
University of Washington

Annual Solid Waste Report

Fiscal Year July 1, 2005 - June 30, 2006



Prepared by:
Property & Transport Services

University of Washington

Annual Solid Waste Report, Fiscal Year July 1, 2005 - June 30, 2006

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EXECUTIVE SUMMARY

Total University-wide Waste Cost ¹	(Page 2)	\$ 2,251,495
Total University-wide Landfilled Municipal Solid Waste (MSW) Cost	(Page 2)	\$ 1,336,188
Total University-wide Special Waste Cost	(Page 2)	\$ 100,146
Total University-wide Recycled Waste Cost	(Page 2)	\$ 730,228
Total University-wide Recycled Special Waste Cost	(Page 2)	\$ 84,933
<hr/>		
Net Avoided Disposal Cost: Cost Avoided by Recycling Instead of Landfilling ²	(Page 2)	\$ 264,439
<hr/>		
Total Tons Landfilled MSW	(Page 3)	6,413
Total Tons Recycled Waste	(Page 4)	5,000
Total Tons Generated (Landfilled MSW + Recycled Waste)		11,413
Recycling Rate (Recycled Tons/Total Tons Generated)		44%
<hr/>		
Average Cost of Landfilled MSW per Ton, Excluding Litter Collection and Landfilled Special Waste	(Page 3)	\$ 199
Average Cost of Recycled Waste per Ton, Excluding Recycled Special Waste	(Page 4)	\$ 146

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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)	\$ 1,072,954	
Landfilled MSW UW Self Haul Operating & Overhead Costs	(Page 3)	\$ 263,234	
Subtotal University-wide Landfilled MSW Costs			= \$ 1,336,188

LANDFILLED SPECIAL WASTE COST SUMMARY

Special Waste Disposal Costs	(Page 3)	\$ 93,092	
Special Waste Operating & Overhead Costs	(Page 3)	\$ 7,054	
Subtotal University-wide Special Waste Costs			= \$ 100,146

RECYCLED WASTE COST SUMMARY

Recycled Waste Removal Costs	(Page 4)	\$ 597,939	
Recycled Waste Operating & Overhead Costs	(Page 4)	\$ 315,385	
Revenue from Recycled Waste	(Page 4)	\$ (183,096)	
Subtotal University-wide Recycled Waste Costs			= \$ 730,228

RECYCLED SPECIAL WASTE COST SUMMARY

Recycled Special Waste Removal Costs	(Page 4)	\$ 84,933	
Subtotal University-wide Recycled Special Waste Costs			\$ 84,933

Total University-wide Waste Cost

= \$ 2,251,495

COSTS (REVENUE) RECHARGED TO SELF-SUSTAINING UW DEPARTMENTS

Disposed Waste Costs Recharged to Self-Sustaining UW Departments	(Page 3)	\$ 570,661	
Recycled Waste Costs Recharged to Self-Sustaining UW Departments	(Page 4)	\$ 119,670	
Revenue from Recycled Waste Refunded to Self-Sustaining UW Departments	(Page 4)	\$ (57,213)	
Subtotal Costs (Revenue) Recharged to Self-Sustaining UW Departments			= \$ 633,118

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

- \$ 633,118

Total Adjusted Cost to the University's Solid Waste Budget

= \$ 1,618,377

NET AVOIDED DISPOSAL COST

Average Cost to Landfill MSW per Ton	(Page 3)	\$ 199	
Subtract: Average Cost to Recycle per Ton	(Page 4)	- \$ 146	
Difference between Avg Cost to Landfill & Avg Cost to Recycle		\$ 53	
Difference between Avg Cost to Landfill & Avg Cost to Recycle			\$ 53
Multiply: Total Tons Recycled ¹	(Page 4)		5000
Net Avoided Disposal Cost ²			= \$ 264,439

TONNAGE & REVENUE FROM RESALE/REUSE PROGRAM

Additional Waste Diverted Through Surplus Sales

		Tons	Revenue
Total Tonnage & Revenue from Resale/Reuse Program ³	(Page 4)	670	\$ 477,680

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Landfilled Waste Costs

SUMMARY

Total University-wide Cost to Landfill Municipal Solid Waste (MSW), Litter, and Special Waste ¹	\$	1,436,334	
Total Vendor Haul Landfilled MSW Cost			\$ 1,023,574
Total UW Self Haul Landfilled MSW Cost			\$ 251,893
Total UW Self Haul Litter Collection Cost			\$ 60,721
Total Vendor Haul Landfilled Special Waste Cost			\$ 100,146
Average Cost of Landfilled MSW per Ton, Excluding Litter Collection and Landfilled Special Waste	\$	199	
Vendor Haul Cost of Landfilled MSW per Ton	\$	190	
UW Self Haul Cost of Landfilled MSW per Ton	\$	248	
Total Tons Landfilled MSW Per Annum			6,413
Cost of Landfilled MSW Per Capita Per Ton Per Annum ²	\$	21.94	
Cost of Landfilled MSW Per Square Foot Per Ton Per Annum ³	\$	0.16	

UNIVERSITY-WIDE LANDFILLED MSW COST

	Cost	Subtotal	Tons	Cost / Ton
Vendor Haul Landfilled MSW Cost				
<i>Disposal Costs</i>				
Regular & Extra Order Landfilled MSW Collection & Disposal Cost	\$ 972,321		5,397	\$ 180
Regular & Extra Order Landfilled MSW Overhead Cost	\$ 51,253			
Total Vendor Haul Disposal Costs for Landfilled MSW	= \$ 1,023,574		5,397	\$ 190
SUBTOTAL VENDOR HAUL LANDFILLED MSW COST		= \$ 1,023,574	5,397	\$ 190
UW Self Haul Landfilled MSW Cost				
<i>Disposal Costs</i>				
Landfilled MSW Transfer Station Disposal Cost	\$ 98,344		993	\$ 99
Landfilled MSW Transfer Station Disposal Cost for Extra Orders	\$ 2,289		23	\$ 100
Total UW Self Haul Disposal Cost for Landfilled MSW	= \$ 100,633		1,016	\$ 99
<i>Operation Cost ⁴</i>				
UW Self Haul Landfilled MSW Operating Cost, including Overhead (Page 5)	\$ 151,260			
Total Operation Cost for UW Self Haul Landfilled MSW Collection	= \$ 151,260			
SUBTOTAL UW SELF HAUL LANDFILLED MSW COST		= \$ 251,893	1,016	\$ 248
SUBTOTAL VENDOR HAUL AND UW SELF HAUL LANDFILLED MSW COST		\$ 1,275,467	6,413	\$ 199
UW Self Haul Litter Collection Cost ⁵				
<i>Operation Cost ⁶</i>				
UW Self Haul Litter Operating Cost, including Overhead (Page 5)	\$ 60,721			
Total Operation Cost for Litter Collection	= \$ 60,721			
SUBTOTAL UW SELF HAUL LITTER COLLECTION COST		= \$ 60,721		
TOTAL UNIVERSITY-WIDE LANDFILLED MSW COST		= \$ 1,336,188		

UNIVERSITY-WIDE LANDFILLED SPECIAL WASTE COST

	Cost	Subtotal	Tons	Cost / Ton
Vendor Haul Landfilled Special Waste Cost				
<i>Disposal Cost</i>				
Treated Sharps UWMC	\$ 27,882		51	\$ 547
Treated Sharps K-WING	\$ 3,646		4	\$ 912
Biomedical Waste, Untreated Sharps & Infectious Animals	\$ 61,564		20	\$ 3,078
Total Vendor Haul Special Waste Disposal Cost	= \$ 93,092		75	\$ 1,241
<i>Operation Cost</i>				
Special Waste Operating Cost, including Overhead	\$ 7,054			
Total Operation Cost for Special Waste	= \$ 7,054			
TOTAL UNIVERSITY-WIDE SPECIAL WASTE COST		= \$ 100,146	75	\$ 1,335

