

**RECYCLING TECHNICAL ASSISTANCE  
Project #600**

**UWCHLAN TOWNSHIP  
CHESTER COUNTY, PENNSYLVANIA**

**PRELIMINARY ASSESSMENT  
ELIMINATING GLASS FROM CURBSIDE SINGLE STREAM COLLECTION**



Photo Source: [epa.ohio.gov](http://epa.ohio.gov)

**August 2016**

**Sponsored by the Pennsylvania Department of Environmental Protection through the  
Pennsylvania State Association of Township Supervisors**

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*Project Completed By:*



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## 1.0 STATEMENT OF PROBLEM

This study was conducted for Uwchlan Township (Township) under the Recycling Technical Assistance (RTA) program. The RTA program is sponsored by the Pennsylvania Department of Environmental Protection (PADEP) through the Pennsylvania State Association of Township Supervisors (PSATS). The Township contracts for solid waste and recyclables collection with a private hauler and is responsible for solid waste billing through the sewer department. Historically, the Township and other communities have had questions regarding the feasibility of collecting glass bottles with other curbside recyclables. As collection system costs are generally on the rise, the Township is interested in understanding the costs and impacts associated with glass recovery to determine if it is feasible to remove glass from its curbside recycling program.

## 2.0 SUMMARY OF WORK

### 2.1 Curbside Refuse and Recycling Program

The Township's curbside refuse and recyclables collection program is provided through a collection and disposal contract with JP Mascaro & Sons, Inc. The collection contract is for 5,120 residential dwelling units. In 2016, the Township is in year 5 of the 3-year contract that included two annual renewal options. Residents pay \$67.00 per quarter to the Township for trash collection and disposal services. The disposal tip fee for refuse is \$63.00 per ton at the Lanchester Landfill. Under the current refuse collection contract, the Township retains title to all collected recyclables and designates the recycling facility. Curbside residential recyclables are collected commingled in single stream format. The curbside contract will be rebid in 2016.

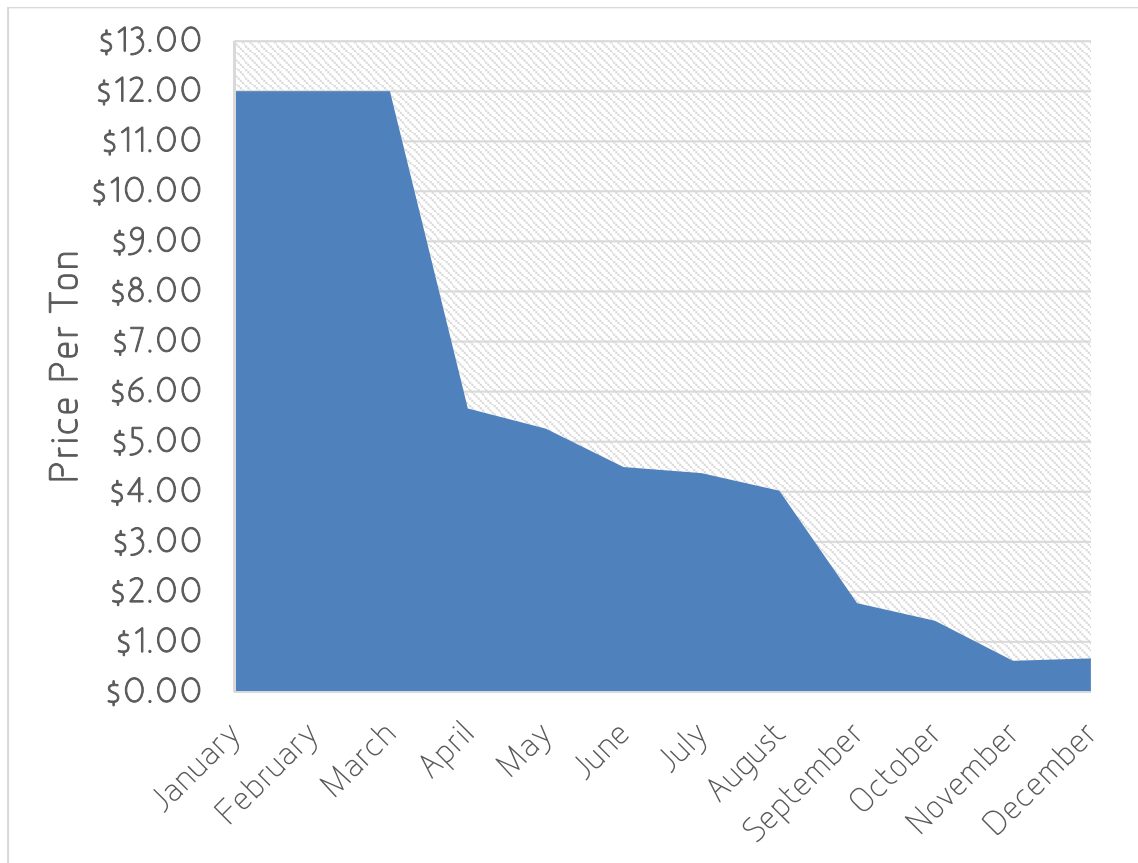
### 2.2 Chester County Processing & Marketing Agreement(P&M)

The Township participates in the Chester County Processing & Marketing (P&M) Agreement. Through this Agreement and contract administered by the Chester County Solid Waste Authority (CCSWA), participating municipalities agree to send curbside residential recyclables to a designated Material Recovery Facility (MRF). The designated MRF is determined through periodic competitive solicitation and selection of a single processor by CCSWA. By committing large quantities of recyclables from multiple municipalities to one facility, the Agreement improves market leverage, which is reflected as preferred commodity pricing. As of 2016, there are 13 municipal P&M participants (refer to **Appendix A - Chester County Processing & Market Participants**). The processing arrangement is currently with Republic Services, who operates a MRF in King of Prussia, Pennsylvania. Each participating municipality typically earns revenue for recyclables based on recyclable tonnage and the monthly commodity pricing arrangement between the CCSWA and Republic Services. The majority of glass recovered by Republic's MRF in King of Prussia is delivered to the Conestoga Landfill where it is beneficially reused as road bedding.

