
University of Washington

Annual Solid Waste Report

For the Fiscal Year of July 1, 2004 - June 30, 2005



Prepared by:
Property & Transport Services

February 2006

University of Washington

Annual Solid Waste Report, Fiscal Year July 1, 2004 - June 30, 2005

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EXECUTIVE SUMMARY

Total University-wide Landfilled MSW, Recycled and Special Waste Cost ¹	(Page 2)	\$ 2,010,454
Total University-wide Landfilled Municipal Solid Waste (MSW) Cost	(Page 2)	\$ 1,266,187
Total University-wide Recycled Waste Cost	(Page 2)	\$ 632,016
Total University-wide Special Waste Cost ²	(Page 2)	\$ 112,251
Net Avoided Disposal Cost: Cost Avoided by Recycling Instead of Landfilling ³	(Page 2)	\$ 409,423
Total Tons Landfilled MSW	(Page 3)	6,587
Total Tons Recycled	(Page 4)	3,648
Total Tons Generated (Landfilled MSW + Recycled Tons)		10,235
Recycling Rate (Recycled Tons/Total Tons Generated)		36%
Average Cost of Landfilled MSW per Ton, Excludes Litter Collection ⁴	(Page 3)	\$ 184
Average Cost to Recycle Waste per Ton	(Page 4)	\$ 173

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Overview of Combined Solid Waste & Recycling Services

COMBINED DISPOSED WASTE & RECYCLING SERVICES

LANDFILLED WASTE COST SUMMARY

Landfilled MSW Disposal Costs	(Page 3)	\$ 1,028,480	
Landfilled MSW UW Self Haul Operating & Overhead Costs	(Page 3)	\$ 237,708	
Subtotal University-wide Landfilled MSW Costs			= \$ 1,266,187

RECYCLED WASTE COST SUMMARY

Recycled Waste Removal Costs	(Page 4)	\$ 219,031	
Recycled Waste Operating & Overhead Costs	(Page 4)	\$ 560,006	
Revenue from Recycled Waste	(Page 4)	\$ (147,021)	
Subtotal University-wide Recycled Waste Costs			= \$ 632,016

SPECIAL WASTE COST SUMMARY

Special Waste Disposal Costs	(Page 3)	\$ 106,821	
Special Waste Operating & Overhead Costs	(Page 3)	\$ 5,430	
Subtotal University-wide Special Waste Costs			= \$ 112,251

Total University-wide Disposed Waste & Recycled Waste Cost = \$ 2,010,454

COSTS (REVENUE) RECHARGED TO SELF-SUSTAINING UW DEPARTMENTS

Disposed Waste Costs Recharged to Self-Sustaining UW Departments	(Page 3)	\$ 624,608	
Recycled Waste Costs Recharged to Self-Sustaining UW Departments	(Page 4)	\$ 32,772	
Revenue from Recycled Waste Refunded to Self-Sustaining UW Departments	(Page 4)	\$ (147,021)	
Subtotal Costs (Revenue) Recharged to Self-Sustaining UW Departments			= \$ 510,359

Less: Total Costs Recharged & Revenue Refunded to Self-Sustaining UW Departments - \$ 510,359

Total Adjusted Cost to the University's Solid Waste Budget = \$ 1,500,095

NET AVOIDED DISPOSAL COST

Total Tons Recycled ¹	(Page 4)		3,537	
Multiply: Average Cost to Landfill MSW per Ton ²		x \$	93	
Subtotal Cost to Landfill Recycled Tons as MSW				= \$ 327,194
Total Tons Recycled			3,537	
Multiply: Average Variable Cost to Collect MSW per Ton ³		x \$	24	
Subtotal Cost to Collect Recycled Tons as MSW				= \$ 85,070
Gross Avoided Disposal Cost				= \$ 412,264
Gross Avoided Disposal Cost		\$	412,264	
Less: Cost of Vendor Haul Recycled Waste Removal	(Page 4)	\$	2,841	
Net Avoided Disposal Cost ⁴				= \$ 409,423

TONNAGE & REVENUE FROM RESALE/REUSE PROGRAM (SURPLUS PROPERTY)

Total Tonnage & Revenue from Resale/Reuse Program ⁵	(Page 4)		<u>543</u>	<u>\$ 374,718</u>
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Disposed Waste Costs

SUMMARY

Total University-wide Cost to Landfill Municipal Solid Waste (MSW), Litter, and Special Waste	\$ 1,378,438	
Total Vendor Haul Landfilled MSW Costs		\$ 971,760
Total UW Self Haul Landfilled MSW Costs		\$ 240,483
Total UW Self Haul Litter Costs		\$ 53,944
Total Vendor Haul Special Waste Costs		\$ 112,251
Average Cost of Landfilled MSW per Ton, Excluding Litter Collection ¹	\$ 184	
Vendor Haul Cost of Landfilled MSW per Ton	\$ 174	
UW Self Haul Cost of Landfilled MSW per Ton	\$ 238	
Landfilled MSW Tonnage	6,587	
Cost of Landfilled MSW Per Capita ²	\$ 21.27	
Cost of Landfilled MSW Per Square Foot ³	\$ 0.16	

	Cost	Subtotal	Tons	Cost / Ton
UNIVERSITY-WIDE LANDFILLED MSW COST				
Vendor Haul Landfilled MSW Costs				
<i>Waste Management</i>				
Regular & Extra Order Landfilled MSW	\$ 928,605		5,575	\$ 167
Regular & Extra Order Landfilled MSW Overhead Cost	\$ 43,155			
Total Vendor Haul Costs for Landfilled MSW	= \$ 971,760		5,575	\$ 174
SUBTOTAL VENDOR HAUL LANDFILLED MSW COSTS	= \$ 971,760		5,575	\$ 174
UW Self Haul Landfilled MSW Costs				
<i>Disposal</i>				
Landfilled MSW Transfer Station Disposal Cost	\$ 99,874		1,012	\$ 99
Landfilled MSW Transfer Station Disposal Cost for Extra Orders	\$ -		-	\$ -
Total Disposal Costs for Landfilled MSW	= \$ 99,874		1,012	\$ 99
<i>Operation Costs for Landfilled MSW Collection ⁴</i>				
UW Self Haul MSW Landfilled Operating Costs, including Overhead (Page 5)	\$ 140,609			
Total Operation Costs for Landfilled MSW Collection	= \$ 140,609			
SUBTOTAL UW SELF HAUL LANDFILLED MSW COSTS	= \$ 240,483		1,012	\$ 238
SUBTOTAL UNIVERSITY-WIDE LANDFILLED MSW COST		\$ 1,212,243	6,587	\$ 184
UW Self Haul Litter Collection Costs				
<i>Operation Costs for Litter Collection</i>				
UW Self Haul Litter Operating Costs, including Overhead (Page 5)	\$ 53,944			
Total Operation Costs for Litter Collection	= \$ 53,944			
SUBTOTAL UW SELF HAUL LITTER COLLECTION COSTS	= \$ 53,944			
TOTAL UNIVERSITY-WIDE LANDFILLED MSW COST		= \$ 1,266,187	6,587	\$ 192
UNIVERSITY-WIDE SPECIAL WASTE COST				
Vendor Haul Special Waste Cost				
Treated Sharps: UWMC	\$ 30,342		50	\$ 613
Treated Sharps: K-WING	\$ 8,132		36	\$ 227
Treated Sharps: AA-WING	\$ 3,529		0	\$ -
Biomedical Waste: Untreated Sharps & Infectious Animals ⁵	\$ 64,818		162	\$ 400
Total Vendor Haul Special Waste Disposal Cost	= \$ 106,821		247	\$ 432
<i>Operation Costs for Special Waste</i>				
Special Waste Operating Costs, including Overhead	\$ 5,430			
Total Operation Costs for Special Waste	= \$ 5,430			
SUBTOTAL UNIVERSITY-WIDE SPECIAL WASTE COST		= \$ 112,251	247	\$ 454
TOTAL UNIVERSITY-WIDE DISPOSED WASTE COST		= \$ 1,378,438		
Less: Costs Recharged to Self-Sustaining UW Departments (Page 5)		- \$ 624,608		
TOTAL ADJUSTED COST TO UNIVERSITY'S SOLID WASTE BUDGET		= \$ 753,830		

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Recycled Waste Costs & Revenues

SUMMARY

Total Cost to Recycle Waste, Including Operating Costs	\$ 632,016
Average Cost to Recycle per Ton	\$ 173
Tonnage Recycled	3,648
Cost of Recycling Per Capita ¹	\$ 10.62
Cost of Recycling Per Square Foot ²	\$ 0.08

