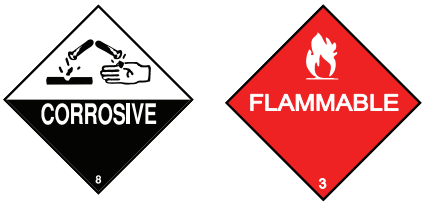
Chapter VI
Moderate Risk Waste Management



The term "moderate risk waste" (MRW) was created by revisions to Washington State's 1986 Hazardous Waste Management Act (RCW 70.105). MRW is a combination of household hazardous waste (HHW) and conditionally exempt small quantity generator (CESQG) waste. HHW is waste created in the home, while CESQG is small quantities of business or non-household waste. Both HHW and CESQG waste are exempt from state hazardous waste regulations.

- Total MRW collection in 2006 was over 32 million pounds.
- The average amount of HHW disposed of per participant was 79 pounds, and per capita was 2.64 pounds.
- Over 3.3 percent of Washington residents used a fixed facility or collection event to remove hazardous waste from their household, about 8.6 percent of all households.
- The counties that collected the most CESQG waste per capita were Yakima, Cowlitz, Chelan, Asotin, and Lewis.
- The counties that collected the most used oil per capita were Mason, Stevens, San Juan, Yakima, Asotin, and Cowlitz.
- The ten categories of collected waste that increased the most from 2005 are Acids (aerosols), Mercury (switches, etc.), Oil w/ chlorides, Antifreeze, Flammable Gas Poison (aerosols), Electronics, Flammable Solids, Mercury (pure), Flammable Liquids Poison, and Flammable Liquids (aerosols).
- 83.2 percent of all HHW was recycled, reused, or used for energy recovery.

MRW collections started in the early 1980's primarily as HHW-only events, also known as "round-ups." These events usually happened once or twice a year.

In the late 1980's permanent collection facilities, now known as fixed facilities, began to replace the collection events in order to fulfill the need for year-round collection. In addition, collection facilities have further developed with mobile units, satellite facilities, and tailgate events. These efforts resulted in a larger number of customers served, decreased costs, and increased reuse and recycling of MRW.

It should be noted the data in this chapter are only a portion of the MRW waste stream. The MRW data presented here is reported through local governments. *Chapter V Solid Waste Generation, Disposal and Recycling in Washington State* includes additional data statewide.

Funding

Washington State's 1988 Model Toxics Control Act provides a large part of the funding for public MRW programs through the Coordinated Prevention Grant program. Many jurisdictions use funds to plan and carry out local MRW programs.

By 1991 all local governments in the State of Washington had submitted MRW plans. Every local MRW plan includes sections on CESQG technical and disposal assistance, MRW public education, MRW enforcement, and HHW collection.

Accuracy of Data Collection

Ecology created and circulates a standard reporting form to all MRW programs. Nonetheless, the reported data can vary depending on a program's collection process and how data is reported and interpreted. All programs must provide individual MRW reports.

2004 – Some reporting errors have been identified since the 2004 report numbers were published. The 2004 HHW numbers and consequently the overall MRW number for 2004 have changed dramatically. One facility over reported the total amount of latex paint collected by 3 million pounds. Another facility reported the total amount of HHW that came to its facility from all sources (versus the facilities county of residence) in 2004. This same facility, due to the afore mentioned reporting confusion and a contract change saw its HHW number go from 4,068,503 pounds collected in 2004 to 4,395 pounds collected in 2005. The actual number for 2004 is impossible to know for what was collected in the county it resides. These two reporting anomalies account for upwards of 7 million pounds over reported in 2004 in the HHW and overall MRW categories.[1]

2005 - Columbia County did not report their used oil collections so the number from the previous year was carried over.

Lincoln County experienced limited quantities and stored their MRW. They only submitted HHW quantities, participation numbers, and costs from the past three years. This data was averaged over the time period to establish the numbers for 2005. In addition, Klickitat County's participation numbers seem high but the county could not confirm this for us.

One facility in King County reported all CESQG waste received at its facility from all Washington State counties it services for CESQG collections. These numbers were backed out of the King County total based on other annual reports submitted to Ecology.

[1] See Table 6.2 for a year by year breakdown of HHW, CESQG, and overall MRW pounds collected back to 1999. By accounting for the reporting confusion mentioned above, the numbers are more in line with overall collection trends and explain the large jump seen from 2003 to 2004.

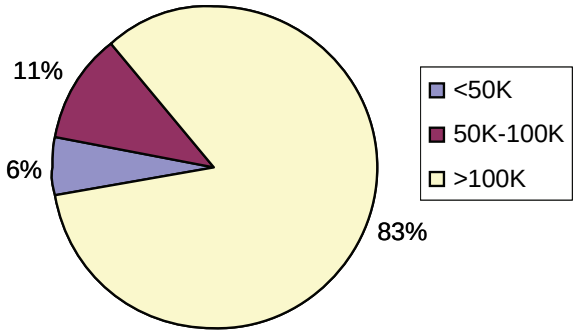
2006 – Lincoln County did not report in 2006 (see 2005 above). Except for used oil collection sites, Clallam County did not have anything further to report because they chose not to conduct the collection events in 2006 that they normally do. Clallam County was anticipating a fixed facility to come on-line in 2006, but the facility did not open until early 2007. If using 2005 collection totals for Clallam and Lincoln Counties, approximately 110,000 pounds of MRW did not get collected or reported in 2006.

