



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

January 31, 2012

Dear Washington State Recycling Survey Recipient:

Enclosed is the 2011 recycling survey. Please complete all forms and return them to the Department of Ecology by April 2, 2012. A business reply mailer is included on the back of the forms for your convenience.

If you prefer to complete the forms electronically, the instructions and forms are available at <http://www.ecy.wa.gov/biblio/ecy040166.html>. You can email the completed forms to daniel.weston@ecy.wa.gov. If you prefer to submit hard copies, you can fax them to (360) 407-6102 or mail them to Dan Weston, Waste 2 Resources Program, at the above letterhead address.

When completing the survey, report both traditional recyclables and materials that were diverted from the waste stream. Diverted materials are materials such as construction debris and used motor oil burned for energy recovery that were not disposed.

If the diverted material is not on the list of materials provided, add it to the list of "Other Recyclables" or list it on a separate sheet of paper. Write the name of the material and include a description if necessary, along with the county of origin and number of tons you collected.

Information from your survey provides accurate, reliable data that benefits everyone in the recycling industry. These recycling surveys are the only source of this information in Washington State. Information from the annual survey helps maintain support for recycling, shows progress and success of recycling in Washington's homes and businesses, and is a tool for planning solid waste and recycling services in local areas.

Thank you in advance for completing the 2011 recycling survey. If you have any questions, please contact Dan Weston at (360) 407-6409 or daniel.weston@ecy.wa.gov.

Sincerely,

A handwritten signature in black ink that reads "Laurie G. Davies".

Laurie G. Davies
Waste 2 Resources Program Manager

2011 Washington State Recycling Survey

Who should fill out the recycling survey form?

Everyone who collected recyclable material from the state of Washington anytime during the calendar year 2011 should fill out this form. This includes curbside collectors, buy-back centers, county and city utilities, scrap metal collectors, brokers, commercial and industrial collectors, oil collectors and processors, tire retreaders, energy recovery facilities, and others. The survey is for materials handled at the initial collection point, and in some cases, beyond the initial collection point.

If you did not handle material intended for recycling or diversion from disposal in 2011, please write a note saying that you didn't handle these materials on the survey form and return it to Ecology. If you have questions about whether this applies to your business, contact Dan Weston at (360) 407-6409, or e-mail daniel.weston@ecy.wa.gov.

Instructions for completing the forms

- 1) Review the **Handler Identification Information**. Add information that is incomplete. Change information that is outdated or incorrect.
- 2) Review the **Material Type Definitions (page 3)** for materials you will be reporting.
- 3) Use either the **Materials Form** (listing 34 material types) OR the **County/City Form** (listing all Washington counties and the City of Seattle). You don't need to use both the Materials Form and the County/City Form. Choose the form that best fits your information. If more space is needed, use a separate sheet or photocopy the form.
 - When using the **Materials Form** to report materials for more than one county, copy the form so you can list tonnage for different counties on separate sheets. For the **Materials Form**, list materials coming from the City of Seattle on a separate sheet.
 - When using the **County/City Form**, copy the form so you can report different materials. Include information for the City of Seattle separately.
- 4) Complete the **Destination and Final Use of Materials Form**, listing what the material was used for and the name of the company that bought or received the materials collected during 2011.
- 5) **General Information about the Recycling Survey (pages 8 and 9)** answers some general questions about the history of recycling measurement in Washington.
- 6) Report all quantities in tons. **General Measurement Standards and Reporting Guidelines (pages 10 and 11)** can help you convert volume to weight.
- 7) Return the completed forms to Ecology by April 2, 2012. Call or e-mail Dan Weston at (360) 407-6409, daniel.weston@ecy.wa.gov if you need help filling out your 2011 recycling survey.
- 8) Attach form(s) with the business reply mailer (taped, not stapled), then send to:

Dan Weston
Waste 2 Resources Program
Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

You may also fax the forms to (360) 407-6102.

If you require this publication in an alternate format, please contact the Waste 2 Resources Program at 360-407-6900. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech impairment can call 877-833-6341.



2011 Washington State Recycling Survey

Handler Identification

Please change information that is outdated, incorrect, or incomplete.