As shown in **Figure 1**, in 2015 the P&M participants were paid as much as \$12 per ton in the beginning of the year and a low of \$.67 per ton in December for single stream recyclables. Participants are not paid or charged fees for glass. In 2016, commodity pricing has fluctuated from -\$1.73 per ton to \$4.06 per ton. CCSWA will rebid commodity pricing in the spring of 2017. Since CCSWA commodity pricing is based on a consumer price index ("Yellow Sheet"), the price drop in 2015 reflects regional and global market conditions. Generally, recyclable commodity values in the US decreased significantly as petroleum prices fell, demand from overseas markets decreased, and the strength of the US dollar has increased.



Figure 1 - Chester County Processing & Market Agreement Commodity Pricing (2015)



### 3.0 FINDINGS

#### 3.1 Single Stream MRF (Glass Recovery)

Uwchlan Township's MRF and commodity revenue (excluding grants) is determined through the CCSWA P&M Agreement. In order to understand recyclables market conditions and industry perspectives regarding glass processing, SRC identified Pennsylvania single stream MRF's. Using a single stream facility list provided by the PADEP, SRC created a map of Single Stream MRF's in Pennsylvania (**Appendix B**). The Township is in a favorable location, situated within 100 miles of multiple MRF's that accept and process glass.

SRC contacted MRF representatives from Waste Management (Philadelphia), Penn Waste (York), and Republic Services (King of Prussia) regarding glass processing. Based on phone interviews and supplemental research, the bulleted observations below characterize glass processing at Pennsylvania MRF's. These observations include the opinions of MRF representatives regarding the removal of glass from residential single stream recycling programs.

- Single stream processors/MRF's have unique conditions that impact operations, costs, and perspectives associated with glass processing. Some of the conditions that can be unique to each single stream processor include:
  - Number of, and distance to, glass markets (intermediate and end markets).
  - Type and age of glass processing equipment (relates to glass processing costs).



- Facility configuration and age and type of non-glass processing equipment (relates to glass processing costs).
- Glass market agreements and other commodity agreements that impact total commodity revenue and profit margins. For example, a MRF located far from glass processors and with lower per ton revenue for other commodities, can have a greater negative financial impact from glass handling.
- Residue rates including percentage of broken glass received.
- Relative to other single stream materials, glass is challenging and expensive to process and manage. Some issues include:
  - Glass dust and fragments accelerate wear and tear on glass processing and other MRF equipment. The cost impact can increase over time as aging equipment requires excessive maintenance. Consequently, for many facilities, glass recovery increases processing costs for all commodities and not just glass.
  - Managing moisture content of glass cullet is problematic. Moisture causes cullet particles to clump together and adhere to processing and screening equipment and generally increases the difficulty in handling cullet.
  - Glass management costs compared to other commodities is high. This is a combination of heavy weight, low value, and travel distance to processors and manufacturers.
- Conceptually, removing low-value, higher cost glass from the single stream curbside recycling stream could result in improved commodity pricing. This point assumes it is possible to compare traditional single stream material and a glass-free commingled mix that is not contaminated by glass. Due to the prevalence of mature recycling education programs, combined with the inherent challenges with recycling participation and material quality, market representatives indicated that many residents would continue to recycle glass well after a glass-free recycling program was introduced. Consequently, it is probable that MRF's receiving glass-free commingled materials would not provide or guarantee better pricing for a glass-free commingled mix. Or, the commodity price difference between single stream and glass-free commingled would be marginal.

### 3.2 Glass Processors & Manufacturers

MRF's recover whole and broken glass and may separate glass by color prior to shipping to processors. Glass processors receive glass from MRF's, clean it, and then sell recycled glass (often in cullet form) to end use markets or manufacturers. Glass manufacturers primarily convert recycled glass into containers and/or fiberglass. Under the trade name O-I, Owens-Illinois, Inc. is the largest manufacturer of glass containers in North America. O-I has a processing facility in Brockport, Pennsylvania. Ardagh Group, Saint-Gobain Containers, is located in Port Allegany, Pennsylvania. Ardagh Group specializes in packaging and is a leading manufacturer of food and beverage containers, cosmetic glass, pharmaceutical glass, and flacons. **Table 1** lists Pennsylvania's current list of glass processing facilities. **Appendix C** includes lists of glass processors, and glass and fiberglass manufacturers in North America obtained from the Glass Packaging Institute or GPI (<http://www.gpi.org/>). Carry All Products (CAP) Glass is located 70 miles from the Township and 60 miles from Republic Services' Recycling Center. The Township is in a relatively favorable location, situated with access to glass processors and manufacturers located within 100 miles.



Table 1 - Pennsylvania Glass Processing Facilities

Facility	Address	City
Lackawanna County Recycling Center	3400 Boulevard Ave.	Dunmore, PA
Bradish Glass	444 Willow Crossing Road	Greensburg, PA
Carry All Products (CAP) Glass	799 Smith Lane	Northampton, PA
Dlubak Glass Pennsylvania	PO Box 276	Natrona Heights, PA
Harsco Minerals International	49 Pinedale Industrial Road	Orwigsburg, PA
RecycALL, Inc. (Randy Hobbs, Pres.)	4832 Route 155	Port Allegany, PA

Source: Glass Packaging Institute (GPI). List updated May 04, 2016.

### 3.3 Financial Impact of Glass Disposal

SRC analyzed the financial impact of removing glass from the Township's single stream program using year 2015 recycling data. In this scenario, curbside recovered glass would be disposed at the Lanchester Landfill. This analysis assumes there is no change or increase in the commodity pricing or rebate paid to the Township as a result of sending a glass-free commingled mix to a MRF. **Table 2** presents the Act 101, Section 904 Performance Grant impact the Township would experience if 441 tons of glass (2015) is excluded from the Performance Grant application and award. The 441 tons is based on the weight distribution of glass within single stream materials, which is about 24 percent. The Performance Grant impact or loss is significant. This financial loss is further magnified by landfill disposal fees for the 441 tons of non-recycled or disposed glass. By removing 441 tons of glass, the Performance Grant award is decreased by \$20,901. The removal of glass not only affects the total tons available for grant award, but also decreases the percent diversion. This reduces the award rate for all remaining tons by reducing the Performance Award per ton. The grant award per ton for single stream (with glass) is \$15.46 per ton. Removing the 441 tons of glass reduces the grant award to \$11.57 per ton. Combined, the Grant loss (\$20,901) plus added disposal fees (441 tons at \$63.00 per ton = \$27,783) is over \$48,500. This \$48,500 is the amount the Township would have to offset via operational cost savings and/or increased commodity revenue to make removing glass economically advantageous.