Year 2006 Data

This year's report focuses on 2006 data with some comparisons to the data published in previous years' reports. In an effort to provide useful information for individual programs, it was determined that data would be presented in categories by county size.

Figure 6.1 and Table 6.1 indicates a distinction between counties with a population of less than 50 thousand, of 50 to 100 thousand, and of more than 100 thousand.

Figure 6.1
Percent of State Population by County Size



In Washington State there are 42 programs that manage MRW. These programs include all 39 counties.

Many HHW collection systems are approaching stability. Permanent fixed facilities now service most of the state. In 2006, Chelan, Clallam, Douglas, Ferry, Garfield, San Juan, Skamania, and Wahkiakum counties did not have fixed facilities. San Juan County had a fixed facility, but had to close in June of 2005. San Juan County does plan to reopen at a later date. Garfield residents use the facility in Asotin County and Cowlitz County conducts a mobile unit in Wahkiakum County. Chelan, Douglas, Ferry, and Skamania counties conduct collection events but may convert to fixed facilities in the future. The City of Port Angeles opened a new facility early in 2007 to serve Clallam County residents. Also, Stevens County is planning one new facility and Pierce County is planning on two new facilities. Mason County is looking to expand its current facility. Cowlitz County will be replacing its current facility at another location.

Collection services for CESQGs continue to expand statewide. For 2006, 21 fixed facilities serviced CESQG's and 5 different counties provided 27 collection events for CESQGs. The majority of these events were held in Clark County and were open to households, as well as, CESQG's.

Table 6.1
Individual County Population by Size

<50K		50K-100K		>100K	
Adams	17,300	Chelan	70,100	Benton	160,600
Asotin	21,100	Clallam	67,800	Clark	403,500
Columbia	4,100	Cowlitz	96,800	King *	1,256,600

<50K	
Douglas	35,700
Ferry	7,500
Garfield	2,400
Jefferson	28,200
Kittitas	37,400
Klickitat	19,800
Lincoln	10,200
Okanogan	39,800
Pacific	21,500
Pend Oreille	12,300
San Juan	15,700
Skamania	10,600
Stevens	42,100
Wahkiakum	3,900
Whitman	42,800
<50K total	**372,400**

50K-100K	
Franklin	64,200
Grant	80,600
Grays Harbor	70,400
Island	77,200
Lewis	72,900
Mason	53,100
Walla Walla	57,900
50K-100K total	**711,000**

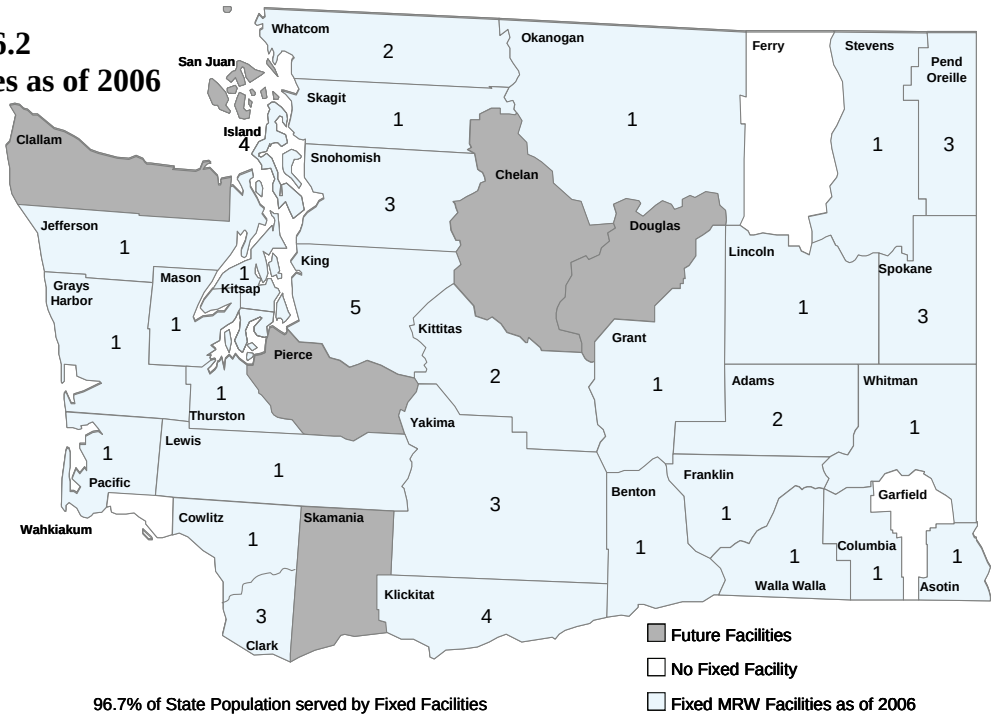
>100K	
Kitsap	243,400
Pierce	773,500
Skagit	113,100
Snohomish	671,800
Spokane	443,800
Thurston	231,100
Whatcom	184,300
Yakima	231,800
Seattle *	578,700
>100K total	**5,292,200**

*** King excludes Seattle**

State Total 6,375,600

Figure 6.2 shows which counties have permanent facilities, the number of facilities in each county, and which counties are likely to develop a permanent facility in the future.

