

RECYCLING & TRASH REPORT FY 2016

EXECUTIVE SUMMARY

In May 2010, Temple University adopted its Climate Action Plan, which addresses the role of recycling and waste minimization as part of its comprehensive efforts to reduce the university’s carbon footprint. The plan established a goal of increasing the recycling rate to 40% and reducing the amount of greenhouse gas emissions derived from land-filled solid waste by 10% by 2015 relative to its 2006 baseline levels. Temple reached its waste-related emissions reduction goal by 2008. When considering all materials diverted from the waste stream (core, secondary and special materials), Temple’s diversion rate increased to 44% in 2014; however, it has seen a 27% decrease between 2009 and 2016 in its core recycling rate.¹

Temple’s recycling (diversion) rate decreased from 45% in FY 2015 to 44% in FY 2016. Since 2006, Temple has increased recycling by 891 tons (a 63% increase) and reduced waste by 1,461 tons (a 33% reduction). Between 2006 and 2016, greenhouse gas (GHG) emissions attributed to solid waste have decreased by 52% from 13,676 metric tons carbon dioxide equivalent (MTCO2E) to 6,545 MTCO2E. This is equivalent of taking 1,383 cars off the road.

In an effort to track university trends in recycling and waste minimization efforts, Temple University’s Office of Sustainability prepares an annual Recycling & Trash Report. Recycling and trash data is provided by university affiliates and compiled by the Office of Sustainability into one report. Below is a summary of recycling and trash data for FY 2016.

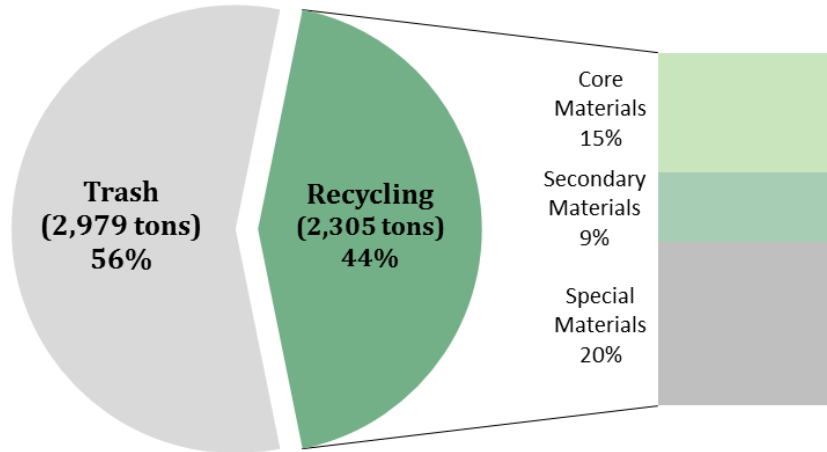
<i>FY 2016 Materials Summary</i>			
Reporting Building/Campus	Recycling	Trash	Combined
Main, Podiatry, HSC, Ambler	2,288.60	2,902.77	5,191.37
Liacouras Center	16.50	76.36	92.86
Total Tons Collected	2,305.10	2,979.13	5,284.23
<i>% of Combined Total</i>	44%	56%	
<i>Total Cost</i>	\$43,532	\$400,884	\$444,417
<i>Cost Per Ton</i>	\$18.89	\$134.56	\$84.10

**Recycling materials (including compost) are included with Main Campus*

¹ Recycling rate includes core recycled materials, such as plastics, metals, paper and cardboard. Diversion rate includes all materials that have been diverted from the waste stream.