Table 2 - Glass Removal Analysis - Financial Impact

Line No.	Description	Calculation	2015 Total	2015 Total Minus Glass	Change
(1)	Population		18,088	18,088	
(2)	Solid Waste	0.8 tons x (1)	14,470	14,470	
(3)	Residential Recycling		1,838	1,397	(441)
(4)	Residential Residue		110	84	(26)
(5)	Net Residential Recycling	(2)-(3)	1,727	1,313	(415)
(6)	Commercial Recycling		2,473	2,473	0
(7)	Commercial Residue		66	66	0
(8)	Net Commercial Recycling	(6)-(7)	2,407	2,407	0
(9)	Net Total Tons Recycled	(5)+(8)	4,134	3,720	(415)
(9)	Commercial Tons for Base and Performance Awards	the lesser of (5)and(8)	1,727	1,313	(415)
(11)	Tons for Base and Perf. Awards	(5)+(9)	3,455	2,625	(693)
(12)	Diversion Rate for Bonus Calc.	(11)/(2)	24%	18%	-6%
(13)	BASE AWARD	\$5 x (11)	\$ 17,273	\$ 13,127	\$ (4,145)
(14)	PERFORMANCE AWARD	\$10x(11)x(12)x100	\$ 82,469	\$ 47,634	\$ (34,835)
(15)	COMMERCIAL BONUS	\$10x[(8)-(5)]	\$ 6,798	\$ 10,943	\$ 4,145
(16)	SUB TOTAL		\$ 106,539	\$ 71,704	\$ (34,835)
(17)	TOTAL GRANT AWARD	60% x(16)	\$ 63,923	\$ 43,022	\$ (20,901)

Source: PADEP 904 Performance Calculator using year 2015 Township data.

### 3.4 Environmental Impact of Glass Removal From Curbside Recycling

The economic and environmental feasibility of glass recycling has been widely debated in Pennsylvania and nationally. SRC compared environmental impacts from glass disposal and curbside glass recycling using the Environmental Protection Agency's (EPA) Waste Reduction Model (WARM). Using the 441 glass tons (2015) for Uwchlan Township, SRC compared the status quo (diversion to recycling) with the alternative of landfilling the same quantity of glass. Under the baseline management scenario, the analysis input includes 441 tons of glass recycled and 12,743 tons of mixed solid waste (landfilled). Under the alternative management scenario, the analysis inputs include 441 tons of glass landfilled and 12,743 tons mixed solid waste (landfilled). The WARM Model analysis assumes the traditional glass recycling lifecycle includes factors for virgin material replacement as determined by the EPA. The model does not take into account the fact that Uwchlan Township's glass is beneficially reused as roadway surface at Conestoga Landfill. The Warm Model generated the following results, which demonstrates a net environmental benefit from glass recycling when used to replace virgin glass inputs.



Table 3 - Environmental Impact (WARM Model)

Baseline		Alternative		Impact of Glass Recycling
Action	Metric Tons CO <sub>2</sub> Equiv.	Action	Metric Tons CO <sub>2</sub> Equiv.	Metric Tons CO <sub>2</sub> Equiv.
441 Tons Glass Recycled	-122	441 Tons Glass Recycled	9	131
12,743 Tons Mixed MSW Landfilled	4,423	12,743 Tons Mixed MSW Landfilled	4,423	0
<b>Total</b>	<b>4,301</b>	<b>Total</b>	<b>4,432</b>	<b>131</b>

The reduction of 131 metric tons of CO<sub>2</sub> equivalent greenhouse gases per year by recycling rather than landfilling glass can be appreciated by comparing it to activities that would generate a like amount of greenhouse gases. 131 metric tons of CO<sub>2</sub> is comparable to the annual operation of 28 passenger vehicles, the combustion of 14,727 gallons of gasoline, or the combustion of one railway car of coal.

### 3.5 Glass Drop-off Versus Curbside

Since it was apparent that eliminating curbside glass recycling was not an economically beneficial option for the Township, SRC did not analyze glass drop-off alternatives in detail. However, SRC offers the following observations for curbside and drop-off glass alternatives:

- Participation rates and recovery rates for glass recycling are high for most curbside recycling programs. On a per capita basis, industry data demonstrates that curbside recycling will nearly always outperform drop-off recycling.
- Drop-off programs can successfully divert glass and often supplement curbside recycling.
- In the context of the Township's single stream recycling program, curbside glass recovery would be more cost effective than substituting curbside glass recovery with one or more glass drop-off sites. Key points include:
  - The cost of glass recovery within single stream programs is offset with Section 904 Performance Grants and avoided disposal tip fees.
  - Glass represents 18 to 24 percent of single stream tonnage.
  - Removing glass from curbside collection would not measurably save the Township money related to collection costs since collection routes (e.g. labor hours, number of stops, equipment, containers) would not change.
  - Glass drop-off sites can include costs for land, maintenance (e.g. routine cleaning), container procurement or lease, and for hauling (e.g. \$200 to \$275 per pull).
  - Drop-off recovery and hauling of small quantities (e.g. 8 cubic yard dumpsters or 40-yard roll-offs, etc.) is inefficient when compared to packer truck deliveries of single stream materials.