Figure 6.2
55 MRW Facilities as of 2006



MRW Collected

As shown in Table 6.2, Washington collected approximately 15.2 million pounds of HHW, 10 million pounds of used oil (UO) from collection sites (includes antifreeze and oil filters), and 7.1 million pounds of CESQG waste, for a total of over 32 million pounds of MRW during 2006. The two most significant trends seen since 2004 is the increase of CESQG waste collected and the decrease in Used Oil collected. The increase in CESQG waste collected is largely due to more focused efforts at collecting CESQG wastes by the King County Local Hazardous Waste Program and Tacoma/Pierce County Health Department. In general, the increases seen in collection totals are attributed to increased collections at the Phillip Services (Kent Facility) in King County and the Emerald Services facility in Pierce County. The drop seen in Used Oil collections needs to continually be monitored. There are more cars on the road than ever, so one would expect this category to keep increasing. The recent trend to changing ones oil every 5,000 miles compared to 3,000 miles may be impacting this category.

Table 6.2
Total Pounds per Waste Category
Years 1999 - 2006

Collection Year	HHW lbs (no UO)	Used Oil lbs	CESQG lbs	Total MRW lbs
1999	9.9M	9.3M	637K	20.4M
2000	10.5M	8.3M	1.1M	19.8M
2001	15.6M	11.3M	1.0M	27.9M
2002	13.5M	9.2M	1.4M	24.1M
2003	16.0M	11.7M	1.3M	29.0M
2004	15.3M*	12.4M	2.4M	30.1M*
2005	14.7M	11.3M	6.3M	32.3M
2006	15.2M	10.0M	7.1M	32.3M

* An estimated 7 million pounds of HHW was over reported in 2004. These numbers reflect a change from the numbers shown in the 2004 report.

Collection by Waste Category and Type

As shown in Table 6.3, the dominant types of MRW collected in 2006 were non-contaminated used oil, antifreeze, latex and oil-based paint, lead-acid batteries, and flammable liquids. These totals include used oil and antifreeze collected at all collection sites. These six specific waste types accounted for 65.3 percent of the estimated 32 million pounds of MRW collected in 2006.

Table 6.4 provides summary information on total pounds of MRW collected from HHW and CESQG categories by waste types.

Table 6.3
Six Most Dominant MRW Waste Types Collected in 2006

Waste Type	Total Lbs.
Non-Contaminated Used Oil	10,309,307
Antifreeze	5,157,745
Latex Paint	3,833,786
Oil-based Paint	2,947,699
Lead-Acid Batteries	2,312,866
Flammable Liquids	1,718,290
TOTAL	**21,121,290**

Table 6.4
Total Pounds of MRW Collected by Waste Category in 2006

WASTE TYPE	HHW	CESQG	TOTAL
Acids	137,492.80	24,098.00	161,590.80
Acids (aerosol cans)	1,830.00	25.00	1,855.00
Antifreeze	472,886.00	4,684,859.00	5,157,745.00
Antifreeze Off-site*	0.00	260,382.00	260,382.00
Bases	144,782.00	26,672.00	171,454.00
Bases, Aerosols	2,249.00	30.5	2,279.50
Batteries (lead acid)	2,286,696.00	26,170.00	2,312,866.00
Batteries (small lead acid)	4,718.00	9,386.00	14,104.00
Batteries (dry cell)	270,128.00	10,405.00	280,533.00
Batteries (nicad/NIMH/lithium	14,207.00	3,608.00	17,815.00
Electronics	898,037.00	40,907.00	938,944.00
CRT's	558,552.00	43,672.00	602,224.00
Chlorinated Solvents	4,932.00	6,961.00	11,893.00
Flammable Solids	66,824.00	14,657.00	81,481.00
Flammable Liquids	930,259.00	788,031.00	1,718,290.00
Flammable Liquids, Aerosols	28,446.00	5,184.00	33,630.00
Flammable Liquids Poison	132,788.00	3,843.30	136,631.30
Flammable Liquid Poison, Aerosols	6,077.00	3,686.00	9,763.00