COSTS & REVENUES BY COMMODITY³

Commodity	Cost ⁴	(Revenue) ⁵	Total	Tonnage	Average Cost (Rev) Per Ton
Paper - Sorted (Weyerhaeuser)	\$ -	\$ (99,585)	\$ (99,585)	1081	(\$92)
Paper - Sorted (Smurfit from Publication Svcs.)	\$ -	\$ (13,924)	\$ (13,924)	208	(\$67)
Paper - Mixed (Smurfit from Publication Svcs.)	\$ -	\$ (409)	\$ (409)	13	(\$32)
Paper - Mixed (WMI)	\$ 8,565	\$ -	\$ 8,565	45	\$190
Cardboard - Baled	\$ -	\$ (23,411)	\$ (23,411)	435	(\$54)
Cardboard - Loose	\$ 212	\$ -	\$ 212	24	\$9
Aluminum / Glass / Plastic - Commingled	\$ 65,003	\$ -	\$ 65,003	224	\$290
Food Donations	\$ -	\$ -	\$ -	35	\$0
Food Waste Pilot Program	\$ 1,346	\$ -	\$ 1,346	43	\$31
UWMC - Food	\$ -	\$ -	\$ -	3	\$0
Wood Debris	\$ 4,853	\$ -	\$ 4,853	73	\$66
Pallets	\$ 4,296	\$ -	\$ 4,296	59	\$73
Landscape Waste	\$ 41,792	\$ -	\$ 41,792	557	\$75
Ferrous Metals	\$ 18,113	\$ -	\$ 18,113	335	\$54
Hardbound Books	\$ -	\$ -	\$ -	0	N/A
Other Materials	\$ -	\$ -	\$ -	0	N/A
UWMC - Paper	\$ -	\$ (4,832)	\$ (4,832)	202	(\$24)
UWMC - OCC	\$ -	\$ (4,859)	\$ (4,859)	199	(\$24)
UWMC - Aluminum	\$ -	\$ -	\$ -	0	N/A
Subtotal Vendor Haul Recycled Waste Removal	\$ 144,180	\$ (147,021)	\$ (2,841)	3,537	(\$1)
Fluorescent Tubes ⁶	\$ 13,124	\$ -	\$ 13,124	6	\$2,292
CPUs & Monitors	\$ 56,967	\$ -	\$ 56,967	81	\$704
Refrigerators	\$ 4,760	\$ -	\$ 4,760	24	\$195
Subtotal Vendor Haul Regulated Recycled Waste Removal	\$ 74,851	\$ -	\$ 74,851	111	\$674
Total Vendor Haul Recycled Waste Removal	\$ 219,031	\$ (147,021)	\$ 72,010	3,648	\$20
Add: Vendor Haul Recycled Waste Removal Overhead Cost			+ \$ 37,934		
Subtotal Vendor Haul Recycled Waste Cost			\$ 109,944		
Add: Recycling Program Operating Costs ⁷		(Page 6)	+ \$ 522,072		
Total University-wide Recycled Waste Cost			= \$ 632,016	3,648	
Less: Costs Recharged to Self-Sustaining UW Departments		(Page 6)	+ \$ (32,772)		
Add: Revenue Returned to Self-Sustaining UW Departments			+ \$ 147,021		
TOTAL ADJUSTED COST TO PROPERTY & TRANSPORT SERVICES			= \$ 746,265		

AVERAGE COST TO RECYCLE PER TON

Total Cost to University to Recycle	(See Above)	\$ 632,016
Divide by: Total Tons Recycled	(See Above)	3,648
Average Cost to Recycle per Ton		\$ 173

OTHER WASTE DIVERTED THROUGH SURPLUS SALES

Total Tonnage & Revenue from Resale/Reuse Program⁸	543	\$ 374,718
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UW Self Haul Landfilled Municipal Solid Waste (MSW) Operations Data

SUMMARY

Total UW Self Haul Landfilled MSW Operating Costs	\$ 140,609
Total UW Self Haul Litter Operating Costs	\$ 53,944

UW SELF HAUL LANDFILLED MSW OPERATING COSTS ¹

Salaries

Collection Staff (Portions of 2 Waste Collectors, Truck Driver Lead)	\$ 39,967
Administration and Overhead (Portions of 3 Mgrs, Cust Svc, Fiscal Spec)	\$ 12,055
SUBTOTAL SALARIES	= \$ 52,022

Operations Costs

Vehicle Rental (Portions of 2 Collection Vehicles, 2 Pickup Trucks)	\$ 58,087
Supplies (Printing, Advertising, etc.)	\$ 7,327
Miscellaneous (Radio, Container Repair and Maintenance, etc.)	\$ 23,174
SUBTOTAL OPERATIONS COSTS	= \$ 88,587

Equipment Costs

Equipment (No Purchases)	\$ -
SUBTOTAL EQUIPMENT COSTS	= \$ -

TOTAL UW SELF HAUL LANDFILLED MSW OPERATING COSTS = \$ 140,609

UW SELF HAUL LITTER OPERATING COSTS ¹

Salaries

Collection Staff (2 Truck Drivers, Truck Driver Lead)	\$ 41,826
Administration and Overhead (Portions of 3 Managers)	\$ 2,848
SUBTOTAL SALARIES	= \$ 44,674

Operations Costs

Vehicle Rental (2 Collection Vehicles)	\$ 9,270
Supplies	\$ -
Miscellaneous	\$ -
SUBTOTAL OPERATIONS COSTS	= \$ 9,270

Equipment Costs

Equipment (No Purchases)	\$ -
SUBTOTAL EQUIPMENT COSTS	= \$ -

TOTAL UW SELF HAUL LITTER OPERATING COSTS = \$ 53,944

RECHARGES TO SELF-SUSTAINING UW DEPARTMENTS

Total Recharges to Self-Sustaining UW Departments = \$ 624,608

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UW Self Haul Recycling Operations Data

SUMMARY

Total UW Self Haul Recycling Operating Costs \$ 522,072

UW SELF HAUL RECYCLING OPERATING COSTS¹

Salaries

Operation (Warehouse Supvsr, 9 Warehouse Workers, 5 Truck Drivers, 2 Waste Collectors, Truck Dr Lead) \$ 315,522

Administration and Overhead (Portions of 3 Mgrs, Cust Svc, Info Spec, Fisc Spec, Students) \$ 58,429

SUBTOTAL SALARIES = \$ 373,951

Operations Costs

Vehicle Rental (2 Collection Vehicles, Portions of 3 Additional Collection Vehicles, 3 Pickup Trucks) \$ 69,099

Supplies (Printing, Advertising, etc.) \$ 23,334

Miscellaneous (Dumpster Repair and Cleaning, Postage, Maintenance) \$ 55,688

SUBTOTAL OPERATIONS COSTS = \$ 148,121

Equipment Costs²

Equipment (No Purchases) \$ -

SUBTOTAL EQUIPMENT COSTS = \$ -

TOTAL UW SELF HAUL RECYCLING OPERATING COSTS = \$ 522,072

RECHARGES TO SELF-SUSTAINING UW DEPARTMENTS

Total Recharges to Self-Sustaining UW Departments \$ 32,772

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REPORT ANNOTATION

General Comments (refer to page 2, 3, 4)

The Annual Solid Waste Report gives an overview of the University of Washington's waste and recycling operation for the Seattle campus. The goal is to provide a report for the fiscal year of July 1, 2004 through June 30, 2005. Data included in this report are:

Landfilled MSW tons:	6,587
Recycling tons:	3,648
Special waste tons:	247
Total disposed and recycled tons:	10,482
University-wide landfilled MSW cost:	\$1,266,187
University-wide recycled waste cost:	\$632,016
University-wide special waste disposal cost:	\$112,251
The average cost of landfilling MSW per ton:	\$184
The average cost of recycling waste per ton:	\$173
The total Net Avoided Disposal Cost: The cost avoided by recycling instead of landfilling:	\$409,423
Estimated tonnages diverted through the Resale/Reuse Program	543
The actual revenue generated through the Resale/Reuse Program.	\$374,718

The textual annotations included are intended to accompany and clarify the data contained within the report to provide insight regarding how the figures were calculated, including any changes from previous years.

This year's Annual Solid Waste Report follows the new direction started with the fiscal year 2003/2004 report, with respect to its data, calculations, and presentation. Property and Transport Services has:

- Conducted a comprehensive audit of source data;
- Reviewed and revised formulas to ensure their integrity; and
- Updated the report's presentation to clearly communicate information related to comprehensive solid waste management.

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Overview of Combined Solid Waste & Recycling Services (refer to page 1, 2, 3)

COMBINED LANDFILLED WASTE & RECYCLING SERVICES

The Combined Landfilled Waste & Recycling Services section is intended to provide a comprehensive overview of the University's waste and recycling services' total costs. Costs are reported for *Landfilled Waste*, *Special Waste*, and *Recycled Waste* to clearly divide the financial impact of the three waste streams.

The *Subtotal University-wide Landfilled MSW Costs* is determined by summing the costs of the different landfilled waste streams. These include *Landfilled MSW Disposal Costs*, \$1,028,480 and the *Landfilled MSW UW's Self Haul Operating and Overhead Costs*, \$237,708. The total cost to landfill the University's waste in the 2004/2005 fiscal year is \$1,266,187.

The *Subtotal University-wide Recycled Waste Costs* is determined by summing the costs of the different recycled waste streams and subtracting the recycling revenue generated. These categories are comprised of (1) *Recycled Waste Removal Costs*, \$219,031, (2) *Revenue from Recycled Waste*, \$147,021, and (3) the University's *Recycled Waste Operating and Overhead Costs*, \$560,006. The total cost to recycle the University's waste in the 2004/2005 fiscal year is \$632,016.

In a change from years previous to the 2003/2004 report, *Special Waste Costs* are reported separately. In the past they were aggregated with all other landfilled waste. The reason for this change is that not all special waste is landfilled and the cost of handling and disposing this waste is much higher than standard MSW. The *Subtotal University-wide Special Waste Costs* is determined by summing the costs of the different special waste streams. These include: (1) *Treated Sharps Costs*, \$42,003, (2) *Biomedical Waste Costs*, \$64,818, (3) *Special Waste Operating Costs, including Overhead*, \$5,430. The total cost to manage the University's *Special Waste* in the 2004/2005 fiscal year is \$112,251.

Therefore, the *Total University-wide Disposed Waste & Recycled Waste Cost* for the 2004/2005 fiscal year amounts to \$2,010,454. This is the summative cost of all waste disposal for landfilling, treating special waste, and recycling.

Property & Transport Services oversees municipal solid waste disposal for the entire University, including departments that have self-sustaining budgets which bear their portion of solid waste removal costs. In order to allocate costs to self-sustaining budgets, Property & Transport Services recharges costs to self-sustaining departments that incurred costs related to waste disposal. To determine the total cost charged to the University's solid waste budget, *Total Costs Recharged & Revenue Refunded to Self-Sustaining UW Departments* are subtracted from the *Total University-wide Disposed Waste & Recycled Waste Cost*. This gives the *Total Adjusted Cost to the University's Solid Waste Budget* of \$1,500,095.

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Overview of Combined Solid Waste & Recycling Services, Contd.
(refer to page 2)

NET AVOIDED DISPOSAL COST (refer to bottom of page 2)

The *Net Avoided Disposal Cost* is a calculation utilized to determine the costs avoided by the University recycling waste rather than landfilling waste. The *Net Avoided Disposal Cost* is one primary indicator for the economic value of recycling. For this fiscal year 2004/2005, the University avoided \$409,423 in disposal costs by recycling rather than landfilling certain materials.