Company Name		Facility Name	Facility ID
Contact Person		Title	Recycle ID
Telephone	Fax	E-mail	
Mailing Address		Location Address	
City, State, Zip		City, State, Zip	

Did you operate in 2011?

Yes *If yes*, proceed with completing entire survey.

No *If no*, answer the following questions, sign, date, and return this sheet only.

When did you stop operations? _____

Do you plan to restart? No Yes When? _____

Prepared by: _____ Date: _____



2011 Washington State Recycling Survey Material Type Definitions

Please note some categories have two or more material definitions that apply.

1. Newspaper	Black and white newspaper, shredded newsprint, including other paper normally distributed inside a newspaper such as colored advertisements, comics, and flyers.
2. Cardboard	Brown uncoated paper with a wavy core and uncontaminated (no plastic lining or wax coating); and brown paper bags.
3. High Grade Paper	Computer paper, white bond, copy paper, notebook paper, and some colored paper.
4. Mixed Waste Paper	All other potentially recyclable paper, such as envelopes, telephone books, paperback books, cereal boxes, laundry soap boxes, and magazines.
5. Cartons	Poly-coated beverage containers with plastic, foil, or wax lining, such as milk or juice cartons. This doesn't include individual foil packets such as Capri Sun containers.
6. Container Glass	Glass containers for food, beverage, and other material. Excludes refillable bottles.
7. PET Plastics (#1)	Polyethylene terephthalate—clear and colored beverage containers made from PET; coded (#1).
8. HDPE Plastics (#2)	High-density polyethylene—clear and colored containers made from HDPE; coded (#2).
9. LDPE Plastics (#4)	Low-density polyethylene—includes mustard and some other squeezable containers; coded (#4). Includes plastic bags and plastic film.
10. Other Recyclable Plastics	All other plastics; recyclable plastics not included above.
11. Aluminum Cans	Aluminum beverage cans.
12. Steel Cans	Tin-plated steel cans, usually food containers.
13. Ferrous Metals	Magnetic metal items such as steel clothes hangers, sheet metal products, pipes, some automobile parts, auto bodies, and other miscellaneous, magnetic metal scraps.
14. Non-Ferrous Metals	Copper tubing, brass fixtures, insulated wire, small auto parts such as generators, water pumps. Aluminum other than beverage cans.
15. Appliances (white goods)	Appliances, water heaters, or microwave ovens.
16. Electronics (computer, CPUs, hard drives)	Hard drives from computer towers and laptops.
17. Electronics (monitors, TVs)	Display screens such as Monitors, CRTs, or TVs.
18. Electronics (other)	Please specify: cell or mobile phones, keyboards, mice, printers, etc.
19. Fluorescent Lights	Mercury lamps. Specify if compact fluorescent light bulb (CFL), 4-foot tube, 8-foot tube, etc.
20. Antifreeze	Also called coolant, from vehicle engines.
21. Used Oil	Automotive oil. Indicate if oil is re-refined/recycled, or burned for energy recovery or heat.
22. Tires	Automobile, truck, and bicycle tires. Specify if the tires are re-treaded, reused, recycled, or burned for energy.
23. Vehicle Batteries	Automobile, truck, boat, motorcycle batteries. Excludes industrial batteries.
24. Household Batteries	Includes: flashlight (Alkaline, Ni-Cad), and button batteries (lithium).
25. Asphalt	Asphalt paving material and similar wastes.
26. Concrete	Cement, concrete blocks, and concrete pieces.
27. Construction or Demolition Debris	Mixed material generated as a result of a construction or demolition operation, including toilets, sinks, rock, brick, insulation, roofing, and combination materials. Exclude the following materials if possible: asphalt, concrete, metals, wood, carpet, and gypsum.
28. Wood Waste	Pallets, scrap lumber, wood toys, fencing, and crates. Please specify if wood is recycled or burned for energy recovery.
29. Landclearing Debris	Stumps, brush, and limbs from non-residential locations. Please specify use of the material (chipped for mulch, burned for energy, etc.).
30. Yard Debris	Grass clippings, leaves, tree prunings, and weeds for composting.
31. Food and/or Food Scraps	Specify: food preparation wastes, food scraps, spoiled food, or donated edible food.
32. Textiles	Clothing and apparel, shop rags, and blankets.
33. Co-mingled Recyclables	Specify material types collected.
34. Other Recyclables:	Specify and describe material. Can include, but is not limited to: carpet and padding, gypsum drywall, mercury compounds, oil filters, rendering, other organics, photographic film, rubber materials, and toner or ink cartridges.



