

WASHINGTON STATE  
DEPARTMENT OF  
E C O L O G Y

# Solid Waste in Washington State

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*First Annual Status Report*

*Second Printing*

January 1993

Publication #92-103



*printed on recycled paper*

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Olympia, WA 98504-7600

**SOLID WASTE IN WASHINGTON STATE  
FIRST ANNUAL STATUS REPORT**

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January 1993

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## ACKNOWLEDGEMENTS

Special thanks goes to the following Ecology staff for providing data and information for this annual status report:

### ***Solid and Hazardous Waste Program***

#### Central Regional Office

Jeff Lewis  
Rick Roeder

#### Northwest Regional Office

Stuart Kent  
Cullen Stephenson  
Tamara Gordy

#### Eastern Regional Office

Mike Hibbler  
Doug Peters

#### Southwest Regional Office

Scott Carlson  
Kirk Cook  
Jim Sachet

#### Moderate Risk Waste

Bill Green  
Dave Nightingale

#### Solid Waste Section

Kyle Dorsey  
Al Hanson  
John Keeling  
Jim Pendowski  
Wayne Turnberg

### ***Waste Reduction, Recycling and Litter Control Program***

Steve Barrett  
Marnie Black  
Dale Clark  
Steve Diddy  
Kathie Emmett  
Tim Gaffney

Kitty Gillespie  
Joy St. Germain  
Veronica Tracy  
Debbie Van Scotter  
Tuan Vu

### ***Waste Management Grants***

Mariann Cook Andrews  
Suzanne Crouch

### ***Washington Utilities & Transportation Commission***

Jeffrey Showman

### ***Clean Washington Center***

Preston Horne-Brine

## ACRONYMS

BMP	Best Management Practices
CFR	Code of Federal Register
CPG	Coordinated Prevention Grants
DEIS	Draft Environmental Impact Statement
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESHB	Engrossed Substitute House Bill
EWU	Eastern Washington University
GA	Department of General Administration
HHW	Household hazardous waste
HWMA	Hazardous Waste Management Act
JHD	Jurisdictional Health Department
MFS	Minimum Functional Standards
MRW	Moderate risk waste
MSW	Municipal solid waste
MSWLF	Municipal solid waste landfill
MTCA	Model Toxics Control Act
PCS	Petroleum contaminated soil
RCRA	Resource Recovery and Conservation Act
RCW	Revised Code of Washington
SB	Senate Bill
SEPA	State Environmental Policy Act
SQG	Small Quantity Generator
SSB	Substitute Senate Bill
SW	Solid waste
SWMA	Solid Waste Management Account
WAC	Washington Administrative Code
WMG	Waste Management Grants
WR/R	Waste Reduction/Recycling
WRRRA	Washington Refuse and Recycling Association
WRRLC	Waste Reduction, Recycling & Litter Control Program
WRA	Washington Retail Association
WSCA	Western States Contracting Alliance
WSRA	Washington State Recycling Association
WUTC	Washington Utilities & Transportation Commission

## EXECUTIVE SUMMARY

Washington has been a leader in solid waste management since the passage of the first State *Solid Waste Management Act* in 1969 (chapter 70.95 RCW). Since that time, the Legislature has significantly revised the *Solid Waste Management Act* twice to reflect changes in the priorities for the way solid waste is managed. The current *Solid Waste Management Act*, as amended by the "Waste Not Washington Act" (ESHB 1671)<sup>1</sup> in 1989, establishes the following priorities for solid waste management:

1. Waste reduction.
2. Recycling, with source separation of recyclable materials as the preferred method.
3. Energy recovery, incineration or landfilling of separated wastes.
4. Energy recovery, incineration or landfilling of mixed wastes.

The Act also set a goal of recycling 50% of the state's waste by 1995. In 1990, Washington's citizens recycled about 34% of their waste<sup>2</sup>, compared to a national average of 17%.<sup>3</sup>

*The Solid Waste Management Act* recognizes the need "to compile and maintain adequate data on the types and quantities of solid waste that are being generated and to monitor how the various types of solid waste are being managed". Ecology was directed to collect information and to provide data to the state, local governments and the private industry to assist in decision making and program development.

With the 1989 amendments to *the Solid Waste Management Act*, Ecology was required to prepare a new state solid waste management plan. That plan, completed in January 1991, identified the need for data collection and management in order to provide the necessary information to the state, legislators, local governments, private industry and citizens to make appropriate decisions and to understand the current conditions of solid waste in the state. In order to fulfill the statutory obligation of providing data and implement recommendations of the state plan, Ecology has prepared this first annual status report, Solid Waste in Washington State.

## FINDINGS OF THE ANNUAL STATUS REPORT

Ecology undertook the development of this first annual status report in 1992. The intent of the first report was to locate, identify, classify and compile, in a database, basic information

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<sup>1</sup> This law amended several state statutes, including the *Solid Waste Management Act* (chapter 70.95 RCW). In this annual report, we will refer to the *Solid Waste Management Act*, which now includes the amendments provided for in the "Waste Not Washington Act."

<sup>2</sup> 1990 Washington State Recycling Survey, Washington State Department of Ecology, Publication #91-21.

<sup>3</sup> Characterization of Municipal Solid Waste in the United States: 1992 Update, U. S. Environmental Protection Agency, EPA/530-R-92-019, NTIS #PB92-207 166, July 1992. There is currently no standard methodology that is used by the USEPA or the states to measure recycling rates. Differences include variations on what commodities are included in the calculations and what data collection methods are used.

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**TABLE 1: A BRIEF HISTORY OF SOLID WASTE MANAGEMENT IN WASHINGTON**

Before 1969	NO SOLID WASTE PLANNING OR FACILITY STANDARDS	<ul style="list-style-type: none"> <li>• Open burning and uncovered dumps are prevalent.</li> </ul>
1969	SOLID WASTE MANAGEMENT ACT (Chapter 70.95 RCW):	<ul style="list-style-type: none"> <li>• Local health departments permit solid waste facilities.</li> <li>• State Solid Waste Advisory Committee established.</li> <li>• Local governments plan for solid waste management.</li> <li>• Open dumps closed or converted to sanitary landfills.</li> </ul>
1972	ECOLOGY ISSUES FIRST STATE SOLID WASTE MANAGEMENT PLAN (SWMP)	<ul style="list-style-type: none"> <li>• Local planning requirements established.</li> <li>• Guidelines developed for handling and disposal of residential and commercial wastes.</li> </ul>
	ECOLOGY ISSUES MINIMUM FUNCTIONAL STANDARDS (Chapter 173-301 WAC)	<ul style="list-style-type: none"> <li>• Open burning prohibited.</li> <li>• Standards established for all disposal facilities.</li> </ul>
1976	CONGRESS PASSES RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)	<ul style="list-style-type: none"> <li>• Legislature amends the Solid Waste Management Act to:               <ol style="list-style-type: none"> <li>1. Include hazardous waste management.</li> <li>2. Make "Waste management" priority over "disposal".</li> </ol> </li> </ul>
1980	ECOLOGY ISSUES 2nd SOLID WASTE MANAGEMENT PLAN	<ul style="list-style-type: none"> <li>• Collection and disposal systems addressed.</li> <li>• Hazardous, residential and commercial wastes included.</li> </ul>
1984	STATE SOLID WASTE MANAGEMENT ACT AMENDED	<ul style="list-style-type: none"> <li>• Waste management priorities defined as:               <ol style="list-style-type: none"> <li>1. Waste reduction</li> <li>2. Waste recycling</li> <li>3. Energy recovery or incineration</li> <li>4. Landfilling</li> </ol> </li> <li>• Local solid waste advisory committees (SWACs) required to assist counties in developing comprehensive solid waste plans.</li> <li>• Local comprehensive solid waste management plan updates required.</li> </ul>
1985	NEW MINIMUM FUNCTIONAL STANDARDS ARE ISSUED (Chapter 173-304 WAC)	<ul style="list-style-type: none"> <li>• Siting criteria, design standards, closure/post-closure and financial assurance requirements included.</li> </ul>
1988	ECOLOGY ISSUES BEST MANAGEMENT PRACTICES FOR SOLID WASTE (BMP)	<ul style="list-style-type: none"> <li>• State's solid waste composition and management methods analyzed.</li> <li>• Waste reduction and recycling supported as basic strategies of waste management.</li> </ul>
1989	STATE LEGISLATURE PASSES "WASTE NOT WASHINGTON ACT"	<ul style="list-style-type: none"> <li>• Set 50% reduction and recycling goal by 1995.</li> <li>• New solid waste management priorities established as:               <ol style="list-style-type: none"> <li>1. Waste reduction</li> <li>2. Recycling, with source separation preferred</li> <li>3. Energy recovery, incineration or landfilling of separated waste</li> <li>4. Energy recovery, incineration or landfilling of mixed waste.</li> </ol> </li> <li>• Ecology directed to prepare a new State Solid Waste Management Plan.</li> <li>• Local plan updates to include waste reduction &amp; recycling elements.</li> </ul>
1991	ECOLOGY ISSUES A NEW SOLID WASTE MANAGEMENT PLAN	<ul style="list-style-type: none"> <li>• Based on the new priorities for solid waste management.</li> <li>• Sets goals for the next twenty years.</li> <li>• Recommends actions to achieve the goals.</li> </ul>
1992	ECOLOGY REVISES THE MINIMUM FUNCTIONAL STANDARDS (TO BE COMPLETED 10/93)	<ul style="list-style-type: none"> <li>• Incorporate changes made at the Federal level in Subtitle D.</li> </ul>

about a variety of solid waste management facilities statewide. Information was provided primarily from Ecology's regional office staff. Additional information was also obtained directly from the municipal solid waste landfills.

The majority of the information contained in Chapter II is a result of this collection effort. Some additional information was supplied from other sources in Ecology and elsewhere as noted. Ecology has compiled the information and completed some basic analysis of the data obtained and has identified some implications of what seems to be occurring. These implications will be discussed later in this portion of the report.

Some of the basic findings of this first annual report include the following. (See Chapter II for a more detailed discussion of these findings.)

**Total Solid Waste Handling Facilities:**

- There are 459 solid waste facilities statewide, including landfills, intermediate transfer and storage facilities, incinerators and other types of facilities.
- Of the 459 facilities, 210 are publicly owned, 249 are privately owned.

**Municipal Solid Waste Landfills:**

- There were 45 active<sup>4</sup> municipal solid waste (MSW) landfills in Washington in 1991.
- Of the 45 MSW landfills, 32 are permitted, 13 are not permitted.
- Of the 45 MSW landfills, 36 are public (24 permitted), 9 are private (8 permitted).
- Of the 39 counties in Washington, 35 had active landfills in 1991.

**Waste Recycling:**

- In 1990, approximately 34% of Washington's waste was recycled.

**Waste Disposal:**

- In 1991, approximately 64% of Washington's waste was landfilled and 2% was incinerated.
- An estimated 3.8 - 3.9 million tons of waste was reported disposed at the 45 MSW landfills in 1991.
- 69% of the waste was disposed in public facilities, 31% in private facilities.
- 90% of the waste was disposed in permitted facilities, 10% in unpermitted facilities.
- Some of the 45 municipal solid waste facilities take in other types of waste in addition to municipal solid waste (MSW) and commercial waste. Some of these additional waste streams include demolition waste, inert waste, industrial waste, wood waste, sludge, asbestos and petroleum contaminated soils.

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<sup>4</sup> For purposes of this annual status report, active MSW landfills are those that accepted waste in 1991 from the general population (non-federal facilities).

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## ***Annual Status Report of Solid Waste for Washington State***

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- Only one MSW landfill in the state reported taking waste from out of state and from out of the country.
- MSW does move between some counties. Most of the movement is because of the more convenient location of a neighboring landfill. Some counties contractually long-haul their waste to other counties. In addition, specific waste streams, such as petroleum contaminated soils, moved between counties for disposal at certain landfills. In 1991, one city long-hauled waste to an Oregon facility.

### ***Remaining Capacity:***

- As of 1992, self-reporting by the 45 MSW landfills indicated 161 million tons of remaining capacity.
- Of the remaining self-reported capacity, 23% is in publicly-owned landfills, 77% is in privately-owned landfills.
- Based on self-reporting by the 45 MSW landfills, 19 expect to close, or stop taking MSW, by October 1993 (when new Federal RCRA Subtitle D landfill regulations (40CFR Part 258) take effect).
- Of the 19 facilities expecting to close by October 1993, 15 are publicly-owned, 4 are privately-owned.
- In the next five years, five (5) additional MSW landfills have indicated they will close.
- Based on currently permitted capacity, 21 MSW landfills will be operating in five years, with 20 of those continuing to operate 10 or more years. The majority of those landfills will be in eastern Washington.

## **IMPLICATIONS FOR SOLID WASTE MANAGEMENT**

In analyzing some of the information obtained during the preparation of the annual status report, Ecology has identified some trends to be evaluated further:

- Although there are several unpermitted MSW landfills (13) in Washington, only 10% of the waste was disposed in them.
- Of the 45 active landfills reporting in 1991, 19 have indicated they plan to close before the new Federal Subtitle D landfill regulations take effect in October 1993. This will leave only 26 operating MSW landfills in 1994.<sup>5</sup> The number of facilities closing could increase as the full implications of the more stringent Federal criteria become better understood by the MSW landfill owners.
- As MSW landfills close, both in the public and private sector, costs for proper closure and post-closure care will continue for the next 20 - 30 years.<sup>6</sup> The financial assurance

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<sup>5</sup> There are three active proposals for new landfills in Washington which, if completed, would increase this number.

<sup>6</sup> MSW facilities that close before October 1993 will have a 20 year closure period. The new federal Subtitle D standards require a 30 year closure period.

required for maintaining the proper closure conditions for this length of time is lacking, especially among publicly owned landfills.

- Because of this trend in landfill closures, Ecology will set as a high grant funding priority during the 1993-1995 biennium, assisting publicly owned municipal solid waste landfills with closing properly under chapter 173-304 WAC, the *Minimum Functional Standards for Solid Waste Handling*. A similar level of effort is expected to be made in the 1995-1997 biennium.
- In five years, 16 counties will have active landfills. While there will be adequate capacity statewide, the issue will become accessibility to that capacity.
- Although the majority of future capacity will be with the larger private-sector landfills, the publicly-owned MSW landfills will continue to play a role.
- As the new Federal Subtitle D standards come into effect in October 1993, many facilities in other states will likely close. Washington and Oregon both have large regional MSW, Subtitle D-complying facilities. Out-of-state waste coming to Washington may increase. The size of this increase cannot be determined at this time.
- Current estimates indicate sufficient capacity for the next 40 years based on the current waste disposal rates. Projections of remaining capacity are difficult because facilities that intend to remain open and operable may be closed because of non-compliance with landfill standards. The amount of waste to be disposed will vary depending upon the success of waste reduction and recycling programs, waste streams caused by cleanup activities (e.g., petroleum contaminated soils) are adding to the amount of waste disposed and future importation of waste from out-of-state will add to the waste stream. In addition, as more and more facilities close, the remaining capacity in those that are open will be used up faster.
- The pattern of MSW landfill closures indicates that the majority of remaining landfill capacity in 10 years will be in the eastern part of the state.

## NEXT STEPS

### **Data Collection**

The analysis conducted in 1992, of solid waste classifications and facility types revealed that comprehensive data gathering, through the development of annual reporting forms for each facility type, is needed to gain detailed insight into the waste characteristics of Washington's waste stream. Ecology's first year effort is significant since it not only identified the locations of 458 facilities but began a process of fostered cooperation between facility operators, health departments, municipalities, county governments, private consulting firms and other agencies of state government.

In the future, Ecology will more closely coordinate with other agencies and associations who are collecting information about various aspects of solid waste management. For example, in 1992, the Association of Washington Cities conducted a survey of their member cities and reported their findings in its 1992 Solid Waste Survey<sup>7</sup>. The Washington Utilities and Transportation Commission keeps information on their certificated haulers and curbside, multi-family and yard waste collection

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<sup>7</sup> 1992 Solid Waste Survey, Association of Washington Cities, October 1992.

programs. The Washington Refuse and Recycling Association completed a Preliminary Analysis of Refuse Company Revenue and Expenses study for its membership<sup>8</sup>. The Clean Washington Center is tracking information on markets for recyclables.

It is Ecology's goal to get these and other organizations involved in solid waste management together in early 1993, to discuss methodologies of data collection, discuss the types of information needed and what each group is currently tracking or planning to collect in the future. Data sharing and coordination, so that duplication of efforts does not occur, is the desired outcome for the future.

Another goal of Ecology is to achieve compliance with the Minimum Functional Standards' annual facility reporting requirement. Ecology has projected a four year schedule for developing standardized reporting forms, similar to the MSW landfill forms developed and disseminated in 1992, for each classification and facility type. Form development for 1993 has been initiated for energy recovery and composting facilities. In addition, Ecology wants to more actively involve the local jurisdictional health departments since they have the permitting and enforcement authority over the solid waste handling facilities in the state.

### **Program and Policy Development**

In the state/local partnership for solid waste management in Washington, Ecology has clearly prescribed roles. The ability to craft a program to meet these responsibilities is based on a clear understanding of the context in which they are to be carried out. The ability to understand current conditions and anticipate future trends becomes critical to improving technical assistance to public and private facility operators while maintaining adequate regulatory oversight in conjunction with local jurisdiction health departments.

This Annual Report forms the basis for Ecology's Solid Waste Management Program. The information presented in this and subsequent Annual Reports will assist in:

- (1) Upgrading the best management practices - RCW 70.95.280;
- (2) Conducting detailed waste stream analysis - RCW 70.95.285;
- (3) Updating the State Solid Waste Management Plan - RCW 70.95.260(2);
- (4) Providing technical assistance to individuals, cities, counties, and industry - RCW 70.95.260(3);
- (5) Initiating, conducting, and supporting research projects pertaining to solid waste management systems - RCW 70.95.260(4) and;
- (6) Adopting and revising minimum function standards for solid waste handling - RCW 70.95.60.

These aforementioned areas are ongoing Ecology program responsibilities. There are in addition to these activities, several near-term policy issues which the information contained in the Annual Report can address. In 1989, the amendments to chapter 70.95 RCW, the *Solid Waste Management--Reduction and Recycling Act*, established a fifty percent (50%) recycling goal for the state to be achieved by 1995. In addition, these amendments created a tax on solid waste collection to fund a

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<sup>8</sup> Preliminary Analysis of Refuse Company Revenue and Expenses, Columbia Research Corp., April 1992.

Solid Waste Management Account. The use of this account is directed to carry out the purposes of the *Solid Waste Management Act*. This Annual Report, and subsequent reports, will be used to do policy analysis in order to:

- (1) Assess program effectiveness in providing support for achieving the fifty per cent (50%) recycling goal;
- (2) Evaluate performance of the management system in terms of technical assistance, standards development and regulatory oversight as prescribed by chapter 70.95 RCW;
- (3) Provide recommendations on how to manage solid waste in the future based on the data provided in the Annual Report.

**CHAPTER I**

**ROLES AND RESPONSIBILITIES**

This chapter discusses some of the key roles, responsibilities and activities of local governments and state government. It is by no means inclusive. Several other local and state agencies have involvement in the management of solid waste. For this first annual status report, the following roles and responsibilities have been highlighted.

**ROLE OF LOCAL GOVERNMENTS**

In Washington, local governments have the lead responsibility for solid waste management. It is the responsibility of counties and cities to plan for and dispose of solid waste that cannot be reduced or recycled in a manner that is environmentally safe and economically sound. Local jurisdictional health departments are responsible for issuing permits, inspecting and administering enforcement actions against solid waste handling facilities.

**LOCAL PLANNING**

**Comprehensive Solid Waste Management Plans**

Since the early 1970's, each county within the state, in cooperation with the various cities located within the county, has been required by the *Solid Waste Management Act* to prepare a coordinated, comprehensive solid waste management plan. These comprehensive solid waste management plans detail and inventory all existing solid waste handling facilities and provide an estimate of long-range needs for solid waste handling facilities projected over a twenty-year period. The plans outline an orderly program for the development of solid waste handling facilities. The facilities included in the plan are to meet, among other requirements, the *Minimum Functional Standards for Solid Waste Handling (MFS)* (chapter 173-304 WAC).

Since 1989, counties and cities have also been required to include waste reduction and recycling elements in their solid waste management plans, written according to guidelines developed by Ecology.<sup>9</sup>

**Current Conditions**

The legislature expects counties and cities to make sound solid waste management decisions based on approved and "current" comprehensive solid waste management plans. In this regard, the legislature has placed two conditions on county plans which effect current conditions. First, a plan is to be reviewed and revised within five years of July 1, 1984, or more specifically, July 1, 1989; and, second, counties and planning cities are to submit a waste reduction and recycling element, a cost assessment element and any revisions to other elements of the plan by the specified dates per county area classification, i.e., Class One Areas by July 1 of 1991; Class Two Areas by July 1, 1992; and,

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<sup>9</sup> Guidelines for the Development of Local Solid Waste Management Plans and Plan Revisions, Washington Department of Ecology, Publication Number 90-11, March 15, 1990.

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Class Three Areas by July 1, 1994.<sup>10</sup> The date a plan is approved by Ecology is the official date for monitoring the five year statutory review process noted above.

Recent case law affirmed the importance of current condition planning in solid waste. On April 16, 1991, the Pollution Control Hearings Board (PCHB) in its "Findings of Fact," and "Conclusions of Law" in case #90-165, Weyerhaeuser Company, Inc. v. Cowlitz-Wahkiakum Health District & Department of Ecology, determined Ecology's approval of a plan amendment to the Cowlitz-Wahkiakum Comprehensive Solid Waste Management Plan in 1988, constituted an approved revision to the "entire" plan. The PCHB also noted that nothing in chapter 70.95 RCW suggested that a comprehensive solid waste management plan becomes void even if a local governmental jurisdiction fails to "review and revise"<sup>11</sup> the plan by the statutory deadline. The PCHB reasoned that when the legislature decides to declare an activity automatically void, such as a plan's expiration date for example, it does so "explicitly."

A comprehensive solid waste management plan does not become void automatically by statute regardless of changed conditions within a county. A plan only becomes antiquated if either a county so declares a plan review is necessary, or if Ecology declares a plan to be not in "current condition," that is, not reflective of changes within the county.

