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# University of Washington

Annual Recycling & Solid Waste Report

Fiscal Year July 1, 2006 - June 30, 2007

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Prepared by:  
UW Recycling & Solid Waste

# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 - June 30, 2007

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## EXECUTIVE SUMMARY

<b>Total University-wide Waste Cost</b> <sup>1</sup>	(Page 2)	\$ 2,169,494
Total University-wide Landfilled Municipal Solid Waste (MSW) Cost	(Page 2)	\$ 1,267,747
Total University-wide Special Waste Cost	(Page 2)	\$ 91,304
Total University-wide Recycled Waste Cost	(Page 2)	\$ 730,604
Total University-wide Recycled Special Waste Cost	(Page 2)	\$ 79,839
<hr/>		
<b>Net Avoided Disposal Cost: Cost Avoided by Recycling Instead of Landfilling</b> <sup>2</sup>	(Page 2)	\$ 202,229
<hr/>		
<b>Total Tons Landfilled MSW</b>	(Page 3)	6,052
<b>Total Tons Recycled Waste</b>	(Page 4)	4,703
<b>Total Tons Generated (Landfilled MSW + Recycled Waste)</b>		10,755
<b>Recycling Rate (Recycled Tons/Total Tons Generated)</b>		44%
<hr/>		
<b>Average Cost of Landfilled MSW per Ton, Excluding Litter Collection and Landfilled Special Waste</b>	(Page 3)	\$ 198
<b>Average Cost of Recycled Waste per Ton, Excluding Recycled Special Waste</b>	(Page 4)	\$ 155

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## Overview of Combined Landfilled and Recycled Waste Services

### COMBINED LANDFILLED & RECYCLED WASTE SERVICES

#### LANDFILLED MSW COST SUMMARY

Landfilled MSW Disposal Costs	(Page 3)	\$ 1,012,655	
Landfilled MSW UW Self Haul Operating & Overhead Costs	(Page 3)	\$ 255,092	
Subtotal University-wide Landfilled MSW Costs			= \$ 1,267,747

#### LANDFILLED SPECIAL WASTE COST SUMMARY

Special Waste Disposal Costs	(Page 3)	\$ 83,922	
Special Waste Operating & Overhead Costs	(Page 3)	\$ 7,382	
Subtotal University-wide Special Waste Costs			= \$ 91,304

#### RECYCLED WASTE COST SUMMARY

Recycled Waste Removal Costs	(Page 4)	\$ 568,110	
Recycled Waste Operating & Overhead Costs	(Page 4)	\$ 375,080	
Revenue from Recycled Waste	(Page 4)	\$ (212,586)	
Subtotal University-wide Recycled Waste Costs			= \$ 730,604

#### RECYCLED SPECIAL WASTE COST SUMMARY

Recycled Special Waste Removal Costs	(Page 4)	\$ 79,839	
Subtotal University-wide Recycled Special Waste Costs			= \$ 79,839

#### Total University-wide Waste Cost

= \$ 2,169,494

#### COSTS (REVENUE) RECHARGED TO SELF-SUSTAINING UW DEPARTMENTS

Disposed Waste Costs Recharged to Self-Sustaining UW Departments	(Page 3)	\$ 531,877	
Recycled Waste Costs Recharged to Self-Sustaining UW Departments	(Page 4)	\$ 111,320	
Revenue from Recycled Waste Refunded to Self-Sustaining UW Departments	(Page 4)	\$ (58,962)	
Subtotal Costs (Revenue) Recharged to Self-Sustaining UW Departments			= \$ 584,235

#### Less: Total Costs Recharged & Revenue Refunded to Self-Sustaining UW Departments

- \$ 584,235

#### Total Adjusted Cost to the University's Solid Waste Budget

= \$ 1,585,259

### NET AVOIDED DISPOSAL COST

Average Cost to Landfill MSW per Ton	(Page 3)	\$ 198	
Subtract: Average Cost to Recycle per Ton	(Page 4)	- \$ 155	
Difference between Avg Cost to Landfill & Avg Cost to Recycle			43
Difference between Avg Cost to Landfill & Avg Cost to Recycle			\$ 43
Multiply: Total Tons Recycled <sup>1</sup>	(Page 4)		4703
Net Avoided Disposal Cost <sup>2</sup>			= \$ 202,229

### TONNAGE & REVENUE FROM RESALE/REUSE PROGRAM

#### Additional Waste Diverted Through Surplus Sales

		Tons	Revenue
Total Tonnage & Revenue from Resale/Reuse Program <sup>3</sup>	(Page 4)	437	\$ 513,071

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## Landfilled Waste Costs

### SUMMARY

Total University-wide Cost to Landfill Municipal Solid Waste (MSW), Litter, and Special Waste <sup>1</sup>	\$	1,359,051
Total Vendor Haul Landfilled MSW Cost	\$	968,817
Total UW Self Haul Landfilled MSW Cost	\$	227,292
Total UW Self Haul Litter Collection Cost	\$	71,637
Total Vendor Haul Landfilled Special Waste Cost	\$	91,304
Average Cost of Landfilled MSW per Ton, Excluding Litter Collection and Landfilled Special Waste	\$	198
Vendor Haul Cost of Landfilled MSW per Ton	\$	189
UW Self Haul Cost of Landfilled MSW per Ton	\$	243
Total Tons Landfilled MSW Per Annum		6,052

### UNIVERSITY-WIDE LANDFILLED MSW COST

	Cost	Subtotal	Tons	Cost / Ton
<b>Vendor Haul Landfilled MSW Cost</b>				
<i>Disposal Costs</i>				
Regular & Extra Order Landfilled MSW Collection & Disposal Cost	\$ 914,470		5,117	\$ 179
Regular & Extra Order Landfilled MSW Overhead Cost	\$ 54,347			\$ 10
Total Vendor Haul Disposal Costs for Landfilled MSW	= \$ 968,817		5,117	\$ 189
<b>SUBTOTAL VENDOR HAUL LANDFILLED MSW COST</b>		<b>= \$ 968,817</b>	<b>5,117</b>	<b>\$ 189</b>
<b>UW Self Haul Landfilled MSW Cost</b>				
<i>Disposal Costs</i>				
Landfilled MSW Transfer Station Disposal Cost	\$ 98,185		935	\$ 105
Landfilled MSW Transfer Station Disposal Cost for Extra Orders	\$ -		-	\$ -
Total UW Self Haul Disposal Cost for Landfilled MSW	= \$ 98,185		935	\$ 105
<i>Operation Cost <sup>2</sup></i>				
UW Self Haul Landfilled MSW Operating Cost, including Overhead (Page 5)	\$ 129,107			
Total Operation Cost for UW Self Haul Landfilled MSW Collection	= \$ 129,107			
<b>SUBTOTAL UW SELF HAUL LANDFILLED MSW COST</b>		<b>= \$ 227,292</b>	<b>935</b>	<b>\$ 243</b>
<b>SUBTOTAL VENDOR HAUL AND UW SELF HAUL LANDFILLED MSW COST</b>		<b>\$ 1,196,109</b>	<b>6,052</b>	<b>\$ 198</b>
<b>UW Self Haul Litter Collection Cost <sup>3</sup></b>				
<i>Operation Cost <sup>4</sup></i>				
UW Self Haul Litter Operating Cost, including Overhead (Page 5)	\$ 71,637			
Total Operation Cost for Litter Collection	= \$ 71,637			
<b>SUBTOTAL UW SELF HAUL LITTER COLLECTION COST</b>		<b>= \$ 71,637</b>		
<b>TOTAL UNIVERSITY-WIDE LANDFILLED MSW COST</b>		<b>= \$ 1,267,747</b>		

### UNIVERSITY-WIDE LANDFILLED SPECIAL WASTE COST

	Cost	Subtotal	Tons	Cost / Ton
<b>Vendor Haul Landfilled Special Waste Cost</b>				
<i>Disposal Cost</i>				
Treated Sharps UWMC	\$ 32,232		57	\$ 565
Treated Sharps K-WING	\$ 4,696		6	\$ 783
Biomedical Waste, Untreated Sharps & Infectious Animals	\$ 46,994		16	\$ 2,937
Total Vendor Haul Special Waste Disposal Cost	= \$ 83,922		79	\$ 1,062
<i>Operation Cost</i>				
Special Waste Operating Cost, including Overhead	\$ 7,382			
Total Operation Cost for Special Waste	= \$ 7,382			
<b>TOTAL UNIVERSITY-WIDE SPECIAL WASTE COST</b>		<b>= \$ 91,304</b>	<b>79</b>	<b>\$ 1,156</b>

### TOTAL ADJUSTED LANDFILLED WASTE COST TO UNIVERSITY'S SOLID WASTE BUDGET

Add: Total University-wide Landfilled MSW Cost	\$	1,267,747
Add: Total University-wide Landfilled Special Waste Cost	\$	91,304
<b>Total University-wide Landfilled Waste Cost</b>	<b>= \$</b>	<b>1,359,051</b>
Less: Costs Recharged to Self-Sustaining UW Departments (Page 5)	- \$	531,877
<b>TOTAL ADJUSTED LANDFILLED WASTE COST TO UNIVERSITY'S SOLID WASTE BUDGET</b>	<b>= \$</b>	<b>827,174</b>

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## Recycled Waste Costs & Revenues

### SUMMARY

Total University-wide Cost to Recycle Waste and Special Waste	\$	810,443	
Total University-wide Recycled Waste Cost	\$		730,604
Total University-wide Recycled Special Waste Cost	\$		79,839
Average Cost of Recycled Waste per Ton, Excluding Recycled Special Waste	\$	155	
Total University-wide Recycled Waste Cost	\$		730,604
Divide by: Total Tons Recycled			4,703
Total Tons Recycled Waste Per Annum			4,703