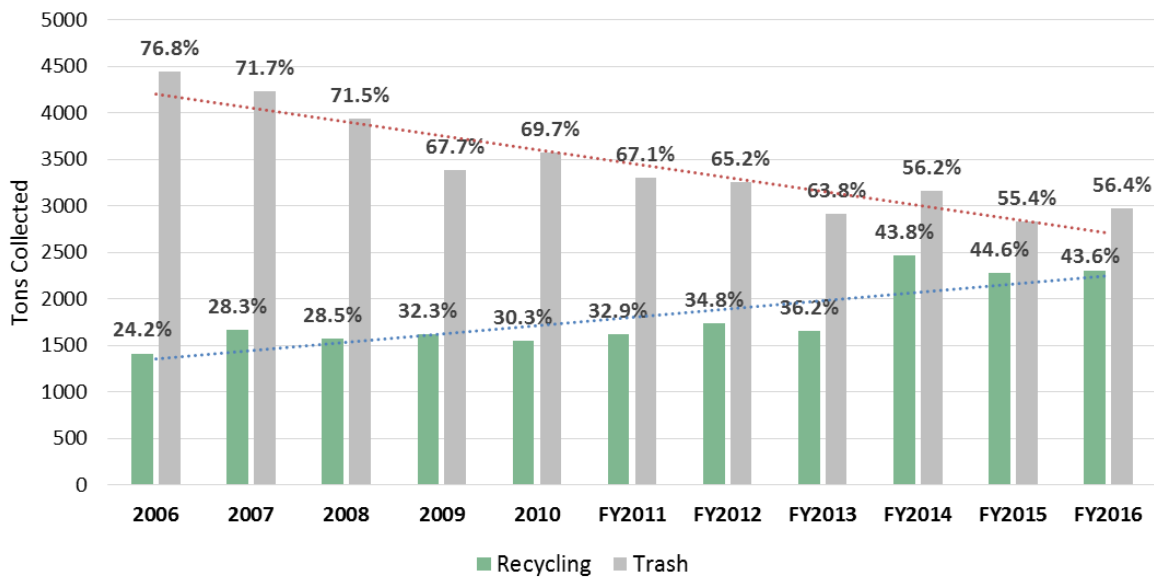
In FY 2016, core recycling materials made up 34% of total recyclables and secondary material recycling, such as compost, made up 20% of total recyclables. Special materials accounted for the greatest portion of recyclables at 46%. Total waste stream amounts are illustrated below.

FY 2016 Waste Stream Percentages

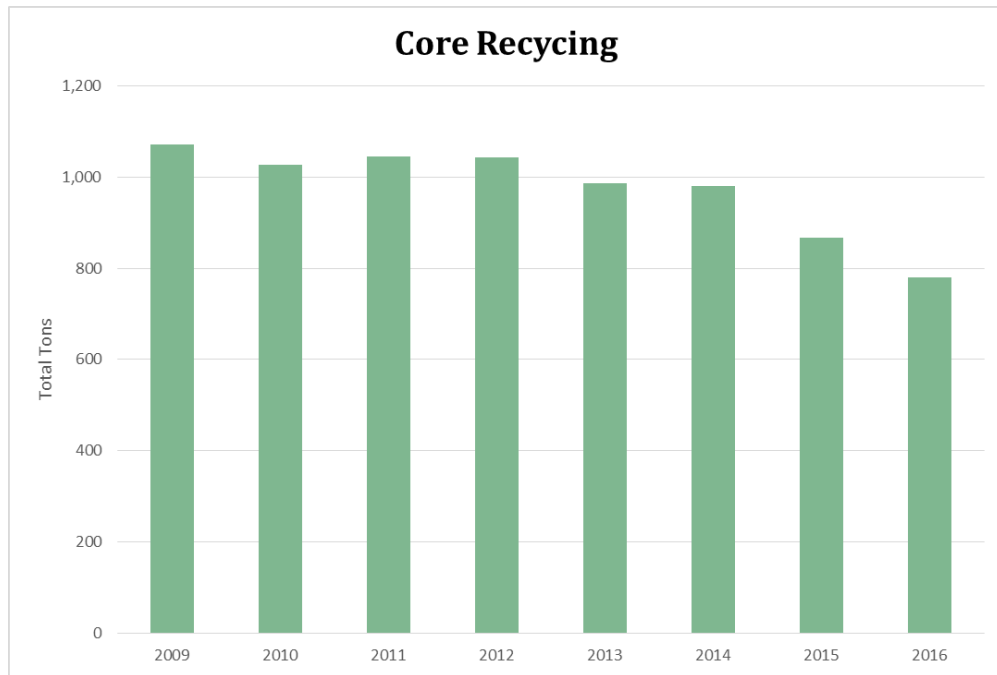


From FY 2015 to FY 2016, total waste increased by 152 tons (5%). The increase may be attributed to the university switch of trash vendors resulting in changes to data tracking. Recycling also increased from FY 2015 to FY 2016 by 29.73 tons. The graph below compares recycling and trash in terms of total tons collected and their percentages of the overall waste stream. From 2006 to 2016, there has been an increase in recycling percentages, as well as a general decrease in the total tons collected.