Ecology's current condition authority stems from two statutory points of reference. First, it is Ecology only that is granted the authority to approve plans by statute; and, second RCW 70.95.110(1) states a county or city's comprehensive solid waste management plan must be "maintained in a current condition and reviewed and revised periodically by counties and cities *as may be required by the department.*"

A plan's current condition status - reflective of changes in solid waste within a county - is of particular importance with respect to the backdrop of permit activity. That is, a jurisdictional health department can only issue a permit once a plan is approved by the department. The department is then charged with the responsibility of reviewing all permits issued by the jurisdictional health department to "ensure that the proposed site or facility conforms"<sup>12</sup> among other things to "the approved comprehensive solid waste management plan."<sup>13</sup>

Since the PCHB decision, Ecology has developed, adopted and initiated a "current condition" policy. Ecology's approach to declaring a plan "not current" follows what is called a "Grace Period Approach or Graduated Solid Waste Plan Review"<sup>14</sup> process. At the heart of the policy is the recognition the comprehensive solid waste management planning is an evolving process. Through cooperation, education, information sharing and technical assistance between Ecology and local governments engaged in planning activities, the department believes that local governments will meet the legislative planning mandates by the end of 1994 - the last year to plan for Class Three Areas.

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<sup>10</sup> The classes of areas are defined as follows: (a) Class one areas are the counties of Spokane, Snohomish, King, Pierce, and Kitsap and all the cities therein; (b) Class two areas are all other counties located west of the crest of the Cascade mountains and all the cities therein; and, (c) Class three areas are the counties east of the crest of the Cascade mountains and all the cities therein, except for Spokane county. RCW 70.95.110(3)

<sup>11</sup> PCHB #90-165, "Conclusions of Law," Item VIII., page 15.

<sup>12</sup> RCW 70.95.185

<sup>13</sup> RCW 70.95.185(2)

<sup>14</sup> Ecology's Current Condition Policy was adopted November 1991.

To gradually incorporate the current condition policy into comprehensive solid waste management planning, Ecology has sent letters explaining this approach to plan compliance to all counties. The department has established three parameters for compliance with the "current condition" provision of the law. First, a plan must comply with the five year statutory review period defined by the legislature. Second, a plan must contain the waste reduction, recycling and cost assessment elements by the required timeframe. And, third, the plan must conform with the procedural requirements of the law as well as specific findings of content review determined during the mandated plan review process. Based on these parameters of testing current condition, eighteen counties have plans that are in "current condition" while twenty-one counties have agreements or scheduled completion dates for their plans with Ecology per RCW 70.95.080(3). By reaching agreements on plan completion deadlines with the remaining counties, Ecology has accepted parameters of so-called not current or outdated plans as long as major county solid waste policy decisions conform to provisions contained in plans under development and if the counties maintain their agreed upon schedules for plan completion.

Table 2 depicts the present status of comprehensive solid waste management planning in the state based on "current condition" status. (See Map "C" in Appendix A for a map showing the counties included in each Ecology regional office.)

<b>TABLE 2: STATUS OF LOCAL SOLID WASTE MANAGEMENT PLANS</b>					
	<b>TOTAL</b>	<b>NWRO<sup>15</sup></b>	<b>SWRO</b>	<b>CRO</b>	<b>ERO</b>
<b>PLANS IN CURRENT CONDITION</b>	18	2	7	2	5
<b>PLANS ON REVISION SCHEDULE</b>	21	5	5	5	8
<b>TOTAL OF COUNTIES PLANNING</b>	39	7	12	7	13

**Moderate Risk Waste Planning<sup>16</sup>**

In 1985, the Legislature amended the *Hazardous Waste Management Act* (HWMA), chapter 70.105 RCW, to require local governments, or a combination of contiguous local governments, to prepare plans to manage moderate risk waste by June 1990. Moderate risk waste is defined as waste that is hazardous in characteristic but not otherwise regulated by the HWMA because it is generated by households or by businesses (called small quantity generators or SQG's), but in amounts less than the quantity exclusion limits established in the *Dangerous Waste Regulations*, chapter 173-303 WAC.

Local governments formed 33 planning areas for which they would prepare moderate risk waste plans. A planning area generally consisted of one or more counties and all the cities therein. A lead agency was selected to prepare the plan and secure grant funding (grants through Ecology paid for 75% of

<sup>15</sup> There are two additional plans in the NWRO not included in this number. Under RCW 70.95.080 cities are offered three options for the preparation of local comprehensive plans: (1) Prepare its own plan; (2) Enter into an agreement with the county and prepare a joint plan; (3) Authorize the county to prepare the plan to include the city. Two cities have opted to prepare their own plans - Seattle (plan in current condition) and Everett (on a schedule to prepare a revised plan).

<sup>16</sup> Because of the requirements for local governments to prepare hazardous waste plans (moderate risk waste plans) and the involvement of households in this waste stream, Ecology has determined that MRW will be included under the larger definition of solid waste for the purposes of this annual report and for inclusion in a revised State Solid Waste Management Plan.

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the planning costs, \$2.6 million, from the Local Toxics Control Account and Centennial Cleanwater Fund). Lead agencies varied from area to area to include health districts/department, councils of governments, planning or public works department, or any combination of the above.

After the plan was prepared, it was submitted to all jurisdictions for adoption, and then to Ecology for approval. Ecology approval establishes eligibility for grant funds to implement the plans. By November 1992, all 33 moderate risk waste plans had been approved by Ecology.

Unlike comprehensive solid waste management plans which have a twenty-year planning period, MRW plans have a five year horizon, generally 1992 - 1996. Plans were divided into five parts:

- Introduction and purpose, including a goals statement,
- Background description of the planning area,
- Existing and future conditions and needs, which included a rough quantification of generation rate and disposal practices for the various moderate risk waste (MRW) streams,
- Plan objectives and alternatives to solve the problems described in the needs analysis, and
- Recommended programs and actions, including a budget and implementation schedule. In addition, specific waste streams were targeted for special attention. In all plans, used oil was one of the targeted waste streams. Programs were required in each of five areas: household and public education, household collection, SQG education and technical assistance, SQG collection assistance, and SQG compliance/enforcement.

MRW plans were to be implemented by local governments by December 1991. Since 1991, when the first implementation grants were awarded by Ecology, almost \$13 million has been disbursed to local governments for MRW activities. Despite this extensive funding, there is a shortfall in the projected costs to implement local MRW programs. Costs for the 1991-1993 biennium have been estimated at \$28 million, rising to \$33 million for the 1993-1995 biennium<sup>17</sup>. (See Chapter III for additional information about MRW activities in Washington.)

In 1991, the Legislature enacted the *Used Oil Recycling Act*, chapter 70.951 RCW, which requires local governments to amend their MRW plans to include household used oil. This Act sets a final collection/recycling goal of 80% by 1996. Local governments were to discuss in their plan amendments ways they would provide convenient collection of used oil, and how they would educate the public to make them aware of the need for proper disposal of used oil.

### **COLLECTION AND DISPOSAL OF SOLID WASTE**

A city may establish a system of solid waste handling for the entire city or for any portion of the city. With a few exceptions, a city may require property owners and occupants to use the solid waste collection and disposal system or recyclable materials collection and disposal system, and set charges for those systems. A city is responsible for assuring that the solid waste handling systems and facilities, whether publicly or privately owned, are consistent with the city's solid waste management plan, which has been integrated into the county's comprehensive solid waste management plan.

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<sup>17</sup> The Problem Waste Study, Washington State Department of Ecology, Publication Number 90-59, December 1990.

Counties are authorized to establish solid waste handling and disposal systems or facilities for unincorporated areas, and make any rules and regulations necessary for the use and occupation of those sites. A county may designate a disposal site or sites for all solid waste collected in the unincorporated areas. A county is responsible for assuring that the solid waste handling systems and facilities, whether publicly or privately owned, are consistent with the county's solid waste management plan.

Although a county may contract for the collection of source separated recyclable materials from residences within the unincorporated areas, counties are explicitly prohibited from operating a solid waste collection system. Solid waste collection in unincorporated areas of the state is regulated by the Washington Utilities and Transportation Commission.

Counties may form two types of special purpose districts: solid waste collection districts and solid waste disposal districts. The two districts have different purposes: a disposal district allows a county to levy a tax to fund solid waste, while a collection district allows a county to require mandatory solid waste collection.

### **FACILITY PERMITTING AND ENFORCEMENT**

Local jurisdictional health departments are responsible for issuing permits for solid waste handling facilities. The health department must investigate every application to determine whether an existing or proposed site and facilities meet all applicable laws and regulations, conform with the approved comprehensive solid waste management plan, and conform with all zoning requirements. Health departments have sole jurisdiction for issuing and suspending permits in accordance with locally adopted rules and state regulations.

Ecology reviews every solid waste facility permit issued by a jurisdictional health department to ensure that the proposed site or facility conforms with: (1) all applicable laws and regulations including chapter 173-304 WAC, *Minimum Functional Standards for Solid Waste Handling (MFS)*; and, (2) the approved comprehensive solid waste management plan. In reviewing conformance with the comprehensive solid waste management plans, Ecology's technical review specialists are to determine if the jurisdiction has a plan maintained in a current condition.

Ecology has the authority to appeal a permit that does not conform with these requirements to the Pollution Control Hearings Board (PCHB), within thirty days of the permit issuance. The PCHB may overturn Ecology's appeal, in which case the permit is issued, or sustain the appeal, in which case issuance of the permit is revoked. Both actions are appealable to Superior Court.

Local jurisdictional health departments also are responsible for inspecting solid waste handling facilities and administering any enforcement action against a non-complying facility.

### **FINANCIAL ASSISTANCE TO LOCAL GOVERNMENTS**

To assist local governments in fulfilling their role of planning, enforcing laws and ordinances, and providing waste reduction and recycling opportunities to citizens, Ecology provides financial assistance in the form of grants.

## GRANTS TO LOCAL GOVERNMENTS

One of Ecology's responsibilities under the *Solid Waste Management Act*, and related laws such as the *Model Toxics Control Act*, is to distribute financial aid to local governments. Ecology has been issuing grants to local governments since 1971. The first grants helped local governments plan for solid waste management. Following are some grant programs that help local governments develop and implement plans to manage solid and moderate risk waste. (For additional information on grants, see Table 3.)

### Coordinated Prevention Grants (CPG)

In 1991, Ecology responded to the needs of local governments by consolidating several programs and their separate "pots" of money into a larger, unified Coordinated Prevention Grants (CPG) program. This program encourages local governments to consider all their waste management needs at the same time and to cooperate in regional solutions to waste problems.

The coordinated program also encourages local governments to use their local solid and hazardous waste plans as working tools. Projects should be contained in Ecology-approved and adopted plans if they are to be funded, which serves to tie daily activities to long-range planning.

The grant program is non-competitive. Every two years the available grant money is allocated for each county-wide area, using a formula based on a constant amount per county plus a certain amount per capita. Grant recipients must provide a local match of cash expenditures, from 25 to 40 percent of the total eligible costs. Grants do not pay for incinerators, new landfill construction, or garbage collection and disposal. Some of the activities they do pay for include:

- Educating and informing the public about ways to reduce the amount and toxicity of the waste they produce and ways to recycle their waste.
- Supporting and encouraging recycling, such as curbside collection and drop-off facilities.
- Funding collection events for household hazardous waste to divert it from the solid waste stream and ensure proper disposal.
- Educating and informing businesses about waste management and recycling, and help them find manufacturing methods that produce less hazardous waste.
- Enforcing solid waste laws and ordinances to ensure that solid waste is managed and disposed of in an environmentally safe manner.

### HOW TO OBTAIN INFORMATION ON GRANTS

Many grant projects have provided useful information about various waste reduction and recycling options. Beginning in 1992, final reports and plans produced through grant projects are on loan from Ecology's program resource center. On a regular basis, Ecology will mail out a brief listing of the available reports and documents. Anyone in the state who wants to borrow a copy of a report will be able to contact Ecology and request it on loan, or contact the issuing local government directly for a copy.

Another source of grant program information is the quarterly bulletin, Sources. This newsletter provides information on Ecology's programs offering financial and technical help for environmental problems, including grant awards, achievements, and availability of grants.

For more information, contact:

**Waste Management Grants Section, Department  
of Ecology**

**(206) 438-7564**

**TABLE 3: WASTE MANAGEMENT GRANT  
INFORMATION**

Monies comes from the Local Toxics Control Account, established by the *Model Toxics Control Act* and funded by state taxes on toxic substances, from the Hazardous Waste Assistance Account, funded by fees paid by businesses that generate or potentially generate hazardous waste, and from the Referenda 26 and 39 accounts, funded by the sale of general obligation bonds.

### **Demonstration Projects and Pre-Implementation Grants**

During 1991, cities and counties used grants for a wide variety of waste reduction and recycling projects. The Waste Reduction and Recycling Phase I grants program provided assistance to local governments for demonstration projects, to try out more than one recycling collection option in different areas, and for pre-implementation program design, to research and design regional recycling systems.

Monies for these grants come from the Referenda 26 and 39 accounts. There were 13 active projects in 1991 using these grants. The total amount of money made available was \$4 million. The remaining \$12 million in the Referenda 26/39 accounts is earmarked for capital costs for recycling equipment and facilities. Ecology began accepting applications for these Phase II funds in the fall of 1992. The funds will be available through 1995.

### **Tire Grants**

Two programs are assisting local governments in finding new uses for waste tires and cleaning up waste tire piles, using grants and contracts provided by the Vehicle Tire Recycling Account. The account is funded by a one-dollar fee on the retail sale of new replacement vehicle tires. Tire Recycling Grants have helped local governments try out new uses for waste tires, such as the city of Spokane's \$26,250 grant for a rubberized asphalt project. Spokane paved a city street in 1989 and will evaluate the project annually until 1993.

The Vehicle Tire Recycling Account is now being used primarily for waste tire pile cleanups. Over 817,000 tires were removed in 1991 from piles in Pierce, Thurston, Clark and Asotin counties. Many of the tires are shredded for cement plant and pulp mill fuel. Some are retreaded, some are used as marine bumpers, and in Klickitat County, tire shreds were used as road sub-base. (See Chapter III for further discussion of tires.)

### **Waste Reduction and Recycling Public Information and Education Grants (WRRPIE)**

In 1989-1990, a \$1 million grant program was developed by Ecology to implement a statewide waste reduction campaign and to further develop local programs. A manual and catalog of available educational materials and guidance on the development and implementation of waste reduction and recycling education programs was developed and provided. The program required local governments to apply for grant funding and come up with a 25-50% match. The first campaign focused on "Smart Shopping to Reduce Waste."

In 1992, Ecology worked with local governments on a new statewide waste reduction and recycling public information and education campaign focused on waste reduction, with special emphasis on backyard composting and household hazardous waste. The approach allows Ecology to work with local governments in developing the program and campaign, and distribute the materials to local governments without grant applications and match requirements.

**Compost Study Grants**

Compost Study Grants were provided through the Solid Waste Management Account, funded by a tax on solid waste collection. In 1991, the first year of the grant program, five grants funded four projects (one was a joint project). These grants provide financial assistance to local governments for:

- Researching how to enhance current markets and uses, and developing new markets
- Obtaining technical information about product quality, and testing appropriate applications for compost products.
- Testing new collection and/or processing methods for compost, and testing the quality of the finished compost product.

Results of these grants will be available in June 1993.

**ROLE OF ECOLOGY**

Specific planning, data collection, technical assistance and oversight duties are the responsibility of Ecology. Some of these include reviewing and approving local comprehensive solid waste management plans, providing technical assistance to local governments for planning, developing ordinances and local policies, reviewing solid waste facility permits and providing educational and informational materials.

**STATE PLANNING**

In 1989, the Legislature required Ecology to prepare a new state solid waste management plan. In January 1991, Ecology completed the Washington State Solid Waste Management Plan<sup>18</sup> which sets goals for the next twenty years (see Table 4) and has the future vision that:

<p><b>WASTE REDUCTION</b></p> <p><i>Everyone practices waste reduction techniques, with waste generation per capita decreasing annually.</i></p>
<p><b>RECYCLING</b></p> <p><i>Everyone recycles, reuses or composts all waste possible.</i></p> <p><i>Secondary materials are preferably used.</i></p> <p><i>Markets for all recyclable materials are established and reliable.</i></p>
<p><b>DISPOSAL</b></p> <p><i>Only source separated waste is disposed, with all reusable, recyclable, compostable material removed.</i></p> <p><i>Disposal practices are environmentally sound and protect human health.</i></p>
<p><b>SOLID WASTE MANAGEMENT</b></p> <p><i>Adequate resources are available to manage waste to the highest priority method possible.</i></p> <p><i>All levels of government, citizens and the private sector are working cooperatively.</i></p> <p><i>Each level of government has the authority it needs to manage waste properly.</i></p> <p><i>Solid waste laws and regulations are clear, consistent and workable.</i></p>

**TABLE 4: GOALS OF THE 1991 STATE PLAN**

<sup>18</sup> Washington State Solid Waste Management Plan, Washington State Department of Ecology, Publication #91-1, January 1991.

**All solid waste in Washington State (including industrial waste) will be managed by the highest priority method possible, as specified in the Solid Waste Management Act, to protect the environment and human health.**

The State Plan also makes recommendations for action that state and local government, citizens, businesses and the legislature need to take to meet the goals. For specific conclusions of the State Plan, see Table 4. Some of those recommendations recognized the need to obtain better information about the current state of solid waste so that future planning and policy decisions can be made. This annual report will assist in developing that information base.

Part of the direction of the Legislature was also for Ecology to review and revise the state plan as necessary every two years. Part of the revision process is to prepare this annual status report to determine the status of solid waste in the state and guide in implementing and updating the State Plan.

### **DATA COLLECTION AND DISTRIBUTION**

Ecology is responsible for the collection of information and data on all aspects of solid waste management to assist local governments and policy makers. Some of the specific tools used are discussed below.

#### **Annual Recycling Survey and Waste Characterization Study**

Two of the measurement tools, the recycling survey and the waste characterization study, assist policy makers, government officials, and the business community in evaluating existing waste reduction and recycling programs and identifying where problems remain.

Ecology conducts an annual recycling survey to track the progress toward meeting the statewide goal of a 50% recycling rate by 1995. The annual survey is sent by mail to all recyclers to find out how much was collected in Washington in a given year.

The last waste stream characterization study was completed in 1989.<sup>19</sup> A new waste characterization study, begun in 1992, is scheduled for completion in mid-1993. The study will:

- Generate data that will characterize the disposed waste stream;
- Produce primary waste generation and disposal data, including the validation of recycling estimates; and
- Characterize specific wastes from residential, commercial and industrial generators.

#### **Annual Status Report**

This Annual Status Report is the result of the need to obtain and utilize more information about the entire realm of solid waste management in the state. Chapter 70.95 RCW, the *Solid Waste Management Act* and the *State Solid Waste Management Plan* both recognize the need for data collection and utilization to make wise and sound policy choices for the future of solid waste management.

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<sup>19</sup> Best Management Practices Analysis for Solid Waste, prepared by the Matrix Management Group for the Department of Ecology, December 1988 and January 1989, Publication Nos. 88-33A-D.

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For this first report, Ecology limited the data collection to obtaining information about the solid waste infrastructure statewide. More detailed information was collected for the municipal solid waste landfills. (See Chapter II for more information.)

The future plans for the annual status report process include improving existing data collection methods and obtaining more detailed information about the other classifications of solid waste facilities in the state. Tracking the movement of solid waste around the state, and between states, is another area that needs more information.

Other important additions to the annual status report include obtaining the permit and compliance status of facilities with the various regulations, preparing facility profiles and obtaining more adequate determination of waste types and quantities at the various classifications of facilities.

### **WASTE REDUCTION AND RECYCLING TECHNICAL ASSISTANCE**

The 1989 amendments to the *Solid Waste Management Act* established waste reduction and source separation as the fundamental strategies of solid waste management, with an aggressive state goal to achieve a 50% recycling rate by 1995.

Ecology provides programs and technical assistance designed to assist local governments in their waste reduction and recycling efforts by working with local solid waste advisory committees, providing technical information, organizing statewide recycling coordinator meetings, and researching solutions to specific program implementation problems.

#### **A-Way with Waste Curriculum**

*A-Way With Waste* is a comprehensive solid waste education program first prepared by Ecology in 1985, in cooperation with the Association of Washington School Principals, the Washington Education Association, the Superintendent of Public Instruction's Office and the Washington State Office of Environmental Education in 1985. The foundation of the program is the A-Way With Waste curriculum, a K-12 multi-disciplinary classroom activity guide which includes information on waste reduction, recycling, landfilling, incineration, litter control, hazardous waste management, and household hazardous wastes.

Approximately 500 teachers from around the state attended the training workshops during 1991. That would represent a possible 30,000 - 40,000 students reached with Ecology's environmental education program, assuming 100 percent utilization of the material.

#### **Household Toxics Education**

Ecology provides assistance and backup to local governments who have a lead role in educating the public about the hazardous products used in and around the home. This assistance to local agencies includes:

- Providing educational materials and guidance documents developed for local use and distribution;
- Cataloging waste education materials that are available for local reproduction and use; and
- Directing assistance on an individual basis or through workshops.

A statewide waste reduction education campaign will be implemented in April 1993. The campaign will likely focus on strategies to reduce the use of toxic products in and around the home.

### **Compost**

Ecology provides cities, towns and counties with technical assistance regarding the types of compost facilities to include in their local comprehensive solid waste management plans. To encourage citizens, businesses and local governments to compost their organic solid wastes and use the finished compost product as a soil amendment or mulch, Ecology is developing guidelines that establish testing procedures and numerical thresholds to distinguish compost products from waste. The guidelines should be completed by March 1993.

### **State Agency and Institution Waste Reduction and Recycling**

All state agencies and institutions are required to plan and implement waste reduction and recycling programs. As part of the Government Options to Landfill Disposal (G.O.L.D.) Program, Ecology and the Department of General Administration (GA) work cooperatively in providing technical assistance to state agencies and institutions on these G.O.L.D. plans and program implementation. Forty-eight (48) of the 90 G.O.L.D. plans were submitted to Ecology by the end of 1992. The waste reduction and recycling programs of state government through the G.O.L.D. Program contribute toward reaching the 50% recycling goal by 1995 and reaching the G.O.L.D. Program goal of a 50% increase in the use of recycled content paper by July, 1993. GA is tracking the progress of recycling by the state agencies and institutions. During the reporting period of January 1 - June 30, 1992, 37 agencies (over half of the agencies and institutions) reported a 31% recycling rate.<sup>20</sup> Since those reporting represented the major agencies and institutions, GA indicated this is probably a reliable average recycling rate.

### **Product Packaging**

In Washington, packaging comprises about 30% of the solid waste stream. Ecology continues to explore ways to eliminate, minimize, and reuse materials associated with product packaging, to increase recycling and the number of products made with recycled content, and to increase public awareness of packaging issues. In 1990, a task force that included representatives from state and local government, the public, environmental associations, and industry produced the Action Plan of the Packaging Task Force<sup>21</sup> that recommended a variety of strategies to accomplish package reduction. Today, Ecology is working cooperatively with retailers and manufacturers on voluntary efforts to eliminate, reduce, reuse, and recycle packaging.