The *Net Avoided Disposal Cost* is calculated as follows:

- Take the *Total Tons Recycled*, and multiply that number of tons by the *Average Cost to Landfill MSW per Ton* and the *Average Variable Cost to Collect MSW per Ton*. This calculation provides the *Gross Avoided Disposal Cost*.
 - This calculation illustrates the cost the University would incur if it landfilled the waste it actively chooses to recycle.
 - The *Average Cost to Landfill MSW per Ton* is used as a multiplier in this calculation because it represents the disposal cost per ton the University would incur if the recycled tonnages were landfilled.
 - The *Average Variable Cost to Collect MSW per Ton* is used as a multiplier because it represents the variable cost to collect waste. The University would incur this cost if the recycled tonnages were collected as landfilled MSW. This cost is approximately 26% of disposal fees in the Puget Sound region; based on waste industry cost estimates. This estimate includes the variable costs of collecting waste, such as labor and truck operation and maintenance costs. It does not include fixed costs such as capital, overhead or profit.
- Take the *Gross Avoided Disposal Cost*, and subtract the *Cost of Recycling Tonnages*. This calculation provides the *Net Avoided Disposal Cost*.
 - The *Cost of Recycling Tonnages* is subtracted from the *Gross Avoided Disposal Cost* because the University incurred costs associated with recycling waste, albeit less than the landfill waste costs. The *Net Avoided Disposal Cost*, then, is the true illustration of costs the University avoided through its recycling operation.

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TONNAGE & REVENUE FROM RESALE/REUSE PROGRAM

The Resale/Reuse Program is associated with solid waste management, but is an independent, self-sustaining University program. Figures for the Resale/Reuse Program associated with the Surplus Property Program are included for informational purposes and are not included in any Solid Waste Report calculations.

The Resale/Reuse Program diverts significant amounts of material from the landfill and generates revenue from its sale. This fiscal year, 543 tons were diverted from the landfill and Resale/Reuse Program sales generated nearly \$375,000 in revenue. The total tons diverted through the Resale/Reuse Program are estimated by program managers using the number of items sold and corresponding weight estimates. The Resale/Reuse Program has a significant impact in reducing the University's waste stream costs associated with landfill and recycling disposal.

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Disposed Waste Costs (refer to page 3)

UNIVERSITY-WIDE LANDFILLED WASTE COST

This section details the University's costs incurred by disposing its waste. The University's waste is disposed using one of two methods: *UW Self Haul* and *Vendor Haul*. *Vendor Haul* is the disposal method used when removing large quantities of waste collected in dumpsters and compactors and all special waste. *UW Self Haul* is used for areas requiring high frequency service and/or for which there are architectural or geographic limitations. *UW Self Haul* collection includes both MSW and litter, or small public area waste cans.

Vendor Haul waste accounts for approximately 85% of the total tonnage disposed and 70% of the costs incurred for landfilled MSW.

Vendor Haul Landfilled MSW Costs includes disposal by Waste Management for *Regular & Extra Order Landfilled MSW*. The *Subtotal Vendor Haul Landfilled MSW Costs* equal \$971,760 with a total of 5,575 tons disposed. Please note that this is the second year to include overhead costs associated with customer service and vendor management related to the vendor's services. This is to provide a more accurate cost of this service that is also comparable to costs included for the UW's self haul collection.

UW Self Haul Landfilled MSW Costs includes waste collected by University staff and brought to the transfer station. Costs included are for (1) *Disposal*, the actual per-ton cost of the waste at the transfer station, and (2) *Operation Costs for Landfilled MSW Collection*, the cost of personnel, equipment, and supplies. The *Subtotal UW Self Haul Landfilled MSW Costs* equal \$240,483 with a total of 1,012 tons disposed.

UW Self Haul Litter Collection Costs include the *Operation Costs for Litter Collection*, including the cost of personnel, equipment, and supplies. Litter disposal costs are included in the *UW Self Haul MSW Costs*. This is the second year these costs have been reported separate from other UW self haul costs. The reason for this change is that litter collection is a custodial activity and custodial costs related to waste and recycling are not included in the rest of the report. However litter collection costs are still part of the solid waste budget.

Vendor Haul Special Waste Costs includes the disposal and operating costs for two primary materials: (1) Treated Sharps and (2) Biomedical Waste: Untreated Sharps and Infectious Animals. Waste Management hauls the treated sharps and Stericycle hauls the biomedical waste. Operating costs include the cost of university personnel, equipment, and supplies.

The *Total University-wide Disposed Waste Cost* is \$1,378,438, which represents the total cost for waste disposal in 2004 -2005.

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Disposed Waste Costs, Contd. (refer to page 3)

AVERAGE COST OF LANDFILLED MSW PER TON

The *Average Cost of Landfilled MSW per Ton, Excluding Litter Collection* provides an average cost that accurately reflects the cost of disposing a “typical” ton of the University’s waste. This figure is used to calculate the *Net Avoided Disposal Cost* because it most accurately represents the disposal cost per ton the University would incur if the recycled tonnages were landfilled.

The *Average Cost of Landfilled MSW per Ton* is calculated as follows:

- The sum of the costs to dispose all Landfilled MSW equals *Regular & Extra Order Landfilled MSW* plus *Transfer Station Disposal Cost*, plus *Transfer Station Disposal Cost for Extra Orders*. The *Subtotal University-wide Landfilled MSW Cost* equals \$1,212,243. (This subtotal does not include *UW Self Haul Litter Collection Costs*.)
- The *Average Cost of Landfilled MSW per Ton* is the *Subtotal University-wide Landfilled MSW Cost* divided by the *Landfilled MSW Tons Disposed*, which equals \$184.

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Recycled Waste Costs & Revenues (refer to page 4)

TOTAL UNIVERSITY-WIDE RECYCLED WASTE COST

The *Total University-wide Recycled Waste Cost* is calculated as follows:

- Begin with the *Total Vendor Haul Recycled Waste Removal cost*, which is the sum of each commodity's cost or revenue. This totals \$72,010.
- Add the *Vendor Haul Recycled Waste Removal Overhead Cost*, which includes personnel support costs. This totals \$37,934.
- Add the *Recycling Program Operating Costs* of \$522,072, which include personnel, equipment, and supplies for collecting and processing the UW's recyclables
- Subtract *Subtotal Vendor Haul Regulated Recycled Waste Removal Costs* of \$74,851, which gives a total of \$557,165 for the *Total University-wide Recycled Waste Cost, Excluding Regulated Waste*.
- To determine the *Total Adjusted Cost to Property & Transport Services*, subtract the *Costs Recharged to Self-Sustaining UW Departments* and add *Revenue Returned to Self-Sustaining UW Departments*. This gives a total of \$746,265, which is the amount charged to the Property & Transport Services budget.

AVERAGE COST TO RECYCLE PER TON

The *Average Cost to Recycle per Ton* is calculated to determine the average cost of recycling one ton of waste. The *Average Cost to Recycle per Ton* is calculated by dividing the *Total Cost to University to Recycle* by the *Total tons Recycled*, which gives a value of \$173 per ton.

This figure illustrates a generalized cost to recycle one ton of the University's waste. It combines the entire spectrum of recyclable categories, which range from high-cost recyclable materials to low-cost or revenue-generating materials. Therefore, it is useful only as a general indicator of cost trends for recycling the University's waste, and is not an accurate per-ton cost for any individual recyclable material category.

OTHER WASTE DIVERTED THROUGH SURPLUS PROPERTY SALES

The Resale/Reuse Program is a valuable program that diverts significant amounts of material from landfill disposal and generates revenue from the sale of reusable property. This fiscal year, the Resale/Reuse Program diverted an estimated 543 tons from the landfill and generated revenues of \$374,718. The tonnage diverted from the landfill is equivalent to 15% of the total tonnage recycled, and the revenue generated from the resale of reusable property is equal to 50% of the *Total Adjusted Cost to Property & Transport Services* for the recycling operation in 2004-2005. Figures for the Resale/Reuse Program associated with the Surplus Property Program are included for informational purposes and are not included in any Solid Waste Report calculations. However, it is important to note

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that the Resale/Reuse Program has a significant impact in reducing the University's waste stream. The total tons diverted through the Resale/Reuse Program are estimated by program managers using the number of items sold and corresponding weight estimates.

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UW Self Haul Landfilled MSW Operations Data (refer to page 5)

UW SELF HAUL LANDFILLED MSW OPERATIONS COSTS

The *UW Self Haul Landfilled MSW Operations Costs* are related to waste collection services provided to areas where it is cost-effective to provide service on-site without the assistance of a third-party vendor due to the need for a high frequency of service and/or the presence of architectural or geographic limitations that preclude certain vehicles from reaching pick-up points.

UW Self Haul Landfilled MSW Operations Costs incurred in 2004-2005 include:

- Collection Staff (see table below): \$39,967
- Administration and Overhead (see table below): \$12,055
- Vehicle Rental (see table below): \$58,087
- Supplies (printing, advertising, and other supplies): \$7,327
- Miscellaneous (two-way radios, dumpster repair and maintenance, postage and other miscellaneous costs): \$23,174
- Equipment (no purchases): \$0

Table 1: UW Self Haul Landfilled MSW Operations Costs, Allocation of Salaries and Vehicle Rental

Cost Category	Title	Percentage of Time
Administration and Overhead	Manager	5.0%
Administration and Overhead	Fiscal Specialist 2	5.0%
Administration and Overhead	Program Manager	5.0%
Administration and Overhead	Program Manager	5.0%
Administration and Overhead	Program Coordinator	20.0%
Collection Staff	Truck Driver Lead	10.0%
Collection Staff	Waste Collector	50.0%
Collection Staff	Waste Collector	50.0%
Vehicle Rental	Packer Trucks (2)	50.0%
Vehicle Rental	Truck Driver Lead Vehicle	10.0%
Vehicle Rental	Program Manager Vehicle	5.0%
Vehicle Rental	Program Manager Vehicle	5.0%

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Annual Solid Waste Report, Fiscal Year July 1, 2004 – June 30, 2005

UW Self Haul Landfilled MSW Operations Data, Contd. (refer to page 5)

UW SELF HAUL LITTER OPERATIONS COSTS

UW Self Haul Litter Operations Costs include the cost of personnel, equipment and supplies. Litter disposal costs are included in the *UW Self Haul MSW Costs*. This is the first year these costs have been reported separate from other UW self haul costs. The reason for this change is that litter collection is a custodial activity and custodial costs related to waste and recycling are not included in the rest of the report. However litter collection costs are still part of the solid waste budget.