## 4.0 SOLUTIONS





## 4.1 Recommended Solutions

SRC does not recommend that the Township eliminate glass from its curbside recycling program. Some key reasons for this recommendation include:

- With mature recycling education programs in place, it would be difficult and socially unacceptable to require residents to stop recycling glass bottles.
- Curbside glass recycling is economically feasible compared to landfilling or drop-off recovery.
- Glass recycling has a net environmental benefit, including lower greenhouse gas emissions, when compared to glass disposal at a landfill.

Other recommendations include:

- The Township should apply for Act 101, Section 904 Performance Grants annually.
- The Township should work with commercial establishments to expand recycling efforts and to improve commercial recycling data reporting. These efforts will increase Township Performance Grant awards.
- To reduce environmental impacts, the Township should work with the CCSWA to ensure that recovered glass is recycled. This is a preferred option over beneficial use as landfill road bedding. Glass end use as road base does not recirculate glass to minimize raw material use. Considerations within the CCSWA processor bidding and selection process could include: 1) requiring recovered glass to be recycled by the designated MRF, or 2) requiring bidders to include pricing for a glass recycling option so the CCSWA can consider the option and cost during MRF selection.

## 5.0 CONCLUSION

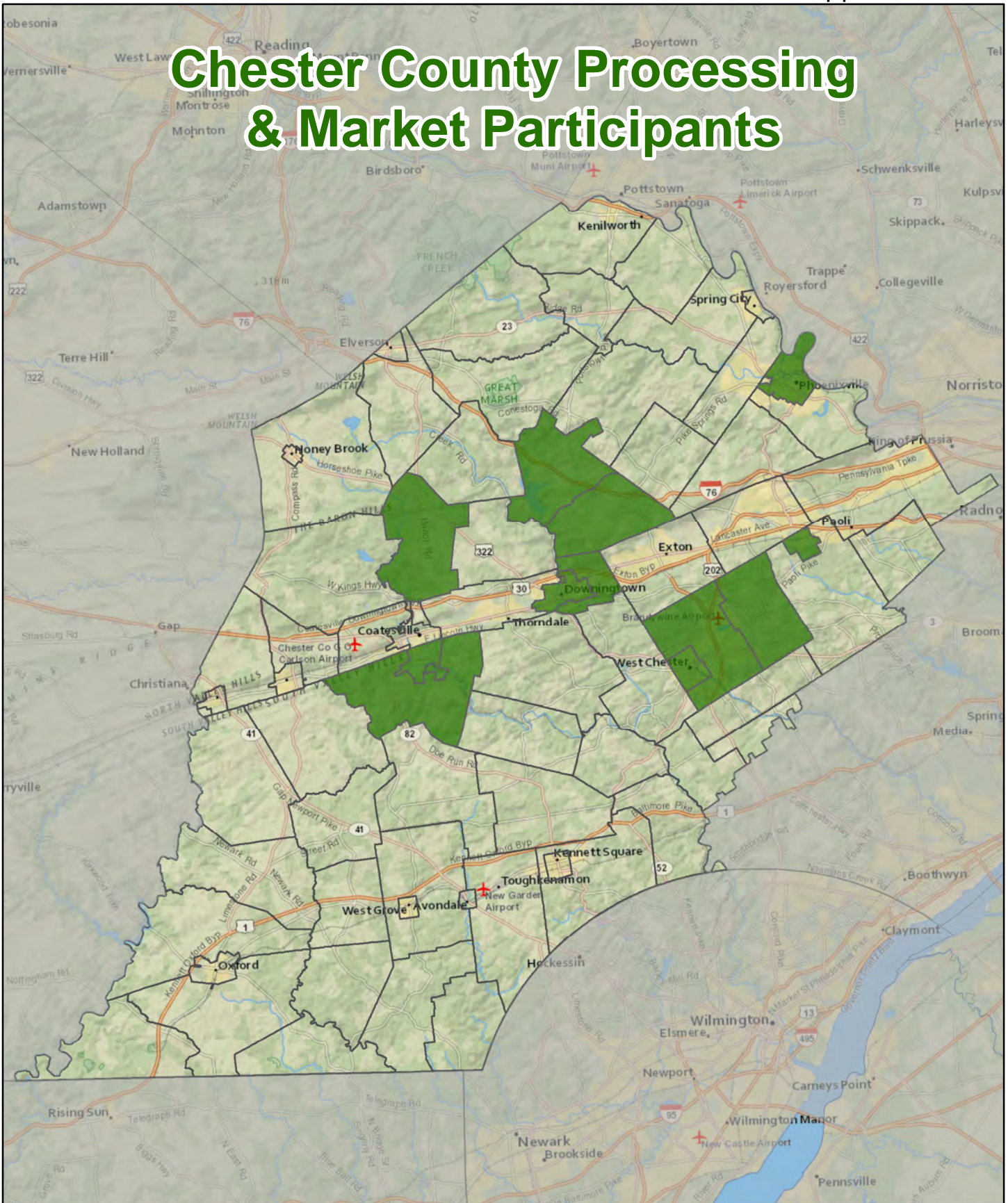
Curbside glass recycling is an economically and environmentally preferred alternative to glass disposal or drop-off recovery for the Township. Since a primary purpose of recycling is to substitute virgin materials with secondary feedstock during manufacturing, the current end use of the Township's glass as road bedding/surface is not a highest or best use. The Township should work to close its glass recovery loop to avoid the energy consumption and greenhouse gas emissions associated with virgin material extraction, transportation and processing. Using glass to make containers saves more energy than using recycled glass for road bedding most other non-container purposes.



