandate the diversion and recovery activities affecting CARE stakeholders. The challenge in front of us is to reach a viable business framework for entrepreneurs to accomplish this diversion and recovery. I look forward to the work product from the Committee created at the CARE Conference in Seattle to address this critical need.

This year, the process of compiling and auditing the numbers has been lengthier – but more robust. The gains speak to CARE’s effectiveness. It is helping find market-based solutions to landfill diversion of post-consumer carpet.

CARE’s strength lies in the dedication of its people. I thank our Executive Director Bob Peoples for his tireless efforts to “move the needle.” I am deeply grateful for the wisdom and guidance expressed by the excellent CARE Board of Directors. I congratulate Anthony Cline for another successful year and appreciate the growing contributions of Brennan Jensen [AB 2398 Program Manager] and Caitlin Greeley [Website Blog]. I would be seriously remiss in not acknowledging the ongoing in-kind support cheerfully provided by the CRI staff.

Sincerely,



Brendan F. McSheehy

Chairman, Board of Directors  
Carpet America Recovery Effort





## Message from the CARE Executive Director

### Dear Fellow CARE Members,

One again CARE has experienced a dynamic year in terms of challenges and accomplishments. Our programs are growing more sophisticated and our challenges, in both California and the PET surge, have resulted in a shift to using contract talent and support in both areas as well as the launch of our new blog in 2013. I am pleased we were able to add Brennen Jensen as our California Program Manager in November. I am deeply grateful to our Operations Manager, Anthony Cline and for a fully engaged Board.

CARE faced a number of challenging hurdles in 2013 including: our first formal audits, the loss of two major processors in California, the rapid escalation of PET in the marketplace recycle stream and the resulting request by the collector/sorter entrepreneur community for help from the mills. I believe CARE has moved boldly to try and address each challenge in a timely and productive manner. I am pleased to say the California issues are behind us and CARE's new Carpet Stewardship Plan was approved by CalRecycle in January 2014. The PET challenge is receiving intense effort and we expect to have a path forward by the time of our May meeting in Seattle.

In March we saw the retirement of Werner Braun, long time President of CRI and Board Chair for the last 3 years. We are deeply grateful to Werner for his guidance and parliamentary skills in leading the Board. At the Annual Meeting in May, Brendan McSheehy was elected as the new Chairman of the Board.

CARE's 2013 Annual Survey revealed the steady evolution of the post-consumer recycling enterprise. We continue to see changes in the composition of post-consumer carpet showing up at recycle centers driven by the rapid growth of PET face fiber. Such changes have been masked by more sophisticated collection models in an effort to minimize PET flow to these centers. In addition to CARE's annual survey, and after 2.5 years of AB 2398 data collection, we have excellent quantitative data on California recycling activities. Insights resulting for this year's survey resulted in changes in how we report calculated collection, diversion and recycle output so please review the charts carefully. As a result, I think you will find this year's report full of valuable insights and information. We had 50 respondents for 2013 covering what we believe are virtually all of the key collectors, sorters and processors in the United States.

Sincerely,



Robert Peoples, Ph.D.  
Executive Director, CARE





# Key Results for CARE in 2013

## Financial Report, 2013

It is worthy of note that in 2013 CARE underwent its first ever independent audit. We are pleased to report that there were no material findings for CARE and this is a testament to those who set up CARE's financial structure and internal controls many years ago. An audit of the AB 2398 program was also completed in 2013 and resulted in no material findings and 4 recommendations to strengthen the program. In 2013 CARE took steps to more cleanly separate the accounting for CARE and AB 2398.

Net Income (Revenues minus Expenses) through December 2013 was a positive \$100,551 vs a break even budget and up from \$85,400 in 2012.

### Balance Sheet:

- Cash balance at end of December 2013 was \$566,283.
- Members' equity was \$521,688 up by \$95,388 (22%) from \$426,300 December 2012.

## Business Results, 2013

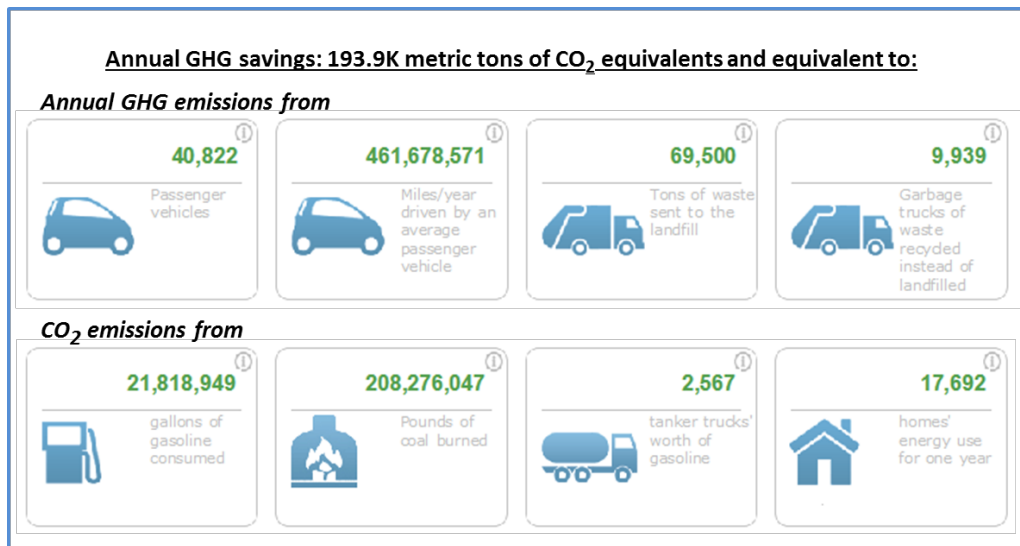
- In 2013, CARE had 452 members which was steady vs. 2012.
- The organization completed its first financial audit since inception of CARE and resulting in a clean audit; an excellent accomplishment.
- The CARE Board of Directors established a PET Committee and hired an outside consultant to manage the initiative. Board approved full-scale trial of new processing equipment for PET.
- A new Product catalog was finalized for release in February 2014.
- CARE approved and initiated development of a new web site, scheduled to launch in May 2014.
- CARE Initiated a Blog in 2013.
- CARE successfully managed the AB 2398 program as the Carpet Stewardship Organization.

## Key Results from the 2013 CARE Survey

- Employment dropped from 1,318 in 2012 to 1,100 in 2013, a decrease of 17%.
- Total post-consumer carpet discards, based on sales, were estimated at 3.7B billion pounds.
- Discards were 11.7 pounds per capita per year
- Total gross collections were 534 million pounds, up from 351 million pounds in 2012 or +52%. (Note: A new method for calculation was employed based on an engineering mass balance.)
- Gross collection equated to 1.68 pounds per capita per year.
- Gross recycle ratio (gross collected/total discards) was 14%.
- Nylon represented 52% of the collection stream.
- PET collection was calculated to be 34% (+33%) vs. 23.8% in 2012. Reported PET collections ranged from 0% to 40% (see details).
- PET new carpet sales were estimated at 36% of total new carpet sales.
- 52% of collected post-consumer carpet went to: reused, recycle, kiln, CAAF, WtE
- Waste-to-Energy (WtE) represented 11% with CAAF and kiln output reported at 4%.



- 49% of recycled materials went to resin and molding applications, a decrease from 63% in 2012.
- Carpet face fiber use showed a dramatic increase to 28% (+87%) from 15% in 2012.
- Carpet backing use showed an increase to 16% (+33%) from 12% in 2012.
- 93% of what was collected stayed in the United States, an increase from 88% in 2012.
- 76% of respondents felt CARE is meeting their business needs, 24% did not.
- Since it was founded in 2002, CARE members have diverted over 3.25 billion gross pounds of post-consumer carpet from landfills in the United States.
- Greenhouse gas equivalents saved was calculated to be 193.9K mTCO<sub>2</sub>E using the 2013 EPA WARM model: [http://epa.gov/epawaste/conserve/tools/warm/Warm\\_Form.html](http://epa.gov/epawaste/conserve/tools/warm/Warm_Form.html)
- GHG savings is equivalent to taking 40,822 cars off the road or enough energy to power 17,692 homes for the year.



## California AB2398 Results for July 2011 – December 2013

This section of our 2013 annual report will provide a brief summary of results associated with the California Carpet Stewardship Program (Program) and associated Carpet Plan. It is important to note that under AB 2398 CARE is required to submit an annual report to CalRecycle which is due on July 1, 2014. The 2013 report will only cover April thru December 2013 in order to move to a calendar year report. The summary given here will provide a high level overview of results through 10 quarters of operation (i.e., 3rd quarter 2011 through 4th quarter 2013) and highlight 2013 results. Our goal will be to examine trends over those 10 quarters and extract key lessons learned.

The first comprehensive annual report for the period July 2011-May 2012 was issued on July 1, 2013. A copy of the report is available for download from the CalRecycle website and offers a more detailed analysis. [https://carpetrecovery.org/wp-content/uploads/2014/04/AB2398\\_2011-2013\\_AnnualReport.pdf](https://carpetrecovery.org/wp-content/uploads/2014/04/AB2398_2011-2013_AnnualReport.pdf)

A revised Plan was submitted in late December 2013 and was approved by CalRecycle Director Carol Mortensen in January 2014. A copy of this current Plan, version 3.2.2, is posted at: <http://www.calrecycle.ca.gov/Carpet/Program.htm>. Plan Version 3.2.2 reflects minor corrections to version



3.0 submitted in December 2013 and approved by CalRecycle Director in January 2014. These adjustments were finalized with CalRecycle staff on April 7, 2014 and were not considered material.

CARE produces an AB 2398 slide deck at the end of each quarter, which summarizes results for the quarter along with comprehensive trending data since the start of the program. These quarterly reports are posted to both the CARE and CalRecycle websites: [www.calrecycle.ca.gov/carpet](http://www.calrecycle.ca.gov/carpet) and <http://carpetrecovery.org/california-ab-2398/>. The following information summarizes recent results and trends thru the end of 2013.

## **AB 2398 Results to Date**

- CARE is operating under the current version of the California Carpet Stewardship Plan approved by CalRecycle in January 2014<sup>1</sup>.
- Carpet sales into California over the last 10 quarters have averaged 24.9M square yards per quarter with cumulative sales of 249.2M square yards.
- The average recycle output over 10 quarters is 10.2% with a goal of 16% by 2016.
- Over the last 10 quarters, an estimated 901.5M pounds of post-consumer carpet was destined for landfills in California. About 249 M pounds were recovered from California landfills (~28%).
- Trend data show a moderate decline in recovery and stable/no growth in recycle output of post-consumer carpet in 2013.
- 79 carpet mills were registered with CARE as participants in the CARE Carpet Stewardship Plan at the end of 2013. As members of the CARE Plan, these manufacturers meet the regulatory requirements to sell carpet in the State of California. As part of the AB 2398 requirements, these manufacturers report their sales and assessment data quarterly and are subject to review of their data by an independent auditor.
- Total remittances made by the mill manufacturers registered with CARE since the Plan went live equals \$12.5M.

## **AB 2398 Results Calendar Year 2013**

- In 2013, an estimated 363.6M pounds of post-consumer carpet was destined for landfills in California.
- Recyclers reported about 88M gross pounds of collection from California landfills (~24%).
- In 2013, approximately 44.3M pounds (12%) of post-consumer carpet were reported as recycled output, such as fiber and filler, and recycled into useful products, (i.e., this recycled output did not get sent to the landfill).
- In 2013, data shows 2.3 pounds of post-consumer carpet were recovered per capita in California.
- In 2013, total remittances made by the mill manufacturers registered with CARE were \$5M.
- In 2013, processors requesting funds from AB 2398 reported a combined 23.6M pounds of material sent back to landfills across the U.S. (total includes both PCC plus processing waste).
- In 2013, qualified processors received approximately \$3.1M in market incentives.
- Expenses for this time period were estimated at \$697K (13.9% of fees collected).
- Unused funds at the end of December 31, 2013 were \$4.7M.