UW Self Haul Litter Operations costs incurred in 2004-2005 include:

- Collection Staff (see table below): \$41,826
- Administration and Overhead (see table below): \$2,848
- Vehicle Rental (see table below): \$9,270
- Supplies: \$0
- Miscellaneous: \$0
- Equipment (no purchases): \$0

**Table 2: UW Self Haul Litter Operations Costs,
Allocation of Salaries, Vehicle Rental and Equipment**

Cost Category	Title	Percentage of Time
Collection Staff	Truck Driver 1	30.0%
Collection Staff	Truck Driver 1	100.0%
Administration and Overhead	Manager	1.0%
Administration and Overhead	Fiscal Specialist 2	1.0%
Administration and Overhead	Program Manager	1.0%
Administration and Overhead	Program Manager	2.5%
Administration and Overhead	Truck Driver Lead	2.5%
Vehicle Rental	Litter Truck (1)	100.0%
Vehicle Rental	Litter Truck (1)	50.0%
Vehicle Rental	Truck Driver Lead Vehicle	2.5%
Vehicle Rental	Program Manager Vehicle	2.5%

RECHARGES TO SELF-SUSTAINING UW DEPARTMENTS

Property & Transport Services oversees municipal solid waste disposal for the entire University, including departments that have self-sustaining budgets which bear their portion of solid waste removal costs. In order to allocate costs to self-sustaining budgets, Property & Transport Services recharges costs to self-sustaining departments that incurred costs related to waste disposal. For this fiscal year, *Total Recharges to Self-Sustaining UW Departments* for waste collection was \$624,608.

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UW Self Haul Recycling Operations Data (refer to page 6)

UW SELF HAUL RECYCLING OPERATING COSTS

The *UW Self Haul Recycling Operating Costs* are related to providing recycling collection services to areas where it is not cost-effective to provide services with the assistance of a third-party vendor.

UW Self Haul Recycling Operating Costs incurred in 2004-2005 include:

- Operations (see table below): \$315,522
- Administration and Overhead (see table below): \$85,429
- Vehicle Rental (see table below): \$69,099
- Supplies (printing, advertising and other supplies): \$23,334
- Miscellaneous (dumpster repair and cleaning, postage and maintenance): \$55,688
- Equipment (no purchases): \$0
 - It is important to note there were no *Equipment* costs this fiscal year because these costs can be substantial and have a significant effect (particularly with the University's use of a biennial budget) with few or no costs one year and a great deal of costs the following year, thereby skewing the perceived cost of recycling in any given fiscal year.

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Annual Solid Waste Report, Fiscal Year July 1, 2004 – June 30, 2005

UW Self Haul Recycling Operations Data, Contd. (refer to page 6)

UW SELF HAUL RECYCLING OPERATING COSTS

Table 3: UW Self Haul Recycling Operations Costs, Allocation of Salaries and Vehicle Rental

Cost Category	Title	Percentage of Time
Operation	Warehouse Supervisor	90.0%
Operation	Warehouse Worker 2	100.0%
Operation	Warehouse Worker 2	100.0%
Operation	Warehouse Worker 1	100.0%
Operation	Warehouse Worker 1	100.0%
Operation	Warehouse Worker 1	100.0%
Operation	Warehouse Worker 1	100.0%
Operation	Warehouse Worker 1	100.0%
Operation	Warehouse Worker 1	100.0%
Operation	Warehouse Worker 1	100.0%
Operation	Truck Driver 2	100.0%
Operation	Truck Driver 2	100.0%
Operation	Truck Driver 2	100.0%
Operation	Truck Driver 2	100.0%
Operation	Truck Driver 1	30.0%
Operation	Waste Collector	50.0%
Operation	Waste Collector	50.0%
Administration and Overhead	Manager	20.0%
Administration and Overhead	Program Manager	40.0%
Administration and Overhead	Program Manager	2.5%
Administration and Overhead	Public Info Specialist	25.0%
Administration and Overhead	Fiscal Specialist 2	20.0%
Administration and Overhead	Program Coordinator	35.0%
Administration and Overhead	Truck Driver Lead	5.0%
Administration and Overhead	Student Help	20.0%
Vehicle Rental	Packer Trucks (2)	50.0%
Vehicle Rental	Litter Truck (1)	50.0%
Vehicle Rental	Truck Driver Lead Vehicle	5.0%
Vehicle Rental	Program Manager Vehicle	2.5%
Vehicle Rental	Program Manager Vehicle	40.0%
Vehicle Rental	Box Trucks (2)	100.0%

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Annual Solid Waste Report, Fiscal Year July 1, 2004 – June 30, 2005

UW Self Haul Recycling Operations Data, Contd. (refer to page 6)

RECHARGES TO SELF-SUSTAINING UW DEPARTMENTS

Property & Transport Services oversees recycling collection for the entire University, including departments that have self-sustaining budgets which bear their portion of solid waste removal costs. In order to allocate costs to self-sustaining budgets, Property & Transport Services recharges costs and refunds revenue to self-sustaining departments that incurred costs or generated revenue related to recycling. For this fiscal year, *Total Recharges to Self-Sustaining UW Departments* for recycling operations was \$32,772.

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Annual Solid Waste Report, Fiscal Year July 1, 2004 - June 30, 2005

Appendix A: Historical Data*

FISCAL COMPARISON - FISCAL YEARS 1994 - 2004	FY 2004	FY 2003	FY 2002	FY 2001	FY 2000	FY 1999	FY 1998	FY 1997	FY 1996	FY 1995
Total Tons disposed in landfill (includes treated biomedical waste)	6,672	8,206	7,034	7,404	6,645	6,314	5,978	5,800	5,561	5,366
Total Tons Untreated Biomedical Waste (Sharps & Animals)	162	91	73	55	73	53	61	34	20	144
Average Cost per ton to landfill - All Solid Waste	\$184	\$167	\$235	\$202	\$169	\$183	\$185	\$185	\$190	\$193
Average Cost per ton to landfill - Sharps	\$613	\$504	\$397	\$756	\$553	\$691	\$639	\$639	\$459	
Average Cost per ton to landfill - Untreated Biomedical Waste	\$400	\$400	\$369	\$369	\$368	\$285	\$340	\$340	\$373	\$147
Total tons Recycled - Property and Transport Services ¹	3,248	3,939	3,710	4,183	3,687	3,695	3,798	3,578	3,704	3,397
Total tons Recycled - Overall U. of Washington (including UWMC)	3,648	4,364	4,034	4,499	4,005	4,047	4,157	3,941	4,010	3,691
Average Cost per ton to recycle (Without Equipment Cost) ²	\$173	\$156	\$131	\$114	\$116	\$110	\$99	\$84	\$81	\$80

* The Annual Solid Waste Report for the Fiscal Year of July 1, 2003 through June 30, 2004 incorporates several revisions to the calculations and analysis following a thorough audit of the formulas and data by a third party consultant. The result is a newly revised report that gives the University of Washington an accurate representation of the costs and quantities associated with its disposal operations in a reader-friendly format. The primary changes occur in the calculation of the Net Avoided Disposal Cost and are as follows: (1) The tonnage used in the calculation excludes tons that are associated with special wastes that are recycled; and (2) The Average Cost to Landfill and Collect MSW per Ton was used instead of the Average Cost to Landfill All Waste per Ton. As such, Net Avoided Disposal Cost data from previous years are not directly comparable with the figure contained in this report.

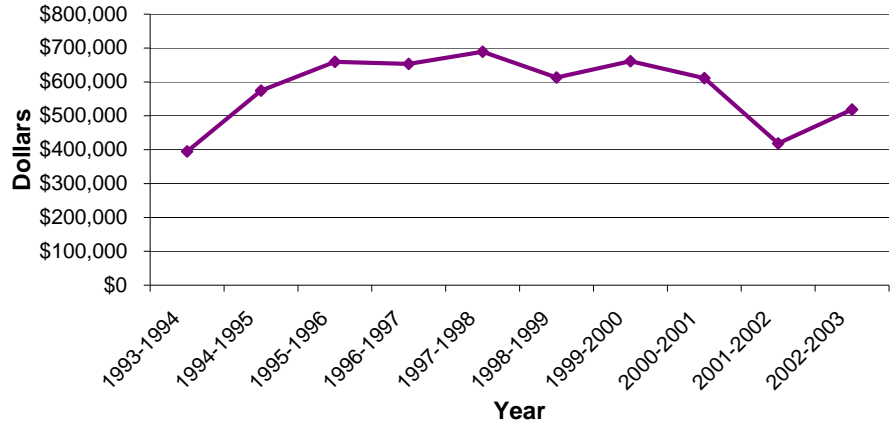
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Appendix A: Charts

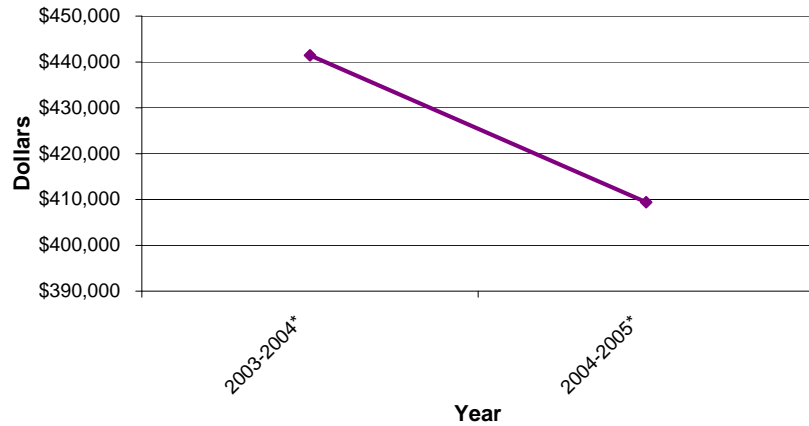
NET AVOIDED DISPOSAL COST

Year	Net Avoided Disposal Cost
1993-1994	\$394,811
1994-1995	\$574,209
1995-1996	\$659,124
1996-1997	\$653,300
1997-1998	\$688,981
1998-1999	\$612,878
1999-2000	\$660,945
2000-2001	\$611,279
2001-2002	\$418,397
2002-2003	\$518,533



NET AVOIDED DISPOSAL COST

Year	Net Avoided Disposal Cost
2003-2004*	\$441,448
2004-2005*	\$409,423



* The calculation for Net Avoided Disposal Cost differs from that of previous years by (1) removing tons of special waste that are recycled, and (2) using an average cost landfill and collect MSW per ton (rather than all disposed waste) as the multiplier to determine the Gross Avoided Disposal Cost.