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

Add: Total University-wide Landfilled MSW Cost	\$ 1,336,188
Add: Total University-wide Landfilled Special Waste Cost	\$ 100,146
Total University-wide Landfilled Waste Cost	= \$ 1,436,334
Less: Costs Recharged to Self-Sustaining UW Departments (Page 5)	- \$ 570,661
TOTAL ADJUSTED LANDFILLED WASTE COST TO UNIVERSITY'S SOLID WASTE BUDGET	= \$ 865,673

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Recycled Waste Costs & Revenues

SUMMARY

Total University-wide Cost to Recycle Waste and Special Waste	\$	815,161	
Total University-wide Recycled Waste Cost			\$ 730,228
Total University-wide Recycled Special Waste Cost			\$ 84,933
Average Cost of Recycled Waste per Ton, Excluding Recycled Special Waste	\$	146	
Total University-wide Recycled Waste Cost			\$ 730,228
Divide by: Total Tons Recycled			5,000
Total Tons Recycled Waste Per Annum			5,000
Cost of Recycled Waste Per Capita Per Ton Per Annum ¹	\$		11.99
Cost of Recycled Waste Per Square Foot Per Ton Per Annum ²	\$		0.09

UNIVERSITY-WIDE RECYCLED WASTE COST / REVENUE

Commodity	UW Operations		(Revenue)	Total		Tonnage	Average Cost (Rev) Per Ton
	Cost ³	Vendor Cost ⁴		Cost (Rev)	Cost (Rev)		
Paper - Mixed (Weyerhaeuser)	\$ 329,124	\$ -	\$ (101,952)	\$ 227,172		1032	\$220
Paper - Mixed, UWMC (Weyerhaeuser)	\$ -	\$ -	\$ (17,801)	\$ (17,801)		348	(\$51)
Paper - Mixed, Publication Services (Weyerhaeuser)	\$ -	\$ -	\$ (6,571)	\$ (6,571)		130	(\$51)
Cardboard (Weyerhaeuser, WMI)	\$ 36,203	\$ 1,448	\$ (26,285)	\$ 11,366		642	\$18
Cardboard, UWMC (Weyerhaeuser)	\$ -	\$ -	\$ (11,233)	\$ (11,233)		200	(\$56)
Single Stream (WMI)	\$ 2,884	\$ 4,663	\$ -	\$ 7,547		42	\$180
Cans / Bottles (WMI)	\$ 17,941	\$ 32,041	\$ -	\$ 49,982		255	\$196
Landscape Waste (Pacific Topsoils)	\$ -	\$ 103,225	\$ -	\$ 103,225		1376	\$75
Wood Waste (WMI)	\$ 6,406	\$ 13,838	\$ -	\$ 20,244		151	\$134
Food Waste (WMI)	\$ -	\$ 30,498	\$ -	\$ 30,498		241	\$127
Food Donations (Food Lifeline)	\$ -	\$ -	\$ -	\$ -		14	\$0
Concrete (WMI)	\$ -	\$ 13,262	\$ -	\$ 13,262		148	\$90
Ferrous Metals (Metals Express)	\$ -	\$ -	\$ (19,254)	\$ (19,254)		406	(\$47)
Plastic Film (Weyerhaeuser)	\$ 6,406	\$ -	\$ -	\$ 6,406		5	\$1,281
Other Materials	\$ -	\$ -	\$ -	\$ -		10	\$0
Subtotal Recycled Waste Removal Costs	\$ 398,964	\$ 198,975	\$ (183,096)	\$ 414,843		5,000	\$83
Add: Recycled Waste Removal Overhead Cost				\$ 47,287			
Subtotal Recycled Waste Cost				\$ 462,130			
Add: Recycling Program Admin Operating Costs ⁵			(Page 6)	\$ 268,098			
TOTAL UNIVERSITY-WIDE RECYCLED WASTE COST				= \$ 730,228		5,000	\$146

UNIVERSITY-WIDE RECYCLED SPECIAL WASTE COST

Commodity	Vendor Cost ⁴	(Revenue)	Total		Tonnage	Average Cost (Rev) Per Ton
			Cost (Rev)	Cost (Rev)		
Spent Lighting (Ecolights)	\$ 12,302	\$ -	\$ 12,302		5	\$2,460
CPUs / Monitors (Total Reclaim)	\$ 71,247	\$ -	\$ 71,247		101	\$705
Refrigerators (Total Reclaim)	\$ 1,384	\$ -	\$ 1,384		8	\$173
TOTAL UNIVERSITY-WIDE RECYCLED SPECIAL WASTE COST	\$ 84,933	\$ -	\$ 84,933		114	\$745

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

Add: Total University-wide Recycled Waste Cost	\$ 730,228
Add: Total University-wide Recycled Special Waste Cost	\$ 84,933
Total University-Wide Recycled Waste Costs	\$ 815,161
Add: Costs Recharged to Self-Sustaining UW Departments	(Page 6) \$ (119,670)
Add: Revenue Returned to Self-Sustaining UW Departments	\$ 57,213
TOTAL ADJUSTED RECYCLED WASTE COST TO UNIVERSITY'S SOLID WASTE BUDGET	= \$ 752,704

ADDITIONAL WASTE DIVERTED THROUGH SURPLUS SALES

	Tons	Revenue
Total Tonnage & Revenue from Resale/Reuse Program 6	<u>670</u>	<u>\$ 477,680</u>

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

SUMMARY

Total UW Self Haul Landfilled MSW Operating Costs	\$ 151,260
Total UW Self Haul Litter Operating Costs	\$ 60,721

UW SELF HAUL LANDFILLED MSW OPERATING COSTS ¹

Salaries

Collection Staff	\$ 39,836
Portions of 2 Waste Collectors, Truck Driver Lead	
Administration and Overhead	\$ 18,482
Portions of 3 Mgrs, Prog Coor, Fisc Spec	
SUBTOTAL SALARIES	= \$ 58,319

Operations Costs

Vehicle Rental	\$ 57,492
Portions of 2 Collection Vehicles, 2 Pickup Trucks	
Supplies	\$ 29,670
Services	\$ 5,780
SUBTOTAL OPERATIONS COSTS	= \$ 92,942

TOTAL UW SELF HAUL LANDFILLED MSW OPERATING COSTS = \$ 151,260

UW SELF HAUL LANDFILLED MSW ONE-TIME, NON-AMERTIZED EQUIPMENT COSTS ²

Equipment Costs = \$ 152,678

UW SELF HAUL LITTER OPERATING COSTS ³

Salaries

Collection Staff	\$ 42,584
2 Truck Drivers, Truck Driver Lead	
Administration and Overhead	\$ 2,927
Portions of 3 Mgrs	
SUBTOTAL SALARIES	= \$ 45,511

Operations Costs

Vehicle Rental	\$ 8,870
2 Collection Vehicles	
Supplies	\$ 6,341
Services	\$ -
SUBTOTAL OPERATIONS COSTS	= \$ 15,211

TOTAL UW SELF HAUL LITTER OPERATING COSTS = \$ 60,721

UW SELF HAUL LITTER ONE-TIME, NON-AMERTIZED EQUIPMENT COSTS ⁴

Equipment Costs = \$ 12,073

RECHARGES TO SELF-SUSTAINING UW DEPARTMENTS

Total Recharges to Self-Sustaining UW Departments = \$ 570,661

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UW Self Haul Recycling Operations Data