### UNIVERSITY-WIDE RECYCLED WASTE COST / REVENUE

Commodity	UW Operations Cost <sup>1</sup>	Vendor Cost <sup>2</sup>	(Revenue)	Total Cost (Rev)	Tonnage	Average Cost (Rev) Per Ton
Paper - Mixed (Weyerhaeuser)	\$ 329,124	\$ -	\$ (121,794)	\$ 207,330	1030	\$201
Paper - Mixed, UWMC (Weyerhaeuser)	\$ -	\$ -	\$ (20,398)	\$ (20,398)	302	(\$68)
Paper - Mixed, Publication Services (Weyerhaeuser)	\$ -	\$ -	\$ (4,923)	\$ (4,923)	91	(\$54)
Cardboard (Weyerhaeuser)	\$ 36,203	\$ -	\$ (20,551)	\$ 15,652	343	\$46
Cardboard (WMI)	\$ -	\$ 2,354	\$ -	\$ 2,354	N/A	N/A
Cardboard, UWMC (Weyerhaeuser)	\$ -	\$ -	\$ (18,088)	\$ (18,088)	192	(\$94)
Single Stream, HFS (WMI)	\$ 2,884	\$ 29,553	\$ -	\$ 32,437	256	\$127
Cans/Bottles (WMI)	\$ 13,015	\$ 37,400	\$ -	\$ 50,415	191	\$264
Landscape Waste (Pacific Topsoils/Cedar Grove)	\$ -	\$ 57,326	\$ -	\$ 57,326	1069	\$54
Wood Waste (WMI)	\$ 6,406	\$ 8,641	\$ -	\$ 15,047	100	\$150
Food Waste (WMI)	\$ -	\$ 26,730	\$ -	\$ 26,730	292	\$92
Concrete (WMI)	\$ -	\$ 10,231	\$ -	\$ 10,231	383	\$27
Ferrous Metals (Metals Express)	\$ -	\$ -	\$ (26,832)	\$ (26,832)	441	(\$61)
Plastic Film (Weyerhaeuser)	\$ 6,406	\$ -	\$ -	\$ 6,406	5	\$1,281
Other Materials	\$ -	\$ 1,837	\$ -	\$ 1,837	8	\$230
<b>Subtotal Recycled Waste Removal Costs</b>	<b>\$ 394,038</b>	<b>\$ 174,072</b>	<b>\$ (212,586)</b>	<b>\$ 355,524</b>	<b>4,703</b>	<b>\$76</b>
Add: Recycled Waste Removal Overhead Cost				\$ 50,721		
<b>Subtotal Recycled Waste Cost</b>				<b>\$ 406,245</b>		
Add: Recycling Program Admin Operating Costs <sup>3</sup>			(Page 6)	\$ 324,359		
<b>TOTAL UNIVERSITY-WIDE RECYCLED WASTE COST</b>				<b>= \$ 730,604</b>	<b>4,703</b>	<b>\$155</b>

### UNIVERSITY-WIDE RECYCLED SPECIAL WASTE COST

Commodity	Vendor Cost <sup>2</sup>	(Revenue)	Total Cost (Rev)	Tonnage	Average Cost (Rev) Per Ton
Spent Lighting (Ecolights)	\$ 20,946	\$ -	\$ 20,946	5	\$4,189
CPUs / Monitors (Total Reclaim)	\$ 57,795	\$ -	\$ 57,795	82	\$705
Refrigerators (Total Reclaim)	\$ 1,098	\$ -	\$ 1,098	5	\$220
<b>TOTAL UNIVERSITY-WIDE RECYCLED SPECIAL WASTE COST</b>	<b>\$ 79,839</b>	<b>\$ -</b>	<b>\$ 79,839</b>	<b>92</b>	<b>\$868</b>

### TOTAL ADJUSTED RECYCLED WASTE COST TO UNIVERSITY'S SOLID WASTE BUDGET

Add: Total University-wide Recycled Waste Cost	\$	730,604
Add: Total University-wide Recycled Special Waste Cost	\$	79,839
<b>Total University-Wide Recycled Waste Costs</b>	<b>\$</b>	<b>810,443</b>
Add: Costs Recharged to Self-Sustaining UW Departments	(Page 6)	\$ (111,320)
Add: Revenue Returned to Self-Sustaining UW Departments	\$	58,962
<b>TOTAL ADJUSTED RECYCLED WASTE COST TO UNIVERSITY'S SOLID WASTE BUDGET</b>	<b>= \$</b>	<b>758,085</b>

### ADDITIONAL WASTE DIVERTED THROUGH SURPLUS SALES

	<b>Tons</b>	<b>Revenue</b>
<b>Total Tonnage &amp; Revenue from Resale/Reuse Program 2</b>	<b>437</b>	<b>\$ 513,071</b>

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## UW Self Haul Landfilled Municipal Solid Waste (MSW) Operations Data

### SUMMARY

Total UW Self Haul Landfilled MSW Operating Costs	\$ 129,107
Total UW Self Haul Litter Operating Costs	\$ 71,637

### UW SELF HAUL LANDFILLED MSW OPERATING COSTS <sup>1</sup>

#### Salaries

Collection Staff	\$ 44,964	
Portions of 2 Waste Collectors, Truck Driver Lead		
Administration and Overhead	\$ 20,282	
Portions of 3 Mgrs, Prog Coor, Fisc Spec		
<b>SUBTOTAL SALARIES</b>		<u>= \$ 65,246</u>

#### Operations Costs

Vehicle Rental	\$ 42,207	
Portions of 2 Collection Vehicles, 2 Pickup Trucks		
Supplies	\$ 2,977	
Services	\$ 18,678	
<b>SUBTOTAL OPERATIONS COSTS</b>		<u>= \$ 63,862</u>

**TOTAL UW SELF HAUL LANDFILLED MSW OPERATING COSTS** = \$ 129,107

### UW SELF HAUL LANDFILLED MSW ONE-TIME, NON-AMERTIZED EQUIPMENT COSTS <sup>2</sup>

**Equipment Costs** \$ 43,564

### UW SELF HAUL LITTER OPERATING COSTS <sup>3</sup>

#### Salaries

Collection Staff	\$ 47,915	
2 Truck Drivers, Truck Driver Lead		
Administration and Overhead	\$ 3,148	
Portions of 3 Mgrs		
<b>SUBTOTAL SALARIES</b>		<u>= \$ 51,063</u>

#### Operations Costs

Vehicle Rental	\$ 9,587	
2 Collection Vehicles		
Supplies	\$ 10,170	
Services	\$ 817	
<b>SUBTOTAL OPERATIONS COSTS</b>		<u>= \$ 20,574</u>

**TOTAL UW SELF HAUL LITTER OPERATING COSTS** = \$ 71,637

### RECHARGES TO SELF-SUSTAINING UW DEPARTMENTS

**Total Recharges to Self-Sustaining UW Departments** \$ 531,877

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## UW Self Haul Recycling Operations Data

### SUMMARY

Total UW Self Haul Recycling Operating Costs \$ 756,089

### UW SELF HAUL RECYCLING OPERATING COSTS <sup>1</sup>

#### Salaries

Operations	\$ 433,135
Wrhse Spvr, 9 Wrhse Wrkrs, 5 Truck Drvrs, 2 Waste Coll, Truck Drvr Lead	
Administration and Overhead	\$ 78,312
Portions of 3 Mgrs, Prog Coor, Info Spec, Fisc Spec, Student Assts	
<b>SUBTOTAL SALARIES</b>	<u>                    </u> = \$ 511,448

#### Operations Costs

Vehicle Rental	\$ 71,293
2 Coll Vehicles, Portions of 3 Addtnl Coll Vehicles, 3 Pickup Trucks	
Supplies	\$ 43,937
Services	\$ 129,411
<b>SUBTOTAL OPERATIONS COSTS</b>	<u>                    </u> = \$ 244,641

**TOTAL UW SELF HAUL RECYCLING OPERATING COSTS** = \$ 756,089

### UW SELF HAUL RECYCLING ONE-TIME, NON-AMERTIZED EQUIPMENT COSTS <sup>2</sup>

Equipment Costs \$ 161,187

### RECHARGES TO SELF-SUSTAINING UW DEPARTMENTS

Total Recharges to Self-Sustaining UW Departments \$ 111,320

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## REPORT ANNOTATION

This Annual Recycling & Solid Waste Report provides an overview of the University of Washington's waste and recycling operations for the Seattle campus for the fiscal year July 1, 2006, through June 30, 2007. 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.

Landfilled MSW tons	6,052
Landfilled special waste tons	79
Recycled waste tons	4,703
Recycled special waste tons	92
Total landfilled and recycled tons	10,926
University-wide landfilled MSW cost	\$1,267,747
University-wide landfilled special waste cost	\$91,304
University-wide recycled waste cost	\$763,370
University-wide recycled special waste cost	\$79,839
Average cost of landfilling MSW per ton	\$198
Average cost of recycling waste per ton	\$155
Net avoided disposal cost: cost avoided by recycling instead of landfilling	\$202,229
Estimated tonnages diverted through the Resale/Reuse Program	437
Actual revenue generated through the Resale/Reuse Program	\$513,071

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## Overview of Combined Landfilled and Recycled Waste Services

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### COMBINED LANDFILLED & RECYCLED WASTE SERVICES

The Combined Landfilled & Recycled Waste 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*, *Landfilled Special Waste*, *Recycled Waste*, and *Recycled Special Waste* to clearly divide the financial impact of the four waste streams.

The *Subtotal University-wide Landfilled MSW Costs* is determined by summing the costs of the different landfilled waste streams: (1) *Landfilled MSW Disposal Costs*, \$1,012,655, and (2) *Landfilled MSW UW Self Haul Operating & Overhead Costs*, \$255,092. The total cost to landfill the University's MSW in the 2006/2007 fiscal year is \$1,267,747.

The *Subtotal University-wide Special Waste Costs* is determined by summing the costs of the special waste streams: (1) *Special Waste Disposal Costs*, \$83,922, and (2) *Special Waste Operating & Overhead Costs*, \$7,382. The total cost to landfill the University's special in the 2006/2007 fiscal year is \$91,304.

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: (1) *Recycled Waste Removal Costs*, \$568,110, (2) *Recycled Waste Operating & Overhead Costs*, \$407,846, and (3) *Revenue from Recycled Waste*, \$212,586. The total cost to recycle the University's waste in the 2006/2007 fiscal year is \$763,370.

The *Subtotal University-wide Recycled Special Waste Costs* is determined by summing the costs of the different recycled special waste streams: (1) *Recycled Special Waste Removal Costs*, \$79,839. The total cost to recycle the University's special waste in the 2006/2007 fiscal year is \$79,839.

The *Total University-wide Waste Cost* for the 2006/2007 fiscal year is \$2,202,260. This is the summative cost of all waste disposal for landfilling MSW, landfilling special waste, recycling waste, and recycling special waste.

The Recycling & Solid Waste Program oversees municipal solid waste disposal (MSW) for the entire University, including departments that have self-sustaining budgets that bear their portion of solid waste removal costs. In order to allocate costs to self-sustaining budgets, the Recycling & Solid Waste Program recharges costs and returns revenue to self-sustaining departments. 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 Waste Cost*. The *Total Adjusted Landfilled Waste Cost to the University's Solid Waste Budget* for the 2006/2007 fiscal year is \$1,618,025.

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## Overview of Combined Landfilled and Recycled Waste Services

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### NET AVOIDED DISPOSAL COST

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 the total cost avoided by recycling waste rather than landfilling, minus the cost incurred to recycle the waste. It is one primary indicator for the economic value of recycling. For the 2006/2007 fiscal year, the University avoided \$202,229 in disposal costs by recycling rather than landfilling certain materials.

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

- Subtract the *Average Cost to Recycle per Ton* from the *Average Cost to Landfill MSW per Ton*.
- Multiply the difference between the *Average Cost of Recycled Waste per Ton* and the *Average Cost of Landfilled MSW per Ton* by the *Total Tons Recycled Waste*.