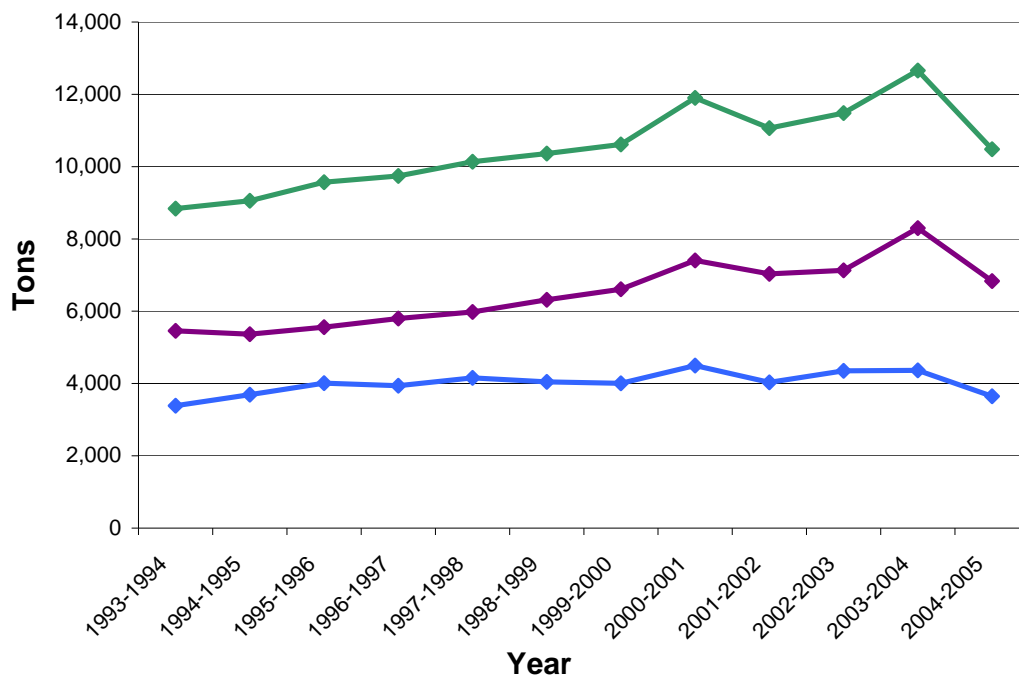
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Appendix A: Charts

DISPOSED TONS VS RECYCLED TONS

Year	Disposed Waste Tons	Recycled Tons	Total Tons
1993-1994	5,456	3,384	8,840
1994-1995	5,366	3,691	9,057
1995-1996	5,561	4,010	9,571
1996-1997	5,800	3,941	9,741
1997-1998	5,978	4,157	10,135
1998-1999	6,314	4,047	10,361
1999-2000	6,610	4,005	10,615
2000-2001	7,404	4,499	11,903
2001-2002	7,033	4,034	11,067
2002-2003	7,130	4,353	11,483
2003-2004	8,297	4,364	12,661
2004-2005	6,834	3,648	10,482



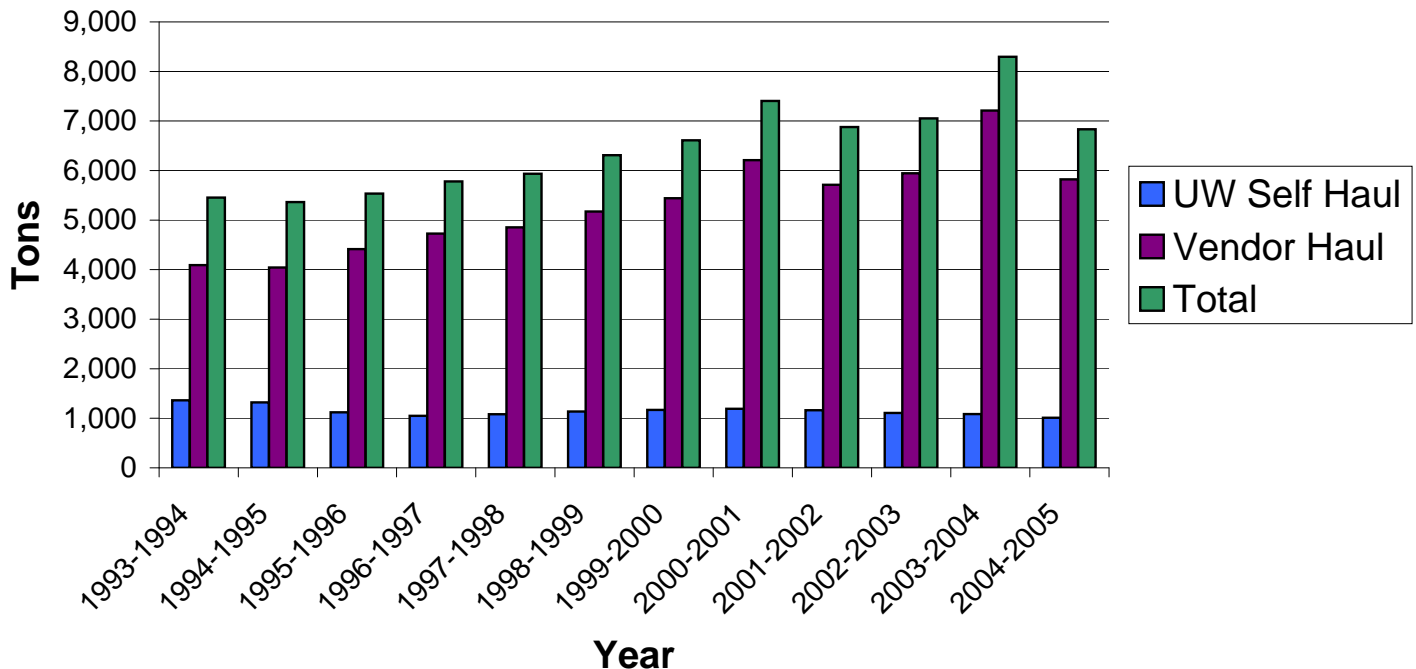
University of Washington

Annual Solid Waste Report, Fiscal Year July 1, 2004 - June 30, 2005

Appendix A: Charts

DISPOSED WASTE TONNAGES BY TYPE

Year	UW Self Haul	Vendor Haul	Total
1993-1994	1,364	4,091	5,455
1994-1995	1,321	4,044	5,365
1995-1996	1,119	4,416	5,535
1996-1997	1,051	4,729	5,780
1997-1998	1,082	4,853	5,935
1998-1999	1,136	5,173	6,309
1999-2000	1,168	5,441	6,609
2000-2001	1,193	6,211	7,404
2001-2002	1,163	5,714	6,877
2002-2003	1,107	5,945	7,052
2003-2004	1,086	7,211	8,297
2004-2005	1,012	5,822	6,834



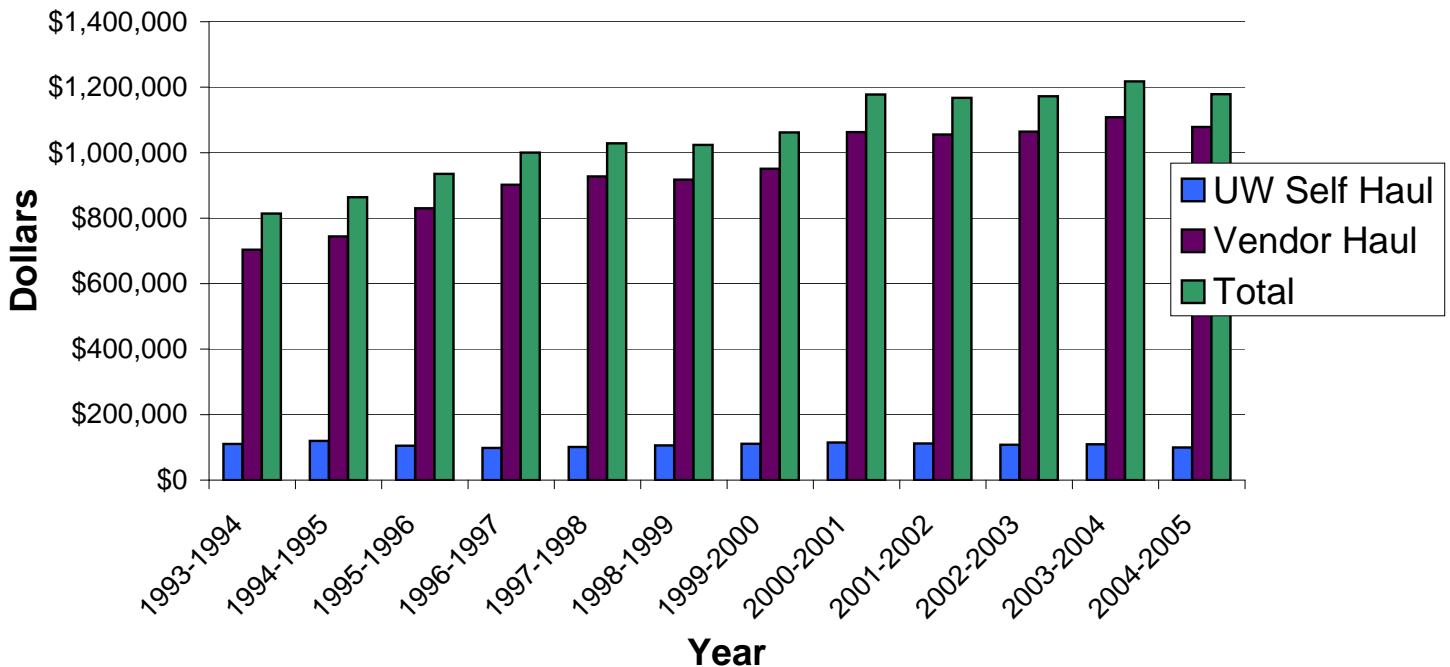
University of Washington

Annual Solid Waste Report, Fiscal Year July 1, 2004 - June 30, 2005

Appendix A: Charts

DISPOSED WASTE COSTS BY TYPE (NOT INCLUDING OPERATIONS)