SUMMARY

Total UW Self Haul Recycling Operating Costs \$ 667,062

UW SELF HAUL RECYCLING OPERATING COSTS ¹

Salaries

Operations	\$ 387,267
Wrhse Spvr, 9 Wrhse Wrkrs, 5 Truck Drvrs, 2 Waste Coll, Truck Drvr Lead	
Administration and Overhead	\$ 72,837
Portions of 3 Mgrs, Prog Coor, Info Spec, Fisc Spec, Student Assts	
SUBTOTAL SALARIES	<u> </u> = \$ 460,104

Operations Costs

Vehicle Rental	\$ 72,176
2 Coll Vehicles, Portions of 3 Addtnl Coll Vehicles, 3 Pickup Trucks	
Supplies	\$ 19,385
Services	\$ 115,397
SUBTOTAL OPERATIONS COSTS	<u> </u> = \$ 206,958

TOTAL UW SELF HAUL RECYCLING OPERATING COSTS = \$ 667,062

UW SELF HAUL RECYCLING ONE-TIME, NON-AMERTIZED EQUIPMENT COSTS ²

Equipment Costs \$ 304,519

RECHARGES TO SELF-SUSTAINING UW DEPARTMENTS

Total Recharges to Self-Sustaining UW Departments \$ 119,670

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REPORT ANNOTATION

This Annual 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, 2005, through June 30, 2006. 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	6,413
Landfilled special waste tons	75
Recycled waste tons	5000
Recycled special waste tons	114
Total landfilled and recycled tons	11,602
University-wide landfilled MSW cost	\$1,336,188
University-wide landfilled special waste cost	\$100,146
University-wide recycled waste cost	\$730,228
University-wide recycled special waste cost	\$84,933
Average cost of landfilling MSW per ton	\$199
Average cost of recycling waste per ton	\$146
Net avoided disposal cost: cost avoided by recycling instead of landfilling	\$264,439
Estimated tonnages diverted through the Resale/Reuse Program	670
Actual revenue generated through the Resale/Reuse Program	\$477,680

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Overview of Combined Landfilled and Recycled Waste Services

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*, \$1,072,954, and (2) *Landfilled MSW UW Self Haul Operating & Overhead Costs*, \$263,234. The total cost to landfill the University's MSW in the 2005/2006 fiscal year is \$1,336,188.

The *Subtotal University-wide Special Waste Costs* is determined by summing the costs of the special waste streams: (1) *Special Waste Disposal Costs*, \$93,092, and (2) *Special Waste Operating & Overhead Costs*, \$7,054. The total cost to landfill the University's special in the 2005/2006 fiscal year is \$100,146.

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*, \$597,939, (2) *Recycled Waste Operating & Overhead Costs*, \$315,385, and (3) *Revenue from Recycled Waste*, \$183,096. The total cost to recycle the University's waste in the 2005/2006 fiscal year is \$730,228.

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*, \$84,933. The total cost to recycle the University's special waste in the 2005/2006 fiscal year is \$84,933.

The *Total University-wide Waste Cost* for the 2005/2006 fiscal year is \$2,251,495. This is the summative cost of all waste disposal for landfilling MSW, landfilling special waste, recycling waste, and recycling special waste.

Property & Transport Services 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, Property & Transport Services 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 2005/2006 fiscal year is \$1,618,377.

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Overview of Combined Landfilled and Recycled Waste Services

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 2005/2006 fiscal year, the University avoided \$264,439 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 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 670 tons were diverted from the landfill and Resale/Reuse Program sales generated nearly \$477,680 in revenue. 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. 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

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 for which there are architectural or geographic 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 95% 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 \$1,023,574 for a total of 5,397 tons disposed. These costs are included 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 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 \$251,893 for a total of 1,016 tons disposed.

The *Average Cost of Landfilled MSW per Ton, Excluding Litter Collection and Landfilled Special Waste* provides an average cost that 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 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 \$1,275,467. (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*, 6,413. The *Average Cost of Landfilled MSW per Ton* is \$199.

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

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 \$60,721.

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 \$100,146 for a total of 75 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*, \$1,336,188, and the *Total University-wide Landfilled Special Waste Cost*, \$100,146, equaling \$1,436,334. This figure represents the total cost for waste disposal for the 2005/2006 fiscal year.

Property & Transport Services 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, Property & Transport Services 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*, \$570,661, 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 2005/2006 fiscal year is \$865,673.

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Recycled Waste Costs & Revenues

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 \$414,843, which is the sum of each commodity's UW operations cost, vendor cost, and/or revenue.
- Add the *Recycled Waste Removal Overhead Cost* of \$47,287, which includes personnel support costs.
- Add the *Recycling Program Admin Operating Costs* of \$268,098, 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 \$730,228 for a total of 5,000 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 \$146 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 \$84,933 for a total of 114 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*, \$730,228, and the *Total University-wide Recycled Special Waste Cost*, \$84,933, equaling \$815,161. This figure represents the total cost for recycled waste disposal for the 2005/2006 fiscal year.

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Recycled Waste Costs & Revenues

Property & Transport Services 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, Property & Transport Services 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*, \$119,670, is subtracted from the *Total University-wide Recycled Waste Cost*, \$815,161. Then *Revenue Returned to Self-Sustaining UW Departments*, \$57,213, is added to the total. The *Total Adjusted Recycled Waste Cost to the University's Solid Waste Budget* for the 2005/2006 fiscal year is \$752,704.

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 2005/2006 fiscal year, the Resale/Reuse Program diverted an estimated 670 tons from the landfill and generated revenues of \$477,680. The tonnage diverted from the landfill is equivalent to 13% of the total tonnage recycled, and the revenue generated from the resale of reusable property is equal to 63% of the *Total Adjusted Recycled Waste Cost to the University's Solid Waste Budget* for the 2005/2006 fiscal year. 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.

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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 geographic limitations that preclude certain vehicles from reaching pick-up points.

UW Self Haul Landfilled MSW Operating Costs incurred in the 2005/2006 fiscal year include:

- Collection Staff (see table below): \$39,836
- Administration and Overhead (see table below): \$18,482
- Vehicle Rental (see table below): \$57,492
- Supplies (printing, advertising, and other supplies): \$29,670
- Services (two-way radios, dumpster repair and maintenance, postage and other miscellaneous costs): \$5,780

**Table 1: UW Self Haul Landfilled MSW Operating 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%

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.

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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 2005-2006 include:

- Collection Staff (see table below): \$42,584
- Administration and Overhead (see table below): \$2,927
- Vehicle Rental (see table below): \$8,870
- Supplies (printing, advertising, and other supplies): \$6,341

**Table 2: UW Self Haul Litter Operating 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%

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.

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

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 that 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 the 2005/2006 fiscal year, *Total Recharges to Self-Sustaining UW Departments* for waste collection is \$570,661.

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UW Self Haul Recycling Operations Data

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 2005/2006 fiscal year include:

- Operations (see table next page): \$387,267
- Administration and Overhead (see table next page): \$72,837
- Vehicle Rental (see table next page): \$72,176
- Supplies (printing, advertising and other supplies): \$19,385
- Services (dumpster repair and cleaning, postage and maintenance): \$115,397

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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

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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UW Self Haul Recycling Operations Data

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

Property & Transport Services 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, Property & Transport Services recharges costs and refunds revenue to self-sustaining departments that incurred costs or generated revenue related to recycling. For the 2005/2006 fiscal year, *Total Recharges to Self-Sustaining UW Departments* for recycling operations is \$119,670.