WASTE TYPE	HHW	CESQG	TOTAL
Flammable Gas (butane/propane)	135,415.00	1,635.00	137,050.00
Flammable Gas Poison	21.00	0.00	21.00
Flammable Gas Poison, Aerosols	95,107.80	4,182.50	99,290.30
Latex Paint	3,713,914.00	119,872.00	3,833,786.00
Latex Paint, Contaminated	1,025,324.00	38,144.00	1,063,468.00
Mercury (pure)	1,590.30	59.00	1,649.30
Mercury (switches)	818.98	12.82	831.80
Mercury (fluorescent lamps)	2.73	1.43	4.16
Oil-Based Paint	2,684,818.60	262,881.00	2,947,699.60
Oil-Based Paint, Contaminated	384,833.00	0.00	384,833.00
Oil Contaminated	49,921.00	0.00	49,921.00
Oil Filters	50,267.36	57,463.00	107,730.36
Oil Filters Off-site*	0.00	50,474.00	50,474.00
Oil Filters Crushed	5,025.00	10,983.00	16,008.00
Oil Non-Contaminated	1,607,202.00	75,473.00	1,682,675.00
Oil Non-Contaminated Off-site *	0.00	8,315,776.00	8,315,776.00
Oil with Chlorides	4,573.00	39,411.00	43,984.00
Oil with PCBs	3,422.00	0.00	3,422.00
Other Dangerous Waste	243,608.86	801,378.00	1,044,986.86
Organic Peroxides	2,531.00	89.00	2,620.00
Oxidizers	54,734.00	2,633.50	57,367.50
Pesticide / Poison Liquid	333,917.40	4,595.50	338,512.90
Pesticide / Poison Solid	216,671.00	14,332.50	231,003.50
Reactives	6,609.00	180.00	6,789.00
MRW TOTAL	**16,581,230.82**	**15,752,153.05**	**32,333,383.87**

* Used oil collection sites other than a collection facility or event

Disposition of MRW Waste

The disposition of MRW is generally well managed. Most MRW is recycled or used for energy recovery. Very little is safe for solid waste disposal and seven percent of all MRW is disposed of at a hazardous waste landfill or incinerator. See Figure 6.3 for final disposition of MRW between recycled, reused, energy recovery, hazardous waste landfill or incineration, solid waste landfill, and disposal through a waste water treatment plant.

MRW Data

Table 6.5 shows various data by county. This information can be used to evaluate efficiencies within each county by comparing percentage of participants per housing units and costs and HHW pounds per participant. Housing units are the number of households in each county. This data is used instead of per capita because participants typically represent a household.

Figure 6.3
MRW Final Disposition

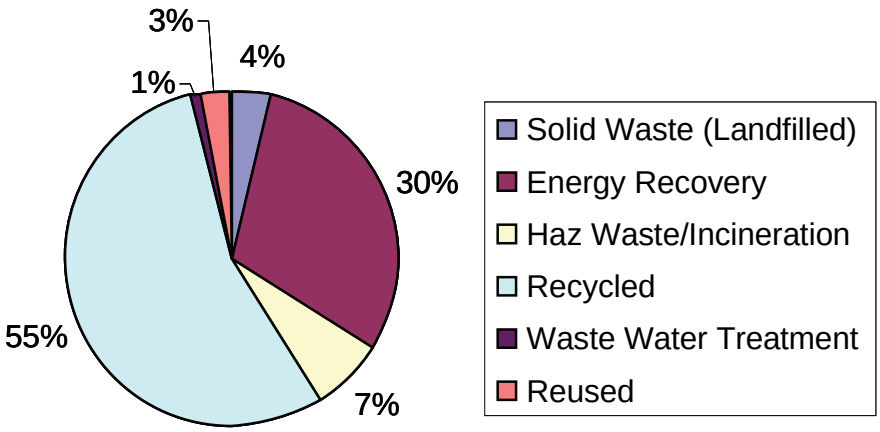


Table 6.5
Various Data by County

COUNTY	HOUSING UNITS	HHW Partici-pants	% Participant / Housing Units	HHW Cost / Participant	HHW lbs / Participant	HHW Total lbs	HHW, SQG, & Used Oil Total lbs
Adams	6,222	125	2%	$22.25	29.97	3,746.00	29,653.00
Asotin	9,625	1,051	10.9%	$63.29	68.61	72,116.50	143,851.50
Benton	64,062	4,510	7%	CNR	51.04	246,088.35	508,694.95
Chelan	33,033	816	2.5%	$24.71	94.42	80,095.10	159,619.12
Clallam	33,689	0	0	0	0	6,104.00*	200,966.00
Clark	159,907	14,628	9.1%	$25.58	134.87	1,973,001.59	2,043,898.59
Columbia	2,156	20	.9%	$60.05	122.30	2,446.00	2,446.00**
Cowlitz	41,756	1,628	3.9%	70.57	185.65	302,243.00	667,180.00
Douglas	14,338	470	3.3%	$67.59	147.79	69,420.01	124,851.01
Ferry	4,021	24	.6%	$25.20	46.50	1,116.00	9,322.00
Franklin	21,439	171	.8%	$29.19	132.36	22,634.00	195,645.00
Garfield	1,308	Inc. with Asotin	Inc. with Asotin	Inc. with Asotin	Inc. with Asotin	Inc. with Asotin	Inc. with Asotin
Grant	32,086	526	1.6%	$108.45	230.01	120,987.42	130,744.42
Grays Harbor	34,639	1,454	4.2%	$102.03	71.80	104,399.03	301,531.17
Island	36,891	2,445	6.6%	$83.55	163.00	375,952.37	577,146.37
Jefferson	15,914	1,187	7.5%	$60.63	41.82	49,644.34	124,414.36
King	514,277	53,510	10.4%	$46.15	70.90	4,752,054.10	6,679,650.10
Seattle	288,723	16,622	5.8%	$89.09	87.18	1,449,108.40	1,626,698.43
Kitsap	100,637	6,574	6.5%	$106.43	104.31	685,797.30	1,113,707.30
Kittitas	18,565	479	2.6%	$146.29	340.40	163,052.80	253,695.80
Klickitat	9,672	8,840	87.7%	$5.47	12.51	106,098.00	134,795.00