2011 Washington State Recycling Survey Materials Form

Material County of Origin (please fill in): _____ Photocopy this form for multiple counties (or Seattle) OR use the county form on the next page.			Reporting Year: 2011	Facility ID:
Material (See definitions)	Material Description (If needed)	Tons or Percent Commercial	Tons or Percent Residential	Total Tons from County
1. Newspaper				
2. Cardboard				
3. High-Grade Paper				
4. Mixed Waste Paper				
5. Cartons				
6. Container Glass				
7. PET Plastics				
8. HDPE Plastics				
9. LDPE Plastics				
10. Other Recyclable Plastics				
11. Aluminum Cans				
12. Steel Cans				
13. Ferrous Metals (iron, steel)				
14. Nonferrous Metals (excluding aluminum cans)				
15. Appliances (white goods)				
16. Electronics (computers, CPUs, hard drives)				
17. Electronics (monitors, TVs)				
18. Electronics (other)				
19. Fluorescent Lights (specify)				
20. Antifreeze				
21. Used Oil				
22. Tires				
23. Vehicle Batteries				
24. Household Batteries				
25. Asphalt				
26. Concrete				
27. Construction/Demolition				
28. Wood Waste				
29. Landclearing Debris				
30. Yard Debris				
31. Food and/or Food Scraps				
32. Textiles (rags, clothing)				
33. Co-Mingled Recyclables (specify materials in mix)				
34. Other Recyclables (specify)				
Total Tons Collected/Recycled (not including recycling residuals):				

Tons Recycling Residuals Disposed (not included in above total):	
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2011 Washington State Recycling Survey

County/City Form

Material Collected: Photocopy this form for each different material type OR use the Material Form on the previous page.			Reporting Year: 2011	Facility ID:
County	Material Description (if needed)	Tons or Percent Commercial	Tons or Percent Residential	Total Tons or Percent from County
Adams				
Asotin				
Benton				
Chelan				
Clallam				
Clark				
Columbia				
Cowlitz				
Douglas				
Ferry				
Franklin				
Garfield				
Grant				
Grays Harbor				
Island				
Jefferson				
King				
Kitsap				
Kittitas				
Klickitat				
Lewis				
Lincoln				
Mason				
Okanogan				
Pacific				
Pend Oreille				
Pierce				
San Juan				
Skagit				
Skamania				
Snohomish				
Spokane				
Stevens				
Thurston				
Wahkiakum				
Walla Walla				
Whatcom				
Whitman				
Yakima				
Out of State				
Total Tons Collected/Recycled (not including recycling residuals):				
Tons Recycling Residuals Disposed, Not Recycled:				

City Section (Please complete for materials collected in Seattle. Include Seattle tonnage in King County above.)

Seattle				
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General Information about the Recycling Survey

Background

The Washington State Department of Ecology's (Ecology's) Waste 2 Resources Program has conducted a state recycling survey every year since 1986. A consulting firm conducted the first survey and developed a methodology for collecting data on the quantities of materials people were recycling in the state. The survey focused on the residential waste stream and selected commercial categories. In 1987, a consulting firm completed the second survey in conjunction with a legislative mandate to determine the best management of residential, commercial, manufacturing, and self-hauled waste. The third annual recycling survey, in 1988, was also the work of an outside firm. In 1989, Ecology decided to conduct the recycling survey with its own staff. Ecology's Waste 2 Resources Program has managed the survey since 1986.

Purpose and Objectives

The Solid Waste Management–Reduction and Recycling Act, Chapter 70.95 RCW, set a state goal to achieve a 50 percent recycling rate by 1995. In 2002, the Legislature reaffirmed this 50 percent goal. The Act also established that county and city governments would assume primary responsibility for solid waste management and carry out aggressive and effective waste reduction and source separation strategies. Each county in the state, in cooperation with its various cities, must prepare a coordinated, comprehensive, solid waste management plan.