### **Procurement**

Materials are not truly recycled until they are remanufactured and sold in its new form. Educational programs must think of recycling as an integrated system - not just a collection program. Ecology works with GA, the Department of Trade and Economic Development's Clean Washington Center, and with local governments on increasing the procurement of products made with recycled content. Ecology's work includes producing educational materials for citizens; providing assistance to GA to implement the G.O.L.D. Program, the "Buy Recycled" Program, and contracts from the Western States Contracting Alliance; providing assistance to local governments on their procurement policies, ordinances and education programs; working with the Washington Retail Association on their

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<sup>20</sup> Personnel communication, David Block, Department of General Administration, December 1992.

<sup>21</sup> *Action Plan of the Packaging Task Force*, December 31, 1990.

voluntary Preferred Packaging Procurement Guidelines; and providing data on the amount and type of recyclable materials collected annually.

**Awards for Achievement in Waste Reduction and Recycling**

Ecology coordinates three awards programs for efforts in waste reduction and recycling. The awards and 1992 recipients are discussed below.

**Governor's Award for Outstanding Achievement in Pollution Prevention:**

Ecology has developed an award program called the Governor's Award for Outstanding Achievement in Pollution Prevention. The goal of the program is to foster a pollution prevention ethic in Washington by publicly recognizing businesses whose programs exemplify Washington's goal of reducing pollution at the source.

In implementing this program, Ecology has focused on the top level of the waste management hierarchy by recognizing outstanding reduction and recycling efforts. Evaluation criteria also emphasize multi-media, comprehensive pollution prevention programs. First year award winners for 1992 are shown in Table 5.

TABLE 5: GOVERNOR'S AWARD		
1992 WINNERS		ACCOMPLISHMENT
CATEGORY	BUSINESS / ENTITY	
Small Business	<i>K D Autobody, Inc.,</i> Puyallup (small collision repair facility)	Found ways to reduce air emissions and hazardous waste generation in their facility.
Medium-sized Facilities	<i>Elf Atochem,</i> Tacoma (Chemical Production Facility)	Made substantial reductions in the use of hazardous substances, generation of toxic air emissions, hazardous waste and waste water pollutants.
Large Business/ Industry	<i>Boeing,</i> several facilities (Defense & Space)	Successful chemical reduction and substitution program.
Government Facilities	<i>Naval Submarine Base,</i> Bangor - Hood Canal (Military Installation)	Hazardous waste minimization program has taken an innovative, comprehensive approach including a "reutilization store".
Honorable Mention	<i>Leathercare,</i> Seattle (Drycleaning)	Reduced use of chlorinated solvents, air emissions, wastewater discharges and generation of hazardous waste.
Honorable Mention	<i>Natural Blue, Inc.,</i> Ferndale (Blueberry Farm)	Eliminated use of soil fumigants, chemical fertilizers, insecticides and herbicides.
Honorable Mention	<i>Nelson Irrigation Corp.,</i> Walla Walla (Irrigation Equipment)	Developed an aqueous cleaning system to replace the use of vapor degreasers which use chlorinated solvents.
Honorable Mention	<i>Pierce County Transit,</i> Tacoma (Public Transit)	Demonstrated the viability of using compressed natural gas for transit buses.

**School Awards Program**

The School Awards Program provides cash awards to public schools for their waste reduction and recycling programs. Ecology also provides technical assistance to schools and school districts to help them implement waste reduction and recycling programs.

All K-12 public schools are eligible to apply. A team of judges score the applications, and finalist schools are visited. Awards are provided on the basis of waste reduction and recycling methods, education, training, purchasing practices and innovative features. Table 6 lists the 1991-1992 award winners.

<b>TABLE 6: 1991 - 1992 SCHOOL AWARDS</b>			
<b>AWARD</b>	<b>SCHOOL</b>	<b>LOCATION</b>	<b>AMOUNT</b>
<b>BEST WASTE REDUCTION</b>	Mount Baker High School	Deming	\$5,000
<b>BEST RECYCLING PROGRAM</b>	Mercer Island High School	Mercer Island	\$5,000
<b>OUTSTANDING WASTE REDUCTION &amp; RECYCLING PROGRAM<sup>22</sup></b>	John Hay Elementary School	Seattle	\$2,000
	Latona Elementary School	Seattle	\$2,000
	Montlake Elementary School	Seattle	\$2,000
	Ridgeview Elementary School	Yakima	\$2,000
	Stillwater Elementary School	Carnation	\$2,000
	Alternative School One	Seattle	\$2,000
	Cashmere Middle School	Cashmere	\$2,000
	Hamilton Middle School	Seattle	\$2,000
	Narrows View Intermediate School	Tacoma	\$2,000
	Waldron Island School	Waldron Island	\$2,000
	Cascade High School	Everett	\$2,000
	Nathan Hale High School	Seattle	\$2,000
	Orcas Island High School	Orcas Island	\$2,000
Riverside High School	Chattaroy	\$2,000	
Sequim High School	Sequim	\$2,000	

<sup>22</sup> Awards were given for Elementary Division, Middle School/Junior High School Division and Senior High School Division.

### **Waste Reduction and Recycling Awards**

Each year, Ecology presents Waste Reduction and Recycling Awards at the Washington State Recycling Association Conference. These awards recognize a wide variety of programs being instituted by state and local governments, the private sector, non-profit groups and individuals, that show a commitment to finding ways to reduce waste or recycle material. Table 7 lists the award winners for 1992.

### **Providing Assistance to the Public**

#### **Recycling Hotline**

Ecology operates the Recycling Hotline, 1-800-RECYCLE to help citizens find ways to reduce waste and recycle. During 17 years of operation, the "hotline" has received nearly three quarter of a million calls. Currently, information available at 1-800-RECYCLE includes: backyard composting techniques, disposal options for household toxic materials, and suggestions about alternative products posing less of a threat to human health and the environment. Businesses hoping to reduce or recycle their waste, toxic or not, can also find useful advice through the Business Technical Assistance portion of the recycling information line. Ecology also operates a 1-800-LITTERS Hotline to report litter violators or obtain information about the litter program.

<b>1991 TOTAL CALLS</b>	
1-800-RECYCLE	110,192
1-800-LITTERS	5,774
BUSINESS ASSISTANCE	1,218

**TABLE 8: ECOLOGY RECYCLING HOTLINE**

In 1991, the most frequently asked questions by households were about plastics, used motor oil, household hazardous wastes, and local curbside programs. The majority of business calls originated from the automotive industry, with the most frequently asked questions concerning used oil filters.

#### **Senior Environmental Corps**

The Senior Environmental Corps is a group of retirees committed to environmental protection. Statewide, 27 volunteers were recruited by Ecology in 1991 to conduct waste audits and provide information on waste reduction and recycling. In total, 650 hours were spent doing waste consultations, staffing informational booths and teaching others about waste reduction and recycling.

#### **Ecology Youth Corps**

In the summer of 1992, the Ecology Youth Corps (EYC) Litter Pick-up Program organized 320 young people into thirty-two crews between June 25 and August 31. They cleaned a total of 3,855.3 miles of highways and gathered 23,887 bags (179 tons of litter). From the collected litter, 13,211 pounds of aluminum, 21,158 pounds of glass and 5,561 pounds of metal were sorted and taken to recycling centers.

Ecology Youth Corps members may also participate in the EYC School Program. This program gives young people an opportunity to educate their peers and the community on the benefits of waste reduction and recycling.

**TABLE 7: 1992 WASTE REDUCTION & RECYCLING AWARDS**

1992 WINNERS			ACCOMPLISHMENT
CATEGORY	BUSINESS / ENTITY		
BEST INDUSTRY PROGRAM	<i>Daishowa Recycles</i> <b>DAISHOWA AMERICA CO, LTD</b>		Launched a \$40 million recycling operation utilizing more than 200 tons per day of old telephone books, newspapers and magazines.
BEST WASTE REDUCTION PROGRAM	<i>City of Seattle, Waste Reduction Program</i> <b>CITY OF SEATTLE SOLID WASTE UTILITY</b>		Initiated a number of innovative ideas and technologies in its residential waste reduction education program, including training residents on backyard composting and retail based waste reduction education programs.
BEST PUBLIC INFORMATION & EDUCATION PROGRAM	<i>Give Yourself a Gift, Too</i> <b>ENVIRONMENTAL RESOURCE SERVICES OF BELLINGHAM</b>		Developed programs aimed at helping Whatcom County residents consider the personal and environmental benefits of waste reduction and recycling.
BEST MULTI-FAMILY PROGRAM	<i>Apartment &amp; Condominium Program</i> <b>CITY OF REDMOND</b>		Initiated the first city-wide, on-site, multi-family recycling program. The program is now available to all condominium and apartment complexes within the city limits.
	<i>Multi-family Recycling Program</i> <b>KING COUNTY SOLID WASTE DIVISION</b>		Introduced the "service representative" concept which links the local hauling companies with customer accounts in order to provide information and assistance to multi-family complexes.
BEST BUSINESS / COMMUNITY PROGRAM	<i>Reduce! Reuse! Recycle! Program</i> <b>SEATTLE TIMES</b>		Lauded for its aggressive in-house waste reduction & recycling programs in addition to its promotion of the reuse of recycled newspapers. Over 70 percent of the Times newspaper comes from recyclable paper.
MOST INNOVATIVE PROGRAM	<i>Community Recycling Pilot Project</i> <b>CITY OF OLYMPIA</b>		Developed a pilot project to collect recycled materials from small businesses in the downtown Olympia area. Over 100 businesses currently subscribe to the service.
BEST SMALL GOVERNMENT	WEST	<i>Issaquah, Solid Waste-Recycling Office</i> <b>CITY OF ISSAQUAH</b>	Recognized for its comprehensive residential recycling program and special recycling efforts such as yardwaste chipping, textile collections and composting advise.
	EAST	<i>Recycling &amp; Waste Management Office</i> <b>WALLA COUNTY</b>	Acknowledged for its work with grassroots organizations to develop recycling opportunities in over 50 neighborhood recycling stations staffed by volunteers.
BEST LARGE GOVERNMENT	WEST	<i>Pierce County Waste Reduction &amp; Recycling Office</i> <b>PIERCE COUNTY</b>	The Utilities Department of the County distinguished itself through its aggressive promotion of county-wide single family curbside recycling programs.
	EAST	<i>Yakima County Solid Waste Division</i> <b>YAKIMA COUNTY</b>	The County Public Works Department initiated a courthouse in-house recycling program, an on-site recycling/salvaging operation at the County landfill, a hotline service and waste education program.
SPECIAL RECOGNITION AWARD	<i>Diana Gale</i> <b>CITY OF SEATTLE</b>		As the former Director of the Seattle Solid Waste Utility, her leadership in the field of solid waste management resulted in the City being recognized as a national leader in waste issues.

## RULE DEVELOPMENT

One of Ecology's functions is to prepare and revise rules and regulations related to solid waste management.

### Minimum Functional Standards

On October 9, 1991, the Environmental Protection Agency (EPA) promulgated 40 CFR Part 258, a *Rule Relating to Municipal Solid Waste Landfill Units* (MSWLFs). To gain flexibility to implement the rule to meet local conditions, Ecology must obtain an EPA "determination of adequacy" for its solid waste program by October 9, 1993. Such approval requires, in part, that Washington adopt a state rule relating to municipal solid waste facility standards that is at least as stringent as the Federal standard.

Ecology is currently revising chapter 173-304 WAC, *Minimum Functional Standards for Solid Waste Handling* (MFS) to reflect the Federal rule for municipal solid waste landfills. Rule revision will also amend language involving permits, variances, reporting requirements and record keeping.

### Landfill & Incinerator Operator Certification Program

In 1989, the Legislature promulgated chapter 70.95.D RCW, *the Solid Waste Incinerator and Landfill Operators Act*. This statute was developed to provide for owners and operators of landfills and incinerators to demonstrate "sufficient skill and competency for proper operation of the incinerator or landfill by successfully completing an examination prepared by the department."<sup>23</sup>

In executing the instructions of the Legislature to certify operators, Ecology cooperated with the Federal government, the American Hospital Association (AHA) and the Solid Waste Association of North America (SWANA) to prepare course materials, present training sessions and examine the applicants. As a result of this effort, 401 individuals were certified as competent in landfill operations, 261 were certified in incinerator operations and 22 individuals received a landfill reciprocity certificate for successfully completing the SWANA course through other state's certification programs.

## ROLE OF THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

The Washington Utilities and Transportation Commission (the Commission) regulates solid waste collection companies in unincorporated areas of the state under chapter 81.77 RCW, *Solid Waste Collection Companies*. Some companies under the Commission's jurisdiction also provide commercial recycling under chapter 81.80 RCW, *Motor Freight Carriers*. Under 81.80, the Commission has authority over common or contract carriers, but not private carriers. To encourage markets and to improve the economics of recycling, the transportation of recovered materials from a recycling center to a broker or end-use manufacturer is specially treated under RCW 81.80.440.

Washington is one of only seven states in the nation which place responsibility for solid waste collection under the state's public service commission. (Others are Alaska, Massachusetts, Montana, New Hampshire, New Jersey, and West Virginia.)<sup>24</sup> Under this arrangement, counties have no direct

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<sup>23</sup> RCW 70.95D.040(3)(b)

<sup>24</sup> Report on Alternative Solid Waste Regulatory Structures, submitted to the legislature by the Commission on January 14, 1991.

authority over solid waste collection. The Commission has no jurisdiction over city contracts or municipal collection operations, nor over city or county residential recycling contracts.

The Commission is primarily an economic regulatory agency rather than an environmental or health regulator. The Commission's duties include: approving entry to the business of solid waste collection; approving rates (tariffs) that companies may charge for solid waste collection; approving and setting rates for new programs; reviewing affiliated interest transactions among related companies; enforcing safety and economic laws; resolving customer complaints; and reviewing solid waste plans. Some aspects of these duties are discussed below.

### **COMPANIES**

Since chapter 81.77 RCW was passed in 1961, the Commission has issued about 200 certificates for solid waste collection companies, about 100 of which are still active. Some 20 of these companies offer specialized service, while 80 are general purpose solid waste collection certificates. Chapter 81.77 RCW is a monopoly statute which envisions only one certificate holder at time serving a given area, unless the existing carrier will not serve to the Commission's satisfaction. Because some companies have acquired or operate more than one certificate, there are only about 65 solid waste collection companies providing service.

### **RECYCLING**

Some regulated companies were offering curbside residential recycling before the passage in 1989 of the *Waste Not Washington Act* (ESHB 1671). Since the passage of that law, a number of counties and cities have passed service level ordinances which call for residential curbside recycling to be made available by Commission-regulated solid waste collection companies. As of August, 1992, the Commission had approved rates and programs for 33 companies in six counties (King, Pierce, Snohomish, Spokane, Thurston, and Whatcom) and one city (Bainbridge Island, Kitsap County). These programs had collected over 34,000 tons of materials from over 224,000 participating customers. The overall participation rate was 72.5 percent of the 309,000 eligible households. In addition to recycling, the Commission has approved 17 multifamily recycling programs and 18 residential yardwaste collection programs in 4 counties (King, Pierce, Snohomish and Whatcom).

### **SOLID WASTE PLAN REVIEW**

The 1989 amendments to the *Solid Waste Management Act* requires local governments to assess the costs of their solid waste management plans. The Commission reviews plans with an eye to how the plans' cost estimates will translate into solid waste collection rates passed on to ratepayers by regulated companies (RCW 70.95.096), but has no authority to approve or disapprove a plan. Pursuant to legislative direction, Commission staff prepared guidelines in 1990 for local governments to follow in preparing their cost assessments<sup>25</sup>. Commission staff have reviewed 20 plans since 1990, covering 17 counties and one city; four additional plans will be reviewed in later 1992. Of the counties that have passed service level ordinances requiring curbside recycling, at least two (Whatcom and Snohomish) have yet to submit a formal plan for the Commission's review.

### **RATE DESIGN**

In July, 1992, Commission staff issued a final report in a notice of inquiry (NOI) on solid waste rate design. The objective of the NOI was to determine how the Commission could establish rate

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<sup>25</sup> Washington Utilities and Transportation Commission Cost Assessment Guidelines for Local Solid Waste Management Planning, Washington Utilities and Transportation Commission, First Edition, Publication Number UTC-228-90-01, September 1990.

structures and billing systems that are consistent with Washington's solid waste management priorities of waste reduction and recycling, consistent with the Commission's responsibility to set rates that are fair, just and reasonable. Staff recommendations include: offering mini-can and every-other-week collection to all customers in order to provide service options and price incentives for people who successfully reduce the amount of waste they generate; improving the Commission's current cost allocation criteria; establishing billing formats to provide greater information to customers; and investigating the feasibility of "garbage by the pound" metering and billing systems.

### **AFFILIATED INTEREST REVIEW**

Many solid waste collection companies in Washington also own other companies ("affiliated interests") that offer non-regulated solid waste services, such as landfills, transfer stations, or recycling brokerages. Although the Commission has no direct authority over these businesses, it does have authority under chapter 81.16 RCW, *Affiliated Interests*, over payments made by a regulated company to an affiliate. There are several cases currently before the Commission, or on appeal, addressing the Commission's authority under this statute.

### **ROLE OF THE CLEAN WASHINGTON CENTER**

As recycling collection programs have mushroomed in recent years, markets have become glutted for recycled materials such as various grades of paper and different colors of glass. Different problems exist for other recyclable materials. Diverting recyclable materials from disposal cannot be accomplished without strong, stable markets. True recycling requires that each recyclable is processed into a usable product and purchased.

The Legislature established the Clean Washington Center (the Center) in 1991<sup>26</sup> to work in partnership with business and government to develop and expand markets for recycled materials and products. Operated by the state Department of Trade and Economic Development, the center works with the private sector, municipal governments and other public agencies to find productive uses for the more than two million tons of secondary materials collected each year in Washington.

The Center has targeted five of the most difficult-to-market recycled materials as top priorities:

- mixed waste paper,
- plastics,
- compost,
- tires, and
- glass.

Each of these commodities have unique problems and solutions, though all of them suffer from inadequate demand. The Center has designed strategies to achieve short-term gains, while at the same time addressing the problems on a scale necessary to produce long-term results.

Through the Business Assistance Group and the Technology Assistance Program, the Center identifies opportunities for entrepreneurs to substitute recycled materials for virgin feedstock in their manufacturing. The Center offers feasibility studies, product testing and other technology assistance

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<sup>26</sup> Established in chapter 70.95H RCW, *Clean Washington Center*. Because market development is a temporary mission of state government, the Clean Washington Center will close permanently on June 30, 1997.

for processing and manufacturing efforts. Funding may take the form of direct assistance, targeting Federal funds or assisting with private enterprise endorsement.

In order to increase buyer demand, the Center funds product demonstration projects, markets products in cooperation with industry, and educates the private sector and state and local governments about procurement opportunities.

The Center has published a Recycled Products Directory and a Directory of Recycled Content Building and Construction Products, listing local manufacturers and distributors of recycled content products. These directories are available at no cost to local governments, industry and the public, and can be accessed through an electronic bulletin board.<sup>27</sup>

### **CURRENT PROJECTS**

The Center has undertaken some major contracts of various kinds. Results of the contacts will be disseminated to interested parties at the completion of the projects. Some of the projects include:

#### **Market Analysis**

1. Poly-coated Bleached Paperboard. The project looks at the current and projected demand, its relationship to supply, and the latest technologies for processing recovered poly-coated bleached paperboard.
2. Recycled Panelboard. A business plan will be prepared for a recycled panelboard plant including feedstock analysis, market analysis, product and testing analysis, and test design.
3. Recycled-Content Insulation. Examines the market opportunity for a Washington-based recycled-content insulation industry and which insulation products have the greatest market potential.<sup>28</sup>

#### **Local Cooperative Marketing Projects**

1. Kittitas County, through Elmview Incorporated, promotes recycled content products to local buyers.
2. Washington Citizens for Recycling works with major public and private fleet operators to increase the consumption of rerefined oil and antifreeze.
3. Washington Retail Association promotes increased use of recycled content packaging and source reduction through implementation of their Packaging Guidelines in workshops around the state.
4. Whatcom County works with purchasers in Whatcom and Skagit counties to increase understanding and procurement of recycled content products.

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<sup>27</sup> (206) 441-5472 or 1-800-622-4637.

<sup>28</sup> Cellulose loosefill, cellulose fiberboard, perlite compost board, fiberglass, foam glass, glass-mica composite, polystyrene rigid foam, PIR/PU rigid foam board, PIR/PU foam-in-place, and rock wool are being analyzed.

5. City of Olympia promotes recycled content products by establishing specifications, working directly with buyers and implementing procurement policies.

**Public Works Demonstration Projects**

1. Lake Forest Park is constructing an interpretive park and demonstration site using recycled plastic lumber. Performance of the recycled plastic lumber will be monitored.
2. King County has paved one mile of a county road with glassphalt. Engineers will conduct laboratory tests to evaluate gradation, percent use content and additives as they relate to performance.
3. E & A Environmental, with the City of Monroe, is restoring a wetland using organic recovered materials. The effectiveness of compost is being evaluated as a growth media for wetland plant species, improving surface and ground water quality, biodegradation and its ability to alter the biological and chemical properties of soil.

**Policy Initiatives**

1. Evaluation of SB 6700/RCW 81.80.440. This law eliminated two regulator barriers in the shipment of recovered materials by exempting haulers of these materials from rate regulation and opening permitting to all qualified haulers. The evaluation will examine costs, volumes and availability, safety, service from rural areas and other issues. A final report is due to the Legislature on October 1, 1993. The Center is working closely with the WUTC and Ecology on this project.
2. Mediation Services. Triangle and Associates is negotiating voluntary agreements for increasing the use of post-consumer recycled glass container material in Washington. They are meeting with manufactures and other interested parties including environmental, citizen groups, business, industry and government representatives. Chapter 70.95H RCW, *Clean Washington Center*, requires the Center to negotiate such voluntary agreements.