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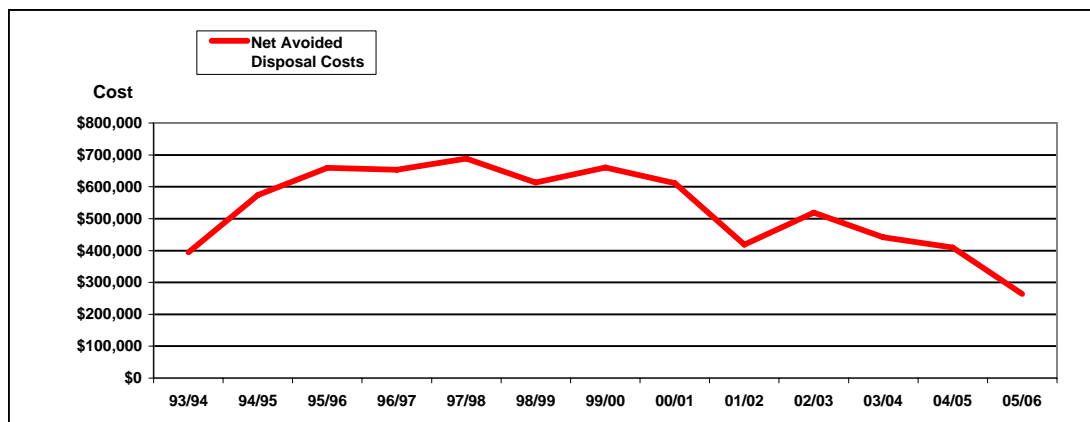
Annual Solid Waste Report, Fiscal Year July 1, 2005 - June 30, 2006

Appendix A: Historical Data

FISCAL COMPARISON - FISCAL YEARS 1994 - 2005	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)	6,468	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	20	162	91	73	55	73	53	61	34	20	144	176
Average cost per ton to landfill - MSW	\$199	\$184	\$167	\$235	\$202	\$169	\$183	\$185	\$185	\$190	\$193	\$160
Average cost per ton to landfill - treated sharps	\$573	\$613	\$504	\$397	\$756	\$553	\$691	\$639	\$639	\$459		
Average cost per ton to landfill - untreated biomedical waste	\$3,078	\$400	\$400	\$369	\$369	\$368	\$285	\$340	\$340	\$373	\$147	\$379
Total tons recycled - Property & Transport Services ¹	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)	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 ²	\$146	\$173	\$156	\$131	\$114	\$116	\$110	\$99	\$84	\$81	\$80	\$80

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 Annual Solid Waste Report calculates 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 figures contained in this report.

Appendix A: Net Avoided Disposal Costs



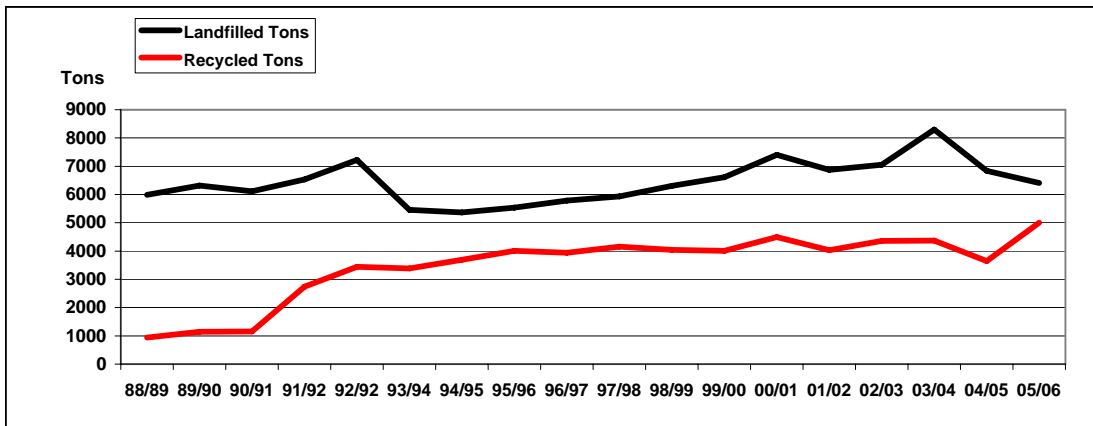
Fiscal Year	Avg Cost per Ton to Landfill	Avg Cost per Ton to Recycle	Total Tons Recycled	Net Avoided Disposal Cost
93/94	\$149.27	\$32.60	3384	\$394,811
94/95	\$161.04	\$5.47	3691	\$574,209
95/96	\$168.95	\$4.58	4010	\$659,124
96/97	\$173.06	\$7.29	3941	\$653,300
97/98	\$173.34	\$7.60	4157	\$688,981
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

* 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 Annual Solid Waste Report calculates 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 figures contained in this chart.

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Appendix A: Landfilled Tons vs Recycled Tons

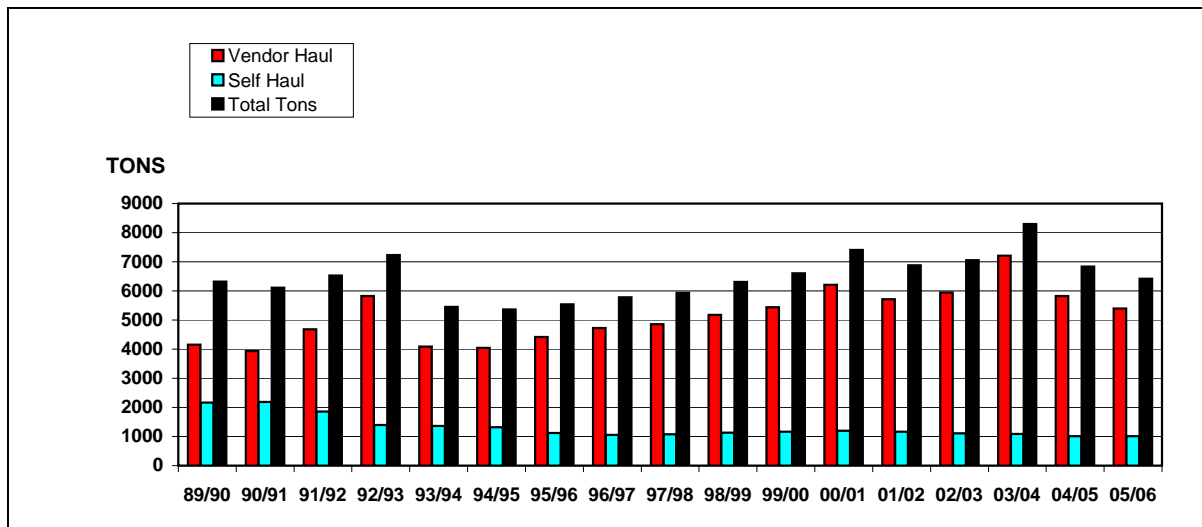


<u>Fiscal Year</u>	<u>Landfilled Tons</u>	<u>Recycled Tons</u>	<u>Percent Recycled</u>
88/89	5994	935	13.49%
89/90	6320	1141	15.29%
90/91	6114	1158	15.92%
91/92	6531	2734	29.51%
92/92	7227	3440	32.25%
93/94	5455	3384	38.28%
94/95	5365	3691	40.76%
95/96	5535	4010	42.01%
96/97	5780	3941	40.54%
97/98	5935	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%

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Appendix A: Landfilled Municipal Solid Waste Tonnage Trends

