

SOLID WASTE INFORMATION SYSTEM

80

▶ *Delivery,
disposal*

and

waste

reduction

data

▶ *May 15*

1991

▶ *First Quarter*

1991

Metropolitan Service District
Solid Waste Department
Bob Martin, director

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The Metropolitan Service District, your regional government, handles regionwide concerns in the urban areas of Clackamas, Multnomah and Washington counties. Metro is responsible for solid waste management, operation of the Metro Washington Park Zoo, transportation and land-use planning, urban growth boundary management, technical services to local governments and, through the Metropolitan Exposition-Recreation Commission, management of the Oregon Convention Center, Memorial Coliseum, Civic Stadium and the Portland Center for the Performing Arts.

Executive officer
Rena Cusma

Councilors by district are:

- | | |
|-------------|-------------------|
| District 1 | Susan McLain |
| District 2 | Lawrence Bauer |
| District 3 | Jim Gardner |
| District 4 | Richard Devlin |
| District 5 | Tom DeJardin |
| District 6 | George Van Bergen |
| District 7 | Ruth McFarland |
| District 8 | Judy Wyers |
| District 9 | Tanya Collier |
| District 10 | Roger Buchanan |
| District 11 | David Knowles |
| District 12 | Sandi Hansen |

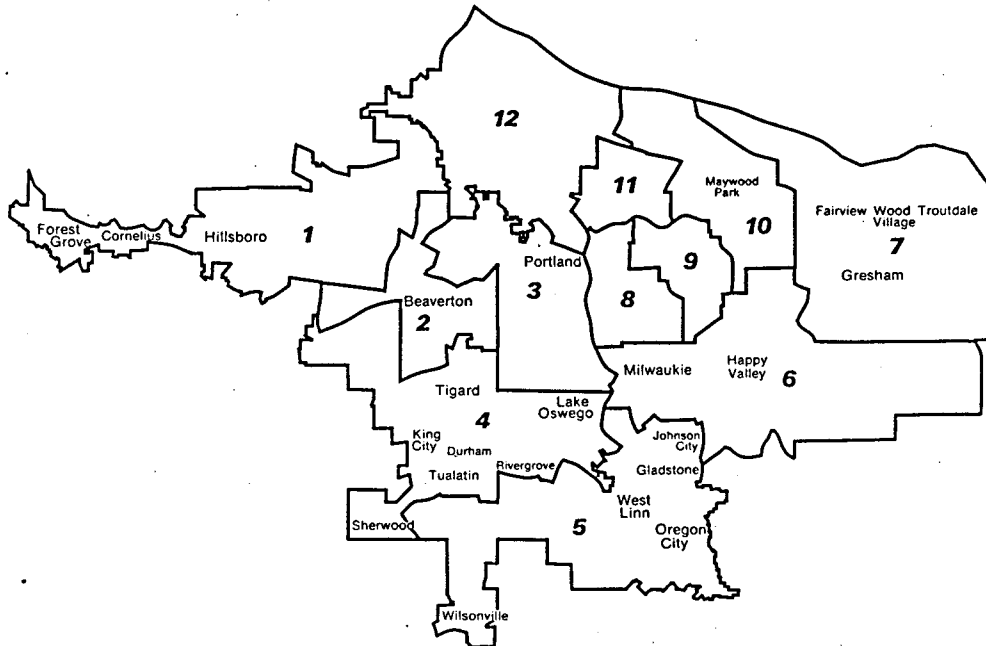


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Introduction and Summary

The SWIS Program

The Solid Waste Information System (SWIS) is a program for integrating data on waste generation, delivery, disposal, and recycling. Its primary functions are reporting historical solid waste data and forecasting future waste flows. Applications of the information include rate setting, budgeting, facility management and developing waste reduction programs.

The information produced by SWIS is reported on a quarterly schedule. Each report includes delivery, disposal, and waste reduction data for the region encompassing Clackamas, Multnomah, and Washington Counties. Individual reports will include other solid waste data and analyses as appropriate. These reports provide an opportunity for reviewing the assumptions and methods used by METRO to forecast waste flow within the region.

Report Content

This is the sixth SWIS report. Forecasts and other data in this report supercede data in previous reports.

This report includes actual data through the fiscal quarter ending March 31, 1991, and forecasts through the 1993 calendar year. The report summary (pages 2-5) addresses significant changes in delivery tonnages that have occurred since the February 15, 1991 report was produced.

Section II compares previous SWIS forecasts to the present one. Section III contains: (1) a map showing the location of regional facilities, (2) diagrams showing the annual flow of waste among facilities, and (3) monthly and quarterly tonnages for each facility. Recycling and waste recovery data are included in Section IV.

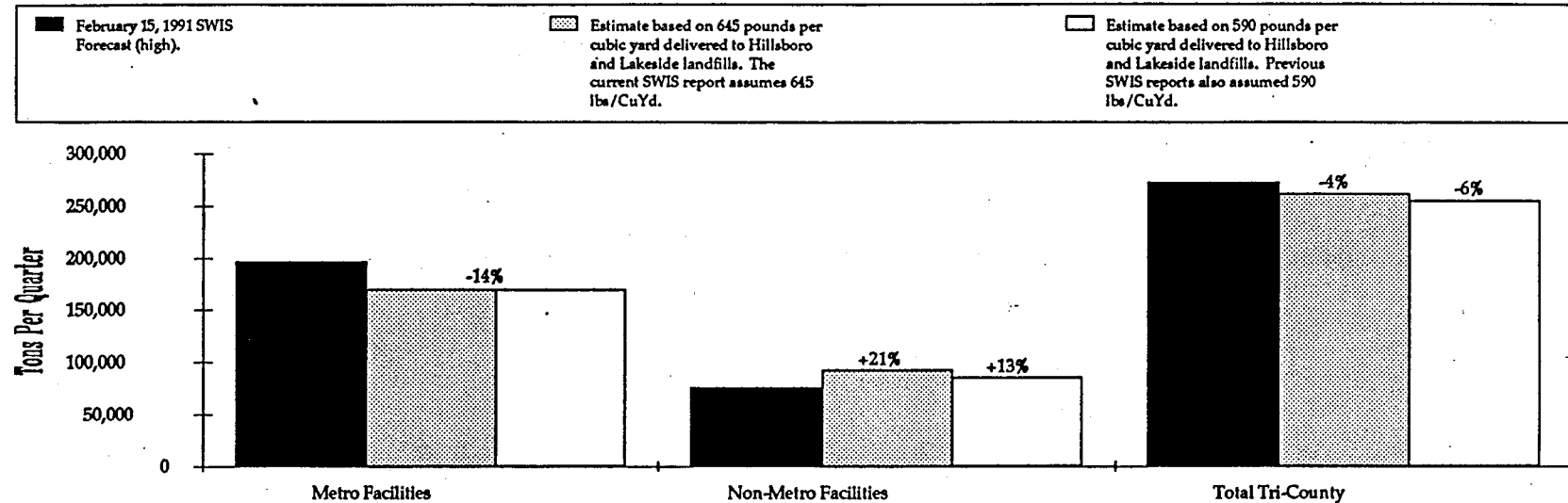
Two forecasts are presented in this report: high and low. These correspond to the "Historical" and "Expected" forecasts shown in previous SWIS reports. The high forecast is used for budgeting and rate-setting. The low forecast includes the effects of new recycling and waste reduction. The high forecast is shown in the table at right.

Summary of Actual and Forecast (high) Tonnages

FACILITY NAME	Actual Data			Forecast		
	1988	1989	1990	1991	1992	1993
Columbia Ridge Landfill	Not Open		356,112	631,900	582,800	600,400
East County Recycling Center	5,696	20,904	33,684	34,970	35,100	35,100
Forest Grove Transfer Station	38,074	61,069	65,246	72,400	80,800	120,000
Hillsboro Landfill	66,438	101,622	153,477	205,000	228,600	233,000
Killingsworth Fast Disposal Landfill	174,426	98,659	Closed			
Lakeside Reclamation Landfill (Grabhorn)	49,919	67,622	69,194	75,600	84,300	86,000
Marion County Energy Recovery Facility	28,693	14,425	13,527	22,800	27,500	27,500
Metro Central Transfer Station	Not Open			294,100	327,600	334,200
Metro South Transfer Station	304,401	340,995	368,394	380,700	300,000	200,000
Metro-Riedel Mass Composting Facility	Not Open			130,700	185,000	185,000
Oregon Processing And Recovery Center	10,912	9,366	7,004	15,700	17,600	17,800
Other Needed Facilities	Not Needed Until Approximately January 1993					105,000
Riverbend Landfill	56,989	78,257	84,149	70,600	68,400	68,900
St. Johns Landfill	677,291	715,577	481,835	42,000	46,800	50,000
All Facilities: Less than the sum of the above because waste transferred from one facility to						
A. Tons Delivered	1,065,017	1,108,756	1,195,615	1,262,400	1,314,800	1,375,000
B. Tons Disposed	1,033,671	1,066,064	1,148,419	1,031,900	1,019,100	1,046,500
(A-B) Tons Recovered	31,346	42,692	53,197	230,500	295,700	328,500

Summary

Regional Tonnage Delivered During the First Quarter of Calendar Year 1991



Tonnage received at regional facilities during Jan-Mar 1991 is six percent lower than forecast in the February 15, 1991 SWIS report. It is also about six percent lower than was received during Jan-Mar 1990. There are several possible explanations for this decline:

New waste reduction and recycling programs may have reduced waste delivered to disposal facilities. Curbside collection of recyclables has significantly increased in some parts of the region.

Certain waste may have been stockpiled or no longer produced. This includes liquid waste which was accepted at the St. Johns Landfill prior to January 1991 but is no longer accepted by any regional facility.

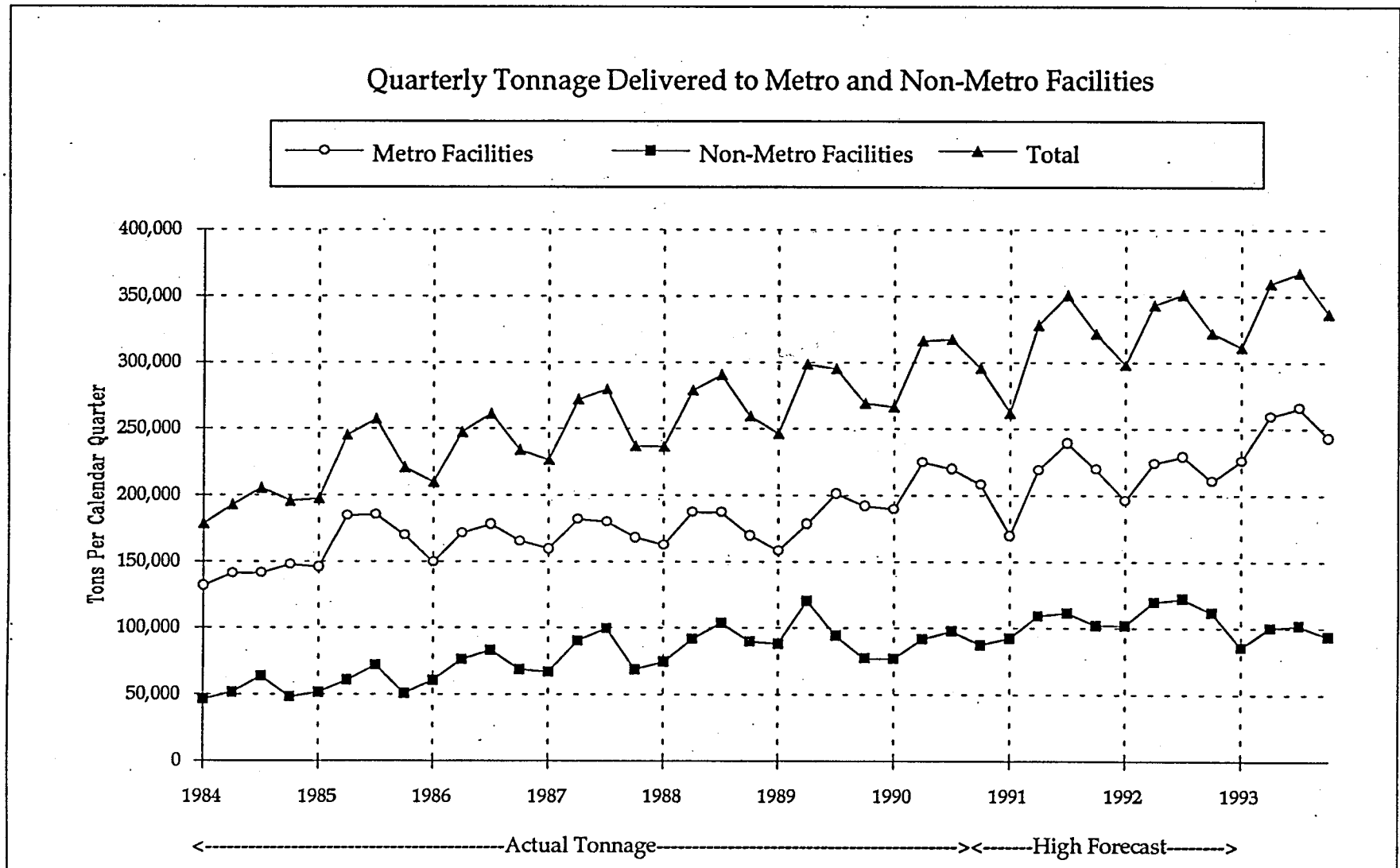
Waste has been diverted from the St. Johns Landfill to the Hillsboro and Lakeside Landfills. These landfills accept waste on a volume basis rather than a weight basis as St. Johns Landfill did. The conversion factor used to convert cubic yards to tons could be in error.

The conversion factor may be the main reason for the apparent six percent decrease in regional tonnage. Waste that was diverted from St. Johns Landfill to the Hillsboro and Lakeside landfills was of higher than average density (e.g. contaminated soil). Accordingly, this SWIS report assumes that waste delivered to these landfills weighs 645 pounds per cubic yard. Previous reports used 590 pounds. The above table shows the effect of changing these conversion factors. Instead of a 6% regional decline (based on the old 590 pound factor) a 4% decline is reported (based on the new 645 pound factor). Similarly, a 21% increase, rather than a 13% increase, in tonnage delivered to non-Metro facilities is currently reported. A more accurate factor will be derived, and the tonnages at Hillsboro and Lakeside will be recomputed, when scales are installed and used at these facilities.

This report assumes that the apparent drop in regional tonnage during the first quarter will not persist. A net increase of 2% is forecast for 1991 relative to 1990.