CHAPTER II

**SOLID WASTE HANDLING FACILITIES**

**SOLID WASTE HANDLING INFRASTRUCTURE**

In Washington, solid waste materials are defined as: "all putrescible and nonputrescible solid and semisolid wastes including, but not limited to, garbage, rubbish, ashes, industrial wastes, swill, demolition and construction wastes, abandoned vehicles or parts thereof, and recyclable materials."<sup>29</sup> To manage these solid waste materials, the Legislature assigned "primary responsibility for adequate solid waste handling to local governments, reserving to the state, however, those functions necessary to assure effective programs throughout the state."<sup>30</sup> The Legislature reserved to the state, through Ecology, the authority to adopt standards for solid waste handling facilities as it deemed "appropriate."<sup>31</sup> These standards, called the *Minimum Functional Standards for Solid Waste Handling (MFS)*, were first promulgated and adopted in 1972.<sup>32</sup> Significant revision to this rule was made in 1985 in order to keep pace with new and changing technologies within the performance, design, operation and maintenance standards of solid waste facilities. The MFS of 1985 (chapter 173-304 WAC) identified eighteen distinct solid waste facility types, each with its own set of permitting criteria.

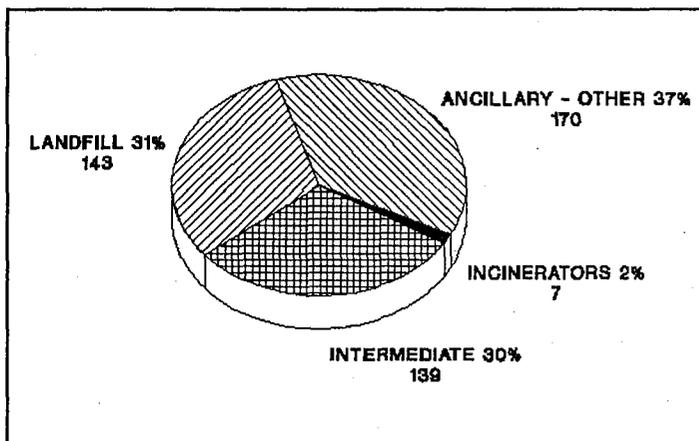


TABLE 9: STATE SOLID WASTE INFRASTRUCTURE

CLASSIFICATION DIVISION	STATEWIDE TOTALS
LANDFILL	143
INTERMEDIATE	139
INCINERATION	7
ANCILLARY - OTHERS	170
<b>TOTAL SOLID WASTE INFRASTRUCTURE</b>	<b>459</b>

Through this annual status report effort Ecology has identified 459 regulated solid waste facilities. A regulated facility means one recognized as falling under statute and/or regulation to meet certain environmental and public health compliance standards. The 459 regulated facilities constitute the

<sup>29</sup> RCW 70.94.030(16)

<sup>30</sup> RCW 70.95.020(1)

<sup>31</sup> RCW 70.95.060

<sup>32</sup> Chapter 173-301 WAC.

solid waste infrastructure for Washington.<sup>33</sup> It is within this infrastructure, less illegal dumping activities, that solid waste is handled in Washington.

Once solid waste is generated, its handling can be categorized into three distinct classifications. Solid wastes can be: landfilled; intermediately handled, that is - stored, transferred, processed; or incinerated. A fourth category, for the purposes of this report, is added to explain anomalies to these basic classifications of solid waste handling. Table 9 depicts the classification divisions for the 459 solid waste facilities.

Each classification division is comprised of sub-categories or "types" of solid waste handling facilities. Solid waste handling is defined in the MFS as: "the management, storage, collection, transportation, treatment, utilization, processing or final disposal of solid wastes, including the recovery and recycling of materials from solid wastes, the recovery of energy resources from such wastes or the conversion of the energy in such wastes to more useful forms or combinations thereof." A solid waste facility "type" then, handles a specific solid waste as regulated by Ecology rule. That is, a specific facility "type" is identified by one of eighteen rule components for facilities found in the MFS or is regulated by other Ecology rules such as chapter 173-306 WAC, *Special Incinerator Ash Standards*.

To provide a greater understanding of Washington's solid waste infrastructure, a closer examination of each solid waste infrastructure classification and applicable "type" sub-category is necessary.

### **LANDFILL CLASSIFICATION**

The MFS define a landfill as a: "disposal facility or part of a facility at which solid waste is permanently placed in or on land and which is not a land treatment facility."<sup>34</sup> The regulated permanent disposal of solid wastes in landfills in Washington occurs in five types of facilities: (1) municipal solid waste ash monofills;<sup>35</sup> (2) inert/demolition landfills; (3) limited purpose landfills; (4) municipal solid waste landfills; and (5) woodwaste landfills. Landfill types combined account for 31% (143 of 459) of the state's solid waste infrastructure. Table 10 graphically illustrates the relationship of the landfill classification within the statewide infrastructure to the types of landfills and by ownership status of all landfills.

Ownership throughout this report is cataloged as either PUBLIC for those facilities owned by a recognized jurisdiction of government - a city, county or special purpose district - or as PRIVATE for those facilities owned by corporations, partnerships or private individuals. Of all 143 landfills statewide, 42% are public and 58% are private.

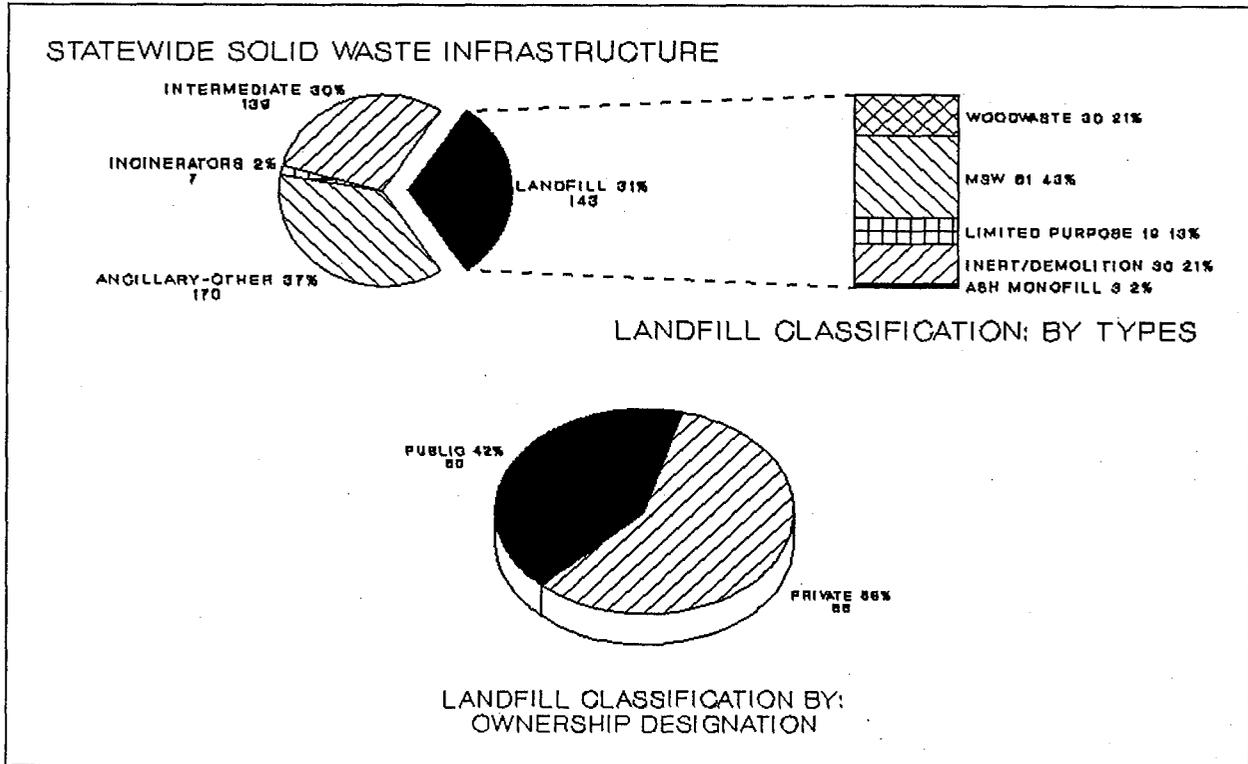
A short discussion of each landfill classification "facility type" and its relationship to the state's overall infrastructure follows.

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<sup>33</sup> Facility information was obtained from the four Ecology regional offices: Eastern (ERO) - Spokane; Central (CRO) - Yakima; Southwest (SWRO) - Tumwater; and, Northwest (NWRO) - Bellevue.

<sup>34</sup> WAC 173-304-100(42)

<sup>35</sup> Municipal solid waste ash monofills are regulated under chapter 173-306 WAC, *Special Incinerator Ash Standards*. Other types of waste, when incinerated, are regulated as limited purpose landfills i.e., woodwaste ash.



**TABLE 10: CLASSIFICATION - LANDFILL**

FACILITY TYPE	TOTAL # STATEWIDE	TOTAL BY OWNERSHIP DESIGNATION	
		# PUBLIC	# PRIVATE
ASH MONOFILL	3	1	2
INERT/DEMOLITION WASTE	30	7	23
LIMITED PURPOSE WASTE	19	1	18
MUNICIPAL SOLID WASTE	61	50	11
WOODWASTE	30	1	29
<b>TOTAL</b>	<b>143</b>	<b>60</b>	<b>83</b>

**Municipal Solid Waste Ash Monofills**

In 1987, the Legislature determined that municipal solid waste incinerator ash should not be subject to the permitting and reporting requirements of chapter 70.105 RCW, *Hazardous Waste Disposal Act*, and that ash required a different regulation than provided for in chapter 70.95 RCW, *the Solid Waste Management Act*. Because of the many special characteristics associated with this type of waste, chapter 70.138 RCW, *Incinerator Ash Residue*, gives permit authority for ash monofills to Ecology.

**Chapter II**

Ash monofills are landfill facilities which receive the ash residue from a municipal solid waste (MSW) incinerator or energy recovery facility. Ash monofills are regulated by Ecology under chapter 173-306 WAC, *Special Incinerator Ash Management Standards*, which sets permitting, construction and operating standards for ash monofills. These standards are generally more stringent than standards for MSW landfills. In addition, the *Incinerator Ash Residue Act*, requires municipal solid waste incinerators to have an approved Generator (Ash) Management Plan in place. (See the INCINERATOR CLASSIFICATION section for a discussion of required ash management plans for MSW incinerators.)

Three ash monofill landfills were identified in Washington, one public and two private. One of the private facilities, is located with the Roosevelt Regional Landfill, is in Klickitat County. This municipal solid waste facility has been issued a permit for an ash cell and is operated adjacent to the municipal solid waste landfill. The ash monofill received 18,088 tons of special incinerator ash from the Spokane Solid Waste Disposal Project in 1991. The second private ash disposal facility<sup>36</sup> operates in conjunction with the ReComp of Washington Incinerator in Whatcom County. This interim disposal facility is located adjacent to the incinerator and received 11,543 tons of ash in 1991.

The publicly operated ash monofill serves the Skagit County incinerator. This monofill is located adjacent to the Inman landfill, operated by the Skagit County Public Works Department. This facility received 16,200 tons of incinerator ash in 1991. The total amount of ash disposed of in 1991 was 45,851 tons which constitutes approximately 1% of the total waste disposed in the State. It should be noted that the percentage may increase in subsequent reporting periods with the Spokane Solid Waste Disposal Project operating for a full year in 1992.

**Inert/Demolition Waste Landfills**

Inert/Demolition Waste landfills are facilities which receive "more than two thousand cubic yards of inert wastes and demolition wastes."<sup>37</sup> These facilities are regulated under section 461 of chapter 173-304 WAC, the MFS.

The MFS defines inert wastes as: "noncombustible, nondangerous solid wastes that are likely to retain their physical and chemical structure under expected conditions of disposal, including resistance to biological attack and chemical attack from acidic rainwater."<sup>38</sup> Demolition wastes are

defined as: "solid waste, largely inert waste, resulting from the demolition or razing of buildings, roads and other man-made structures. Demolition waste consists of, but is not limited to, concrete, brick, bituminous concrete, wood and masonry, composition roofing and roofing paper, steel, and minor amounts of other metals like copper. Plaster (i.e., sheet rock or plaster board) or any other material,

OWNERSHIP	TOTAL	PERMITTED		NON-PERMITTED	
		#	%	#	%
PUBLIC	7	5	71	2	29
PRIVATE	23	14	61	9	39
<b>TOTAL</b>	<b>30</b>	<b>19</b>	<b>63</b>	<b>11</b>	<b>37</b>

**TABLE 11: INERT/DEMOLITION LANDFILLS**

<sup>36</sup> This facility provides interim storage at this time; it was considered an existing facility at the time of rule adoption and has been permitted accordingly.

<sup>37</sup> WAC 173-304-461(1)

<sup>38</sup> WAC 173-304-100(40)

other than wood, that is likely to produce gases or a leachate during the decomposition process and asbestos wastes are not considered to be demolition waste for the purposes of this regulation."<sup>39</sup>

Ecology has identified 30 inert/demolition landfills. Table 11 illustrates the profile of inert/demolition facilities statewide. The majority of the inert/demolition landfills are private, 77%. Public inert/demolition landfills constitute only 23% of this facility type.

The MFS requires inert/demolition landfills to be annually permitted by the applicable jurisdictional health department with review by Ecology. Of particular note is the level of compliance with respect to permitting. Overall, 63% of all inert/demolition landfills have met the permitting requirements of the MFS. Public inert/demolition landfills, though fewer in number, have a higher percentage of compliance, 71%, than do the private landfills, 61%.

**Limited Purpose Waste Landfills**

Limited purpose landfills are facilities that receive "solid wastes of limited types, known and consistent composition, other than woodwastes, garbage, inert waste and demolition waste."<sup>40</sup> These facilities are regulated under WAC 173-304-460(5) of the MFS.

Limited purpose landfills are identified by the "consistent composition of the waste received." The waste associated with the landfill is unique to that fill. For example, agricultural waste from the cranberry growers in Southwestern Washington or woodwaste ash by-products from hogfuel burning facilities could each be disposed in their own landfill. In most cases, the landfill is operated by the entity producing the waste product.

OWNERSHIP	TOTAL	PERMITTED		NON-PERMITTED	
		#	%	#	%
PUBLIC	1	1	100	0	0
PRIVATE	18	10	56	8	44
<b>TOTAL</b>	<b>19</b>	<b>11</b>	<b>58</b>	<b>8</b>	<b>42</b>

**TABLE 12: LIMITED PURPOSE LANDFILLS**

Ecology has identified 19 limited purpose landfill facilities. Table 12 illustrates the profile of limited purpose facilities statewide. Virtually all of the regulated limited purpose landfills are private, 95%. There is only one public limited purpose landfill identified in the state.

The MFS requires limited purpose landfills to be annually permitted by the applicable jurisdictional health department with review by Ecology. Overall, nearly 58% of the nineteen limited purpose landfills have met the permitting requirements of the MFS. Only 56% of the private limited purpose facilities are permitted. The one public limited purpose facility is permitted.

<sup>39</sup> WAC 173-304-100(19)

<sup>40</sup> WAC 173-304-100(98)

**Municipal Solid Waste Landfills**

**Reporting**

A municipal solid waste landfill (MSW) is considered by EPA<sup>41</sup> in 40 CFR Part 258, a *Rule Relating to Municipal Solid Waste Landfill Units*, to be: "a discrete area of land or an excavation that receives household waste, and that is not a land application unit, surface impoundment, injection well or waste pile as the terms are defined in § Part 257.2." Municipal solid waste landfill units may receive other types of waste such as non-hazardous sludges, industrial waste and commercial solid waste; however, the distinguishing characteristics of these landfills is that they primarily collect household solid waste materials. MSW landfills in Washington are regulated under WAC 173-304-460.

The Minimum Functional Standards require all solid waste handling facilities to report basic facility information by March 1 of each year to the local health jurisdiction and Ecology.<sup>42</sup> Sporadic participation in this requirement has occurred over the years. In April 1992, Ecology prepared a new annual reporting form for municipal solid waste landfills. The intent of the form was to: (1) standardize reporting requirements for all municipal solid waste facilities; (2) initiate regular data collection practices required by statute and rule; and, (3) make the reporting process easier. Over the next four years, it is the intent of Ecology to prepare new forms for all facility types, gather appropriate information, process the data and include the results in subsequent annual status reports. Consequently, detailed information for the first report on such things as capacity, total waste collected and compliance is limited to municipal solid waste landfill types.

OWNERSHIP	TOTAL	PERMITTED		NON-PERMITTED	
		#	%	#	%
PUBLIC	36	24	67	12	33
PRIVATE	9	8	89	1	11
<b>TOTAL</b>	<b>45</b>	<b>32</b>	<b>71</b>	<b>13</b>	<b>29</b>

**TABLE 13: MUNICIPAL SOLID WASTE LANDFILLS**

Sixty-one (61) MSW landfills were identified by Ecology's regional offices. Of the 61 facilities, 13 were subsequently categorized as "inactive" facilities. That is, they did not receive waste in 1991 and were not used in computing waste data profiles for MSW facilities. Of the 48 remaining MSW facilities, three were identified as Federal facilities. Though technically MSW landfills, waste disposal was restricted to federally related operations and was not open to the public. These facilities were not used in developing waste data profiles, but have

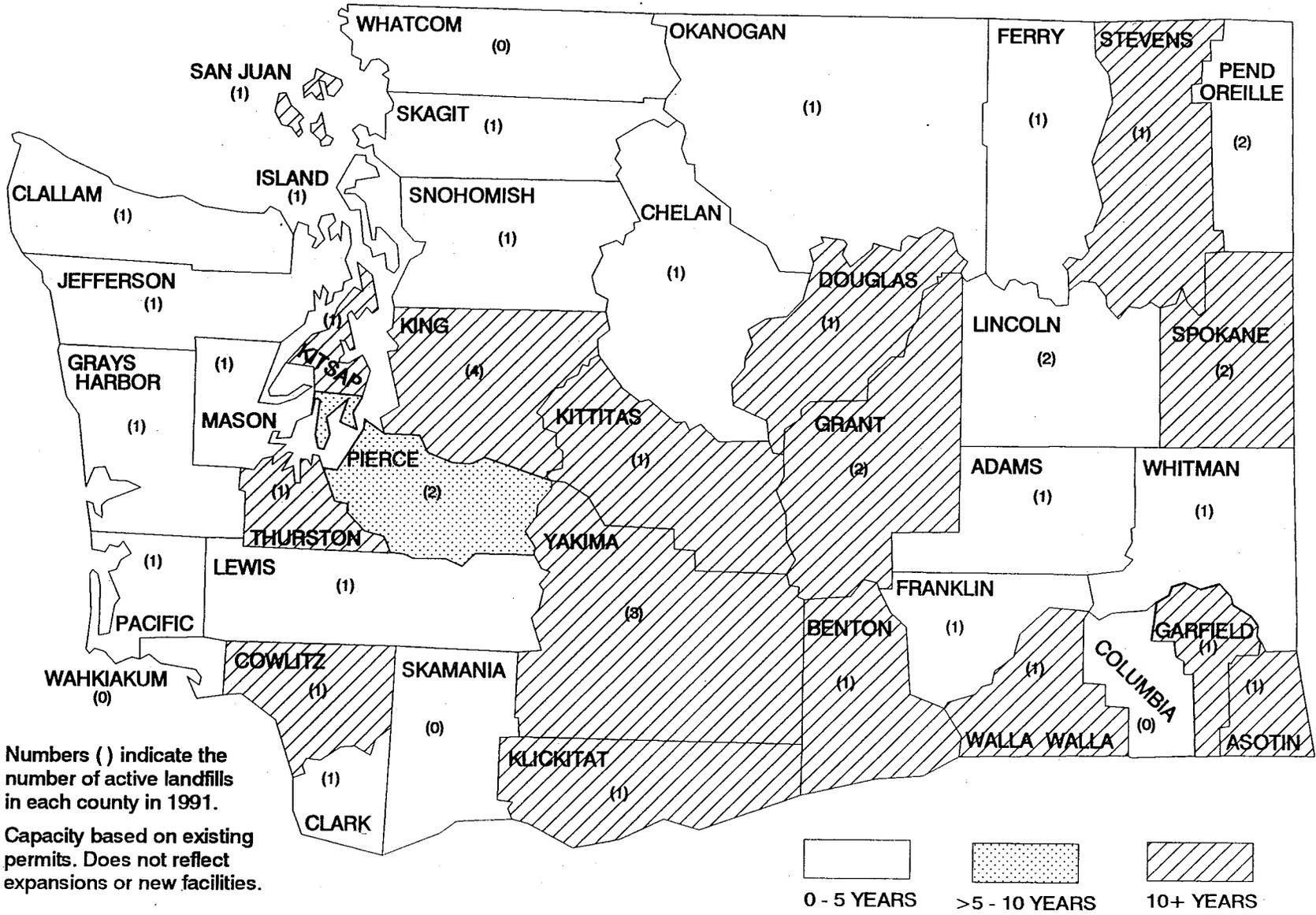
been identified for tracking purposes related to solid waste handling facilities of all types. The remaining 45 MSW type facilities are considered active for this annual report, having received waste in 1991. Forty-three (43) of the 45 MSW landfills returned an annual reporting form to Ecology for a reporting success rate of 96%.<sup>43</sup> Table 13 reflects the statewide infrastructure profile for the 45 active MSW landfills. See Map "A" to identify which counties had, at least one, active landfill in 1991.

<sup>41</sup> Chapter 173-304 WAC, the *Minimum Functional Standards for Solid Waste Handling*, does not define municipal solid waste. This report therefore used the Federal definition. The revised MFS will include a definition for municipal solid waste.

<sup>42</sup> WAC 173-304-405(4)

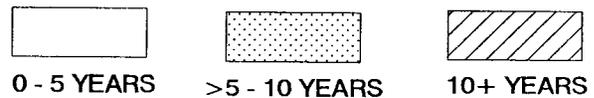
<sup>43</sup> Most facilities reported information on the annual report forms prepared by Ecology. However, several facilities reported in their own format prior to the dissemination of the form in April and are considered in compliance for reporting under WAC 173-304-405(4) of the MFS.

# MAP A: YEARS TO CLOSURE BASED ON PERMITTED CAPACITY



Numbers ( ) indicate the number of active landfills in each county in 1991.

Capacity based on existing permits. Does not reflect expansions or new facilities.



Solid Waste Handling Facilities

**Chapter II**

The majority of the MSW landfills are public, 80%, which has historically been true in Washington. Private MSW landfills constitute only 20% of this facility type, however, the majority of landfill capacity is under the control of the private sector. For further details, see the discussion on landfill capacity below.

The MFS requires MSW landfills to be annually permitted by the applicable jurisdictional health department with review by Ecology. Of particular note is the level of compliance with respect to permitting. Overall, 71% of all active MSW landfills have met the permitting requirements of the MFS. Public MSW landfills have permitting compliance of 67%, while the fewer private facilities have obtained an 89% permit compliance success rate.

**Disposal**

Ecology determined from the annual reports submitted by facilities that total solid waste disposed of in all MSW landfills in 1991 was 3,889,092 tons.