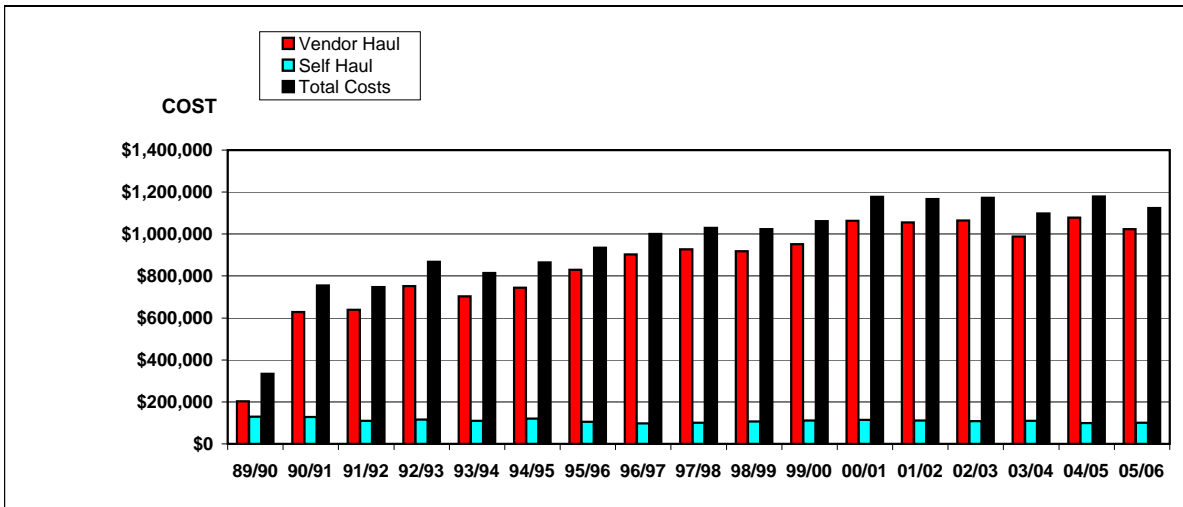


Fiscal Year	Vendor Haul	%	Self Haul	%	Total Tons
89/90	4150	65.66%	2170	34.34%	6320
90/91	3929	64.26%	2185	35.74%	6114
91/92	4678	71.63%	1853	28.37%	6531
92/93	5828	80.64%	1399	19.36%	7227
93/94	4091	75.00%	1364	25.00%	5455
94/95	4044	75.38%	1321	24.62%	5365
95/96	4416	79.78%	1119	20.22%	5535
96/97	4729	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

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Appendix A: Landfilled Municipal Solid Waste Cost Trends



Cost to Landfill Municipal Solid Waste

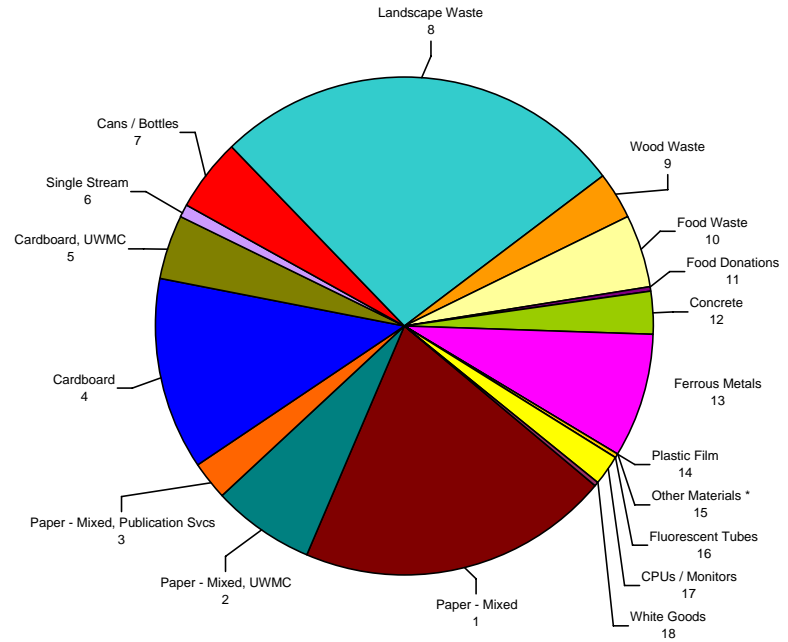
<u>Fiscal Year</u>	<u>Vendor Haul</u>	<u>Self Haul</u>	<u>Total Cost</u>
89/90	\$ 203,509	\$ 130,287	\$ 333,796
90/91	\$ 627,794	\$ 127,352	\$ 755,146
91/92	\$ 638,822	\$ 109,191	\$ 748,013
92/93	\$ 751,780	\$ 115,750	\$ 867,530
93/94	\$ 703,726	\$ 110,541	\$ 814,267
94/95	\$ 744,011	\$ 119,947	\$ 863,958
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

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Appendix A: Recycled Materials Analysis

MATERIAL	VENDOR	TONS	UW OPERATIONS COSTS	TOTAL COST/REVENUE	AVG COST/REV PER TON	% OF RECYCLE STREAM
1 Paper - Mixed	Weyerhaeuser	1032	\$329,124	\$227,172	220	20.18%
2 Paper - Mixed, UWMC	Weyerhaeuser	348		\$17,801	51	6.80%
3 Paper - Mixed, Publication Svcs	Weyerhaeuser	130		\$6,571	51	2.54%
4 Cardboard	Weyerhaeuser, WMI	642	\$36,203	\$11,366	18	12.55%
5 Cardboard, UWMC	Weyerhaeuser	200		\$11,233	56	3.91%
6 Single Stream	WMI	42	\$2,884	\$7,547	180	0.82%
7 Cans / Bottles	WMI	255	\$17,941	\$49,982	196	4.99%
8 Landscape Waste	Pacific Topsoils	1376		\$103,225	75	26.91%
9 Wood Waste	WMI	151	\$6,406	\$20,244	134	2.95%
10 Food Waste	WMI	241		\$30,498	127	4.71%
11 Food Donations	Food Lifeline	14		\$0	0	0.27%
12 Concrete	WMI	148		\$13,262	90	2.89%
13 Ferrous Metals	Metals Express	406		\$19,254	47	7.94%
14 Plastic Film	Weyerhaeuser	5	\$6,406	\$6,406	1281	0.10%
15 Other Materials *		10		\$0	0	0.20%
16 Fluorescent Tubes	Ecolights	5		\$12,302	2460	0.10%
17 CPUs / Monitors	Total Reclaim	101		\$71,247	705	1.97%
18 White Goods	Total Reclaim	8		\$1,384	173	0.16%