Quarterly Tonnages Delivered to Metro and Non-Metro Facilities

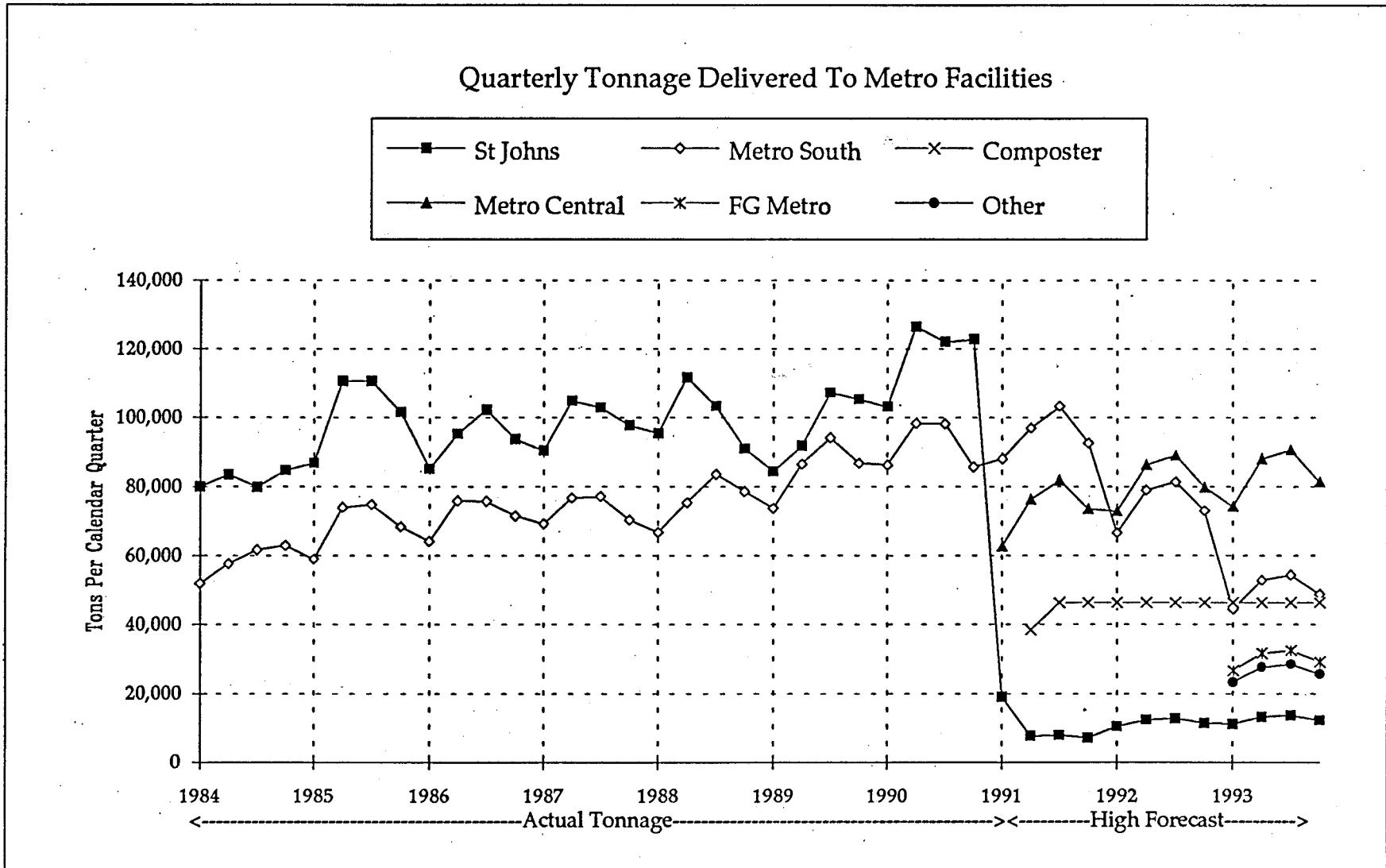
The graph below shows actual and forecast (high) tonnages delivered to Metro and non-Metro facilities. The decrease in non-Metro tonnage at the end of 1989 corresponds to the closure of the KFD Landfill. The decrease in Metro tonnage at the end of 1991 corresponds to the closure of the St. Johns Landfill. The shift from non-Metro to Metro facilities during 1993 reflects an expected change of the Forest Grove site from a non-Metro to a Metro facility and the establishment of "Other Needed Facilities" as Metro site(s) in Washington County.



Summary

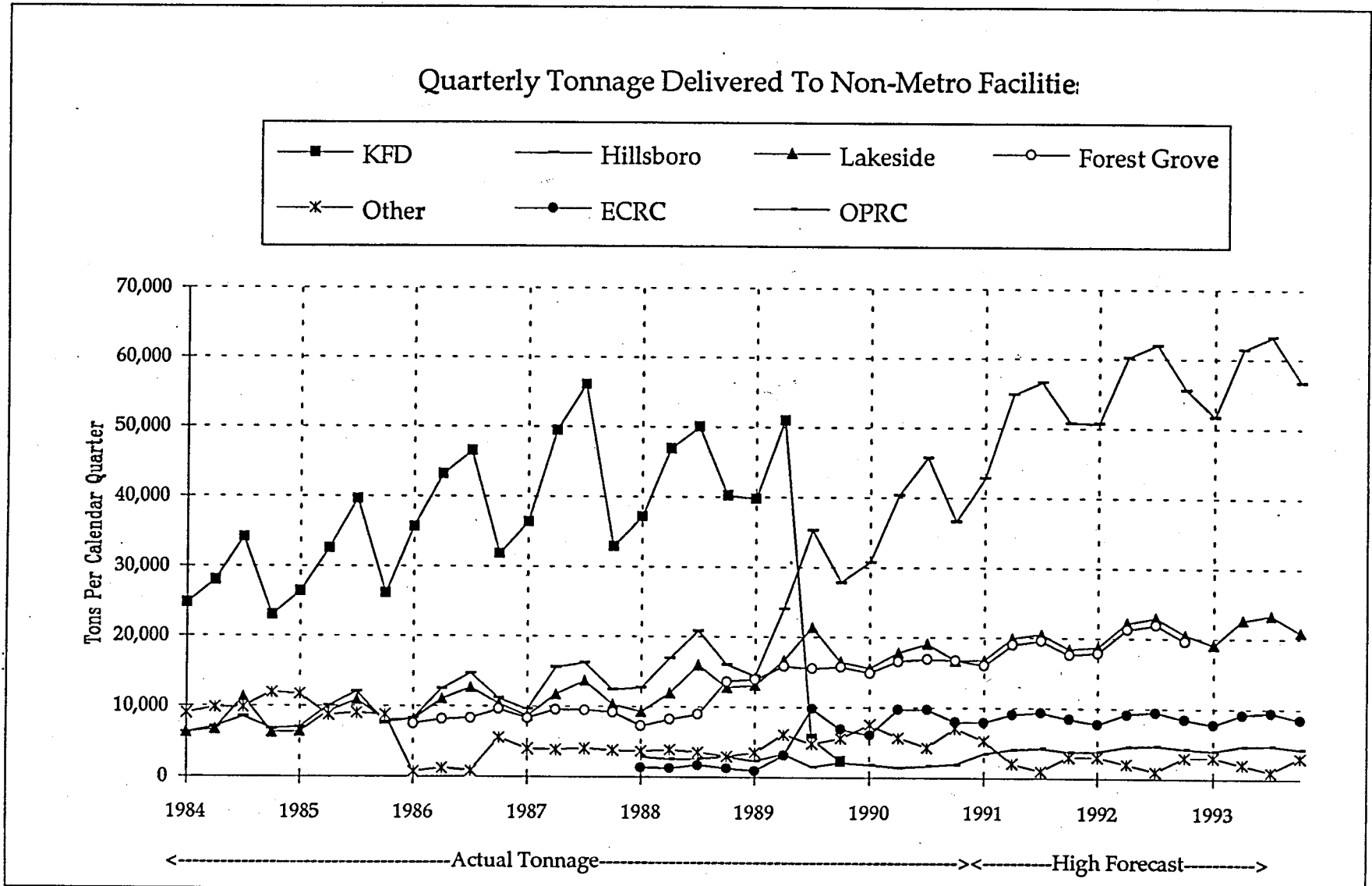
Metro Facilities

The graph below shows actual and forecast (high) tonnages delivered to Metro facilities. The drop in St. Johns Landfill's tonnage occurred after it stopped accepting general-purpose waste. "Composter" = Metro-Riedel Mass Composting Facility. "FG Metro" = Forest Grove site operated as a Metro facility. "Other" = Other Metro facilities which are expected to be located in Washington County.



Non-Metro Facilities (Franchised by Metro)

The graph below shows actual and forecast (high) tonnages delivered to non-Metro facilities. The Hillsboro Landfill tonnage increased when KFD Landfill closed at the end of 1989 and again when the St. Johns Landfill closed at the end of 1990. The Forest Grove site is not shown on this graph after January 1993 because this facility is expected to be operated by Metro at that time.



Revision of 1991 and 1992 Forecasts (high) of Tonnage Delivered to Facilities

Facility	Calendar Year 1991			
	2/15/91 Forecast	Current Forecast	% Difference	Assumed reason(s) for significant change in tonnage.
Total Regional Tonnage (no double counting)	1,239,000	1,262,400	+2%	Although first quarter tonnage is down, this trend is not expected to continue all year.
Columbia Ridge Sanitary Landfill	613,200	631,900	+3%	More tonnage to Metro South Transfer Station.
East County Recycling Center	34,900	35,000	0%	
Forest Grove Transfer Station	67,700	72,400	+7%	Actual tonnage during first quarter greater than expected.
Hillsboro Landfill	162,400	205,000	+26%	See explanation on page 2 of this SWIS report.
Lakeside Reclamation Landfill (Grabhorn)	71,400	75,600	+6%	See explanation on page 2 of this SWIS report.
Marion County Energy Recovery Facility	25,000	22,800	-9%	Less demand for waste from the region.
Metro Central Transfer Station	320,500	294,100	-8%	Tonnage expected to go to Metro Central is going to Metro South instead.
Metro South Transfer Station	319,400	380,700	+19%	Tonnage expected to go to Metro Central is going to Metro South instead.
METRO-Riedel Mass Composting Facility	138,800	130,700	-6%	Less waste processed during startup period.
Oregon Processing And Recovery Center	7,300	15,700	+115%	Actual tonnage during first quarter greater than expected.
Riverbend Landfill	62,200	70,600	+14%	Increase in tonnage through Forest Grove Transfer Station.
St. Johns Landfill	107,600	42,000	-61%	See explanation on page 2 of this SWIS report.

Facility	Calendar Year 1992			
	2/15/91 Forecast	Current Forecast	% Difference	Assumed reason(s) for significant change in tonnage.
Total Regional Tonnage (no double counting)	1,308,300	1,314,800	1%	
Columbia Ridge Sanitary Landfill	602,700	582,800	-3%	Hillsboro and Lakeside Landfills receiving greater than expected tonnage.
East County Recycling Center	35,000	35,000	0%	
Forest Grove Transfer Station	71,000	80,800	+14%	Now assume that current franchise limitation on tonnage will be increased.
Hillsboro Landfill	173,500	228,600	+32%	See explanation on page 2 of this SWIS report.
Lakeside Reclamation Landfill (Grabhorn)	74,900	84,300	+13%	See explanation on page 2 of this SWIS report.
Marion County Energy Recovery Facility	27,500	27,500	0%	
Metro Central Transfer Station	352,000	327,600	-7%	Some non-putrescibles taken to Hillsboro and Lakeside Landfills instead.
Metro South Transfer Station	300,000	300,000	0%	
METRO-Riedel Mass Composting Facility	185,000	185,000	0%	
Oregon Processing And Recovery Center	7,600	17,600	+132%	Less actual tonnage received during first quarter of 1991 than expected.
Riverbend Landfill	64,400	68,400	+6%	Increase in tonnage to Forest Grove Transfer Station.
St. Johns Landfill	100,000	46,800	-53%	Less actual tonnage received during first quarter of 1991 than expected.

Revision of 1993 Forecast (high) of Tonnage Delivered to Facilities

Facility	Calendar Year 1993			
	2/15/91 Forecast	Current Forecast	% Difference	Assumed reason(s) for significant change in tonnage.
Total Regional Tonnage (no double counting)	1,371,900	1,375,000	0%	
Columbia Ridge Sanitary Landfill	612,400	600,400	-2%	More tonnage to Hillsboro and Lakeside landfills.
East County Recycling Center	35,000	35,100	0%	
Forest Grove Transfer Station	Not Addressed	120,000	+120,000 tons.	Now assume that Forest Grove will be a Metro facility in Washington County.
Hillsboro Landfill	167,300	233,000	+40%	See explanation on page 2 of this SWIS report.
Lakeside Reclamation Landfill (Grabhorn)	64,000	86,000	+34%	See explanation on page 2 of this SWIS report.
Marion County Energy Recovery Facility	27,500	27,500	0%	
Metro Central Transfer Station	349,100	334,200	-4%	Tonnage expected to go to Metro Central is going to Hillsboro and Lakeside instead.
Metro South Transfer Station	200,000	200,000	0%	Tonnage expected to go to Metro Central is going to Metro South instead.
METRO-Riedel Mass Composting Facility	185,000	185,000	0%	
Oregon Processing And Recovery Center	8,000	17,800	+125%	Actual tonnage during first quarter greater than expected.
Riverbend Landfill	64,600	68,900	+7%	Increase in tonnage through Forest Grove Transfer Station.
St. Johns Landfill	100,000	50,000	-50%	See explanation on page 2 of this SWIS report.