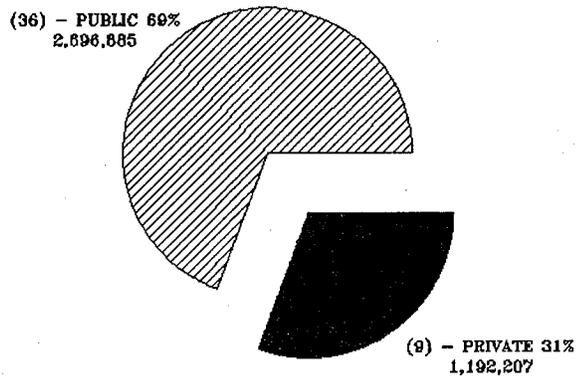
Table 14 depicts the relationship of waste disposed to public/private ownership structure. As the table illustrates, 2,696,885 of all waste disposed went to publicly operated facilities while the remaining 1,192,207 of this solid waste stream went to private facilities.

An important factor to consider in evaluating the amount of waste disposed in MSW facilities is the comparison of amounts of waste that were disposed in permitted MSW landfills versus the amount received by non-permitted MSW landfills.

Table 15, on the next page, shows the relationship of amount waste disposal to permit status. Of the 3,889,092 tons of waste disposed of in MSW landfills during the 1991 reporting period, 90% or 3,510,774 tons were disposed of in MFS permitted facilities. Only 10% of the waste stream or 378,318 tons was disposed of in non-permitted MSW facilities.

**TABLE 14: WASTE DISPOSED AT MSWLF'S IN 1991 BY OWNERSHIP STATUS**

1991 TOTALS



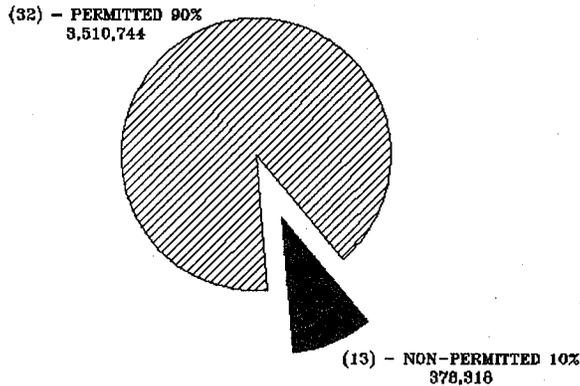
TOTAL TONS = 3,889,092

	# OF MSWLF	AMOUNT OF WASTE DISPOSED	% TOTAL WASTE DISPOSED
PUBLIC	36	2,696,885	69
PRIVATE	9	1,192,207	31
<b>TOTAL</b>	<b>45</b>	<b>3,889,092</b>	<b>100</b>

The solid waste reported disposed by facility operators also includes wastes other than household refuse disposed in these facilities. By law, MSW landfills can collect other waste types. Not all reporting landfills provided a breakdown of waste types disposed. A summary of the those that did breakdown waste characteristics in the collected annual report forms revealed, for example, that fourteen MSW landfills reported collecting demolition waste, thirteen received industrial waste, eight collected inert waste; fourteen disposed of

**TABLE 15: WASTE DISPOSED IN MSWLF'S IN 1991 BY PERMIT STATUS**

1991 TOTALS



TOTAL TONS = 3,889,092

	# OF MSWLF	AMOUNT OF WASTE DISPOSED	% TOTAL WASTE DISPOSED
PERMITTED	32	3,510,744	90
NON-PERMITTED	13	378,318	10
<b>TOTAL</b>	<b>45</b>	<b>3,889,092</b>	<b>100</b>

commercial waste, eleven handled woodwaste, eight accepted sludge, six handled asbestos,<sup>44</sup> and, fourteen identified a variety of specialty wastes or "other" wastes.<sup>45</sup>

In future years, when the annual reporting mechanism is extended to all regulated facility types, then the totals of these sub-categories will be added to the applicable waste stream to determine the total amount of waste produced.

**Recycling**

In addition to collecting waste characteristic information applicable to MSW facilities, Ecology also conducts an annual recycling survey to track the progress toward meeting the statewide goal of a 50% recycling rate by 1995.<sup>46</sup>

The annual survey is sent by mail to all recyclers to find out how much recyclable materials were "collected" in Washington in the tabulation year.

Table 16 shows the amount of waste generated, disposed and recycled during the period 1987 to 1990.<sup>47</sup>

The succeeding graphic in Table 17 illustrates that the recycling rate has

increased each year since 1987.<sup>48</sup>

The graphic shows, for example, that the statewide recycling increased from 23% in 1987 to 34.3% in 1990. Over the same period, the total amount of recyclables collected increased from 1,177,400 tons

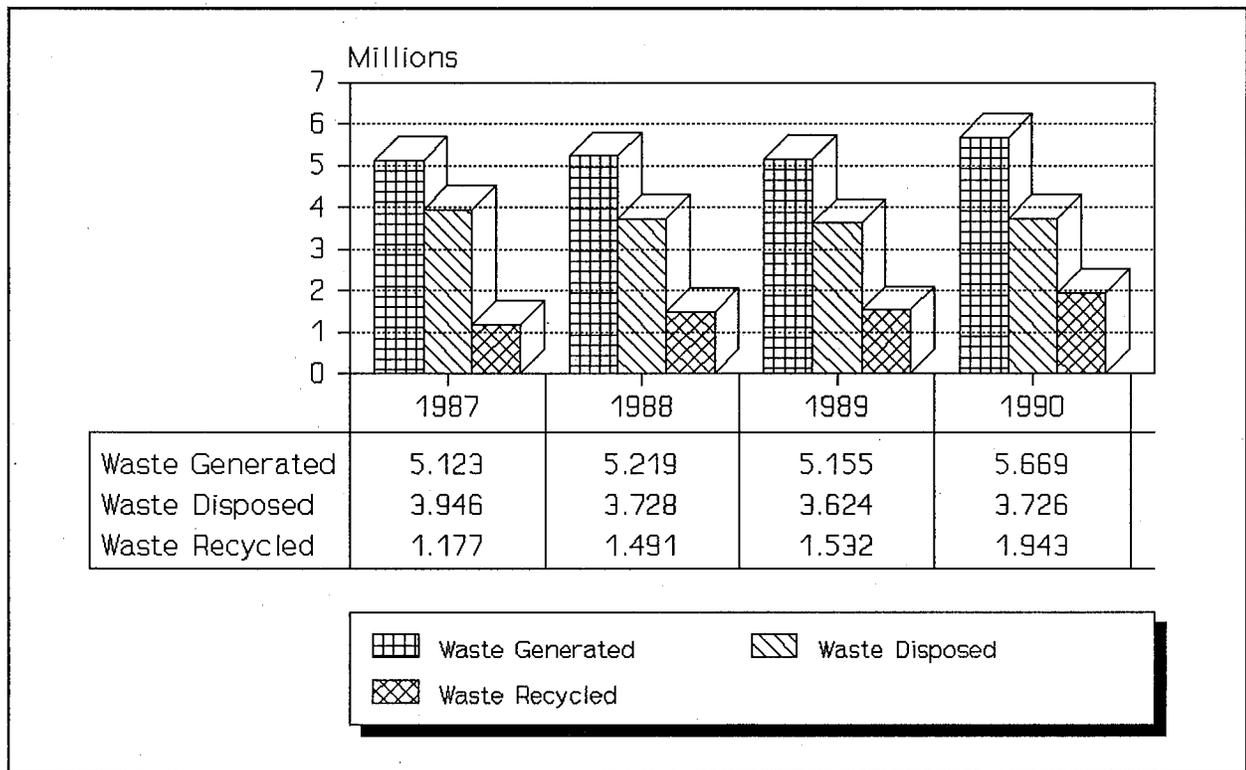
<sup>44</sup> Asbestos was not asked as a specific category but several facilities identified this waste under "other".

<sup>45</sup> Some "other" types of waste reported included: tires; petroleum contaminated soils; compost materials; ash; fruit wastes; yard wastes; and, bulky waste.

<sup>46</sup> The Department of Ecology, Waste Reduction & Recycling Program's 1991 Washington State Recycling Survey was not ready at press time. Therefore, the analysis provided was based on waste generation, disposal and recycling rates from 1987-1990.

<sup>47</sup> During the tabulation period, the Waste Reduction, Recycling & Litter Control Program of Ecology made several changes to the methodology attributed to information gathering. Efforts were made to standardize the results over time.

<sup>48</sup> Source: 1990 Washington State Recycling Survey, Waste Reduction, Recycling and Litter Control Program, Washington State Department of Ecology, Publication #91-21.

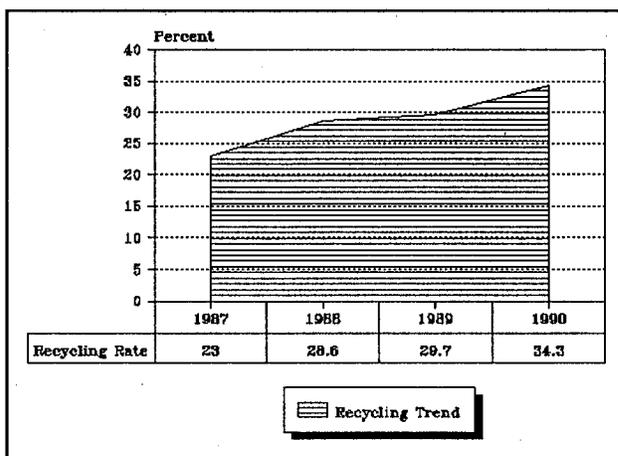


**TABLE 16: STATE SOLID WASTE GENERATION & RECYCLING TRENDS (IN TONS) 1987-1990**

to 1,942,730 tons. Thus, while the recycling rate increased to 34.3%, the corollary impact on the amount of recyclables collected was even more dramatic - 65% increase. What makes this number more significant is the comparison of recyclable tonnage collected as expressed in percentage (increase/decrease) to that of waste generated and disposed for the same period.

Table 18 shows that the total amount of waste generated over the tabulation period increased by only 10.6% while the amount of waste disposed in the state actually decreased by nearly 6%.

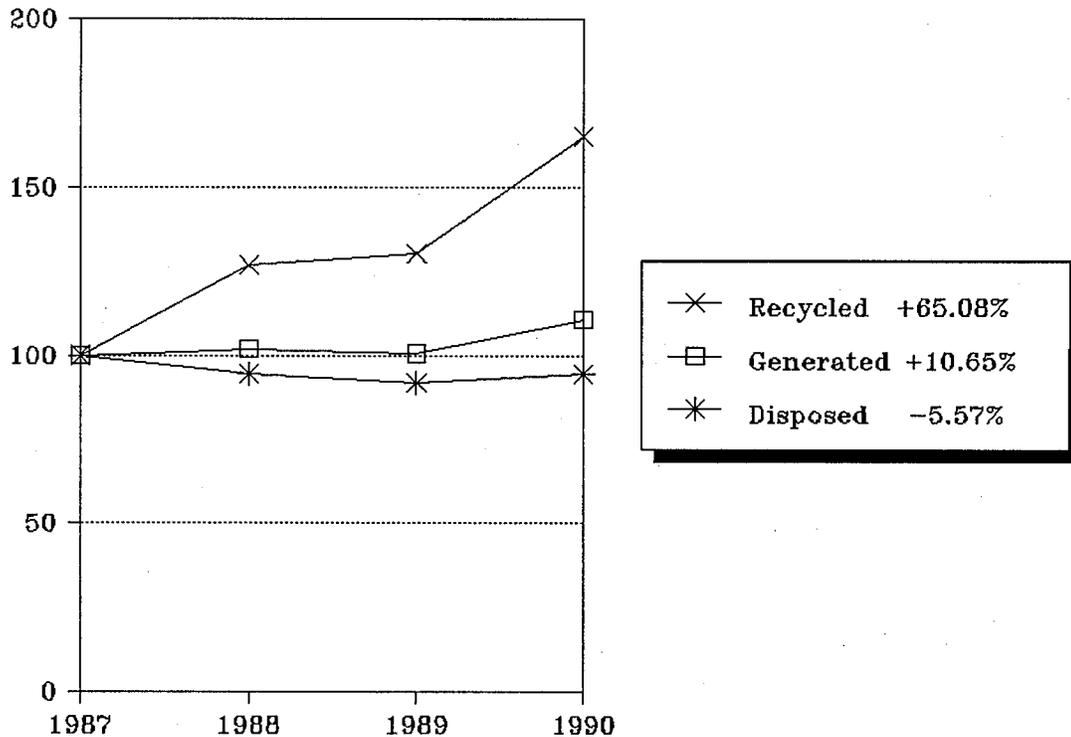
A fundamental aspect of Washington's success in increasing the recycling rate and the amount of recyclable tonnage collected since 1987,



**TABLE 17: RECYCLING RATES / TRENDS (1987-90)**

is directly attributed to residential curbside collection programs. A profile of curbside collection programs in the state reveal that 97 jurisdictions of local

**TABLE 18: OVERALL PERCENTAGE INCREASE/DECREASE PER WASTE CATEGORY FOR THE PERIOD: 1987-1990**



100% = ZERO OR STARTING POINT

government have either initiated curbside programs or contracted with private haulers to provide the services. Seven unincorporated areas have also initiated services through private haulers.<sup>49</sup> Of the 104 areas (97 local governments and 7 unincorporated regions), the majority of the curbside programs, 57, are clustered around the densely populated Central Puget Sound Region of Snohomish, King and Pierce Counties.<sup>50</sup>

Table 19 lists the commodities and amounts of recyclables collected in 1990. Within this table, the percentages indicated refer to the commodity's percentage to all recyclables collected. At this time, the recycling rate for each individual commodity is not available since the

<sup>49</sup> Some unincorporated areas are served by more than one certified hauler.

<sup>50</sup> Waste Reduction and Recycling Program, Department of Ecology.

**TABLE 19: SUMMARY OF RECYCLED MATERIALS  
COLLECTED IN WASHINGTON STATE - 1990**

COMMODITY CATEGORY	SUB-COMPONENTS		TOTAL TONS COLLECTED THIS COMMODITY	% OF 1990 RECYCLED <sup>51</sup>
	PRODUCT	TONS		
PAPER PRODUCTS	Newspapers	153,427	570,581	29.4
	Corrugated Paper	272,559		
	High Grade Paper	66,758		
	Mixed Waste Paper	77,837		
METALS	Aluminum Cans	21,506	976,666	50.3
	Tin Cans	11,895		
	Ferrous Metals	865,358		
	Nonferrous Metals	77,907		
WHITE GOODS			55,464	2.9
GLASS	Refillable Bottles	2,893	45,182	2.3
	Container Glass	42,289		
PLASTICS	PET Bottles	606	5,364	0.3
	HDPE Plastics	533		
	LDPE Plastics	469		
	Other Plastics	3,756		
BATTERIES	Vehicle Batteries	26,381	26,390	1.4
	Household Batteries	9		
TIRES			17,791	0.8
USED OIL			37,994	2.0
ASSORTED RECYCLABLES	Yard Waste	96,550	207,297	10.6
	Food Waste	74,077		
	Wood Waste	18,485		
	Photographic Films	12		
	Gypsum	7,422		
	Assorted Rubber	385		
	Assorted Textiles	10,366		
<b>TOTAL</b>			<b>1,942,729</b>	<b>100.0</b>

<sup>51</sup> This number represents the percent of the specific commodity collected for recycling in relationship to all commodities collected in 1990.

generation rates of each commodity has not been determined. The Waste Characterization Study being developed by Ecology may provide more of this information in the future. What Table 19 does show, is that paper materials and metals combined comprise nearly 80%, by weight, of all materials recycled in the state.

The Minimum Functional Standards require that all owners/operators of MSW landfills, at which the public can dispose of household waste materials, provide recycling opportunities.<sup>52</sup> Of the 43 MSW landfills responding (not all were on Ecology's form), twenty-three facilities reported recycling centers on site. Three of the facilities contract for recycling services with private companies. Two of the MSW landfills have curbside recycling pick-up services. One facility which indicated it did not have recycling facilities on site, did indicate that it did own a recycling transfer station in the county. One facility reported that it did not have a recycling center at the site but did provide bins on site for the public but does not receive recyclables on a regular basis. Finally, one facility reported that it was not accessible to the general public, so no recycling devices were available.

### **Remaining Capacity**

A corollary relationship to the amount of waste generated, disposed and recycled is the amount of remaining municipal solid waste landfill disposal capacity in the state. The total remaining capacity of all reporting landfills is estimated by the facilities themselves to be 161,542,319 tons.<sup>53</sup> Though public facilities outnumber private facilities by a ratio of four to one, the nine private facilities control 77%, or 124,598,000 tons, of the estimated remaining disposal capacity of the state's MSW landfill infrastructure. Conversely, the 36 public facilities estimate remaining capacity at 36,944,319 tons, or 23%, of the total remaining MSW landfill capacity.

The data generated also revealed that the 32 permitted MSW landfills in the state represent approximately 98% of the state's remaining disposal capacity, with only 2% of remaining capacity associated with non-permitted facilities.

As illustrated in the MSW Recycling Section above, even though the recycling rate and amount collected is increasing since 1987, the amount of waste generated has also increased, though at a much slower rate. This is particularly meaningful in light of both impending Federal MSW regulations (Subtitle D) and projected MSW landfill closures. For example, as the Federal standards take effect in October 1993, more facilities may choose to either close or modify operation plans to receive wastes other than municipal solid wastes, thereby avoiding the more stringent and costly Federal regulations. The potential facility closures in the state over the next 5 years is illustrated in Table 20. Map "A", on page 29, identifies counties that will still have a MSW landfill remaining over the next 5 years based on current expected closure dates provided by the facility.

Projecting future remaining capacity is difficult for several reasons. The facilities themselves indicated their remaining capacity as well as the remaining years of life for the facility. As indicated above, some facilities will be closing, some before they have used their remaining capacity, because of compliance difficulties in meeting the new Subtitle D regulations. As these facilities close, their waste will go to the remaining open facilities. Even facilities that are not planning to close at this time, may be required to close for other reasons, either economic or environmental. Facility closure will also be occurring around the country with communities in other states also looking for open, complying landfills. Waste imported from other states will use additional capacity at currently unpredicted rates.

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<sup>52</sup> WAC 173-304-460(4)(F)

<sup>53</sup> The capacity estimate for Roosevelt Regional Landfill, a private facility in Klickitat County, is 120,000,000 tons of this capacity, more than all of the other remaining facilities statewide.

YEARS TO CLOSURE	# OF FACILITIES	PUBLIC	PRIVATE
0 to 5	24	18	6
Greater than 5 to 10	2	2	0
Greater than 10	19	16	3

TABLE 20: PROJECTED MSW LANDFILL CLOSURES IN YEARS

Some facilities may have available area to expand and increase their capacity, thereby adding to the remaining statewide capacity. One facility currently built, but not open, may be added to the available capacity in the future while three new facilities are proposed which, if constructed, would add to available capacity.

If regulations for other types of landfills, such as woodwaste, construction and inert/demolition facilities are increased in

the future, some facilities currently accepting those types of waste may close and shift the waste into complying MSW landfills. Data indicates that some of this waste movement is already occurring.

Non-hazardous waste from contaminated sites, such as petroleum contaminated soils, is adding a new volume of waste for disposal that had not been predicted. In addition, wastes that may be de-designated as dangerous wastes as a result of petition under chapter 173-303 WAC, the *Dangerous Waste Regulation*, may also add to the total disposed. Some of these materials will find their way into MSW landfills. Other types of waste may go to MSW landfills because the disposer would rather pay the fees associated with disposing in a complying landfill than be concerned about the future liability of disposing in a lesser designed facility. This will utilize additional capacity.

Recycling trends, whether they increase, stay the same or decrease will affect the amount of waste disposed. Waste reduction efforts, which are difficult to measure, also affect the disposed amount of waste and therefore remaining capacity.

The annual status report will carefully be monitoring capacity trends annually.

**Waste Movement**

MSW landfills were asked, as an optional question on the annual reporting form, if they received waste from outside of their own county, from other states or from other countries. Twenty-four of the 45 facilities responded to the question. One facility indicated it had a ban in place on waste from outside the county. Because not all facilities responded, only basic information on waste movement could be gleaned from the responses.

In most cases, it appeared that municipal solid waste received from out of county was more a case of convenience, being located closer to an adjacent county's landfill, rather than being predicated on a lack of facilities within the exporting county.

One exception to this statement is the Roosevelt Regional Landfill in Klickitat County. This large privately owned regional facility accepted waste from several counties, other states and even Canada, through a variety of long-haul arrangements. More emphasis on long-haul arrangements is expected in the future as facility closures increase. (See Map "A" for pattern of landfill closures)

Other facilities within the state also received specific waste types, such as petroleum contaminated soils and non-recyclable waste paper from other counties. This movement of specific waste streams to complying landfills will likely continue as the concern for future liability of waste disposal continues to increase.

Medical waste from Canada also moves to an incinerator in Whatcom County for disposal. Other movements of waste across the state border likely occur, but was not reported by all of the facilities. Future efforts for the annual status report will include gaining more information concerning movement of waste within the state and movement into and out of the state.

In 1991, the City of Seattle contracted with Washington Waste Systems, a subsidiary of Waste Management, Inc., to transport waste by rail for disposal at the Columbia Ridge Landfill and Recycling Center in Gilliam County, Oregon. In 1991, waste was disposed of in a combination of sites. January through May 1991, 142,250 tons was disposed at Cedar Hills landfill in King County. From April to December 1991, a total of 301,704 tons was transported to Oregon for disposal. In 1992, all of the waste from Seattle is being disposed of at the Oregon facility.

### **Compliance**

MSW landfills in Washington are regulated under the *Minimum Functional Standards for Solid Waste Handling* (MFS), chapter 173-304 WAC. The MFS requires municipal solid waste handling facilities to comply with: **(1) technical criteria** - (*performance standards, design requirements, ground water monitoring, environmental monitoring standards*); **(2) planning criteria** - (*operational planning, closure/post-closure requirements, financial assurance preparedness, annual reporting standards*); and, **(3) general criteria** - (*facility permitting requirements*). (See Table 21 for a summary of compliance criteria.)