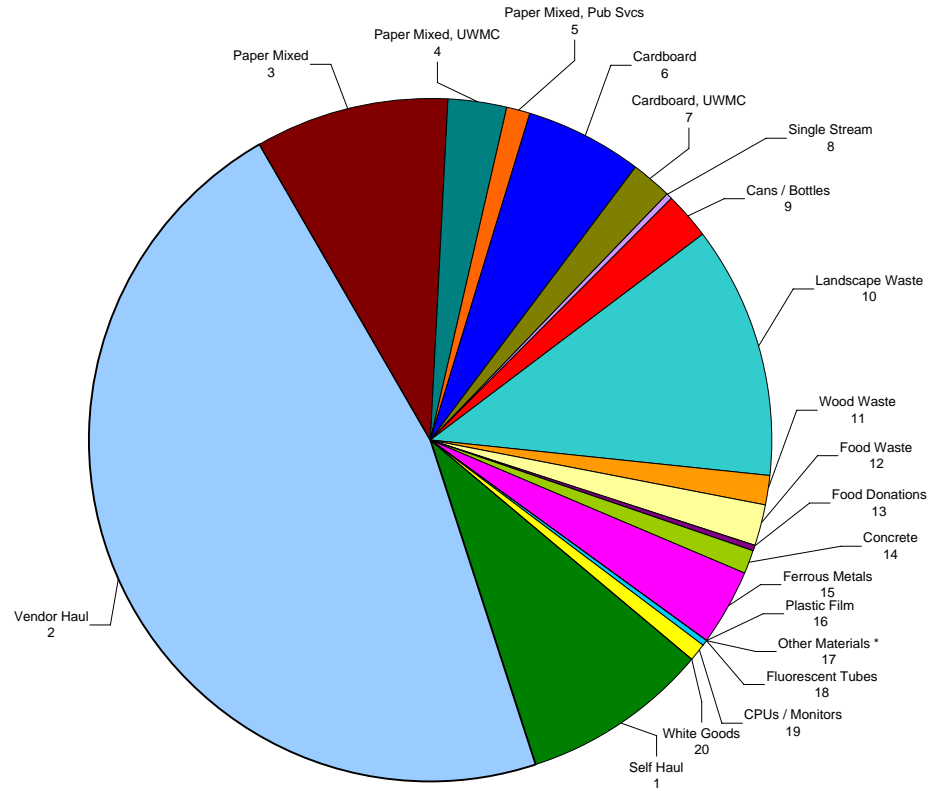


* Other Materials - Shredded Paper & a small amount of Toner Cartridges

Appendix A: Solid Waste / Recycle Analysis

SOLID WASTE / RECYCLE	VENDOR	TONS	UW OPERATIONS COSTS	TOTAL COST/REVENUE	AVG COST/REV PER TON	% OF SOLID WASTE STREAM
1 Self Haul	UW	1016	151,260	251,893	248	8.81%
2 Vendor Haul	WMI	5397		1,023,574	190	46.82%
3 Paper Mixed	Weyerhaeuser	1032	329,124	227,172	220	8.95%
4 Paper Mixed, UWMC	Weyerhaeuser	348		17,801	51	3.02%
5 Paper Mixed, Pub Svcs	Weyerhaeuser	130		6,571	51	1.13%
6 Cardboard	Weyerhaeuser, WMI	642	36,203	11,336	18	5.57%
7 Cardboard, UWMC	Weyerhaeuser	200		11,233	56	1.74%
8 Single Stream	WMI	42	2,884	7,547	180	0.36%
9 Cans / Bottles	WMI	255	17,941	49,982	196	2.21%
10 Landscape Waste	Pacific Topsoils	1376		103,225	75	11.94%
11 Wood Waste	WMI	151	6,406	20,244	134	1.31%
12 Food Waste	WMI	241		30,498	127	2.09%
13 Food Donations	Food Lifeline	14		0	0	0.12%
14 Concrete	WMI	148		13,262	90	1.28%
15 Ferrous Metals	Metals Express	406		19,254	47	3.52%
16 Plastic Film	Weyerhaeuser	5	6,406		1281	0.04%
17 Other Materials *		10		0	0	0.09%
18 Fluorescent Tubes	Ecolights	5		12,302	2460	0.05%
19 CPUs / Monitors	Total Reclaim	101		71,247	705	0.88%
20 White Goods	Total Reclaim	8		1,384	173	0.07%

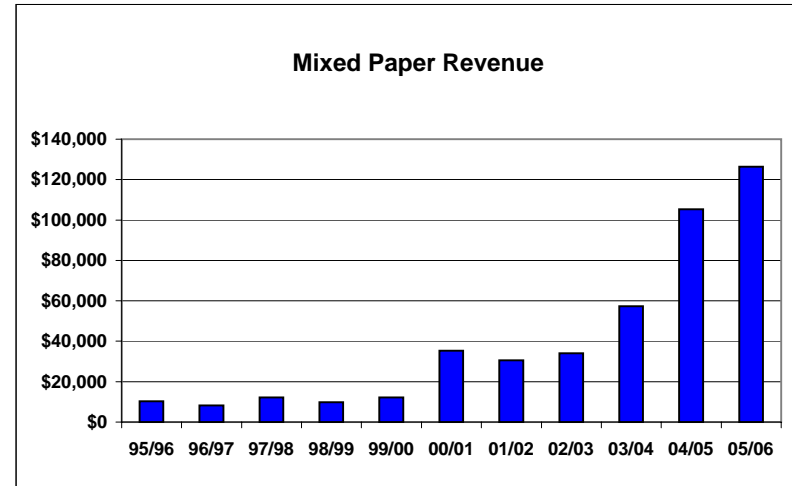
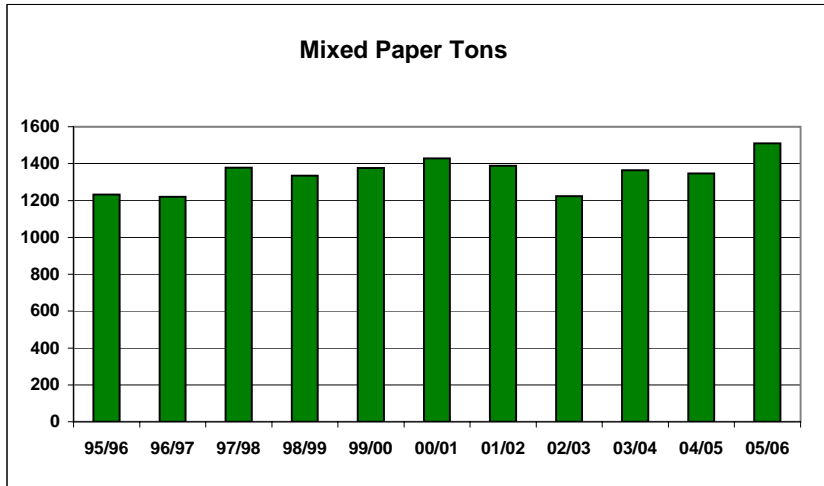
* Other Materials - Shredded Paper & a small amount of Toner Cartridges



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Appendix A: Recycling Trends - Mixed Paper



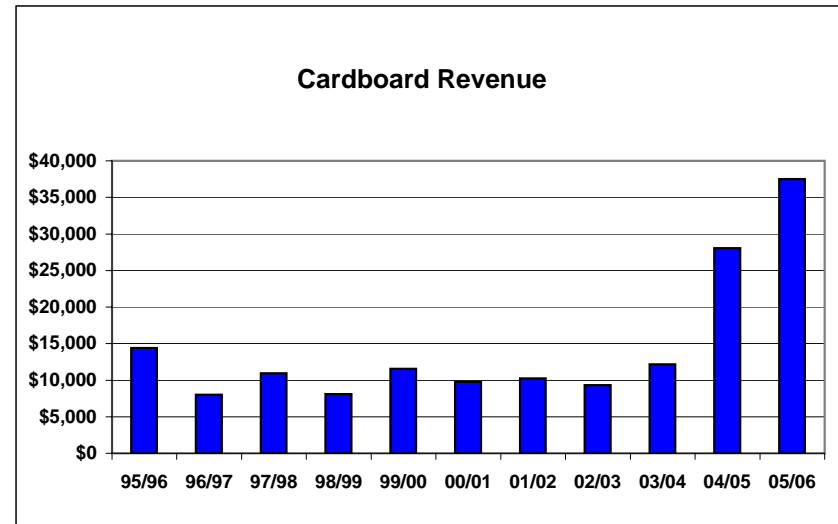
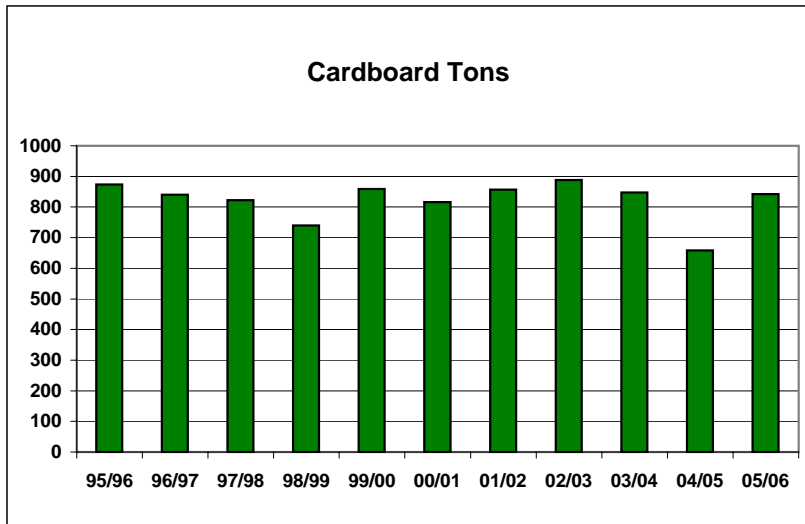
Mixed Paper Recycling