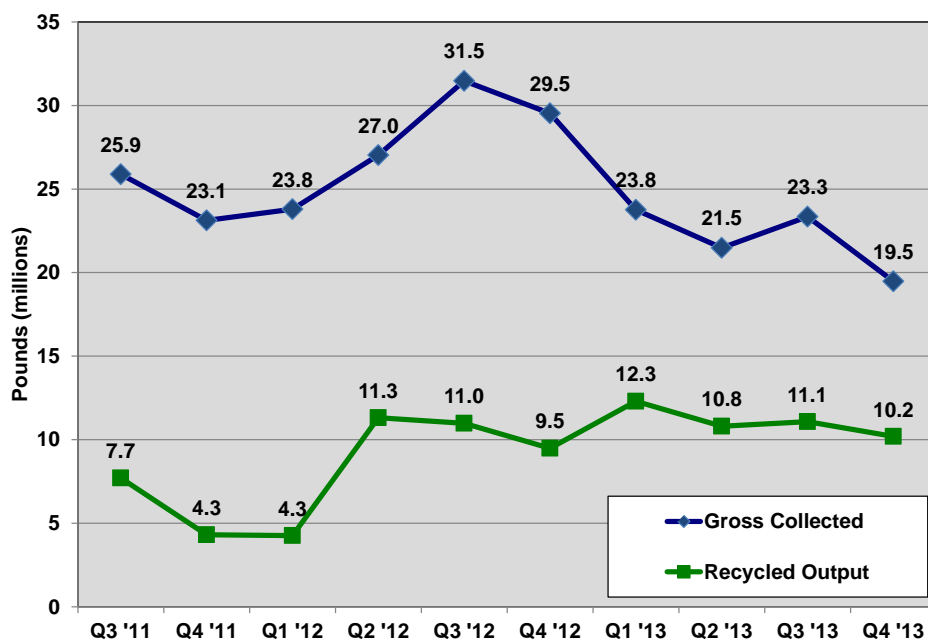


- In November 2013, CARE hired a Program Manager to assist in the implementation of the Plan. The Program Manager is a resident of California and is responsible for the detailed implementation of the Plan on a day to day basis.

Figure 1 gives a graphical trend of gross collected and recycled output pounds over the first 10 quarters. The program was implemented in the 3rd quarter, 2011. Traditionally 1Q and 4Q results are weaker due to the normal selling season cycle. The unanticipated drop seen in Q3 is attributed to loss of a significant Type 2 outlet.

The reader is referred to the full Annual Report to CalRecycle for a detailed accounting of this program (see above).

**Figure 1: California Recovered Carpet vs. Recycle Output Trends**



## CARE 2013 Annual Survey Results

Each year, as required by the CARE Bylaws, CARE prepares an Annual Survey to report on carpet diversion and recycling results achieved by the respondents to the Annual Survey. All information from respondents is confidential. The collected information is aggregated and analyzed for the Annual Report. An effort is made to graphically display temporal trends.

### Annual Survey Methodology

In order to form a complete picture of the national Carpet Recycling Industry, respondents were asked the following questions on the Annual Survey:

- Amount of post-consumer carpet diverted from landfills (gross collected pounds) and recycled output pounds



- Recycling versus other end-uses for the material diverted (i.e. reuse, end-product manufacturing, alternative fuel (CAAF), cement kiln, waste-to-energy, and landfill)
- Types and amounts of carpets recycled, by fiber type
- End products manufactured from recycled materials
- Steps in the recycling process performed by the respondent
- Geographical locations and employment information
- International versus domestic customers (outlets)

In addition to the quantitative information sought, CARE also requested input on the organizations performance and the value of CARE to respondents. This information is used to improve CARE's operations and resources.

For the 2013 CARE Annual Survey, CARE contacted numerous members at a personal level as well as sending the survey to our over 450 members. Of those directly contacted, 50 responded. As noted, the response rate of those who handled the vast majority of post-consumer carpet was high, providing good confidence in data quality and demonstrating a strong commitment to the mission of CARE. However, it is important to recognize that even with a higher recycler response rate, data is missing from a number of companies involved in carpet recycling. Through one-on-one level dialog estimates of missing pounds were made. Because we received responses from virtually all of the major businesses engaged in carpet recycling, we estimate that the survey includes more than 95% of the volume of carpet diverted and recycled in the U.S. in 2013. Thus, as in all previous years, it is likely that the survey captures the majority of the post-consumer carpet recycling that occurred in 2013. However, it should be noted that CARE is aware of post-consumer carpet that is collected and shipped outside the U.S., some of which may not get reported in our survey. It is estimated that this non-reported amount represents less than 5% of the gross material collected.

A copy of the complete 2013 survey tool is attached at the end of the Annual Report in Appendix 1.

As always, CARE assessed the responses received and followed up as needed with individual companies to maximize participation and to ensure we minimize (or eliminate) double-counting wherever possible. By doing so, the reported data is more accurate and reflects a truer picture of the amount of carpet diverted and recycled in 2013. The survey has become more sophisticated over the years in working to avoid double counting. That said, a small ca. 5M pound correction was made for double counting.

CARE makes no warranty as to the accuracy of this data and assumes no responsibility or liability for how this information is used by individuals or companies and makes no warranties for its use.

## **Evaluation of Progress in 2013**

### **Carpet Discard Methodology**

In 2011, the CARE BOD adopted a new formula for calculating carpet discards which more accurately reflects actual sales and carpet discards in the United States. CARE believes the formula provides a more



accurate picture of both gross collections and recycling rates for future reports. Further, in the fall of 2012, CalRecycle agreed to the use of this formula for calculations involving post-consumer recycling in the State.

The purpose of the methodology is to be able to update the discards on an annual basis, using actual sales data, and upgraded by factors that influence the calculation. Those factors include changes in imports/exports, percent of the market that is replacement, average face weight, and demolition rate.

## Formula for Calculating Carpet Discards

The approved formula for calculation of discards is:

$$\text{Discards} = (((\text{Sales} * R) * P) + D)$$

The factors used to calculate the amount of carpet available for diversion include:

**S**= Carpet Sales in the US for the reporting period (square yards)

Sales Data comes from Torcivia Market Insights, an independent market research firm, who is collecting the confidential sales data from carpet manufacturers doing business in the US.

**R**= Percent of carpet that is replacement, or carpet replacing existing carpet.

Replacement carpet is the carpet destined for the landfill. The carpet industry has worked with Torcivia Market Insights to quantify the replacement rate to be 87% currently.

**P**= Average weight of carpet per square yard.

In 2012, the average weight was 4.2 pounds/square yard and this number was reconfirmed in 2013. (Raw data was supplied by the industry and analyzed by CARE. Weighted averages of carpet weights of broadloom and tile used in the commercial and residential sectors were calculated.)

**D**= Pounds of carpet from demolition projects not replaced.

In 2013, the weighted demolition rate (85% residential and 15% commercial) was estimated at 0.55%, (estimate provided by Torcivia Market Insights). D is converted to pounds by multiplying Sales x R x P.

Note that the term demolition represents the teardown of a building. There is no easy way to know the actual square yards of carpet coming out of such a process. By assuming the actual demolition rate obtained from Marketing Insights/Torcivia we are likely overestimating the total volume of carpet sent to landfill. However, this is a tiny fraction (<1%) of the overall amount and does not significantly alter the flow.



Deselection is a separate element of the PCC flow to landfill. CARE does not currently have an independent estimate of this parameter. However, it is also believed to be very small (<1%). CARE will work to develop a more quantitative estimate of deselection in 2014.

It should be noted that both demolition and deselection estimates are well within the error associated with our discard and recycle estimates.

Application of the formula to generate discards is shown in the following example using actual US data from 2013 and rounded for clarity.

$$\text{Discards} = (((\text{Sales} * R) * P) + D)$$

Sales 2013: 1,012 million square yards

$$\text{Discards} = (1012 * 0.87 * 4.2) = 3,682.9 + D$$

$$\text{Where } D = 3682.9 * 0.0055 = 20.25 \text{ million pounds}$$

$$\text{Thus, Discards} = 3682.9 + 20.25 = 3,703 \text{ million pounds in 2013}$$

## Post-Consumer Carpet Collection and Recycling: Quantitative Results for 2013

NOTICE: CARE has made a sincere effort to quantify important metrics necessary to understand the marketplace for carpet recycling in the United States. It is important to recognize that we disclose in this report the numbers as received. These numbers have been voluntarily given to CARE by the independent post-consumer carpet sorters and processors that are members of CARE. CARE has not audited the numbers nor guarantees the accuracy of the numbers submitted.

- 534 Million Pounds of Gross Collected Post-consumer Carpet in 2013 = Diversion Rate of 14%.
- 197 Million Pounds of Post-consumer Carpet was Recycled in 2013, a Recycling Rate of 5%.
- Recycled output yield was 37%. (output/gross collection)
- 3.25 Billion Pounds of Cumulative Diversion since 2002.

Table 1 shows a comparison by pounds and percentage of the quantity of post-consumer carpet recycled and diverted from landfill from 2002 through 2013, using the new methodology for measuring carpet discards and a mass balance calculation of input based on measured pounds of outputs. The new mass balance of outputs method, Figure 3, assumes the sorters and processors know very accurately their weight of goods sold and shipped to customers, landfill, WtE or kilns since there are profits or costs associated with these shipments. Reported pounds received on the front end are considered gross estimates since most loads are NOT weighted. Therefore, by adding everything that goes out, one can, with better accuracy, measure what came in. CARE has been able to close the gap between directly reported gross collections and using the mass balance approach to within ca. 10%. This is considered well within our error range.



Figure 2 is a plot of the historical trend of gross pounds of post-consumer carpet collected each year since 2002. In 2013 recyclers reported 438 million pounds of gross collection. However, initial efforts to conduct a mass balance proved to be wildly unsuccessful, but substantial progress in this area was made as noted above. Underreporting may be attributed to three factors: 1) Most, if not all, sorters only estimate their gross collections and 2) we have confirmed several major collectors/sorters did not report, but CARE was able to get a good estimate of their gross collections, and 3) a portion of the increase noted may be attributed to new collectors/processors, some reporting for the first time along with improving markets.

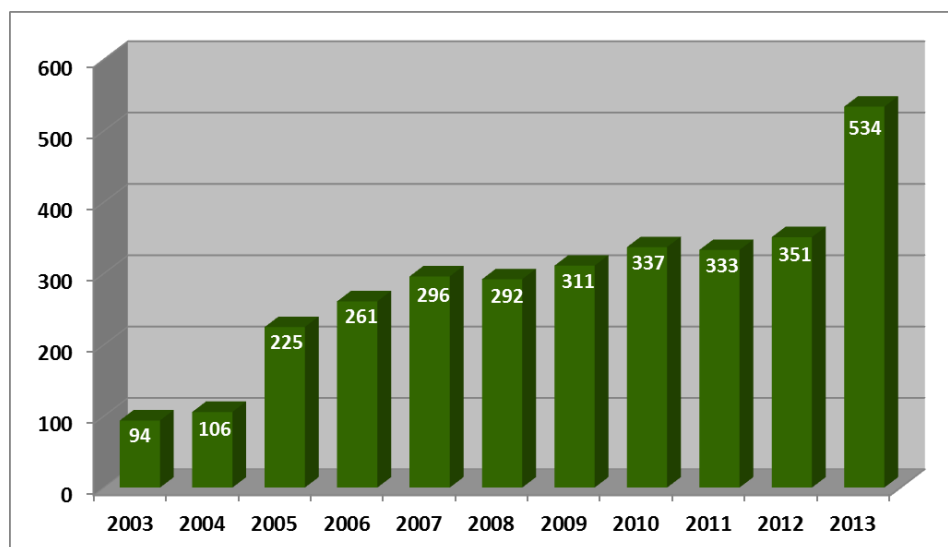
**Table 1: Post-Consumer Carpet Recycling and Diversion Statistics, 2002-2013**

	Actual (million pounds)											
Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Total Discards <sup>1</sup>	4,409	4,396	4,588	4,916	4,687	4,560	4,228	3,718	3,373	3,816	3,540	3,703
Diversion												
Reuse	9	0	0.3	0	0	0	4	12	2	1	5	12
Recycled	46	87	98	194	239	275	243	246	271	250	294	172
Int'l Recycle (43.6%)												13
TOTAL RECYCLE	55	87	98.3	194	239	275	247	258	273	251	299	197
Waste-to-Energy	1.9	7	9	27	21	19	41	47	38	46	42	58
CAAF or Cement Kiln	0	0	1	3	0	2	2	12	26	36	11	23
Landfill <sup>2</sup>												254
TOTAL Landfill Diversion	57	94	108	224	260	296	290	317	337	333	352	534
Recycling Rate	1%	2%	2%	4%	5%	6%	6%	7%	8%	7%	8%	5%
Diversion Rate	1%	2%	2%	5%	6%	6%	7%	9%	10%	9%	10%	14%

1. Discard data derived from independent Torcivia report on total U.S. sales estimates.
2. Landfill includes PCC + process waste.