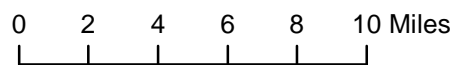
# APPENDIX

- Appendix A - Chester County Processing & Market Participants (Map)
- Appendix B - Single Stream Material Recovery Facilities (Map)
- Appendix C - Glass Processors & Manufacturers

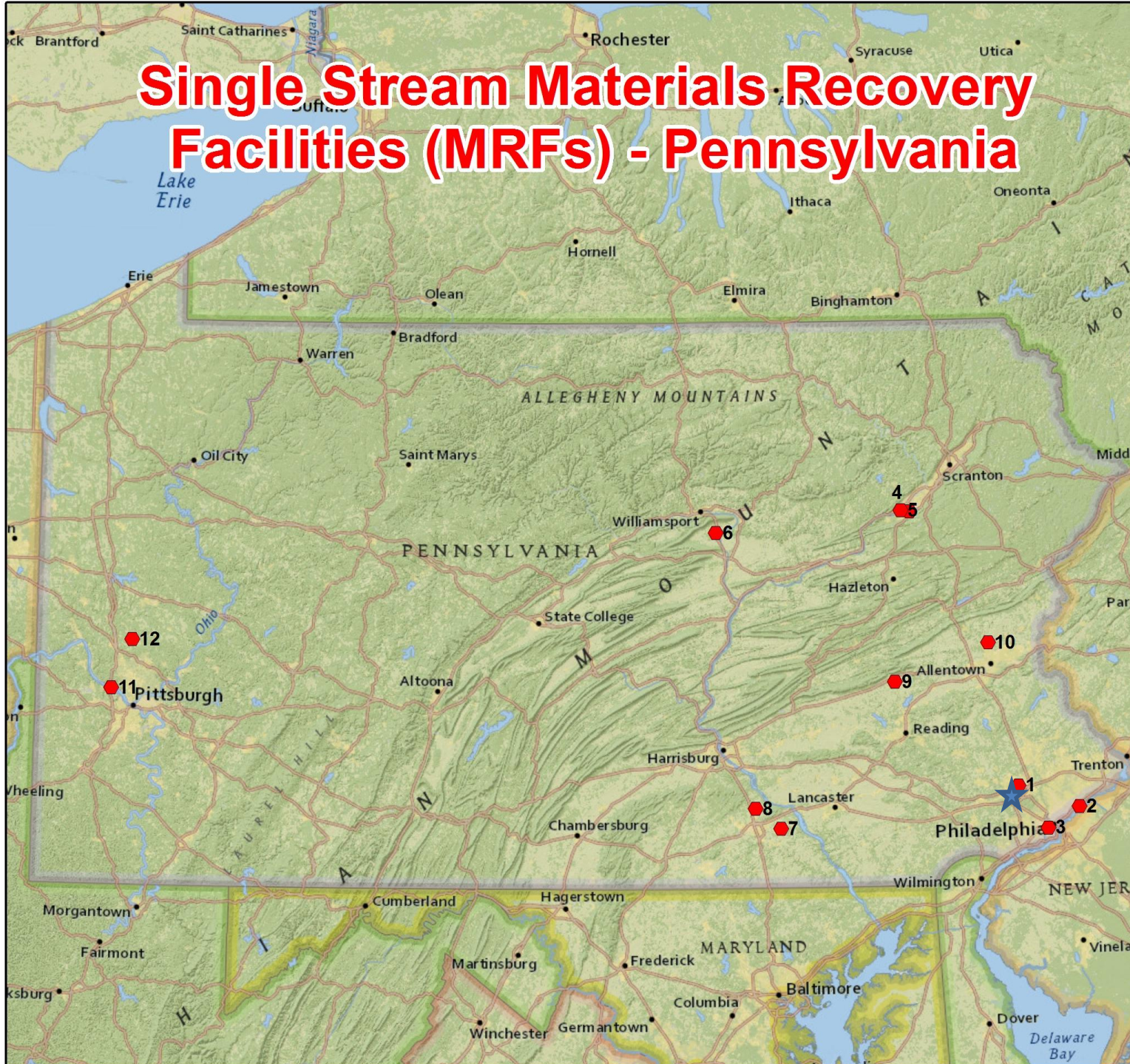
# Chester County Processing & Market Participants



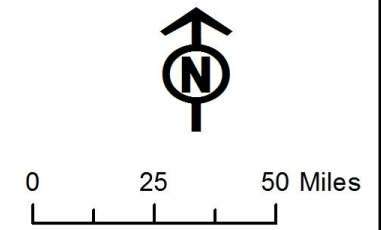
Chester County, PA  
13 of 73 County municipalities are Processing & Market Participants  
Participating municipalities shown in green



# Single Stream Materials Recovery Facilities (MRFs) - Pennsylvania



- **Single Stream MRFs**
- 1 Allied Waste Recyclery
- 2 Waste Management - Philadelphia
- 3 ReCommunity
- 4 Municipal Recovery
- 5 Northeast Cartage & Recycling Solutions
- 6 Lycoming County Recycling Center
- 7 Waste Management - York
- 8 Penn Waste, Inc.
- 9 Cogle's Recycling, Inc.
- 10 Waste Management - Greenstar Allentown
- 11 Waste Management - Greenstar Pittsburgh
- 12 Tri-County Recycling LLC
- ★ Republic Services Recycling Center - King of Prussia