Forecast Comparison For January, February and March 1991

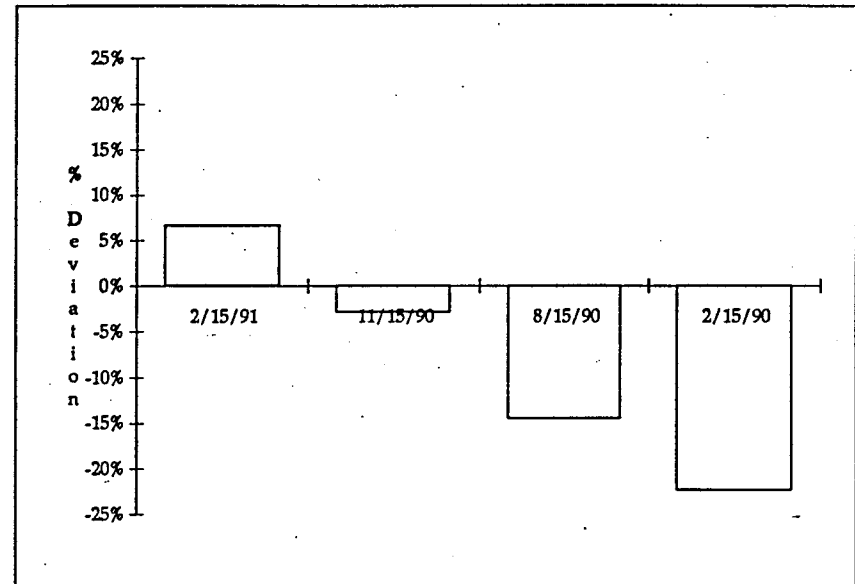
This section compares actual delivery tonnage to earlier forecasts. Each graph shows the actual delivery tonnage for the first quarter of 1991 compared to earlier SWIS forecasts. These forecasts were made on the following dates: 2/15/91, 11/15/90, 8/15/90, 2/15/90.

The percent deviation is calculated as follows: $(\text{forecast tons} - \text{actual tons}) / (\text{forecast tons})$. A negative deviation indicates that the forecast underestimated the actual tonnage. Conversely, a positive deviation indicates that the forecast overestimated the actual tonnage.

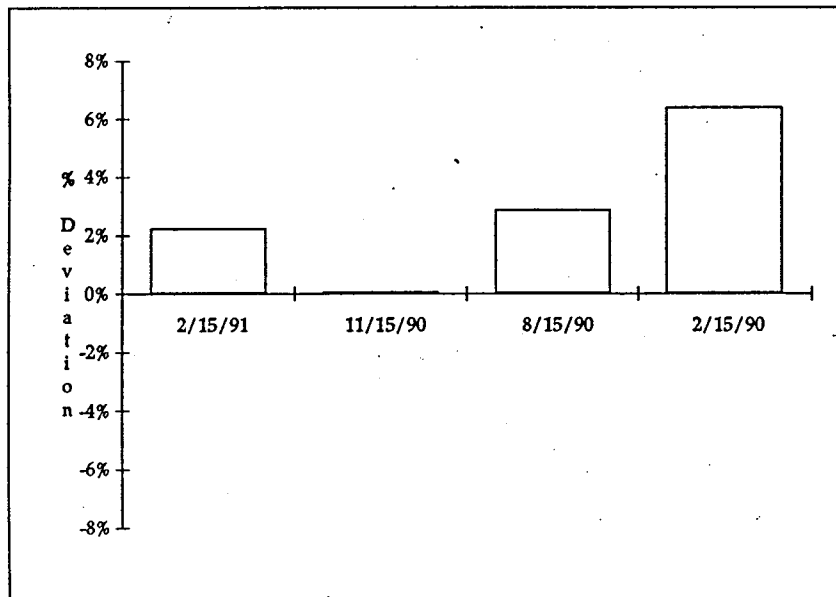
When there were "historical", "expected", and "possible" forecasts in a SWIS report for a facility, the average of the "historical" and "expected" was used to calculate deviations.

Note that the scale of the y-axis is different on each graph.

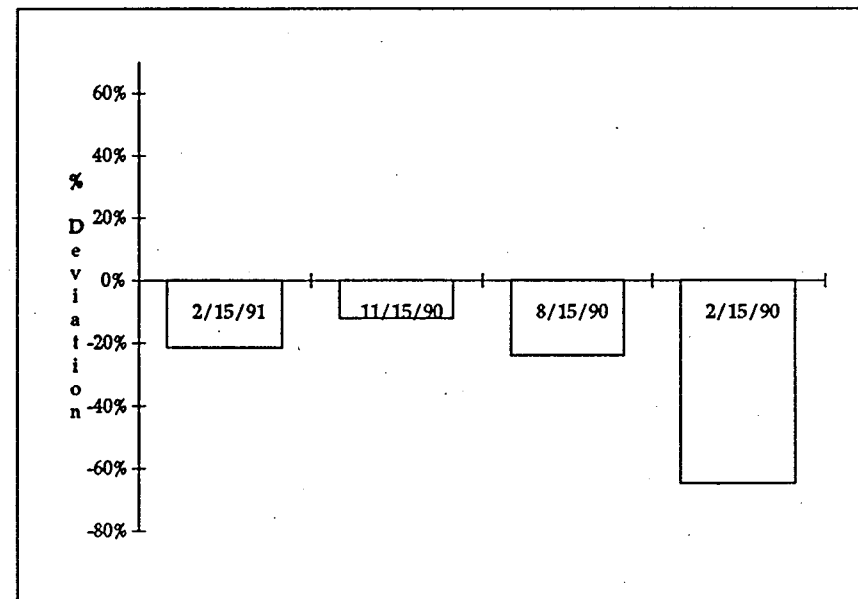
Columbia Ridge Landfill (148,553 tons received first quarter)



All Facilities (261,970 tons received first quarter)

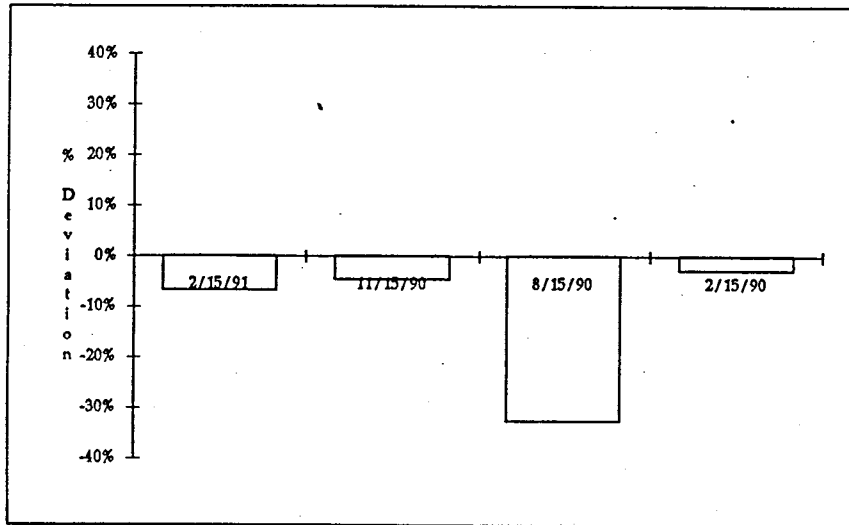


East County Recycling Center (7,970 tons received first quarter)

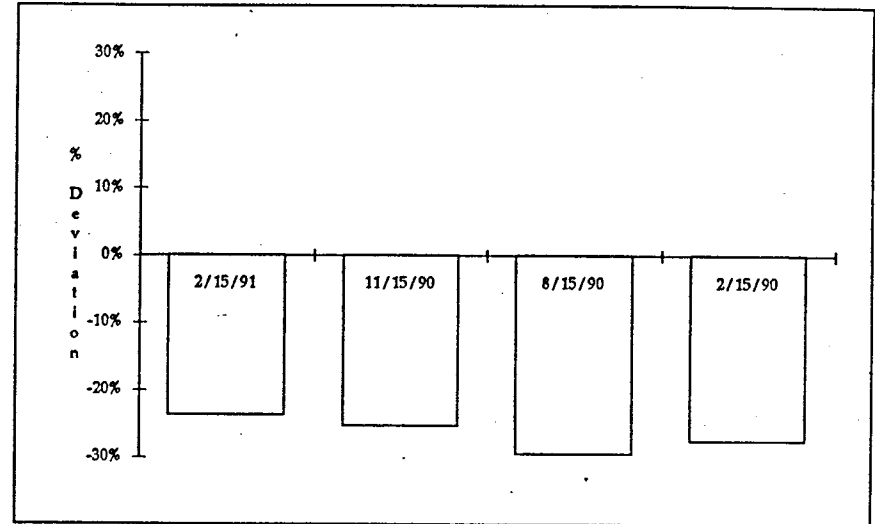


Forecast Comparison For January, February, March 1991

Forest Grove Transfer Station (16,057 tons received first quarter)

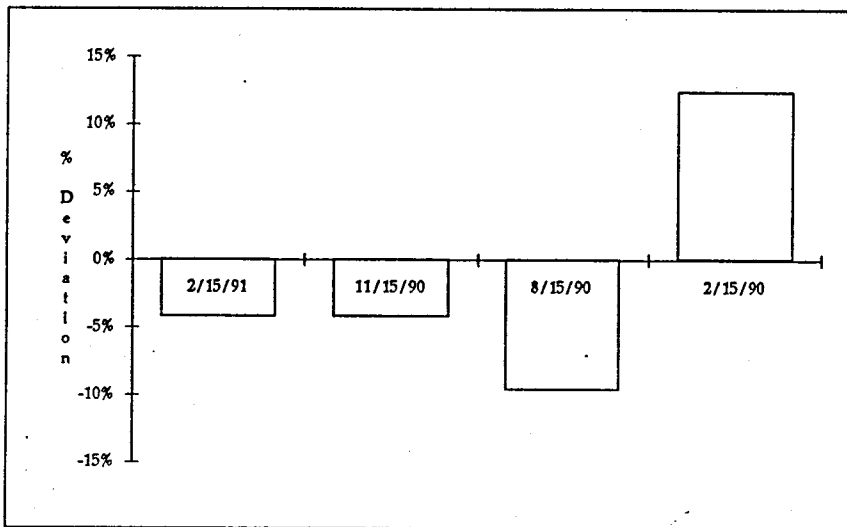


Hillsboro Landfill (42,847 tons received first quarter)



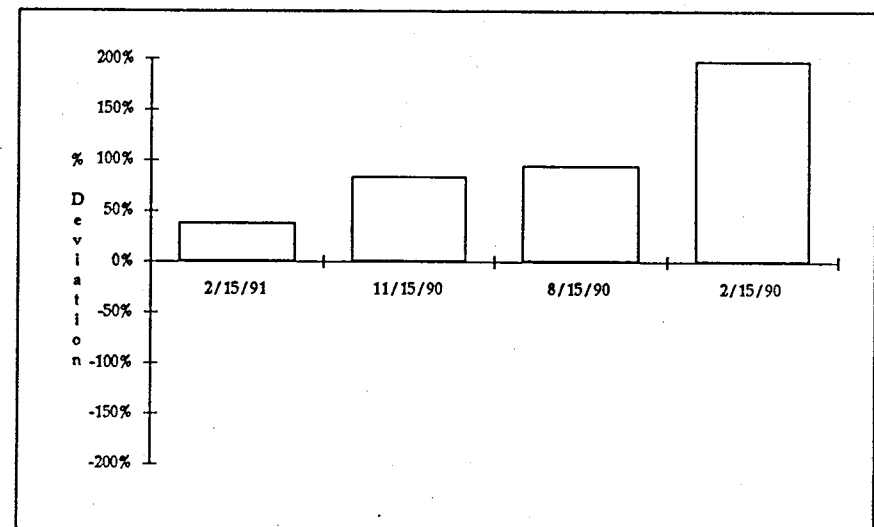
Lakeside Reclamation Landfill

(16,811 tons received first quarter)



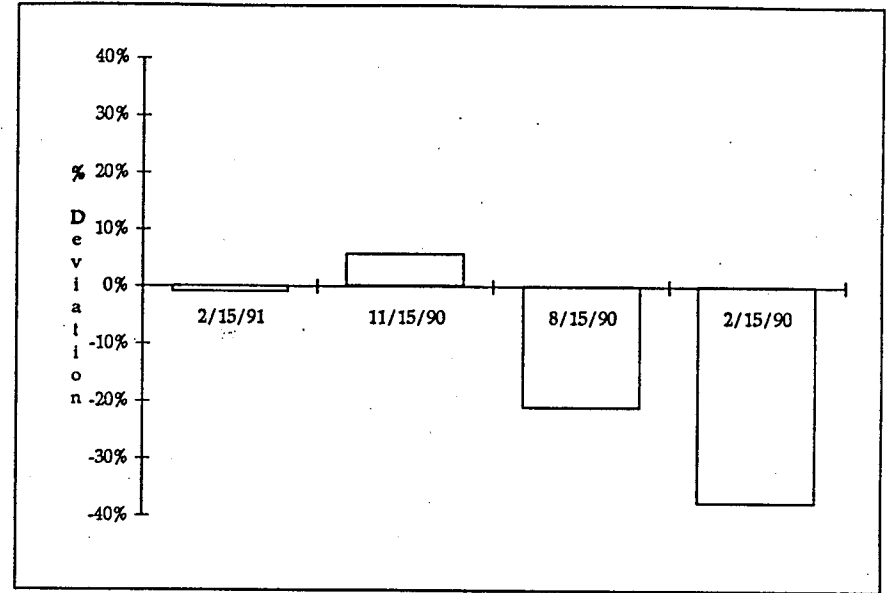
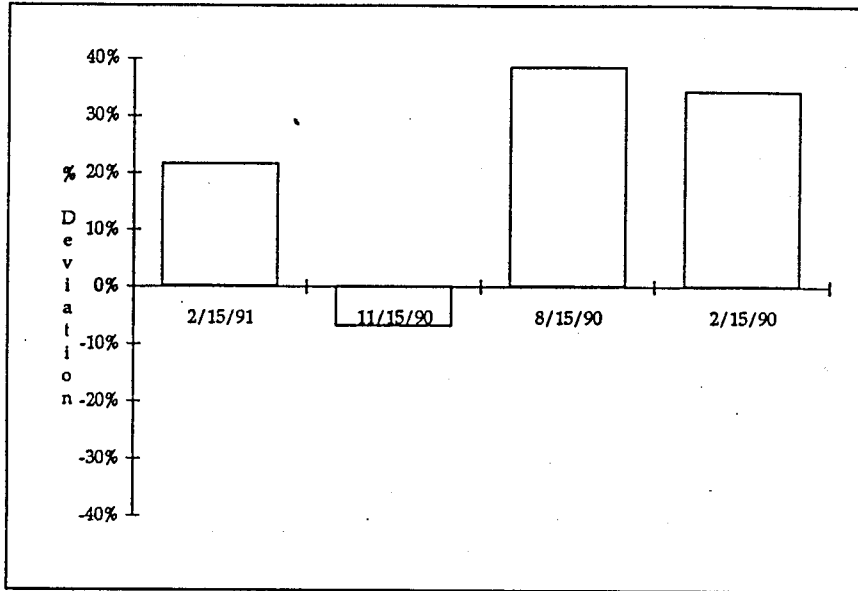
Marion County Energy Recovery Facility