The actual calculation of gross collections was done by taking the much more accurate pounds of material shipped out and back calculating the gross pounds required to be collected to support the output. See Figure 3 for a simple mass balance diagram for this calculation. For definitions of the terminology used in this report, please see Appendix 2.

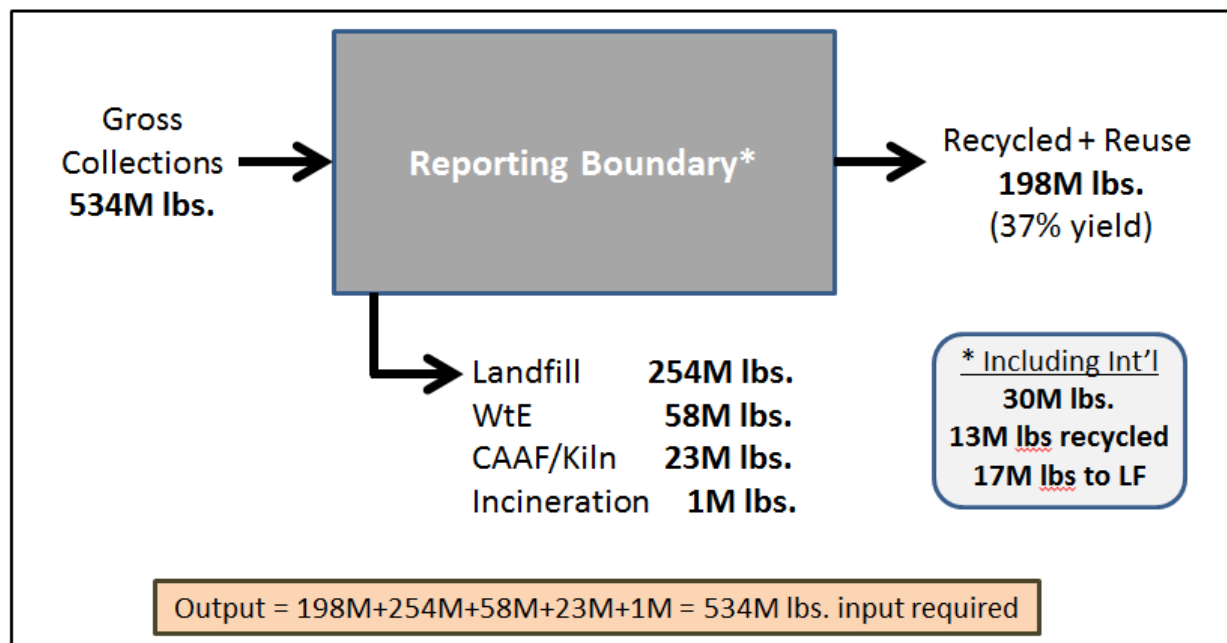
**Figure 2: Historical Post-Consumer Carpet Diversion**





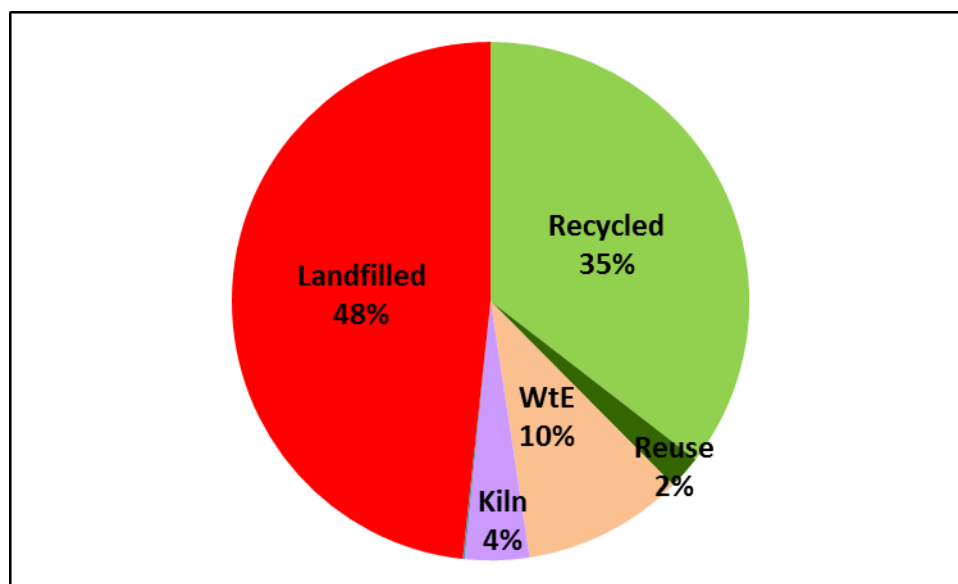
Because 2012 was the last year of the original MOU (MOU 2002), tracking is no longer applicable and has been eliminated from this report. Please refer to the 2012 CARE Annual report for historical information.

**Figure 3: Mass Balance Approach to Estimating Gross Collection in 2013**



The data in Figure 4 shows that 52% of post-consumer carpet collected in 2013 was sent to processors to be recycled.

**Figure 4: Outlets for Post-Consumer Carpet Collected - 2013**



Note: Incineration was less than 1%.



## Companies Handling Post-Consumer Carpet

Survey respondents were asked to characterize the nature of their businesses into one or more of the following categories (which are listed and defined below):

**Collection Point** – A company that collects used carpet from the point of generation and transports it to a sorting, processing or waste management facility.

**Collector/Sorting Facility** – A facility that separates waste materials (including used carpet) from a mixed waste stream. The end result of this process is used carpet that is separated from other materials.

**Processor** – A company or facility that takes used carpet (whether handled by a sorting facility or brought directly by a collector) and processes it for use as a feedstock in a manufacturing facility.

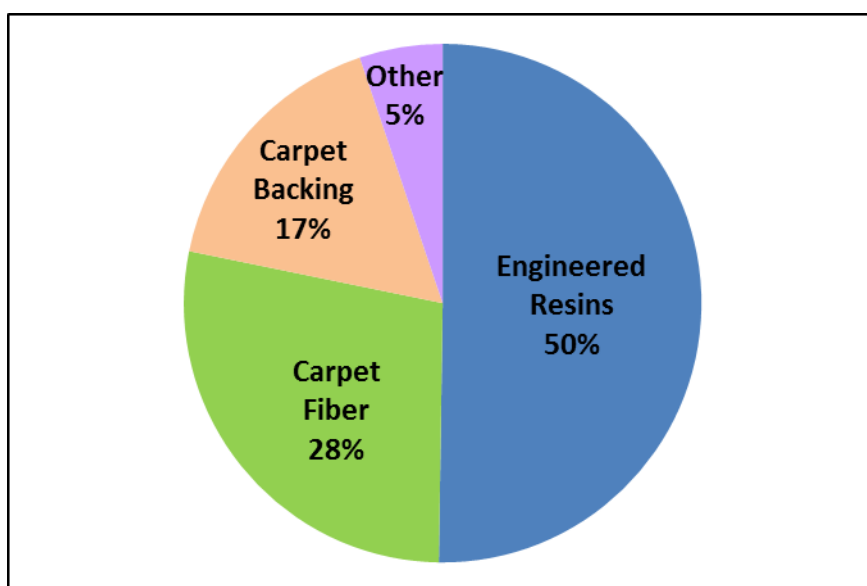
**Manufacturer** – A company or facility that utilizes processed carpet materials and transforms them into other products, or uses them as raw materials in a manufacturing process.

## Engineered Resins: The Most Common End Product Manufactured from Post-Consumer Carpet

Respondents indicated that 49% of the recycled post-consumer carpet is manufactured into engineered resins. This is a decrease from 63% in 2012.

44% of the post-consumer recycled carpet pounds went into new carpet, which was a dramatic increase from 27% versus 2012. Carpet face fiber use increased to 28% from 15% in 2012. Carpet backing use increased to 16% from 12% in 2012.

**Figure 5: 2013 End Product Markets for Post-Consumer Carpet**

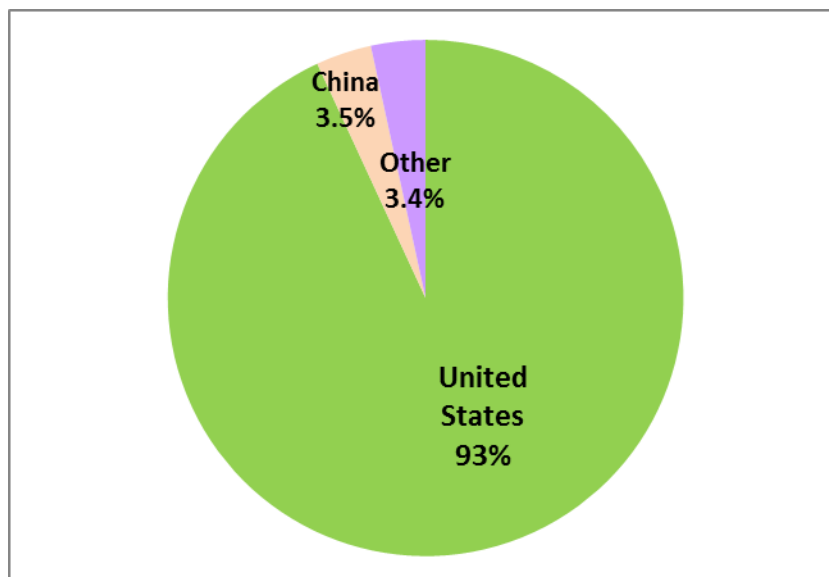




## U.S. Continues to Be Primary Market for Post-Consumer Carpet Material

In 2013, the US consumed 93% of the post-consumer carpet material processed. The second largest user was Asia/Pacific. This is up from 88% in 2012 (i.e., less PCC was shipped outside the US in 2013).

**Figure 6: Destination of Post-Consumer Carpet Processed in 2013**



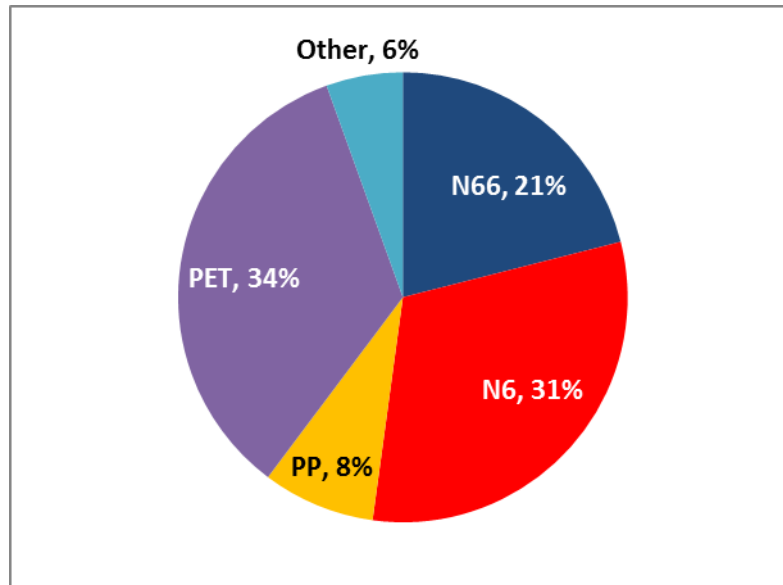
## Nylon 6 and Nylon 6, 6 Fibers Were 52% of the Fiber Type Sorted in 2013

The CARE survey included information on the types of carpet face fiber collected or sorted by Survey respondents. Each respondent reports their percentage fiber type breakdown. It became obvious that several very large collectors had evolved their collection model to minimize/eliminate PET in their collection stream. Thus, their ratios skewed the face fiber collection ratio. In order to correct for this anomaly, CARE removed those collectors from the face fiber breakdown calculation. Results are reflected in Figure 7. In 2013, N6 and N66 fibers accounted for 52% (down from 59%) of the total sorted carpet fiber. The percentage breakdown continues to shift in favor of Nylon 6 (N6) accounting for 31% of the total and Nylon 66 (N66) accounting for 21% (down from 34% in 2012) of the total. Polypropylene (PP) fiber represented 8%, down slightly. The percentage of polyester (PET) has climbed significantly to 34% of the total collection stream vs 24% in 2012. In our survey collectors reported PET percentage ranged from 0-40%. Thus, some collectors have made an effort to only bring in nylon, while others accept unsorted loads resulting in significantly higher levels of PET.