<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

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Appendix A: Recycling Trends - Cardboard



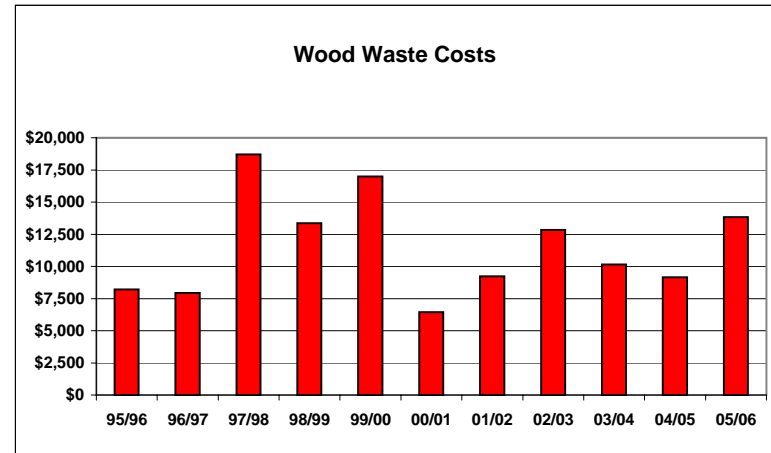
Cardboard Recycling

<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

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Appendix A: Recycling Trends - Wood Waste



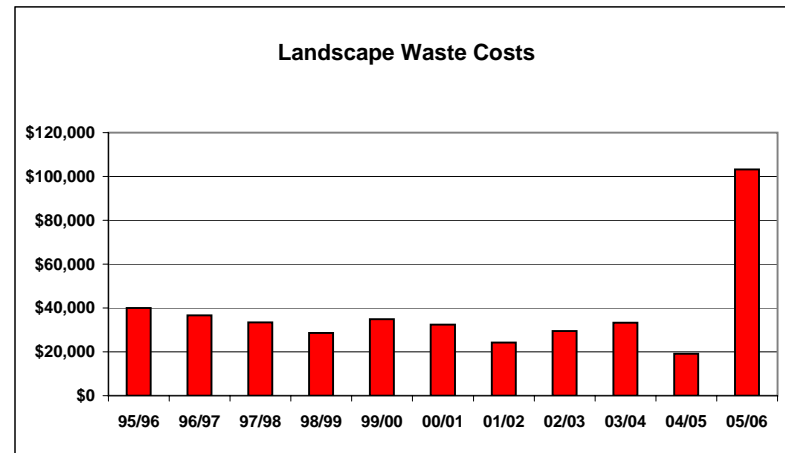
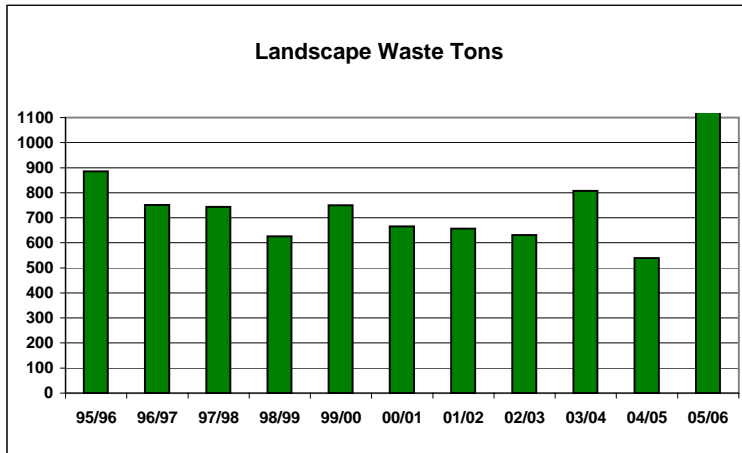
Wood Waste Recycling

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

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Appendix A: Recycling Trends - Landscape Waste



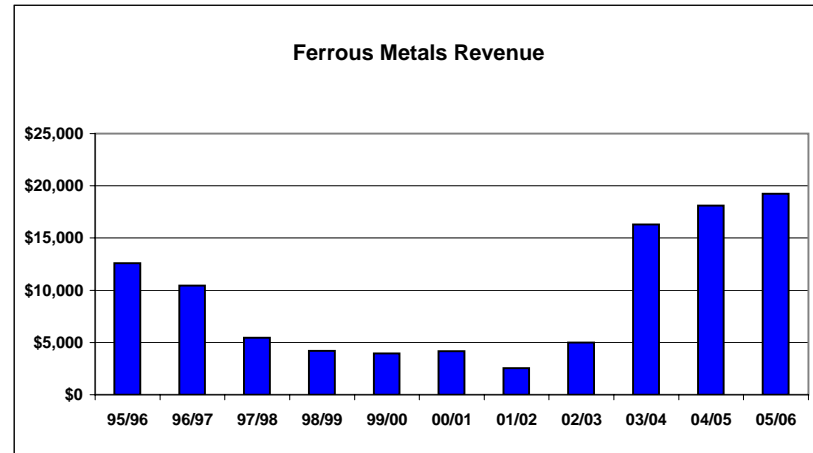
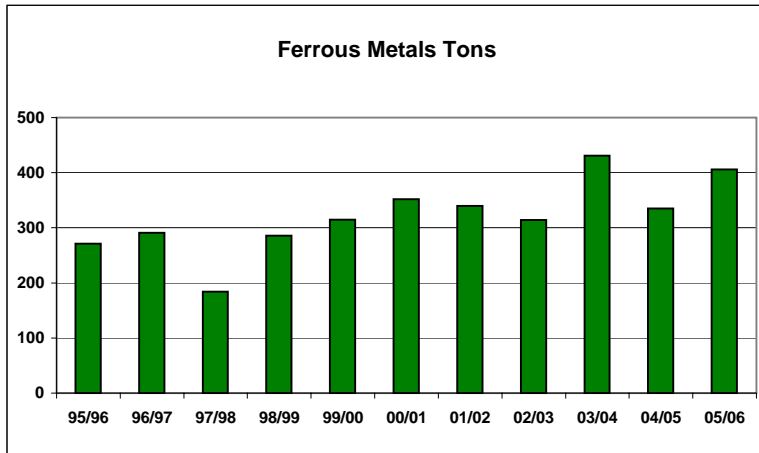
Landscape Waste Recycling

