



Oregon Waste 2009/2010

Association of Oregon Recyclers

June 18, 2011

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Oregon Department of Environmental Quality



Overview

- What wastes DEQ tracks
- Overall disposal and recovery trends for Oregon
- 2009/2010 waste composition study methodology
- Trends in generation, disposal and recovery for individual material groups
- More waste composition results
- Summary



Solid Waste Program Does Track:

- Waste going to landfills, incinerators, transfer stations, treatment facilities.
- Waste that is imported from other states for disposal
- Waste that is exported to a general purpose landfill outside of Oregon
- “Counting” waste that is recovered.

“Counting” waste is the material recovery survey waste as defined in statute. It includes MSW and some C&D, but excludes inert loads, and industrial process waste, motor vehicles, scrap metal from major demolition and waste used on-site.

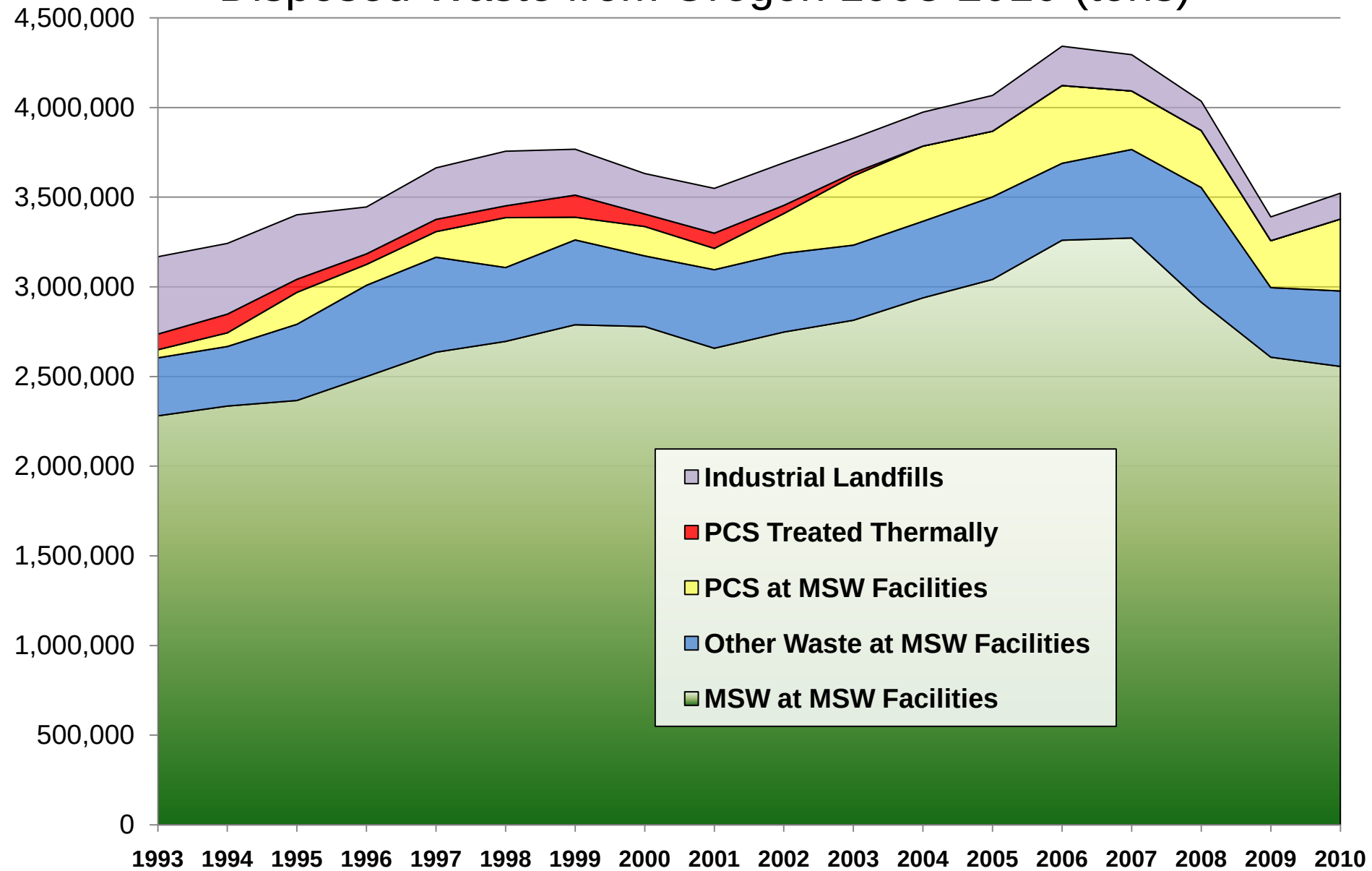


Solid Waste Program does not track:

- “Clean Fill”: Concrete, asphalt (unless landfilled)
- Exported waste to an industrial or C&D landfill
- Anything going down the sewer (including food)
- Discharges to water, air
- Sewage sludge (unless landfilled)
- Mining waste (unless landfilled)
- Dredging (unless landfilled)
- Agricultural wastes (unless landfilled)
- Material burned in wood stoves or outdoor piles
- Uncollected litter
- Waste going to a hazardous waste facility
- Waste used on site

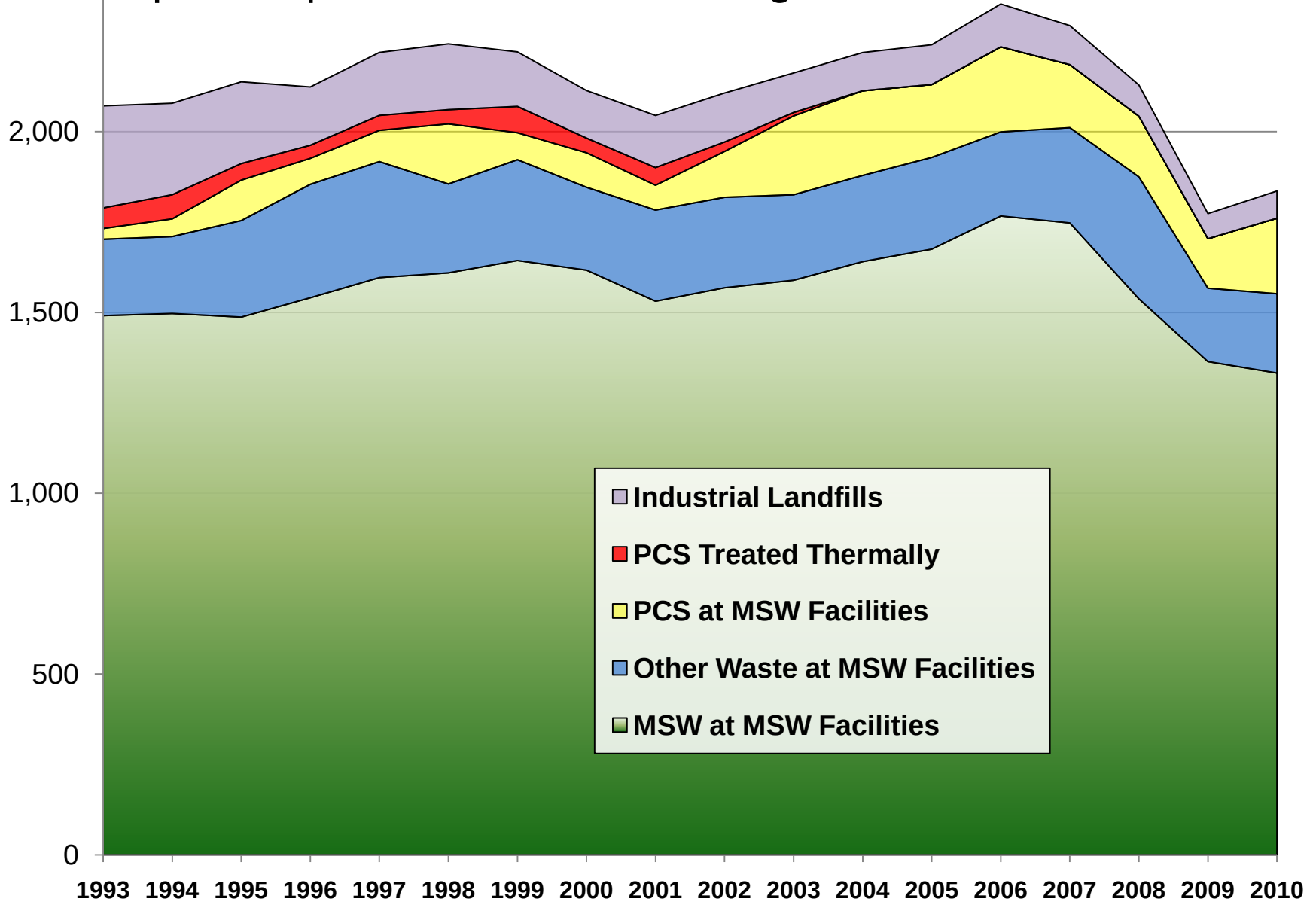
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Disposed Waste from Oregon 1993-2010 (tons)

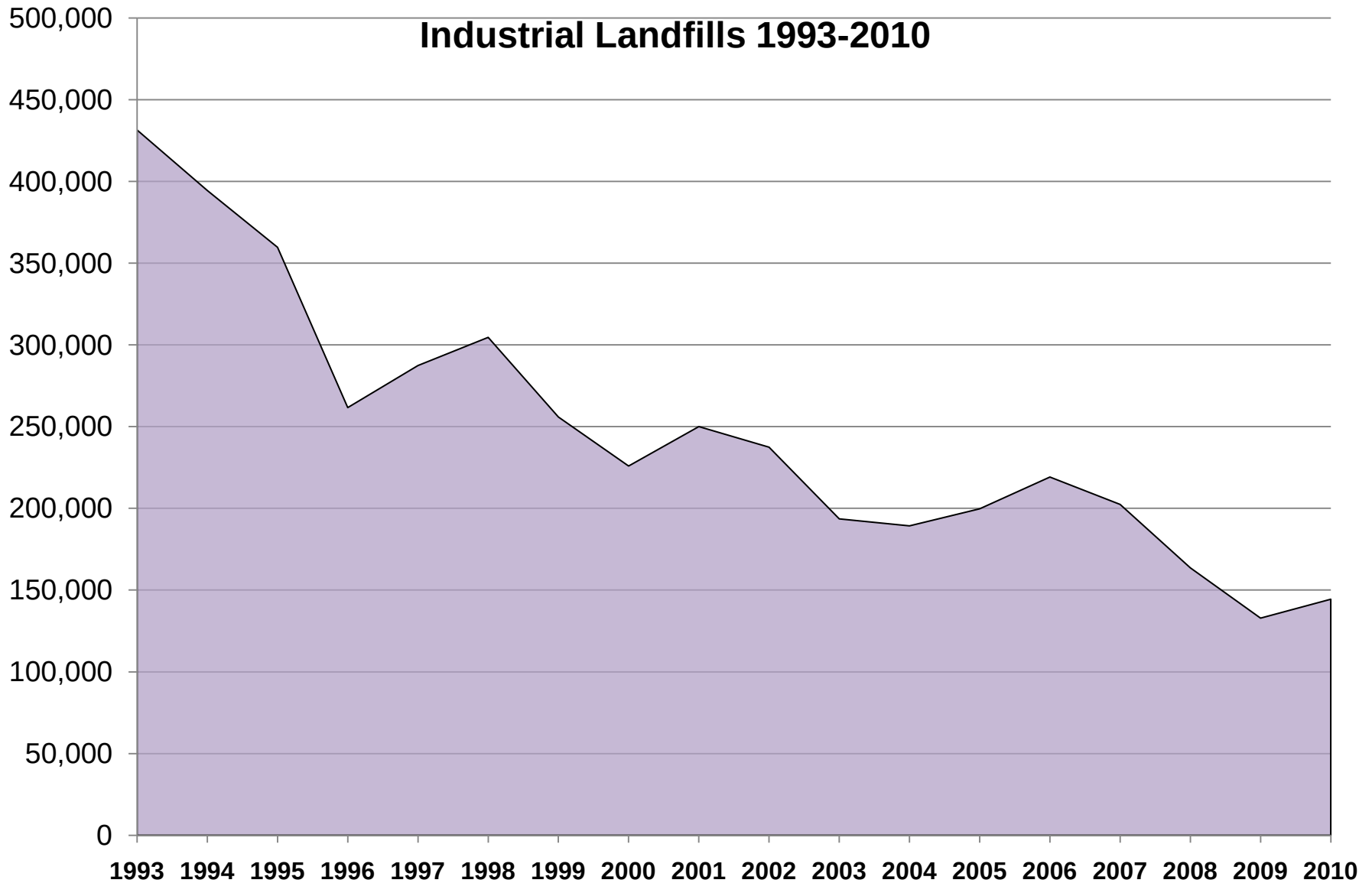


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Per Capita Disposed Waste from Oregon 1993-2010 (lbs/person-year)



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Industrial Waste Landfills reporting waste disposed in 2010

Landfill Name	2010 Tons
GP-Toledo Mill Landfill	39,968
Roseburg Forest Products Dillard Disposal Site	27,124
Esco Sauvie Island	21,613
Boise Cascade Wood Products, LLC - Elgin Complex	19,748
Georgia Pacific Consumer Pr Wauna Mill Landfill	18,824
South Coast Lumber	8,034
Riddle Plywood Plant Disposal Site No. 1 & No. 2	4,040
Riddle Ash Landfill	3,141
Coquille Disposal Site	1,080
Buck Hollow Landfill	792
Rough And Ready Disposal Site	50
Total	144,414

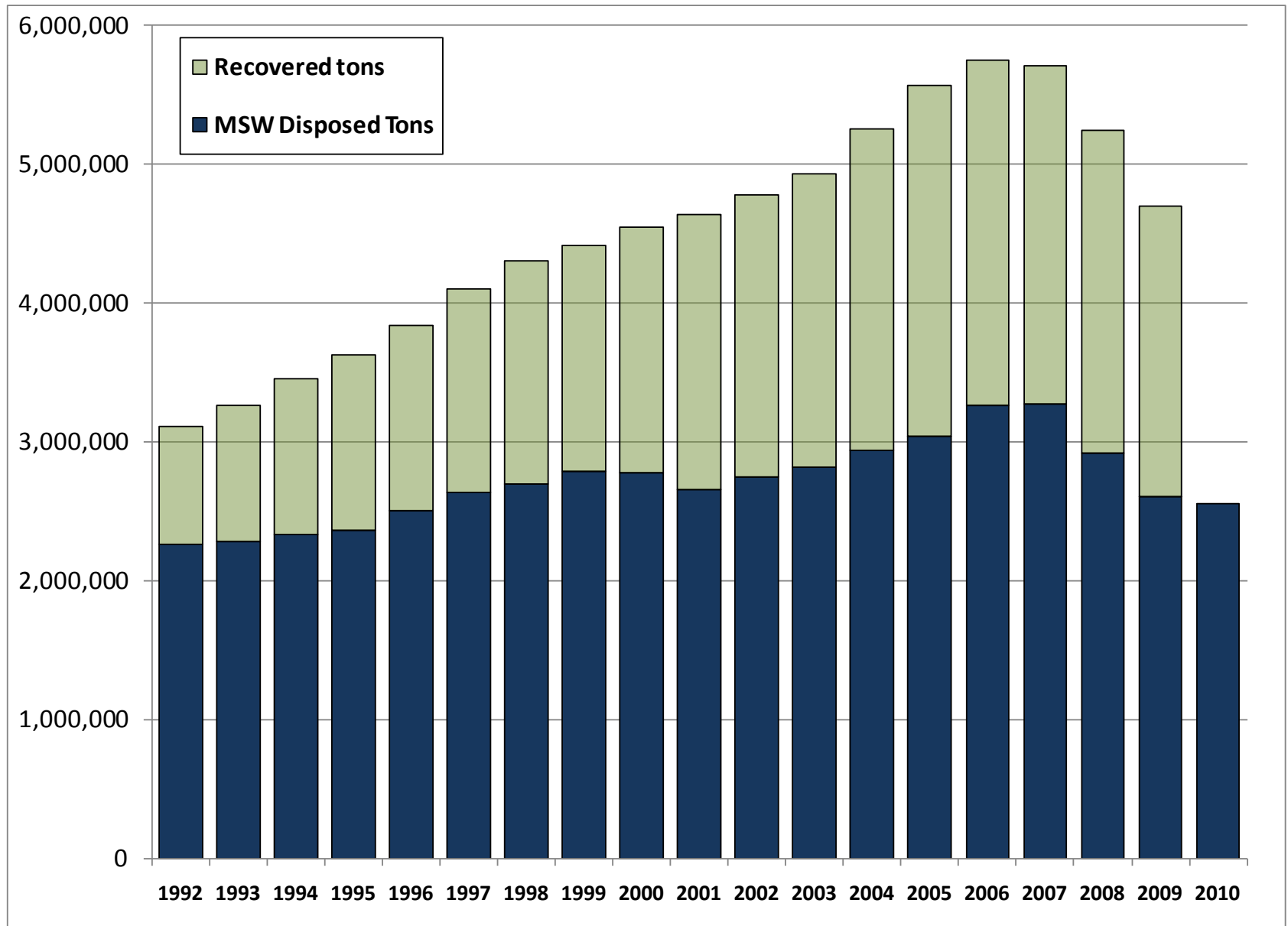


Industrial Waste Disposed 1995 and 2010 (tons)