For historical perspectives, Figure 8 shows the shift in carpet face fiber from 2008-2013. It should be noted the rapid rise in PET face fiber represented a significant challenge to the recycling of post-consumer carpet because there are currently no high volume viable outlets for PET face fiber. The percentage of PET continues to rise as reflected in Figure 7.

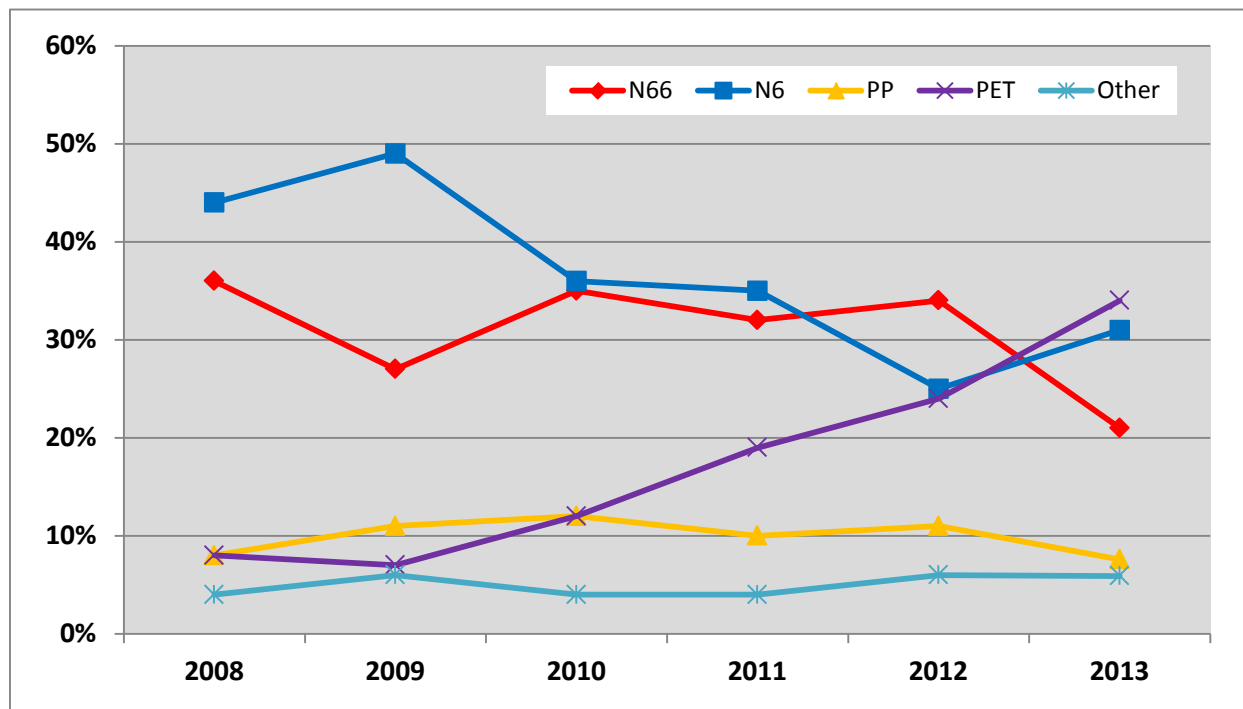


**Figure 7: Post-Consumer Carpet Fiber Type, 2013**



NOTE: N66=Nylon 6,6; N6=Nylon 6; PP=Polypropylene; PET=Polyethylene terephthalate

**Figure 8: Post-Consumer Carpet Fiber Type Collection Trends, 2008-2013**





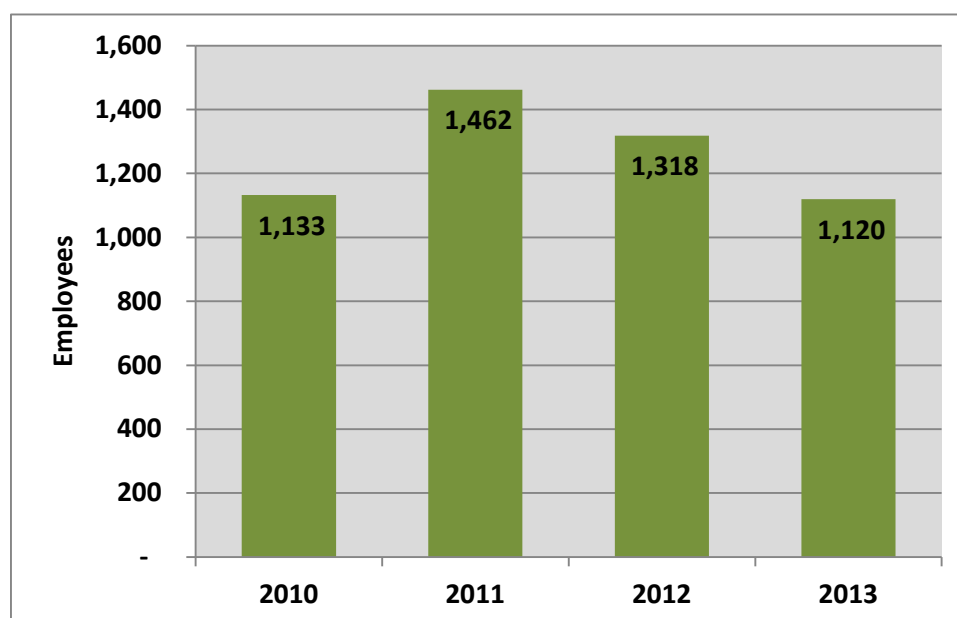
The trends highlighted in Figure 8 represent a dramatic shift in face fiber distribution over the last 4 years. More importantly, this shift has created great challenges for the recycling community. Currently, there are no significant volume outlets for recycled PET face fiber. Since most collection/sorting models rely on collection and sorting at a central location, all PCC carpet is brought back then sorted. The valuable nylon is sold while the non-valuable PET must be sent to landfill or WtE at a cost to the recycler. As the percentage of PET rises while that of nylon drops, the collector/sorter is selling less and paying more for disposal. Recent comments by sorters indicate costs have more than tripled in the last couple of years. The trend is alarming for two compelling reasons. The first is the extremely rapid penetration of PET in the marketplace, while the second is the forecast for PET to grow to 50% of all face fiber between 2015 and 2016. CARE launched a major effort in 2013 to deal with this crisis. However, the economics of PET make it difficult to invest in the necessary equipment and manpower to process PET into a valuable commodity. Given the work focused on PET to date, at this juncture CARE cannot see relief from this situation before mid-2015 under the best-case scenario.

Initial efforts on the PET challenge have focused on identifying potential markets and property and cost requirements to compete. Going forward, CARE intends to refocus work on only the highest potential outlets with the greatest chance of success in the next term (ca. 2 years).

### **CARE Carpet Recycling Survey Respondents Employed an estimated 1,078 People in Local Communities across the U.S. in 2013**

The 50 respondents to the CARE Annual Survey employed 1078 people in local communities in 2013, a decrease of 240 people or 18% versus 2012. Approximately ½ of the lost jobs were associated with two California based recyclers who ceased operations in 2013.

**Figure 9: 2013 CARE Annual Survey Respondents' Employment, Total US**





## Collection of Carpet is Highest in Southeast and Midwest

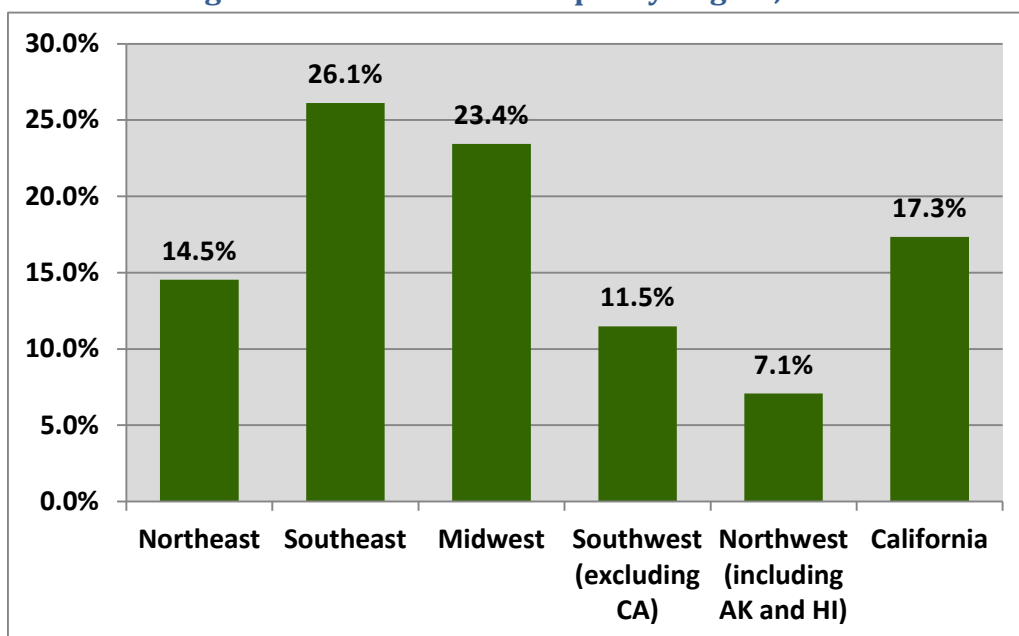
Respondents were asked to report the volume of carpet collected by region. See Figure 10 for the U.S. regional map.

**Figure 10: Reporting Regions in the U.S.**



Examining the amount of carpet collected by region, it is noted that carpet collection is highest in the Southeast, followed by the Midwest then California. Opportunities exist to increase carpet recycling in other areas in the US, such as the Northwest.

**Figure 11: Collection of Carpet by Region, 2013**

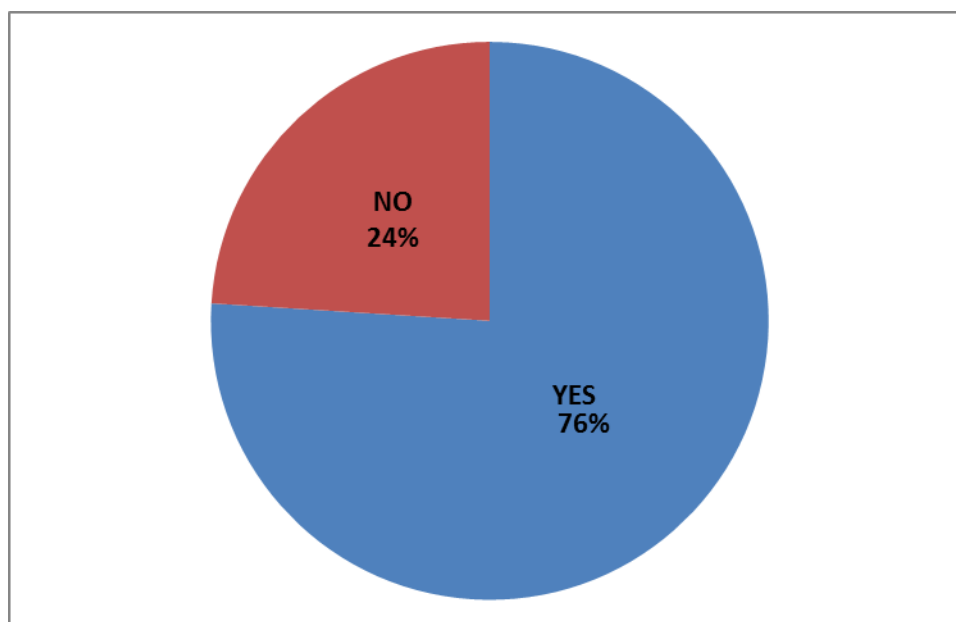




## Qualitative Feedback from CARE 2013 Survey Respondents

In the 2013 survey, 76% of respondents said CARE was meeting their needs.