RCW 70.95.280 requires Ecology to monitor the waste stream and the changes in the amount of waste generated. Each year, people who collect solid waste report to Ecology the types and quantities of solid waste that they collect and where they deliver it.

Ecology uses the state recycling survey to write a report each year describing how we manage waste in Washington. The report details the volumes of waste disposed, generated, recycled, and diverted. It analyzes the results and provides the state recycling and diversion rate and other information on measuring the waste stream. This measurement helps state and local government administrators evaluate source reduction and recycling programs and monitor progress toward achieving their own individual goals and their contribution toward the statewide goal.

Specific research objectives are:

1. To fulfill the requirements of Chapter 70.95 RCW, Solid Waste Management, Reduction and Recycling Act.
2. To determine the types and amounts of recyclable materials received by handlers from within the state of Washington in 2011.
3. To determine the state's total recycling and diversion rates.
4. To determine which county and which city (Seattle only) the materials came from in order to obtain county/city recycling and diversion totals.
5. To determine whether the collection source was residential or commercial/industrial.
6. To determine if there was any double-counting of materials and correct for it.
7. To determine changes in the recycling rate on a per capita basis from 1986 to present.
8. To update and revise the state's list of handlers of recycled/recyclable materials.
9. To determine the final uses of the material collected.

How does the state define recycling?

The “Waste Not Washington” Act of 1989 (Chapter 70.95 RCW) clarifies several terms useful in describing recycling.

“**Solid waste**” “means all putrescible and nonputrescible solid and semisolid wastes including, but not limited to, garbage, rubbish, ashes, industrial wastes, swill, sewage sludge, demolition and construction wastes, abandoned vehicles or parts thereof, **and recyclable materials**.”

“**Recycling**” in general (according to the Act) “means transforming or remanufacturing waste materials into usable or marketable materials for use other than landfill disposal or incineration.”

“Energy recovery means a process operating under federal and state environmental laws and regulations for converting solid waste into usable energy and for reducing the volume of solid waste.”

“Incineration means a process of reducing the volume of solid waste operating under federal and state environmental laws and regulations by use of an enclosed device using controlled flame combustion.”

What is diversion and how do I report diverted materials?

In calculating Washington’s “recycling rate”, the state only counts materials recovered within the scope of traditional municipal solid waste (MSW). It doesn’t count recovered materials that are outside the scope of traditional MSW or materials managed in a manner that does not meet the state’s definition of recycling. However, materials not included in the recycling rate may be included in the “diversion rate”.

People divert many non-MSW materials from disposal in landfills or incinerators to other uses. Examples of these materials include construction and demolition materials, land-clearing debris, and reused materials (such as tires that are recapped and resold). People also divert materials in ways that do not meet the definition of recycling, for example, recycling, burning for energy, recapping [tires], reuse, or stockpiling for future use. These “diverted” materials should be reported on the recycling survey as well as “recycled” tonnages. Indicate the end use of the diverted materials as accurately as possible.

Materials collected and processed for energy recovery. Ecology doesn’t classify materials collected and processed for energy recovery as recycled, but they should also be reported. The most notable materials are tires shredded for fuel and used oil burned as bunker fuel. Report these tonnages and indicate their use for energy recovery. These materials will be counted as diverted.