<u>Fiscal Year</u>	<u>Tons</u>	<u>Cost</u>
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

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Appendix A: Recycling Trends - Ferrous Metals



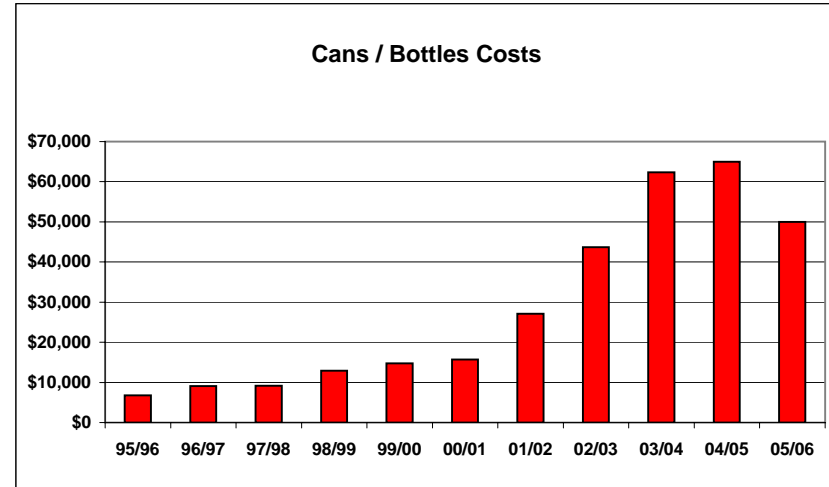
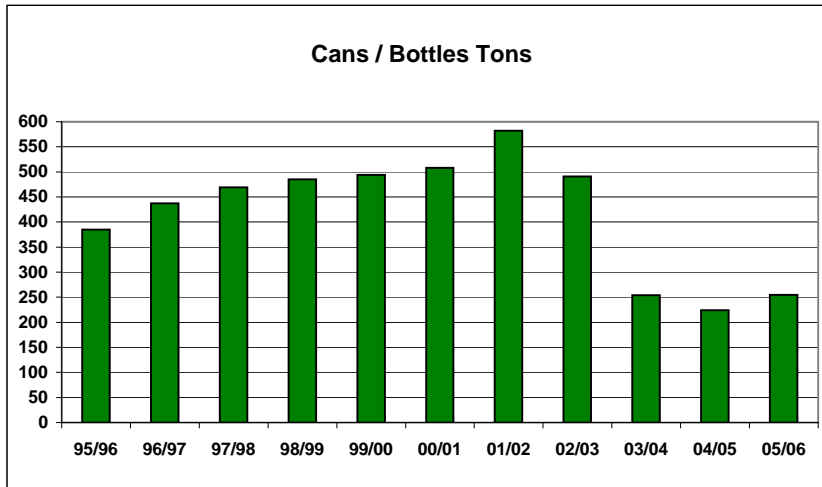
Ferrous Metals Recycling

<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

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Appendix A: Recycling Trends - Cans / Bottles



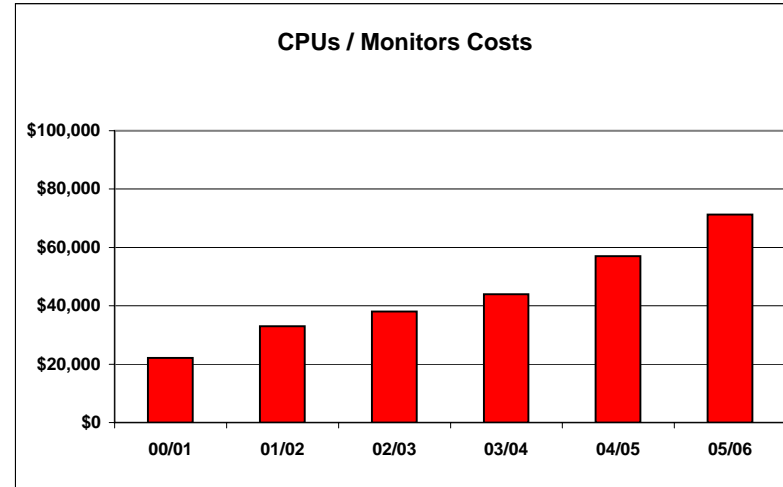
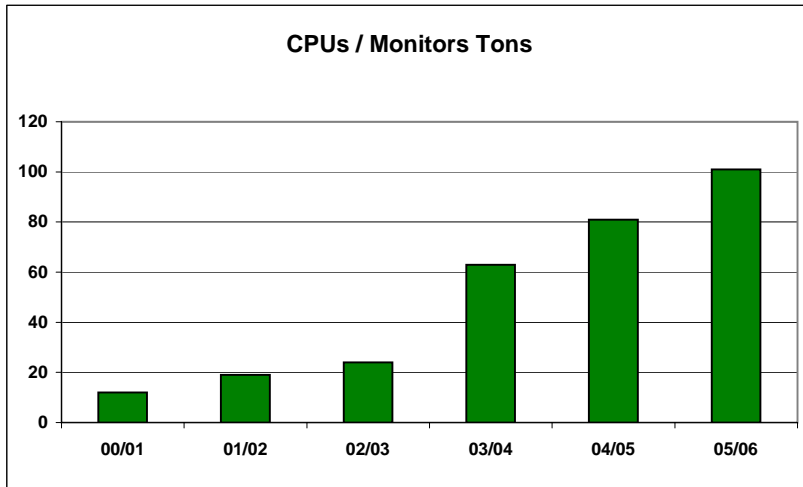
Cans / Bottles Recycling

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

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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

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Appendix B: Footnotes

EXECUTIVE SUMMARY (Page 1)

1. Additional administration and overhead costs have been included for the 2005-2006 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. Per capita data is based on a population of 60,911. This information was provided by Peter Dewey, Assistant Director, Transportation Services.
3. Per square foot data is based on an area of 8,234,205 square feet. This information was provided by Sarah Bottoms, Space Planner, Capital and Space Planning.
4. See Page 5, "UW Self Haul Landfilled MSW Operating Costs," for a detailed breakdown of costs.
5. 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.
6. See Page 5, "UW Self Haul Litter Operating Costs," for a detailed breakdown of costs.

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Appendix B: Footnotes

RECYCLED WASTE COSTS & REVENUES (Page 4)

1. Per capita data is based on a population of 60,911. This information was provided by Peter Dewey, Assistant Director, Transportation Services.
2. Per square foot data is based on an area of 8,234,205 square feet. This information was provided by Sarah Bottoms, Space Planner, Capital and Space Planning.
3. Cost includes portions of salaries, vehicle rental fees, supplies, and services.
4. Cost includes fees such as specialized container rental, city and county taxes, and hauling fees, as well as tonnage costs for processing and disposal.
5. Total operating cost for the recycling program is \$667,062. A portion of this is UW Operations Costs and the remainder is Recycling Program Admin Operating Costs.
6. 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.
4. 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.

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—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 capital or program purchases that occur irregularly and would significantly skew the cost per ton to recycle if included.

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Appendix C: Glossary of Terms

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 rolloffs 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

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Appendix C: Glossary of Terms

FOOD DONATIONS: Prepared, perishable food items not served to the public. Collected and distributed by Food Lifeline's Seattle's Table.

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.

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 and collected in two 50-yard rolloff boxes. Collected for recycling by Pacific Topsoils approximately once every two weeks, 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, construction films, and bubble wrap. Collected on campus from totes 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

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Appendix C: Glossary of Terms

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: 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.

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.

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Appendix C: Glossary of Terms

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.