(5,673 tons received first quarter)



Forecast Comparison For January, February, March 1991

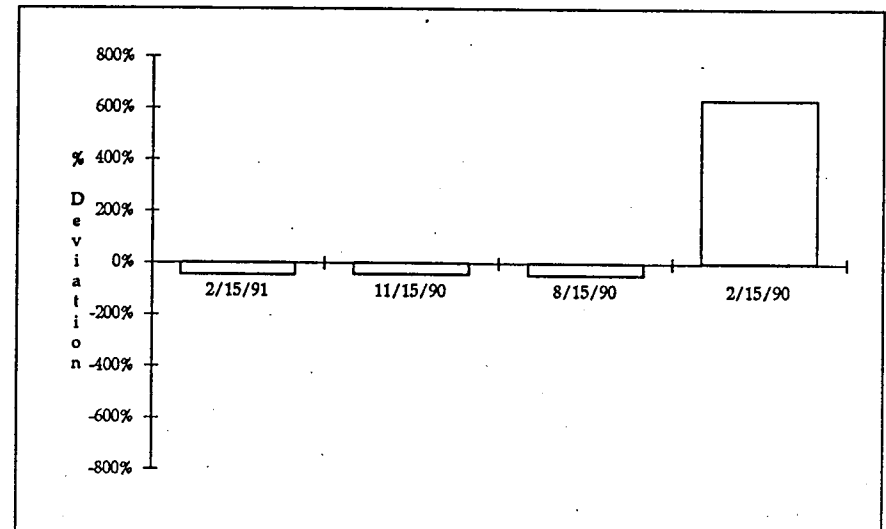
Metro Central Transfer Station (62,551 tons received first quarter) **Metro South Transfer Station (87,958 tons received first quarter)**



Oregon Processing and Recovery Center

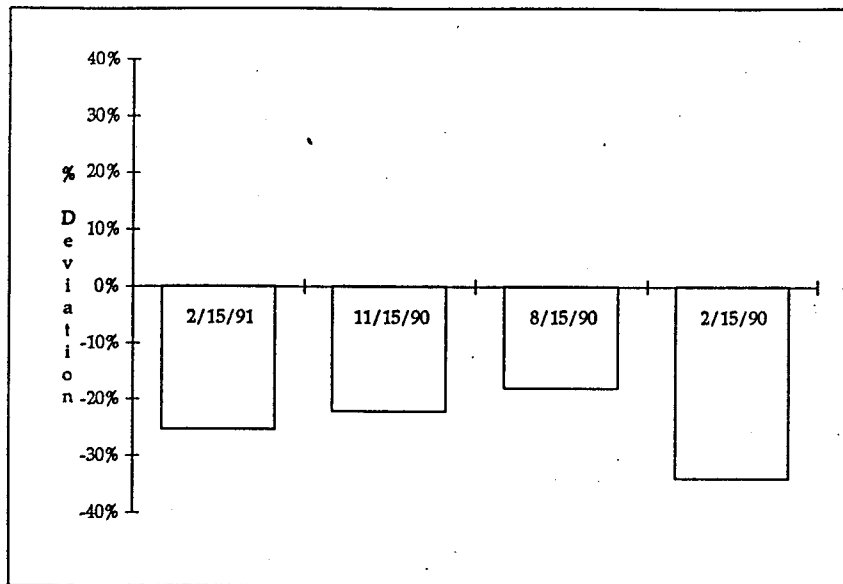
(3,480 tons received first quarter)

Metro-Riedel Mass Composting Facility (not open until second quarter of 1991)

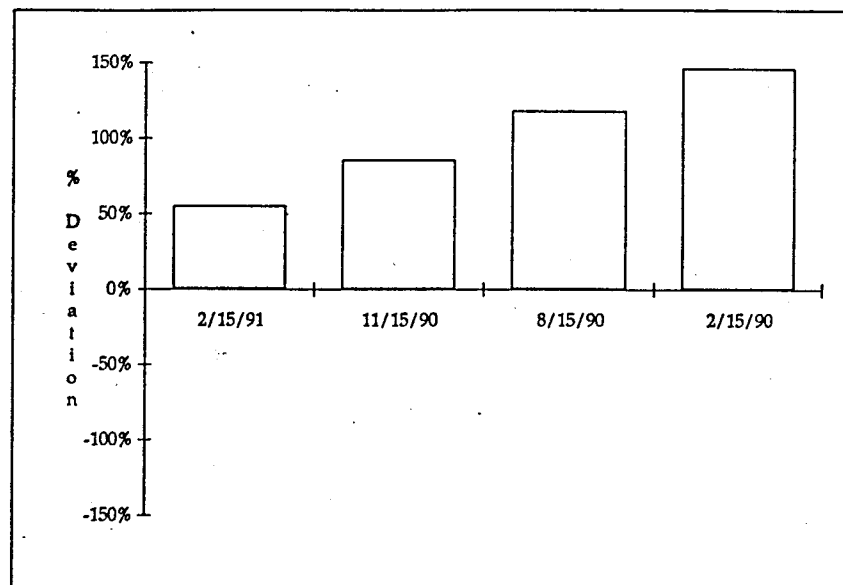


Forecast Comparison For January, February, March 1991

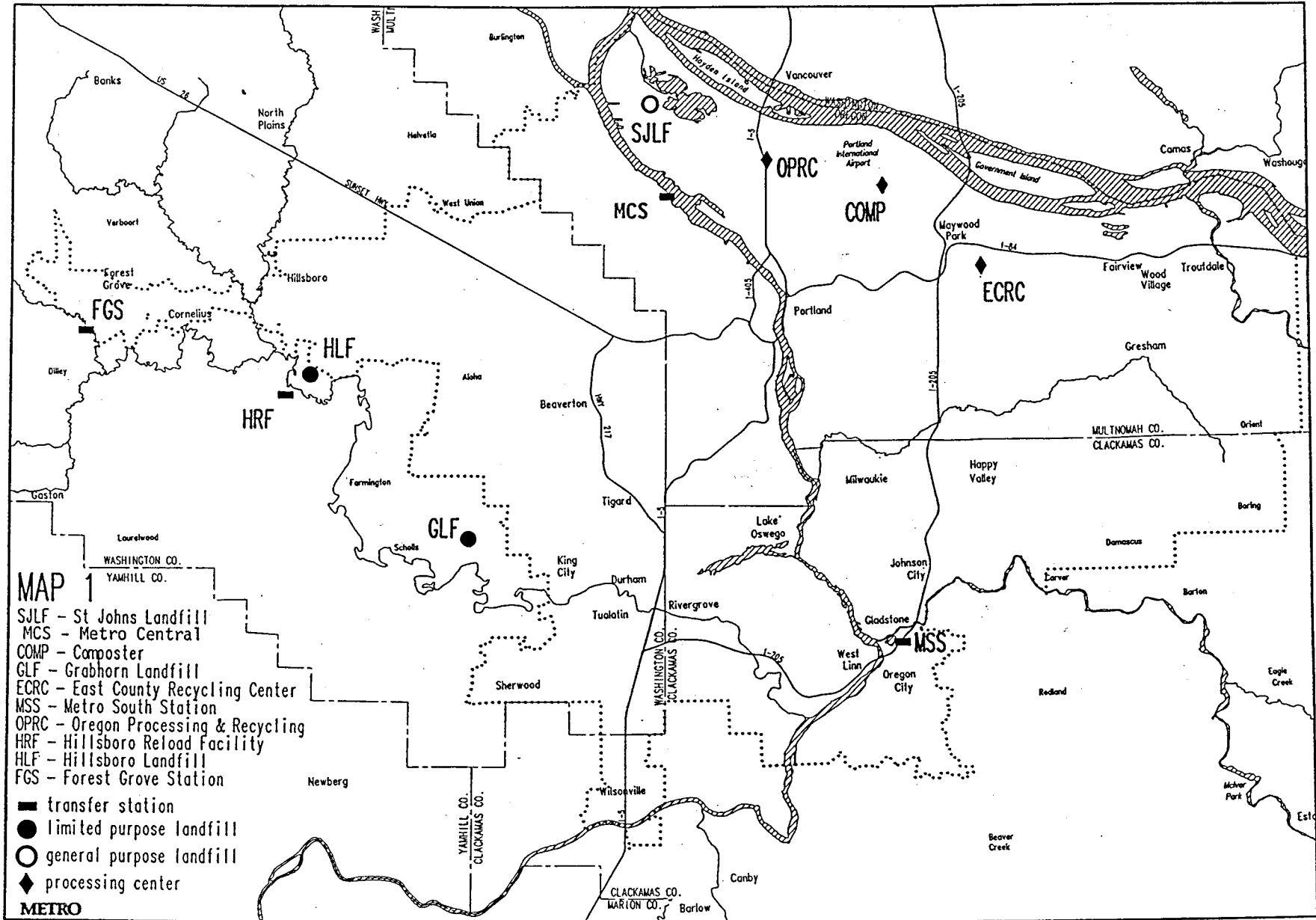
Riverbend Landfill (18,513 tons received first quarter)



St. Johns Landfill (19,423 tons received first quarter)



Location of Facilities



Facilities

Map 1 shows the locations of *regional* facilities. The *region*, also known as the *tri-county area*, consists of Clackamas, Multnomah, and Washington Counties. This region includes areas both inside and outside the Metropolitan Service District's (MSD) boundaries. About 3% of waste is generated outside the MSD boundary. Some of the waste is transported to the following facilities that are not shown on Map 1: Riverbend Landfill (Yamhill County), Marion County Waste-To-Energy Facility, Northern Wasco County Landfill and the Columbia Ridge Landfill located near Arlington, Oregon. As of January 14, 1991 the St. Johns Landfill limited the type of waste it received to inert and/or construction/demolition material.

Projection Methodology

The forecast of delivery tonnage for 1991, 1992 and 1993 is based on a projection of the historical trend in per capita disposal rates. Two forecasts are presented:

1. "High" - A linear equation was fit to historical per capita disposal rates (pounds/person/day) using least squares regression. Population forecasts were then used to project delivery tonnage. This forecast does not reflect new waste reduction that might reduce per-capita delivery rates.
2. "Low" - The historical trend was reduced to reflect new source-separation programs. Programs that will reduce the tonnage delivered to facilities in this report include residential curbside, new yard debris diversion, multi-family recycling. The 1988 Metro System Measurement Study was the basis for estimating the impact of these programs.

Disaggregation Of Annual Tonnages By Month/Facility

Total tonnage from each of the two forecasts was disaggregated by month and facility for a given year using the following methodology. Known constraints, such as contract limitations, were first applied (e.g., the Forest Grove Transfer Station is limited by franchise agreement to 70,000 tons per year). The total of the constraints was subtracted from the total regional tonnage projected for the year. This difference was then applied to the unconstrained facilities after first assigning them the tonnage they had received the previous year. This accomplished the disaggregation by year per facility. These annual amounts were then subdivided into monthly tonnages in accordance with the monthly percentage distribution experienced by the total region during 1983-90. The monthly distribution was not applied to facilities such as the Marion County Energy Recovery Facility that receive the majority of their waste during particular seasons.

Tonnage Flow Diagrams And Amounts

Diagrams on pages 16 through 19 show 1990-93 tonnage flows among facilities. Significant changes in flow patterns are expected in the future because of reduction in the amount of waste delivered to Metro South Transfer Station and opening of the METRO-Riedel Compost Facility and Metro Central Transfer Station. Following the flow diagrams are monthly and quarterly tonnage reports for each facility.

Facility Descriptions

The SWIS report includes all solid waste generated within Clackamas, Multnomah, or Washington Counties that is delivered to the facilities shown on page 1. This includes tonnage that is generated outside the Metropolitan Service District (MSD) boundary but inside the tri-county area. Waste not delivered to one of the facilities, such as privately composted material or illegally dumped waste, is not included in these totals.

Columbia Ridge Landfill (Arlington Landfill)

Columbia Ridge Landfill is a privately owned and operated non-franchised general-purpose landfill located in Gilliam County, Oregon. METRO has a 20-year contract to transport waste from the tri-county area to this facility. The contract states that at least 90% of the region's general-purpose waste must be transported to this facility. Therefore, not more than 10% of the region's general-purpose waste may be taken to landfills such as the Riverbend Landfill (Yamhill County).

East County Recycling Center (ECRC)

ECRC is a privately owned and operated materials recovery facility that is franchised by Metro. Disposal rates are set by the operator. Residual material is transported by the operator to the North Wasco County Landfill (Braun Landfill).

Forest Grove Transfer Station

Forest Grove Transfer Station is a privately owned transfer station that is franchised by Metro. The facility is located in Forest Grove, Oregon. Disposal rates are set according to the franchise provisions. The franchise also provides for a limit of 70,000 tons per year of MSD waste to be transported from this facility, of which not more than 60,000 tons may be general-purpose waste. This facility is expected to receive these quantities of waste during 1991 and 1992.

Beginning in 1993 the new Washington County transfer system is expected to be operational (see "Other Needed Facilities"). The role of the Forest Grove Transfer Station within the new system has not been determined.

Hillsboro Landfill

Hillsboro Landfill is a privately owned and operated non-franchised landfill located in Hillsboro, Oregon. It accepts non-putrescible waste. Disposal rates are set by the facility. Approximately 3% of the total waste reported for this facility is generated outside the MSD boundary. Metro has an agreement with the Hillsboro Landfill to accept waste from inside the MSD boundary.

Lakeside Reclamation Landfill (Grabhorn)

Lakeside Reclamation Landfill is a privately owned and operated non-franchised landfill that accepts non-putrescible waste. It is located northwest of Tigard, Oregon. Disposal rates are set by the facility. Metro has an agreement with the Lakeside Reclamation Landfill to accept waste from inside the MSD boundary.

✓ Metro Central Transfer Station

Metro Central Transfer Station is owned by Metro and operated by a private firm under a service agreement with Metro. Metro sets rates for the disposal of waste at this facility. Operation began January 14, 1991 as a general-purpose transfer facility. Materials processing capabilities are currently being added to the facility. These capabilities will result in the ability to recover approximately 25% of waste entering the facility. The remaining 75% will be transferred to the Columbia Ridge Landfill for final disposal.

✓ Metro South Transfer Station

Metro South Transfer Station is a Metro owned general-purpose transfer facility with a public recycling drop-off area located in Oregon City, Oregon. The facility is operated by a private firm under a service agreement with Metro. Disposal rates are set by Metro. Some waste is transferred from the facility to the Marion County Energy Recovery Facility. The majority of the tonnage will be transferred to the Marion County Waste-to-Energy Facility during the winter months. Most waste is transferred to the Columbia Ridge Landfill.