COUNTY	HOUSING UNITS	HHW Partici-pants	% Participant / Housing Units	HHW Cost / Participant	HHW lbs / Participant	HHW Total lbs	HHW, SQG, & Used Oil Total lbs
Lewis	32,582	1,442	4.4%	$65.44	132.38	190,894.12	437,096.25
Lincoln	5,660	0	0	0	0	0	0^
Mason	28,798	7,171	24.9%	$14.70	16.97	121,712.02	700,881.02
Okanogan	20,472	200	1%	$200.10	64.20	12,840.00	42,313.02
Pacific	14,862	284	1.9%	$83.10	67.82	19,261.00	88,147.00
Pend Oreille	7,235	1,397	19.3%	$88.87	45.68	63,819.36	92,309.36
Pierce	312,496	9,756	3.1%	$51.88	84.46	824,062.00	6,402,998.10
San Juan	11,152	259	2.3%	$194.29	191.54	49,609.25	109,235.25
Skagit	47,421	3,585	7.6%	$47.10	105.40	377,852.16	598,420.16
Skamania	5,241	238	4.5%	$77.52	121.08	28,819.00	62,699.00
Snohomish	267,707	17,131	6.4%	$38.17	109.63	1,878,088.00	3,485,534.40
Spokane	190,153	32,852	17.3%	$16.67	42.33	1,390,912.00	1,996,306.00
Stevens	19,232	475	2.5%	$77.64	174.27	82,781.00	314,751.00
Thurston	98,376	11,914	12.1%	$59.35	55.00	655,320.62	968,184.62
Wahkiakum	1,969	Inc. w/ Cowlitz	. w/ Cowlitz	Inc. w/ Cowlitz	Inc. w/ Cowlitz	Inc. w/ Cowlitz	Inc. w/ Cowlitz
Walla Walla	22,790	1,901	8.4%	$65.73	43.09	81,920.50	137,516.50
Whatcom	84,820	6,022	7.1%	$53.48	35.04	211,005.11	460,327.95
Whitman	18,105	1,550	8.6%	$27.73	31.65	49,063.50	67,511.50
Yakima	83,501	2,379	2.8%	$117.38	94.45	224,715.70	1,329,384.20
STATEWIDE	**2,715,532**	**213,276**	**7.85%**	**N/A**	**79.00**	**16,848,779.66**	**32,322,127.25**

* Clallam County did not hold any collections in 2006. They were expecting the new fixed facility would be open – it opened in early 2007. 2005 totals for MRW collected was 302,227.00 pounds.

** Used Oil collections were not reported. 2005 Used Oil collected was 8,140.00

^ Lincoln County typically reports every three years or when they have enough MRW to cost effectively ship. The previous three year average (2003-2005) for total amount of MRW collected was 9164.67 pounds

CNR - Costs Not reported

Household Hazardous Waste (HHW)

Participants per Housing Unit

Counties that exhibit 10 percent or higher of participants per housing unit are either performing excellent public education to encourage the use of facilities or events, have very convenient locations for their collection facilities, or both. The participation number and rate for Klickitat County seem high and was not verified before this report was completed.

Cost per Participant

This statistic is hard to compare because of the many variables in program costs. Some programs record every cost, whether direct or indirect; others record only the disposal and basic operation costs. Larger counties have the advantage of efficiency of scale both in quantities received and in disposition options. Also, there are differences in service levels of the basic program, accounting differences, and errors. This data does, however, provide an idea of what is possible and an incentive to contact those counties that appear to operate efficiently.

HHW Pounds per Participant

The average pounds collected statewide per participant for HHW was 79.

Table 6.6 shows the top five counties with the highest collections of HHW in pounds per capita (not participant) for 2004, 2005, and 2006. It is noteworthy that in 2004 both King and Snohomish counties have large collection numbers per capita. In 2004 Pacific County collected 292,093 pounds of HHW with only 180 participants, which comes to an average of 1,623 pounds per participant, or 13.75 pounds per capita. This number seems high, and Ecology could not verify it.