Year	UW Self Haul	Vendor Haul	Total
1993-1994	\$110,541	\$703,726	\$814,267
1994-1995	\$119,947	\$744,011	\$863,958
1995-1996	\$104,969	\$830,188	\$935,157
1996-1997	\$98,223	\$902,089	\$1,000,312
1997-1998	\$101,267	\$927,492	\$1,028,759
1998-1999	\$106,227	\$917,660	\$1,023,887
1999-2000	\$110,879	\$951,128	\$1,062,007
2000-2001	\$114,671	\$1,062,966	\$1,177,637
2001-2002	\$111,759	\$1,055,642	\$1,167,401
2002-2003	\$108,055	\$1,064,385	\$1,172,440
2003-2004	\$109,485	\$1,108,297	\$1,217,782
2004-2005	\$99,874	\$1,078,581	\$1,178,456



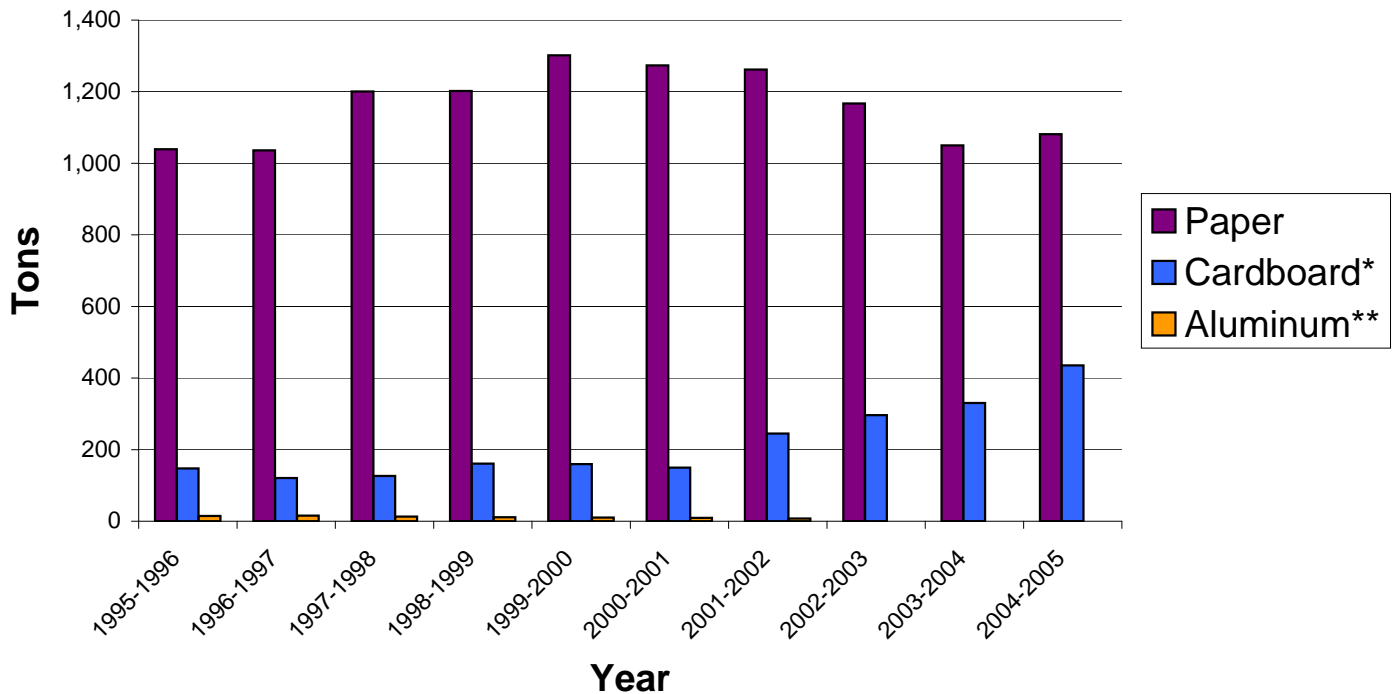
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Annual Solid Waste Report, Fiscal Year July 1, 2004 - June 30, 2005

Appendix A: Charts

RECYCLED WASTE TONNAGES BY TYPE

Year	Paper	Cardboard*	Aluminum**	Total
1995-1996	1,039.18	147.35	14.83	1,201.36
1996-1997	1,036.22	120.77	15.59	1,172.58
1997-1998	1,200.84	126.38	12.74	1,339.96
1998-1999	1,202.05	160.89	11.04	1,373.98
1999-2000	1,301.82	159.78	10.08	1,471.68
2000-2001	1,273.35	149.61	9.31	1,432.27
2001-2002	1,262.00	244.99	7.58	1,514.57
2002-2003	1,166.98	296.42	0.00	1,463.40
2003-2004	1,050.17	330.41	0.00	1,380.58
2004-2005	1,081.09	435.16	0.00	1,516.25



* Only baled cardboard is included.

** Dedicated aluminum collection program discontinued in 2002-2003 fiscal year at which time it became combined with plastic and glass beverage containers for collection as TAG.

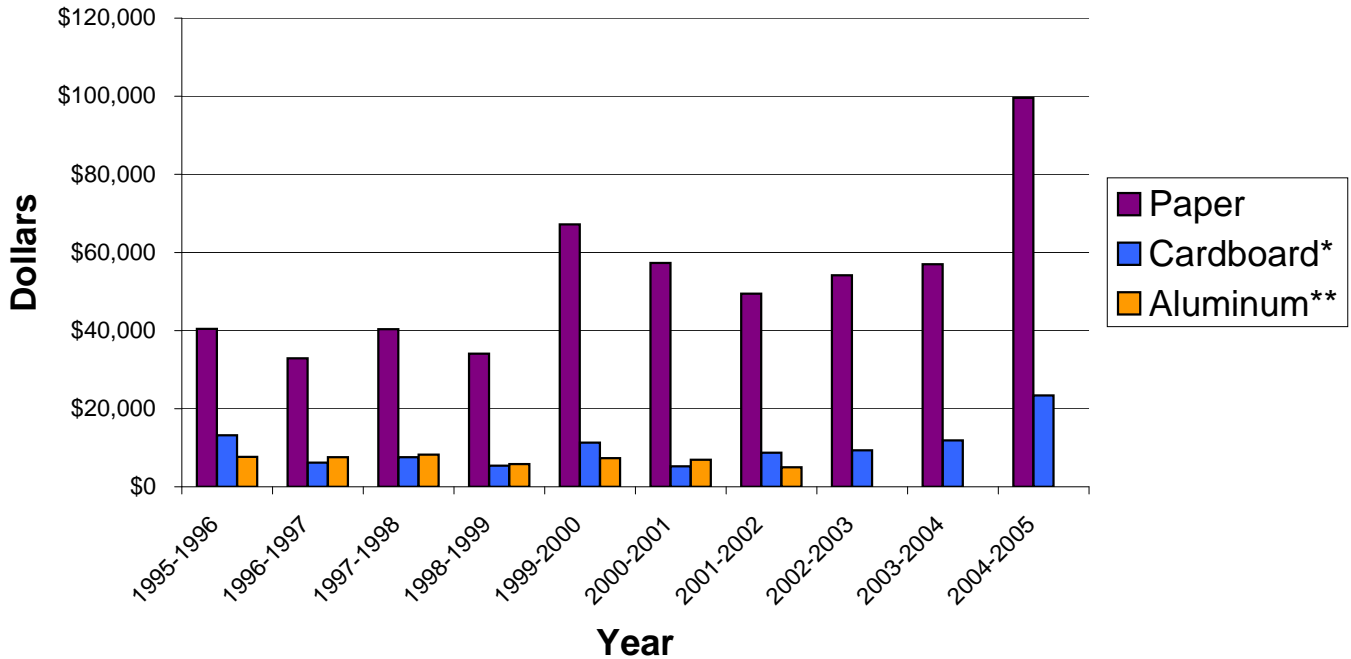
University of Washington

Annual Solid Waste Report, Fiscal Year July 1, 2004 - June 30, 2005

Appendix A: Charts

RECYCLED WASTE REVENUES BY TYPE

Year	Paper	Cardboard*	Aluminum**	Total
1995-1996	\$40,436	\$13,208	\$7,656	\$61,300
1996-1997	\$32,913	\$6,168	\$7,594	\$46,675
1997-1998	\$40,366	\$7,572	\$8,242	\$56,180
1998-1999	\$34,076	\$5,405	\$5,821	\$45,302
1999-2000	\$67,185	\$11,325	\$7,325	\$85,835
2000-2001	\$57,318	\$5,249	\$6,922	\$69,489
2001-2002	\$49,469	\$8,711	\$5,006	\$63,186
2002-2003	\$54,155	\$9,327	\$0	\$63,482
2003-2004	\$57,001	\$11,876	\$0	\$68,877
2004-2005	\$99,585	\$23,411	\$0	\$122,996



* Only baled cardboard is included.