✓ Metro-Riedel Mass Composting Facility (Compost Facility)

The Compost Facility is a privately owned and operated Metro franchised residential waste composting facility with integrated recovery processing capabilities. It is currently under construction in Portland. Disposal rates are set by Metro per the franchise agreement. Residual material (estimated at 55,000 tons per year of the 185,000 tons per year processed) will be transported directly to the Columbia Ridge Landfill. Testing of the facility was scheduled to begin in April of 1991. The full operating level of 185,000 tons per year is expected to be reached by May 1991.

Oregon Processing and Recovery Center (OPRC)

OPRC is a privately owned and operated Metro franchised material recovery processing facility with a buy-back center. The facility is located in Portland. Disposal rates are set by the operator.

Other Needed Facilities:

These currently include facilities in Washington County. Under consideration for the County are two decentralized transfer/material recovery facilities and an additional high-grade material recovery facility. The additional facility would process loads of dry commercial waste that contain high percentages of recyclables. It is anticipated that these other needed facilities will be operational in 1993.

Riverbend Landfill

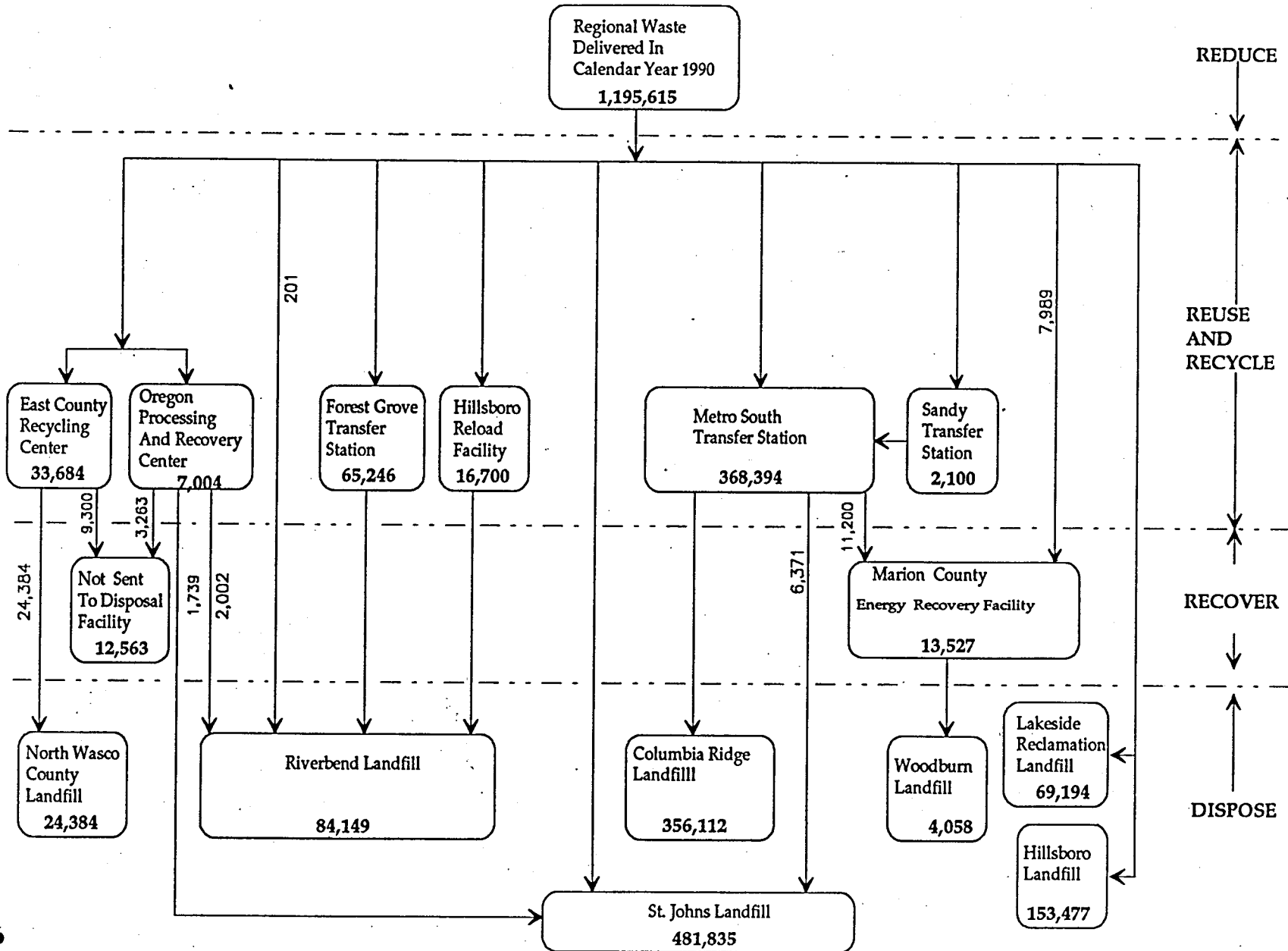
Riverbend Landfill is a privately owned and operated non-franchised general-purpose landfill located in Yamhill County, Oregon. Disposal rates are set by Yamhill County. Metro has an agreement with the Riverbend Landfill to accept waste from inside the MSD boundary. Tonnages in this report are waste originating in the tri-county region, regardless of whether it was generated within the MSD boundary. Tri-county facilities disposing of waste at the Riverbend Landfill are OPRC and Forest Grove Transfer Station.

✓ St. Johns Landfill

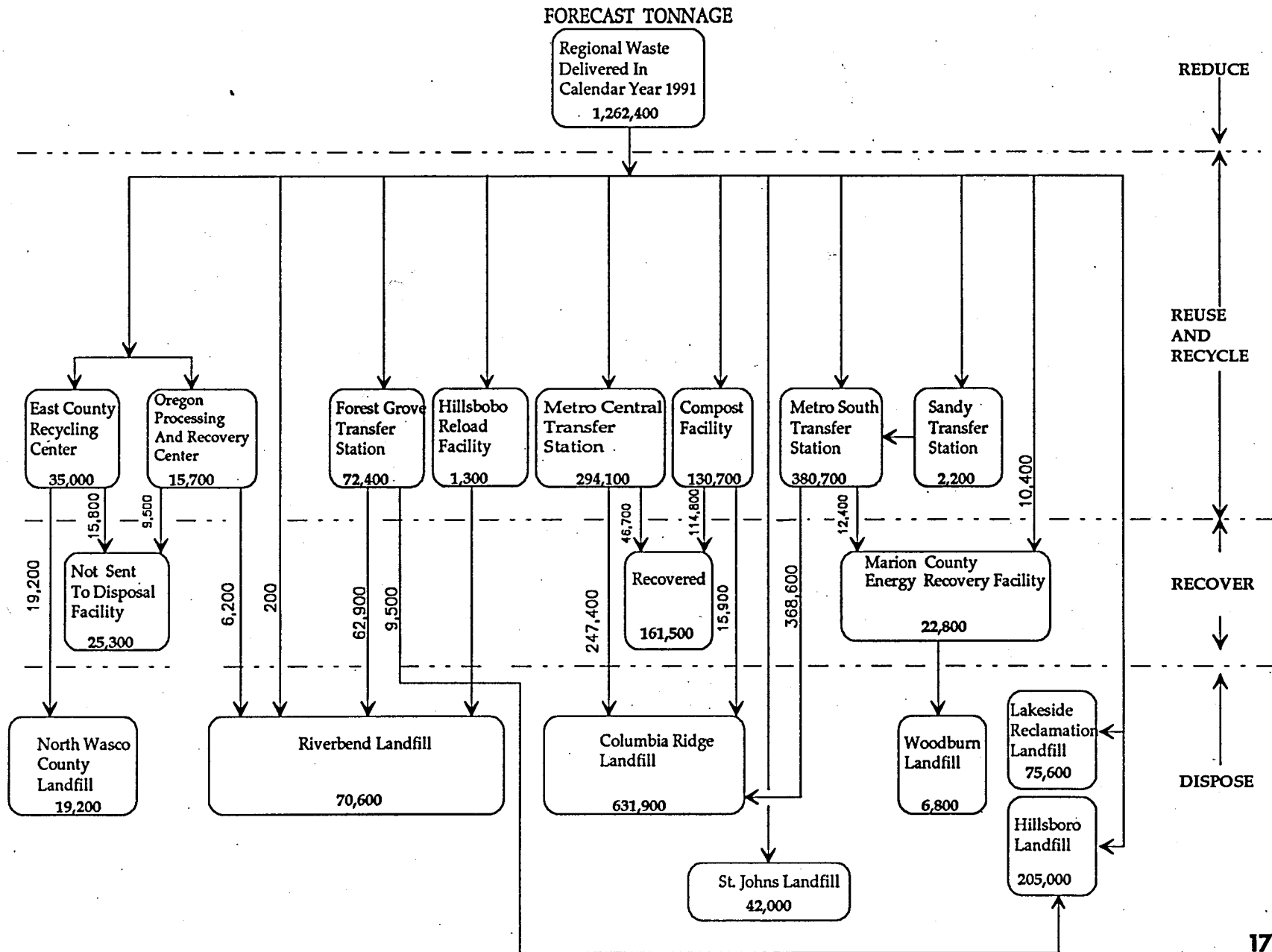
St. Johns Landfill is a general purpose landfill owned by the City of Portland. It is managed by Metro and operated by a private firm under a Metro service agreement. Disposal rates are set by Metro. The tonnage shown in this report includes waste transferred from Metro South Station and residue from OPRC. The St. Johns Landfill closed to the receipt of putrescible waste on January 14, 1991. Since that time the landfill only accepted inert and construction/demolition debris for the purpose of shaping the landfill in preparation for its final closure in 1993.