Tons Collected - 2006 to 2016

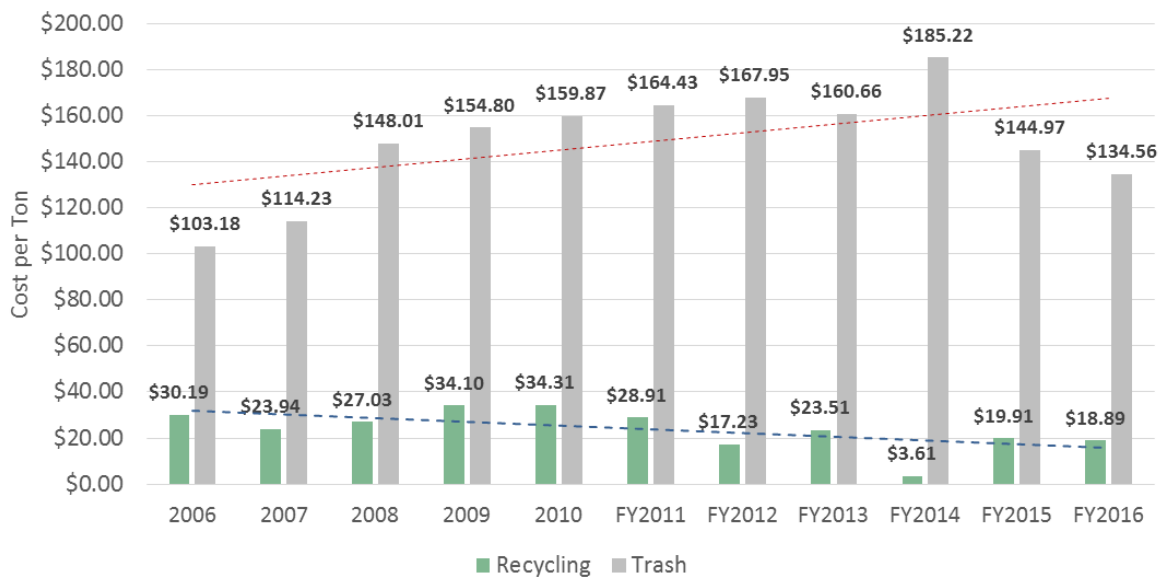


While there is an overall rising trend in recycling amounts, core material recycling has actually decreased from 1,072 tons in CY 2009 to 781 tons in FY 2016 (as illustrated in the graph below), a 27% decrease. When considering core materials and trash amounts alone, Temple’s recycling rate peaked in FY 2013 at 25.3% and has steadily decreased to 20.8% in FY 2016.



The cost per ton of recycling versus trash from 2006 to 2016 is shown in the graph below. In general, recycling costs have decreased and trash costs per ton have increased. In FY 2016, Temple experienced \$116 savings per ton of material diverted from the landfill, amounting approximately to a \$267,392 savings.

Cost per Ton Recycling vs. Trash - 2006 to 2016



FY 2016 PROGRAM HIGHLIGHTS

Composting & Dining: Temple increased its food compost material by 80% from 29.73 tons in FY15 to 140.40 tons in FY16 due to the restart of the composting program at J&H Dining. The Rad Dish Co-Op Café program composts food scraps with Temple Community Garden and uses reusable plates and mugs for customers who wish to dine at the cafe.

E-Waste: The Computer Recycling Center (CRC) recycled or refurbished 31.61 tons of computers, continuing the trend of keeping e-waste out of the waste stream. The CRC implemented the Temple Tech for Philly program, where a nearby elementary school was outfitted with a lab of refurbished computers.