A key determinant in measuring compliance is developing a reliable compliance tracking system that emphasizes standardized methods of information gathering. This year, Ecology initiated the development of a statewide MSW database designed to measure the components of compliance as illustrated in Table 22. Ecology utilized the outline introduced in the 1990 Washington State Solid Waste Enforcement Study developed by the Institute for Urban and Local Studies.<sup>54</sup>

Ecology's objective for compliance monitoring within this annual status report was to develop statewide clarity between the EWU study and methods utilized by Ecology's regional offices. In tracking compliance, Ecology acknowledges, first and foremost, that the primary authority for the enforcement of solid waste laws and regulations resides with local jurisdictional health departments; and, second, since the promulgation of the MFS in 1985, Ecology recognizes that compliance is an evolving process. Ecology utilizes a three phase, multi-element strategy in cooperation with the local health jurisdictions to achieve facility compliance. That is:

#### **PHASE I: COLLABORATION**

The first step in protecting the environment and the public health is to work hand-in-hand with local health jurisdictions and the operator of facilities to foster awareness of sound solid waste management practices. Cooperation with local governments is considered the cornerstone of Ecology's facility compliance strategy. Essentially, Ecology relies upon education, training and technical assistance efforts with local jurisdictional health departments to achieve compliance. For example, Ecology conducts periodic training sessions at each regional office on a variety of compliance/enforcement related topics, including the Landfill Operator Certification Program. In addition, the department offers technical assistance to the jurisdictional health departments throughout the state in such areas as permit preparation, engineering standards review, inspections, hydrogeology analysis and testing procedures.

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<sup>54</sup> Washington State Solid Waste Enforcement Study, Final Report for the Washington State Legislature, Institute for Urban and Local Studies, Eastern Washington University, November 1990.

**PHASE II: CONTAMINATION DETECTION & MONITORING PROGRAMS**

Recognizing that compliance with all MFS criteria will not happen over night, Ecology's priority is twofold. First, attention is focused on the detection of contaminants, and, second, the institution of long range contamination detection systems through compliance with planning and technical standards. With respect to the first component, contamination detection, Table 22 illustrates the efforts to secure compliance with ground water monitoring requirements, the fundamental testing component for environmental contamination. As the results indicate, ground water monitoring has been achieved at 40 of the 45 active MSW landfills statewide for an 88% compliance rate. All private facilities have met the standard for ground water monitoring while public facilities nearly mirror the state average with an overall compliance rate of 86%. Secondary environmental monitoring, such as gas monitoring, has been instituted at 31 of the 45 facilities for a rate of 69%. Public facilities again parrot the state average while private facilities have a 77% rate of compliance.

Compliance with planning standards serve as the second element of Phase II, Contamination Detection and Monitoring Programs. That is, the development of plans - operational, closure/post-closure and financial assurance - are viewed by Ecology as a fundamental tool for protection of the environment and to ensure the public health by detailing operational, maintenance and closing practices of a facility inclusive of the how's and when's of monitoring programs. In this regard, private facilities have a higher percentage of compliance than do the public facilities. For example, 89% of the private operations have met all planning requirements while public facilities have achieved a compliance rate of 36%. Forty-six percent of all facilities combined have met this standard. Of the specific planning standard, the data reveals that 69% of all facilities have complied with operational planning requirements (61% public and 100% private) while closure/posts-closure planning has been developed at 65% of all facilities (55% public and 100% private).

Financial assurance planning, designed to insure adequate financial capacity to close facilities in accordance with the law and applicable rules have been established at 27 facilities for a 60% overall

**TABLE 21: MFS COMPLIANCE CRITERIA**

TECHNICAL STANDARDS	WAC REGULATION	NARRATIVE
<i>Performance Standards</i>	WAC 173-304-460(2)	Standards for surface water, ground water, air quality & gases.
<i>Design Standard</i>	WAC 173-304-460(3)	Standards for liquids, leachate systems, & liners.
<i>Ground Water Monitoring</i>	WAC 173-304-490	Standards for sampling & testing.
<i>Environmental monitoring</i>	WAC 173-304-460(3) (f)	Gas monitoring for controlling methane & other gases.
	WAC 173-304-460(4) (b)	Standards to control vectors, daily cover, scavenging.
PLANNING STANDARDS	WAC REGULATION	NARRATIVE
<i>Operational Plans</i>	WAC 173-304-460(4) WAC 173-304-405(2)	Standards for solid wastes handling, inspections & monitoring.
<i>Closure Requirements</i>	WAC 173-304-407(4) (5)	Sets planning & performance standards for closure.
<i>Post-closure Planning</i>	WAC 173-304-407(6) (7) (8)	Sets planning & performance standards for post-closure such as monitoring of air, land and water.
<i>Financial Assurance</i>	WAC 173-304-467	Provides for the types of financial instruments to be used to insure funds are available for post closure
	WAC 173-304-468	
<i>Annual Reporting</i>	WAC 173-304-405(4)	Sets minimum criteria for reporting facility information to Ecology and the health department.
GENERAL STANDARDS	WAC REGULATION	NARRATIVE
<i>Permit</i>	WAC 173-304-600	Sets requirements for obtaining a solid waste permit.

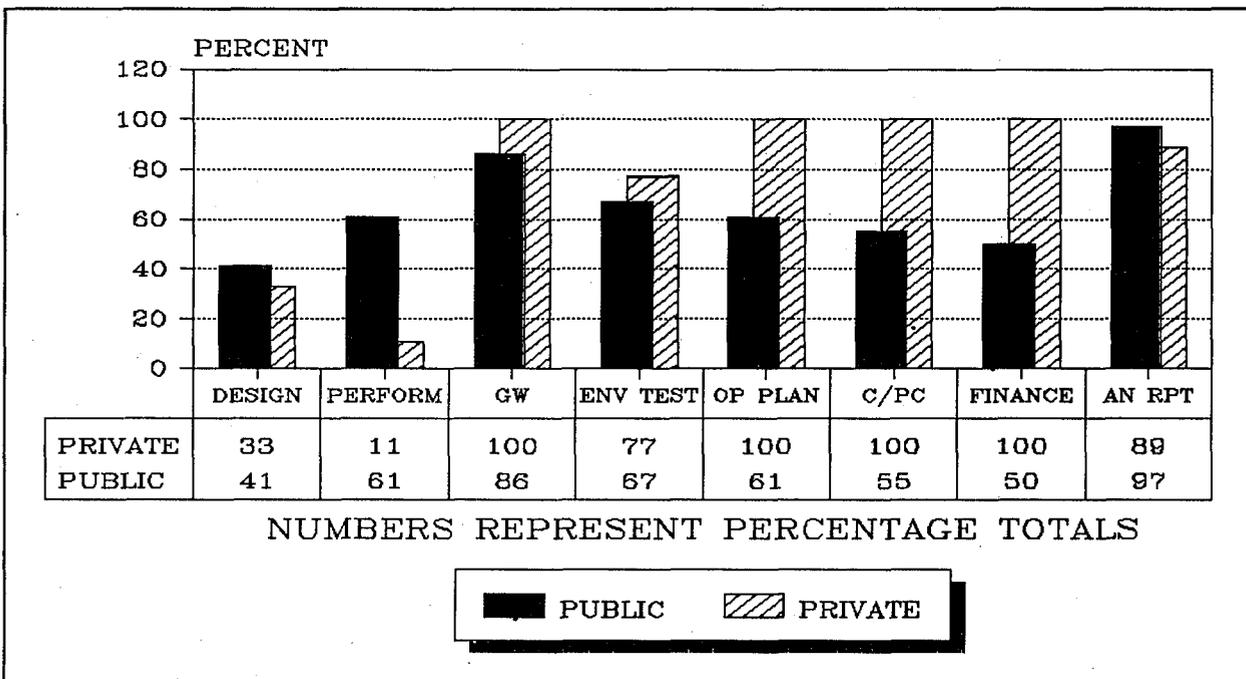


TABLE 22: MFS COMPLIANCE SUMMARY FOR MSW LANDFILLS

COMPLIANCE CATEGORY	TOTAL	PUBLIC	PRIVATE
<b>TOTAL ACTIVE FACILITIES</b>	<b>45</b>	<b>36</b>	<b>9</b>
<b>MEETS ALL MFS STANDARDS</b>	<b>5</b>	<b>4</b>	<b>1</b>
<b>ALL TECHNICAL STANDARDS MET:</b>	<b>8</b>	<b>7</b>	<b>1</b>
Design Standards	18	15	3
Performance Standards	23	22	1
Ground Water Monitoring	40	31	9
Environmental Monitoring	31	24	7
<b>ALL PLANNING STANDARDS MET:</b>	<b>21</b>	<b>13</b>	<b>8</b>
Operational Plan	31	22	9
Closure/Post-Closure Plan	29	20	9
Financial Assurance	27	18	9
Submitted Annual Report	43	35	8
<b>PERMITTED FACILITIES</b>	<b>32</b>	<b>24</b>	<b>8</b>

rate of compliance. Significantly, all private facilities have met the financial assurance requirements of the MFS while only 55% of the public facilities identified have adequate financial assurance programs

in place. Like planning, compliance with the design and performance standards of the Minimum Functional Standards are considered by Ecology to be essential to the long-term protection of the public health and safety.

The last of the planning standards element, annual reporting, though not considered a plan in itself, is the fundamental tool used by Ecology for tracking such things as facility compliance, waste characteristics and total capacity. This quasi-planning instrument of facility reporting has been accomplished at 43 of the 45 facilities for a rate of 96%. Only one private and one public facility failed to report.

Both Ecology and the jurisdictional health departments recognize the cost associated with bringing facilities into compliance. For example, while new facilities are being permitted in conjunction with all MFS requirements, older, established facilities are being brought into compliance through technical assistance, education and grant programs. Twenty-three of the 45 facilities, (51%) have met the performance standards of the MFS, while only 18 have complied with the MFS design standards for a 40% compliance rate. While private facilities excel in compliance with contamination detection systems, overall adherence to performance and design standards is quite the opposite. That is, private facilities complied with performance standards at an 11% rate and design standards at a 33% frequency. Public facilities, have a much greater rate of compliance with respect to technical standards i.e., performance - 61% and design - 41%.

**PHASE III: ENFORCEMENT ACTION**

When an enforcement action is required to bring about facility compliance, Ecology's *Solid & Hazardous Waste Program's Enforcement Policy* first allows jurisdictional health departments to address violations of chapter 70.95 RCW and chapter 173-304 WAC. When jurisdictional health departments cannot achieve compliance on their own, Ecology's regional solid waste staff, can assist in enforcement actions. According to the department's enforcement policy, Ecology is to take the necessary steps to ensure the protection of the public health and environment, when deemed appropriate, with the understanding that chapter 70.95 RCW, *the Solid Waste Management - Reduction and Recycling Act*, grants Ecology limited authority to take enforcement action. This authority, however, includes solid waste permit appeal to the Pollution Control Hearings Board (PCHB) and determination by Ecology on the "current condition" status of local comprehensive solid waste management plans.

Other significant authorities granted to Ecology include direct enforcement action under:

- Chapter 90.48 RCW - Water Pollution Control**
- Chapter 70.105 RCW - Hazardous Waste Management**
- Chapter 70.105D RCW - Hazardous Waste Cleanup/Model Toxics Act**

To further ensure the protection of the public health and environment from violations with respect to solid waste handling and disposal facilities, Ecology may, in cooperation with other agencies, utilize the authority granted under:

- Chapter 18.104 RCW - The Water Well Construction Act**
- Chapter 43.21C RCW - The State Environmental Policy Act**
- Chapter 70.05 RCW - Local Health Departments Regulations**
- Chapter 70.94 RCW - The Washington Clean Air Act**
- Chapter 90.58 RCW - The Shoreline Management Act of 1971**

A final tool of enforcement at Ecology's disposal is direct court action. That is, when a violation to a facility is considered so egregious as to threaten the public health and safety; and, when cooperative efforts with local jurisdictions fail, Ecology can seek various court imposed orders through the superior court. This action has never been taken by Ecology in the solid waste arena.

The ultimate goal of Ecology and the local health departments is to achieve compliance with the planning and technical criteria for all MFS facilities. The annual status report will endeavor to continue to monitor compliance activity as a regular function of the study.

**Woodwaste Landfills**

Woodwaste landfills are those facilities which landfill "more than two thousand cubic yards of woodwaste including facilities that use woodwaste as a component of fill."<sup>55</sup> These facilities are regulated under section 462 of chapter 173-304 WAC, the MFS.

The MFS defines woodwaste as: "solid waste consisting of wood pieces or particles generated as a by-product or waste from the manufacturing of wood products, handling and storage of raw materials and trees and stumps. This includes, but is not limited to, sawdust, chips, shavings, bark, pulp, hog fuel, and log sort yard waste, but does not include wood pieces or particles containing chemical preservatives such as creosote, pentachlorophenol, or copper-chrome-arsenate."<sup>56</sup>

OWNERSHIP	TOTAL	PERMITTED		NON-PERMITTED	
		#	%	#	%
PUBLIC	1	1	100	0	0
PRIVATE	29	13	45	16	55
<b>TOTAL</b>	<b>30</b>	<b>14</b>	<b>47</b>	<b>16</b>	<b>53</b>

**TABLE 23: WOODWASTE LANDFILLS**

Ecology has identified thirty woodwaste landfills statewide that are regulated under the MFS. Facilities accepting less than 2000 cubic yards per year or that are permitted by the State Department of Natural Resources under the Washington's *Forest Practices Act* are exempt from regulation under the MFS. Table 23 depicts the profile of woodwaste landfill facilities statewide. Almost all of the regulated woodwaste landfills are private, 97%. There is one public woodwaste landfill identified in the state.

The MFS requires woodwaste landfills to be annually permitted by the applicable jurisdictional health department with review by Ecology. Of particular note is the level of compliance with respect to permitting. Overall, only 47% of the thirty woodwaste landfills have met the permitting requirements of the MFS. The one public woodwaste facility is permitted.

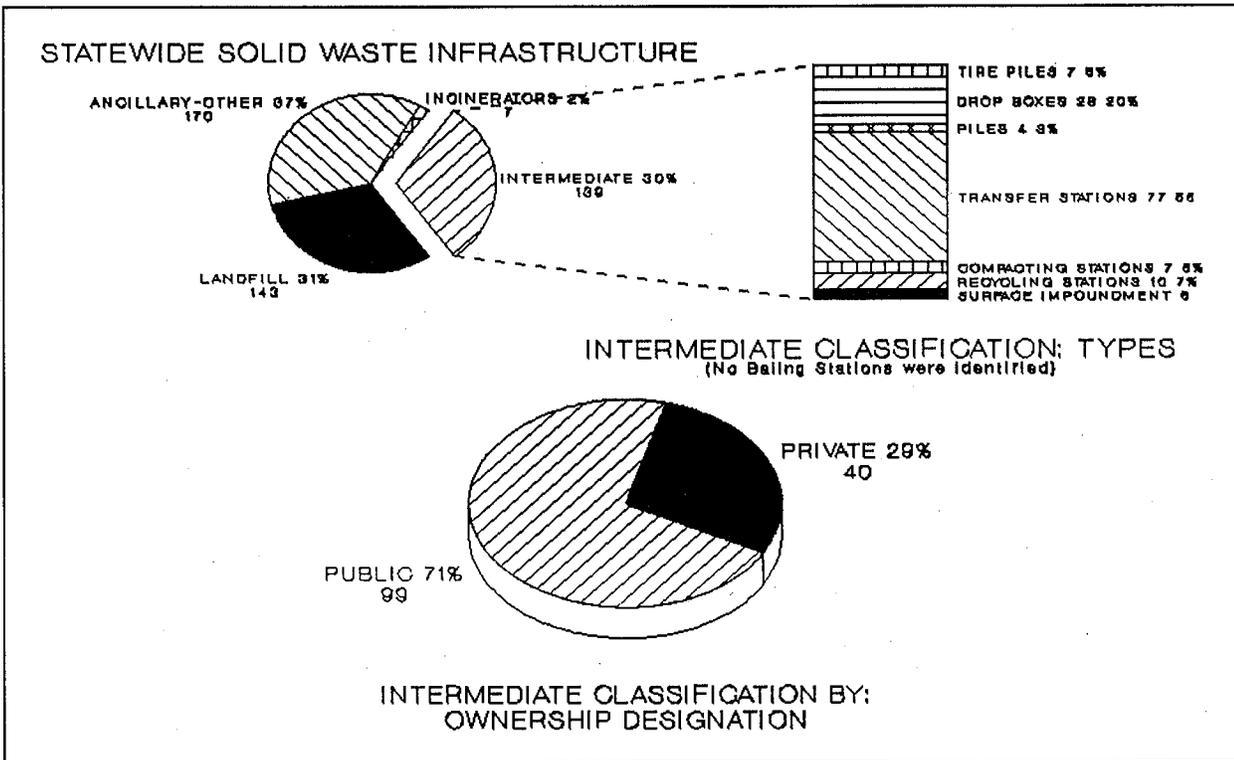
**INTERMEDIATE CLASSIFICATION**

Solid waste, prior to its final disposal or incineration, is often handled in interim<sup>57</sup> or intermediate solid waste handling facilities engaged in the storage, transfer or processing of waste materials. Storage facilities, transfer stations, and processing centers are regulated under the *Minimum*

<sup>55</sup> WAC 173-304-462(1)

<sup>56</sup> WAC 173-304-100(91)

<sup>57</sup> WAC 173-304-100(38)



**TABLE 24: CLASSIFICATION - INTERMEDIATE SOLID WASTE HANDLING FACILITIES**

FACILITY TYPE	TOTAL # STATEWIDE	TOTAL BY OWNERSHIP DESIGNATION	
		# PUBLIC	# PRIVATE
BALE STATION	0	0	0
COMPACTING STATION	7	7	0
DROP BOX	28	24	4
PILES	4	3	1
RECYCLING	10	2	8
SURFACE IMPOUNDMENT	6	5	1
TRANSFER	77	58	19
TIRE PILE	7	0	7
<b>TOTAL</b>	<b>139</b>	<b>99</b>	<b>40</b>

*Functional Standards.* More specifically, a storage facility primarily holds "solid waste materials for a temporary period"<sup>58</sup> while a processing center is in the operation of converting "solid waste into a useful product or to prepare it for disposal."<sup>59</sup> A transfer station, on the other hand, is a "permanent, fixed, supplemental collection and transportation facility, used by persons and route collection vehicles to deposit collected solid waste from off-site into a larger transfer vehicle for transport to a solid waste handling facility."<sup>60</sup>

The distinguishing characteristic of this interim or intermediate classification of handling facilities is that the facility is not designed for the final disposal of solid waste. The regulated temporary disposal of solid wastes in storage/transfer stations in Washington occurs in eight types of intermediate facilities: (1) Bailing Stations; (2) Compacting Stations; (3) Drop Box Facilities; (4) Pile Facilities; (5) Recycling Centers; (6) Surface Impoundments; (7) Transfer Stations; and, (8) Tire Pile Facilities.

The Intermediate classification of facilities combined account for 30% (139 of 459) of the state's solid waste infrastructure. Table 24 illustrates not only the number of intermediate facilities by type but also depicts the ownership status. Of the 139 intermediate facilities statewide, 71%, are public and 40 or 29% are private facilities.

A short discussion of each intermediate classification "facility type" and its relationship to the state's overall infrastructure follows.

**Bale Station**

A bale station is a facility that processes solid waste into large bound bundles for the purpose of being landfilled into discrete lifts as the landfill is filled. These facilities are regulated under WAC 173-304-410. No bale stations have been identified at this time in Washington. The technology is often used interchangeably with compacting stations.

**Compacting Station**

A compacting station is a facility which employs mechanical compactors to compress waste materials into dense packets of materials for shipment. These facilities are regulated under WAC 173-304-410.

Ecology has identified seven compacting stations statewide. Table 25 illustrates the profile of compacting stations within the state. All compacting facilities are under public ownership and are affiliated with recycling operations. All compacting centers are located in the more urban counties of the Northwest Regional Office of Ecology. This is attributed to the larger urban centers use of this technology to process vast amounts of recyclables for shipment.

OWNERSHIP	TOTAL	PERMITTED		NON-PERMITTED	
		#	%	#	%
PUBLIC	7	7	100	0	0
PRIVATE	0	0	0	0	0
<b>TOTAL</b>	<b>7</b>	<b>7</b>	<b>100</b>	<b>0</b>	<b>0</b>

**TABLE 25: COMPACTING STATIONS**

<sup>58</sup> WAC 173-304-100(76)

<sup>59</sup> WAC 173-304-100(62)

<sup>60</sup> WAC 173-304-100(82)

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The MFS does require compacting stations to be permitted annually by the applicable jurisdictional health department with review by Ecology. All seven compacting stations have met the permitting requirements of the MFS.

**Drop Box Facilities**

Drop box facilities are defined in the MFS as: "a facility used for the placement of a detachable container including the area adjacent for necessary entrance and exit roads, unloading and turn-around areas."<sup>61</sup> Drop box facilities are regulated under the MFS, WAC 173-304-410.

OWNERSHIP	TOTAL	PERMITTED		NON-PERMITTED	
		#	%	#	%
PUBLIC	24	15	63	9	38
PRIVATE	4	4	100	0	0
<b>TOTAL</b>	<b>28</b>	<b>19</b>	<b>68</b>	<b>9</b>	<b>32</b>

Drop box facilities normally serve the general public by receiving loose loads and waste from off-site. Typically drop boxes for household waste are located in the more rural areas of the state while in more urban counties, drop boxes are located in the less populated areas.

Ecology has identified twenty-eight regulated drop box facilities in the state. Table 26 depicts the profile of regulated drop box facilities statewide.

**TABLE 26: DROP BOX FACILITIES**

The majority, 86%, of the drop box facilities are public and are primarily operated by county public works departments. Private drop box facilities constitute only 14% of this facility type.

The MFS does require drop box facilities to be annually permitted by the applicable jurisdictional health department with review by Ecology. In this regard, the level of compliance for public drop box operations is 63%, while private drop box operations are all permitted.

**Pile Facilities**

A pile solid waste facility is described in the Minimum Functional Standards as any: "noncontainerized accumulation of solid waste that is used for treatment or storage."<sup>62</sup> Pile facilities or areas used for storage and treatment are regulated by WAC 173-304-420.

Pile storage treatment areas are usually associated with the storage and processing of wastes requiring remedial actions e.g., petroleum contaminated soils.

OWNERSHIP	TOTAL	PERMITTED		NON-PERMITTED	
		#	%	#	%
PUBLIC	3	3	100	0	0
PRIVATE	1	1	100	0	0
<b>TOTAL</b>	<b>4</b>	<b>4</b>	<b>100</b>	<b>0</b>	<b>0</b>

**TABLE 27: PILE FACILITIES**

<sup>61</sup> WAC 173-304-100(25)

<sup>62</sup> WAC 173-304-100(56)

Ecology has identified only four of these pile areas within the state. Table 27 shows the profile of regulated pile sites statewide. All four regulated private pile facilities or sites treat petroleum contaminated soils.