**North American Glass Container Manufacturing Plant Facilities, as of 5-4-2016**

STATE	PLANT	ADDRESS	CITY	STATE	ZIP	PHONE
ARKANSAS	Arkansas Glass	516 W. Johnson Avenue	Jonesboro	AR	72403	(870) 932-4564
CALIFORNIA	Gallo Glass Co.	Oregon Drive, PO Box 1230	Modesto	CA	95353	(209) 579-3411
	O-I	2901 Fruitland Ave.	Los Angeles	CA	90058	(323) 586-4200
	O-I	14700 West Schulte Road	Tracy	CA	95376	(209) 835-5701
	Ardagh Glass	24441 Ave. 12 & Rd. 24 1/2	Madera	CA	93637	(559) 675-4700
COLORADO	Rocky Mountain Bottle Co.	10619 W. 50th Ave.	Wheat Ridge	CO	80033	(303) 425-7711
	O-I	11133 County Road 64-3/4	Windsor	CO	80631	(970) 674-3800
FLORIDA	Anchor Glass	2121 Huron Street	Jacksonville	FL	32236	(904) 786-1010
GEORGIA	Anchor Glass	1044 Booth Road	Warner-Robins	GA	31088	(478) 922-4271
	O-I	3107 Sylvan Road	Atlanta	GA	30354	(404) 765-8600
	SGD Glass	9141 Technology Drive, NE	Covington	GA	30014	(770) 786-1952
ILLINOIS	Ardagh Glass	13850 Cottage Grove Ave	Dolton	IL	60419	(708) 849-1500
	Ardagh Glass	1200 N. Logan Street	Lincoln	IL	62656	(217) 735-1511
	O-I	901 N. Shabbona Street	Streator	IL	61364	(815) 673-5112
INDIANA	Anchor Glass	200 W. Belview Dr.	Lawrenceburg	IN	47025	(812) 537-1655
	Ardagh Glass	603 E. North St.	Winchester	IN	47394	(765) 584-6101
	Ardagh Glass	524 E. Center St.	Dunkirk	IN	47336	(765) 768-7891
	O-I	2481 Brookside Rd.	Lapel	IN	46051	(765) 534-3121
LOUISIANA	Ardagh Glass	4241 Hwy	Ruston	LA	71270	(318) 247-8041
MASSACHUSETTS	Ardagh Glass	1 National Street	Milford	MA	01757	(508) 478-2500
MINNESOTA	Anchor Glass	4108 Valley Industrial Blvd. North	Shakopee	MN	55379	(952) 445-5000
MISSOURI	Ardagh Glass	1500 Saint-Gobain Drive	Pevely	MO	63070	(636) 475-3005
	Piramal Glass	1000 Taylor Ave	Park Hills	MO	63601	(573) 431-5743
NEW JERSEY	Ardagh Glass	443 Southeast Ave	Bridgeton	NJ	08302	(856) 455-2001
	Gerresheimer Glass	537 Crystal Ave	Vineland	NJ	08360	(856) 692-3600
NEW YORK	Anchor Glass	1901 Grand Central Ave.	Elmira	NY	14902	(607) 737-1933
	O-I	Rte. 6, County House Rd.	Auburn	NY	13021	(315) 255-5201
NORTH CAROLINA	Ardagh Glass	620 Facet Rd.	Henderson	NC	27536	(252) 492-1131

	Ardagh Glass	2200 Firestone Pkwy	Wilson	NC	27893	(252) 291-1500
	O-I	9698 Old U.S. Hwy 52	Winston-Salem	NC	27295	(336) 764-7200
OHIO	O-I	1700 State Rd.	Zanesville	OH	43701	(740) 455-4500
OKLAHOMA	Anchor Glass	601 E. Bollinger Road RR 3	Henryetta	OK	74437	(918) 652-9631
	Ardagh Glass	1000 N. Mission	Sapulpa	OK	74066	(918) 224-1440
	O-I	P.O. Box 8	Muskogee	OK	74402	(918) 682-6621
OREGON	O-I	5850 NE 92nd Drive	Portland	OR	97294	(503) 254-7331
PENNSYLVANIA	O-I	Crenshaw Plant Rte 219 North	Brockport	PA	15823	(814) 261-5360
	O-I	1260 Cherry Street	Brockport	PA	15823	(814) 261-6284
	Ardagh Glass	One Glass Place	Port Allegany	PA	16743	(814) 642-2521
TEXAS	O-I	5200 Beverly Drive	Waco	TX	76702	(254) 754-9525
	Longhorn Glass Corp.	4202 Fidelity Street	Houston	TX	77029	(713) 679-7500
VIRGINIA	O-I	150 Industrial Blvd.	Toana	VA	23168	(757) 566-1200
	O-I	29 Glass Blower Lane	Ringgold	VA	24586	(434) 799-5880
WASHINGTON	Ardagh Glass	5801 E. Marginal Way South	Seattle	WA	98134	(206) 762-0660
	O-I	2310 N Hendrickson Dr.	Kalama	WA		(360) 524-4970
WISCONSIN	Ardagh Glass	815 S. McHenry Street	Burlington	WI	53105	(262) 763-9161
MEXICO	O-I - Monterrey	Magallanes 517 Ote., Colonia Treviño	Monterrey	Nuevo Leon	64570	<a href="http://www.o-i.com">www.o-i.com</a>
	O-I - Mexico City	Avenida Presidente Juarez #2039, Colonia Los Reyes Iztacala	Tlanepantla		54090	<a href="http://www.o-i.com">www.o-i.com</a>
	O-I - Queretaro	Avenida Coahuila No. 5 Colonia Obrera Parque Industrial Benito Juarez	Queretaro	Qro	76130	<a href="http://www.o-i.com">www.o-i.com</a>
	O-I - Guadalajara	LIBRA No. 225 Fracc. Juan Manuel Vallarta	Zapopan	Jalisco	45120	<a href="http://www.o-i.com">www.o-i.com</a>
	O-I - Toluca	Paseo Toyoacan Mexico Toluca Km 57.5	Toluca		50200	<a href="http://www.o-i.com">www.o-i.com</a>
CANADA	O-I Brampton	100 West Street	Brampton	Ontario	L6X 1W2	1 905-457-2423
	O-I Montreal	2376 Rue Wellington	Montréal	Quebec	H3K 1X6	1 514-939-8500