1990 Facility Waste Flow Diagram

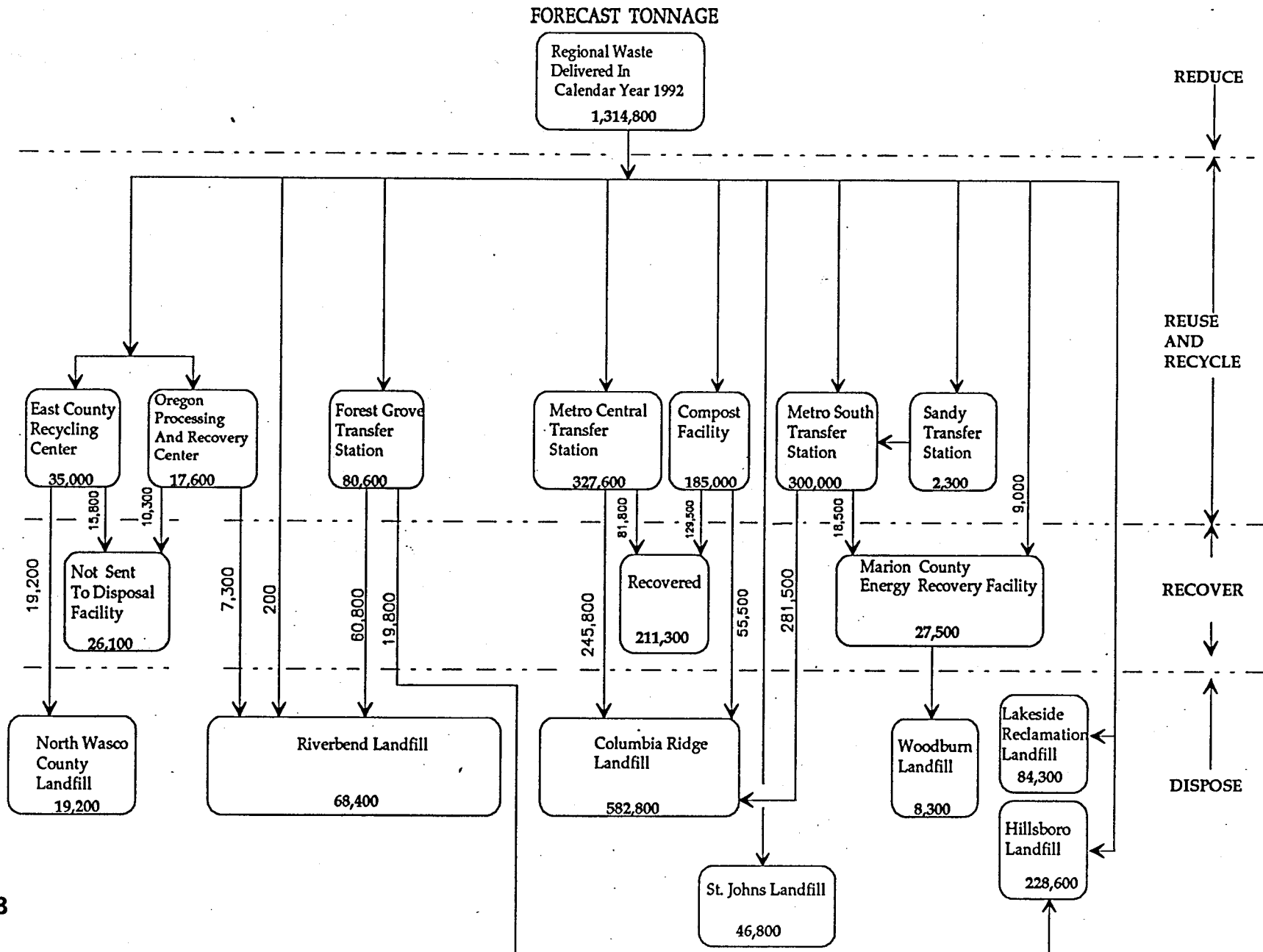
ACTUAL TONNAGE



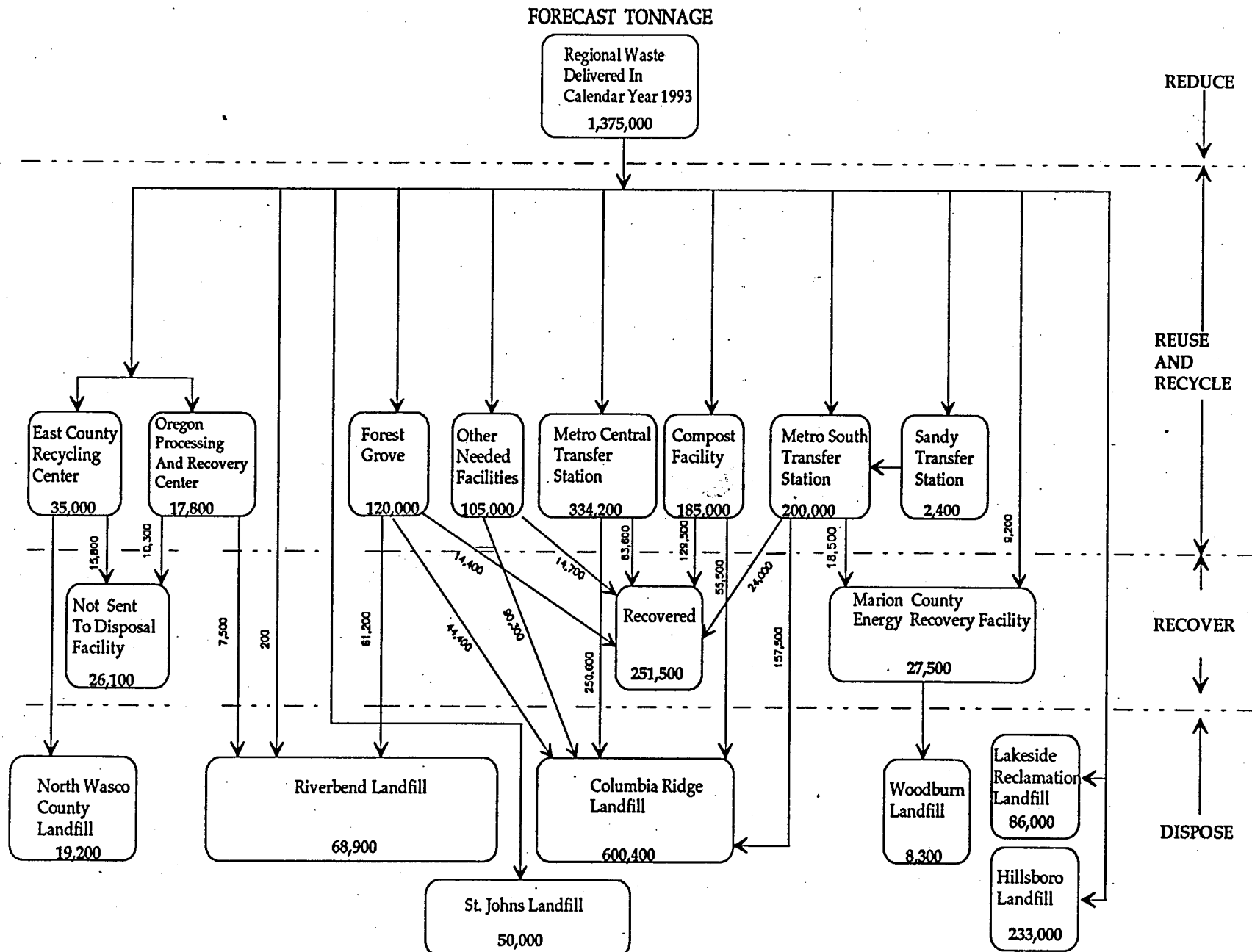
1991 Facility Waste Flow Diagram (based on high forecast)



1992 Facility Waste Flow Diagram (based on high forecast)



1993 Facility Waste Flow Diagram (based on high forecast)



Delivery Tonnages (forecast is shaded)

ALL FACILITIES										
Calendar Year-->	1987	1988	1989	1990	1991		1992		1993	
Estimate Type-->	Actual	Actual	Actual	Actual	High	Low	High	Low	High	Low
January	72,696	72,739	85,670	90,567	92,708	92,708	99,500	92,600	104,000	93,600
February	71,149	75,471	69,668	79,496	81,519	81,519	91,800	85,500	95,900	86,400
March	82,569	88,273	90,691	96,099	87,743	87,743	106,800	99,300	111,600	100,400
April	88,205	90,196	91,859	99,376	95,100	93,300	109,900	102,100	115,000	103,200
May	88,557	91,713	103,126	110,397	115,900	107,700	116,100	107,800	121,500	109,000
June	95,134	96,726	103,485	106,612	117,100	108,800	117,300	108,900	122,700	110,200
July	95,112	92,597	95,869	107,596	117,800	109,400	118,000	109,500	123,400	110,800
August	93,272	102,991	104,034	112,791	120,800	112,100	121,000	112,200	126,600	113,500
September	91,078	94,859	95,300	97,111	112,100	104,100	112,300	104,200	117,500	105,400
October	85,549	92,922	94,976	110,718	115,800	107,600	116,000	107,700	121,400	108,900
November	75,645	83,075	90,932	96,015	103,900	96,700	104,100	96,800	108,800	97,900
December	75,429	83,455	83,145	88,837	101,900	94,800	102,000	94,900	106,600	95,900
Total Tons	1,014,395	1,065,017	1,108,756	1,195,615	1,262,370	1,196,470	1,314,800	1,221,500	1,375,000	1,235,200

COLUMBIA RIDGE LANDFILL (GILLIAM COUNTY LANDFILL)										
Calendar Year-->	1987	1988	1989	1990	1991		1992		1993	
Estimate Type-->	Actual	Actual	Actual	Actual	High	Low	High	Low	High	Low
January	0	0	0	27,380	44,147	44,147	41,500	37,500	42,800	37,500
February	0	0	0	24,884	49,272	49,272	40,000	36,300	41,100	36,300
March	0	0	0	30,672	55,134	55,134	46,200	41,800	47,600	41,800
April	0	0	0	31,769	51,803	51,803	50,700	46,100	52,100	46,100
May	0	0	0	32,497	61,400	55,500	52,000	47,200	53,600	47,200
June	0	0	0	31,846	56,500	51,400	53,800	48,900	55,300	48,900
July	0	0	0	31,977	56,500	51,300	53,700	48,800	55,300	48,900
August	0	0	0	33,831	59,000	53,600	56,000	50,900	57,700	50,900
September	0	0	0	30,313	54,300	49,400	51,800	47,100	53,300	47,100
October	0	0	0	31,250	53,800	48,700	51,100	46,300	52,700	46,300
November	0	0	0	27,893	45,800	41,300	43,700	39,500	45,100	39,500
December	0	0	0	21,800	44,100	39,700	42,200	38,100	43,500	38,100
Total Tons	0	0	0	356,112	631,900	591,300	582,800	528,700	600,400	528,800

Delivery Tonnages (forecast is shaded)

EAST COUNTY RECYCLING CENTER (ECRC)

Calendar Year-->	1987	1988	1989	1990	1991		1992		1993	
Estimate Type-->	Actual	Actual	Actual	Actual	High	Low	High	Low	High	Low
January	0	375	345	2,185	2,626	2,626	2,600	2,500	2,600	2,400
February	0	475	237	1,422	2,625	2,625	2,400	2,200	2,400	2,200
March	0	532	380	2,529	2,719	2,719	2,800	2,700	2,800	2,600
April	0	300	564	2,965	2,900	2,800	3,000	2,800	3,000	2,700
May	0	414	670	3,629	3,100	2,900	3,100	2,900	3,100	2,900
June	0	576	1,931	3,170	3,100	3,000	3,200	3,000	3,200	2,900
July	0	529	3,224	3,413	3,100	3,000	3,200	3,000	3,200	2,900
August	0	626	3,546	3,484	3,300	3,100	3,300	3,100	3,300	3,000
September	0	588	3,077	2,868	3,000	2,900	3,000	2,900	3,000	2,800
October	0	437	2,808	3,508	3,100	2,900	3,100	2,900	3,100	2,900
November	0	499	2,137	2,574	2,700	2,600	2,700	2,600	2,700	2,500
December	0	346	1,985	1,937	2,700	2,500	2,700	2,500	2,700	2,500
Total Tons	0	5,696	20,904	33,684	34,970	33,670	35,100	33,100	35,100	32,300

FOREST GROVE TRANSFER STATION

Calendar Year-->	1987	1988	1989	1990	1991		1992		1993	
Estimate Type-->	Actual	Actual	Actual	Actual	High	Low	High	Low	High	Low
January	2,758	2,457	4,711	5,422	5,684	5,684	6,000	5,900	8,900	8,900
February	2,599	2,223	3,988	4,546	5,029	5,029	5,400	5,400	8,100	8,100
March	2,986	2,589	5,259	4,975	5,344	5,344	6,500	6,400	9,700	9,700
April	3,267	2,687	4,974	5,043	6,100	5,600	6,800	6,700	10,100	10,100
May	3,098	2,696	5,491	5,799	6,400	5,900	7,200	7,100	10,700	10,700
June	3,205	2,837	5,372	5,757	6,500	6,000	7,300	7,200	10,800	10,800
July	3,199	2,542	4,973	5,525	6,600	6,000	7,300	7,200	10,900	10,900
August	3,066	2,798	5,545	6,026	6,800	6,300	7,600	7,500	11,300	11,300
September	3,223	3,611	5,004	5,375	6,300	5,800	7,000	6,900	10,400	10,400
October	3,023	3,823	5,186	5,766	6,400	5,900	7,200	7,100	10,700	10,700
November	3,002	5,066	5,541	5,857	5,700	5,200	6,300	6,200	9,400	9,400
December	3,213	4,745	5,025	5,155	5,500	5,100	6,200	6,100	9,200	9,200
Total Tons	36,639	38,074	61,069	65,246	72,357	67,857	80,800	79,700	120,200	120,200

Delivery Tonnages (forecast is shaded)

HILLSBORO LANDFILL										
Calendar Year-->	1987	1988	1989	1990	1991		1992		1993	
Estimate Type-->	Actual	Actual	Actual	Actual	High	Low	High	Low	High	Low
January	3,063	3,166	4,670	9,769	14,466	14,466	16,900	16,200	17,300	15,800
February	3,077	3,989	4,729	8,360	12,928	12,928	15,400	14,700	15,700	14,300
March	3,466	5,527	5,025	12,619	15,453	15,453	18,400	17,600	18,800	17,100
April	4,274	5,286	7,059	12,403	17,600	16,800	19,300	18,400	19,700	17,900
May	4,682	5,203	7,813	14,150	18,600	17,700	20,300	19,400	20,700	18,900
June	6,668	6,425	9,160	13,806	18,800	17,900	20,600	19,600	21,000	19,100
July	5,674	6,352	10,903	15,730	18,900	18,000	20,700	19,700	21,100	19,300
August	5,309	8,083	12,185	17,550	19,600	18,700	21,500	20,500	21,900	20,000
September	5,252	6,364	12,224	12,475	18,000	17,200	19,800	18,800	20,100	18,400
October	5,376	6,679	10,119	14,679	18,500	17,700	20,300	19,400	20,700	18,900
November	3,841	4,337	9,382	10,787	16,300	15,600	17,900	17,000	18,200	16,600
December	3,182	5,026	8,355	11,149	15,900	15,200	17,500	16,600	17,800	16,200
Total Tons	53,864	66,438	101,622	153,477	205,047	197,647	228,600	217,900	233,000	212,500

LAKESIDE RECLAMATION LANDFILL (GRABHORN LANDFILL)										
Calendar Year-->	1987	1988	1989	1990	1991		1992		1993	
Estimate Type-->	Actual	Actual	Actual	Actual	High	Low	High	Low	High	Low
January	3,009	2,844	4,347	5,024	6,128	6,128	6,300	6,000	6,400	5,800
February	2,719	2,967	3,611	4,631	5,571	5,571	5,700	5,400	5,800	5,300
March	2,952	3,472	5,131	5,908	5,113	5,113	6,800	6,500	6,900	6,300
April	3,610	3,799	5,314	6,179	6,400	6,100	7,100	6,800	7,300	6,600
May	3,849	3,724	5,651	6,189	6,700	6,400	7,500	7,200	7,700	7,000
June	4,291	4,384	5,707	5,446	6,800	6,500	7,600	7,200	7,700	7,100
July	4,361	4,826	6,893	6,384	6,900	6,500	7,600	7,300	7,800	7,100
August	4,859	5,597	7,558	6,553	7,100	6,800	7,900	7,600	8,100	7,400
September	4,418	5,549	6,923	6,129	6,500	6,200	7,300	7,000	7,400	6,800
October	4,197	4,844	6,647	6,814	6,700	6,400	7,500	7,100	7,600	7,000
November	3,584	3,863	5,388	5,764	5,900	5,600	6,600	6,300	6,700	6,100
December	2,540	4,050	4,452	4,172	5,800	5,500	6,400	6,100	6,600	6,000
Total Tons	44,389	49,919	67,622	69,194	75,611	72,811	84,300	80,500	86,000	78,500

Delivery Tonnages (forecast is shaded)

METRO CENTRAL TRANSFER STATION										
Calendar Year-->	1987	1988	1989	1990	1991		1992		1993	
Estimate Type-->	Actual	Actual	Actual	Actual		Low	High	Low	High	Low
January	0	0	0	0	14,711	14,711	24,300	19,000	24,800	17,000
February	0	0	0	0	22,884	22,884	22,000	17,200	22,500	15,400
March	0	0	0	0	24,956	24,956	26,400	20,600	26,900	18,500
April	0	0	0	0	22,245	22,245	27,600	21,600	28,200	19,300
May	0	0	0	0	26,800	23,400	29,200	22,700	29,700	20,400
June	0	0	0	0	27,200	23,700	29,500	23,000	30,100	20,600
July	0	0	0	0	27,300	23,800	29,700	23,200	30,300	20,800
August	0	0	0	0	28,400	24,800	30,900	24,100	31,500	21,600
September	0	0	0	0	26,100	22,700	28,300	22,100	28,900	19,800
October	0	0	0	0	26,800	23,400	29,100	22,700	29,700	20,400
November	0	0	0	0	23,600	20,600	25,600	20,000	26,100	17,900
December	0	0	0	0	23,100	20,100	25,000	19,500	25,500	17,500
Total Tons	0	0	0	0	294,096	267,296	327,600	255,700	334,200	229,200