Three of the four identified regulated pile sites are publicly owned and are primarily operated by county public works departments.

The MFS does require pile sites to be permitted on an annual basis by the applicable jurisdictional health department with review by Ecology. Each identified pile site has received the required solid waste permit.

**Recycling Centers**

A regulated recycling facility refers to an operation engaged in the collection and utilization of solid waste for the purpose of transforming or remanufacturing the waste materials into usable or marketable materials for use other than landfill disposal or incineration. The *Solid Waste Management Act* refers to "recyclable materials" as "those solid wastes that are separated for recycling or reuse, such as papers, metals, and glass, that are identified as recyclable material pursuant to a local comprehensive solid waste plan."<sup>63</sup> Recycling facilities are regulated under WAC 173-304-300 of the MFS.

It is important to note that the MFS standards for recycling facilities do not apply to: single family residences and single family farms engaged in composting of their own wastes (exempt from any other regulations); facilities engaged in the recycling of solid waste containing garbage, such as garbage composting; facilities engaged in the storage of tires; problem wastes; facilities engaged in recycling of solid waste stored in surface impoundments; woodwaste or hog fuel piles to be used as fuel or raw materials stored temporarily in piles being actively used; nor do they apply to any facility that recycles or utilizes solid wastes in containers, tanks, vessels, or in any enclosed building, including buy-back recycling centers.

Ecology has identified ten regulated recycling centers around the state. Table 28 illustrates the profile of regulated recycling centers in Washington. From the profile, it is evident that the majority of the regulated recycling centers are private facilities, 80%. Public recycling facilities constitute only 20% of this facility type.

OWNERSHIP	TOTAL	PERMITTED		NON-PERMITTED	
		#	%	#	%
PUBLIC	2	1	50	1	50
PRIVATE	8	6	75	2	25
TOTAL	10	7	70	3	30

**TABLE 28: RECYCLING CENTERS**

The MFS requires recycling facilities to be permitted annually by the local jurisdictional health department with review by Ecology. In this regard, the level of compliance for private recycling facilities is 75%, while only one of the two public operations has obtained the necessary solid waste permit.

<sup>63</sup> RCW 70.95.030(14)

**Surface Impoundment Facilities**

A surface impoundment site refers to: "a facility or part of a facility which is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials), and which is designed to hold an accumulation of liquids or sludges. The term includes holding, storage, settling, and aeration pits, ponds, or lagoons, but does not include injection wells."<sup>64</sup> Surface impoundments are regulated under WAC 173-304-430.

Ecology has identified six such regulated facilities in the state. All six of these surface impoundment facilities are septage lagoons. Table 29 shows the surface impoundment ownership / permitting profile.

OWNERSHIP	TOTAL	PERMITTED		NON-PERMITTED	
		#	%	#	%
PUBLIC	5	1	20	4	80
PRIVATE	1	1	100	0	0
<b>TOTAL</b>	<b>6</b>	<b>2</b>	<b>33</b>	<b>4</b>	<b>67</b>

From this profile, the majority of the regulated surface impoundment facilities are public in nature. There is only one identified private surface impoundment facility.

**TABLE 29: SURFACE IMPOUNDMENT FACILITIES**

The MFS requires certain surface impoundment facilities to be permitted annually by the applicable jurisdictional health department with review by Ecology.<sup>65</sup> The private facility is permitted with only one of the five public facilities obtaining the required solid waste permit.

**Transfer Stations**

The Minimum Functional Standards refer to transfer stations as: "permanent, fixed, supplemental collection and transportation facility, used by persons and route collection vehicles to deposit collected solid waste from off-site into a larger transfer vehicle for transport to a solid waste handling facility."<sup>66</sup> The regulations applicable to transfer stations are contained in WAC 173-304-410.

Typically, transfer stations are areas where individual collection vehicles can be off-loaded, the waste stored for a short period of time and reloaded onto larger vehicles for transfer to the disposal facility. Transfer stations are generally located in larger, urban areas. The advantages of transfer stations include: fewer vehicles going to the disposal facility; improved efficiencies by reducing the number of truck loads of waste disposed of at facilities; and the opportunity to transfer and dispose of wastes at off-peak hours.

Transfer stations often have areas where the public can bring trash for disposal. Many also have recycling facilities and/or household hazardous waste collection areas. Seventy-seven regulated transfer stations were identified across the state. Table 30 illustrates the infrastructure component of transfer stations.

<sup>64</sup> WAC 173-304-100(80)

<sup>65</sup> Surface impoundment facilities permitted under Federal, State or Local water pollution control laws are excluded from regulation under WAC 173-304-430.

<sup>66</sup> WAC 173-304-100(82)

**Solid Waste Handling Facilities**

OWNERSHIP	TOTAL	PERMITTED		NON-PERMITTED	
		#	%	#	%
PUBLIC	58	51	88	7	12
PRIVATE	19	17	89	2	11
<b>TOTAL</b>	<b>77</b>	<b>68</b>	<b>88</b>	<b>9</b>	<b>12</b>

**TABLE 30: TRANSFER STATIONS**

The profile shows that the majority of the transfer stations are public facilities, 75%. Private facilities comprise 25% of the transfer station infrastructure. This nearly parallels the relationship of private MSW landfills to private landfills (36 public - 80% / 9 private - 20%).

The MFS requires transfer stations to be permitted annually by the applicable jurisdictional health department with review by Ecology. Of particular note is the level of compliance with respect to permitting. Overall, almost 88% of public owned transfer stations have the required

permit. Likewise, private facilities have met the permitting requirements of the MFS at a rate of almost 90%.

**Tire Pile Facilities**

Tire pile facilities are temporary storage areas for the accumulation of more than eight hundred tires. Tire pile standards are contained in the MFS. In Washington, about four million waste tires are generated each year.

A major component of tire disposal in the state has been illegal tire dumping. This section however deals specifically with regulated tire pile facilities. (For more information regarding other tire piles, please see Used Tires in Chapter III.) Ecology identified seven tire pile facilities in the state, each being under private ownership. Table 31 depicts the ownership/permit status of tire pile facilities in Washington.

OWNERSHIP	TOTAL	PERMITTED		NON-PERMITTED	
		#	%	#	%
PUBLIC	0	0	0	0	0
PRIVATE	7	2	29	5	71
<b>TOTAL</b>	<b>7</b>	<b>2</b>	<b>29</b>	<b>5</b>	<b>71</b>

**TABLE 31: TIRE PILE FACILITIES**

The MFS requires tire pile facilities to be permitted annually by the applicable jurisdictional health department with review by Ecology. Only two of the seven facilities are permitted.

**INCINERATION CLASSIFICATION**

The Solid Waste Management - Reduction & Recycling Act establishes energy recovery and incineration of separated waste; and energy recovery and incineration of mixed wastes as the third and fourth priorities for the collection, handling, and management of solid wastes in the State of Washington.<sup>67</sup>

<sup>67</sup> RCW 70.95.010(8)(c)(d)

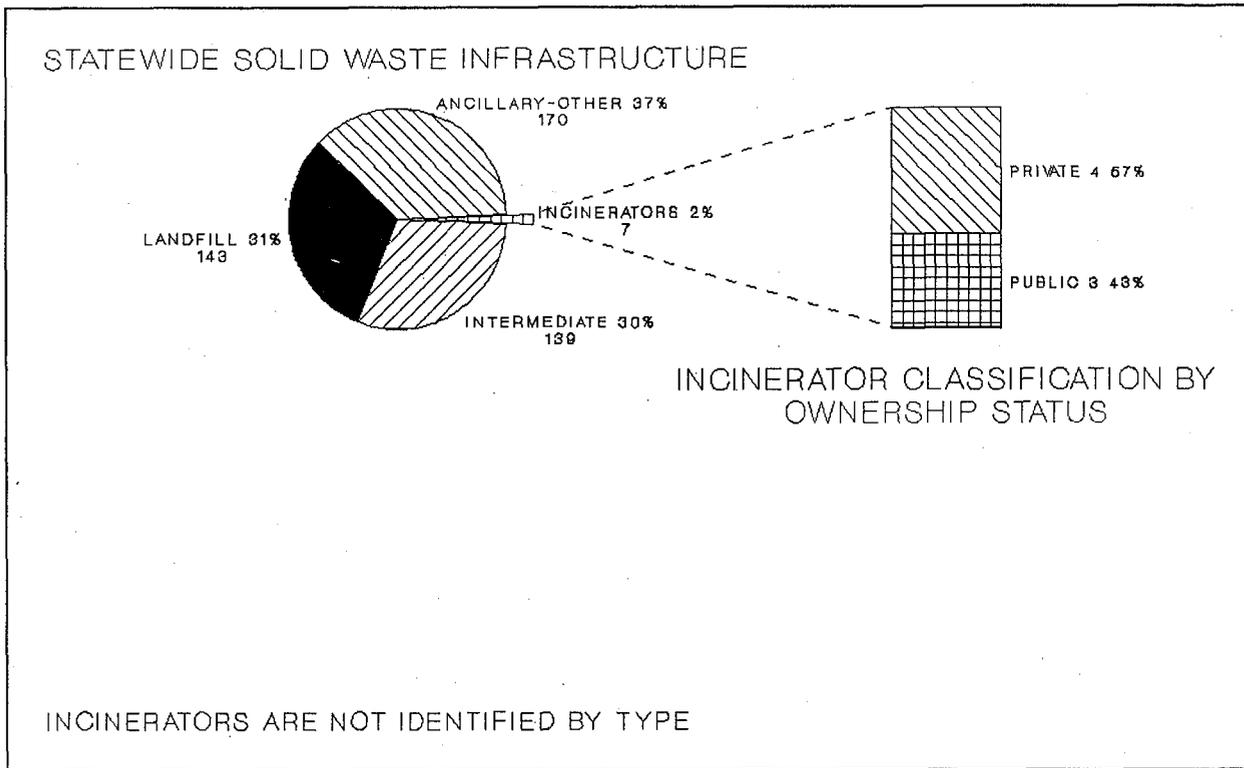


TABLE 32: CLASSIFICATION - INCINERATION

OWNERSHIP	TOTAL	PERMITTED		NON-PERMITTED	
		#	%	#	%
PUBLIC	3	2	67	1	33
PRIVATE	4	4	100	0	0
TOTAL	7	6	86	1	14

An energy recovery facility is a combustion plant which specialized in the "recovery of energy in a useable form from mass burning or refuse derived fuel incineration, pyrolysis or any other means of using the heat of combustion of solid waste that involves high temperature above twelve hundred degrees Fahrenheit."<sup>68</sup> The process of incineration means "reducing the volume of solid wastes by use of an enclosed device using controlled flame combustion."<sup>69</sup> Energy recovery and incinerator facilities are regulated under the MFS, WAC 173-304-440 and apply to "all facilities designed to burn more than twelve tons of solid waste per day, except for facilities burning woodwaste or gases

<sup>68</sup> WAC 173-304-100(26)

<sup>69</sup> WAC 273-304-100(37)

recovered at a landfill.<sup>70</sup> This classification constitutes the third method for handling solid wastes in Washington - landfill and storage/transfer being the others.

Ecology has identified seven regulated solid waste incinerator facilities within the state. Table 32 depicts the classification profile of the state by ownership status, that is - Public or Private. The profile shows that the energy recover and incinerator facilities are almost equally divided between public (3) and private ownership (4).

The MFS requires these facilities to be permitted annually by the applicable jurisdictional health department with review by Ecology. Table 32 shows that all private facilities obtained the necessary permit required while all but one of the public facilities was permitted in 1991.

In addition to solid waste handling permit requirements under the MFS, solid waste incinerators may be subject to regulations promulgated under chapter 70.138 RCW, the *Incinerator Ash Residue Act*. The rules implementing this chapter 173-306 WAC, *Special Incinerator Ash Management Standards*, require certain solid waste incinerators to prepare generator (ash) management plans. These rules do not apply to the operation of incineration or energy recovery facilities that burn only tires, woodwaste, infectious waste, sewage sludge or any other single type of refuse, other than municipal solid waste. They also do not apply to facilities which burn solid waste at the rate of less than twelve tons per day.

Of the four (4) municipal solid waste incinerators operating during 1991, three (3) of these facilities were subject to both the requirements of chapter 173-304 WAC and chapter 173-306 WAC. These three (3) facilities are required to have generator ash management plans. A generator ash management plan is in essence, a blueprint prepared by the facility operator concerning the handling, storage, transport and disposal of incinerator ash. The generator ash management plan must be reviewed and approved by Ecology. An approved ash management plan is a requirement for municipal solid waste incinerator operation.

Of the three (3) municipal solid waste facilities subject to both the requirements of chapter 173-304 WAC and chapter 173-306 WAC, two (2) are publicly owned and one (1) is privately owned. All three (3) facilities have approved generator ash management plans and have solid waste handling permits. One (1) publicly owned municipal solid waste facility, subject only to the requirements of chapter 173-304 WAC, is not permitted.

Energy recovery and incineration represent approximately two percent (2%) of the solid waste handling infrastructure. Ecology also estimates that municipal solid waste incinerators burned approximately two percent (2%) of the solid waste, by weight, during 1991. It should be noted that during 1991, one privately operated municipal solid waste incinerator facility was inactive while the state's largest publicly owned incinerator was in start-up testing during the last quarter of 1991. Because of these factors, the percentage of solid waste disposed of in incinerators may show some increase in subsequent annual status reports.

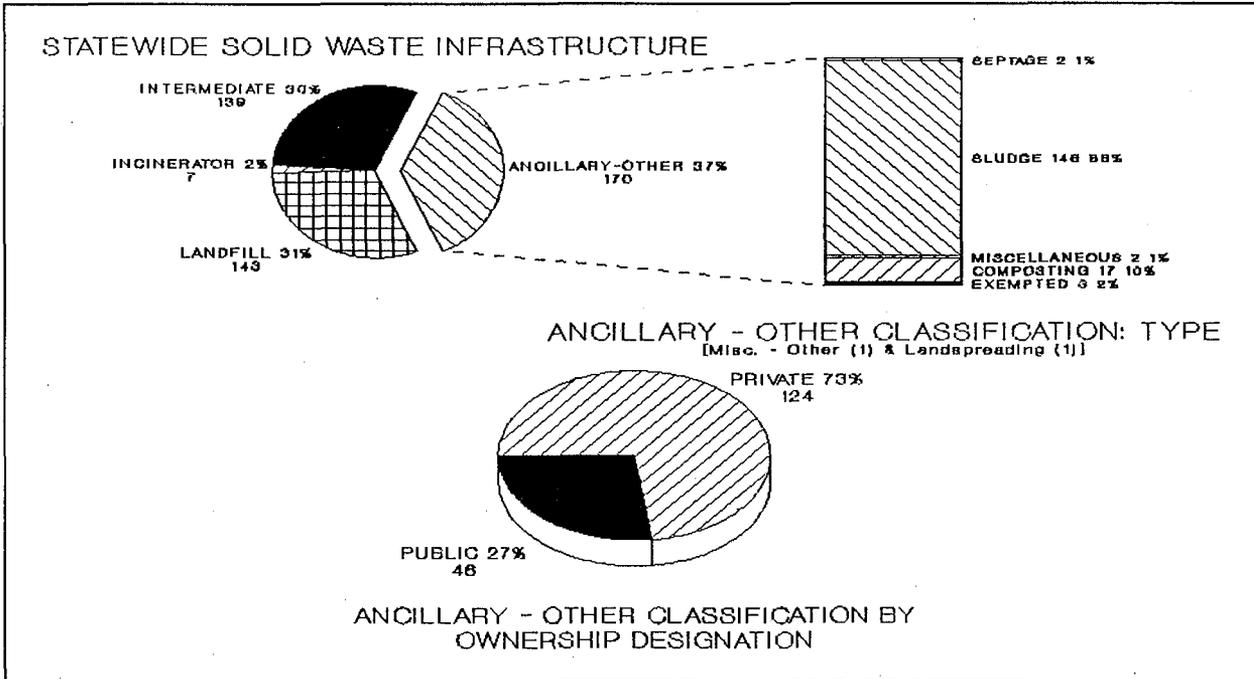
Because of these factors and overlaps resulting from some facilities being regulated under by chapter 173-304 WAC and chapter 173-306 WAC, a priority concerning this facility type will be made during the second year of data collection for the annual status report.

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<sup>70</sup> WAC 173-304-440(1)

**ANCILLARY - OTHER CLASSIFICATION**

The classification of Ancillary - Other, is not covered or spelled out in regulation but is denoted here to explain certain anomalies discovered in the reporting process that may have an affected in



**TABLE 33: CLASSIFICATION - ANCILLARY / OTHER**

FACILITY TYPE	TOTAL # STATEWIDE	TOTAL BY OWNERSHIP DESIGNATION	
		# PUBLIC	# PRIVATE
COMPOSTING	17	6	11
EXEMPTED	3	0	3
LANDSPREADING	1	1	0
OTHER	1	0	1
SLUDGE	146	39	107
SEPTAGE	2	0	2
<b>TOTAL</b>	<b>170</b>	<b>46</b>	<b>124</b>

subsequent reporting years. To qualify for this category, a facility type is currently either under regulator modification, exempted from regulation, or determined to be an obscure facility type needing re-classification or elimination outright. The facility types identified in this classification are highlighted in Table 33.

The 170 facilities represent 37% of the state's solid waste infrastructure. The volatility of this classification with regard to regulatory re-classification could significantly alter the infrastructure picture in future years. (See discussion on sludge facilities below.)

**Composting Facilities**

A composting facility is an area or compound which engages in the activity of controlling the degradation of organic solid waste yielding a product for use as a soil conditioner. Composting is considered a key component to reaching the state's 50% recycling goal. The MFS regulates composting under the non-containerized composting standards for recycling in WAC 173-304-300(1)(a)(i) and under WAC 173-304-420 dependent upon the "condition specific" nature of the waste e.g., does the waste produce leachate.

OWNERSHIP	TOTAL	PERMITTED		NON-PERMITTED	
		#	%	#	%
PUBLIC	6	5	83	1	17
PRIVATE	11	9	82	2	18
<b>TOTAL</b>	<b>17</b>	<b>14</b>	<b>82</b>	<b>3</b>	<b>18</b>

Composting has been placed in the Ancillary - Other Classification because of pending regulatory modification by Ecology.

Ecology has identified 17 regulated composting facilities in the state. Table 34 highlights the infrastructure characteristics of composting facilities in Washington.

TABLE 34: COMPOSTING FACILITIES

The profile shows that compost facilities are primarily under private ownership, 65%. Public composting facilities

comprise 35% of the regulated composting infrastructure.

The MFS requires composting facilities to be permitted annually by the applicable jurisdictional health department with review by Ecology. The level of compliance for private and public facilities is nearly the same, approximately 82%.

**Exempted Facilities**

Cities and counties in Washington are entrusted with the primary responsibility of planning and implementing solid waste management programs. An exempted facility, for the purpose of this report, are those solid waste handling facility types identified under Washington statute or rule but are either: (1) not under the jurisdiction of either state or local governments; or (2) are exempted for consideration by other Federal, State or Local Laws, such as woodwaste facilities under Department of Natural Resources rule. Three such facilities were identified during the preparation of this report i.e., tribal solid waste facilities.

**Landspreading Disposal Facilities**

A landspreading disposal facility under the MFS means a facility that applies sludges or other solid wastes onto or incorporates solid waste into the soil surface at greater than vegetative utilization and

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soil conditioners/immobilization rates. Landspreading disposal facilities are regulated under WAC 173-304-450.

Only one permit has been issued in this category in 1991. Confusion as to what a landspreading facility is became apparent during the data collection period of this report. Because of the high propensity to issue sludge permits instead of landspreading permits, this category was virtually ignored in 1991. Consideration to modification, definition clarity or outright elimination of this facility type should be considered during any future rule revision process.

### Other Facilities

The "other" category of facility type applies to "other methods of solid waste handling such as a material resource recovery system for municipal waste not specifically"<sup>71</sup> identified elsewhere in the MFS. The specific regulations for "other" facilities is covered by WAC 173-304-470. This type of facility is basically a miscellaneous category which is designed to cover new solid waste technologies that are developed between MFS revisions. Only one permit was issued in this category during 1991 - to a medical waste recycling facility.

### Sludge Utilization Facilities

A sludge<sup>72</sup> utilization facility is an area or compound which controls the landspreading or disposal of sludge materials or "semisolid substances consisting of settled sewage solids combined with varying amounts of water and dissolved materials generated from a wastewater treatment plant or other source."<sup>73</sup> Ecology currently regulates sludge utilization sites under the recycling facility standards of WAC 173-304-300(a)(4).

Ecology identified 146 sludge utilization facilities in the state, or 32 percent of the entire solid waste infrastructure. This type of facility or operation constitutes the single largest facility type identified during data collection for this report.

Table 35 illustrates the sludge utilization profile for Washington. The profile shows that sludge utilization facilities are primarily under private ownership, 73%, 107 of 146 facilities. Public sludge utilization comprises 27% of the regulated sludge utilization infrastructure.

OWNERSHIP	TOTAL	PERMITTED		NON-PERMITTED	
		#	%	#	%
PUBLIC	39	33	85	6	15
PRIVATE	107	102	95	5	5
<b>TOTAL</b>	<b>146</b>	<b>135</b>	<b>92</b>	<b>11</b>	<b>8</b>

TABLE 35: SLUDGE UTILIZATION FACILITIES

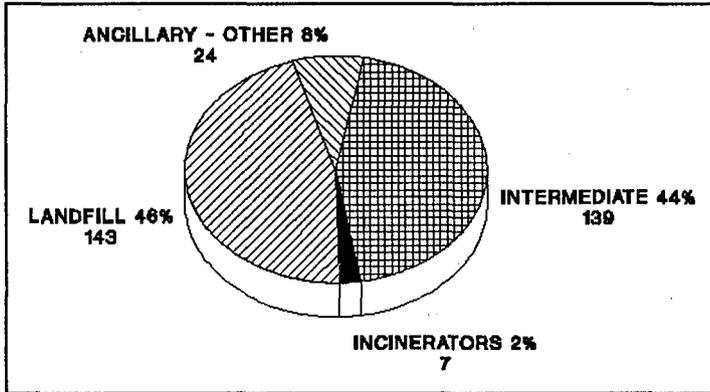
The MFS requires sludge utilization facilities to be permitted annually by the applicable jurisdictional health department with review by Ecology. Many of the private sites are owned by farmers who have contracted with municipalities and special purpose districts for disposal of the waste through approved sludge utilization practices. In many cases the contracts are for only one year in duration

<sup>71</sup> WAC 173-304-470

<sup>72</sup> Sludge, as discussed here refers only to municipal sewage sludge and does not include commercial or industrial sludge.