	1995	2010
Ash	36,787	90,951
Wood	110,184	19,882
Asphalt	13,841	13,003
Paper & Pulp	71,108	11,525
Sludge/Wet Wastes - Industrial	75,762	4,917
Soils	36,438	492
All else	15,629	3,643
Total	359,749	144,414

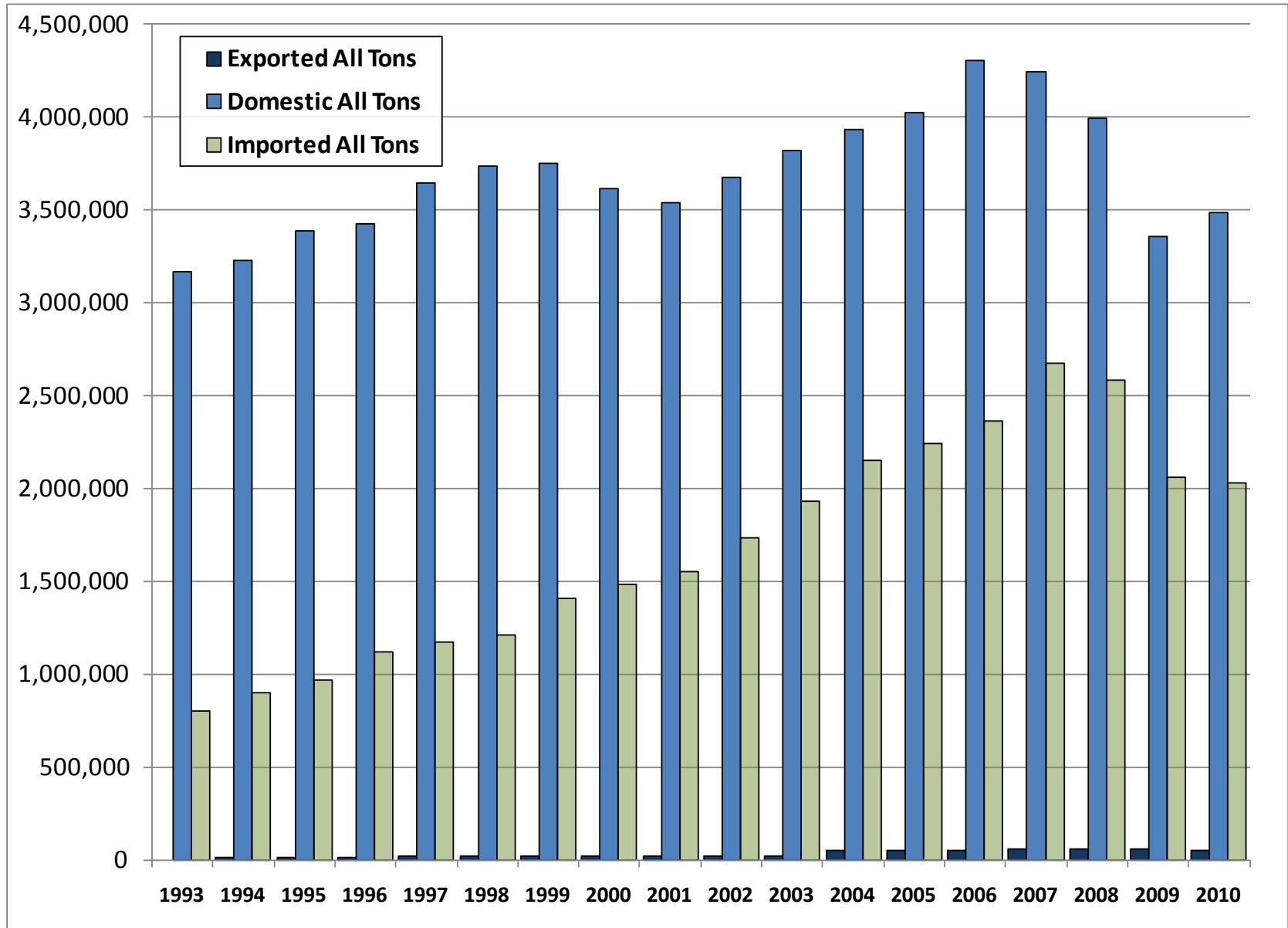
Oregon Waste Composition Study 2009/2010

“Counting Waste” Disposed & Recovered 1993-2010

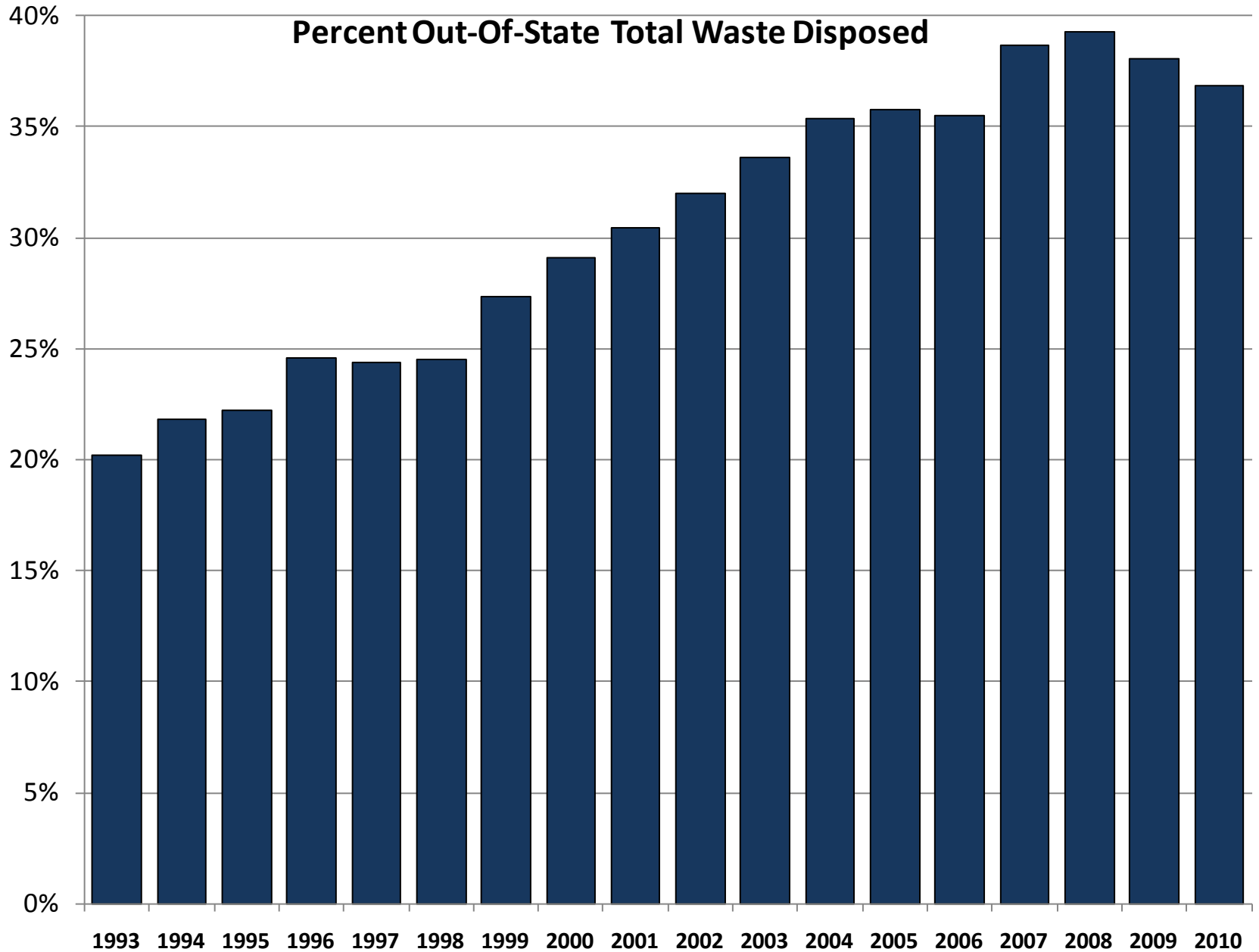


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Exported, Oregon, and Imported Tons Disposed – All Waste



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Oregon's 2009 – 2010 Waste Composition Study

- Metro previous studies
 - 1986-87
 - 1989-90
 - 1993-94
- DEQ down-state studies
 - 1992-93
 - 1994-95
- Previous joint statewide studies
 - 1998
 - 2000
 - 2002
 - 2005



Many Helped the 2009/2010 Study:

- Collection Service Owners and Dispatchers
- Disposal Site Operators
- Landfill Data Coordinators

Study Co-sponsors

- Department of Environmental Quality
- Metro
- Marion County
- Lane County
- City of Eugene
- City of Portland

Contractor: Sky Valley Associates



Separate Composition of 85 Waste Substreams

By source:

- Residential Route Trucks
- Commercial Route Trucks
- Mixed Route Trucks
- Compacting Drop Boxes
- Loose Drop Boxes
- Self Haul
- Residue- Mixed Waste Processing
- Special Purpose Landfill

By location:

- City of Portland
- Rest of Metro
- Marion County
- City of Eugene
- Rest of Lane County
- Rest of Oregon

By season:

- Warm (April – September)
- Cold (October – March)



Within substreams, representative sampling proportional to amount of waste disposed.

- Samples collected at 58 disposal sites
- Samples collected every month of the year
- Route truck samples pre-selected based on recent disposal records
- Other samples selected randomly during visits
- 950 samples collected and sorted in 2009/2010
- Additional special studies done for Metro of inbound waste to recovery facilities and of residential recycling and disposal.

Oregon Waste Composition Study 2009/2010

**Brad
Anderson
getting load
information
from the
driver.**



Oregon Waste Composition Study 2009/2010

Drop box loads are highly variable. Will the ladder and desk end up in the sample?



Oregon Waste Composition Study 2009/2010

A random number table is used to select exactly where in the pile the sample is pulled from. (We didn't get the desk or ladder)



Oregon Waste Composition Study 2009/2010

The load is dumped on a tarp to be held for sorting. Frequently the disposal site operator helps out with equipment as is true here at Metro Central



Oregon Waste Composition Study 2009/2010

**Roughly
checking
the sample
weight.**

**Loads
must
average
200 lbs or
more, and
minimum
weight is
175 lbs.**



Oregon Waste Composition Study 2009/2010

**A large
self-haul
load**



Oregon Waste Composition Study 2009/2010

Sorting the load. We sorted into 130 categories in 2009/2010 study, but 2 materials were not found



Oregon Waste Composition Study 2009/2010

Special size-related categories for wood, metal, cardboard requested by Metro for this study.



Oregon Waste Composition Study 2009/2010

**Marcus
Gomez
sorting
plastic into
multiple
categories**



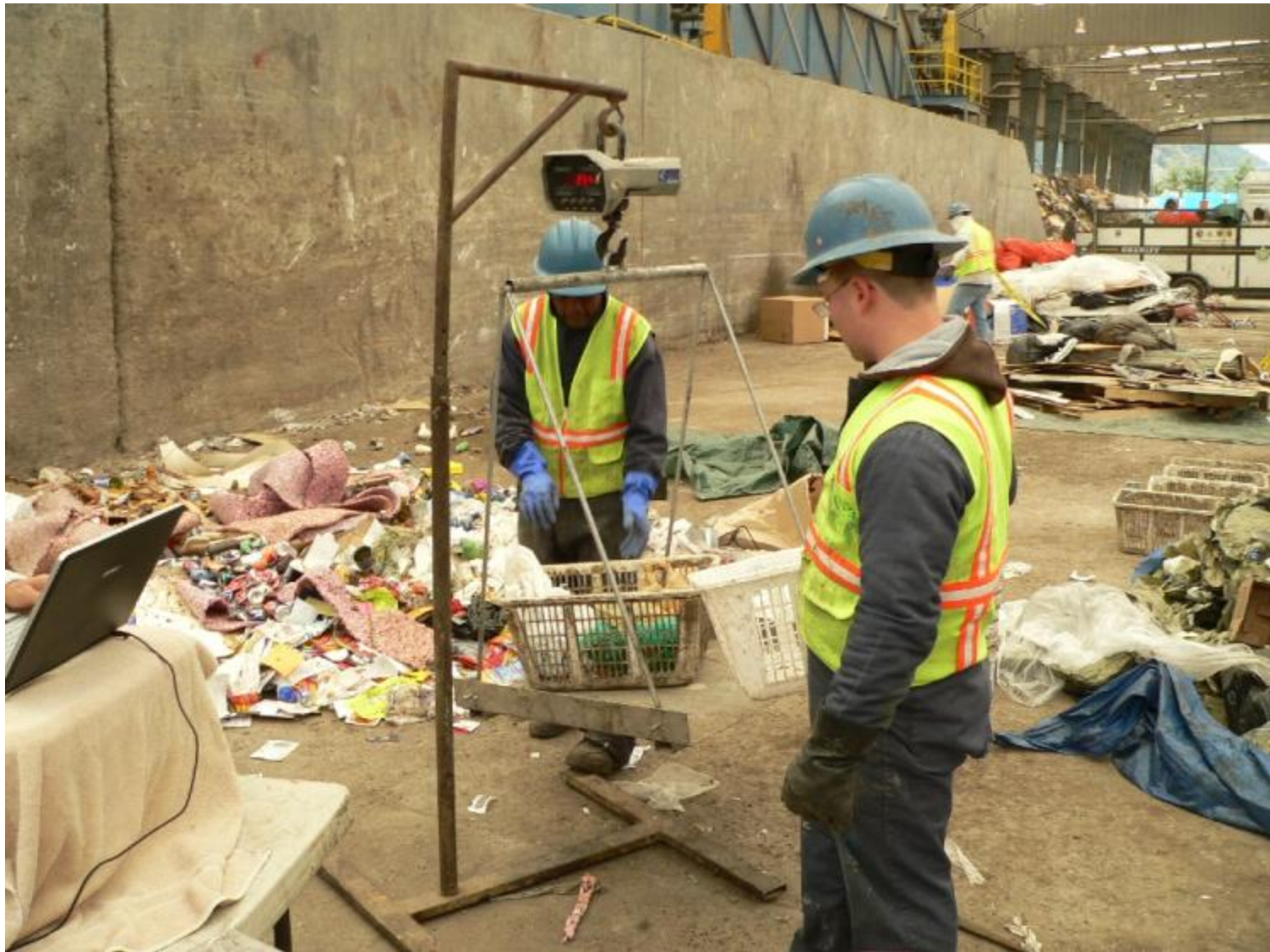
Oregon Waste Composition Study 2009/2010

**A look in
the sorted
paper bins**



Oregon Waste Composition Study 2009/2010

**Weighing
out the
sorted
samples.**



Oregon Waste Composition Study 2009/2010

A small scale measuring to 1/100 lbs is used for small items. Beverage containers were also counted.