**Figure 12: Survey respondents' view of whether CARE is meeting their needs**



### Summary

- There are two factors that resulted in a relatively high quality of data reported in 2013. First, the response rate was again very high, with 50 companies providing some level of quantitative data. No extrapolation of data or use of secondary sources was required. Second, through extensive effort, and for the first time an engineering mass balance calculation, the potential of double counting has been virtually eliminated. California AB 2398 data was also used to cross-check national reporting. However, we are aware there are collectors who do NOT provide feedback to CARE and thus their numbers are not included in this analysis.
- There is a great deal of diversity in the types of companies reporting post-consumer carpet recycling. This diversity includes geographic, process technology, size (very larger corporations vs. small, entrepreneurial entities and end use markets), business models, etc. As has been true in the past, the largest fraction of recycling is attributed to companies that perform more than a single recycling function: collection, sorting, processing and manufacturing.
- Again in 2013 it should be noted that the significant increase in “close loop recycle” of post-consumer back into carpet required major technology development was significant. It is important to recognize spinning fiber from PCC is the most demanding outlet in terms of feedstock quality.
- The data shows growth in polyester face fiber is significant and has placed significant economic pressure on recyclers.



- PET face fiber shipments over the last several years have grown from less than 8% in 2006 to an estimated 35% in 2013.
- CARE is extremely proud to be part of growing a new industry in the United States. More than a thousand jobs are directly associated with carpet recycling and typically there are conservatively 3-5 times the number of indirect jobs associated with such statistics.

## Survey Methodology

In developing a survey methodology to establish quantitative estimates of recycling of a particular waste stream, two key factors must be taken into account: 1) participation and 2) double-counting. Participation is essential in any surveying process, and even more so in this type of survey, where there is no logical or reliable way to extrapolate results from respondents to the general population. This means that respondents' survey responses will represent the complete and total results. Thus, every effort must be made to maximize participation.

However, with increasing participation comes another potential problem: double-counting. Since a given pound of used carpet may pass through several different entities on its way from the point of generation to its ultimate disposition (reuse, recycling or disposal), and, since all of these different types of entities (collectors, sorting facilities, processors and manufacturers) are included in the survey, the chance exists that the same pound of carpet could be counted more than once. As participation increases, the likelihood of double-counting increases, since there is a greater chance that more than one company may be reporting on their handling of the same material.

A number of features were built into the surveying process to address these two key issues:

Confidentiality of data is often the key to participation, and all aspects of the survey were designed to preserve confidentiality. In particular, a web-based surveying tool was used to allow respondents to provide data completely anonymously, if they desired. In addition, all written and verbal communication with potential survey respondents stressed the confidentiality of data.

Simplicity and ease of response was also a key to participation rates. The survey questions were streamlined to the maximum extent possible so that only the most critical data requirements were included, based upon the philosophy that it is much better to have the basic data from many respondents than detailed information from a few (particularly since there is no basis for extrapolation).

Participation rates can also be boosted through the use of multiple means of contact (as well as repeated contacts). Thus, e-mail, telephone and face-to-face communication were all used to contact potential survey respondents. Every effort was made to include new players, as they became known to CARE.

To maximize the value of those survey responses received, and to minimize chances of double counting, it was determined that it would be best to focus resources on all recipients who received an invitation to participate in the survey. All types and sizes of companies involved in carpet recycling were contacted initially with a request to respond to the survey; resources for telephone follow-up were prioritized and assigned follow-up targets.



To reduce the chances of double counting, survey respondents were asked to identify the geographic sources of their material to the extent they were known. The notion behind this is that if the nature of the survey responses is such that there is a sense that information from two or more companies might reflect handling of the same material, the geographic sources of these companies could be reviewed to determine if that was likely.

In another attempt to reduce the chances for double counting, survey respondents were asked about the type of companies that received the material their company shipped out after they finished handling it. This information not only allows for identification of possible double counting, but also serves to provide a more complete picture of the overall flow of used carpet through the collection and recycling process.

With those basic principles in mind, the surveying process was implemented, using the steps outlined below, which are described in general chronological order:

1. The survey form used in the 2013 was slightly updated based on respondents' feedback in an effort to shorten the survey. The 2013 survey form is shown in Appendix 1.
2. Once again, the survey form was web-based and posted on the Internet. The survey was accessed by going to a specific URL address that housed the survey, and results were submitted via the Internet, without the need for e-mail or paper-based responses. The results were password protected and available solely to two CARE staff in an effort to preserve confidentiality.
3. Based upon past experience with this survey process, the surveying was focused solely on those companies for which specific individuals have been identified as points of contact.
4. Companies with specific contacts and e-mail addresses were notified via e-mail about the survey and provided the URL so that they could respond electronically. A total of about 450 different companies were sent e-mail notifications of the survey (more than one individual was contacted from an individual firm in several instances). The e-mail notification stressed the confidentiality of the information they were asked to provide.
5. Approximately two weeks after the initial e-mail was sent, follow-up activities were initiated. These included follow-up e-mails to those companies that had not responded, as well as telephone calls to prompt responses and answer questions some potential respondents had raised.
6. All survey responses were reviewed for any internal inconsistencies or unclear responses. The survey responses were also reviewed to determine if there were any questionable responses (e.g. data that appeared to be off by orders of magnitude with regards to company size). In those instances where there was some question about the responses provided and the respondents had provided their names (respondents can choose to respond entirely anonymously), follow-up was performed to clarify the responses.
7. Data from survey responses were transferred to a spreadsheet-based database. This database contains all of the quantitative responses, as well as summaries of any descriptive information provided by the companies.



8. Data to eliminate potential double counting was received and appropriate adjustments made to the data compilations where/when necessary.
9. The data in the database were compiled and analyzed to produce the results described herein.
10. Efforts to maintain consistency year to year are considered important to plot trends and look for patterns.

## **Assessment of Survey Approach and Results**

As noted previously, there are two key factors that led to the conclusion that this year's survey results are high in quality (i.e. believed to be more representative of real-world conditions):

1. Response rate was again - very high, meaning that a greater proportion of the total number of companies involved in post-consumer carpet recycling responded by submitting survey results.
2. A significant portion of the carpet recycled was handled by manufacturers who reuse the material internally within their own manufacturing process, thus eliminating the possibility for double counting of this material.

For these reasons, double counting does not appear to be a significant issue with the data presented herein. Unlike 2012, no double counting correction was applied in 2013.

## **CARE Outreach Results, 2013**

### **11th Annual CARE Conference**

In 2013, members and colleagues of CARE gathered at its 11th Annual Conference at Saddlebrook Resort, Tampa, FL. For two and a half days, attendees networked with professional colleagues to learn more about new products and technologies that can help them in their businesses.

CARE also recognized the outstanding individuals and companies who made significant contributions to the CARE organization. The following awards were given:

### **2013 Recycler of the Year- Columbia Recycling, Inc.**

Columbia Recycling, based in Dalton, Georgia, was named CARE Recycler of the Year. "Columbia has been a major factor in carpet recycling for many years. They have been enormously successful, growing their business, expanding their technology and making a big impact on keeping post-consumer carpet out of landfills across the U.S. It is very fitting that they be recognized by their peers with this prestigious award," said Dr. Bob Peoples, Executive Director, CARE.





Rocky Ponders (owner), of Columbia Recycling receives Recycler of the Year recognition.

## Sean Ragiell Named CARE Person of the Year



Sean Ragiell, CARE board member and founder of CarpetCycle was named CARE Person of the Year. A native of New Jersey, Sean Ragiell founded CarpetCycle in 1999. CarpetCycle crews go into commercial buildings from Boston to Washington DC to salvage carpet and other building materials for recycling and landfill diversion prior to remodeling and during demolition processes. He recently expanded into Toronto, Canada.

Sean is a current member of the CARE Board of Directors and has been a member of CARE since its creation. He has attended every annual conference. "I can't think of anyone who exhibits more enthusiasm for this industry and entrepreneurial spirit than Sean," said Dr. Robert Peoples, Executive Director of CARE. "He has been one of our staunchest supporters."



## 2013 CARE Entrepreneur Meeting

The Carpet America Recovery Effort (CARE) held its Tenth Annual Entrepreneur Meeting on October 23, 2013 at Hilton Garden Inn in College Park, Georgia. This meeting gave entrepreneurs a chance to learn about and discuss issues in the carpet collection and processing community.

Led by board member Sean Ragiel, the marketplace forum gave individuals an opportunity to describe their goods and services to all of the meeting attendees. Many attendees from past meetings found this very beneficial, so CARE decided to bring it back again. Frank Endrenyi followed with a thorough analysis of the PET challenge. Frank's presentation included information on CARE's current strategy in regard to PET and an update on the progress that has been made. Eric Nelson then followed with an update on legislative activities in various states as in regards to carpet recycling. Bob Peoples ended the session with an update on CARE's management of the California program.

## CARE Website Traffic

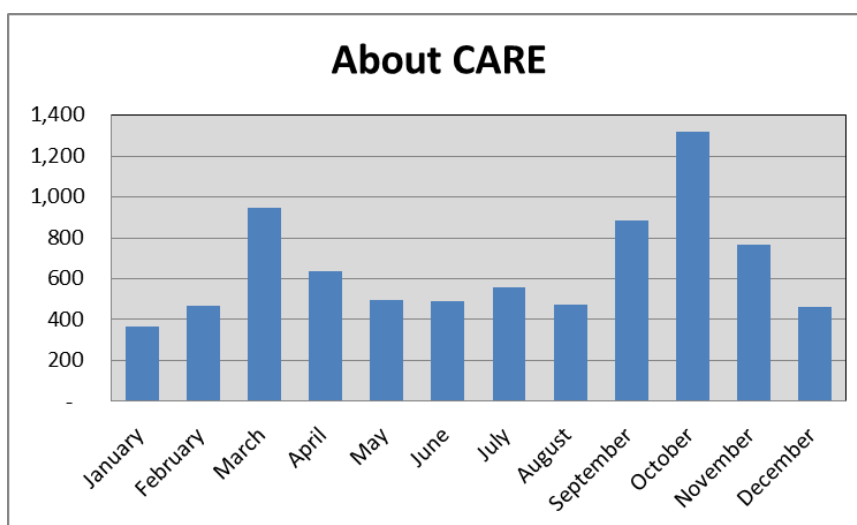
CARE's website, [carpetrecovery.org](http://carpetrecovery.org), is the leader in Internet search engine's results for keywords related to carpet recycling. In fact, CARE's website returns at the top of Yahoo and Google when an Internet search is conducted on "carpet recycling."

CARE's website traffic for 2013 was 169,606 versus 313,928 visits in 2012, a 46% decrease versus 2012. With CARE being the stewardship organization for AB 2398, many consumers used the website to gain information about the program.

The new website will be completed in May of this year, and we hope that the improved functionality and state-of-the-art design will increase page visits in 2014.

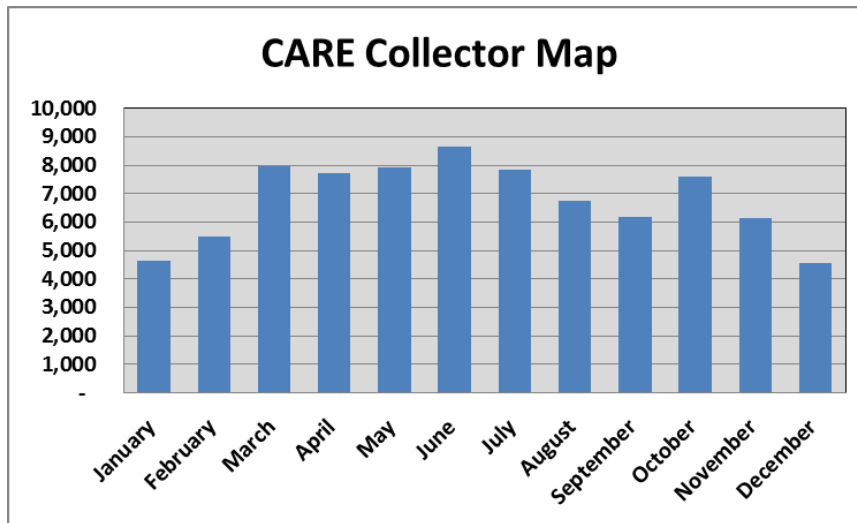
The following figures provide an overview of our website activity for 2013.