Table 6.6
High Collections of HHW (no Used Oil Sites) Pounds per Capita by County in 2004-2006

HHW 2004		
County	**Size**	**Lbs./ Capita**
Pacific	<50K	13.75
King	<100K	9.39
Kittitas	<50K	6.49
Snohomish	<100K	6.20
Asotin	<50K	4.45

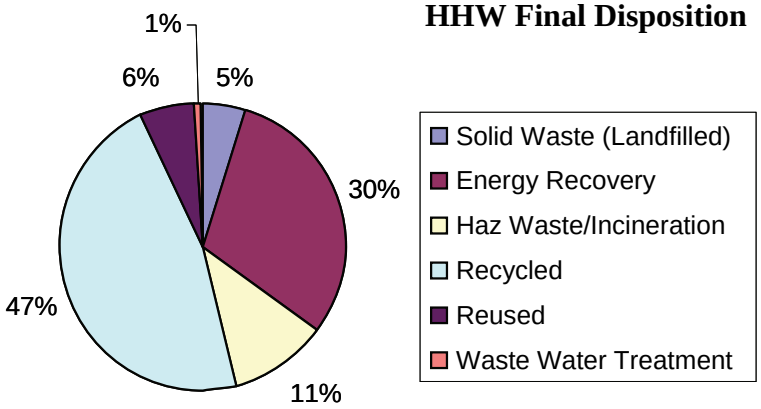
HHW 2005		
County	**Size**	**Lbs./ Capita**
Island	50-100K	5.51
Pend Oreille	<50K	5.42
Thurston	>100K	5.41
Asotin	<50K	4.63
Spokane	>100K	4.51

HHW 2006		
County	**Size**	**Lbs./ Capita**
Klickitat	<50K	5.35
Pend Oreille	<50K	5.18
Clark	>100K	4.89
Island	50-100K	4.87
Kittitas	<50K	4.36

HHW Disposition

Figure 6.4 shows the final disposition of all HHW collected throughout Washington State.

Figure 6.4
HHW Final Disposition



Conditionally Exempt Small Quantity Generator (CESQG)

Twenty-one local MRW programs collect CESQG waste from the public. Counties that sponsor CESQG waste collections are:

Asotin	Douglas	King	Pierce	Yakima
Benton	Grant	Kitsap	Skagit	
Chelan	Grays Harbor	Kittitas	Snohomish	
Clark	Island	Lewis	Thurston	
Cowlitz	Jefferson	Okanogan	Whatcom	

Yakima County was responsible for over 33 percent of the total statewide volume of publicly collected CESQG waste. This is largely due to Yakima County's policy of not charging businesses to dispose of or recycle their waste. This does not take into account the numbers of CESQG waste collected privately.

Also included in CESQG waste totals for year 2006 are data from Emerald and Philip Services (private collections). These types of collections by-pass the public system with each company servicing small businesses directly. Emerald Services primarily serves Pierce County and Philip Services primarily serves King, Pierce, and Clark counties, though both do collect from counties statewide. If factoring in the privately collected totals from Emerald and Phillip Services, King and Pierce counties would move into the below list of the top five counties collecting CESQG waste per capita.

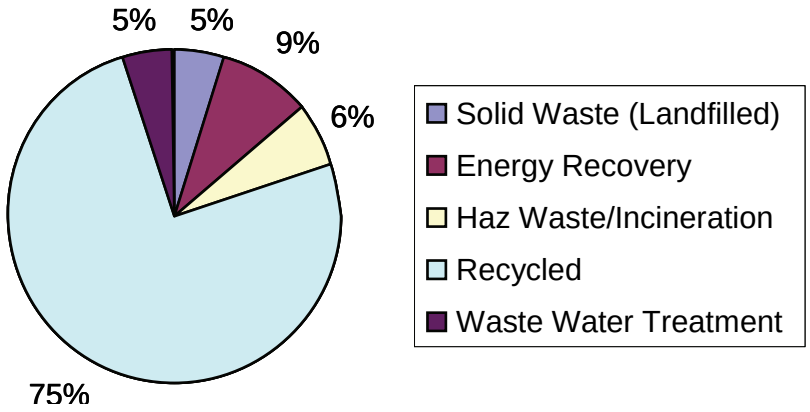
The top five counties that collected the most CESQG material per capita were:

Yakima Cowlitz Chelan Asotin Lewis

As shown in Table 6.7 (discounting the waste type "Other"), the dominant four types of CESQG waste collected in 2006 were antifreeze, flammable liquids, oil-based paint, and latex paint.

CESQG Disposition

Figure 6.5
CESQG Final Disposition



84-percent of all CESQG moderate risk waste was either recycled or used for energy recovery. See Figure 6.5 for the complete disposition of CESQG wastes. The biggest difference between final dispositions of HHW and CESQG wastes lie in the amount of waste recycled. 74-percent of CESQG waste was recycled while 46-percent of HHW was disposed of via the same method. Also significant, is the 9-percent of CESQG waste used for energy recovery while 30-percent of HHW waste was disposed of in the same manner.