Oregon Waste Composition Study 2009/2010

**Weighing
out a
sample
outside at
the Short
Mountain
Landfill
2009/2010**





Contamination Analysis

- Field-sorted material is contaminated. Example - Food waste adheres to or is absorbed into other materials
- After sorting, took 40 full samples back to a facility to clean and dry each material, and measure the amount of each contaminating material
- Also did contamination analysis on an additional 108 rigid plastic container samples

Oregon Waste Composition Study 2009/2010

**Contamin-
ation
analysis –
Resorting
and
cleaning
selected
field-sorted
samples**



Oregon Waste Composition Study 2009/2010

Cleaned materials are set aside to air-dry, and then are re-weighed



Oregon Waste Composition Study 2009/2010

**Recovering
and
weighing
dirt from a
lumber
sample**



Oregon Waste Composition Study 2009/2010

**Nan Hage
weighing out
the sample.**





Contamination Correction Factor Example - Corrugated Cardboard 2002

	pounds	percent	wastestream percent 2002
Total Corrugated Cardboard from field (dirty, wet)	303.78	100.00%	3.235 %
Cardboard after cleaning, drying	249.26	82.05%	2.654%
Contaminant Materials	6.26	2.06%	
Water (weight loss on air-drying)	48.26	15.89%	
"Add-backs" (Cardboard from other material loads)	+ 3.44	+1.13%	+.036%
Contamination Correction Factor		-16.82%	2.691%



Contamination Correction Factors for selected materials 2009/2010

	Field	Corrected	Factor	Factor 90% confidence interval
Cardboard	3.26%	2.80%	-14.29%	(-19.54 to -9.61%)
Hi grade paper	0.91%	0.88%	-3.47%	(-8.42 to 3.78%)
Newspaper	0.86%	0.72%	-16.29%	(-22.91 to -10.13%)
Other compostable nonrecyclable paper	5.23%	2.99%	-42.77%	(-45.52 to -39.85%)
Rigid Plastic Containers (RPCs)	1.86%	1.47%	-21.07%	(-25.08 to -17.59%)
Plastic film - recyclable	1.12%	1.05%	-6.43%	(-11.59 to -2.10%)
Plastic film - non-recyclable	3.70%	2.38%	-35.67%	(-39.58 to -31.05%)
Leaves and grass	3.63%	3.69%	1.59%	(0.43 to 2.33%)
Wood	11.51%	11.10%	-3.51%	(-5.36 to -1.96%)
Food	16.99%	17.62%	3.68%	(2.09 to 5.01%)
Glass	1.95%	2.01%	2.77%	(-0.46 to 6.72%)
Aluminum foil / food trays	0.14%	0.08%	-41.19%	(-46.60 to -35.80%)
Water and Residue (Contamination)	0.00%	5.89%		

Oregon Waste Composition Study 2009/2010



90% Confidence Intervals for selected materials (corrected) 2009/2010

Material	Corrected	90% conf. Int.
Cardboard	2.80%	(2.52 - 3.10%)
Hi grade paper	0.88%	(0.73 - 1.04%)
Newspaper	0.72%	(0.63 - 0.82%)
Other compostable nonrecyclable paper	2.99%	(2.76 - 3.26%)
Rigid Plastic Containers (RPCs)	1.47%	(1.36 - 1.58%)
Plastic film - combined	3.43%	(3.17 - 3.72%)
Leaves and grass	3.69%	(3.01 - 4.45%)
Unpainted lumber	2.75%	(2.23 - 3.27%)
Food	17.62%	(16.66 - 18.59%)
Glass	2.01%	(1.68 - 2.43%)
Aluminum beverage cans	0.11%	(0.10 - 0.13%)
Aluminum foil / food trays	0.08%	(0.07 - 0.09%)
Gypsum wallboard	2.83%	(2.23 - 3.43%)
Computers & monitors	0.18%	(0.08 - 0.30%)
Asphalt roofing & tarpaper	3.90%	(3.17 - 4.66%)

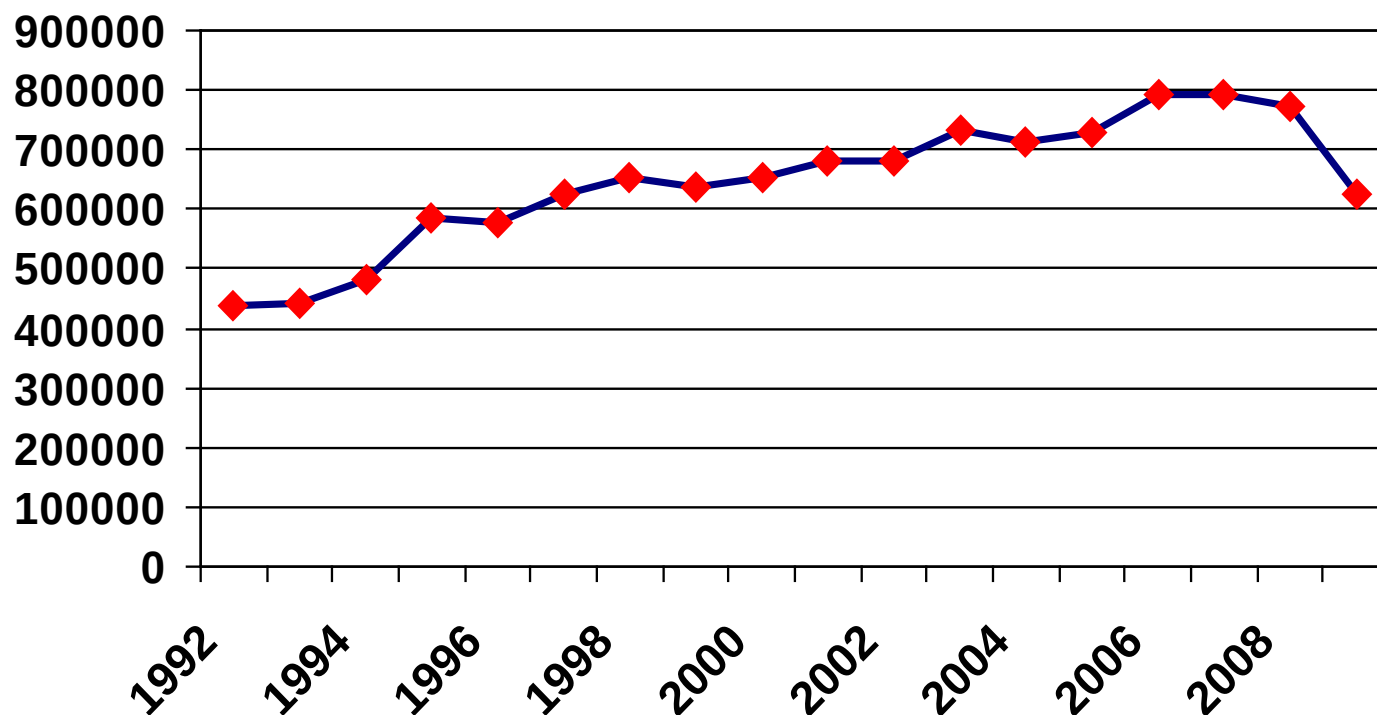


Composition
Percentage

All Paper: Percent of Wastestream and Recycling Tonnage

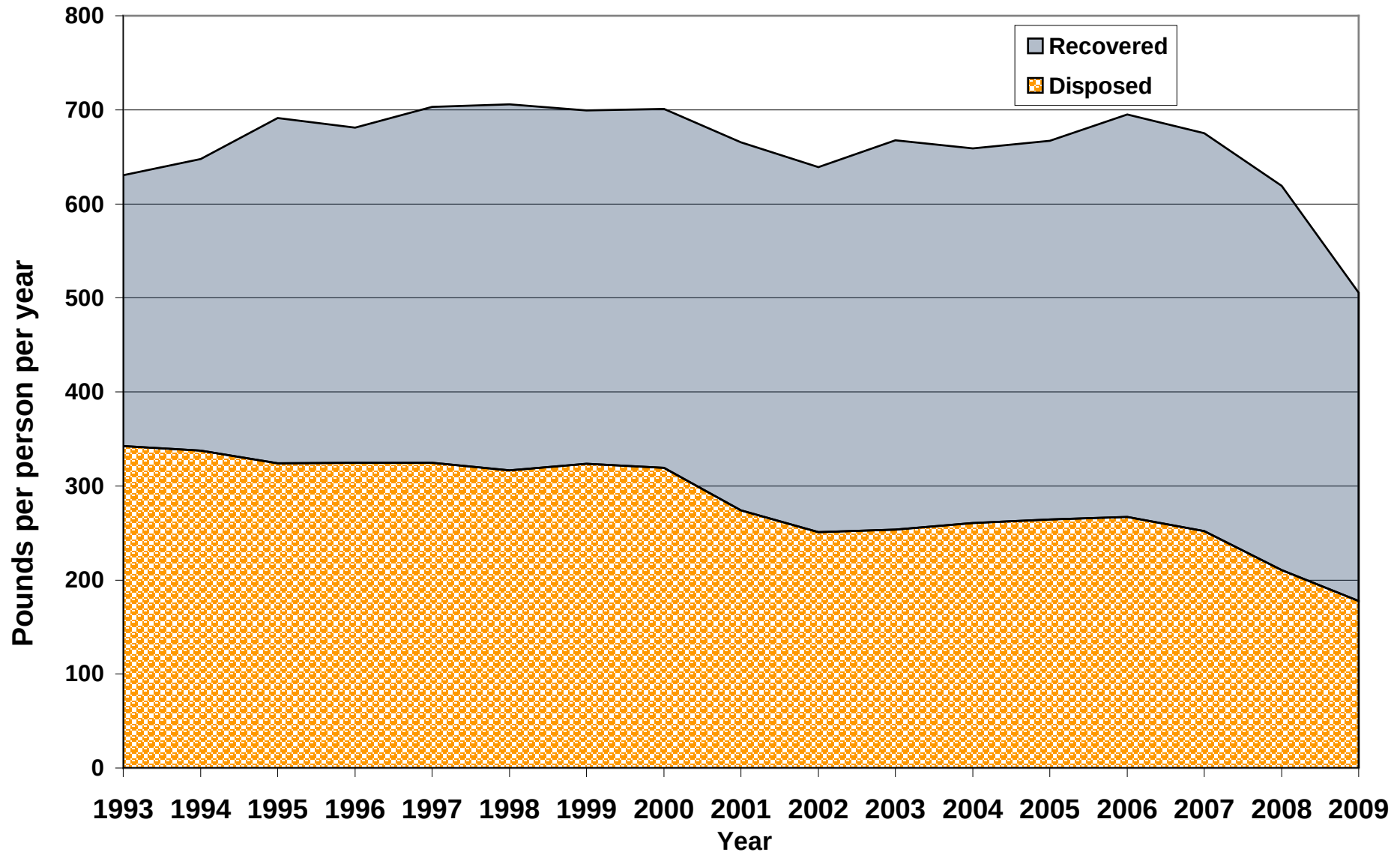
1993-95	1998	2000	2002	2005-06	2009-10
27.35%	24.35%	23.10%	20.62%	19.64%	16.99%

Recovery
Tons



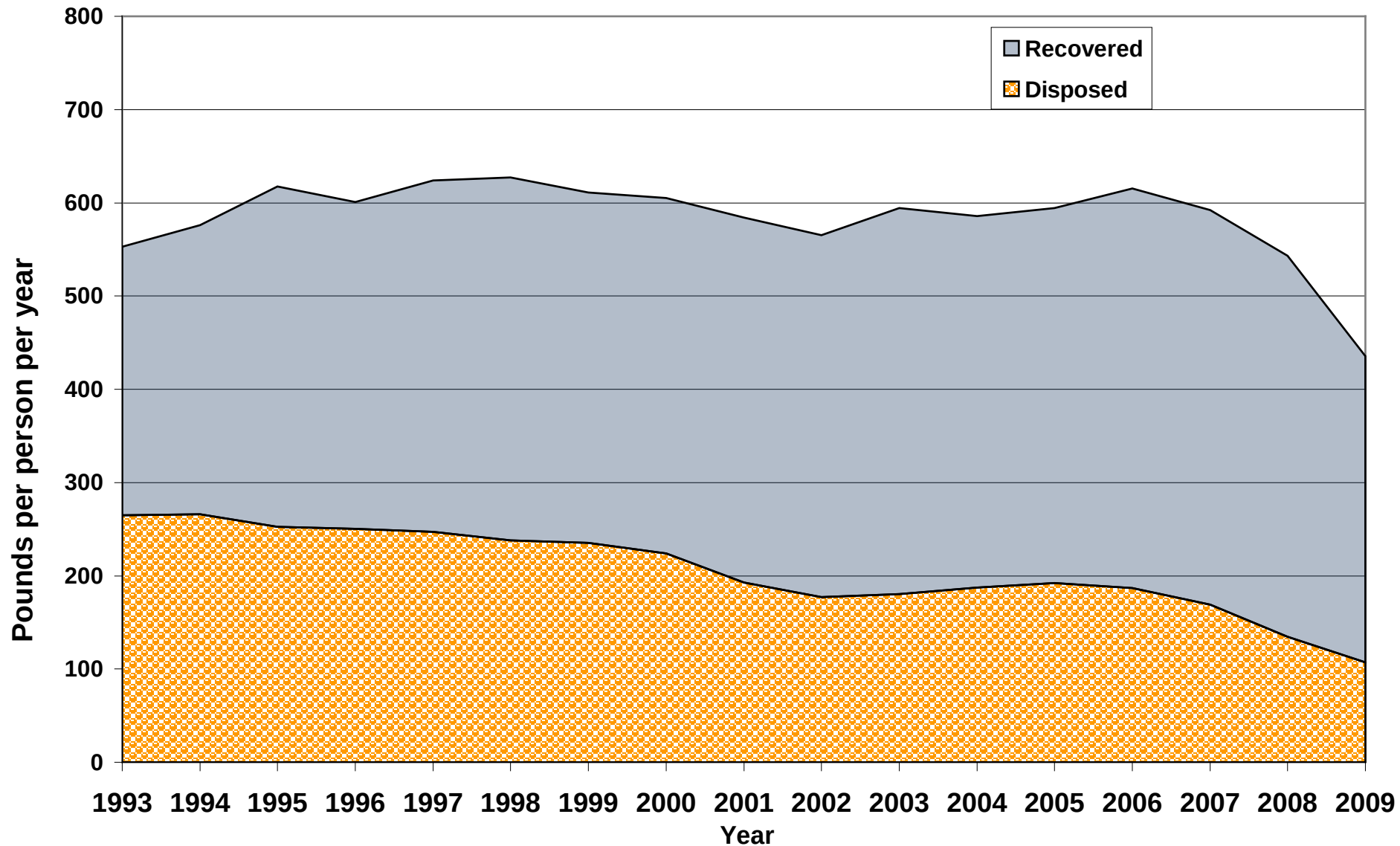
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Paper Recovery and Disposal Per Capita



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Recyclable Paper Recovery and Disposal Per Capita