**Figure 13: About CARE Webpage Visits, 2013**

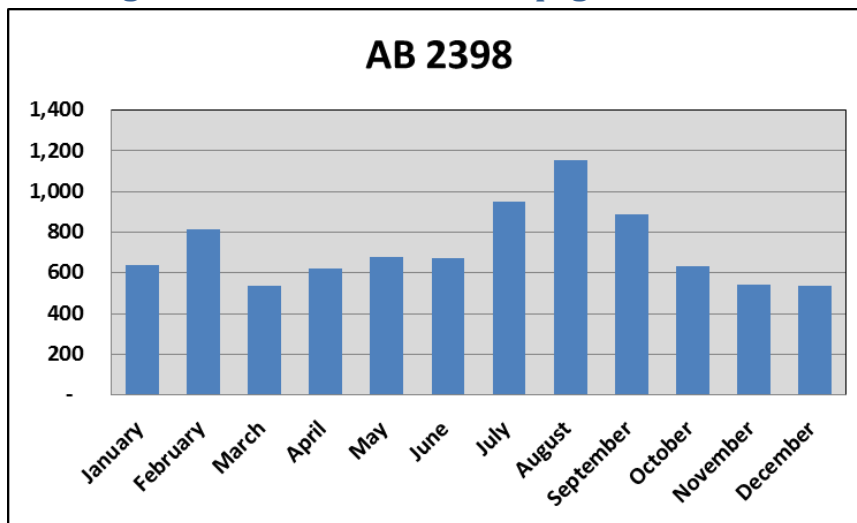




**Figure 14: CARE Map Webpage Visits, 2013**



**Figure 15: CARE AB 2398 Webpage Visits, 2013**



## **Carpet Industry Initiatives**

### **Aquafil USA**

The core business of the Aquafil Group is the production of nylon 6 polymer that we spin into fibers and then finish into ready to tuft yarn for carpets. Our headquarters is in northern Italy. We employ some 2,000 people and have operations on three continents. The North American operation, Aquafil USA, is a BCF factory in Cartersville, Georgia.

The Aquafil mission is to generate sustainable closed loop nylon 6 products from waste. Since 2011, we are operating a nylon 6 recycling plant in Ljubljana, Slovenia. This innovative recycling plant, called the



ECONYL® Regeneration System is based on the sustainable chemistry of depolymerization. We take the nylon 6 contained in pre and post consumer wastes such as old carpets, clothing and fishing nets and regenerate it back into virgin raw material. This regeneration closes the loop from carpet waste to new carpet face fiber and preserves precious resources like water, air, fuel and energy.

The Aquafil Group continues to reduce our environmental foot print with continuous investing to reduce energy, water and emissions results in our fiber products. Our ambition is achieve ZERO unsorted waste associated with our manufacturing operations with a motto of “recycle everything possible everyday” Our efforts pushed our 2013 factory recycle rate to an estimated 96%.

Aquafil USA is actively implementing energy efficiency projects. In 2011 we reduced our energy consumption by implementing reduced energy lighting and Reactive Power Correction technology across the factory. In 2012 we made a significant investment and commissioned a 400 Kw photovoltaic array for green power generation from our roof. This is the largest rooftop solar installation in Georgia.

The aim is to reduce our overall business impact by continuously reducing energy consumption in our production and increasing recycled and reclaimed raw material sources for our products. This allows our customers to better champion extended producer responsibility and product stewardship. This means designing sustainable products with the end of life in mind by using nylon 6 face fiber while minimizing other polymers in carpet construction going forward.

ECONYL® is our branded recycle based nylon 6 BCF yarn system. In 2012 **Aquafil USA received certification by UL Environment for Alto Chroma ECONYL® solution dyed fibers made from 100% recycled polyamide 6 polymer.** It has the same high quality technical performance and full brilliant color possibilities; Aquafil is well known for, in an infinite closed loop cycle.

**To learn more about ECONYL® please see our dedicated web site: <http://www.econyl.com/> . ECONYL® products add significant value to LEED and NSF-140 certifications.**

## Interface

Interface is celebrating its 20<sup>th</sup> anniversary this year of Mission Zero, our promise to eliminate any negative impact we have on the planet by the year 2020. In fact, as we approach 2020, our focus is beginning to shift to what is beyond that milestone. We think the challenge is to become a restorative enterprise- giving back to the planet and our communities by redesigning how business is done and leading our industry, and other industries, with our example.

Since 1994, we have invested millions of dollars in our recycling business so that we can eventually decouple ourselves from petroleum and provide our customers with end of life solutions for their flooring. During that time, we have collected 262 million pounds of old carpet and saved it from going to the landfills. In 2013 alone, we manufactured 4.5 million square yards of carpet tile made with GlasBacRE, our high recycled content backing, and we continue to expand our usage of recycled content nylon carpet fiber made from old carpet and commercial fishing nets. In fact, our global raw material usage made from recycled and bio based sources has now reached 49%. We are half way there.

We understand that we cannot do it alone. Because of that, we are actively seeking partners around the US and around the globe who can help us, both in technology and reverse supply chain. Being a sustaining



member of CARE is an important part of that. It's important that our industry work together to solve the looming problems that we all share. Together we can more quickly find innovations to handle all of our material effectively and learn from each other how better to design our products to be recycled easier.

## J+J Flooring Group

There have been a lot of changes at J+J Flooring Group in 2013. For starters, J&J Industries changed its name to the J+J Flooring Group to more fully describe what services we provide to the flooring industry. However, one thing that has not changed is our commitment to CARE and to the Carpet Recycling Industry.

J+J Flooring Group considers *conservation at the core of sustainability* - preventing excessive or inefficient use of natural resources along with the preservation of the environment is foundation to our environmental stewardship. Our stewardship focus also embraces our landfill diversion initiatives, which include the goals of CARE.

In 2013, J+J Flooring Group published our first Sustainable Progress Report. We are proud of this transparent report and are looking forward to continually updating our initiatives including our 20/20 Vision by 2020. Our Sustainability Progress Report can be found at <http://www.jj-invision.com/pages/sustainability-report>.

The release of our new Textile Composite Flooring product, Kinetex®, was a large milestone for J+J Flooring Group in 2013. This hybrid flooring is made up of nearly a single polymer (PET) with no fillers and had a recycling program before its introduction to the market. It was selected as a Top Ten Green Building Product for 2014 by Building Green magazine.

Recycling and reclamation are leading the way in both product innovation and process improvement at J+J. We are continuing to research ways to incorporate PCC fiber into our Encore SD Nylons. In addition, our industry-first Aquafinity water reclamation operations have become a significant contributor to both reduction in water and reduction in energy intensity throughout our dye house operations. Compared to our water usage from 2010, the year prior to Aquafinity's installation, we've been able to reduce water usage by more than 16 percent.

Our major initiative to reduce landfill waste in 2013 has brought us one step closer to an entire landfill free operation throughout the J+J campus. Since 1992, the amount of waste we've sent to the landfill has been reduced by more than 90 percent.

## Mannington

Mannington has long driven investment and research into reducing manufacturing waste and increasing efficiency. By evaluating our products and processes against our corporate goal of becoming a net-user-of-waste, we have been able to make significant company-wide improvements to allow us to attain that goal at multiple locations. Also, by implementing robust environmental management systems registered to ISO 14001 at both our Georgia carpet operation and multiple other company locations, we have proven that our entire process exceeds these stringent environmental standards.



An initial carpet product, going back to 2005, that enabled us to meet these environmental hurdles was Artcraft carpet tile which initiated great success both for its colorful aesthetics and smart re-use of 100% post-production yarn. The next improvement was Artworks, which added a dominant high recycled yarn to the Artcraft look, and made available with our Infinity RE recycled backing. In 2011 we announced yet another upgrade to this innovative line with the Renaissance tile line which accentuates this post-production yarn product with an innovative over-dyeing technique.

Mannington's other commercial carpet tile products are available for use with the Infinity RE backing system, which contains both pre and post -consumer recycled content of 25% by total product weight. The minimum amount of post-consumer recycled content exceeds 10% and most of this is reclaimed post-use carpet through LOOP, our nation-wide carpet reclamation system. All Infinity RE backed carpet meets the Platinum level of NSF/ANSI-140 - Sustainability Assessment for Carpet. Additionally our UltraBac RE and Integra HP RE broadloom carpets are Platinum rated to NSF/ANSI-140, as well as rEvolv modular tile.

Regarding our recycling expertise and the technical framework of carpet-to-resilient and resilient-to-carpet, Mannington continues to be the only company able to reuse reclaimed carpet into commercial resilient product, via Relay RE. It is the first and only hard-surface flooring to contain recycled carpet. Relay RE is 35% total RC – 20% post-consumer and 15% pre-consumer content – all from recycled carpet. Mannington will continue to invest and research new technologies and processes to increase recycled content and reduce waste. We will continue to work with progressive organizations like CARE who are working to improve environmental performance in our industry, because after all, actions speak.

## **Milliken**

Milliken has a deep heritage of sustainability and continues to implement effective environmental initiatives to protect the world in which we live. From issuing our first recycling policy more than 100 years ago to developing the industry's first PVC-free carpet tile, Milliken shows a deep concern for the environment, which is thoroughly reflected in our work. The highest priority is given to Milliken's five pillars of sustainability - products, end of life, operations, environmental health and safety, and transparency - all of which drive the company, and the industry, forward.

### **Milliken Carpet Landfill Diversion Program**

As part of our No Carpet to Landfill Pledge, the Milliken Carpet Landfill Diversion Program was established in 2012 to divert used floor covering from landfills and identify the highest form of recovery. During 2013 alone, the program prevented 494,702 pounds of carpet from going into landfills, with a total of 685,152 pounds diverted since established.

Milliken has also teamed up with PlanetReuse to find new homes for used carpet that is in good condition, maximizing the lifetime value and benefit of our floor coverings.

### **Third Party Certifications and Transparency Labels**

Milliken is committed to transparency. We believe third-party verification is critical for transparency with sustainable products and practices, which allow our team and customers to make informed decisions



through a better understanding of the impacts our activities have on the environment. All U.S. floor covering products are PVC-free, SMaRT, NSF 140 and CRI Green Label Plus certified, and scrutinized using Life Cycle Analysis against the ISO 1440 Environmental Management Standard before they leave the drawing board.

During 2013, Milliken made great strides to provide product transparency to the architecture and design community. All Milliken North American standard modular carpet collections have Environmental Product Declarations (EPDs) that identify environmental impacts over their life cycle. Milliken also demonstrated a commitment to transparency by disclosing the components of our commercial carpet tile products through Declare®, a voluntary labeling program and database operated by the International Living Future Institute™. Moving forward, Health Product Declarations will provide a 'nutrition label' for our floor coverings.

Milliken was recognized in 2014 by the Ethisphere Institute as one of the "World's Most Ethical Companies" for the eighth consecutive year. By holding ourselves accountable to the highest ethical standards, Milliken continues to discover new ways to make this world more sustainable. Through true innovation, our promise is to "do good," adding value to people's lives, improving health and safety, and making this world sustainable.

To learn more about Milliken's environmental stewardship, visit [www.millikencarpet.com](http://www.millikencarpet.com).

## **Mohawk**

Mohawk's industry-leading sustainability programs include a focus on transforming waste streams to value streams, implementing renewable technologies, reducing our impact on the planet, and a legacy of social responsibility. With sustainability as part of our core values, Mohawk is proud to be a founding member of CARE.

Sustainability is a strategic business imperative that permeates all aspects of Mohawk's operations. We are dedicated to providing our customers and consumers with safe and environmentally friendly flooring products. We continue to implement sustainable business initiatives that have a quantifiable return, as we believe such initiatives offer the best opportunity to yield a significant impact and create a lasting success.

Our strategy focuses on maximizing the amount of recycled or renewable content in all products. We are committed to developing processes that make it easier for end users to recycle products that are at the end of their useful application.

As an example of our commitment to sustainability, Mohawk ranks among the world's largest recyclers of plastic bottles, creating EverStrand™ fiber from more than 3 billion plastic bottles each year and diverting millions of pounds of PET plastic from the nation's landfills. In 2013, Mohawk announced its patented Continuum™ Process. Continuum-manufactured BCF PET carpets contain up to 100 percent recycled content in the yarn.

Mohawk's GreenWorks Center also reflects that commitment. This leading-edge facility applies a unique, patent-pending process to extract nylon 6 and 6.6; polypropylene, polyester, and Triexta post-consumer carpet face fiber for use in engineered resin. In addition, the plastics recovered through GreenWorks are



excellent substitutes for virgin material and are used in many high-value products in a multitude of industries.