Table 6.7
CESQG by Waste Type Collected in 2006 (top 25 types)

Waste Type	Total lbs. CESQG
Antifreeze	4,684,859
Flammable Liquids	788,031
Oil-based Paint	262,881
Latex Paint	119,872
Used Oil (non-contaminated)	75,473
Oil Filters	57,463
CRT's	43,672
Electronics	40,907
Oil with Chlorides	39,411
Latex Paint (contaminated)	38,144
Bases	26,672
Batteries (lead acid)	26,170
Acids	24,098

Waste Type	Total lbs. CESQG
Flammable Solids	14,657
Pesticide Poison Solid	14,332
Oil Filters (crushed)	10,983
Batteries (dry cell)	10,405
Batteries (small lead acid)	9,386
Chlorinated Solvents	6,961
Flammable Liquids (aerosols)	5,184
Pesticide Poison Liquid	4,595
Flammable Gas-Poison (aerosols)	4,182
Flammable Liquid-Poison	3,843
Flammable Liquid-Poison (aerosols)	3,680
Batteries (nicad/NIMH/lithium)	3,608
All Other	806,042
TOTALS	**7,125,511**

Collection/Mobile Events

Table 6.8 represents the number of mobile and collection events held statewide in 2006. The amount of waste collected through these types of events was almost 3.4 million pounds, which is approximately 10% of all MRW collected in 2006. Of the 87 events, 5 were e-waste collection only events. 30 mobile events were conducted by the Waste Mobile in King County and these events collected a little over 2.6 million pounds of MRW.

Table 6.8
2006 Collection/Mobile Event Collection Amounts

Type of Event	Number of Events	Pounds Collected
Mobile	67	2,956,141.06
Collection	20	437,384.80
Totals:	**87**	**3,393,525.86**

Used Oil Sites

In 2006, facilities and collection sites reported collecting a total of 10,048,372 pounds of used oil (contaminated – .5% and non-contaminated – 99.5%). Used oil collection by county population is starting to show consistency with the top producers over the last few years. See Table 6.9 for the six counties with the highest collections in pounds per capita by county size for 2004, 2005, and 2006.

Table 6.9
Used–Oil High Collection Counties, pounds per capita by county size collected at facilities and used oil collection sites

Used Oil Sites - 2004		
County	**Size**	**Lbs./ Capita**
Mason	50K-100K	13.0
Yakima	>100K	4.9
Skamania	<50K	4.7
Kittitas	50K-100K	4.2
Stevens	<50K	4.0
Cowlitz	50K-100K	3.6

Used Oil Sites - 2005		
County	**Size**	**Lbs./ Capita**
Mason	50K-100K	13.83
Garfield	<50K	8.33
Island	50K-100K	5.36
Stevens	<50K	5.34
Skamania	<50K	4.56
Yakima	>100K	4.16

Used Oil Sites - 2006		
County	**Size**	**Lbs./ Capita**
Mason	50-100K	10.9
Stevens	<50K	5.5
San Juan	<50K	3.8
Yakima	>100K	3.6
Asotin	<50K	3.3
Cowlitz	50-100K	3.3

Statewide Level of Service

The Washington State Office of Financial Management reported that as of 2006 Washington State had an estimated 2,715,532 housing units[2]. MRW Annual Reports revealed there were 213,276 participants. The actual number of households served is larger due to the fact that most used oil sites do not record or report numbers of participants. The actual number of households served is also larger because some participants counted at events or by facilities bring HHW from multiple households.

One way to estimate the approximate number of households served is to add 10 percent to the participant values. This method gives an estimate of 234,603 participants served in 2006. This number represents 8.6-percent of all households in Washington State. Table 6.10 shows the percent of participants served statewide since 2001.

The slight drop seen in statewide participation from 2005 to 2006 is something to track in the future.

Table 6.10
Percent of Participants Served Statewide

Year	Percent Participants Served	Year	Percent Participants Served
2001	6.1	2004	8.9
2002	6.8	2005	9.0
2003	8.9	2006	8.6

Trends in Collection

As fixed facilities continue to gain popularity, the number of collection events is decreasing. Some programs are eliminating collection events altogether or conducting waste specific events (electronics only) instead. Reasons for this shift include:

- Increased cost of collection events per amount of waste collected.
- Fixed facilities providing a sense of permanence and normality to the collection of MRW.
- Increased operation efficiencies with fixed facilities (including the option of having an efficient location to conduct a collection service for CESQG's).

Product Stewardship

Some other methods of managing MRW are beginning to gain wider acceptance in Washington State and across the country.

[2]This information was downloaded from Web site http://ww.ofm.wa.gov/

Product stewardship efforts have resulted in the electronics recycling bill and other work is currently underway for latex paint and compact fluorescent lights. Product stewardship principles have also guided the establishment of the Take it Back Network in King County, Snohomish County, Pierce County, Yakima County, and the City of Tacoma. The Take it Back Network was set up by local governments and consists of "a group of retailers, repair shops, non-profit organizations, waste haulers and recyclers that offer convenient options for recycling certain products that should not be disposed of in the trash."

The Take it Back Network is a voluntary program on the part of businesses. Due to this arrangement it can be difficult to get data on the total amount of materials brought back to the businesses. Table 6.11 shows the number electronic units collected by businesses in the Take it Back Network that data was available for in 2006.