Surplus Property: A Surplus Property Working Group was appointed which led to the adoption of a central surplus property policy. Temple Surplus Sales increased from \$19,520 in FY15 to \$43,503 in FY16, a 55% increase.

Recycling Containers: New exterior recycling and trash containers were installed around campus. Additional recycling containers were installed inside the residential halls with improved labeling, and recycling containers were distributed to Greek Life housing.

Give + Go Green: This Residential Hall initiative resulted in almost 5,000 pounds of donations being collected during student move-out, some of which were sold during Campus Sustainability Week.

Temple Office Supply Swap (TOSS): TOSS, which provides discarded office supplies for free, was relocated to the Student Center with expanded hours of operations.

RecycleMania 2016: Temple continued to participate in the annual RecycleMania competition, collecting 307,400 pounds of recyclables over the course of the 8-week event and included initiatives such as “Caught Green Handed” which rewarded students for making sustainable choices.

Water Bottles: Reusable water bottles were distributed to all incoming first-year and transfer students during orientation and Temple installed additional water bottle refilling stations to reduce the number of single use bottles.

RECYCLING & TRASH REPORT ATTACHMENTS FY 2016

FY 2016 Recycling and Trash Collection Summary

	Main HSC Podiatry Ambler	Liacouras Center	Total Tons Collected	% of Total	Total Cost	Cost Per Ton
Recycling	2,288.60	16.50	2,305.10	44%	\$43,532	\$18.89
Trash	2,902.77	76.36	2,979.13	56%	\$400,884	\$134.56
Total	5,191.37	92.86	5,284.23	100%	\$444,417	\$84.10

Notes:

- (a) Health Sciences Center (HSC) includes Temple University buildings only, not buildings owned by Temple University Health System.
Podiatry includes school and housing and Main includes Residence Halls and Howard Gittis Student Center.
- (b) Recycling materials are included in column 2.
- (c) Total tons collected does not include construction materials.

FY 2016 Trash Collection Report

Basic Materials	Main HSC Podiatry Ambler	Liacouras Center	Total Tonnage	% of Total	Total Cost	Cost Per Ton
Truck Collections	953.20	-	953.20	32%	\$69,161.43	\$72.56
Outside vendors	1,949.57	76.36	2,025.93	68%	\$331,722.97	\$163.74
Total Trash	2,902.77	76.36	2,979.13	100%	\$400,884.40	\$134.56

Notes:

(a) Health Sciences Center (HSC) includes Temple University buildings only, not buildings owned by Temple University Health System.

Podiatry includes school and housing and Main includes Residence Halls and Howard Gittis Student Center.

(b) Truck collections refer to the truck collection of trash by Temple employees and includes personnel costs, vehicle maintenance and fuel, tipping fees to landfills.

(c) Outside vendors refer to the costs paid to outside vendors to haul open full containers and tipping fees to landfills.

Does not include the costs of Temple employees to fill the open containers.

FY 2016 Recycling Report

	Main Podiatry HSC	Ambler	Liacouras Center	Total Recycling Tonnage	Total Recycling Costs
Basic Materials	Tons	Tons	Tons	Tons	
Mixed Office Paper	266.98			266.98	-\$560.10
Corrugated Cardboard	58.97		4.50	63.47	-\$3,368.50
Bottles & Plastics (co-mingled)	357.50			357.50	\$56,351.16
Single Stream (Morgan Hall & Liacouras)	62.55	18.72	12.00	93.27	\$6,576.02
Subtotal - Basic Materials	746.00	18.72	16.50	781.22	\$58,998.58
Secondary Materials					
Food Compost	140.40			140.40	\$9,020.70
Fryer Oil	80.20			80.20	
Vegetation Compost	200.00	37.50		237.50	
Subtotal - Secondary Materials	420.60	37.50	0.00	458.10	\$9,020.70
Special Materials					
Computer Equipment - Reused/Recycled	31.61			31.61	
Toner & Ink Jet Cartridges	5.27			5.27	
Universal & Chemical Waste (offsite)	8.34			8.34	
Universal & Chemical Waste (onsite)	4.10			4.10	
Scrap Metal	83.20			83.20	-\$3,904.00
Surplus Sales	15.00			15.00	-\$43,503.00
Pallets	780.00			780.00	
Tyler Glass				0.00	
Revolution Recovery bulk waste	51.43	28.40		79.83	\$22,920.00
Donations	55.40			55.40	
Plastic Bags	0.53			0.53	
Residential Hall Give + Go Green	2.50			2.50	
Subtotal - Special Materials	1,037.38	28.40		1,065.78	-\$24,487.00
Campus Totals	2,203.98	84.62	16.50	2,305.10	\$43,532.28