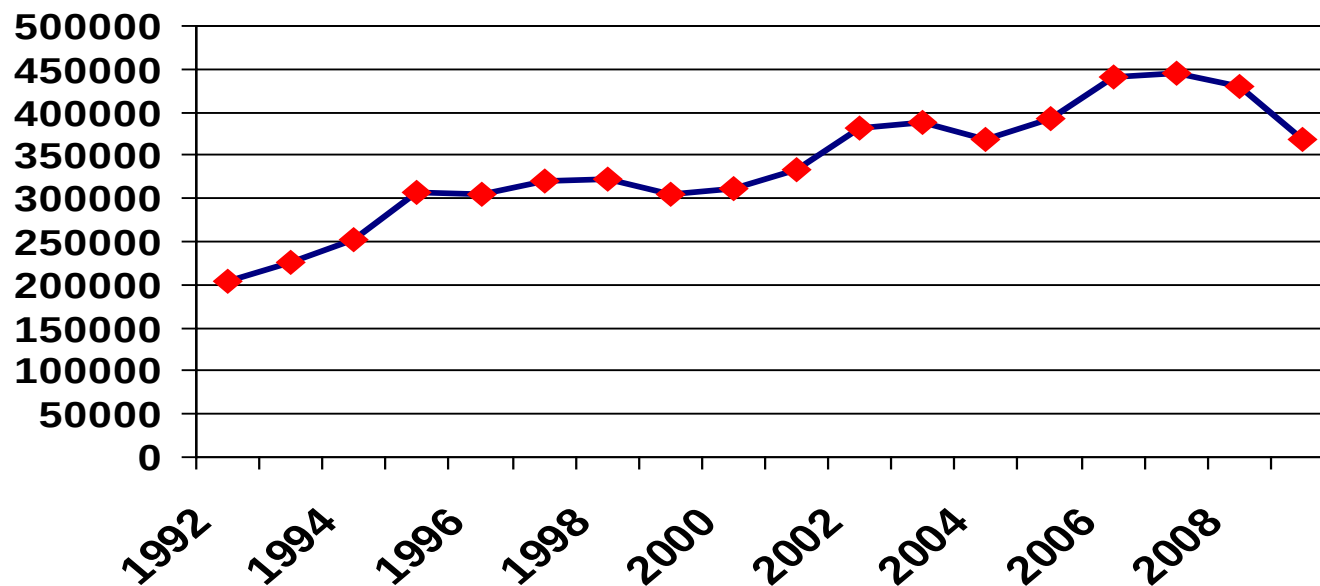


Composition
Percentage

Cardboard: Percent of Wastestream and Recycling Tonnage

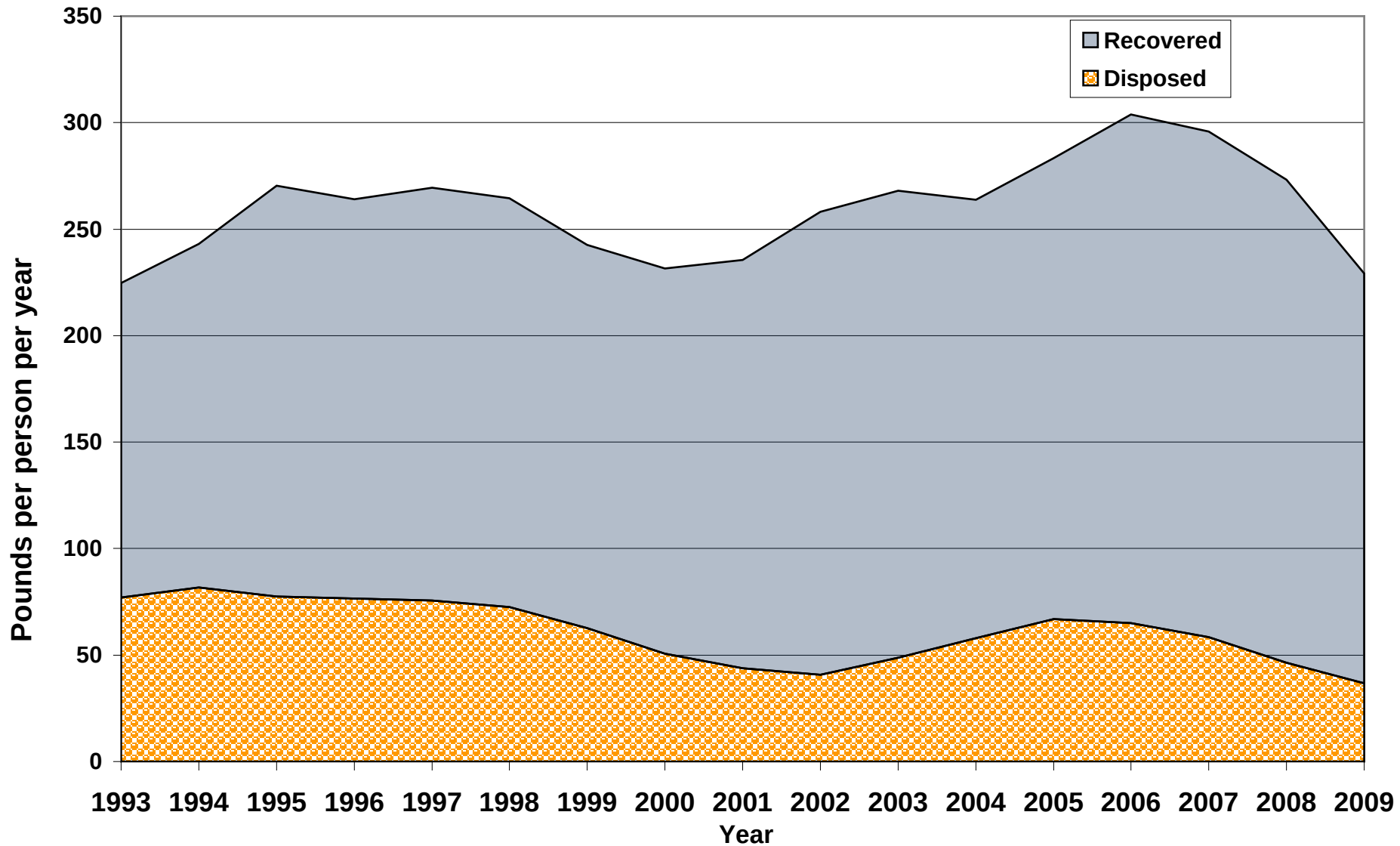
1993-95	1998	2000	2002	2005-06	2009-10
6.49%	5.45%	3.69%	3.23%	4.61%	3.26%

Recovery
Tons



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Cardboard Recovery and Disposal Per Capita



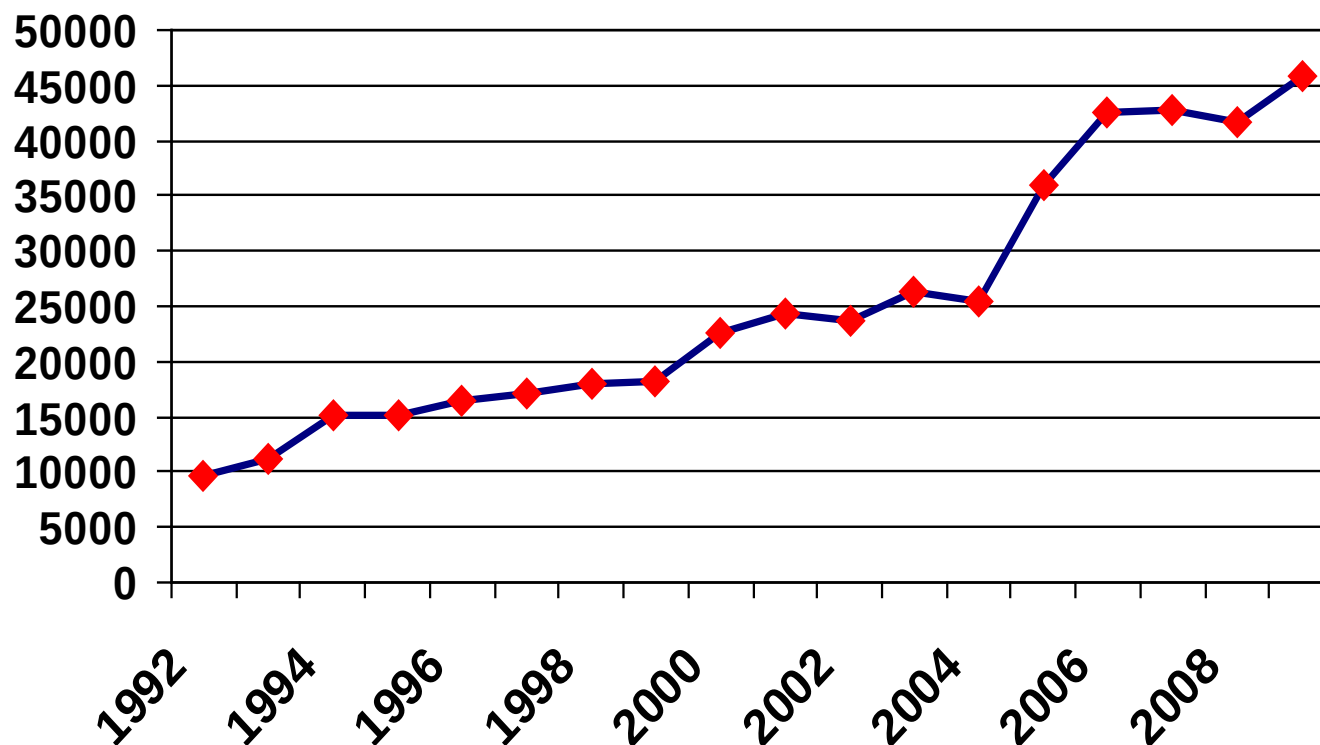


All Plastic: Percent of Wastestream and Recycling Tonnage

Composition
Percentage

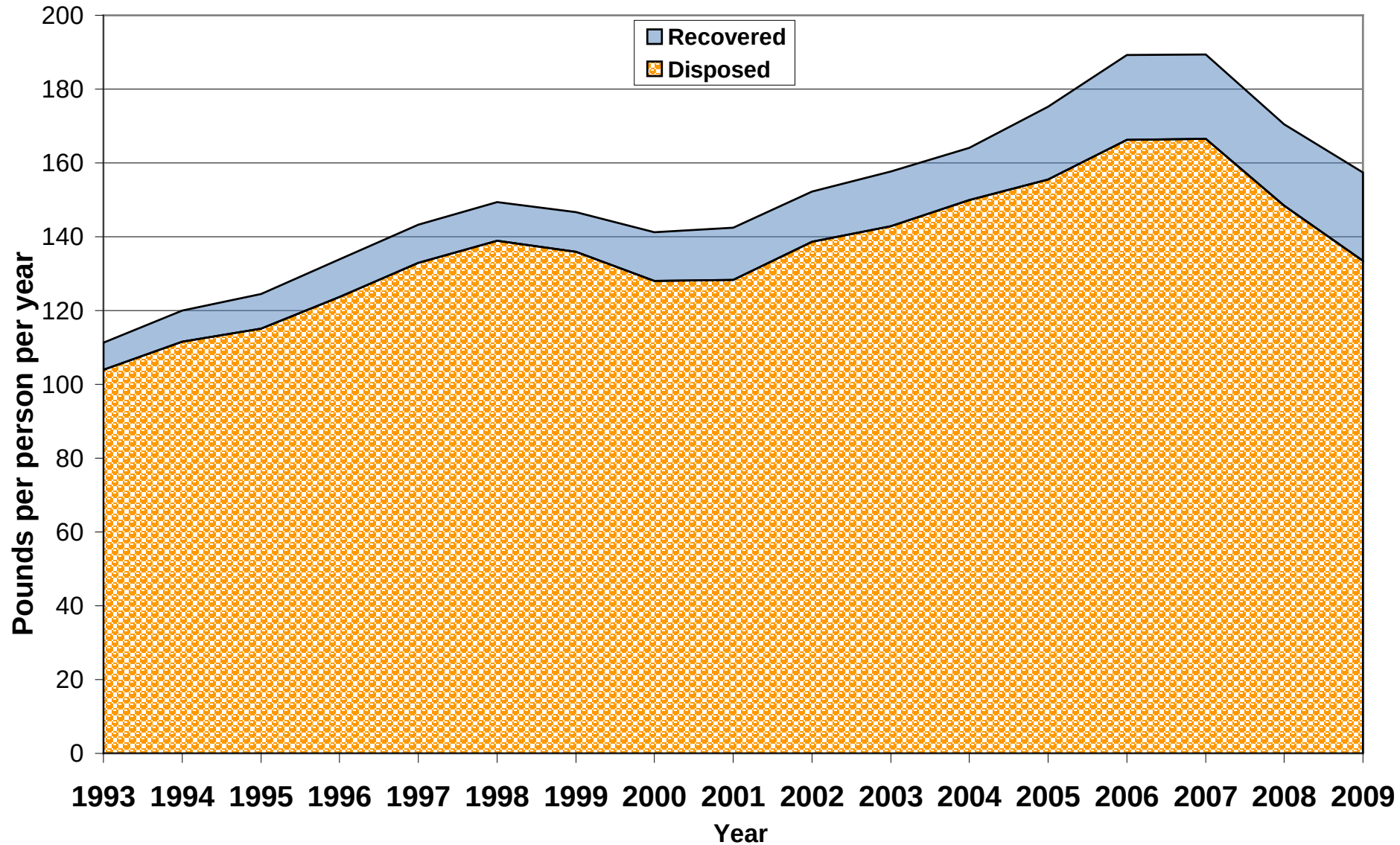
1993-95	1998	2000	2002	2005-06	2009-10
8.84%	10.45%	9.70%	10.95%	11.24%	11.56%

Recovery
Tons



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Plastic Recovery and Disposal Per Capita