Mohawk launched the ReCover program, which facilitates the collection and logistics of the old carpet, regardless of manufacturer, in efforts to prevent it from reaching a landfill. The carpet is converted into post-consumer fiber bales and turned into engineered Nylon 6 and Nylon 6,6 resin pellets to be used in many useful products, including automobile parts and office furniture.

We perpetually seek new ways to translate our commitments into action. For instance, we are increasing our recycling and re-use initiatives to further reduce our total waste to landfill intensity by 25 percent by 2020 when compared to the 2009 baseline and are on track to reach this goal.

Mohawk is recognized as the first flooring company in the industry to appoint a Chief Sustainability Officer, along with Sustainability Council comprised of key Mohawk Executives and a diverse team made up of personnel from multiple organizations within Mohawk.

At Mohawk, we take pride in a tradition rich in sustainable innovation, and we look forward to building on those programs in the future.

Other sustainability highlights for Mohawk Industries that coordinate with CARE efforts include:

- Mohawk's SmartStrand® carpet is made from DuPont™ Sorona®, which 37% comes from a renewable resource. DuPont™ Sorona® requires 30% less energy and emits 63% less CO2 in the manufacturing process, while improving performance capabilities, including stain resistance.
- First in the flooring industry to eliminate phthalates from products
- Mohawk's NXT backing is a PVC-free, high performance option
- 15 Mohawk plants have achieved zero waste-to-landfill status

In addition, Mohawk has been recognized in the following:

- 2013 – Mohawk ranked in Top 3 Georgia companies, and leads the flooring industry in Southeastern Corporate Sustainability Rankings.
- 2013 – Mohawk Industries received Floor Covering Weekly's Pinnacle Award for its annual GreenStep competition, which recognizes sustainable environmental initiatives throughout the flooring industry.

### **Shaw Industries Group, Inc.**

A holistic approach to sustainability: Shaw strives to create a better future for our customers, our associates, the company, and our communities. Our holistic approach to sustainability includes: driving innovation into the business; protecting and making efficient use of resources; engaging associates, customers, and the community; focusing on long-term financial success. The company's holistic approach to sustainability includes a long-standing commitment to reclamation and recycling.



As the world's largest reclaimer of post-consumer carpet, Shaw diverts an average of 100 million pounds of carpet each year from the landfill – converting that end-of-life product back into a valuable resource through our portfolio of recycling solutions.

Highlights of Shaw's sustainability efforts in 2013 include:

- Reclaiming more than 700 million pounds of post-consumer carpet since 2006 via an expansive reclamation and recycling network as well as successful take back programs working directly with commercial customers.
- Reclaiming energy from post-consumer carpet otherwise destined for landfill through our Re2E (Reclaim to Energy) facility, the world's first energy generation facility powered specifically by carpet that cannot be recycled by any other means. Re2E is converting millions of pounds each month into steam energy for two of our carpet manufacturing plants. It can save enough fossil fuel to power the equivalent of approximately 7,500 homes annually – co-generating enough electrical energy to help sustain its own operations. The Re2E process building received LEED Silver for New Construction in 2013.
- Helping reduce landfill waste beyond our own industry by recycling an average of 160 million pounds of plastic drink bottles annually at the company's Clear Path Recycling facility, a joint venture with DAK Americas. Fiber made using recycled PET from Clear Path is used in Shaw's ClearTouch® residential carpet products.
- Surpassing 60 percent of Shaw's total product sales coming from Cradle to Cradle Certified products, with a goal of designing 100 percent of products to Cradle to Cradle protocols by 2030. Cradle-to-Cradle design protocols call for materials that are safe and healthy for humans and the environment, with a keen focus on material reutilization, material health, water and energy stewardship, and social fairness.
- In 2013, Shaw added solar panels to our carpet tile manufacturing facility in Cartersville, Georgia. The system produces 1.4 million kilowatt hours of power annually, equivalent to removing 198 passenger vehicles from the road each year.
- Shaw's efforts include significant civic involvement, philanthropic giving, volunteerism, and cause marketing programs to help meet the needs of the community in our own backyard, nationally, internationally, and within our industry.

All of these efforts are aimed at sustaining the company's long-term financial success ensuring a better future for generation after generation.

For more information about Shaw's sustainability commitment, visit

<http://sustainability.shawgreedge.com>.

## **Tandus Centiva**

Tandus Centiva, a Tarkett company, prides itself on a heritage of innovation and design leadership. We strive to create a legacy of superb quality and environmental excellence in our products and processes. Every day, we work hard to find new ways to be a little better than the day before in the hopes that every



change, no matter how small or insignificant, will contribute to a continuous evolution of good within our organization and the communities in which we live and work.

With a history dating to 1803, Tandus Centiva has built a legacy on quality, performance, design and responsibility. Beginning in 1988, with the innovation of RS adhesive, product development began to consider the environmental impact of products, not just in manufacturing, but also in the use and after-use phases. In 1994, we launched the first closed-loop recycling program in the carpet industry, bringing old vinyl-backed carpet to Dalton and recycling it into new product, called ER3®. In 1996, Centiva became the first US manufacturer of commercial LVT, changing the game in resilient flooring. In 2004, we launched ethos®, a backing system made from 100% post-consumer recycled PVB, the safety film in windshields. We continue today to develop new products with revolutionary innovations in materials science and construction.

We, as a Tarkett company, are committed to the principles of **closed loop, circular design**. That means thinking about the end from the beginning and designing with that in mind. The four principles are: good materials, resource stewardship, people-friendly spaces, and reuse/recycling. Successes can be seen throughout Tandus Centiva. To name just a few:

- ER3® 100% recycled backing
- ethos® backing made from PVB film from recycled windshields and safety glass
- Renewable energy and Renewable Energy Certificates (RECs) are used to offset 30 to 50% of the electricity used at Tandus Centiva's soft surface manufacturing facilities
- Greenhouse gas emissions from Tandus Centiva's soft surface manufacturing facilities are verified by ClimateCheck and reported through the Carbon Disclosure Project
- Since 1994, Tandus Centiva has reclaimed and recycled more than 241 million lbs. of post-consumer carpet and waste
- As a US manufacturer, Tandus Centiva is one of the only LVT producers in North America that is able to offer closed-loop recycling

We believe it is our responsibility to lead by example, and to be transparent about our products and operations. As often as possible, we employ third-party validation of claims including:

- recycled content and reclamation process (SCS)
- Indoor air quality (CRI GLP + Floorscore)
- greenhouse gas emissions (Climate CHECK)
- multi-attribute sustainability assessments (NSF 140/NSF 332)
- Environmental Product Declarations (UL)

None of these things are possible without people. At Tandus Centiva, we encourage our people to be drivers of change... Not to accept status quo, and to continue pushing the envelope toward excellence. Our people are the heart of our company, and together with customers and stakeholders, they are the lifeblood of our brand. After all, it's for people that we are doing this: creating products and building buildings... and



it's for people that we want to ensure we do it in a way that enhances the quality of life for future generations. That's the definition of sustainability.

Tandus Centiva's unique line of Powerbond, modular, broadloom, woven and LVT flooring products offer a true fit-for-purpose approach to enhance spaces for learning, working, healing and living. With industry-leading product design, unrivaled service and a commitment to environmental and social stewardship, Tandus Centiva provides the ultimate flooring experience for our customers.

## Universal Fiber

Each year brings an opportunity to stand back, take in the big picture, re-assess goals, and move on. Others have more eloquently stated that Sustainability isn't a destination; rather, it is a journey.

For Universal Fibers, this journey is part of who we are, as a business, as a team of associates, as a link in the supply chain that starts with molecules, progresses through finished products that help define work and living spaces and then ultimately face the test of recyclability. How we approach each of these contributing factors is simply EarthSmart®.

Landfill diversion through market driven solutions has been the mission of CARE for over a decade. Investment in technology and the acquisition of know-how are components of innovation. Universal Fibers has been keenly focused here since 2006.

- In 2013, our use of post-consumer carpet fluff grew over 25%.
- PC content is added to more than 280 standard running line colors.
- Since beginning to reclaim PC carpet in 2006, we estimate this has diverted over 25 million lb. of carpet from US landfills.
- Continued Sustainable Leadership support of CARE as well as meaningful CARE event sponsorships.
- The re-use of component content from PC carpet is part of wider EarthSmart® initiatives, including increased use of post-industrial content, reduction of its internal scrap and waste, increased energy efficiency, reduced water use, and social responsibility initiatives.



# Appendix 1

## Carpet America Recover Effort (CARE) Survey 2013

### 1.

Dear CARE Carpet Reclamation and Recycling Partner,

Thank you for taking the time to complete the 2013 Carpet America Recovery Effort (CARE) Annual Survey. Your complete answers to this survey will allow us perform quantitative analysis on the carpet recycling stream and create a detailed Annual Report for the stakeholders of CARE.

Please report only the quantity of post-consumer carpet managed through your business. For purposes of the CARE Annual Report, we will NOT include information on post-industrial carpet, ONLY POST-CONSUMER CARPET.

The survey is 24 questions long and should take less than 15 minutes to complete. To minimize the amount of time spent on completing the survey, we recommend that you read through the survey and have your data available before completing the survey.

If you need any assistance or have questions while completing this survey, please contact Anthony Cline, CARE's Operations Manager, at [acline@carpetrecovery.org](mailto:acline@carpetrecovery.org) or 708-428-2127.

Due to the time sensitive nature of this survey, please complete survey by close of business on **Friday, February 28, 2014.**

**Note - All Company Information and answers to this survey will be CONFIDENTIAL, and will only be seen and used by CARE's Executive Director and Operations Manager.**

All data collected will be reported in the aggregate, thus removing any references to individual companies.

Thank you

Bob Peoples

Executive Director, Carpet America Recovery Effort (CARE)

**\* Of your total employees, how many are specifically associated with the diversion/recycling of post-consumer carpet?**

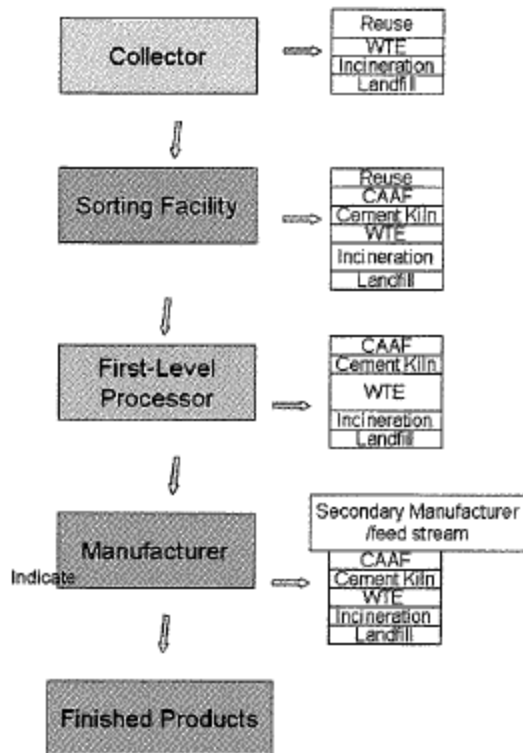
**\***

**Please select the type of company from the list below, based upon the descriptions provided. If your company performs more than one function, check all boxes that apply.**

- ☐ Collector - A company that consolidates and temporarily stores recovered commercial and/or residential carpet.
- ☐ Sorting Facility - A facility that segregates collected carpet into the various backing types (PVC, SBR Latex, etc.) and/or fiber types (e.g., Nylon 6, Nylon 6.6, Polypropylene and Polyester).
- ☐ Processor - A company or facility that receives post-consumer carpeting (whether handled by a sorting facility or brought directly by a collector) and processes it for use as a feedstock in a manufacturing facility.
- ☐ Manufacturer - A company or facility that utilizes processed carpeting materials and transforms them into other products, or uses them as raw materials in a manufacturing process.

**To assist you in answering the next series of questions, please see the attached flow chart, definitions and example**





#### Examples:

- Dealers
- Installer
- Transfer Station

#### Examples:

- ID Carpet by Material Type
- Cut-to-Size to prepare for processing
- Baling

#### Examples:

- Shearing
- Shredding
- Hammer Mill

#### Examples:

- Pelletizing/Compounding/Densifying
- Carpet Fiber/Carpet Backing
- Filler/Carpet Filler
- Carpet Cushion
- Molded/ Extruded Products
- Injection Molded Products



**Carpet as Alternative Fuel (CAAF):** Fuel that has been produced from source-separated carpet and processed, including (1) extraction of components if at all possible; (2) size reduction, shredding, and/or blending with coal fines, etc.