** Dedicated aluminum collection program discontinued in 2002-2003 fiscal year at which time it became combined with plastic and glass beverage containers for collection as TAG.

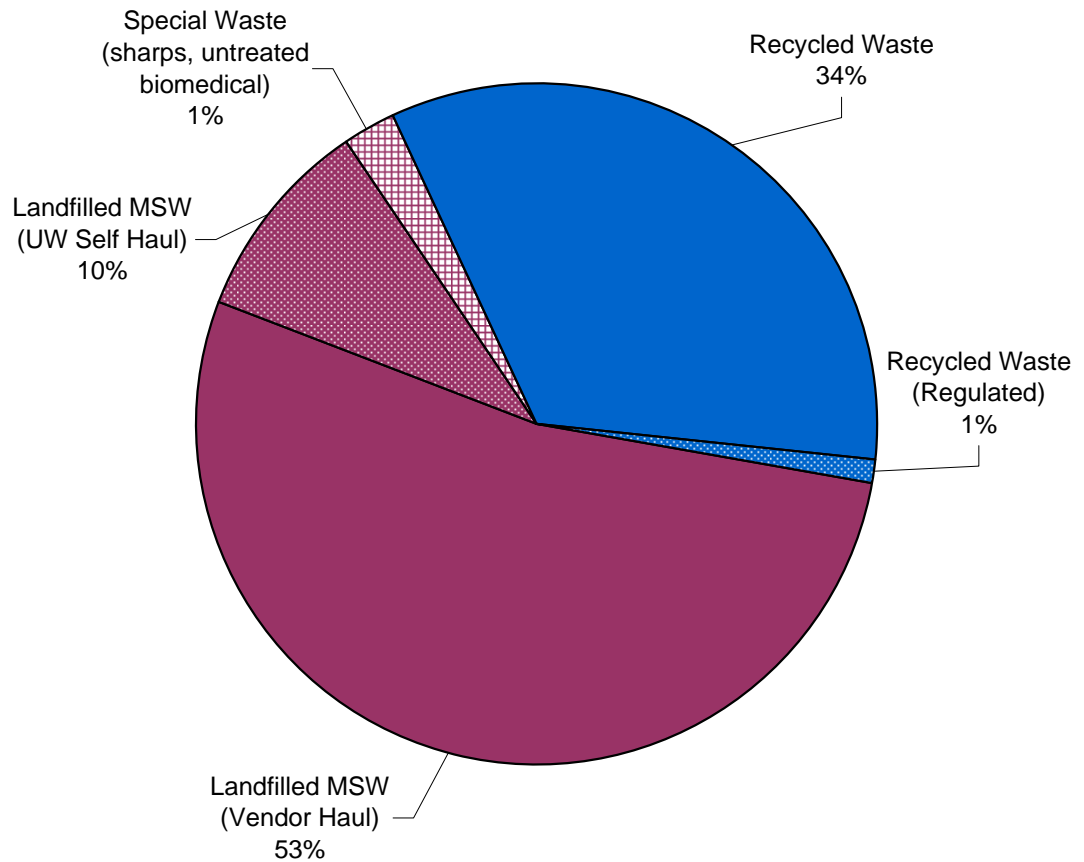
University of Washington

Annual Solid Waste Report, Fiscal Year July 1, 2004 - June 30, 2005

Appendix A: Charts

DISPOSED AND RECYCLED WASTE TONNAGES

Type	Tonnage
Landfilled MSW (Vendor Haul)	5,575
Landfilled MSW (UW Self Haul)	1,012
Special Waste	247
Recycled Waste	3,537
Recycled Waste (Regulated)	111
Total	10,371



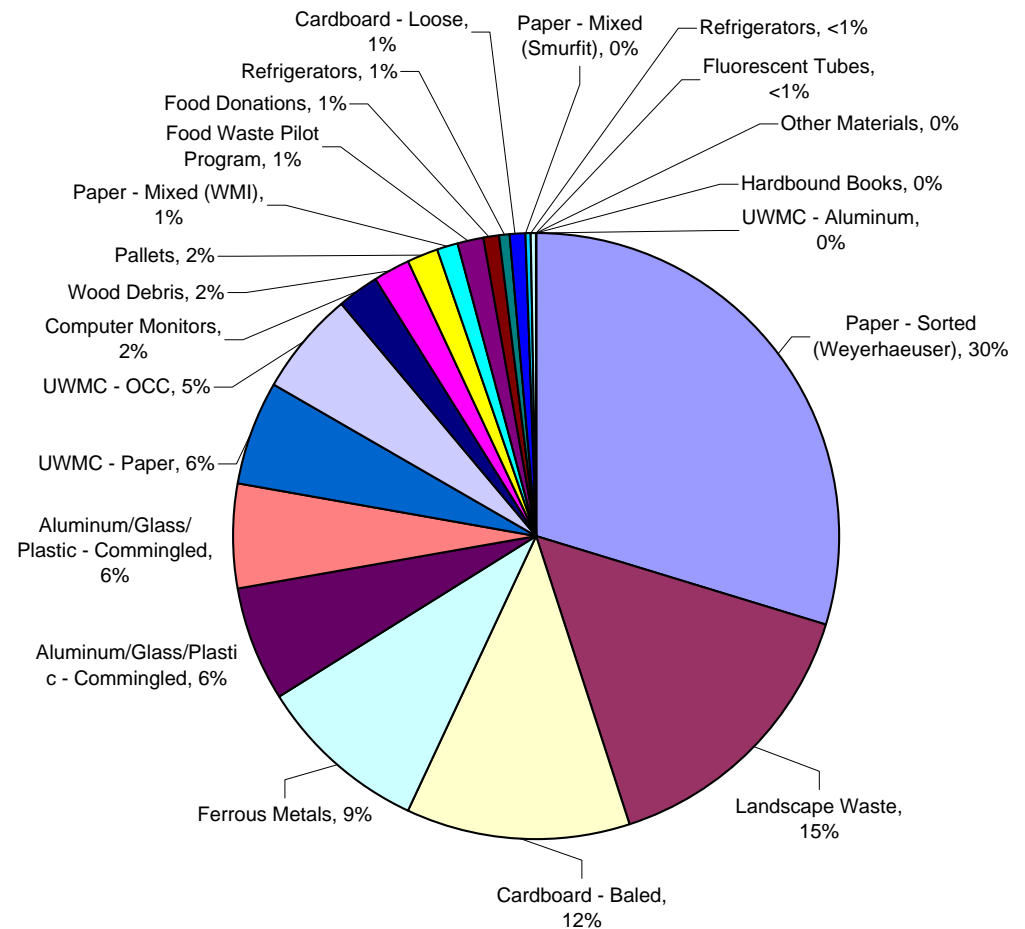
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Appendix A: Charts

RECYCLED WASTE TONNAGES (including regulated wastes that are recycled)

Type	Tonnage
Paper - Sorted (Weyerhaeuser)	1,081
Landscape Waste	557
Cardboard - Baled	435
Ferrous Metals	335
Aluminum/Glass/Plastic - Commingled	224
Paper - Sorted (Smurfit)	208
UWMC - Paper	202
UWMC - OCC	199
Computer Monitors	81
Wood Debris	73
Pallets	59
Paper - Mixed (WMI)	45
Food Waste Pilot Program	43
Food Donations	35
Refrigerators	24
Cardboard - Loose	24
Paper - Mixed (Smurfit)	13
Fluorescent Tubes	6
UWMC - Food	3
Other Materials	0
Hardbound Books	0
UWMC - Aluminum	0
Total	3,648



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Appendix B: Footnotes

EXECUTIVE SUMMARY (Page 1)

1. Additional administration and overhead costs have been included for the 2003-2004 fiscal year. This is to more accurately reflect the true cost of waste and recycling programs. The costs include all management, customer service, marketing, other support staff, and associated equipment including vehicles. The cost of renting the Recycling Center is not included.
2. *Special Waste* is a new waste category in 2003-2004. Previously these materials were included in landfilled and recycled waste categories and include: treated and untreated biomedical waste and materials prohibited from disposal by city law.
3. The calculation for *Net Avoided Disposal Cost* differs from that of previous years by (1) removing tons of regulated waste that are recycled, and (2) using an average variable cost to landfill and collect MSW as the multiplier to determine the *Gross Avoided Disposal Cost*.
4. The *Average Cost of Landfilled Municipal Solid Waste per Ton* is used here rather than the *Average Cost to Dispose All Waste per Ton* because it more accurately represents the waste stream in which recyclable tonnages would be disposed if not recycled. That is, if recycled tonnages were landfilled, they would be included in Landfilled MSW disposal, not biomedical waste and untreated sharps disposal.

OVERVIEW OF COMBINED SOLID WASTE & RECYCLING SERVICES (Page 2)

1. Fluorescent Tubes, Refrigerators, and Computer Monitors are banned from disposal by law and contain potentially toxic substances such as lead, refrigerants, etc. These tonnages are excluded from the calculation of *Net Avoided Disposal Cost* because they cannot be landfilled and therefore cannot contribute to the savings achieved through recycling rather than landfilling. It is important to note that the inclusion of these items would significantly increase the average cost per ton to recycle. This would misrepresents of the overall average cost per ton to recycle, which is primarily comprised of items that have the OPTION to be landfilled. Because these items are indeed recycled, however, the cost of recycling the tonnages is included in the analysis.
2. This is the standard City of Seattle disposal rate per ton of waste.
3. This cost is approximately 26% of disposal fees in the Puget Sound region; based on waste industry cost estimates. This estimate includes the variable costs of collecting waste, such as labor and truck operation and maintenance costs. It does not include fixed costs such as capital, overhead or profit.
4. The *Cost of Recycling Tonnages* is subtracted from the *Gross Avoided Disposal Cost* because the University incurred costs associated with recycling waste, albeit less than the landfill waste costs. The *Net Avoided Disposal Cost*, illustrates the costs the University avoided through its recycling operation.
5. Data on the Resale/Reuse Program are provided for informational purposes only and are not included in the analysis. Tonnage is estimated based on the number of items sold or reused, which is provided by the Resale/Reuse Program each year.