Oregon Waste Composition Study 2009/2010

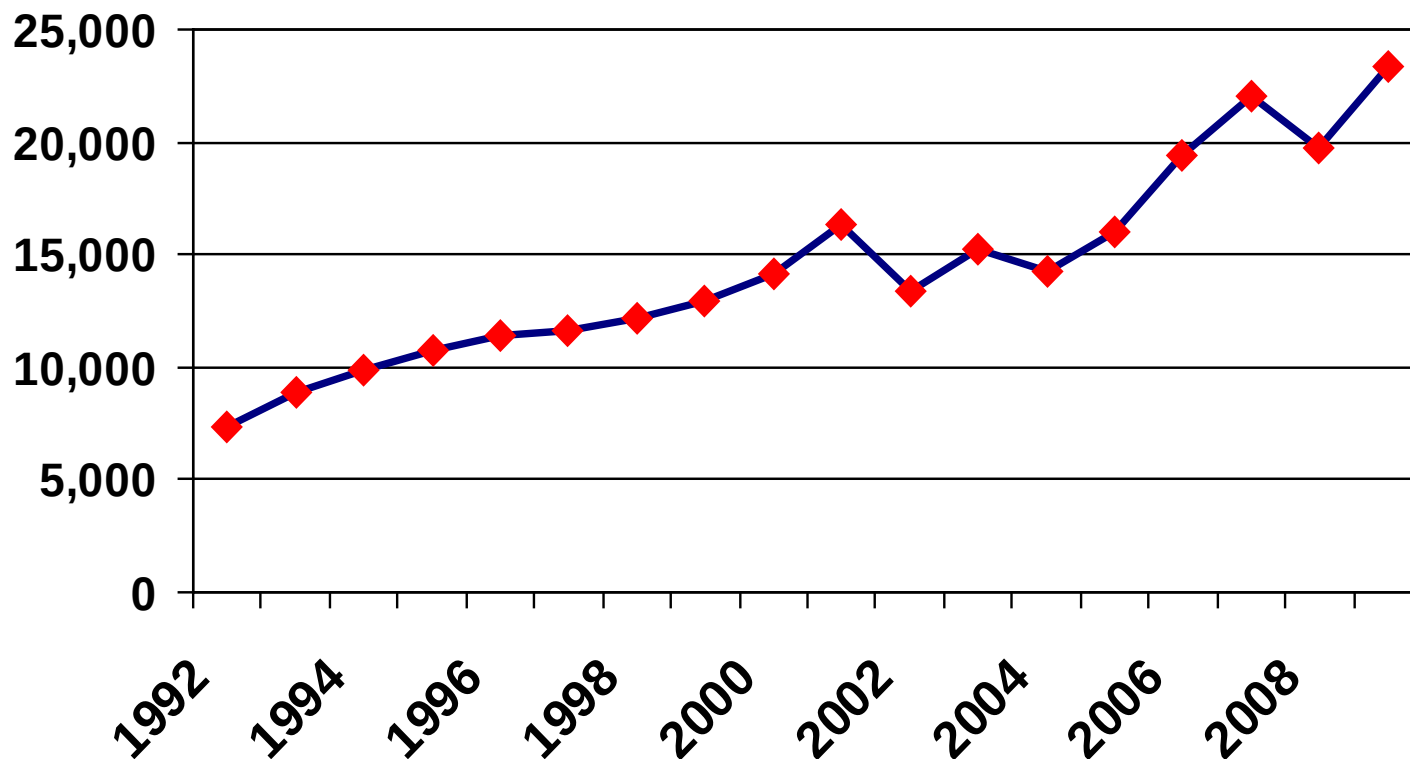


Rigid Plastic Containers: Percent of Wastestream and Recycling/Disposal Tonnage

Composition
Percentage

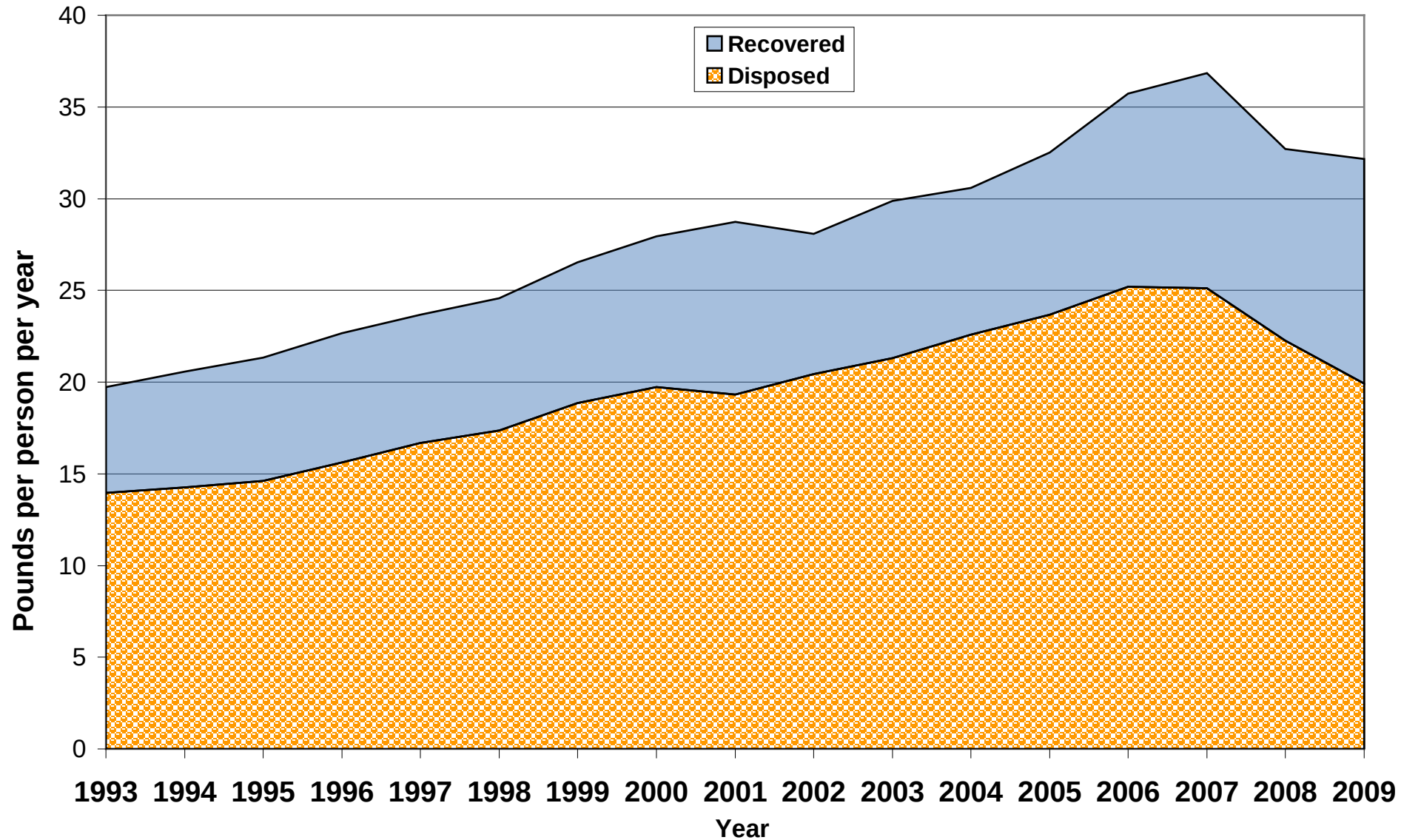
1993 - 95	1998	2000	2002	2005
1.11%	1.34%	1.51%	1.67%	1.76%

Recovery /
Disposal
Tons



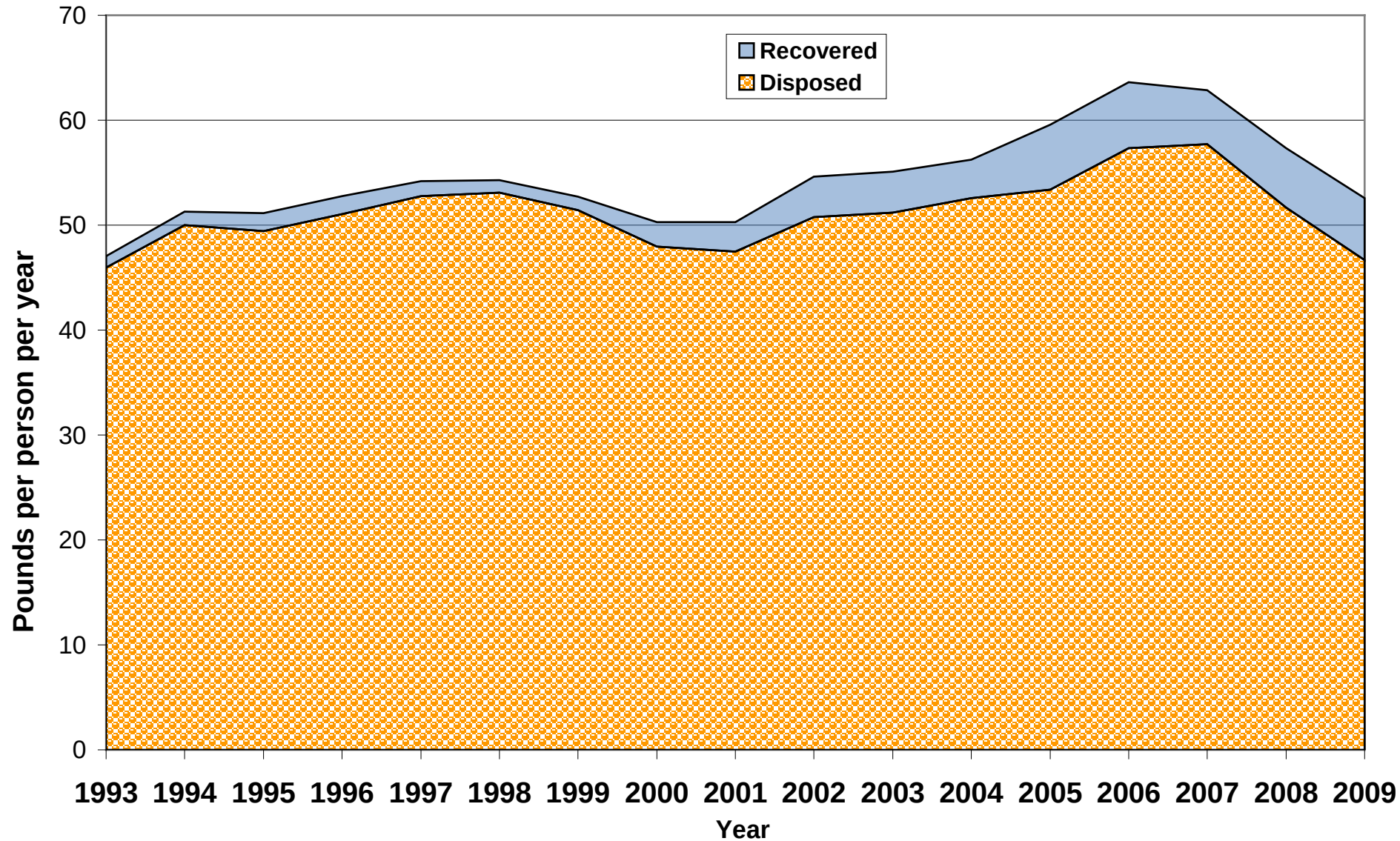
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Rigid Plastic Container Recovery and Disposal Per Capita



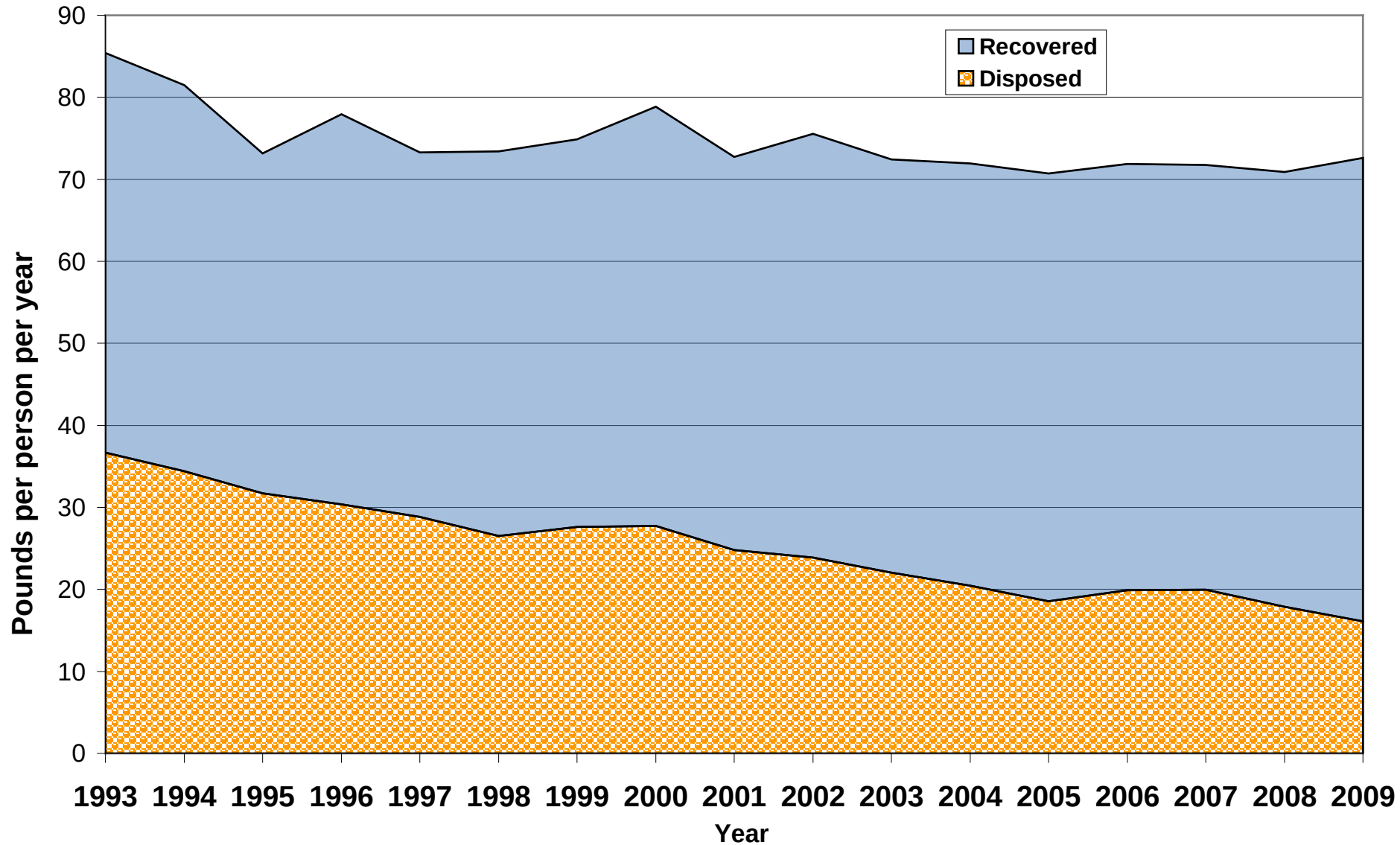
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Film Plastic Recovery and Disposal Per Capita



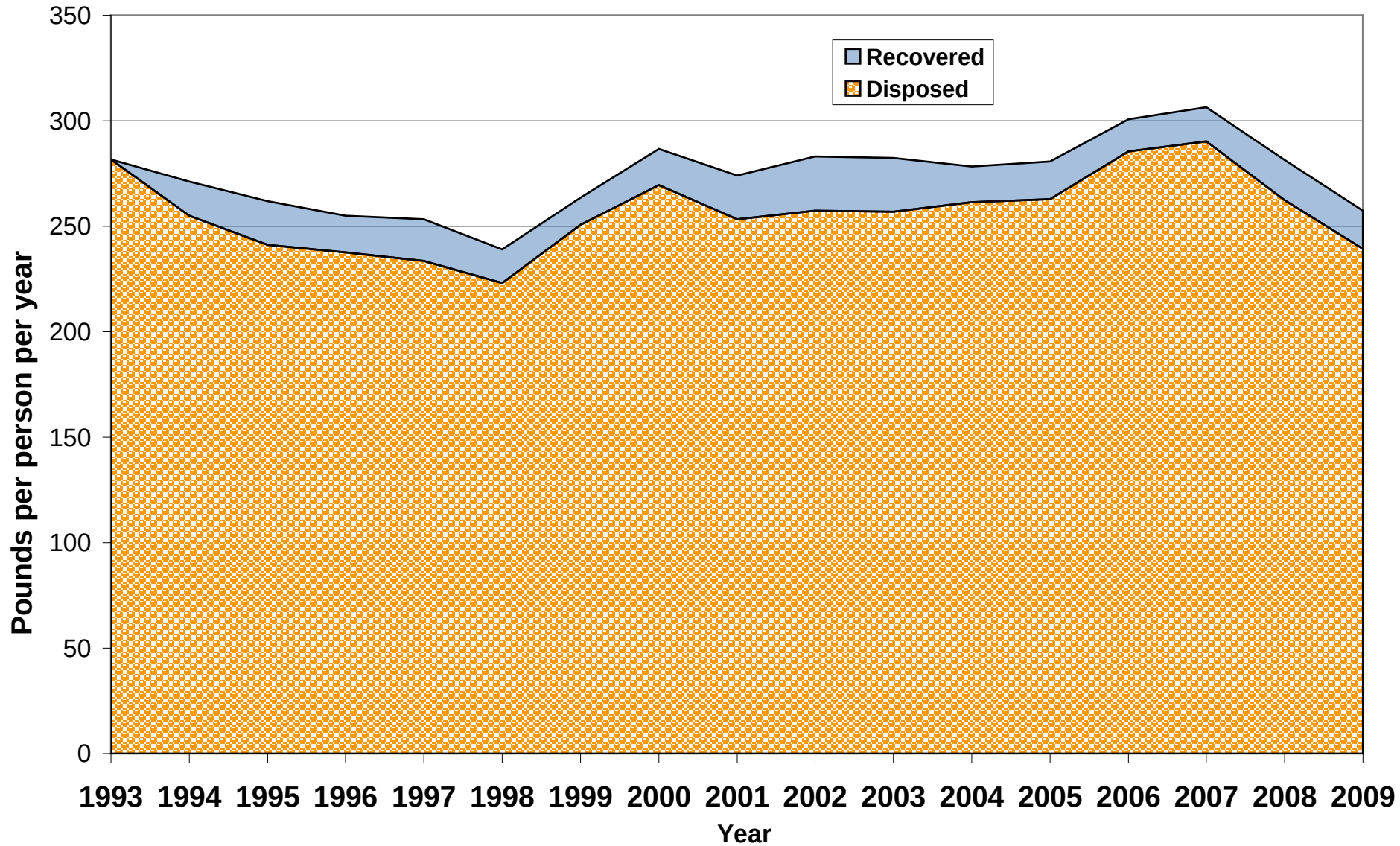
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Container Glass Recovery and Disposal Per Capita