### 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 Recycling & 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, approximately 437 tons were diverted from the landfill and Resale/Reuse Program sales generated nearly \$513,071 in revenue. The total tons diverted through the Resale/Reuse Program are estimated by the program managers by 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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## Landfilled Waste Costs

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### UNIVERSITY-WIDE LANDFILLED MSW COST

This section details the University's costs incurred by disposing its waste. The University's waste is disposed by using one of two methods: *Vendor Haul* and *UW Self 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 locations where there are architectural or infrastructure limitations. *UW Self Haul* collection includes both municipal solid waste (MSW) and litter from the outdoor public area litter/recycling receptacles (Smart Cans).

*Vendor Haul* waste accounts for approximately 84% of the total landfilled MSW tonnage and 80% of the costs incurred to landfill MSW.

*Vendor Haul Landfilled MSW Costs* are the costs incurred for waste collected by the University's vendor, Waste Management, for regular and extra order landfilled MSW collection, disposal, and overhead. The *Subtotal Vendor Haul Landfilled MSW Costs* is \$968,817 for a total of 5,117 tons disposed. These costs are included to provide an accurate cost of this service.

*UW Self Haul Landfilled MSW Costs* includes costs for waste collected by University staff and brought to the transfer station: (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* is \$227,292 for a total of 935 tons disposed.

The *Average Cost of Landfilled MSW per Ton, Excluding Litter Collection and Landfilled Special Waste* reflects the cost of disposing a ton of the University's waste. This figure is used to calculate the *Net Avoided Disposal Cost* because it 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:

- Total the costs to dispose landfilled MSW. Add *Subtotal Vendor Haul Landfilled MSW Cost* and *Subtotal UW Self Haul Landfilled MSW Cost*. The *Subtotal Vendor Haul and UW Self Haul Landfilled MSW Cost* is \$1,196,109. (This subtotal does not include *UW Self Haul Litter Collection Cost*.)
- Divide the *Subtotal Vendor Haul and UW Self Haul Landfilled MSW Cost* by the *Total Tons Landfilled MSW*, 6,052. The *Average Cost of Landfilled MSW per Ton* is \$198.

*UW Self Haul Litter Collection Cost* includes *Operation Cost for Litter Collection, including Overhead*. Costs for disposal of the litter are included in the *UW Self Haul Landfilled MSW Costs*. *UW Self Haul Litter Collection Cost* is reported separate from all other MSW costs because collection and disposal of the material in the outdoor litter/recycling receptacles (Smart Cans) is a function separate from the vendor haul and UW self haul MSW collection and disposal. This function is similar to that of Custodial Services, which is responsible for transporting waste and recycling from inside campus buildings to

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## Landfilled Waste Costs

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external dumpsters. Custodial costs are not included in the costs for collection of MSW. However, litter collection costs are still part of the solid waste budget. The *Subtotal UW Self Haul Litter Collection Cost* is \$71,637.

### UNIVERSITY-WIDE LANDFILLED SPECIAL WASTE COST

*Vendor Haul Landfilled Special Waste Costs* includes the disposal and operation costs for two primary waste streams: (1) treated sharps and (2) biomedical waste, untreated sharps, and infectious animals. Waste Management hauls the treated sharps and Stericycle hauls the biomedical waste, untreated sharps, and infectious animals. The *Total University-wide Special Waste Cost* is \$91,304 for a total of 79 tons disposed.

### TOTAL ADJUSTED LANDFILLED WASTE COST TO THE UNIVERSITY'S SOLID WASTE BUDGET

The *Total University-wide Landfilled Waste Cost* is calculated by adding the *Total University-wide Landfilled MSW Cost*, \$1,267,747, and the *Total University-wide Landfilled Special Waste Cost*, \$91,304 equaling \$1,359,051. This figure represents the total cost for waste disposal for the 2006/2007 fiscal year.

The Recycling & Solid Waste Program oversees municipal solid waste disposal (MSW) for the entire University, including departments that have self-sustaining budgets that bear their portion of solid waste removal costs. In order to allocate costs to self-sustaining budgets, The recycle and Solid Waste program recharges costs and returns revenue to self-sustaining departments. To determine the total cost charged to the University's solid waste budget for landfilled waste, *Total Costs Recharged & Revenue Refunded to Self-Sustaining UW Departments*, \$531,877, are subtracted from the *Total University-wide Landfilled Waste Cost*. The *Total Adjusted Landfilled Waste Cost to the University's Solid Waste Budget* for the 2006/2007 fiscal year is \$827,174.

# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 – June 30, 2007

## Recycled Waste Costs & Revenues

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### UNIVERSITY-WIDE RECYCLED WASTE COST/REVENUE

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

- Begin with the *Subtotal Recycled Waste Removal Costs* of \$355,524, which is the sum of each commodity's UW operations cost, vendor cost, and/or revenue.
- Add the *Recycled Waste Removal Overhead Cost* of \$50,721, which includes personnel support costs.
- Add the *Recycling Program Admin Operating Costs* of \$357,125, which include personnel, vehicle rental, supplies, and services for collecting and processing the UW's recyclables.
- This equals the *Total University-wide Recycled Waste Cost* of \$763,370 for a total of 4,703 tons recycled.

The *Average Cost to Recycle per Ton* is calculated to determine the average cost of recycling one ton of 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. This figure is used in the calculation for *Net Avoided Disposal Cost*. The *Average Cost to Recycle per Ton* is calculated by dividing the *Total University-wide Recycled Waste Cost* by the *Total Tons Recycled*, which gives a value of \$155 per ton.

### UNIVERSITY-WIDE RECYCLED SPECIAL WASTE COST

The *University-wide Recycled Special Waste Cost* includes the *Vendor Cost* for recycled special waste, such as spent lighting, refrigerators, and CPUs/monitors. These commodities are considered special recycled waste because these items are banned from disposal by law and contain potentially toxic substances, such as mercury, lead, refrigerants, etc. These costs are reported separately 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 misrepresent 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 recycled, however, the cost of recycling the tonnages is included in the analysis.

The *Total University-Wide Recycled Special Waste Cost* is \$79,839 for a total of 92 tons.

### TOTAL ADJUSTED RECYCLED WASTE COST TO UNIVERSITY'S SOLID WASTE BUDGET

The *Total University-wide Recycled Waste Costs* is calculated by adding the *Total University-wide Recycled Waste Cost*, \$763,370, and the *Total University-wide Recycled Special Waste Cost*, \$79,839, equaling \$843,209. This figure represents the total cost for recycled waste disposal for the 2006/2007 fiscal year.

# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 – June 30, 2007

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## Recycled Waste Costs & Revenues

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Recycling and Solid Waste program oversees recycling for the entire University, including departments that have self-sustaining budgets that bear their portion of recyclables removal costs. In order to allocate costs to self-sustaining budgets, Recycling and Solid Waste program recharges costs and returns revenue to self-sustaining departments. To determine the total cost charged to the University's solid waste budget for recycled waste, *Costs Recharged to Self-Sustaining UW Departments*, \$111,320, is subtracted from the *Total University-wide Recycled Waste Cost*, \$810,443. Then *Revenue Returned to Self-Sustaining UW Departments*, \$58,962, is added to the total. The *Total Adjusted Recycled Waste Cost to the University's Solid Waste Budget* for the 2006/2007 fiscal year is \$758,085.

### **OTHER WASTE DIVERTED THROUGH SURPLUS PROPERTY SALES**

The Resale/Reuse Program associated with the Surplus Property Program is a valuable program that diverts significant amounts of material from landfill disposal and generates revenue from the sale of reusable property. In the 2006/2007 fiscal year, the Resale/Reuse Program diverted an estimated 437 tons from the landfill and generated revenues of \$513,071. Figures for the Resale/Reuse Program are included for informational purposes and are not included in any Solid Waste Report calculations. However, it is important to note 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 by using the number of items sold and corresponding weight estimates.

# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 – June 30, 2007

## UW Self Haul Landfilled Municipal Solid Waste (MSW) Operations Data

### UW SELF HAUL LANDFILLED MSW OPERATING COSTS

The *UW Self Haul Landfilled MSW Operating 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 infrastructural limitations that prevents certain vehicles from reaching pick-up points.

*UW Self Haul Landfilled MSW Operating Costs* incurred in the 2006/2007 fiscal year include:

- Collection Staff (see table below): \$44,964
- Administration and Overhead (see table below): \$20,282
- Vehicle Rental (see table below): \$42,207
- Supplies (printing, advertising, and other supplies): \$2,977
- Services (two-way radios, dumpster repair and maintenance, postage and other miscellaneous costs): \$18,678

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

<b>Cost Category</b>	<b>Title</b>	<b>Percentage of Time</b>
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%

### UW SELF HAUL LANDFILLED ONE-TIME, NON-AMERTIZED EQUIPMENT COSTS

Equipment costs are excluded from the operating costs because they are one-time purchases and would significantly skew the cost per ton to landfill waste if included.

# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 – June 30, 2007

## UW Self Haul Landfilled Municipal Solid Waste (MSW) Operations Data

### UW SELF HAUL LITTER OPERATING COSTS

*UW Self Haul Litter Operating Costs* include the cost of personnel, vehicle rental, supplies, and services. Litter disposal costs are included in the *UW Self Haul Landfilled MSW Costs*. *UW Self Haul Litter Collection Cost* is reported separate from all other MSW costs because collection and disposal of the material in the outdoor litter/recycling receptacles (Smart Cans) is a function separate from the vendor haul and UW self haul MSW collection and disposal. This function is similar to that of Custodial Services, which is responsible for transporting waste and recycling from inside campus buildings to external dumpsters. Custodial costs are not included in the costs for collection of MSW.

*UW Self Haul Litter Operating Costs* incurred in 2006-2007 include:

- Collection Staff (see table below): \$47,915
- Administration and Overhead (see table below): \$3,148
- Vehicle Rental (see table below): \$9,587
- Supplies (printing, advertising, and other supplies): \$10,987

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

<b>Cost Category</b>	<b>Title</b>	<b>Percentage of Time</b>
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%

### UW SELF HAUL LITTER ONE-TIME, NON-AMERTIZED EQUIPMENT COSTS

Equipment costs are excluded from the operating costs because they are one-time purchases and would significantly skew the cost per ton to landfill waste if included.

# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 – June 30, 2007

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## UW Self Haul Landfilled Municipal Solid Waste (MSW) Operations Data

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### **RECHARGES TO SELF-SUSTAINING UW DEPARTMENTS**

Recycling and Solid Waste program oversees municipal solid waste disposal for the entire University, including departments that have self-sustaining budgets that bear their portion of solid waste removal costs. In order to allocate costs to self-sustaining budgets, Recycling and Solid Waste program recharges costs to self-sustaining departments that incurred costs related to waste disposal. For the 2006/2007 fiscal year, *Total Recharges to Self-Sustaining UW Departments* for waste collection is \$531,877.

# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 – June 30, 2007

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## UW Self Haul Recycling Operations Data

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### **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 the 2006/2007 fiscal year include:

- Operations (see table next page): \$433,135
- Administration and Overhead (see table next page): \$78,312
- Vehicle Rental (see table next page): \$71,293
- Supplies (printing, advertising and other supplies): \$43,937
- Services (dumpster repair and cleaning, postage and maintenance): \$129,411

# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 – June 30, 2007

## UW Self Haul Recycling Operations Data

### UW SELF HAUL RECYCLING OPERATING COSTS

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

<b>Cost Category</b>	<b>Title</b>	<b>Percentage of Time</b>
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%

# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 – June 30, 2007

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## UW Self Haul Recycling Operations Data

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### **UW SELF HAUL RECYCLING ONE-TIME, NON-AMERTIZED EQUIPMENT COSTS**

Equipment costs are excluded from the operating costs because they are one-time purchases and would significantly skew the cost per ton to recycle waste if included.

### **RECHARGES TO SELF-SUSTAINING UW DEPARTMENTS**

The Recycling & Solid Waste Program oversees recycling collection for the entire University, including departments that have self-sustaining budgets that bear their portion of solid waste removal costs. In order to allocate costs to self-sustaining budgets, the Recycling & Solid Waste Program recharges costs and refunds revenue to self-sustaining departments that incurred costs or generated revenue related to recycling. For the 2006/2007 fiscal year, *Total Recharges to Self-Sustaining UW Departments* for recycling operations is \$111,320.

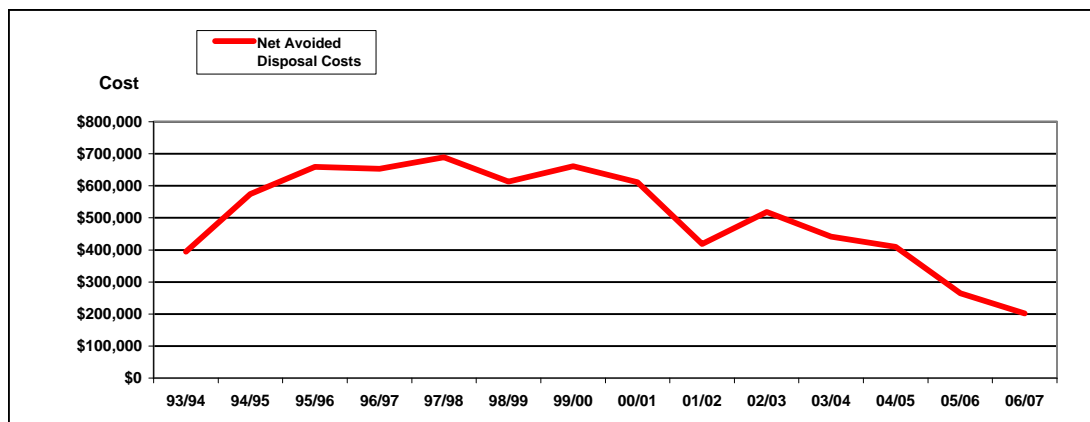
# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 - June 30, 2007

## Appendix A: Historical Data

FISCAL COMPARISON - FISCAL YEARS 1994 - 2007	FY 06/07	FY 05/06	FY 04/05	FY 03/04	FY 02/03	FY 01/02	FY 00/01	FY 99/00	FY 98/99	FY 97/98	FY 96/97	FY 95/96	FY 94/95
Total tons disposed in landfill (includes treated sharps)	6,115	6,468	6,672	8,206	7,034	7,404	6,645	6,314	5,978	5,800	5,561	5,366	5,456
Total tons untreated biomedical waste	16	20	162	91	73	55	73	53	61	34	20	144	176
Average cost per ton to landfill - MSW	\$198	\$198	\$184	\$167	\$235	\$202	\$169	\$183	\$185	\$185	\$190	\$193	\$160
Average cost per ton to landfill - treated sharps	\$586	\$573	\$613	\$504	\$397	\$756	\$553	\$691	\$639	\$639	\$459		
Average cost per ton to landfill - untreated biomedical waste	\$2,937	\$2,937	\$400	\$400	\$369	\$369	\$368	\$285	\$340	\$340	\$373	\$147	\$379
Total tons recycled - Recycling and Solid Waste <sup>1</sup>	4,209	4,452	3,248	3,939	3,710	4,183	3,687	3,695	3,798	3,578	3,704	3,397	3,077
Total tons recycled - Overall University of Washington (including UWMC)	4,703	5,000	3,648	4,364	4,034	4,499	4,005	4,047	4,157	3,941	4,010	3,691	3,384
Average cost per ton to recycle <sup>2</sup>	\$155	\$146	\$173	\$156	\$131	\$114	\$116	\$110	\$99	\$84	\$81	\$80	\$80

**Appendix A: Net Avoided Disposal Costs**



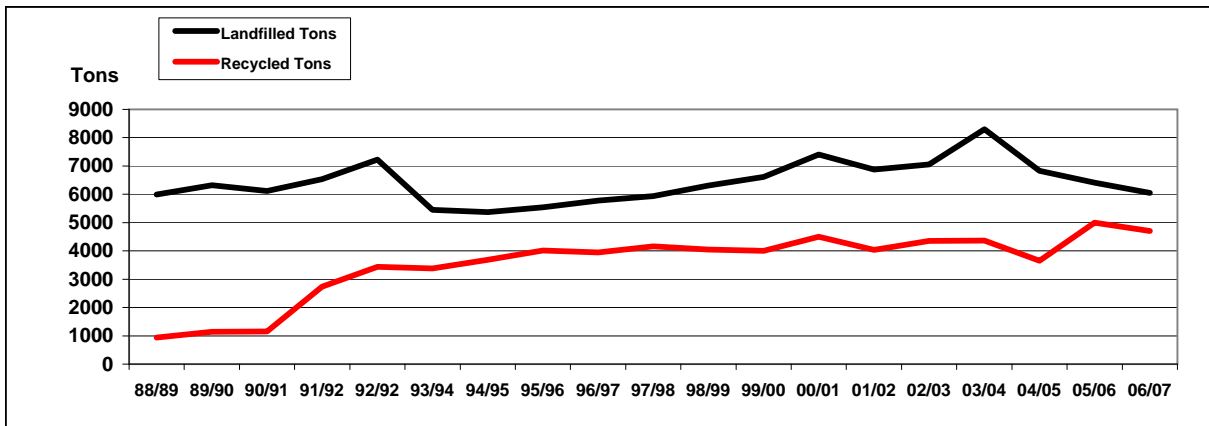
Fiscal Year	Avg Cost per Ton to Landfill	Avg Cost per Ton to Recycle	Total Tons Recycled	Net Avoided Disposal Cost
93/94	\$149.27	\$32.60	3384	\$394,811
94/95	\$161.04	\$5.47	3691	\$574,209
95/96	\$168.95	\$4.58	4010	\$659,124
96/97	\$173.06	\$7.29	3941	\$653,300
97/98	\$173.34	\$7.60	4157	\$688,981
98/99	\$162.29	\$10.85	4047	\$612,878
99/00	\$160.69	-\$4.34	4005	\$660,945
00/01	\$153.83	\$17.96	4499	\$611,279
01/02	\$175.16	\$71.45	4034	\$418,366
02/03	\$170.62	\$51.50	4353	\$518,529
* 03/04	\$167.00	\$156.00	4364	\$441,448
* 04/05	\$184.00	\$173.00	3648	\$409,423
* 05/06	\$199.00	\$146.00	5000	\$264,439
* 06/07	\$198.00	\$155.00	4703	\$202,229

\* Annual Solid Waste Reports for the 2003/2004 and 2004/2005 fiscal years incorporated several revisions to the calculations and analysis following a thorough audit of the formulas and data by a third-party consultant. The primary changes occurred in the calculation of the Net Avoided Disposal Cost: (a) the tonnage used in the calculation excluded tons that were associated with regulated wastes that were recycled; and (b) 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 03/04 and 04/05 data. The 2005/2006 and 2006/2007 Annual Solid Waste Reports calculate the Net Avoided Disposal Cost by multiplying the total tons recycled by the difference between the average cost of landfilling waste and the average cost of recycling waste. This provides a more accurate representation of the costs avoided by recycling tonnages rather than landfilling tonnages. As such, all Net Avoided Disposal Cost data from previous years are not directly comparable with the 05/06 and 06/07 figures contained in this chart.

# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 - June 30, 2007

## Appendix A: Landfilled Tons vs Recycled Tons

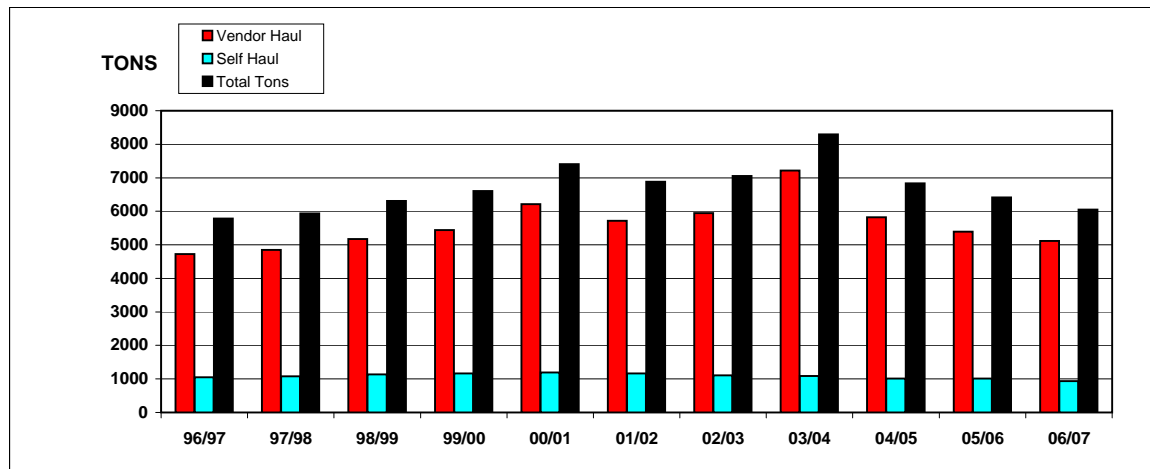


<u>Fiscal Year</u>	<u>Landfilled Tons</u>	<u>Recycled Tons</u>	<u>Percent Recycled</u>
88/89	5994	935	13.49%
89/90	6320	1141	15.29%
90/91	6114	1158	15.92%
91/92	6531	2734	29.51%
92/92	7227	3440	32.25%
93/94	5455	3384	38.28%
94/95	5365	3691	40.76%
95/96	5535	4010	42.01%
96/97	5780	3941	40.54%
97/98	5935	4157	41.19%
98/99	6309	4047	39.08%
99/00	6609	4005	37.73%
00/01	7404	4499	37.80%
01/02	6877	4034	36.97%
02/03	7052	4353	38.17%
03/04	8296	4369	34.50%
04/05	6834	3648	34.80%
05/06	6413	5000	43.81%
06/07	6052	4703	43.73%

# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 - June 30, 2007

## Appendix A: Landfilled Municipal Solid Waste Tonnage Trends

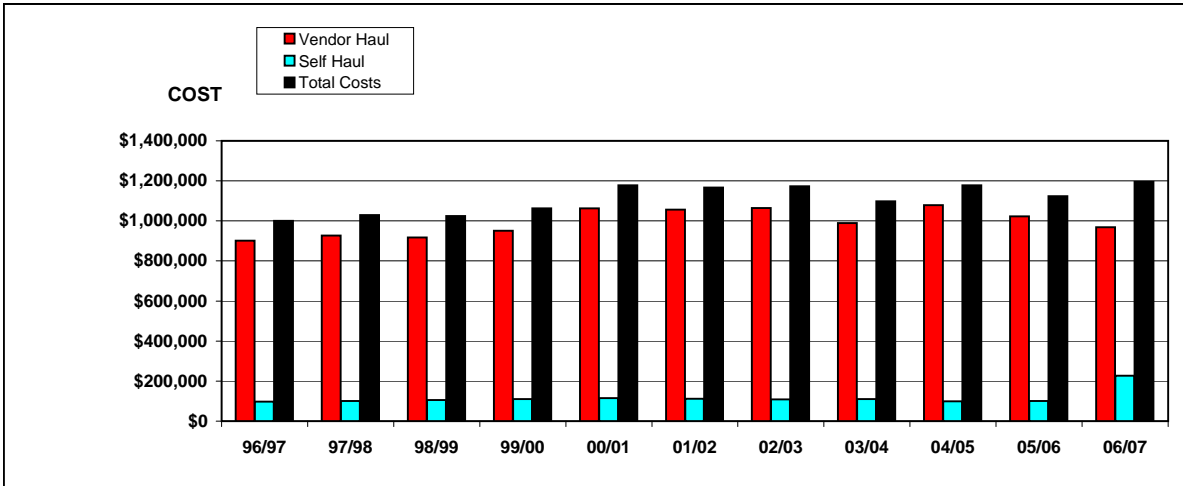


Fiscal Year	Vendor Haul	%	Self Haul	%	Total Tons
89/90	4150	65.66%	2170	34.34%	6320
90/91	3929	64.26%	2185	35.74%	6114
91/92	4678	71.63%	1853	28.37%	6531
92/93	5828	80.64%	1399	19.36%	7227
93/94	4091	75.00%	1364	25.00%	5455
94/95	4044	75.38%	1321	24.62%	5365
95/96	4416	79.78%	1119	20.22%	5535
96/97	4729	81.82%	1051	18.18%	5780
97/98	4853	81.77%	1082	18.23%	5935
98/99	5173	81.99%	1136	18.01%	6309
99/00	5441	82.33%	1168	17.67%	6609
00/01	6211	83.89%	1193	16.11%	7404
01/02	5714	83.09%	1163	16.91%	6877
02/03	5945	84.30%	1107	15.70%	7052
03/04	7211	86.92%	1085	13.08%	8296
04/05	5822	85.19%	1012	14.81%	6834
05/06	5397	84.16%	1016	15.84%	6413
06/07	5117	84.55%	935	15.45%	6052

# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 - June 30, 2007

## Appendix A: Landfilled Municipal Solid Waste Cost Trends



Fiscal Year	Vendor Haul	Self Haul	Total Cost
89/90	\$ 203,509	\$ 130,287	\$ 333,796
90/91	\$ 627,794	\$ 127,352	\$ 755,146
91/92	\$ 638,822	\$ 109,191	\$ 748,013
92/93	\$ 751,780	\$ 115,750	\$ 867,530
93/94	\$ 703,726	\$ 110,541	\$ 814,267
94/95	\$ 744,011	\$ 119,947	\$ 863,958
95/96	\$ 830,188	\$ 104,969	\$ 935,157
96/97	\$ 902,089	\$ 98,223	\$ 1,000,312
97/98	\$ 927,492	\$ 101,267	\$ 1,028,759
98/99	\$ 917,660	\$ 106,227	\$ 1,023,887
99/00	\$ 951,128	\$ 110,879	\$ 1,062,007
00/01	\$ 1,062,966	\$ 114,671	\$ 1,177,637
01/02	\$ 1,055,642	\$ 111,759	\$ 1,167,401
02/03	\$ 1,064,385	\$ 108,055	\$ 1,172,440
03/04	\$ 988,630	\$ 109,485	\$ 1,098,115
04/05	\$ 1,078,581	\$ 99,874	\$ 1,178,455
05/06	\$ 1,023,574	\$ 100,633	\$ 1,124,207
06/07	\$ 968,817	\$ 227,292 *	\$ 1,196,109

\* Beginning in 2006/2007, UW Operations costs are included in the total Self Haul cost.

UW Operation Costs	\$ 129,107
Self Haul Landfill Costs	\$ 98,185
<b>Total</b>	<b>\$ 227,292</b>

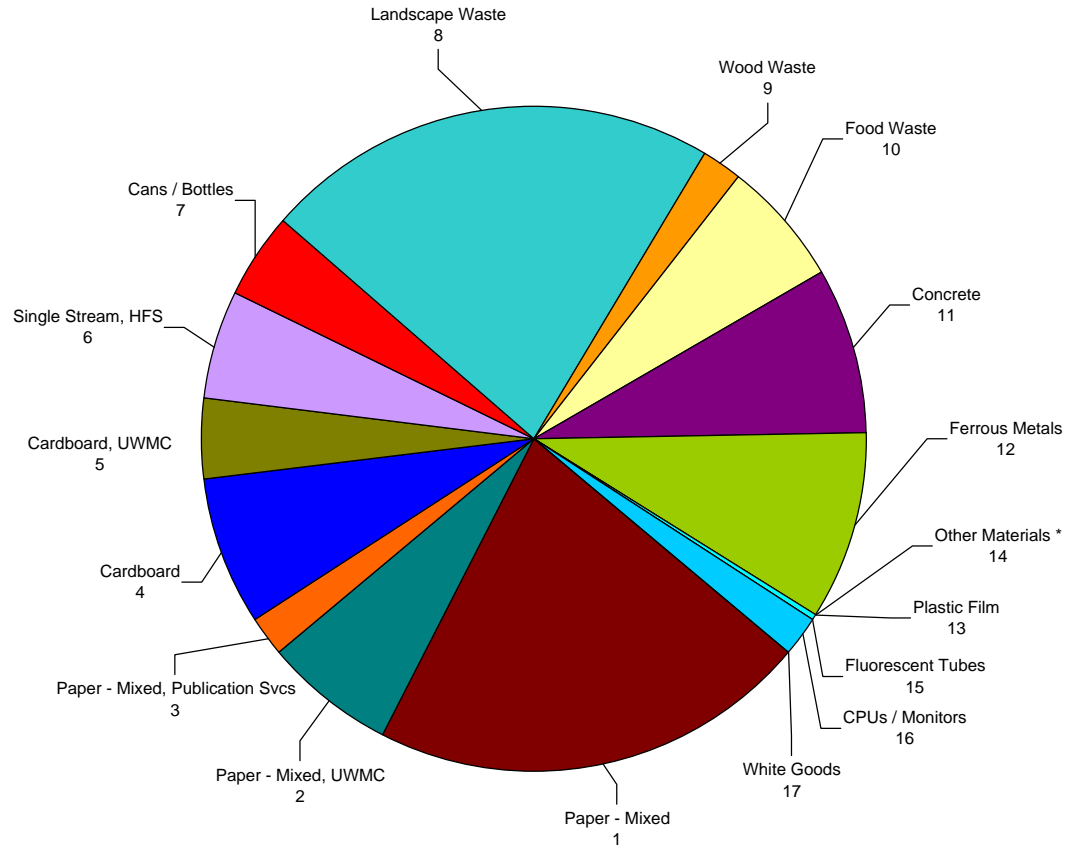
# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 - June 30, 2007

## Appendix A: Recycled Materials Analysis

MATERIAL	VENDOR	TONS	TOTAL COST/ REVENUE	AVG COST/ REV PER TON	% OF RECYCLE STREAM
1 Paper - Mixed	Weyerhaeuser	1030	\$207,330	201	21.48%
2 Paper - Mixed, UWMC	Weyerhaeuser	302	\$20,398	68	6.30%
3 Paper - Mixed, Publication Svcs	Weyerhaeuser	91	\$4,923	54	1.90%
4 Cardboard	Weyerhaeuser, WMI	343	\$18,006	52	7.15%
5 Cardboard, UWMC	Weyerhaeuser	192	\$18,088	94	4.00%
6 Single Stream, HFS	WMI	256	\$32,437	127	5.34%
7 Cans / Bottles	WMI	191	\$50,415	264	3.98%
8 Landscape Waste	Pacific Topsoils/Cedar Grove	1069	\$57,326	54	22.29%
9 Wood Waste	WMI/Cedar Grove	100	\$15,047	150	2.09%
10 Food Waste	WMI/Cedar Grove	292	\$26,730	92	6.09%
11 Concrete	WMI	383	\$10,231	27	7.99%
12 Ferrous Metals	Metals Express	441	\$26,832	61	9.20%
13 Plastic Film	Weyerhaeuser	5	\$6,406	1281	0.10%
14 Other Materials *		8	\$1,837	230	0.17%
15 Fluorescent Tubes	Ecolights	5	\$20,946	4189	0.10%
16 CPUs / Monitors	Total Reclaim	82	\$57,795	705	1.71%
17 White Goods	Total Reclaim	5	\$1,098	220	0.10%

\* Other Materials - Shredded Paper & a small amount of Toner Cartridges



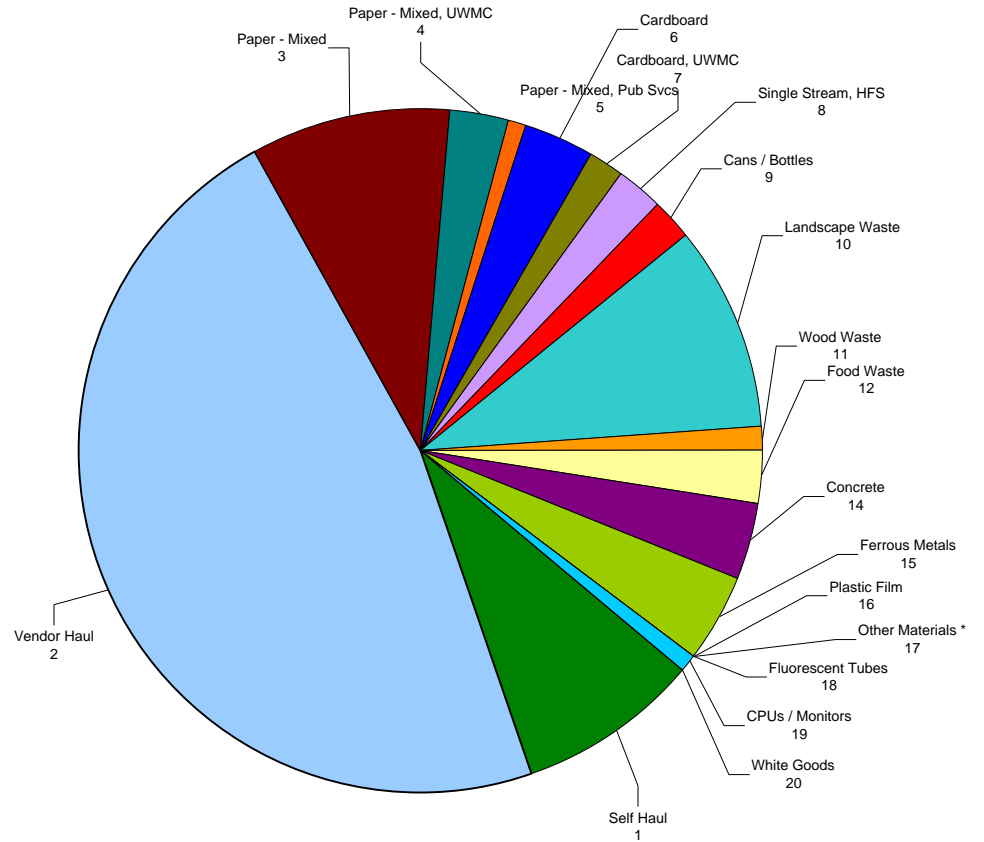
# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 - June 30, 2007