# North American Glass Recycling (Processor) List, as of 6-16-2016

Appendix C

## Companies Listed Purchase Recycled Glass From MRFs and Recycling Facilities, Process (Clean) and Sell to End Markets

Company	Street Address	City	State	Zip	Phone	Fax	E-mail/Website
<b>Arizona</b>							
Strategic Materials, Inc.	301 S. 19th Avenue	Phoenix	AZ	85009	602-253-6677	602-253-4020	atovar@strategicmaterials.com
<b>California</b>							
Strategic Materials, Inc.	11340 Commercial Parkway	Castroville	CA	95012	510-357-0531	510-357-0520	<a href="mailto:hperetz@strategicmaterials.com">hperetz@strategicmaterials.com</a>
Strategic Materials, Inc.	7000 Bandini Blvd	Commerce	CA	90040	323-887-6831	323-887-6833	<a href="mailto:sramirez@strategicmaterials.com">sramirez@strategicmaterials.com</a>
Strategic Materials, Inc.	12200 Road 24 1/2	Madera	CA	93637	559-675-8781	559-675-8783	<a href="mailto:mhinson@strategicmaterials.com">mhinson@strategicmaterials.com</a>
Strategic Materials, Inc.	5850 88th Street	Sacramento	CA	95828	916-388-1076	916-388-2313	<a href="mailto:dmoore@strategicmaterials.com">dmoore@strategicmaterials.com</a>
Strategic Materials, Inc.	1932 Fairway Drive	San Leandro	CA	94577	510-357-0520	510-357-0520	<a href="mailto:hperetz@strategicmaterials.com">hperetz@strategicmaterials.com</a>
Strategic Materials, Inc.	3211 E. 26th Street	Vernon	CA	90023	323-415-0166	323-415-0170	<a href="mailto:rwagner@strategicmaterials.com">rwagner@strategicmaterials.com</a>
<b>Colorado</b>							
Rocky Mountain Bottle Company	10619 West 50th Avenue	Wheatridge	CO	80033	303-425-7919		<a href="mailto:anthony.abel@millercoors.com">anthony.abel@millercoors.com</a>
Clear Intentions	5601 Downing Street	Denver	CO	80216	303-993-8221		<a href="http://www.clearintentions.glass/#our-story">http://www.clearintentions.glass/#our-story</a>
<b>Connecticut</b>							
Strategic Materials, Inc.	300 Rye Street	South Windsor	CT	06074	860-289-8480		<a href="mailto:ghinds@strategicmaterials.com">ghinds@strategicmaterials.com</a>
<b>Florida</b>							
Strategic Materials, Inc.	400 Agmac Avenue	Jacksonville	FL	32205	904-695-2790	904-695-2894	<a href="mailto:painsworth@strategicmaterials.com">painsworth@strategicmaterials.com</a>
Strategic Materials, Inc.	6420 19th Street E	Sarasota	FL	34243	941-758-7773	941-758-9407	<a href="mailto:tmiller@strategicmaterials.com">tmiller@strategicmaterials.com</a>
<b>Georgia</b>							
Strategic Materials, Inc.	2350 Daniel Road	Atlanta	GA	30331	404-629-2186		<a href="mailto:tfletcher@strategicmaterials.com">tfletcher@strategicmaterials.com</a>
Strategic Materials, Inc. "College Park"	3050 Roosevelt Highway	College Park	GA	30349	404-761-1340	404-761-1541	<a href="mailto:tfletcher@strategicmaterials.com">tfletcher@strategicmaterials.com</a>
<b>Illinois</b>							
Strategic Materials, Inc.	10330 S. Woodlawn Avenue	Chicago	IL	60628	773-995-9850	773-995-9851	<a href="mailto:wsorokes@strategicmaterials.com">wsorokes@strategicmaterials.com</a>
<b>Indiana</b>							
Strategic Materials, Inc.	407 E. Garfield	Ashley	IN	46705	260-587-3000	260-587-3311	<a href="mailto:aschwartz@strategicmaterials.com">aschwartz@strategicmaterials.com</a>
Strategic Materials, Inc.	11365 W 450 S	Dunkirk	IN	47336	765-330-1098		<a href="mailto:kbanter@strategicmaterials.com">kbanter@strategicmaterials.com</a>
Strategic Materials, Inc.	2001 Renner Drive	Hartford City	IN	47348	765-330-1098		<a href="mailto:kbanter@strategicmaterials.com">kbanter@strategicmaterials.com</a>
Strategic Materials, Inc.	2550 West Minnesota Avenue	Indianapolis	IN	46241	317-484-2550	317-484-2556	<a href="mailto:bforeman@strategicmaterials.com">bforeman@strategicmaterials.com</a>
<b>Iowa</b>							
Mid America Recycling	2742 East Market Street	Des Moines	IA	50317	515-265-1208	515-262-2209	<a href="mailto:mbarry@dwx.com">mbarry@dwx.com</a>
<b>Kentucky</b>							
Dlubak Glass Kentucky	1052 Industry Drive	Lawrenceburg	KY	40342	502-839-9116	502-839-9129	<a href="mailto:thostetler@dlubak.com">thostetler@dlubak.com</a>
<b>Massachusetts</b>							