Oregon Waste 2009/2010

Food Waste Recovery and Disposal Per Capita

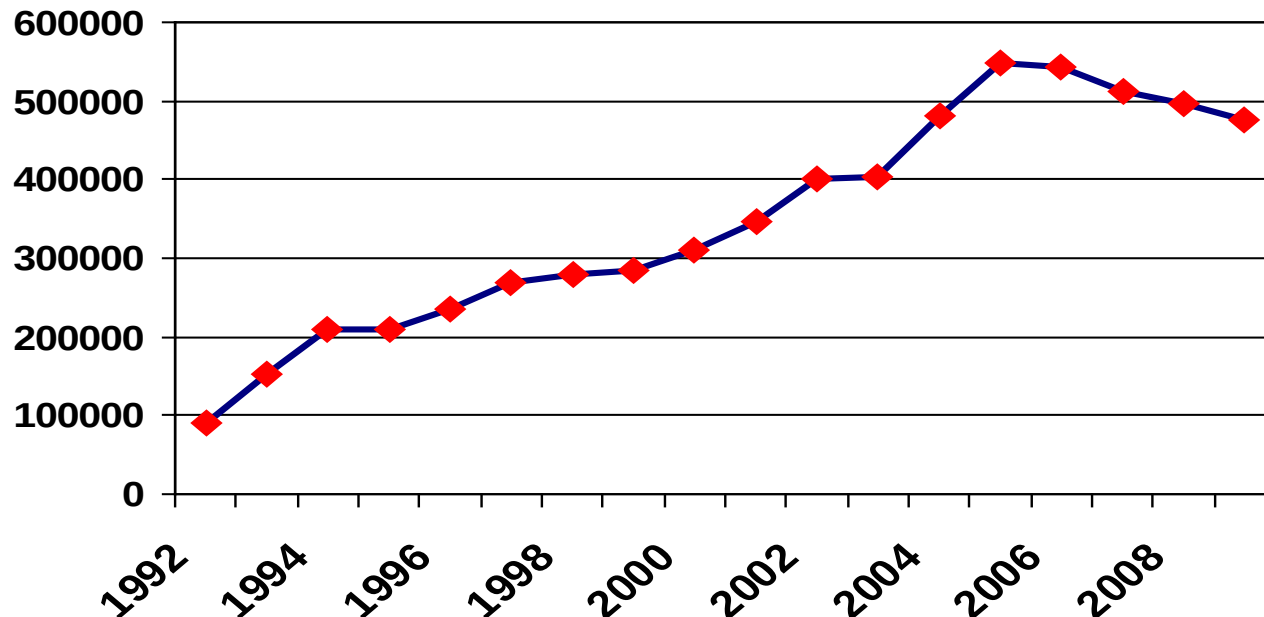


Oregon Waste Composition Study 2009/2010

Yard Debris: Percent of Wastestream and Recycling Tonnage

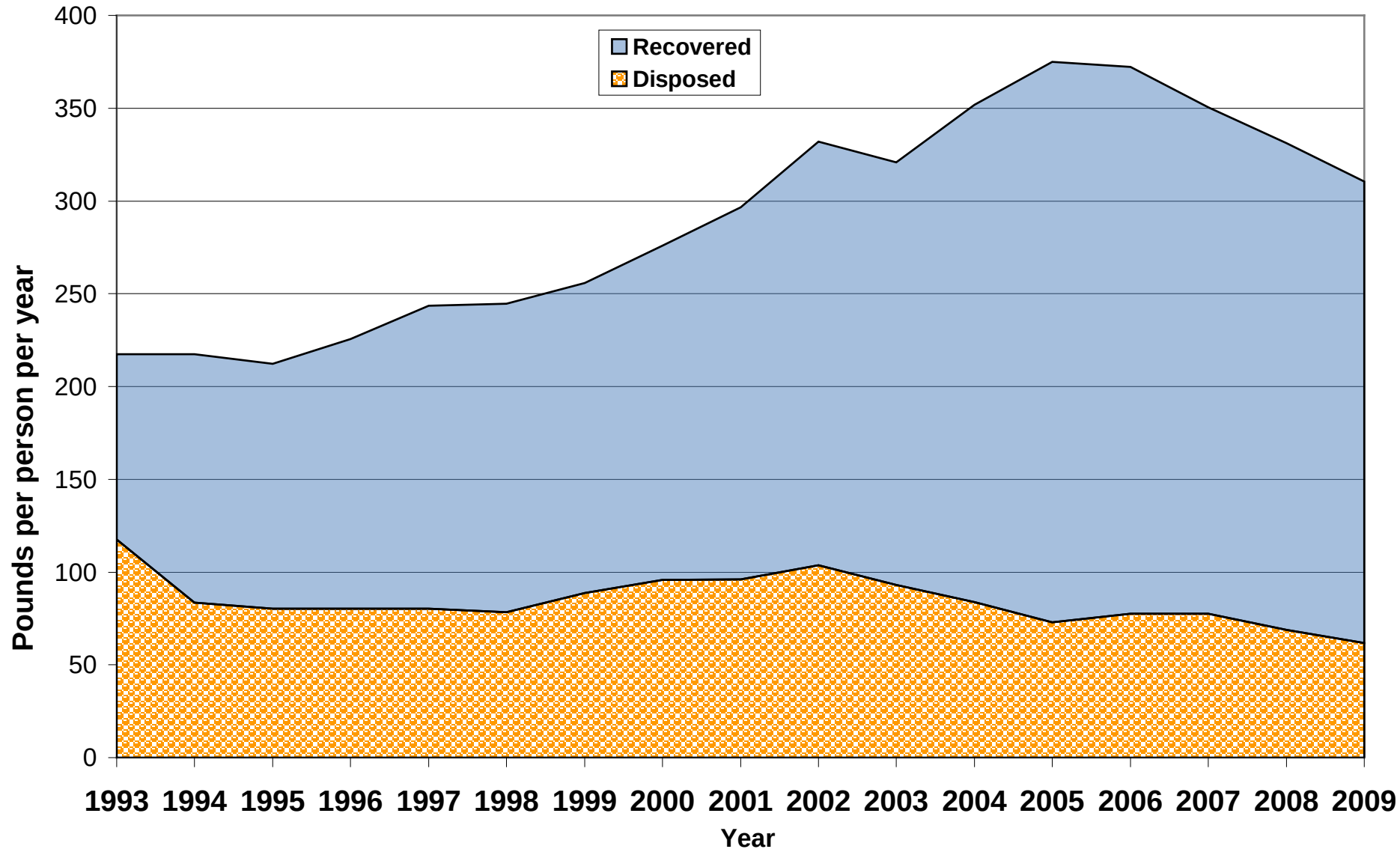
	1986/87	1989/90	1993/94	1998	2000	2002	2005/06	2009/10
Metro	10.50%	11.31%	5.10%	3.76%	4.49%	4.51%	3.16%	2.01%
		1992/93	1994/95	1998	2000	2002	2005/06	2009/10
Rest of Oregon		9.42%	5.80%	5.85%	7.05%	8.12%	5.13%	6.45%

Recovery
Tons



Oregon Waste 2009/2010

Yard Debris Recovery and Disposal Per Capita



Oregon Waste Composition Study 2009/2010

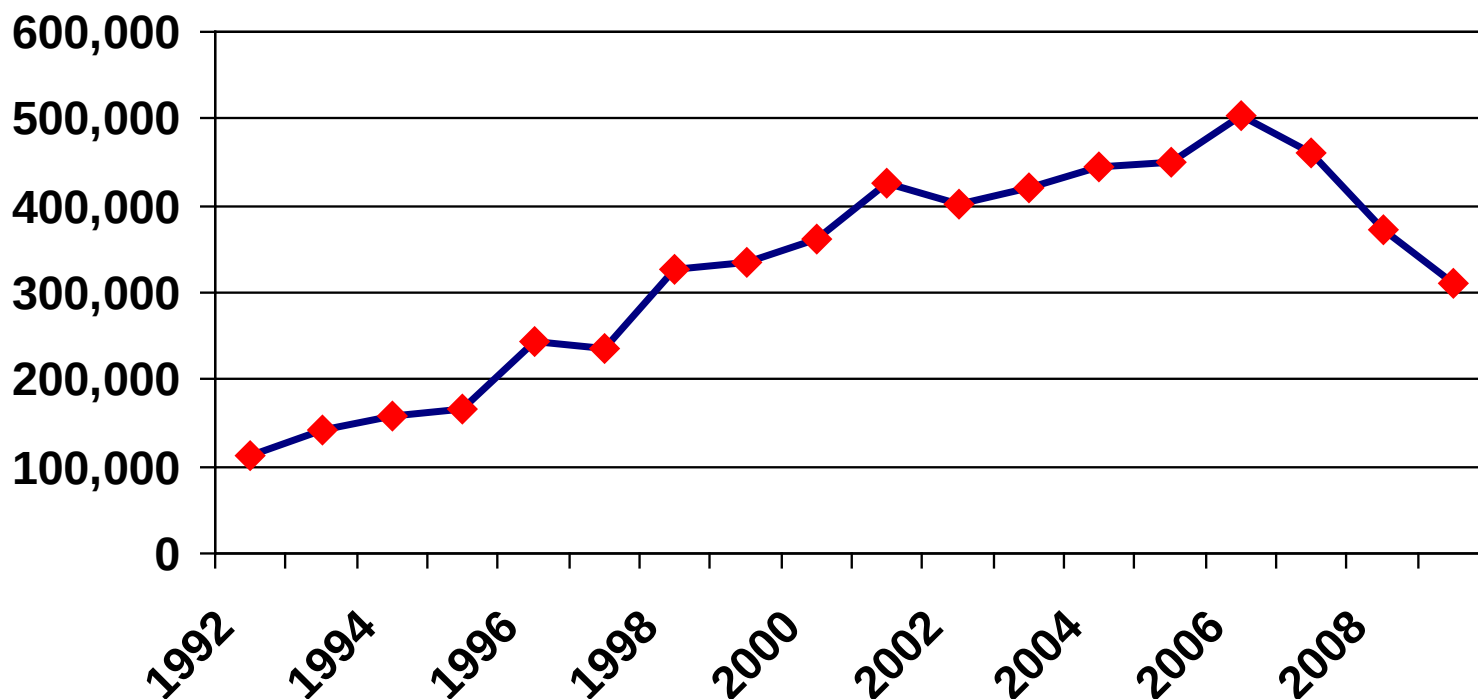


Composition
Percentage

Wood: Percent of Wastestream and Recycling Tonnage

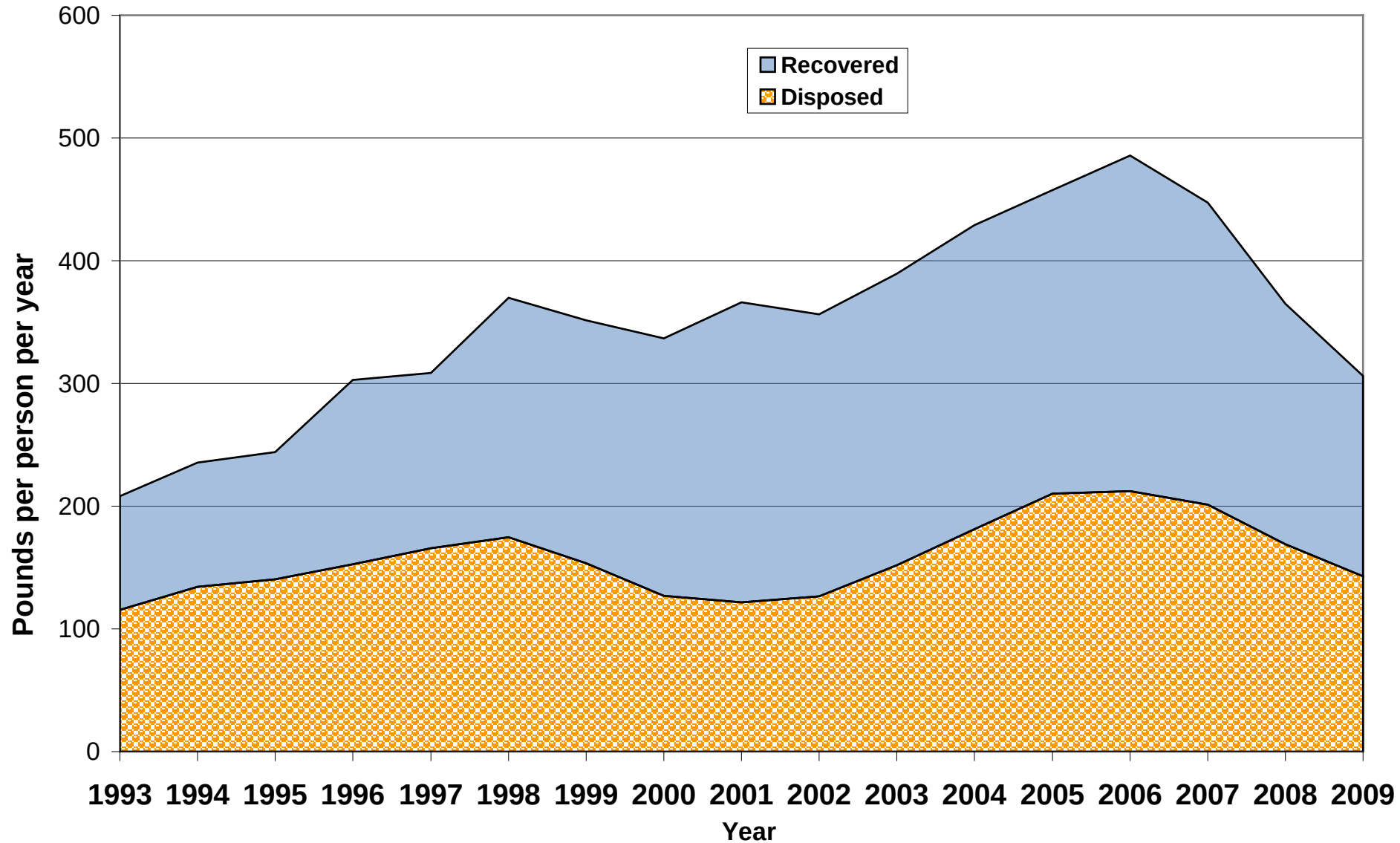
1993-95	1998	2000	2002	2005-06	2009-10
9.09%	11.18%	8.81%	8.72%	13.57%	11.51%

Recovery
Tons



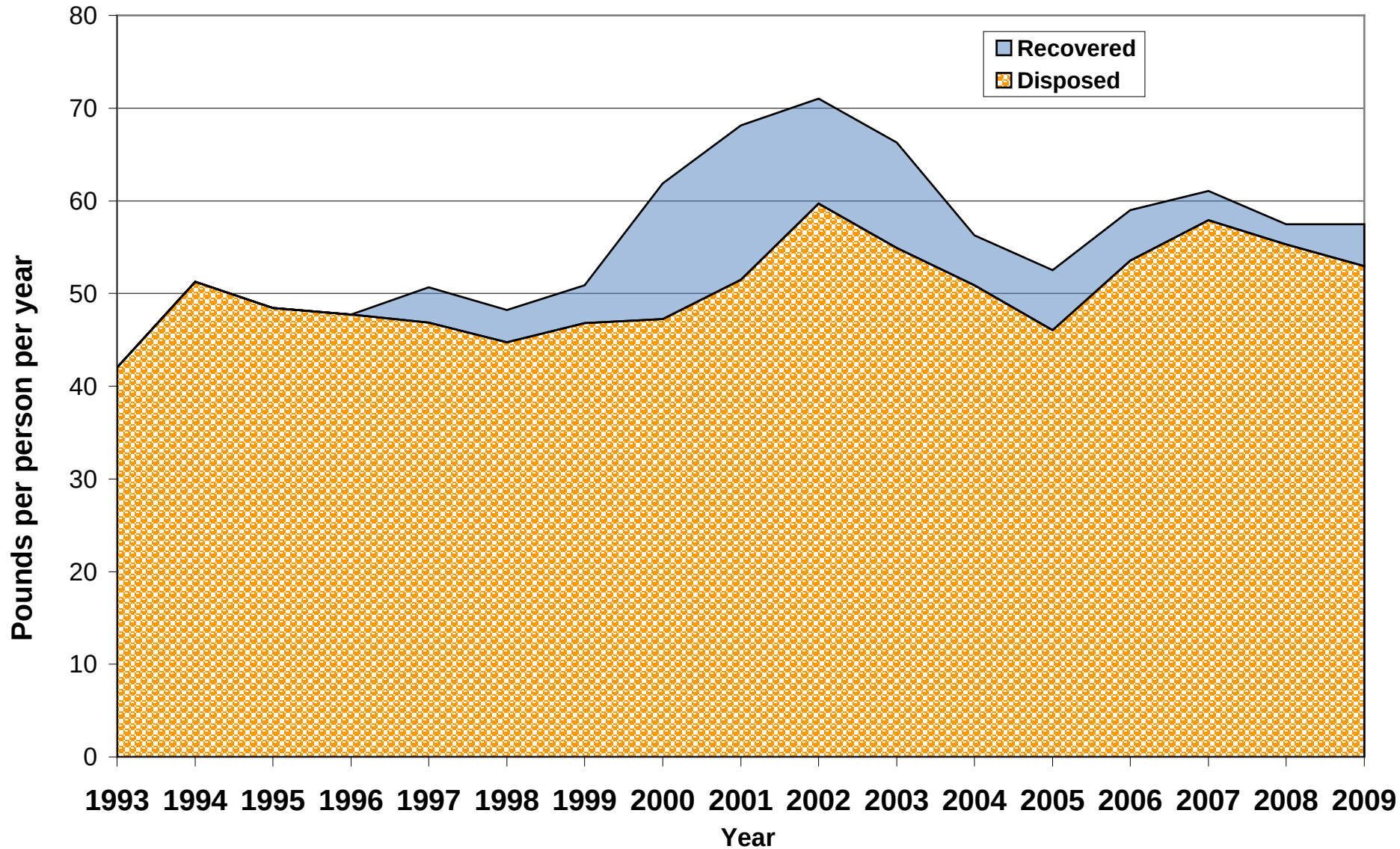
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Wood Recovery and Disposal Per Capita