Table 6.11
Units of Electronics Collected by the Take it Back Network in 2006

Type of Unit	Number of Units Collected
T.V.'s	11,183
Monitors	51,930
Laptops	708
Cell Phones	1,869
Peripherals	30,885

Emerging Waste Streams

MRW programs are well established statewide. Although the annual reports did not identify any new waste types, "Other Dangerous Waste" had grown to the fourth largest waste type in 2005. This indicated a need to identify what wastes were not fitting into the established categories of the report. Some jurisdictions filling out the 2006 reports indicated what they included in the "Other Dangerous Waste" category. Therefore, the 2007 reports will include some new waste types.

Used electronics continues to be an area of concern. Components in a number of electrical and electronic products contain one or more of the following substances:

mercury lead cadmium embedded batteries polychlorinated biphenyls (PCBs).

The electronics recycling bill should ease the burden of this high volume/high cost waste for local governments once it is up and operating by January of 2009. (See *Chapter II Partnering for the Environment* for more details about the electronics recycling program.

Other emerging waste streams include pharmaceuticals and personal care products.

Pharmaceutical wastes have been drawing more and more attention from state and local governments. A USGS Reconnaissance study in 1999-2000 tested 139 streams for the presence of 95 chemicals, including pharmaceuticals. Steroids, nonprescription drugs, and insect repellent were the chemical groups most frequently detected. Detergent metabolites, steroids, and plasticizers generally were measured at the highest concentrations. 46 of the chemicals were pharmaceutically active. In 2006, another study by Eastern Washington University and the USGS analyzed nine biosolids products from seven states. The concentration of pharmaceuticals in biosolids was higher than in water and treated waste water.

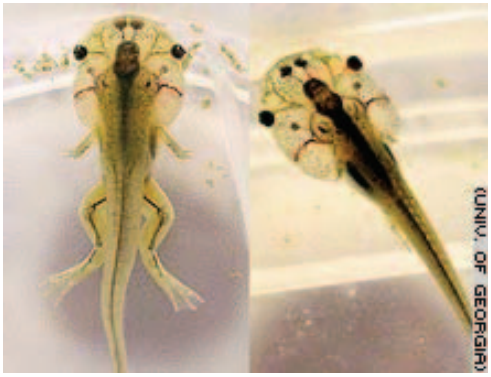
In 2005, 53 million prescriptions were filled in Washington State. A 2006 King County Survey found that only 33% of people will use up all their medication. This leaves a substantial amount of pharmaceutical waste to be managed. This becomes significant from a public health standpoint. In 2004 the American Association of Poison Control Centers (62 participating members serving 294 million people) reported a total of 2.4 million exposures. 58% of those exposures were from pharmaceuticals.

In 2006, a new 2 year pilot program started to collect pharmaceuticals at local pharmacies. Group Health sites participated initially, with Bartell Drugs participating later. Between October 2006 and September 2007 2,972 pounds of medication was collected.

The environmental side effects of pharmaceuticals are showing that aquatic and terrestrial organisms may be affected through endocrine disruption and anti-microbial resistance (Figure 6.7).

Figure 6.7

Two tadpoles after 57 days of development in the lab. The one on the right, **which has yet to sprout limbs**, was exposed to fluoxetine, also known as **Prozac, at 50 parts per billion**.



Personal care products are also becoming a concern for state and local governments. Personal care products include cosmetics, deodorants, nail polish, lotions, hair spray, styling gel, perfumes, and colognes. According to industry estimates as reported by the Toxic-Free Legacy Coalition:

- Consumers may use as many as 25 cosmetic products containing more than 200 different chemical compounds on any given day.
- 89% of the approximately 10,500 ingredients used in personal care products have <u>not</u> been screened for safety by the FDA or anyone else.

One chemical of concern found in personal care products are phthalates. Phthalates are a reproductive toxin/endocrine disrupter. Some studies have shown impacts on male reproductive system development.

- Moms with higher phthalate exposures were more likely to have boys with altered genital development including smaller penises and undescended testes (Swan et al., 2005; Marsee et al., 2006).

- Baby boys exposed to higher levels of phthalates in breastmik had slightly, but significantly, decreased testosterone levels (Main et al., 2005)

Groups like the Northwest Product Stewardship Council are working with state and local governments, NGO's, retailers and manufacturers to develop strategies to manage these emerging wastes based on product stewardship principles.

Annual Reporting

Ecology requires local programs to submit MRW report forms annually. For the past few years, Ecology has requested annual reports be submitted by March for the previous calendar year collections. The information received from local programs through the MRW annual reports provides Ecology with data on MRW infrastructure, collection trends, costs, and waste types received at collection events and fixed facilities. Ecology translates this data into the information contained in this chapter and designs it to be specifically useful to those who operate or work MRW programs within Washington State.

2006 Uncommon Item

Every year interesting and uncommon items find their way to HHW facilities throughout the State. Figure 6.8 shows an old bottle of Phenobarbital that was brought in to the Grays Harbor Facility in 2006.

Figure 6.8