Strategic Materials, Inc.	45 Kenwood Circle	Franklin	MA	02038	508-541-4600	508-541-4611	acrowley@strategicmaterials.com
<b>Michigan</b>							
Glass Recyclers LTD	6465 Wyoming Avenue	Dearborn	MI	48126	313-584-3434	313-584-3399	<a href="mailto:glassrec@aol.com">glassrec@aol.com</a>
<b>Minnesota</b>							
Strategic Materials, Inc.	195 Minnehaha Ave E	St. Paul	MN	55130	651-224-5700		<a href="mailto:imeierhoff@strategicmaterials.com">imeierhoff@strategicmaterials.com</a>
<b>Missouri</b>							
Ripple Glass	1642 Crystal Avenue	Kansas City	MO	64126	816-221-4527		stacia@rippleglasskc.com
Strategic Materials, Inc.	24 Branch Street	Saint Louis	MO	63147	314-421-2127	314-421-2423	<a href="mailto:dschwartz@strategicmaterials.com">dschwartz@strategicmaterials.com</a>
<b>Nebraska</b>							
Midland Recycling	440 J Street	Lincoln	NE	68508	402-476-8502	402-476-8529	info@midlandrecycling.net
<b>New Jersey</b>							
ABCA Glass	40 McWhirter Road	Kearny	NJ	07032	201-997-5600	201-997-9624	<a href="http://www.abcarecycling.com">www.abcarecycling.com</a>
Sims Metal Management	1 Linden Ave E	Jersey City	NJ	07305	201-577-3200	201-432-5332	<a href="http://www.simsmm.com/Local-Solutions/North-America/New-Jersey/Claremont-Terminal-NJ">www.simsmm.com/Local-Solutions/North-America/New-Jersey/Claremont-Terminal-NJ</a>
<b>New York</b>							
EWG Glass Recovery	9454 158th Street	Jamaica	NY	11433	718-739-7270		
TOMRA New York Recycling	5923 Loomis Road	Farmington	NY	14425	585.742.3790		ike.erike@tomra.com
<b>Nevada</b>							
Strategic Materials, Inc.	4910 Donovan Way, Suite R	North Las Vegas	NV	89081	702-643-6001		asandoval@strategicmaterials.com
<b>North Carolina</b>							
Strategic Materials, Inc.	503 Junction Road	Durham	NC	27703	919-956-8853	919-598-1134	<a href="mailto:rtigbayan@strategicmaterials.com">rtigbayan@strategicmaterials.com</a>
Strategic Materials, Inc.	1815 Capital Boulevard	Raleigh	NC	27604	919-834-1335	919-829-1396	rtigbayan@strategicmaterials.com
Strategic Materials, Inc.	4140 Patterson Avenue	Winston Salem	NC	27105	336-251-1025		<a href="http://www.reflectivebevcon.com">http://www.reflectivebevcon.com</a>
<b>Ohio</b>							
Dlubak Glass Ohio	11567 County Highway 110	Upper Sandusky	OH	43351	419-294-4466	419-294-1303	ddlubak@dlubak.com
Rumpke	1932 E Monument Ave	Dayton	OH	45402	800-223-3960		<a href="http://www.rumpke.com/about-us">http://www.rumpke.com/about-us</a>
Strategic Materials, Inc.	2323 West 3rd Street	Cleveland	OH	44113	216-241-4450	216-241-4453	<a href="mailto:mpompili@strategicmaterials.com">mpompili@strategicmaterials.com</a>
Strategic Materials, Inc.	101 South Arch Street	Newark	OH	43055	740-349-9523	740-349-8312	<a href="mailto:mback@strategicmaterials.com">mback@strategicmaterials.com</a>
<b>Oklahoma</b>							
Dlubak Glass Oklahoma	PO Box 459	Okmulgee	OK	74447	918-752-0226	918-752-0105	rcarr@dlubak.com
<b>Oregon</b>							
Glass to Glass, Inc.	866 N. Columbia Blvd.	Portland	OR	97217	971-645-4801		<a href="http://www.ecullet.com">www.ecullet.com</a>
Strategic Materials, Inc.	4530 NE 138th Avenue	Portland	OR	97230	503-255-9393	503-255-9358	
<b>Pennsylvania</b>							
Lackawanna County Recycling Center	3400 Boulevard Avenue	Dunmore	PA	15601	570-963-6868		<a href="http://www.lackawannacounty.org/portal/recycling/">http://www.lackawannacounty.org/portal/recycling/</a>
Bradish Glass	444 Willow Crossing Road	Greensburg	PA	15601	724-837-5100	724-834-5161	bradishglassinc@hotmail.com
Carry all Products (CAP) Glass	P.O. Box 201	Connellsville	PA	15425	724-547- 4550		capi@zoominternet.net



Carry all Products (CAP) Glass	799 Smith Lane	Northampton	PA	18067	724-547- 4550		capi@zoominternet.net
Dlubak Glass Pennsylvania	PO Box 276	Natrona Heights	PA	15065	724-224-6611	724-224-1099	jdlubak@dlubak.com
Harsco Minerals International	49 Pinedale Industrial Road	Orwigsburg	PA	17961	570-366- 0950	570-366- 0948	http://www.harsco.com/contact/
RecycALL, Inc. (Randy Hobbs, President)	4832 Route 155	Port Allegany	PA	16743	814-642-5057	814-642-1095	<a href="mailto:reycall@verizon.net">reycall@verizon.net</a>
<b>Rhode Island</b>							
Strategic Materials, Inc.	33 Shun Pike	Johnston	RI	O2919	401-952-5706		<a href="mailto:ACrowley@strategicmaterials.com">ACrowley@strategicmaterials.com</a>
<b>South Carolina</b>							
Reflective Recycling of South Carolina	502 Calico Drive	Pacolet	SC	29372	864-474-9650		http://www.reflectivebevcon.com
<b>Tennessee</b>							
Strategic Materials, Inc.	1035 Thompson Road Industrial	Ashland City	TN	37015	615-792-5097	615-792-5522	<a href="mailto:Gskinner@strategicmaterials.com">Gskinner@strategicmaterials.com</a>
<b>Texas</b>							
Strategic Materials, Inc.	825 S Loop W, Warehouse C	Houston	TX	77054	713-795-9800	713-740-9484	<a href="mailto:amartinez@strategicmaterials.com">amartinez@strategicmaterials.com</a>
Strategic Materials, Inc.	3240 Robinson Road	Midlothian	TX	76065	972-723-2422	972-775-1113	<a href="mailto:atims@strategicmaterials.com">atims@strategicmaterials.com</a>
Dlubak Glass Texas	400 Mushroom Road	Waxahachie	TX	75165	972-938-0865	972-938-0948	tomlassetter@yahoo.com
<b>Utah</b>							
American Specialty Glass (ASG)	829 N. 400 West	North Salt Lake City	UT	84054	817-294-4222		adam@asglass.com
Momentun Recycling	658 S 4050 W	Salt Lake City	UT	84104	801-355-0334		<a href="http://company.momentumrecycling.com">http://company.momentumrecycling.com</a>
<b>Wisconsin</b>							
Strategic Materials, Inc.	2728 Buell Drive	East Troy	WI	53120	262-642-4711	262-642-4722	etapper@strategicmaterials.com
<b>CANADA</b>							
2M Resources	450 Saint-Michel St, SAINT-JEAN	Quebec	QC	J3B 1T4	450-348-0808	450-348-0828	info@2mresources.com
NexCycle Canada (Brampton)	235 Wilkinson Road	Brampton	ON	L6T4M2	905-454-2666		anho@nexcycle.com
NexCycle Canada (Guelph)	50 McLean Road, RR #3	Guelph	ON	N1H6H9	519-836-5981		cklym@strategicmaterials.com
<b>MEXICO</b>							
Strategic Materials mexicana S.A. de C	Blve. Loped Mateos Km. 6.5 Col	Mexicali, Baja Cali	MEXICO		011 52-68656171	011 52-68656160	fpartida@strategicmaterials.com