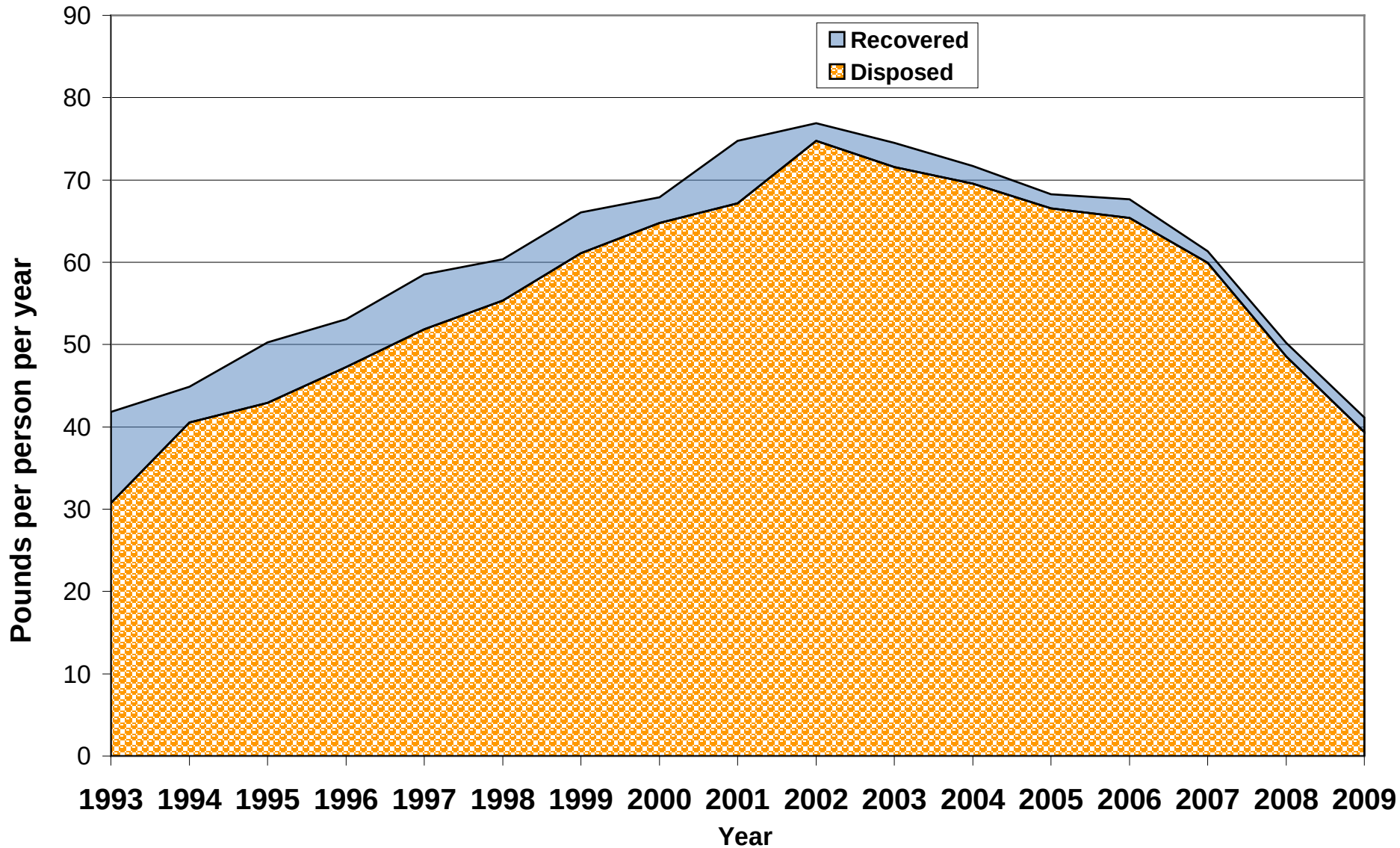
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Asphalt Roofing Recovery and Disposal Per Capita



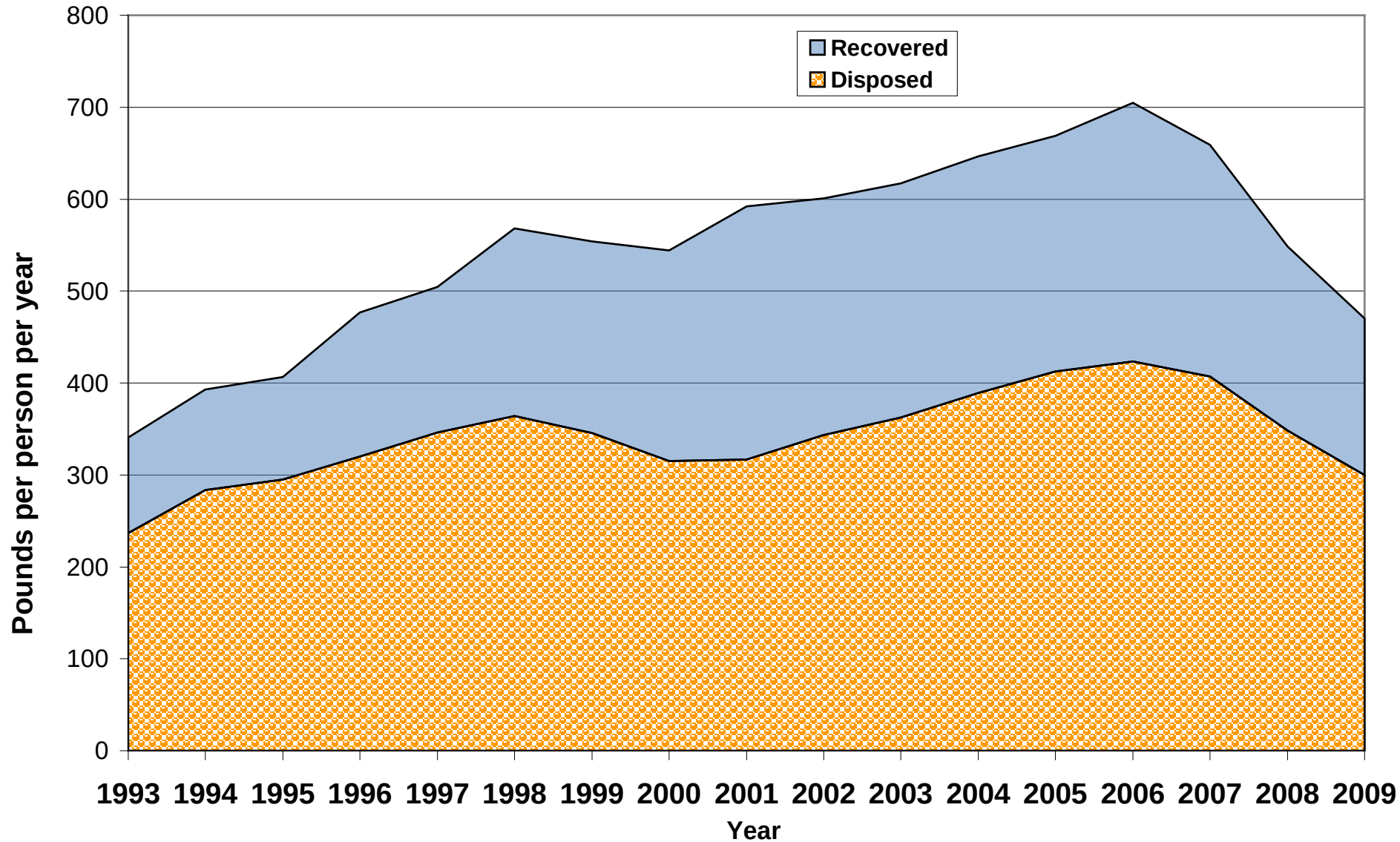
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Gypsum Recovery and Disposal Per Capita



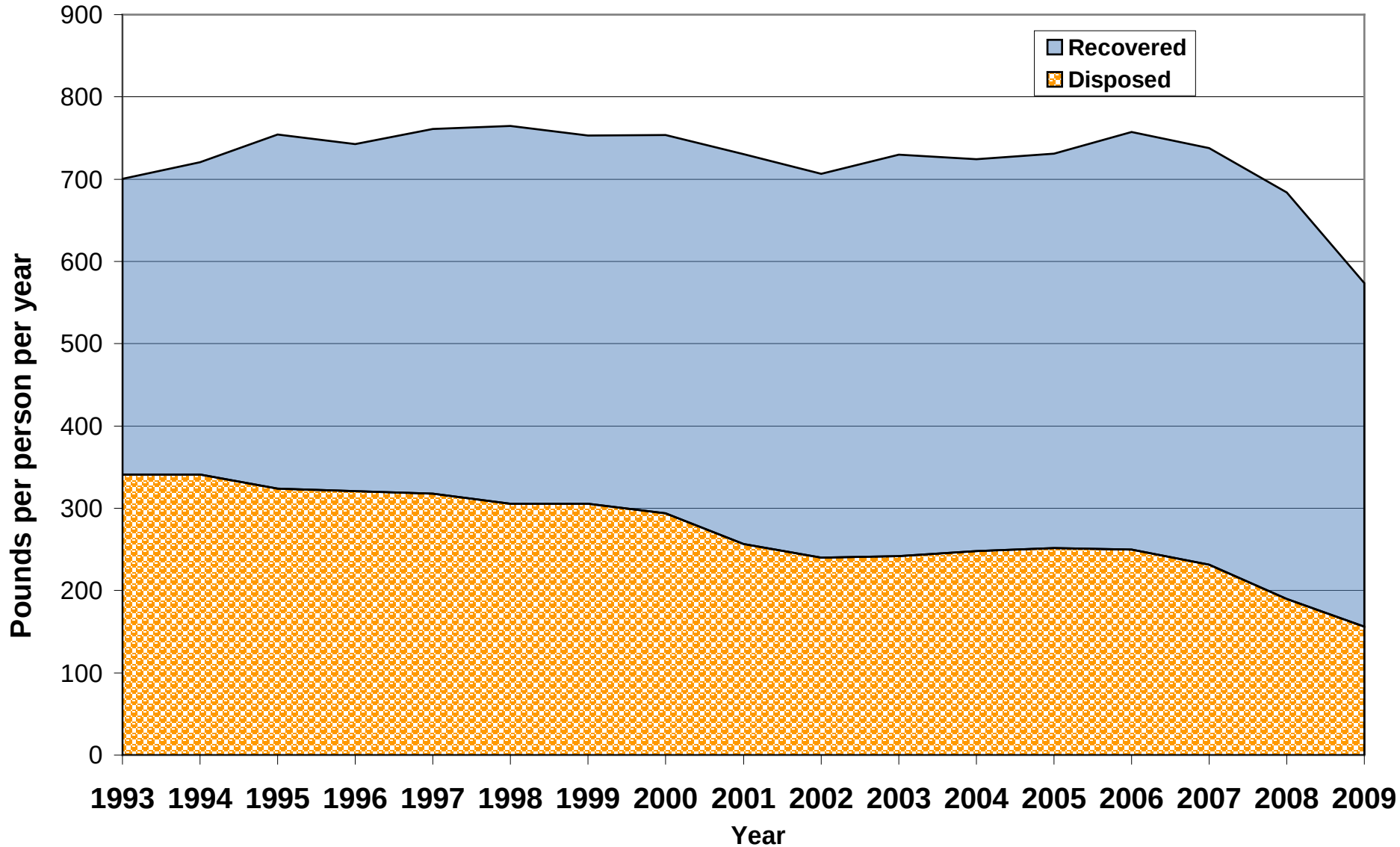
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Selected Construction Materials Recovery and Disposal Per Capita



Oregon Waste 2009/2010

Common Recyclable Materials Recovery and Disposal Per Capita





Computers Disposed 1998-2009 **Percent of Wastestream and** **90% Confidence Intervals** (field data only)

Year	Percent	90% Confidence Interval
1998	0.25%	0.13% to 0.37%
2000	0.68%	0.43% to 0.99%
2002	0.57%	0.35% to 0.83%
2005-2006	0.67%	0.41% to 0.98%
2009-2010	0.18%	0.08% to 0.30%



Major Categories Disposed 1998-2009 (field data only)

Material	2009	2005	2002	1998
Paper	16.99%	19.64%	20.62%	24.35%
Plastic	11.56%	11.24%	10.95%	10.45%
Yard Debris	4.61%	4.30%	6.58%	4.92%
Wood/Lumber	11.51%	13.60%	8.72%	11.18%
Food	16.99%	14.92%	15.60%	14.30%
Other Organics (Burnables)	15.40%	15.14%	14.23%	13.59%
Glass	1.95%	1.57%	2.32%	2.77%
Metals	6.98%	7.68%	7.45%	7.31%
Other Inorganics	11.09%	11.43%	12.78%	10.32%
Hazardous Materials	0.45%	0.48%	0.76%	0.81%



Summary Categories Disposed 2009/2010

Group	Field %	Corrected
Products	52.5%	48.4%
Packaging	18.4%	15.7%
Non-manufactured incl. food	29.2%	30.0%
Recyclable (including energy)	37.1%	34.7%
Compostable – not Recyclable	27.4%	25.8%
Not Recoverable	35.5%	33.7%
Organic (burnable)	79.8%	73.8%
Inorganic	20.2%	20.3%
(water & residue for all 3)	---	5.9%

Oregon Waste Composition Study 2009/2010



Top 12 Items All Substreams 2009/2010

	Material	Corrected	Conf. Int.	Field%
1	All food	17.62%	(16.65 - 18.60%)	16.99%
2	Asphalt Roofing -Recyclable	3.53%	(2.78 - 4.27%)	3.53%
3	Other rigid plastic products	3.24%	(2.86 - 3.64%)	3.24%
4	Pet Litter / Animal Feces	3.10%	(2.65 - 3.65%)	3.10%
5	Other compostable nonrecyclable paper	2.99%	(2.76 - 3.26%)	5.23%
6	Cardboard	2.80%	(2.53 - 3.10%)	3.26%
7	Disposable Diapers	2.76%	(2.43 - 3.17%)	2.76%
8	Unpainted lumber	2.75%	(2.23 - 3.25%)	2.96%
9	Carpet / rugs	2.60%	(2.00 - 3.23%)	2.63%
10	Plastic film- nonrecyclable	2.38%	(2.20 - 2.61%)	3.70%
11	Hogged fuel lumber	2.16%	(1.68 - 2.68%)	2.23%
12	Leaves / weeds	2.12%	(1.65 - 2.59%)	2.04%

Oregon Waste Composition Study 2009/2010



Top 12 Items Residential Route Trucks 2009/2010

	Material	Corrected	90% Conf. Int.	Field%
1	All food	28.87%	(26.91 - 30.70%)	27.85%
2	Pet Litter / Animal Feces	7.96%	(6.58 - 9.58%)	7.96%
3	Disposable Diapers	5.82%	(5.03 - 6.68%)	5.82%
4	Other compostable nonrecyclable paper	3.75%	(3.44 - 4.06%)	6.55%
5	Plastic film- nonrecyclable	3.26%	(2.99 - 3.57%)	5.06%
6	Grass clippings	3.16%	(1.46 - 4.90%)	3.22%
7	Leaves / weeds	2.66%	(1.91 - 3.46%)	2.56%
8	Other Textiles	2.57%	(2.11 - 3.04%)	2.92%
9	Other rigid plastic products	2.21%	(1.67 - 2.89%)	2.21%
10	Boxboard & Low grade Not OK With ONP	2.04%	(1.78 - 2.31%)	2.47%
11	Mixed Textile / Material	1.80%	(1.46 - 2.15%)	1.87%
12	Junk Mail & Low grade OK With ONP	1.57%	(1.30 - 1.80%)	1.70%



Top 12 Items Commercial Route Trucks 2009/2010

	Material	Corrected	90% Conf. Int	Field %
1	All food	25.15%	(21.99 - 27.90%)	24.26%
2	Other compostable nonrecyclable paper	6.13%	(5.18 - 7.17%)	10.72%
3	Other rigid plastic products	3.85%	(2.43 - 5.31%)	3.85%
4	Plastic film- other nonrecyclable	3.56%	(3.12 - 4.09%)	5.54%
5	Cardboard	3.31%	(2.75 - 3.91%)	3.86%
6	Non-compostable, non-recyclable paper	3.24%	(1.87 - 5.11%)	3.79%
7	Disposable diapers	2.72%	(1.79 - 4.01%)	2.72%
8	Other misc. inorganics	2.36%	(1.10 - 3.71%)	2.26%
9	Boxboard & low grade not OK with ONP	2.01%	(1.62 - 2.40%)	2.42%
10	Other textiles	1.98%	(1.39 - 2.67%)	2.24%
11	Other ferrous metal	1.89%	(1.12 - 2.62%)	1.86%
12	Mixed metal / material	1.86%	(0.90 - 2.92%)	1.86%