METRO SOUTH TRANSFER STATION										
Calendar Year-->	1987	1988	1989	1990	1991		1992		1993	
Estimate Type-->	Actual	Actual	Actual	Actual	High	Low	High	Low	High	Low
January	22,664	21,243	25,624	29,862	30,789	30,789	22,200	22,200	14,800	14,800
February	21,385	21,236	21,101	25,221	27,345	27,345	20,200	20,200	13,500	13,500
March	25,131	24,337	26,988	31,184	29,824	29,824	24,200	24,200	16,100	16,100
April	24,877	25,043	27,391	32,296	28,642	28,642	25,300	25,300	16,900	16,900
May	25,470	26,032	29,438	33,257	33,900	31,400	26,700	26,700	17,800	17,800
June	26,396	24,342	29,673	32,732	34,300	31,700	27,000	27,000	18,000	18,000
July	26,175	26,617	30,364	32,892	34,500	31,900	27,200	27,200	18,100	18,100
August	24,915	28,936	33,250	34,455	35,800	33,200	28,300	28,300	18,800	18,800
September	26,030	28,037	30,442	30,830	32,900	30,500	25,900	25,900	17,300	17,300
October	24,971	26,857	31,498	32,065	33,800	31,300	26,700	26,700	17,800	17,800
November	22,441	26,418	28,024	29,038	29,800	27,600	23,500	23,500	15,600	15,600
December	22,936	25,303	27,202	24,562	29,100	26,900	22,900	22,900	15,300	15,300
Total Tons	293,391	304,401	340,995	368,394	380,700	361,100	300,000	300,000	200,000	200,000

Delivery Tonnages (forecast is shaded)

METRO-RIEDEL MASS COMPOSTING FACILITY (COMPOST FACILITY)

Calendar Year-->	1987	1988	1989	1990	1991		1992		1993	
Estimate Type-->	Actual	Actual	Actual	Actual	High	Low	High	Low	High	Low
January	0	0	0	0	0	0	15,400	15,400	15,400	15,400
February	0	0	0	0	0	0	15,400	15,400	15,400	15,400
March	0	0	0	0	0	0	15,400	15,400	15,400	15,400
April	0	0	0	0	7,500	7,500	15,400	15,400	15,400	15,400
May	0	0	0	0	15,400	15,400	15,400	15,400	15,400	15,400
June	0	0	0	0	15,400	15,400	15,400	15,400	15,400	15,400
July	0	0	0	0	15,400	15,400	15,400	15,400	15,400	15,400
August	0	0	0	0	15,400	15,400	15,400	15,400	15,400	15,400
September	0	0	0	0	15,400	15,400	15,400	15,400	15,400	15,400
October	0	0	0	0	15,400	15,400	15,400	15,400	15,400	15,400
November	0	0	0	0	15,400	15,400	15,400	15,400	15,400	15,400
December	0	0	0	0	15,400	15,400	15,400	15,400	15,400	15,400
Total Tons	0	0	0	0	130,700	130,700	184,800	184,800	184,800	184,800

OREGON PROCESSING AND RECOVERY CENTER (OPRC)

Calendar Year-->	1987	1988	1989	1990	1991		1992		1993	
Estimate Type-->	Actual	Actual	Actual	Actual	High	Low	High	Low	High	Low
January	0	871	796	687	1,224	1,224	1,300	1,200	1,300	1,200
February	0	931	704	538	1,144	1,144	1,200	1,100	1,200	1,100
March	0	1,041	840	617	1,112	1,112	1,400	1,300	1,400	1,300
April	0	1,051	861	492	1,300	1,200	1,500	1,400	1,500	1,400
May	0	715	1,071	532	1,400	1,300	1,600	1,500	1,600	1,400
June	0	776	1,414	463	1,400	1,300	1,600	1,500	1,600	1,400
July	0	781	574	516	1,400	1,300	1,600	1,500	1,600	1,500
August	0	840	377	613	1,500	1,400	1,600	1,500	1,700	1,500
September	0	982	592	585	1,400	1,300	1,500	1,400	1,500	1,400
October	0	1,143	578	918	1,400	1,300	1,600	1,400	1,600	1,400
November	0	1,016	856	487	1,200	1,100	1,400	1,300	1,400	1,300
December	0	765	703	556	1,200	1,100	1,300	1,200	1,400	1,200
Total Tons	0	10,912	9,366	7,004	15,680	14,780	17,600	16,300	17,800	16,100

Delivery Tonnages (forecast is shaded)

OTHER NEEDED FACILITIES										
Calendar Year-->	1987	1988	1989	1990	1991		1992		1993	
Estimate Type-->	Actual	Actual	Actual	Actual	High	Low	High	Low	High	Low
January	0	0	0	0	0	0	0	0	7,800	7,800
February	0	0	0	0	0	0	0	0	7,100	7,100
March	0	0	0	0	0	0	0	0	8,500	8,500
April	0	0	0	0	0	0	0	0	8,900	8,900
May	0	0	0	0	0	0	0	0	9,300	9,300
June	0	0	0	0	0	0	0	0	9,500	9,500
July	0	0	0	0	0	0	0	0	9,500	9,500
August	0	0	0	0	0	0	0	0	9,900	9,900
September	0	0	0	0	0	0	0	0	9,100	9,100
October	0	0	0	0	0	0	0	0	9,300	9,300
November	0	0	0	0	0	0	0	0	8,200	8,200
December	0	0	0	0	0	0	0	0	8,000	8,000
Total Tons	0	0	0	0	0	0	0	0	105,000	105,000

RIVERBEND LANDFILL										
Calendar Year-->	1987	1988	1989	1990	1991		1992		1993	
Estimate Type-->	Actual	Actual	Actual	Actual	High	Low	High	Low	High	Low
January	1,356	4,239	6,060	7,024	7,155	7,155	5,100	4,700	5,100	4,500
February	1,230	3,857	5,008	5,917	5,473	5,473	4,600	4,200	4,600	4,100
March	1,400	4,531	6,842	6,526	5,885	5,885	5,500	5,100	5,600	4,900
April	1,398	4,534	6,494	6,540	5,600	5,200	5,800	5,300	5,800	5,200
May	1,248	4,439	7,305	7,405	6,000	5,500	6,100	5,600	6,100	5,400
June	1,270	4,367	7,205	7,259	6,000	5,600	6,200	5,700	6,200	5,500
July	1,387	3,952	6,374	7,101	6,100	5,600	6,200	5,700	6,200	5,800
August	1,298	4,393	6,955	7,784	6,300	5,800	6,400	5,900	6,500	5,800
September	1,364	5,089	6,232	6,906	5,800	5,300	5,900	5,400	6,000	5,300
October	1,255	5,121	6,491	7,541	5,900	5,500	6,100	5,600	6,100	5,400
November	1,227	6,388	6,938	7,384	5,200	4,800	5,300	4,900	5,300	4,800
December	1,340	6,078	6,353	6,762	5,100	4,700	5,200	4,800	5,300	4,700
Total Tons	15,773	56,989	78,257	84,149	70,600	66,600	68,400	63,000	68,900	61,100

Delivery Tonnages (forecast is shaded)

ST. JOHNS LANDFILL										
Calendar Year-->	1987	1988	1989	1990	1991		1992		1993	
Estimate Type-->	Actual	Actual	Actual	Actual	High	Low	High	Low	High	Low
January	29,735	46,914	52,051	37,998	15,027	15,027	3,500	3,300	3,700	3,700
February	27,941	46,931	44,649	32,801	2,307	2,307	3,100	3,000	3,400	3,400
March	32,619	54,259	58,072	36,272	2,089	2,089	3,800	3,600	4,000	4,000
April	35,330	57,956	53,954	39,292	2,400	2,400	3,900	3,700	4,200	4,200
May	34,361	62,248	61,091	44,993	2,600	2,200	4,200	3,900	4,400	4,400
June	35,109	61,624	61,614	43,118	2,600	2,300	4,200	4,000	4,500	4,500
July	35,033	58,665	64,190	42,656	2,600	2,300	4,200	4,000	4,500	4,500
August	33,792	64,891	71,890	43,242	2,700	2,400	4,400	4,200	4,700	4,700
September	34,019	60,436	64,888	38,077	2,500	2,200	4,000	3,800	4,300	4,300
October	32,720	60,025	67,465	45,145	2,600	2,200	4,200	3,900	4,400	4,400
November	31,363	52,458	63,866	39,249	2,300	2,000	3,700	3,400	3,900	3,900
December	33,555	50,884	60,486	38,992	2,200	1,900	3,600	3,400	3,800	3,800
Total Tons	395,577	677,291	724,216	481,835	42,000	39,200	46,800	44,100	50,000	50,000

Introduction

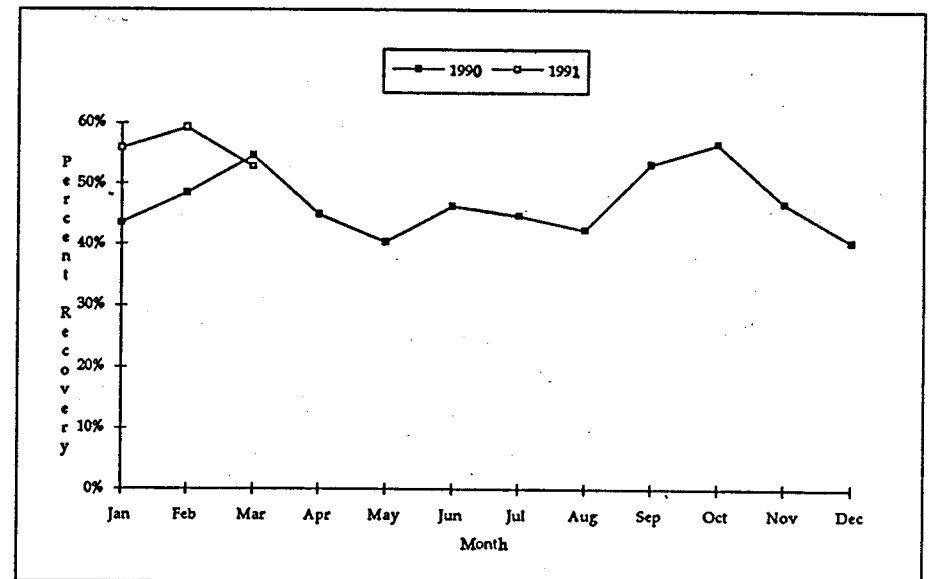
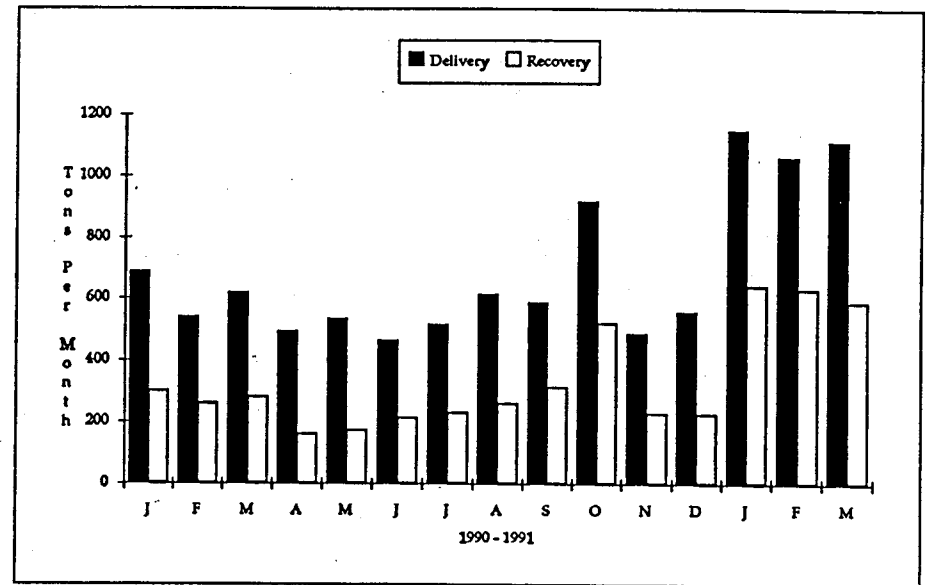
This section reports waste reduction data. Included are monthly tonnages for those facilities that provide reports to Metro. Only material generated within the Metro region is included. Post-collection material recovery, yard debris processing, and energy recovery are presented in this report. Future quarterly reports will include other waste reduction data, such as curbside recycling.

Oregon Processing and Recovery Center (OPRC)

OPRC is a material recovery facility that sorts high-grade and commingled recyclable material. Primary materials recovered include corrugated cardboard and mixed waste paper.

The total recovery at OPRC during the first quarter of 1991 was 1,859 tons (compared to 839 tons during the first quarter of 1990). Average recovery level during the first quarter of 1991 was 56% (compared to 49% during the first quarter of 1990).

Month	Tons				Recovery Percent	
	Delivery		Recovery		1990	1991
Jan	687	1148	299	641	44%	56%
Feb	538	1062	280	630	48%	59%
Mar	617	1113	260	588	55%	53%
Apr	492		160		45%	
May	532		173		40%	
Jun	463		214		46%	
Jul	516		231		45%	
Aug	613		260		42%	
Sep	585		312		53%	
Oct	918		520		57%	
Nov	487		228		47%	
Dec	228		225		40%	



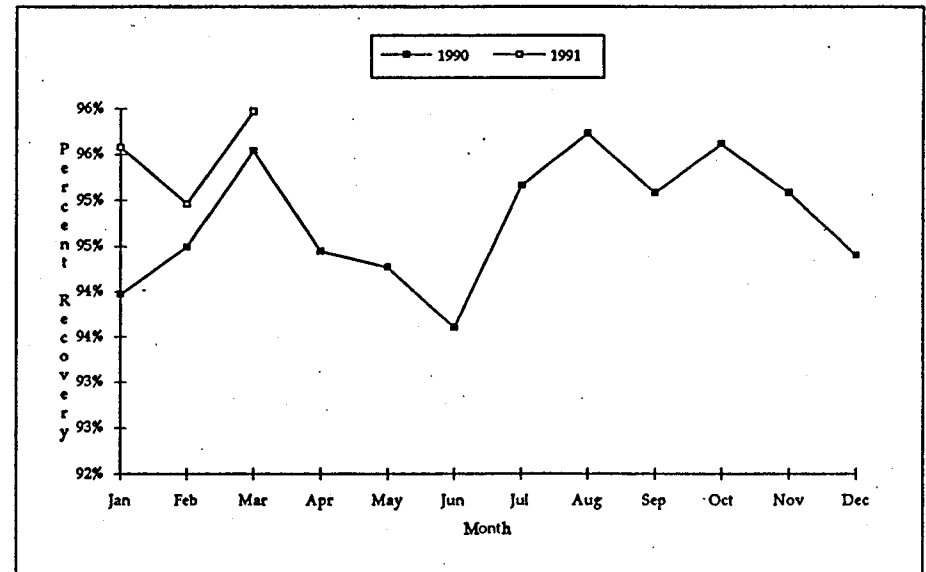
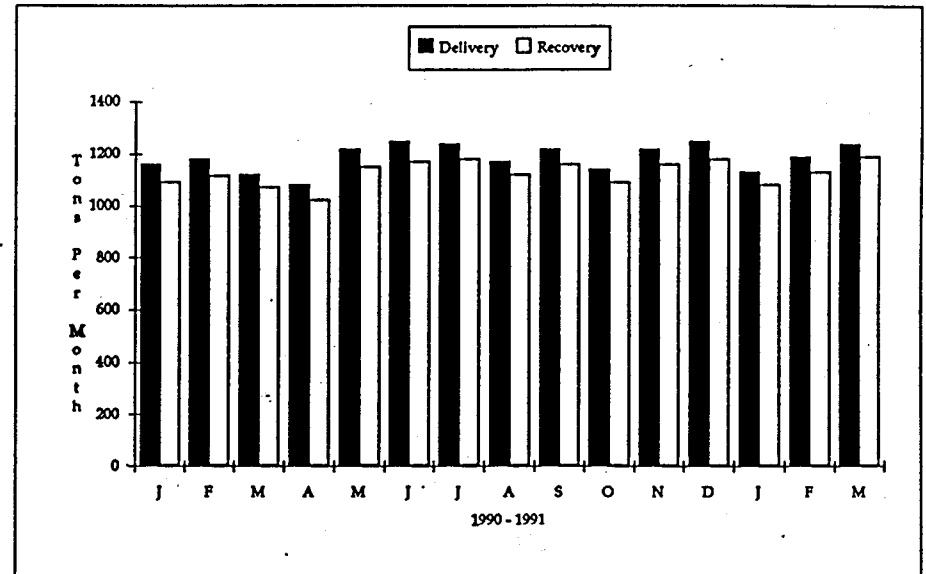
Material Recovery

Marine Dropbox

Marine Drop box collects dunnage and debris from ships and recovers wood, rope, cable, wire and other material for resale or salvage.