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Annual Solid Waste Report, Fiscal Year July 1, 2004 - June 30, 2005

Appendix B: Footnotes

DISPOSED WASTE COSTS (Page 3)

1. See Annotated report documents for associated methodology and example calculations.
2. Per capita data is based on a population of 59,516, which was used in the University of Washington Waste Characterization Study 2003. This information was provided by Peter Dewey, Transportation Services.
3. Per square foot data is based on an area of 8,008,676 square feet, which was used in the University of Washington Waste Characterization Study 2003. This information was provided by Dan Trythall, manager, Capital and Space Planning.
4. See Page 5, "UW Self Haul Landfilled MSW Operations Data," for a detailed breakdown of UW Self Haul operating costs.
6. "Biomedical Waste: Untreated Sharps & Infectious Animals" do not have any viable recycling option at this time.

RECYCLED WASTE COSTS & REVENUES (Page 3)

1. Per capita data is based on a population of 59,516, which was used in the University of Washington Waste Characterization Study 2003. This information was provided by Peter Dewey, Transportation Services.
2. Per square foot data is based on an area of 8,008,676 square feet, which was used in the University of Washington Waste Characterization Study 2003. This information was provided by Dan Trythall, manager, Capital and Space Planning.
3. See "Data Tables: Recycled Waste" for monthly detail and additional notes on individual commodities.
4. Cost includes fees such as specialized container rental, city & county taxes, and hauling fees, as well as tonnage costs for disposal.
5. Recycling revenue is returned to Solid Waste budget, Self-Sustaining budgets, and Recycle Program.
6. Fluorescent Tubes, Refrigerators, and Computer Monitors are banned from disposal by city law and contain potentially toxic substances such as lead, refrigerants, etc. These tonnages are excluded from the calculation of *Net Avoided Disposal Cost* because they cannot be landfilled and therefore cannot contribute to the savings achieved through recycling rather than landfilling. It is important to note that the inclusion of these items would significantly increase the average cost per ton to recycle. This would misrepresents of the overall average cost per ton to recycle, which is primarily comprised of items that have the OPTION to be landfilled. Because these items are indeed recycled, however, the cost of recycling the tonnages is included in the analysis.
7. See Page 6, "UW Self Haul Recycling Operations Data," for detailed breakdown of recycling operating costs.
8. Data on the Resale/Reuse Program are provided for informational purposes only and are not included in the analysis. Tonnage is estimated based on the number of items sold or reused, which is provided by the Resale/Reuse Program each year.

UW SELF-HAUL OPERATIONS COSTS & RECHARGES (Page 4)

1. See the annotated portion of this report for more detail about the salaries, operations, and equipment cost included in the costs below.

University of Washington

Annual Solid Waste Report, Fiscal Year July 1, 2004 - June 30, 2005

Appendix B: Footnotes

RECYCLING OPERATIONS COSTS & RECHARGES (Page 5)

1. See the annotated portion of this report for more detail about the salaries, operations, and equipment cost included in the costs below.
2. It is important to note the unusual occurrence that there were no substantial equipment costs this year.

APPENDIX A: HISTORICAL DATA (Page A-i)

1. The figure for "Total Tons Recycled - Property & Transport Services" is computed by subtracting the UWMC recycled tonnages from the total recycled tonnage.
2. Equipment costs are excluded from the historical data figures because they are often significant capital purchases that occur irregularly and can significantly skew the perceived cost per ton to recycle.

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Annual Solid Waste Report, Fiscal Year July 1, 2004 – June 30, 2005

Appendix C: Glossary of Terms

ADJUSTED COST TO PROPERTY & TRANSPORT SERVICES: The total cost charged to the Property & Transport Services budget.

ADMINISTRATION AND OVERHEAD: The costs associated with delivering and supporting waste and recycling programs, including support staff such as customer service staff people, costs associated with managing vendor collection and contracts, and the costs to design and develop marketing materials for these programs.

ALUMINUM / GLASS / PLASTIC - COMMINGLED: Commercial-grade cans and bottles, including caps and labels that are collected on campus in containers labeled “Cans & Bottles.” In public areas, this material category is collected in Smart Cans.

CARDBOARD - BALED: Cardboard collected daily on campus with University-owned, two-cubic yard dumpsters and transported with a rear-load compactor truck to the Bryant Shed where the material is baled and University staff sort out non-OCC. Weyerhaeuser collects the baled cardboard from Bryant Shed three to five times per week.

CARDBOARD - LOOSE: Cardboard that is collected in a 30-yard roll-off at special events such as Husky football or move-in at residence halls.

CPUs & MONITORS: Computers, monitors, and peripheral computer equipment, one of the *special waste* categories. Collected for recycling by Total Reclaim.

EXTRA ORDER SERVICE: A service that is provided by Waste Management and the University’s own waste collection program for the removal of Municipal Solid Waste on an on-call basis for special events or for special pick ups.

FERROUS METALS: Ferrous and alloyed ferrous scrap metals to which a magnet adheres. Collected for recycling by Metals Express.

FLUORESCENT TUBES: Fluorescent light tubes. One of the *special waste* categories. Collected for recycling by EcoLights.

FOOD WASTE: Vegetative food waste and coffee grounds collected from campus catering kitchens and coffee shops. Collected for composting by Waste Management and transported to Cedar Grove Composting.

GROSS AVOIDED DISPOSAL COST: The total cost avoided from recycling tonnages rather than landfilling.

HARDBOUND BOOKS: Self-defined.

LANDSCAPE WASTE: Yard waste, tree trimmings, grass clippings, and shrubs produced by the grounds crew and collected in two 50-yard roll-off boxes. Pacific Topsoils collects these materials approximately once every two weeks, depending on the season.

LANDFILLED MUNICIPAL SOLID WASTE: Abbreviated as MSW, it includes waste from homes, businesses, and institutions that is traditionally disposed of in general-purpose landfills. Usually, the definition of MSW does not include hazardous wastes, sewage, or construction and demolition debris that are sent to special-purpose disposal facilities.

NET AVOIDED DISPOSAL COST: The total cost avoided from recycling tonnage rather than landfilling, minus the cost incurred to recycle those tonnages.

NON-INFECTIOUS ANIMAL DISPOSAL (WMI): Materials including animals used in behavioral research projects that are that are not biomedical or infectious waste. These materials are stored frozen in a walk-in freezer until collected.

OTHER MATERIALS: All other materials and residues that do not fit into another material category, such as metal drums, tires concrete, etc.

PALLETS: Wood pallets.

PAPER – MIXED (WMI): Mixed paper collected in two- or three-yard dumpsters located at each of the seven residence hall locations and hauled by Waste Management.

PAPER – MIXED (SMURFIT): Mixed paper collected in two- or three-yard dumpsters located at each of the seven residence hall locations and hauled by Smurfit.

PAPER – SORTED (SMURFIT): Paper from Publication Services sorted into grades and hauled by Smurfit.

PAPER – SORTED (Weyerhaeuser): Paper sorted into cardboard and non-cardboard that is collected, baled, and hauled by Weyerhaeuser.

RECHARGES: Costs incurred by Property & Transport Services on behalf of Self-Sustaining UW Departments that are then charged to those departments by Property & Transport Services.

RECYCLED WASTE: Waste that is recycled rather than disposed of in the landfill.

REFRIGERATORS: Self-defined. Refrigerators are one of the *special waste* categories. They are collected for recycling by Total Reclaim.

RESALE/REUSE PROGRAM: A self-sustaining University program that collects surplus equipment and supplies for resale to the public. The program maintains accurate records of revenues from resale and the number of items sold. Tonnages are estimated. Data from the Resale/Reuse Program are included for informational purposes only and are not included in the report calculations.

SELF HAUL LITTER COLLECTION: Collection of waste and recycling from Smart Can receptacles located in public areas throughout campus. This is the first year to report litter collection costs separate from all

other MSW. This is because it is essentially a custodial activity, transporting waste and recycling from inside campus to dumpsters. Custodial costs are not included for the collection of all other MSW.

SELF HAUL LANDFILLED MSW OPERATING COSTS: The cost of personnel, supplies, equipment, and other items used for on-campus MSW collection.

SELF-SUSTAINING UW DEPARTMENTS: Independent University of Washington departments including Surplus Property, Publication Services, and the UW Medical Center to which Property and Transport Services recharges costs and refunds revenue for the management of their waste and recycling removal.

SHARPS: Any items found in a waste stream that have the potential to cause cuts or puncture injuries. Most notably, sharps include hypodermic needles and other items in medical waste that carry the added possibility of infection. Sharps are part of the *special waste* stream. Treated sharps are collected by Waste Management. Untreated sharps are collected by Stericycle.

SPECIAL WASTE: Treated and untreated biomedical waste and materials prohibited from being disposed by city law. This is a new category of wastes beginning with the 2003-2004 report.

TREATED BIOMEDICAL WASTE: Infectious wastes that have been autoclaved and sanitized and are disposed as municipal solid waste. This is included in the *special waste* stream. Waste Management collects this waste.

UNIVERSITY-WIDE: Inclusive of the entire University of Washington Seattle campus.

UNTREATED BIOMEDICAL WASTE: Infectious wastes including untreated sharps, infectious animals, tools, containers, and other equipment that is collected and disposed by Stericycle as hazardous waste. This is included in the *special waste* stream.

UWMC - ALUMINUM: Aluminum products and scrap collected from the University of Washington Medical Center.

UWMC - PAPER: Unsorted paper of all grades including confidential files that is collected at the UW Medical Center, shredded, and stored in a 30-yard, self-contained compactor.

UWMC - OCC: "Old corrugated cardboard" – generally any corrugated cardboard that is sufficiently clean to permit recycling or recovery that is collected from the University of Washington Medical Center.

VENDOR HAUL: Landfilled MSW that is picked up by the University's waste vendor, Waste Management, and brought to the landfill.

WOOD DEBRIS: Pallets and scrap lumber, not including landscape wastes. Waste Management collects this wood debris.