Top 12 Items Loose Drop Boxes 2009/2010

	Material	Corrected	90% Conf. Int.	Field%
1	Carpet / rugs	7.15%	(3.29 - 11.93%)	7.23%
2	All food	7.00%	(4.73 - 9.57%)	6.75%
3	Wood pallets / crates	6.29%	(4.50 - 8.29%)	6.29%
4	Unpainted lumber	5.18%	(2.76 - 7.77%)	5.58%
5	Asphalt roofing - recyclable	4.27%	(1.41 - 7.57%)	4.27%
6	Other rigid plastic products	3.79%	(2.53 - 5.24%)	3.79%
7	Non-compostable, non-recyclable paper	3.78%	(2.10 - 5.54%)	4.42%
8	Other ferrous metal	3.12%	(1.93 - 4.51%)	3.09%
9	Hogged fuel lumber	3.09%	(0.57 - 6.13%)	3.20%
10	Painted lumber	3.06%	(0.73 - 5.85%)	3.24%
11	Cardboard	3.01%	(2.30 - 3.86%)	3.51%
12	Gypsum wallboard OLD	2.53%	(1.16 - 3.92%)	2.55%

Oregon Waste Composition Study 2009/2010



Top 12 Items Mixed Waste Processing Residue 2009/2010

	Material	Corrected	90% Conf. Int.	Field%
1	Asphalt Roofing Recyclable	16.89%	(13.10 - 20.88%)	16.89%
2	Gypsum wallboard OLD	9.56%	(7.20 - 12.07%)	9.64%
3	Hogged fuel lumber	5.85%	(4.61 - 7.20%)	6.06%
4	Carpet / rugs	4.59%	(2.68 - 6.62%)	4.64%
5	Unpainted lumber	4.58%	(3.84 - 5.37%)	4.97%
6	Other rigid plastic products	4.53%	(3.66 - 5.46%)	4.53%
7	Other misc. inorganics	3.84%	(2.71 - 5.13%)	3.68%
8	Soil / Sand / Dirt	3.81%	(2.59 - 5.56%)	3.74%
9	Other textiles	2.71%	(1.78 - 3.82%)	3.07%
10	Rock, concrete	2.66%	(1.81 - 3.61%)	2.64%
11	Non-compostable, non-recyclable paper	2.57%	(1.84 - 3.38%)	3.01%
12	Cardboard	2.27%	(1.90 - 2.69%)	2.65%

Oregon Waste Composition Study 2009/2010



Top 12 Items Self-Haul 2009/2010

	Material	Corrected	90% Conf. Int.	Field%
1	Unpainted lumber	7.11%	(5.12 - 9.15%)	7.63%
2	Asphalt roofing - recyclable	6.78%	(4.10 - 9.58%)	6.78%
3	Carpet / rugs	4.58%	(2.86 - 6.51%)	4.63%
4	Hogged fuel lumber	4.32%	(2.72 - 6.04%)	4.47%
5	Painted lumber	4.21%	(2.79 - 5.75%)	4.45%
6	Other rigid plastic products	4.09%	(3.17 - 5.19%)	4.09%
7	All food	4.04%	(2.78 - 5.55%)	3.89%
8	Furniture (mixed material)	3.96%	(2.23 - 6.15%)	4.16%
9	Other misc. inorganics	3.79%	(2.02 - 5.82%)	3.63%
10	Gypsum wallboard OLD	3.74%	(1.99 - 5.79%)	3.77%
11	Wood furniture	3.66%	(2.02 - 5.56%)	3.66%
12	Other ferrous metal	3.11%	(2.24 - 3.94%)	3.07%



Land Quality

Solid Waste

DEQ Home > Land Quality > Solid Waste > Disposal > Waste Composition > 2009/2010 Study (Preliminary)

Sign up to receive e-mail updates from the Solid Waste Program.

Disposal

Waste Composition Study

Recycling Characterization and Composition Study: 2009/2010

In June 2009, Oregon Department of Environmental Quality began field work on a year-long statewide waste composition study of Portland. Field work for the study was conducted by Sky Valley Associates, and involved collecting and sorting 999 samples from transfer stations, and mixed solid waste processing facilities throughout an entire calendar year. These samples were sorted by beverage type and by container material type. In all, 113.9 tons of solid waste were sorted, and 23,148 beverage containers were identified.

Results from the study have been compiled, but the final report has not yet been completed. The table below gives the percentage of waste by material type.

- [Table A2: Statewide Waste Composition Results - 2009/2010. PDF](#)

Detailed information on the composition of waste from different parts of the state for different sources is given in Excel spreadsheets.

- [Statewide results XLS](#)
- [Metro Tri-county area XLS](#)
- [Downstate \(all except Metro area\) XLS](#)
- [City of Portland XLS](#)
- [Rest of Metro Area XLS](#)
- [Marion County XLS](#)
- [Lane County XLS](#)
- [City of Eugene XLS](#)
- [Rest of Lane County XLS](#)
- [Rest of Oregon \(all Oregon except Metro area and Marion and Lane Counties\) XLS](#)
- [Summary By Jurisdiction XLS](#)

Prevention and Reuse
Recovery and Compost
Disposal
Educational Materials
Resources
Solid Waste Forum and News
Conferences, Training & Workshops

Oregon Waste Composition Study 2009/2010

	A	B	C	D	E
1					
2	Oregon 2009/2010 Waste Composition Study: Excel results files				
3	This is one of a series of files giving detailed results of the waste composition study				
4					
5	Results are given in a series of sheets or tabs. This file contains the following tabs:				
6	P09TOT	Oregon - All Substreams			
7	P09RES	Oregon Residential Route Trucks			
8	P09COM	Oregon Commercial Route Trucks			
9	P09MIX	Oregon Mixed Route Trucks			
10	P09ROC	Oregon Compacting Drop Boxes			
11	P09ROD	Oregon Loose Drop Boxes			
12	P09SHR	Oregon Self Haul			
13	P09MRF	Oregon Mixed Waste Processing Residue			
14	P09SPH	Oregon Special Purpose - Hauler			
15	P09SPS	Oregon Special Purpose - Self Haul			
16	P09TOTC	Oregon Cold Seasons (October - March)			
17	P09TOTW	Oregon Warm Seasons (April - September)			
18					
19	Each of these separate tabs contains the following columns:				
20					
21	A: Material	Material name (or group of materials)			
22	B: Field Results	Composition percent for this material as measured in the field			
23	D: Contam. Corrected	Composition based on "clean/dry" correction for each material			
24	F: Clean Tons	Total tons disposed (Contam.-Corrected percent multiplied by total substream tons)			
25	H: # Present/#Samples	Number of samples where the material was present/Total samples			
26	I: % Present	Percent of samples where the material was present			
27					
28	Subsequent columns give the confidence interval information from columns C, E, and G, formatted				
29	as numbers rather than text				
30					
31	For comparisons to waste composition studies outside of Oregon, use the field results, as few other studies				
32	measure contamination levels of their sorted wastes.				
33					
34	Explanation of material name formatting				
35	Material group names in bold are sums of some of the individual materials below				
36	Material group names in italics are recombination of some of the individual materials above.				
37	Materials that are neither bold nor italics are the individual materials sorted and measured in the field.				
38					

Oregon Waste Composition Study 2009/2010

	A	B	C	D	E	F	G	H	
1	Oregon - All Substreams				Total Tons ==>	2,596,340			
2	Material	Field Results	Field Results 90% Conf. Interval	Contam.- Corrected	Contam. Corrected 90% Conf. Interval	Clean Tons	Clean Tons 90% Conf. Interval	# Present / # Samps	%
3	TOTAL PAPER	16.99%	(16.34 - 17.67%)	13.16%	(12.49 - 13.92%)	341,781	(324,162 - 361,537)	838/ 950	
4	Packaging Paper	8.05%	(7.53 - 8.60%)	6.79%	(6.26 - 7.35%)	176,322	(162,576 - 190,918)	829/ 950	
5	Cardboard	3.26%	(3.01 - 3.58%)	2.80%	(2.53 - 3.10%)	72,612	(65,651 - 80,475)	786/ 950	
6	Cardboard/brown bags 1 foot +	2.99%	(2.74 - 3.29%)	2.56%	(2.31 - 2.85%)	66,483	(59,899 - 74,072)	719/ 950	
7	Cardboard/brown bags <1 foot	0.28%	(0.25 - 0.31%)	0.24%	(0.21 - 0.27%)	6,129	(5,435 - 6,907)	454/ 950	
8	Low grade Not OK With ONP	1.92%	(1.78 - 2.06%)	1.59%	(1.42 - 1.77%)	41,288	(36,961 - 45,847)	648/ 950	
9	Polycoats +bleached drink boxes	0.27%	(0.21 - 0.35%)	0.23%	(0.17 - 0.29%)	5,900	(4,491 - 7,592)	416/ 950	
10	Polycoated paper excluding cups	0.10%	(0.09 - 0.12%)	0.09%	(0.07 - 0.12%)	2,428	(1,920 - 3,055)	277/ 950	
11	Milk cartons/Drink boxes	0.17%	(0.12 - 0.24%)	0.13%	(0.09 - 0.19%)	3,472	(2,302 - 5,036)	350/ 950	
12	Gable top (milk) cartons	0.15%	(0.10 - 0.22%)	0.12%	(0.07 - 0.18%)	3,060	(1,922 - 4,611)	311/ 950	
13	Aseptic drink boxes	0.02%	(0.01 - 0.02%)	0.02%	(0.01 - 0.02%)	412	(233 - 592)	134/ 950	
14	Nonrecyclable (packaging) paper	2.60%	(2.22 - 3.01%)	2.18%	(1.80 - 2.57%)	56,523	(46,694 - 66,830)	689/ 950	
15	Waxed corrugated cardboard	0.17%	(0.09 - 0.28%)	0.10%	(0.05 - 0.16%)	2,611	(1,313 - 4,257)	33/ 950	
16	Non-compost, non-recycl. paper	2.43%	(2.05 - 2.84%)	2.08%	(1.71 - 2.48%)	53,911	(44,344 - 64,336)	679/ 950	
17	Other (Non-packaging) Paper	8.94%	(8.48 - 9.42%)	6.37%	(5.98 - 6.82%)	165,458	(155,332 - 177,132)	707/ 950	
18	Hi grade paper	0.91%	(0.76 - 1.08%)	0.88%	(0.74 - 1.06%)	22,781	(19,194 - 27,577)	497/ 950	
19	Newspaper	0.86%	(0.77 - 0.95%)	0.72%	(0.62 - 0.82%)	18,625	(16,212 - 21,220)	519/ 950	
20	Magazines	0.67%	(0.58 - 0.77%)	0.58%	(0.48 - 0.70%)	15,021	(12,394 - 18,181)	358/ 950	
21	Low grade OK With ONP	1.19%	(1.06 - 1.33%)	1.10%	(0.90 - 1.27%)	28,534	(23,495 - 32,999)	533/ 950	
22	Hardcover books	0.08%	(0.06 - 0.12%)	0.11%	(0.06 - 0.17%)	2,770	(1,645 - 4,524)	56/ 950	
23	Other compostable nonrecycl. paper	5.23%	(4.90 - 5.58%)	2.99%	(2.76 - 3.26%)	77,728	(71,606 - 84,670)	628/ 950	
24	Low-grade paper combined	3.36%	(3.17 - 3.56%)	2.93%	(2.71 - 3.16%)	76,063	(70,436 - 81,953)	708/ 950	
25	Non-recycable paper combined	7.93%	(7.49 - 8.36%)	5.26%	(4.86 - 5.70%)	136,679	(126,184 - 147,873)	736/ 950	
26	All recyclable paper	9.06%	(8.66 - 9.52%)	7.90%	(7.42 - 8.44%)	205,102	(192,673 - 219,215)	823/ 950	
27	TOTAL PLASTIC	11.57%	(11.03 - 12.11%)	9.83%	(9.31 - 10.39%)	255,237	(241,745 - 269,837)	890/ 950	
28	Plastic Packaging	5.84%	(5.57 - 6.11%)	4.50%	(4.24 - 4.78%)	116,904	(110,191 - 124,207)	841/ 950	
29	Rigid Plastic Containers (RPCs)	1.86%	(1.75 - 1.97%)	1.47%	(1.36 - 1.58%)	38,100	(35,363 - 40,974)	737/ 950	
30	Deposit plastic bottles	0.06%	(0.05 - 0.07%)	0.05%	(0.04 - 0.06%)	1,255	(1,066 - 1,473)	403/ 950	
31	Plastic bags	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
32	Plastic film	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
33	Plastic mulch	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
34	Plastic pipe	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
35	Plastic sheet	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
36	Plastic tubing	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
37	Plastic wire	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
38	Plastic yarn	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
39	Plastic rope	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
40	Plastic cord	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
41	Plastic twine	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
42	Plastic netting	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
43	Plastic mesh	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
44	Plastic geotextile	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
45	Plastic geogrid	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
46	Plastic geomembrane	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
47	Plastic geotextile	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
48	Plastic geogrid	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
49	Plastic geomembrane	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
50	Plastic geotextile	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
51	Plastic geogrid	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
52	Plastic geomembrane	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
53	Plastic geotextile	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
54	Plastic geogrid	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
55	Plastic geomembrane	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
56	Plastic geotextile	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
57	Plastic geogrid	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
58	Plastic geomembrane	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
59	Plastic geotextile	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
60	Plastic geogrid	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
61	Plastic geomembrane	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
62	Plastic geotextile	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
63	Plastic geogrid	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
64	Plastic geomembrane	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
65	Plastic geotextile	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
66	Plastic geogrid	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
67	Plastic geomembrane	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
68	Plastic geotextile	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
69	Plastic geogrid	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
70	Plastic geomembrane	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
71	Plastic geotextile	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
72	Plastic geogrid	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
73	Plastic geomembrane	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
74	Plastic geotextile	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
75	Plastic geogrid	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
76	Plastic geomembrane	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
77	Plastic geotextile	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
78	Plastic geogrid	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
79	Plastic geomembrane	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
80	Plastic geotextile	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
81	Plastic geogrid	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
82	Plastic geomembrane	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
83	Plastic geotextile	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
84	Plastic geogrid	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
85	Plastic geomembrane	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
86	Plastic geotextile	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
87	Plastic geogrid	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
88	Plastic geomembrane	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
89	Plastic geotextile	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
90	Plastic geogrid	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
91	Plastic geomembrane	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
92	Plastic geotextile	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
93	Plastic geogrid	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
94	Plastic geomembrane	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
95	Plastic geotextile	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
96	Plastic geogrid	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
97	Plastic geomembrane	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
98	Plastic geotextile	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
99	Plastic geogrid	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
100	Plastic geomembrane	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
101	Plastic geotextile	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
102	Plastic geogrid	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
103	Plastic geomembrane	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
104	Plastic geotextile	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
105	Plastic geogrid	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
106	Plastic geomembrane	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
107	Plastic geotextile	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
108	Plastic geogrid	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
109	Plastic geomembrane	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
110	Plastic geotextile	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
111	Plastic geogrid	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
112	Plastic geomembrane	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
113	Plastic geotextile	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
114	Plastic geogrid	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
115	Plastic geomembrane	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
116	Plastic geotextile	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
117	Plastic geogrid	0.00%	(0.00 - 0.00%)	0.00%	(0.00 - 0.00%)	0	(0 - 0)	0/ 950	
118	Plastic geomembrane	0.00%	(0.00 - 0.00						



Using the detailed Excel files for each jurisdiction / waste substream

- Field Data – Use for comparison with other (non-DEQ) studies
- Contamination-corrected results – Use for calculating the tons of material (clean, dry) being disposed of
- Clean Tons – extrapolated from the contamination-corrected results based on the estimated size of each substream for 2009
- # Present / # Samples: The number of samples where the particular material was present.



Summary

- Waste generation, which had climbed steadily through 2006, declined sharply in 2008-2009.
- Tons disposed in 2010 are no higher than total tons disposed in 1996
- Per capita tons disposed in 2009 and 2010 are 10% lower than per capita tons disposed in any other year since 1993.
- For traditional recyclables, from 1993-2007, total generation was flat, but we steadily increased recovery and decreased disposal by more than 30% on a per capita basis



Summary (continued)

- Starting in 2007, total generation of traditional recyclables decreased sharply, while the percent recycled remained about the same.
- Plastics have a low recovery rate compared to other traditional recyclables, but showed increasing generation and recycling through 2007. Potential for increased recovery.
- Construction wastes showed large increases in generation through 2006, but have fallen sharply since then.
- These data will help inform the upcoming materials management planning.