<sup>73</sup> WAC 173-304-100(71)

requiring the sludge producing entities to constantly be searching for new locations. This makes sludge utilization a highly mobile industry which in turn poses unique problems for information gathering. For example, since most utilization sites are farms, actual site location is identified most commonly by legal description: Section, Township and Range. Identification by address is rare. This mobility of the industry means that permitting tends to be a one time deal. In this regard, the private utilization sites have achieved a 95% permit rate. Public facilities have been permitted at a slightly lower rate of nearly 85%



**TABLE 36: STATE SOLID WASTE INFRASTRUCTURE, LESS SLUDGE FACILITIES**

CLASSIFICATION DIVISION	STATEWIDE TOTALS
LANDFILL	143
INTERMEDIATE	139
INCINERATION	7
ANCILLARY - OTHERS	24
<b>TOTAL SOLID WASTE INFRASTRUCTURE</b>	<b>313</b>

Sludge utilization sites, which constitute 32% of all facility types identified, are classified as Ancillary - Other because of the action of the Legislature in 1992, when it passed ESHB 2640, an *Act Relating to Municipal Sewage Sludge*, codified as chapter 70.95J RCW. This action changed the name of this waste type from sludge to biosolids as well as changing the definition and approach to sludge management in Washington. The new definition of biosolids is: "municipal sewage sludge that is a primarily organic, semisolid product resulting from the waste water treatment process, that can be beneficially recycled and meets all requirements of" chapter 70.95J RCW. Biosolids further include septic tank sludge, also known as septage, that can be beneficially recycled and can meet all requirements of chapter 70.95.J RCW."

The legislation also gave Ecology the authority to adopt rules to assure the proper management and use of biosolids within twelve months of the adoption of the Federal rules. Sludge, simply stated, will no longer be considered a solid waste. The removal of 32% of the state's solid waste infrastructure through re-classification will significantly effect classification tabulations. For example, once sludge is re-classified, if all things

remained relative to the number of facilities identified this year, the total of all solid waste facilities would drop from 459 to 313. Table 36 graphically illustrates how the infrastructure of the state, less sludge, would be today if sludge were not considered a solid waste.

The annual status report will continue to tabulate sludge utilization sites and will monitor the transition from sludge utilization to biosolid sites. For further discussion on Biosolids, see Chapter III, Specific Types of Waste.

**Septage Facilities**

A septage utilization facility is an area or compound which engages in the activity of controlling the landspreading or disposal of septage materials or "semisolid consisting of settled sewage solids combined with varying amounts of water and dissolved materials generated from a septic tank system."<sup>74</sup> The MFS regulates septage in two areas. First, it is regulated with respect to its transportation in WAC 173-304-200, and also under the recycling facility standards of WAC 173-304-300.

Ecology identified only two of these facilities in the state. Confusion as to what a septage facility is became apparent during the data collection period of this report. Because of septage's relationship to sludge, permits were either issued incorrectly as sludge permits or permits were issued as surface impoundment facilities. In addition, the discussion related to sludge utilization facilities above also applies to septage wastes. This category, like sludges will be monitored and modified as needed in future additions of the annual status report.

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<sup>74</sup> WAC 173-304-100(70)

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## CHAPTER III

# SPECIFIC TYPES OF WASTES

There are several specific waste streams, that because of their characteristics, are handled and dealt with differently than the general municipal solid waste stream. This chapter will look at how Washington is dealing with these different types of wastes.

## USED OIL

About 17.9 million gallons of used oil from vehicle crankcases is generated annually in Washington by businesses and households (13.8 and 4.1 million, respectively).<sup>75</sup> Businesses generally dispose of their used oil through a statewide private used oil collection and recycling system. Typically, the fuel or recycling value of used oil does not exceed the collection and processing costs, and many business must pay to have their used oil taken away. In remote areas where used oil pick-up services are lacking or perceived as expensive, many business generators legally burn their used oil on-site in small used oil furnaces.

Approximately 20 used oil haulers currently operate in Washington. A smaller portion of these haulers operate used oil transfer and processing stations. Used oil de-watered, filtered, and blended can be burned as propulsion fuel for ocean-going ships or as industrial fuel for paper or cement production. A growing percentage of Washington's used oil is becoming feedstock to re-refineries in Vancouver, British Columbia and Newark, California for production of re-refined lubricating oil.

Households that recycle their used oil take it to one of a network of approximately 224 used oil drop-off stations distributed throughout the state where it can be aggregated with business used oil or other household used oil to an economic quantity (typically 200 gallons) for pick-up. Some cities and counties provide used oil pickup with curbside recyclables. Several areas of the state, however, currently lack convenient opportunities for households to properly manage their used oil.

The *Used Oil Recycling Act*, chapter 70.951 RCW, passed by the Legislature in 1991, mandates that Ecology work with local governments and private businesses to reverse the trend of diminishing household used oil recycling opportunities. During 1992 and early 1993 local governments will be required to update their local hazardous waste plans (also referred to as local moderate risk waste plans, see Chapter I) to include strategies to meet an 80% collection rate goal for household used oil by 1996.

Although local governments appreciate the need for improved collection services for household used oil, many local governments are concerned about how they will fund household used oil collection programs. Between Ecology waste grants for local government used oil projects and businesses, such as Paccar Automotive, Inc., and Texaco Refining and Marketing, Inc., offering to participate in household used oil collection, there should be significant improvements throughout the state over the next several years in household used oil recycling opportunities.

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<sup>75</sup> Market Assessment for the Use of Recycled Tires, Oil and Glass, prepared by the C2S2 Group for the Department of Trade and Economic Development, October 1990.

## USED OIL FILTERS

In early 1991, many businesses became concerned over the applicability of the *Dangerous Waste Regulations* (chapter 173-303 RCW) to used oil filter wastes. In March 1991, Ecology provided guidance allowing thoroughly-drained used oil filters to be put in the solid waste, barring any local-government restrictions. The Federal Environmental Protection Agency provided similar guidance to generators of used oil filters in May 1992.

As an alternative or a compliment to a regulatory approach to divert used oil filters from the solid waste stream, Ecology initiated a study of waste reduction strategies and recycling markets for used oil filters.<sup>76</sup> (Used antifreeze was also included in the study because of the similarity of technical, economic, and regulatory issues surrounding used antifreeze management.)

The study found that the state's generation of used oil filters represents flows of nearly 5,000 annual tons of scrap metal and 650,000 gallons of used oil. Until recently, all of these materials have entered the solid waste stream. Now, it is practical for commercial shops to crush or fillet filters on-site to remove that portion of the used oil difficult to remove through gravity-induced draining. Moreover, services have started up to collect used oil filters, either crushed or uncrushed, in most areas of the state, although at a charge to the generator. Unfortunately, these charges appear to be high enough to be a disincentive to recycling the used oil filters at this time.

## VEHICLE BATTERY RECYCLING

Vehicle batteries, because of their lead content, have been a major contributor to the toxic content of the largest source of toxic lead metal in the solid waste stream.

In 1989, the Legislature enacted the *Vehicle Battery Recycling Law* (RCW 70.95.610-670). Under the law, all vehicle battery sellers must accept one used battery for each new replacement battery sold. Vehicle battery retailers must apply an additional \$5 charge to any battery sale where the purchaser has not provided a used battery in exchange. In 1991, Ecology finalized the *Vehicle Battery Recycling Rule*, chapter 173-331 WAC. The rule established clarifications and procedures for vehicle battery distributors and retailers to comply with the *Vehicle Battery Recycling Law*.

A recent survey of 400 Washington households (to be reported as part of the Waste Characterization Study to be completed in 1993) indicates that approximately 31% of the households replaced at least one vehicle battery in the past year. Of those households, 80% reported that they returned the old battery to the new battery seller and 13% took the old battery to a recycling or moderate risk waste collection center. Nine percent, however, indicated they stored the battery at home and 1.6% disposed of their battery improperly.<sup>77</sup>

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<sup>76</sup> Market Assessment for Used Oil Filter and Used Antifreeze Recycling, Department of Ecology, Publication Number 91-50, November 1991.

<sup>77</sup> Total adds to more than 100% because some households reported on more than one vehicle battery.

## USED TIRES

In Washington, about four million waste tires are generated each year. Ecology's Tire Program is funded from a new tire assessment of one dollar per tire. The money is used for the cleanup of specific, existing illegal tire piles and to fund the various elements of Ecology's tire program. As of October 1992, approximately 2.7 - 2.8 million tires have been removed, processed, and sent to end users from nineteen tire piles (see Table 37). The main goal of Ecology's tire program is the promotion of legal disposal, storage, and end uses of waste tires. Efforts to deal with used tires include:

1. The cleanup of illegal tire piles.
2. Evaluating applications to the Department of Licensing for waste tire carriers, and storage site owners licenses.
3. Market development activities, in cooperation with the Department of Trade and Economic Development's Clean Washington Center, to develop new markets for waste tires and increase government procurement of retread tires, scrap tire rubber and products.
4. A statewide tire fire prevention/safety program that includes training and distribution of a foam suppressant.
5. An education program for citizens which promotes a system for proper tire management.
6. Establishing a strong enforcement system for local health departments/districts and Ecology.

**TABLE 37: WASHINGTON STATE TIRE PILE CLEAN-UP PROJECTS**

COUNTY	# OF TIRE PILE CLEAN-UP PROGRAMS	ESTIMATED # OF TIRES	STATUS OF CLEAN-UP ACTIVITIES
ASOTIN	1	52,210	Complete
CLARK	1	172,500	Complete
KITTITAS	1	15,000	Letter of Agreement
PIERCE	10	1,598,501	7 Complete; 2 under contract; 1 under Letter of Agreement
SPOKANE	4	5,405,000	2 Declined Clean-up; 1 negotiated offer letter in process; 1 attempting compliance through facility permit
STEVENS	1	8000	Pile burned - (2/8/92)
THURSTON	7	1,989,749	6 Complete; 1 under contract
<b>TOTAL</b>	<b>25</b>	<b>9,188,750</b>	

## WHITE GOODS RECYCLING

In solid waste, "white goods" generally refers to refrigerators, freezers, stoves, water heaters, washers, dryers, and other bulky household appliances. There are approximately 800,000 discarded white goods generated each year in Washington, with an average weight of 132 pounds.<sup>78</sup> Ecology recycling information for 1990 and 1991 show an approximate 50% recycling rate for white goods. White goods typically have a scrap metal recycling value of \$2-\$5 per unit, however, the processing and transportation costs prior to scrap metal recycling are frequently higher.

While increasing the rate of white good recycling would be challenging enough, an additional issue emerged in 1992. As part of the 1990 Federal *Clean Air Act*, it became illegal, as of July 1, 1992, to vent CFCs from domestic refrigerators and freezers, because of the effect these compounds have on the atmosphere's capability to filter out harmful radiation. Unfortunately, very little existed in the way of technical know-how, equipment, or services to assist solid waste managers in complying with this new requirement.

During 1992, the following strategies were being employed by local governments to comply with the CFC venting ban:

- Contracting with an appliance repair service (or qualified service) to come at timed intervals to solid waste receiving stations to recover CFCs from units that accumulate there (Thurston County).
- Contracting with a dedicated appliance recycling center to pick up and process units generated within the jurisdiction (City of Seattle).
- Purchasing CFC extraction equipment and training staff to process units coming into solid waste receiving stations (Spokane).
- Forming partnerships with appliance sales outlets that have appliance repair capabilities to accept units generated within the jurisdiction, on the condition of exchange for purchase of a new unit and/or a charge to the generator (King County).

Other counties are generally moving to one of the above strategies to comply with the ban. In some cases, appliances have been stockpiled at landfills or transfer stations until a better strategy can be put into place.

Ecology continues to monitor the affect of the new requirement on solid waste management. One concern is that increased disposal cost to generators of white goods might stimulate increased abandonment or dumping of these white goods. Greater efficiency in the extraction of CFCs from white goods and in other white goods processing steps may help to reduce these costs.

## BIOMEDICAL WASTE

In 1992, the Legislature established a statewide definition for biomedical waste (in chapter 70.95K RCW *Biomedical Waste*) as the sole state definition, preempting those adopted by local health departments or local governments. The biomedical waste definition includes specific categories of

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<sup>78</sup> This is estimated using methodology developed by DPRA Incorporated of St. Paul, Minnesota, presented in Discarded Household Appliances: Management and Recycling in Wisconsin, February, 1992.

animal waste, Biosafety level 4 disease waste, cultures and stocks, human blood and blood products, pathological waste and sharps waste. The Legislature also provided the Department of Health, in consultation with Ecology and local health departments, with authority to evaluate the environmental and public health impacts of new biomedical waste treatment technologies, placing the cost of the evaluation upon the applicant.

Washington does not have a uniform comprehensive biomedical waste management program in place. Rather, the issue is handled by the fragmented approach as follows:

The Washington Utilities and Transportation Commission (UTC) has rules relating to the safe transportation of biohazardous waste in Washington for commercial transporters under its regulatory authority.

The Washington State Department of Labor and Industries has enforcement procedures for occupational exposure to hepatitis B virus (HBV) and human immunodeficiency virus (HIV).

Ecology provides certification classes for Solid Waste Incinerator and Landfill Operators, which includes medical waste incinerators. Washington legislation also requires that medical waste incineration be conducted so that no portion of the combustible material is visible in its uncombusted state.

Some local governments also have infectious waste management programs and may have additional local infectious waste disposal requirements. To date comprehensive biomedical waste management requirements have been adopted in eight Washington counties (King, Pierce, Snohomish, Spokane, Kitsap, Island, Skagit and Lewis County), which are enforced by the jurisdictional environmental health department.

Records are not maintained by the state regarding generation volumes and destination of biomedical waste in Washington. However, based on Ecology's 1989 report<sup>79</sup> to the Legislature on infectious waste, biomedical waste is primarily treated on-site by steam sterilization or incineration, transported off-site for incineration at regional incinerators in Washington, Oregon or California, treated by other technologies, or disposed untreated at municipal landfills.

## **BIOSOLIDS**

In 1992, the Legislature passed ESHB 2640, an *Act Relating to Municipal Sewage Sludge*. The new chapter 70.95J RCW defines biosolids as, "municipal sewage sludge that is a primarily organic, semisolid product resulting from the waste water treatment process, that can be beneficially recycled and meets all requirements under this chapter. Biosolids includes septic tank sludge, also known as septage, that can be beneficially recycled and can meet all requirements of chapter 70.95.J RCW." Most treatment plant biosolids in Washington should be able to meet this definition. However, it is possible that some will require additional treatment prior to use for some land applications.

The legislation allows Ecology to seek delegation and administer the biosolids permit program required by the Federal *Clean Water Act*. Ecology is also to adopt rules within 12 months of the

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<sup>79</sup> Washington State Infectious Waste Project, Report to the Legislature, including Attachments 1 - 8, Publication Nos. 89-61 through 89-69, December 1989.

adoption of the Federal rules.<sup>80</sup> The state can delegate to a local health department powers to issue and enforce permits for use or disposal of biosolids.

Ecology has entered into a contract with Washington State University Extension Service to rewrite the Sludge Utilization Guidelines, 82-11, and the Best Management Practices for Municipal Sludge Utilization, 82-12 (to be completed in mid 1993). Ecology is in the process of developing a policy for addressing the effects of biosolids utilization on land, on other Ecology programs such as the *Model Toxics Control Act* (MTCA) and Groundwater Quality and preparing a modification of Technical Information Memorandum (TIM) 86-2, which deals with landfilling of municipal sewage sludge.

Washington, through legislation and policy, supports recycling of biosolids. This is in keeping with Federal policy and is expected to result in long-term economic benefit to the state with little or no environmental or public health risk.

### MODERATE RISK WASTE

Moderate Risk Waste (MRW) is defined in Washington in chapter 70.105 RCW, the *Hazardous Waste Act* as:

- "(a) any waste that exhibits any of the properties of hazardous waste but is exempt from regulation under this chapter solely because the waste is generated in quantities below the threshold for regulation<sup>81</sup>, and
- (b) any household wastes which are generated from the disposal of substances identified by the department as hazardous household substances."<sup>82</sup> (See Table 38 for more detail).

According to the 1990 Problem Waste Study,<sup>83</sup> approximately 82,000 tons of MRW is generated annually in Washington. Approximately 30,000 tons are generated by the state's two million households. The remaining 52,000 tons are generated by approximately 43,000 conditionally exempt businesses. For comparison, in 1987, Ecology-regulated businesses that generate hazardous waste generated just over 300,000 tons.

• Paints	• Solvents
• Drain Cleaners	• Pesticides
• Batteries	• Oil
• Anti-freeze	• Adhesives

In reviewing local planning surveys, it was found that a large amount of MRW is not properly disposed of. Of the 82,000 tons generated each

**TABLE 38: TYPICAL HOUSEHOLD HAZARDOUS WASTE**

<sup>80</sup> The EPA was under court order to promulgate 40 CFR 503, the *Standards for the Use or Disposal of Sewage Sludge*, by July 31, 1992. The standards were signed by EPA in November and are expected to be published in the Federal Register in January, 1993. Ecology's involvement will depend to some extent on federal requirements for administration of a state sludge program. State regulations will likely follow federal requirements.

<sup>81</sup> The conditions for exemption for wastes are found in the *Dangerous Waste Regulations*, WAC 173-303-070.

<sup>82</sup> The list of household hazardous substances is found in the Planning Guidelines for Local Hazardous Waste Plans, Department of Ecology, Publication Number 87-18, July, 1987.

<sup>83</sup> The Problem Waste Study, Washington State Department of Ecology, Publication Number 90-59, December, 1990.

year, about one-half, or 40,000 tons, are sent to municipal solid waste landfills, dumped into storm drains and

sewers, dumped on the ground, buried or burned. The remainder (42,000 tons) is recycled, treated, stored or disposed of in a facility permitted to handle hazardous wastes.

Although no collection tonnages are available for 1991 or 1992 (a reporting system will be established in 1993), the following collection activities occurred in 1992:

52 collection events,  
19 permanent facilities were operating, and  
6 mobile systems operated during the year.

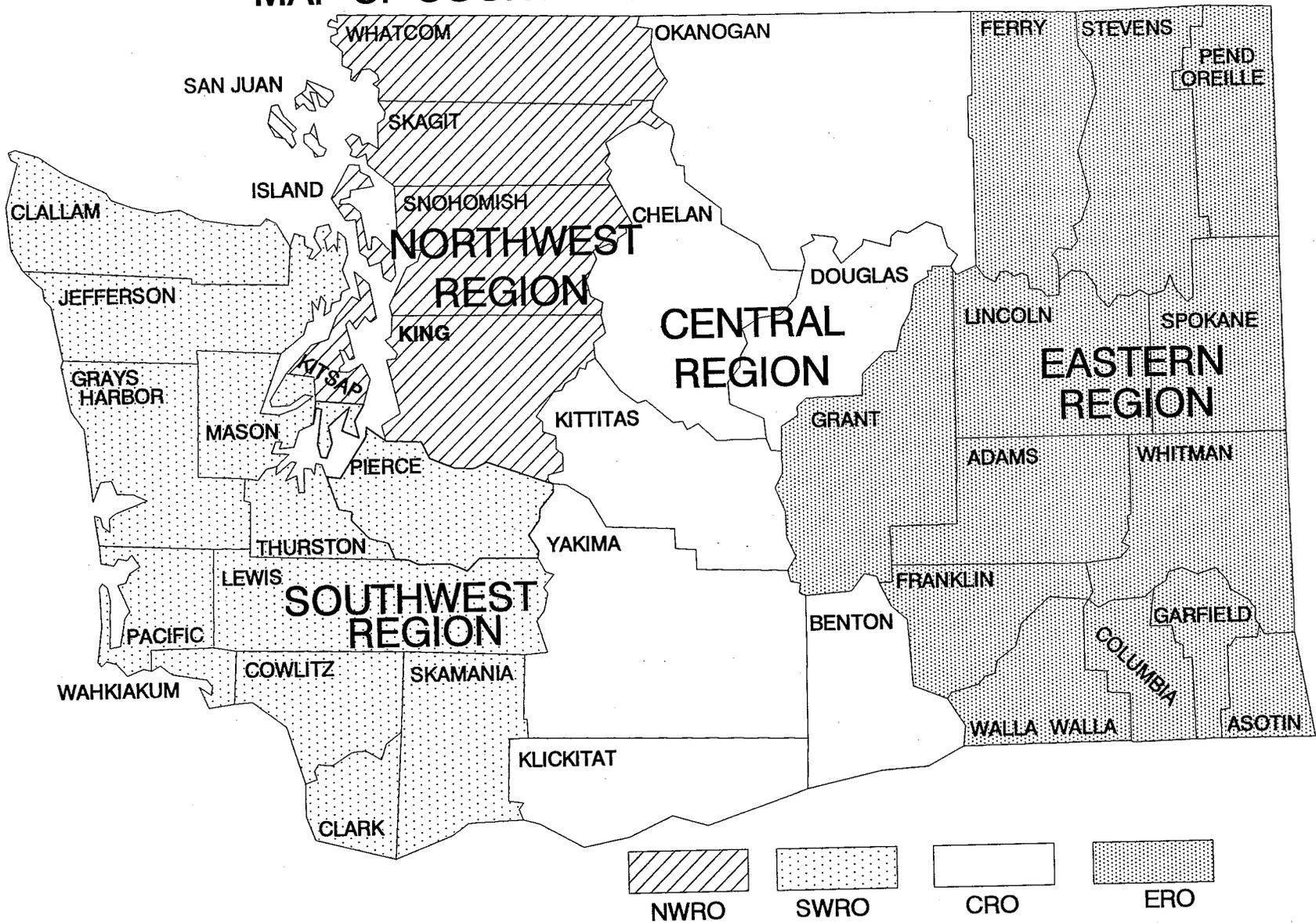
Map "B" indicates the types of collection facilities, fixed, mobile or both, that currently exist in the state. It also shows which counties are planning additional facilities. Counties without fixed or mobile collection facilities often hold at least annual household hazardous waste collection events. Some counties with facilities also hold collection events periodically.

Implementation of the local MRW plans was not required until December 31, 1991. The next annual status report will be able to document the first year of full implementation.



APPENDIX A

# MAP C: COUNTIES WITHIN ECOLOGY REGIONS



WE WOULD LIKE YOUR COMMENTS

Ecology will be preparing a new status report for solid waste in Washington each year. We would like your comments to assist us in making it more complete and useful.

As a user of this annual report, we would like your comments. Please cut out this page and send it to the address on the back.

What additional issues should the annual status reports include?

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What additional information should be included in the annual status reports?

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How can the annual status reports be more useful?

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Other comments:

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