## Appendix A: Solid Waste/Recycle Analysis

SOLID WASTE / RECYCLE	VENDOR	TONS	TOTAL COST/ REVENUE	AVG COST/ REV PER TON	% OF SOLID WASTE STREAM
1 Self Haul	UW	935	227,292	243	8.62%
2 Vendor Haul	WMI	5117	968,817	189	47.18%
3 Paper - Mixed	Weyerhaeuser	1030	207,330	201	9.50%
4 Paper - Mixed, UWMC	Weyerhaeuser	302	20,398	68	2.78%
5 Paper - Mixed, Pub Svcs	Weyerhaeuser	91	4,923	54	0.84%
6 Cardboard	Weyerhaeuser, WMI	343	18,006	52	3.16%
7 Cardboard, UWMC	Weyerhaeuser	192	18,088	94	1.77%
8 Single Stream, HFS	WMI	256	32,437	127	2.36%
9 Cans / Bottles	WMI	191	50,415	264	1.76%
10 Landscape Waste	Pacific Topsoils/Cedar Grove	1069	57,326	54	9.86%
11 Wood Waste	WMI/Cedar Grove	100	15,047	150	0.92%
12 Food Waste	WMI/Cedar Grove	292	26,730	92	2.69%
14 Concrete	WMI	381	10,231	27	3.51%
15 Ferrous Metals	Metals Express	441	26,832	61	4.07%
16 Plastic Film	Weyerhaeuser	5	6,406	1281	0.05%
17 Other Materials *		8	1,837	230	0.07%
18 Fluorescent Tubes	Ecolights	5	20,946	4189	0.05%
19 CPUs / Monitors	Total Reclaim	82	57,795	705	0.76%
20 White Goods	Total Reclaim	5	1,098	220	0.05%

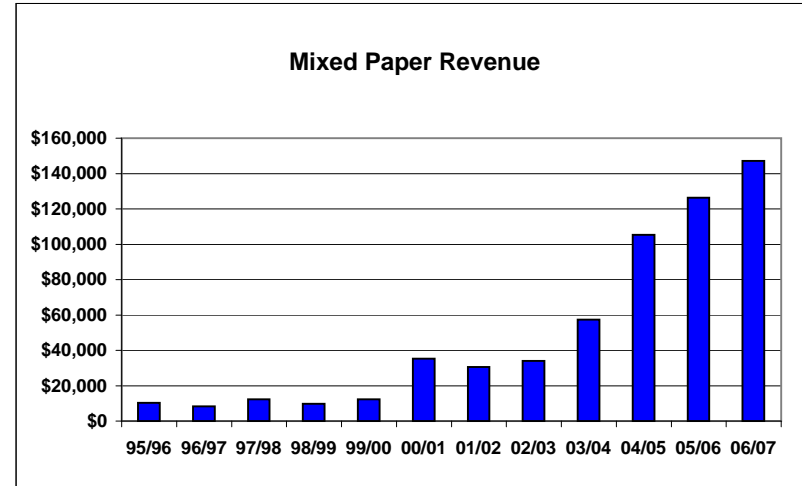
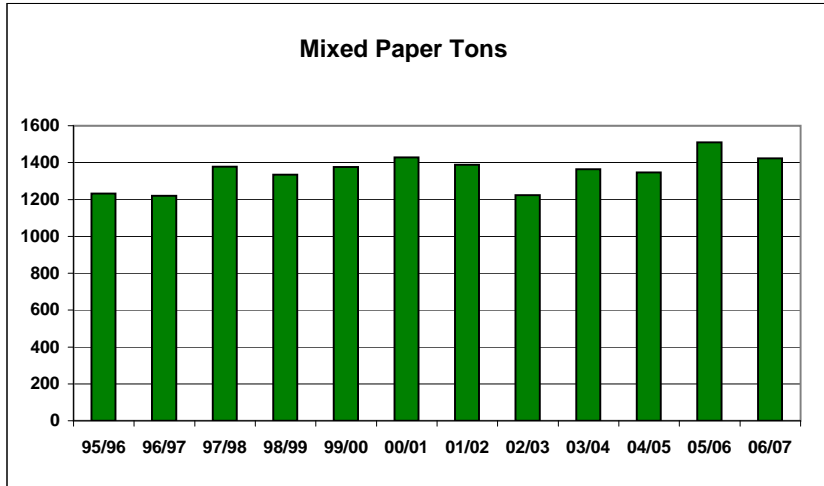
\* Other Materials - Shredded Paper & a small amount of Toner Cartridges



# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 - June 30, 2007

## Appendix A: Recycling Trends - Mixed Paper



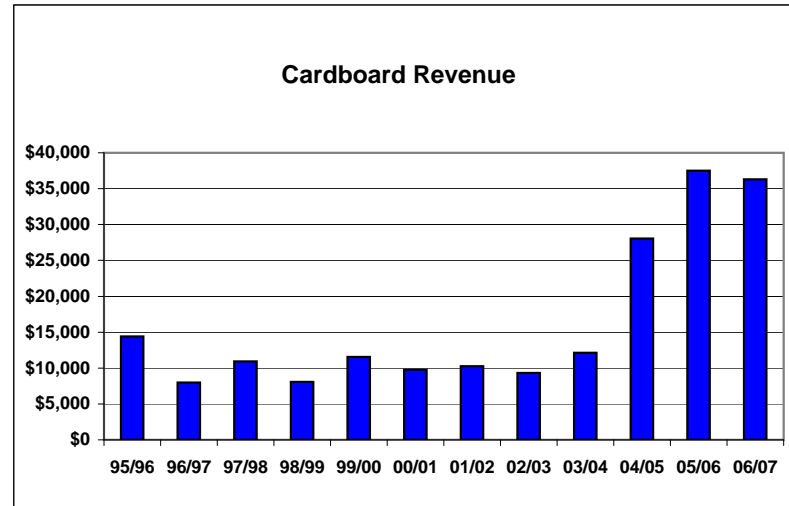
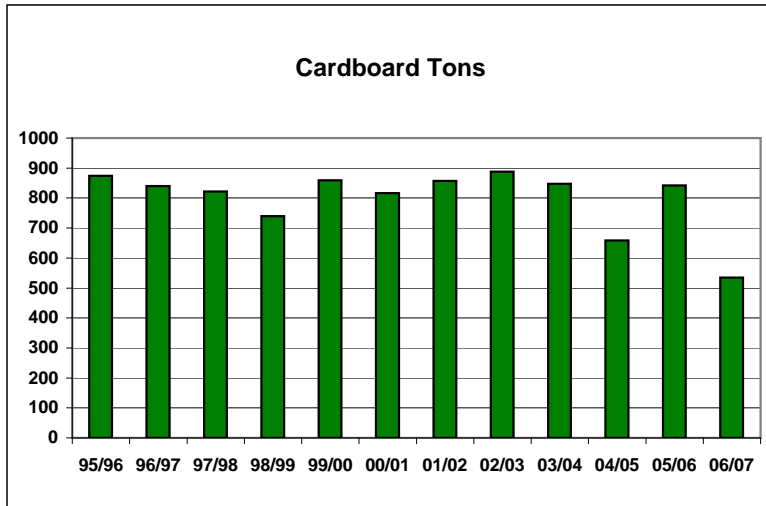
### Mixed Paper Recycling

<u>Fiscal Year</u>	<u>Tons</u>	<u>Revenue</u>
95/96	1232	\$10,321
96/97	1220	\$8,298
97/98	1378	\$12,255
98/99	1335	\$9,768
99/00	1377	\$12,255
00/01	1429	\$35,374
01/02	1388	\$30,542
02/03	1224	\$34,096
03/04	1364	\$57,338
04/05	1347	\$105,353
05/06	1510	\$126,324
06/07	1423	\$147,115

# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 - June 30, 2007

## Appendix A: Recycling Trends - Cardboard



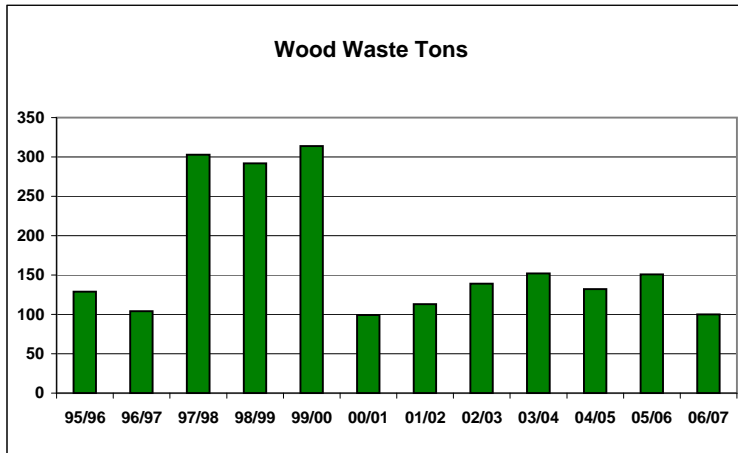
### Cardboard Recycling

<u>Fiscal Year</u>	<u>Tons</u>	<u>Revenue</u>
95/96	874	\$14,395
96/97	840	\$7,996
97/98	822	\$10,939
98/99	740	\$8,082
99/00	859	\$11,552
00/01	816	\$9,760
01/02	857	\$10,241
02/03	888	\$9,337
03/04	847	\$12,145
04/05	658	\$28,058
05/06	842	\$37,518
06/07	535	\$36,285

# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 - June 30, 2007

## Appendix A: Recycling Trends - Wood Waste



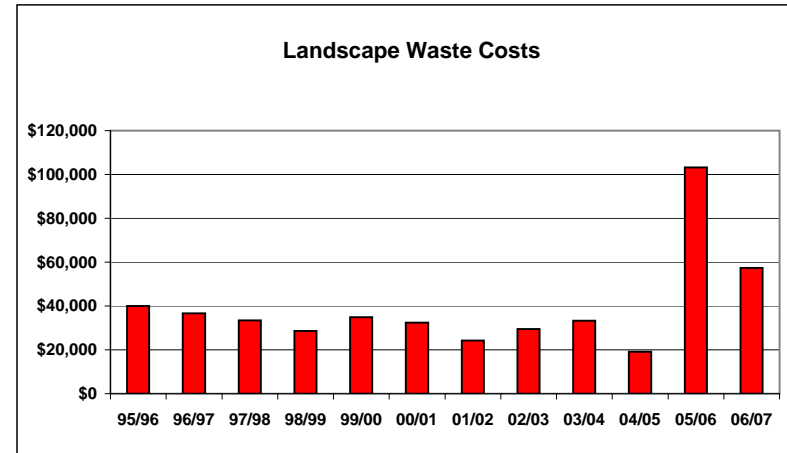
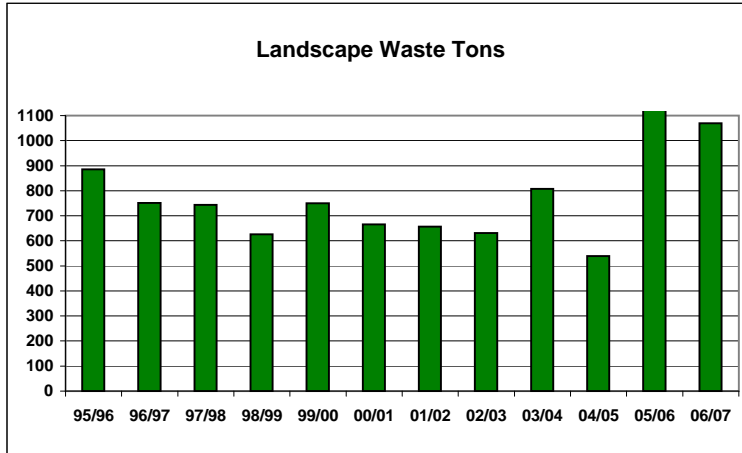
### Wood Waste Recycling

Fiscal Year	Tons	Cost
95/96	129	\$8,212
96/97	104	\$7,944
97/98	303	\$18,696
98/99	292	\$13,349
99/00	314	\$16,987
00/01	99	\$6,455
01/02	113	\$9,222
02/03	139	\$12,842
03/04	152	\$10,152
04/05	132	\$9,149
05/06	151	\$13,835
06/07	100	\$8,641

# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 - June 30, 2007

## Appendix A: Recycling Trends - Landscape Waste



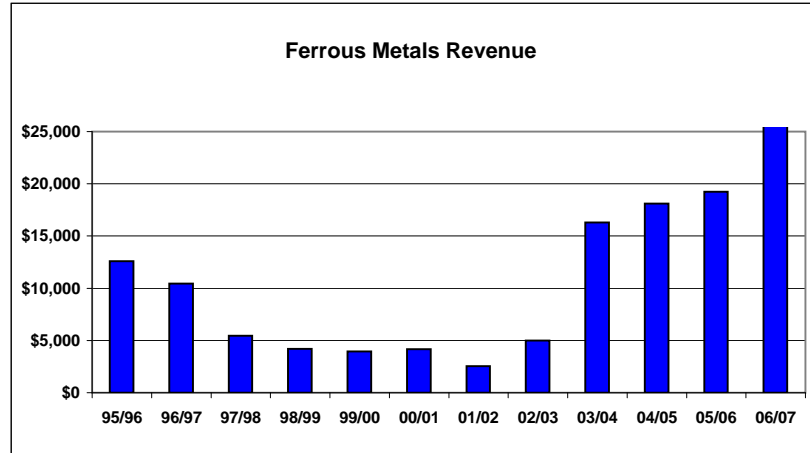
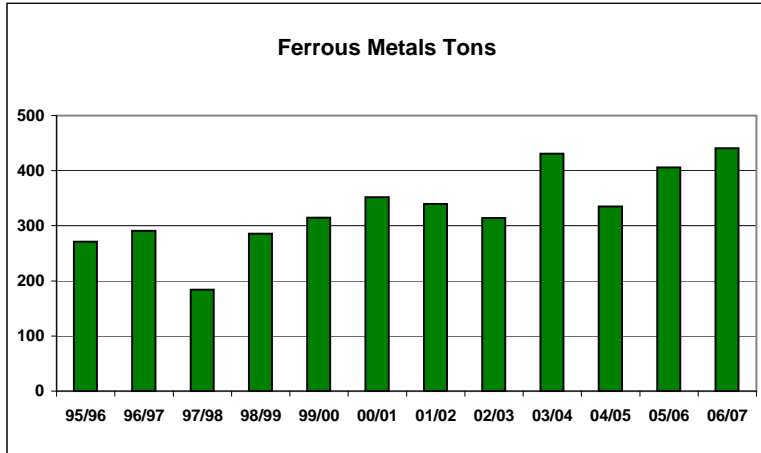
### Landscape Waste Recycling

Fiscal Year	Tons	Cost
95/96	886	\$40,020
96/97	751	\$36,652
97/98	743	\$33,416
98/99	626	\$28,651
99/00	750	\$34,896
00/01	665	\$32,406
01/02	657	\$24,271
02/03	631	\$29,442
03/04	808	\$33,297
04/05	539	\$19,159
05/06	1376	\$103,225
06/07	1069	\$57,326

# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 - June 30, 2007

## Appendix A: Recycling Trends - Ferrous Metals



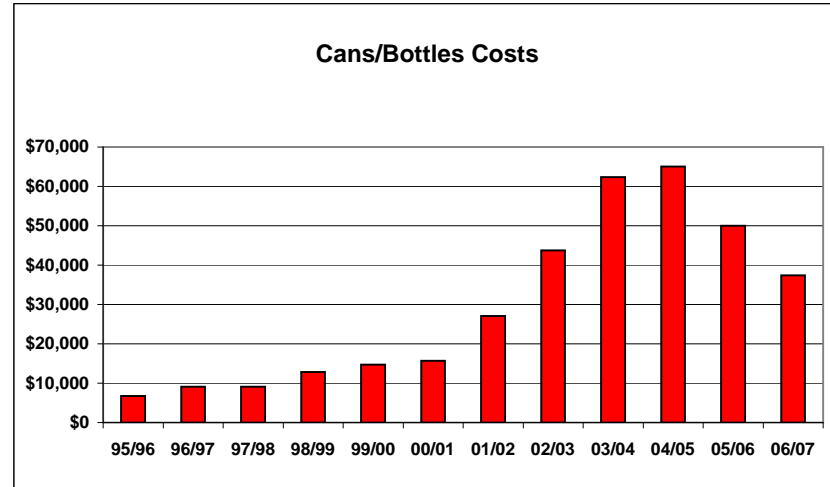
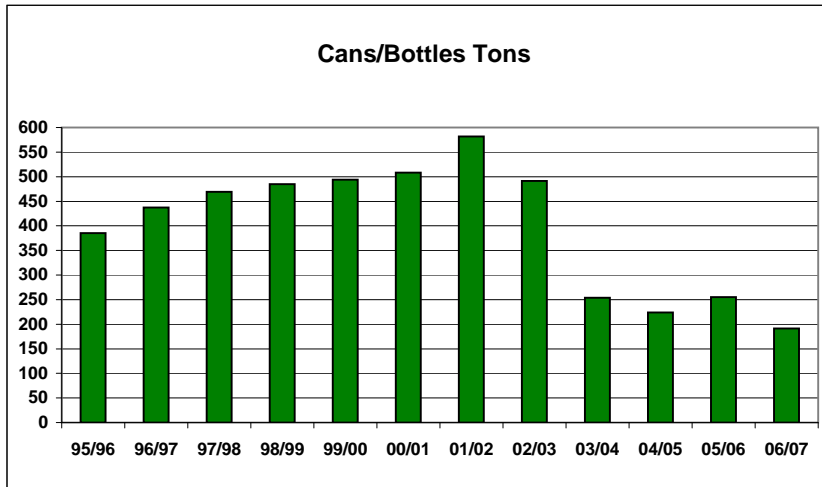
### Ferrous Metals Recycling

<u>Fiscal Year</u>	<u>Tons</u>	<u>Revenue</u>
95/96	271	\$12,589
96/97	291	\$10,448
97/98	184	\$5,439
98/99	286	\$4,198
99/00	315	\$3,958
00/01	352	\$4,170
01/02	340	\$2,553
02/03	314	\$4,990
03/04	431	\$16,297
04/05	335	\$18,113
05/06	406	\$19,254
06/07	441	\$26,832

# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 - June 30, 2007

## Appendix A: Recycling Trends - Cans/Bottles



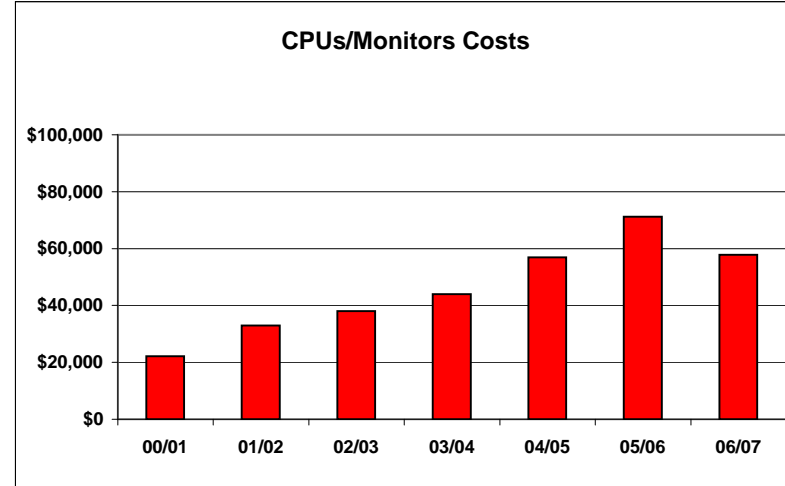
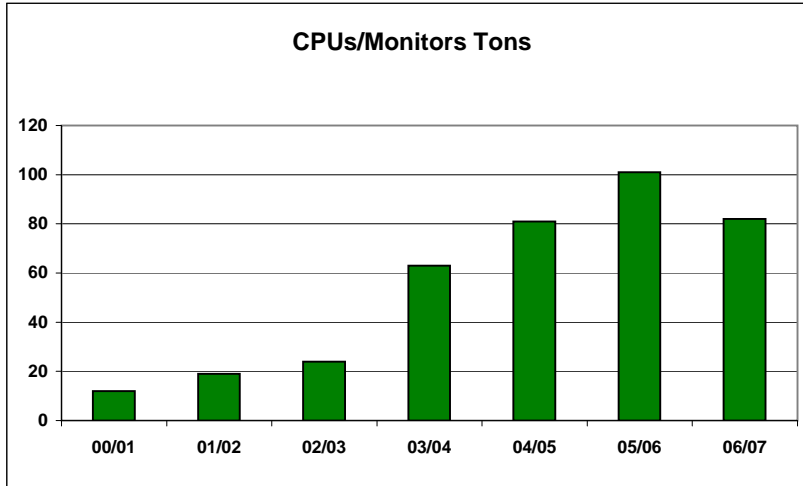
### Cans/Bottles Recycling

Fiscal Year	Tons	Cost
95/96	385	\$6,768
96/97	437	\$9,124
97/98	469	\$9,146
98/99	485	\$12,880
99/00	494	\$14,753
00/01	508	\$15,709
01/02	582	\$27,085
02/03	491	\$43,712
03/04	254	\$62,353
04/05	224	\$65,003
05/06	255	\$49,982
06/07	191	\$37,400

# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 - June 30, 2007

## Appendix A: Recycling Trends - CPUs/Monitors



### CPUs/Monitors Recycling

Fiscal Year	Tons	Cost
00/01	12	\$22,129
01/02	19	\$32,975
02/03	24	\$38,004
03/04	63	\$43,967
04/05	81	\$56,967
05/06	101	\$71,247
06/07	82	\$57,795

# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 – June 30, 2007

## Appendix B: Footnotes

### EXECUTIVE SUMMARY (Page 1)

1. Additional administration and overhead costs have been included for the 2006-2007 fiscal year 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 leasing the UW Recycle Center is not included.
2. *Net Avoided Disposal Cost* is calculated by multiplying the total tons recycled by the difference between the average cost of landfilling waste and the average cost of recycling waste.