**Cement Kiln:** Cement production facility that may use CAAF as a source of energy and/or as an additive for cement production.

**Incineration:** Complete burning of material to ashes, with no energy recovery

**Landfilling:** Landfilling includes the placement of post-consumer carpet and/or the residuals from a post-consumer carpet management method into a landfill disposal facility.

**Reuse:** Refurbishing and donating/selling recovered carpet back into the market for its original intended use. The reuse of recovered carpet retains the original purpose and performance characteristics of the carpet.

**Waste-to-Energy:** Process of recovering thermal energy from MSW through combustion.

**Example:** A recycling business person collects 1 million lbs of carpet. The recycler sorts and shears this material and sends it to a processor. Along the way, some of the post-consumer carpet is reused, and some is not able to be recycled, for various reasons, and is either sent to a CAAF or a cement kiln facility, waste-to-energy, or the landfill. The recycler tracks the amount of material as it progresses through the process. For this example, the recycler would answer the next questions as follows:

**Collected 1 Million lbs of post-consumer carpet, of which:**

- 900,000 lbs sent to Sorting Facility
- 50,000 lbs sent to Waste-to-Energy
- 10,000 lbs were reused
- 40,000 lbs went to Landfill

**900,000 lbs of post-consumer carpet was available for sorting:**

- 700,000 lbs went to the Processor
- 100,000 lbs were reused
- 0 lbs went to CAAF or cement kiln
- 50,000 lbs went to waste-to-energy
- 50,000 lbs went to the landfill

**700,000 lbs of post-consumer carpet was available for Processing**

- Produced 210,000 lbs of sheared material
- 100,000 lbs went to CAAF or cement kiln
- 100,000 lbs went to waste-to-energy
- 290,000 lbs went to the landfill

**Using the example to help you, please answer the following questions:**

**If you are a collector, please indicate how many pounds of postconsumer carpet you have collected:**



**Of the post-consumer carpet that you have collected, how much of it was:**

**(Please ensure the total volumes equal amount collected)**

Sent to Processor/Manufacturer	
Reused	
Sent to Waste-to-Energy	
Sent to an Incinerator	
Sent to the Landfill	

**If you are a sorting facility, please indicate how many pounds of post-consumer carpet you have:**

**(Please ensure the total volumes equal amount sorted)**

Reused	
Sent to a Processor	
Sent to CAAF Facility	
Sent to Cement Kiln	
Sent to Waste-to-Energy	
Sent to an Incinerator	
Sent to the Landfill	

**For the sorting facility, indicate the percentage of post-consumer carpet that you handle by fiber type:**

**Note - Total must equal 100%**

NOB	
NS	
PP	
PET	
Other	



**If you are a processor, please indicate how many pounds of postconsumer carpet you have received from a sorting facility:**

**(you may have sorted the material yourself or you may have received sorted material from someone else)**

**If you are a processor, please indicate how many pounds of post-consumer carpet you have:**

**(Please ensure total volumes equals amount processed)**

Reused	<input type="text"/>
Processed Fiber Shipped to Manufacturer (i.e. shredded, sheared, hammer milled)	<input type="text"/>
Carpet Filler Manufacturing Facility	<input type="text"/>
Sent to CAAF Facility	<input type="text"/>
Sent to Cement Kiln	<input type="text"/>
Sent to Waste-to-Energy	<input type="text"/>
Sent to an Incinerator	<input type="text"/>
Sent to the Landfill	<input type="text"/>

**How are you handling the PET carpet you receive (outlets or landfill)?**

**If you are a manufacturer, please indicate how many pounds of postconsumer carpet you received from a processing facility:**

**(you may have processed the material yourself or you may have received processed material from someone else)**



**If you are a manufacturer, please indicate how many pounds of processed post-consumer carpet material you have:**

**(Please ensure total volumes equal amount manufactured)**

Manufactured	
Sent to CAAF Facility	
Sent to Cement Kiln	
Sent to Waste-to-Energy	
Sent to Incinerator	
Sent to the Landfill	
Sent to another	
Manufactures/Feedstream	
Shipped to Carpet Filler	
Manufacturing Facility	

**If you are a manufacturer, please indicate pounds of post-consumer carpet material used in the production of:**

Engineered Resins	
Molded/Extruded Products	
Carpet Fiber	
Carpet Backing	
Filler for Carpet or other	
Products	
Carpet Cushion	
Other (please specify)	



## US Map of CARE Recycling Regions





\*

To the extent known, identify what percent of the material received came from each geographic area:

**Note - Totals must equal 100%**

Northeast	
Southeast	
Midwest	
Southwest (excluding California)	
Northwest (including Alaska and Hawaii)	
California	
Canada	

\*

To the extent known, please indicate the percentage of the output from your facility that is sent to customers in the U.S. versus customers overseas. Answers should total to 100%.

US	
Mexico	
Canada	
Europe	
Asia	
Other/Unknown	

**Overall, is CARE meeting your and your business's needs?**

- ☐ Yes  
☐ No

**If you answered no to the previous question, please specify where CARE can provide more support for your business.**

**Do you find the Entrepreneur Meeting effective?**

- ☐ Yes  
☐ No



I affirm that the answers provided in this survey are accurate and complete to the best of my knowledge.

Print Name:

**\* Company and Contact Information**

Name:	<input type="text"/>
Company:	<input type="text"/>
Address:	<input type="text"/>
Address 2:	<input type="text"/>
City/Town:	<input type="text"/>
State:	<input type="text"/>
ZIP:	<input type="text"/>
Country:	<input type="text"/>
Email Address:	<input type="text"/>
Phone Number:	<input type="text"/>



## Appendix 2

### Definitions Used in the CARE 2013 Annual Report

**Carpet:** A manufactured article that is used in commercial or residential flooring applications as a decorative or functional feature and that is primarily constructed of a top visible surface of synthetic or natural face fibers or yarns or tufts attached to a backing system derived from synthetic or natural materials. “Carpet” includes, but is not limited to, a commercial or a residential broadloom carpet or modular carpet tiles. “Carpet” does not include a rug, pad, cushion, or underlayment used in conjunction with, or separately from, a carpet.

**Carpet as Alternative Fuel (CAAF):** Fuel that has been produced from source-separated, and sorted post-consumer carpet and processed, including (1) extraction of components for recycling if at all possible; and (2) size reduction, shredding, and/or blending with coal fines, etc.

**Carpet America Recovery Effort (CARE):** A nationwide, 501(c) (3) non-profit organization whose focus is on post-consumer carpet stewardship.

**Carpet Industry:** The universe of participants involved in the production of carpet, including carpet manufacturers, fiber manufacturers, material suppliers, etc. It includes, but is not limited to, members of the Carpet and Rug Institute (CRI).

**Cement Kiln:** Cement production facility that may use CAAF as a source of energy and/or as an additive for cement production.

**Collection:** Any method of consolidating and temporarily storing recovered commercial and/or residential carpet.

**Disposal Diversion:** Carpet removed from the waste stream that was destined for the landfill or incineration, for the purpose of reuse, recycling, CAAF or waste-to-energy.

**Disposal Facility:** Facilities that are licensed and permitted to provide final disposal for the specific wastes they accept, including waste-to-energy, incineration, and landfilling.

**Entrepreneur:** Individual or privately-held company which is not a carpet manufacturer, who actively, collects, sorts, processes or manufactures products made from post-consumer carpet.

**Filler:** Materials such as calcium carbonate, etc. used in the production of carpet backing.

**Higher Value Recycling Material:** output of the materials with the most benefits to manufacturers of finished products. Examples of higher value recycling materials include post-consumer carpet fiber, post-consumer carpet backing, engineered resins and material for carpet cushion.

**Incineration:** Complete burning of material to ashes, with no energy recovery to reduce waste volume.



**Input:** The post-consumer carpet that is collected, sorted and readied for processing.

**Landfilling:** Landfilling includes the placement of post-consumer carpet and/or the residuals from a post-consumer carpet management method into a landfill disposal facility.

**Lower Value Recycling Material:** output of the materials with benefit to manufacturers of finished products, but a lower value than higher value recycling materials. Examples of lower value recycling materials include carpet filler and non-functional filler.

**Memorandum of Understanding (MOU) for Carpet Stewardship:** An agreement entered into by multi-stakeholders, including carpet industry, entrepreneurs, government entities and non-governmental organizations.

**Output:** the material that results from the processing (shredding, shearing, hammer milling) of post-consumer carpet from the processor. Examples of output are: fiber, shredded carpet tile, depolymerized chemical components, and carpet filler.

**Recycled Content:** Also known as recovered material content, is the percentage of material, by weight, a product is made from that has been recovered from consumers in the municipal solid waste stream (post-consumer content) plus any industrial materials salvaged for reuse (pre-consumer/post-industrial content).

**Post-Consumer Recycled Carpet Content:** The amount or percent of carpet, by weight, that is no longer used for or has served its manufactured purpose, that is incorporated into the manufacturing process of the same or a different product.

**Post-Industrial/Pre-Consumer Recycled Carpet Content:** The amount or percent of carpet material, by weight, generated by manufacturers or product converters, such as trimming, overruns, and products returned to the mills, that are incorporated back into the manufacturing process of the same or a different product.

**Post-Consumer Carpet Materials:** Carpet that has completed its life cycle as a consumer item or is no longer used for its manufactured purpose.

**Post-Industrial/Pre-Consumer Carpet Material:** Carpet materials generated in manufacturing and conversion processes, including, but not limited to manufacturing scrap and trimmings/cuttings.

**Processing:** Preparing carpet material for reuse, recycling, CAAF, WTE, or disposal.

**Recycling:** Transforming or remanufacturing discarded carpet materials into usable or marketable materials, rather than for landfill disposal, incineration, WTE, CAAF, or reuse.

**Reuse:** Refurbishing and donating/selling recovered carpet back into the market for its original intended use. The reuse of recovered carpet retains the original purpose and performance characteristics of the carpet.

**Rug:** A loose laid (not installed or attached at wall base soft floor covering manufactured from natural or synthetic fiber, including carpet cut into room or area dimensions that is not intended to cover the entire floor.



**Sorting:** The method used for segregating collected carpet into the various backing types (PVC, SBR Latex, etc.) and/or fiber types (e.g., Nylon 6, Nylon 6.6, Polypropylene and Polyester)

**Source Reduction:** The result of using less product or material in manufacturing and use of carpet, and/or reducing the amount of discarded carpet generated.

**Source Separation:** The process by which carpet is separated/segregated from all other materials at the end of its useful life (or when discarded).

**Waste-to-Energy:** Process of recovering thermal energy from solid waste through combustion.



## **Appendix 3**

### **CARE Board of Directors, 2013**

Werner Braun – Board Chair, The Carpet and Rug Institute

Bob Lee – Beaulieu of America

Russ Delozier – J&J Flooring Group

Don Dolan – Masland Contract

Sheri Gorman – RD Weis

Ron Greitzer – LA Fiber Company and Reliance Carpet Cushion

Thomas Holland – Texas Carpet and Construction Recycling

Lynn Preston – Tandus Centiva

Dick Kruse – Kruse Carpet Recycling

Philip Ivey- Milliken

Jim Lindsey – Aquafil, Inc.

Brendan McSheehy, Jr. – Universal Fiber Systems LLC

Paul Murray – Shaw Industries Group, Inc.

Eric Nelson – Interface

Glenn Odom – Wellman Plastics Recycling

Bob Peoples – Executive Director, CARE

Sean Ragiel – CarpetCycle

Fred Williamson – StarNet Worldwide Commercial Flooring Partnership

Joe Yarbrough – Mohawk Group

### **CARE Board Advisors**

Paul Ashman, Carpetrecycling.com

Frank Endrenyi, Sustainable Solutions

Matthew Ewadinger, North Carolina Department of Environmental and Natural Resources

Dennis Hayford, Polymers Center of Excellence

Bob Pilotti, EMC Plastics

Established in 2002, CARE is a 501 (C) 3 non-profit organization. Carpet America Recovery Effort (CARE) is a joint industry-government effort to increase the amount of recycling and reuse of post-consumer carpet and reduce the amount of waste carpet going to landfills.