Total Recycling Cost: \$43,532.28
Total Tons of Recycling: 2,305.10

2006 - 2016 Recycling and Trash Summary

	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	(8a)	(8b)	(9a)	(9b)
Calendar Year (unless noted otherwise)	Main, Podiatry, HSC ^a , Ambler, Tyler tons		Residence Halls ^b tons		Gittis ^{b,c} tons		Liacouras ^c tons		Diamond Club ^e tons		Total Tons Collected ^d tons % of total		Total Cost \$		Cost Per Ton \$		GHG Emissions MTeCO2	
2006 Recycling	1,407.51		-		-		6.97				1,414.48	24%	\$42,701		\$30.19			
2006 Trash	2,707.90		1,224.91		438.19		68.88				4,439.88	76%	\$458,095		\$103.18		13,676	
2006 Total	4,115.41		1,224.91		438.19		75.85				5,854.36	100%	\$500,796		\$85.54			
2007 Recycling	1,659.50		-		-		6.97				1,666.47	28%	\$39,898		\$23.94			
2007 Trash	2,524.24		1,198.09		438.19		68.88				4,229.40	72%	\$483,145		\$114.23		13,028	
2007 Total	4,183.74		1,198.09		438.19		75.85				5,895.87	100%	\$523,043		\$88.71			
2008 Recycling	1,566.96		-		-		6.97				1,573.93	29%	\$42,549		\$27.03			
2008 Trash	2,459.74		972.99		438.19		68.88				3,939.80	71%	\$583,130		\$148.01		12,136	
2008 Total	4,026.70		972.99		438.19		75.85				5,513.73	100%	\$625,679		\$113.48			
2009 Recycling	1,607.60		-		-		8.26				1,615.86	32%	\$55,096		\$34.10			
2009 Trash	2,043.77		896.16		388.85		61.50				3,390.28	68%	\$524,831		\$154.80		10,442	
2009 Total	3,651.37		896.16		388.85		69.76				5,006.14	100%	\$579,927		\$115.84			
2010 Recycling	1,539.32		-		-		11.88				1,551.20	30%	\$53,219		\$34.31			
2010 Trash	2,267.10		829.27		389.88		87.92				3,574.17	70%	\$571,392		\$159.87		11,009	
2010 Total	3,806.42		829.27		389.88		99.80				5,125.37	100%	\$624,611		\$121.87			
FY2011 Recycling	1,611.23		-		-		12.44				1,623.67	33%	\$46,940		\$28.91			
FY2011 Trash	2,241.22		590.03		376.48		100.70				3,308.43	67%	\$544,018		\$164.43		10,191	
FY2011 Total	3,852.45		590.03		376.48		113.14				4,932.10	100%	\$590,958		\$119.82			
FY2012 Recycling	1,719.54		-		-		13.54				1,733.08	35%	\$29,868		\$17.23			
FY2012 Trash	2,006.45		800.16		378.03		67.36				3,252.00	65%	\$546,170		\$167.95		7,780	
FY2012 Total	3,725.99		800.16		378.03		80.90				4,985.08	100%	\$576,038		\$115.55			
FY2013 Recycling	1,641.21		-		-		13.47		-		1,654.68	36%	\$38,895		\$23.51			
FY2013 Trash	1,874.50		627.93		325.45		62.36		26.52		2,916.76	64%	\$468,612		\$160.66		6,892	
FY2013 Total	3,515.71		627.93		325.45		75.83		26.52		4,571.44	100%	\$507,507		\$111.02			
FY2014 Recycling	2,443.25		-		-		19.01		-		2,462.26	44%	\$8,883		\$3.61			
FY2014 Trash	1,860.14		944.66		277.75		54.80		26.50		3,163.85	56%	\$585,996		\$185.22		9,416	
FY2014 Total	4,303.39		944.66		277.75		73.81		26.50		5,626.11	100%	\$594,880		\$105.74			
FY2015 Recycling	2,256.49		-		-		18.88		-		2,275.37	45%	\$45,293		\$19.91			
FY2015 Trash	1,720.93		884.40		178.69		43.36		-		2,827.38	55%	\$409,895		\$144.97		6,338	
FY2015 Total	3,977.42		884.4		178.69		62.24		-		5,102.75	100%	\$455,188		\$89.20			
FY2016 Recycling	2,288.60		-		-		16.50		-		2,305.10	44%	\$43,532		\$18.89			
FY2016 Trash	2,902.77		-		-		76.36		-		2,979.13	56%	\$400,884		\$134.56		6,545	
FY2016 Total	5,191.37		-		-		92.86		-		5,284.23	100%	\$444,417		\$84.10			