### OVERVIEW OF COMBINED LANDFILLED & RECYCLED WASTE SERVICES (Page 2)

1. Total tons recycled does not include recycled special waste, such as spent lighting, refrigerators, and CPUs/monitors, because these items are banned from disposal by law and contain potentially toxic substances, such as mercury, 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 misrepresent 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 recycled, however, the cost of recycling the tonnages is included in the analysis.
2. *Net Avoided Disposal Cost* is calculated by multiplying the total tons recycled by the difference between the average cost of landfilling waste and the average cost of recycling waste.
3. 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.

### LANDFILLED WASTE COSTS (Page 3)

1. See Report Annotation for associated methodology and example calculations.
2. See Page 5, "UW Self Haul Landfilled MSW Operating Costs," for a detailed breakdown of costs.
3. UW Self Haul Litter Collection Cost is reported separate from all other MSW costs because collection and disposal of the material in the outdoor litter/recycling receptacles (Smart Cans) is a function separate from the vendor haul and UW self haul MSW collection and disposal. This function is similar to that of Custodial Services, which is responsible for transporting waste and recycling from inside campus buildings to external dumpsters. Custodial costs are not included in the costs for collection of MSW.
4. See Page 5, "UW Self Haul Litter Operating Costs," for a detailed breakdown of costs.

### RECYCLED WASTE COSTS & REVENUES (Page 4)

1. Cost includes portions of salaries, vehicle rental fees, supplies, and services.
2. Cost includes fees such as specialized container rental, city and county taxes, and hauling fees, as well as tonnage costs for processing and disposal.

# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 – June 30, 2007

## Appendix B: Footnotes

### RECYCLED WASTE COSTS & REVENUES, Cont. (Page 4)

3. Total operating cost for the recycling program is \$756,089. A portion of this is UW Operations Costs and the remainder is Recycling Program Admin Operating Costs.
4. 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 LANDFILLED MUNICIPAL SOLID WASTE (MSW) OPERATIONS DATA (Page 5)

1. See the Report Annotation for more detail about the salaries and operations costs included in the costs below.
2. Equipment costs are excluded from the operating costs because they are one-time purchases and would significantly skew the cost per ton to landfill waste if included.
3. See the Report Annotation for more detail about the salaries and operations costs included in the costs below.

### UW SELF HAUL RECYCLING OPERATIONS DATA (Page 6)

1. See the Report Annotation for more detail about the salaries and operations costs included in the costs below.
2. Equipment costs are excluded from the operating costs because they are one-time purchases and would significantly skew the cost per ton to recycle waste if included.

### APPENDIX A: HISTORICAL DATA (Page A-i)

1. The figure for “Total tons recycled—Recycling and Solid Waste” 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 capital or program purchases that occur irregularly and would significantly skew the cost per ton to recycle if included.

# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 – June 30, 2007

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## Appendix C: Glossary of Terms

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**ADJUSTED COST TO THE UNIVERSITY'S SOLID WASTE BUDGET:** The total cost charged to the University's Solid Waste budget.

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

**BIOMEDICAL WASTE:** Infectious wastes, including carcasses of animals exposed to pathogens, biosafety level 4 disease waste, cultures and stocks of etiological waste, human blood and blood products, pathological waste, sharps waste, tools, containers, and other equipment. Included in the *special waste* stream. Treated waste collected for disposal by Waste Management. Untreated waste collected for disposal by Stericycle.

**CANS/BOTTLES:** Commercial-grade cans (tin, aluminum), bottles (glass, plastic), aseptic packaging (milk cartons), and plastic dairy tubs, including caps and labels, that are collected from campus buildings in containers labeled "Cans & Bottles." In outdoor public areas throughout campus, this material category is collected in litter/recycling receptacles (Smart Cans).

**CARDBOARD:** Cardboard collected daily on campus from University-owned, two-yard dumpsters and transported with a rear-load compactor truck to the Bryant Shed, where University staff sort out non-cardboard material and then bale the cardboard. Collected for recycling by Weyerhaeuser three to five times per week. Also, cardboard collected in rollofs during special events, such as Husky Football games or residence hall move-in. Collected for recycling by Waste Management.

**CARDBOARD, UWMC:** Cardboard collected from University of Washington Medical Center facilities. Medical Center staff sort out non-cardboard material and then bale the cardboard. Collected for recycling by Weyerhaeuser three to five times per week.

**CONCRETE:** Self-defined. Collected for recycling by Waste Management.

**CPUs/MONITORS:** Computers, monitors, and peripheral computer equipment. One of the *regulated waste* categories. Collected for recycling by Total Reclaim.

**EXTRA ORDER:** Service provided by Waste Management and/or the University's self haul collection program for the removal of municipal solid waste on an on-call basis for special events or extra pickups.

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

# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 – June 30, 2007

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## Appendix C: Glossary of Terms

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**FOOD WASTE:** Compostable organic materials, including vegetative waste, coffee grounds, meat, dairy, and soiled paper, collected from campus kitchens and coffee shops. Collected by Waste Management and transported to Cedar Grove Composting (July – November) and collected by Cedar Grove Composting (December – June).

**INFECTIOUS ANIMALS:** Carcasses of animals exposed to pathogens. Included in the *special waste* stream. Collected for disposal by Stericycle.

**LANDSCAPE WASTE:** Yard waste, tree and shrub trimmings, and grass clippings produced by the University's Grounds crew. Collected in two 50-yard rolloff boxes by Grounds crew and serviced by Pacific Topsoils (July – November) approximately once every two weeks, depending on the season. Collected in three 50-yard rolloff boxes by Grounds crew and serviced by Cedar Grove Composting (December – June) approximately 2-4 times per month, depending on the season.

**LANDFILLED MUNICIPAL SOLID WASTE (MSW):** Includes waste from campus that is traditionally disposed of in general-purpose landfills. Usually, the definition of MSW does not include hazardous waste, sewage, or construction and demolition debris that is sent to special-purpose disposal facilities.

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

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

**PAPER – MIXED:** Paper from campus sorted into grades and baled. Collected for recycling by Weyerhaeuser.

**PAPER – MIXED, UWMC:** Mixed paper from UWMC. Collected for recycling by Weyerhaeuser.

**PAPER – MIXED, PUBLICATION SERVICES:** Paper from Publication Services sorted into grades. Collected for recycling by Weyerhaeuser.

**PLASTIC FILM:** Includes clean plastic bags of all types, stretch and shrink wrap, constructions films, and bubble wrap. Collected on campus from toters and brought to the Bryant Shed, where University staff bale the plastic film. Collected for recycling by Weyerhaeuser.

**RECHARGES:** Costs incurred by Property & Transport Services on behalf of self-sustaining UW departments that are recharged back to those departments by Property & Transport Services.

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

# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 – June 30, 2007

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## Appendix C: Glossary of Terms

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**REFRIGERATORS:** Self-defined. One of the *regulated waste* categories. 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 litter/recycling receptacles (Smart Cans) located in outdoor public areas throughout campus.

**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 & 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. Sharps include hypodermic needles and other items in medical waste that carry the added possibility of infection. Included in the *special waste* stream. Treated sharps are collected for disposal by Waste Management. Untreated sharps are collected for disposal by Stericycle.

**SINGLE STREAM, HFS:** Commingled cans, bottles, paper, and cardboard collected in totes located at each of the seven residence halls. Collected for recycling by Property & Transport Services and hauled to a Waste Management processing facility (July – September). Consolidated for recycling in a compactor by HFS custodians and hauled by Waste Management (September – June).

**SPECIAL WASTE:** Treated and untreated biomedical waste and materials prohibited from being disposed in the landfill by city law. A new category of waste beginning with the 2003-2004 report.

**SPENT LIGHTING:** Includes fluorescent tubes, compact florescent bulbs, mercury vapor, metal halide, high pressure sodium, and neon lights. One of the *regulated waste* categories. Collected for recycling by Ecolights Northwest.

**TREATED BIOMEDICAL WASTE:** Biomedical wastes that have been autoclaved and sanitized and are disposed as MSW. Included in the *special waste* stream. Collected for disposal by Waste Management.

**TREATED SHARPS:** Sharps that have been autoclaved and sanitized. Included in the *special waste* stream. Collected for disposal by Waste Management.

# University of Washington

Annual Recycling & Solid Waste Report, Fiscal Year July 1, 2006 – June 30, 2007

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## Appendix C: Glossary of Terms

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

*UNTREATED BIOMEDICAL WASTE*: Biomedical wastes, including untreated sharps, carcasses of animals exposed to pathogens, tools, containers, and other equipment. Included in the *special waste* stream. Collected for disposal as hazardous waste by Stericycle.

*UNTREATED SHARPS*: Sharps that have not been autoclaved or sanitized. Included in the *special waste* stream. Collected for disposal by Stericycle.

*VENDOR HAUL LANDFILLED MSW*: Landfilled municipal solid waste. Collected and brought to the landfill by Waste Management.

*VENDOR HAUL RECYCLED WASTE*: Recycled materials collected by non-University of Washington vendors. See glossary definitions for specific material details.

*VENDOR HAUL REGULATED RECYCLED WASTE*: Waste that is banned from disposal by law, including fluorescent tubes, refrigerators, and computer monitors. Collected for recycling by Ecolights Northwest and Total Reclaim.

*VENDOR HAUL SPECIAL WASTE*: Treated and untreated biomedical waste and materials prohibited from disposal by city law. Treated waste collected for disposal by Waste Management and untreated waste collected for disposal as hazardous waste by Stericycle.

*WOOD WASTE*: Clean pallets and clean scrap lumber, not including landscape waste. Collected for recycling by Waste Management (July – November) and by Cedar Grove Composting (December – June).