General Measurement Standards and Reporting Guidelines¹

Volume and Count to Weight Conversion Factors for Recyclables

<u>Material</u>	<u>Volume/Count</u>	<u>Weight in Pounds</u>	<u>Source</u>
Books	one cubic yard	500	EPA NRMRL ²
Cardboard	one cubic yard	400	EPA NRMRL
Cardboard, baled	one cubic yard	1,000-1,200	NRC ³
Magazines	one cubic yard	500	EPA NRMRL
Mixed Paper	one cubic yard	500	EPA NRMRL
Newsprint, loose	one cubic yard	500	EPA NRMRL
Newsprint, compacted	one cubic yard	720-1,000	NRC
Newsprint	12" stack	35	NRC
Office Paper	one cubic yard	500	EPA NRMRL
Phone Books	one cubic yard	500	EPA NRMRL
Aluminum cans, whole	one cubic yard	75	EPA NRMRL
Aluminum cans, flattened	one cubic yard	250	NRC
Aluminum cans	one full grocery bag	1.5	NRC
Catalytic converter	one	14	NRC
Ferrous cans, whole	one cubic yard	150	NRC
Ferrous cans, flattened	one cubic yard	850	NRC
Refillable beer bottles	case	11.4	NRC
Glass, whole bottles	one cubic yard	600-1,000	NRC
Glass, semi crushed	one cubic yard	1,000-1,800	NRC
Glass, crushed (mechanically)	one cubic yard	800-2,700	NRC
Glass, whole bottles	one full grocery bag	16	NRC
Glass, uncrushed to manually broken	55 gallon drum	125-500	NRC
PET, soda bottles, whole, loose	one cubic yard	40	EPA NRMRL
PET, soda bottles, whole, loose	gaylord ⁴	40-53	NRC
PET, soda bottles, baled	30" x 62"	500	NRC
PET, soda bottles, granulated	gaylord	700-750	NRC
PET, soda bottles, granulated	semi-load	30,000	NRC
Film, baled	30" x 42" x 48"	1,100	NRC
Film, baled	semi-load	44,000	NRC
HDPE (dairy only), whole, loose	one cubic yard	24	NRC
HDPE (dairy only), baled	32" X 60"	400-500	NRC
HDPE (mixed), baled	32" x 60"	900	NRC
HDPE (mixed), granulated	gaylord	800-1,000	NRC

¹ Disclaimer: This table is for general guidance only. Not for contract payment.

² Environmental Protection Agency National Risk Management Research Laboratory (EPA NRMRL).

³ National Recycling Coalition (NRC).

⁴ Gaylord size most commonly used, 40" X 48" X 36."

<u>Material</u>	<u>Volume/Count</u>	<u>Weight in Pounds</u>	<u>Source</u>
HDPE (mixed), granulated	semi-load	42,000	NRC
Mixed Plastic	one cubic foot	50	EPA NRMRL
Mixed PET & dairy, whole, loose	one cubic yard	average 32	NRC
Mixed PET, dairy & other rigid, whole, loose	one cubic yard	average 38	NRC
Mixed rigid plastic, no film or dairy, whole, loose	one cubic yard	average 49	NRC
Mixed rigid plastic, no film, granulated	gaylord	500-1,000	NRC
Mixed rigid plastic & film, densified by mixed plastic mold technology	one cubic foot	average 60	NRC
Food waste	one cubic yard	800	EPA NRMRL
Food waste, solid and liquid fats	55 gallon drum	412	NRC
Yard trimmings, branches	one cubic yard	350	EPA NRMRL
Yard trimmings, grass	one cubic yard	350	EPA NRMRL
Yard trimmings, leaves	one cubic yard	350	EPA NRMRL
Wood chips	one cubic yard	500	NRC
Sawdust	one cubic yard	375	Tellus Institute
Stumps & Logs	one cubic yard	1080	CCG ⁵
Grass clippings	one cubic yard	400-1,500	NRC
Manure	one cubic yard	1628	FEECO ⁶
Pallets	one cubic yard	185	EPA NRMRL
Concrete	one cubic yard	2850	Ecology ⁷
Asphalt	one cubic yard	2850	Ecology
Composition Shingles	one cubic yard	419	CIWMB ⁸
Gypsum (dry)	one cubic yard	500-670	NRC
Battery (auto)	one	35.9	NRC
Tire – passenger car	one	20	NRC
Tire - truck, light	one	35	NRC
Tire – semi	one	105	NRC
Used motor oil	one gallon	7.4	NRC
Oil filter drum	one	450	Ecology
Antifreeze	gallon	8.42	NRC
Computer (CPU)	one	30	Ecology
Computer (15" monitor)	one	30	Ecology
Computer (17" monitor)	one	45	Ecology
Computer (21" monitor)	one	60	Ecology
White goods/appliances	one	150	Ecology

⁵ Developed by Cascadia Consulting Group (CCG) for a waste composition study in San Diego, California in 2000.

⁶ "FEECO International Complete Systems and Equipment Handbook," 9th printing.

⁷ Washington Department of Ecology (Ecology), industry surveys.

⁸ "Conducting a Diversion Study – A Guide for California Jurisdictions," March 2001, California Integrated Solid Waste Management Board.