Notes:

- ^a Health Sciences Center (HSC) includes Temple University buildings only, not buildings owned by Temple University Health System.
- ^b Residence Halls' and Gittis recycling materials are included in column 1a.
- ^c Collection of recycling and trash for Gittis Student Center and Liacouras Center for CY 2006-07 are estimated using the actual numbers for CY 2008.
- ^d Total tons collected does not include construction materials.
- ^e The collection of Diamond Club recycling and trash data began in FY2013. Recycling materials are included in column 1a (including compost amounts).

FY 2016 Recycling and Trash Comparisons

Comparison CY 2006 and FY 2016

	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	(8a)	(8b)	(9a)	(9b)
	Main, Podiatry, HSC ^a , Ambler, Tyler		Residence Halls ^b		Gittis ^{b,c}		Liacouras ^c		Diamond Club		Total Tons Collected ^d		Total Cost		Cost Per Ton		GHG Emissions	
	tons diff	% chg	tons diff	% chg	tons diff	% chg	tons diff	% chg	tons diff	% chg	tons diff	% chg	\$	% chg	\$	% chg	MTeCO2	% chg
Recycling	881.09	63%	-	NA	-	NA	9.53	137%	-	-	890.62	63%	\$831	2%	-\$11.30	-37%		
Trash	194.87	7%	-	NA	-	NA	7.48	11%	-	-	-1,460.75	-33%	-\$57,211	-12%	\$31.39	30%	-7,131	-52%
Total	1,075.96	26%	-	NA	-	NA	17.01	22%	-	-	-570.13	-10%	-\$56,379	-11%	\$3.66	4%		

Comparison FY 2015 and FY 2016

	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	(8a)	(8b)	(9a)	(9b)
	Main, Podiatry, HSC, Ambler, Tyler		Residence Halls		Gittis		Liacouras		Diamond Club		Total Tons Collected		Total Cost		Cost Per Ton		GHG Emissions	
	tons diff	% chg	tons diff	% chg	tons diff	% chg	tons diff	% chg	tons diff	% chg	tons diff	% chg	\$	% chg	\$	% chg	MTeCO2	% chg
Recycling	32.11	1%	-	NA	-	NA	(2.38)	-13%	-	-	29.73	1%	-\$1,760	-4%	-\$1.02	-5%		
Trash	1,181.84	69%	-	NA	-	NA	33.00	76%	-	-	151.75	5%	-\$9,011	-2%	-\$10.41	-7%	207	3%
Total	1,213.95	31%	-	NA	-	NA	30.62	49%	-	-	181.48	4%	-\$10,772	-2%	-\$11.43	-13%		

Notes:

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- ^b Residence Halls' and Gittis recycling materials are included in column 1a.
- ^c Collection of recycling and trash for Gittis Student Center and Liacouras Center for CY 2006-07 are estimated using the actual numbers for CY 2008.
- ^d Total tons collected does not include construction materials.
- ^e The collection of Diamond Club recycling and trash data began in FY2013. Recycling materials are included in column 1a (including compost amounts).