The total recovery at Marine Dropbox during the first quarter of 1991 was 3,400 tons (compared to 3,460 tons during the first quarter of 1990). Average recovery level during the first quarter of 1991 was 96% (compared to 95% during the first quarter of 1990).

Month	Tons				Recovery Percent	
	Delivery		Recovery		1990	1991
Jan	1160	1130	1090	1080	94%	96%
Feb	1180	1190	1115	1130	94%	95%
Mar	1120	1240	1070	1190	96%	96%
Apr	1080		1020		94%	
May	1220		1150		94%	
Jun	1250		1170		94%	
Jul	1240		1180		95%	
Aug	1170		1120		96%	
Sep	1220		1160		95%	
Oct	1140		1090		96%	
Nov	1220		1160		95%	
Dec	1250		1180		94%	



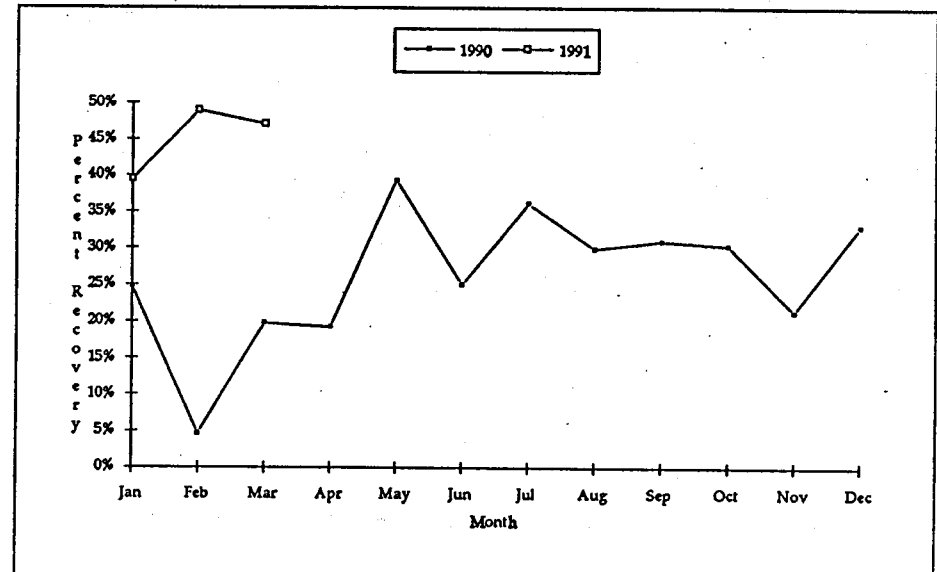
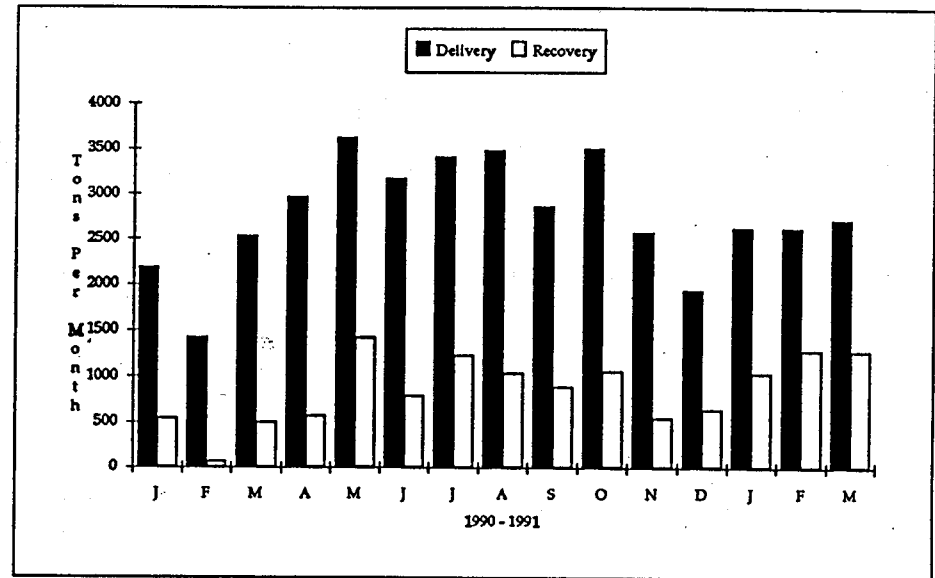
-Material Recovery

East County Recycling Center (ECRC)

ECRC accepts waste containing recyclable material. Material is hand-sorted in preparation for sale to secondary markets. Primary material recovered includes yard debris, corrugated cardboard, and metal scrap.

The total recovery at ECRC during the first quarter of 1991 was 3,602 tons (compared to 1,106 tons during the first quarter of 1990). Average recovery level during the first quarter of 1991 was 45% (compared to 17% during the first quarter of 1990).

Month	Tons				Recovery Percent	
	Delivery		Recovery		1990	1991
Jan	2185	2627	540	1037	25%	39%
Feb	1422	2625	66	1286	5%	49%
Mar	2529	2719	500	1279	20%	47%
Apr	2965		570		19%	
May	3629		1425		39%	
Jun	3170		792		25%	
Jul	3413		1233		36%	
Aug	3484		1040		30%	
Sep	2868		886		31%	
Oct	3508		1062		30%	
Nov	2574		548		21%	
Dec	1937		638		33%	



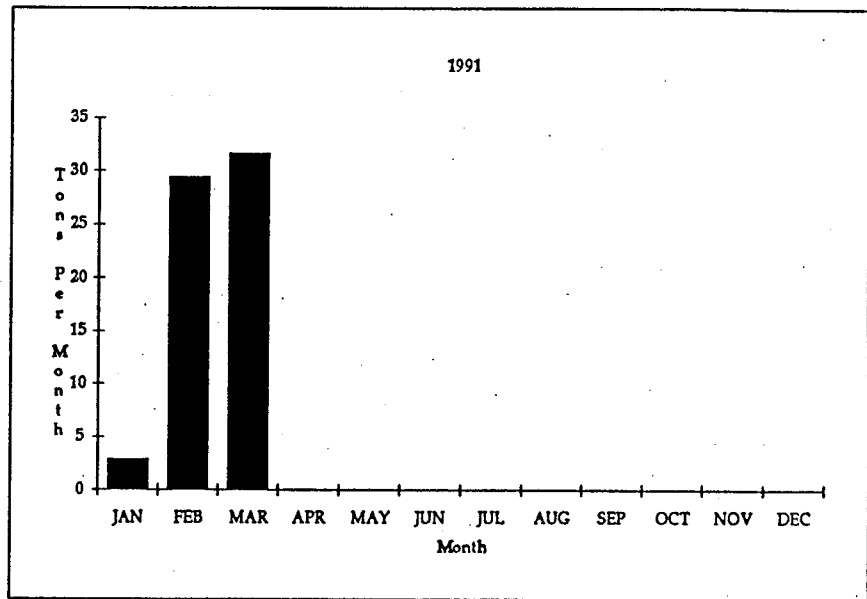
Material Recovery

Metro Central Transfer Station

Metro Central Station opened in January 1991. The data shown in the top right chart is data collected for the first three months of operation. Materials received include corrugated cardboard, tires, newspaper and various metals. The total recovery at Metro Central for the first quarter of 1991 was 64 tons.

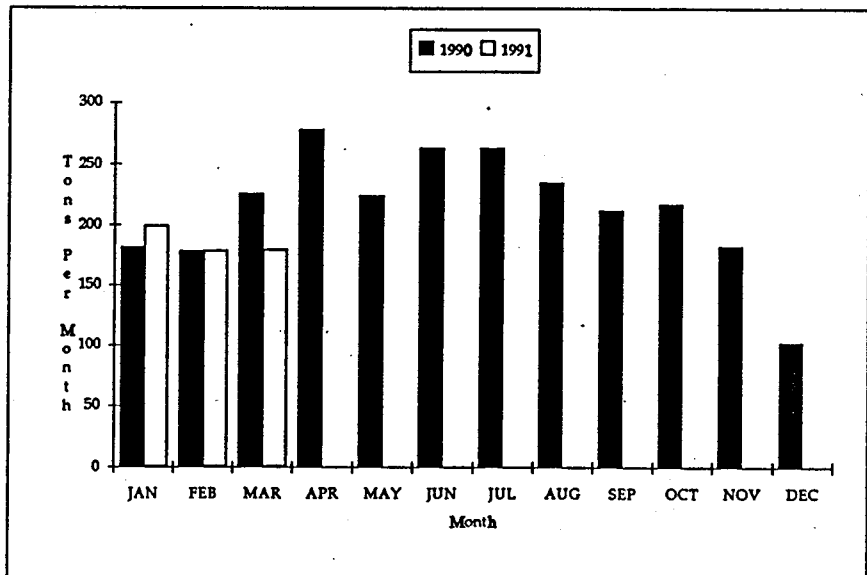
Metro South Transfer Station

Metro South Transfer Station has drop-off areas for recyclable material. Materials received include corrugated cardboard, tires, newspaper and various metals. The total recovery at Metro South (bottom right chart) for the first quarter of 1991 was 556 tons (compared to 585 tons during the first quarter of 1990).



Metro Central			
Recovered Tons			
Month	1990	1991	% Change
JAN		3	
FEB		29	
MAR		31	
APR			
MAY			
JUNE			
JULY			
AUG			
SEPT			
OCT			
NOV			
DEC			

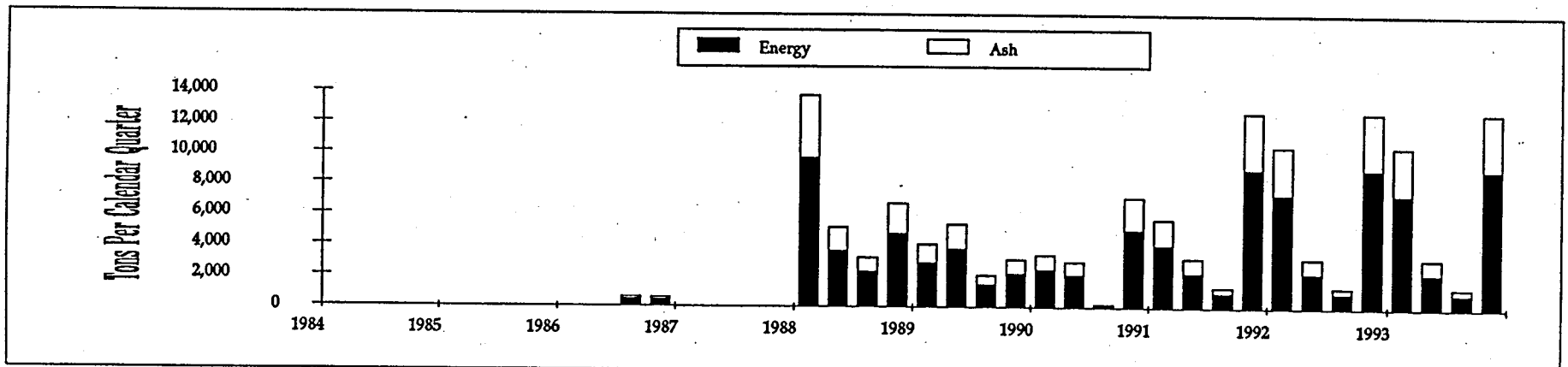
Metro South			
Recovered Tons			
Month	1990	1991	% Change
JAN	181	199	10%
FEB	178	178	0%
MAR	226	179	-21%
APR	278		
MAY	224		
JUNE	263		
JULY	263		
AUG	235		
SEPT	212		
OCT	217		
NOV	182		
DEC	108		



Marion County Energy Recovery Facility

Marion County Energy Recovery Facility is a privately owned and operated non-franchised waste-to-energy facility with limited material recovery capability (primarily iron, iron alloys and other metals). It is located in Brooks, Oregon. Approximately 70% of the incoming waste is converted to energy. The remaining ash is taken to the ash monofill in Woodburn for final disposal. (Shading in the table below represents forecast data.)

Calendar Year—>	1987	1988	1989	1990	1991	1992	1993
January	0	4,403	4,026	1,098	2,146	4,600	4,600
February	0	4,767	0	1,182	2,409	2,400	2,400
March	0	4,574	0	1,081	1,118	3,400	3,400
April	0	2,048	1,799	13	0	0	0
May	0	1,176	1,823	1,271	2,100	2,100	2,100
June	0	1,889	1,699	1,630	1,000	1,000	1,000
July	0	1,208	2,033	92	1,300	1,300	1,300
August	0	1,235	3	75	0	0	0
September	0	719	0	21	0	0	0
October	0	87	4	1,217	3,000	3,000	3,000
November	0	2,667	2,108	2,107	4,600	4,600	4,600
December	0	3,920	930	3,740	5,100	5,100	5,100
Total Tons	0	28,693	14,425	13,527	22,800	27,500	27,500

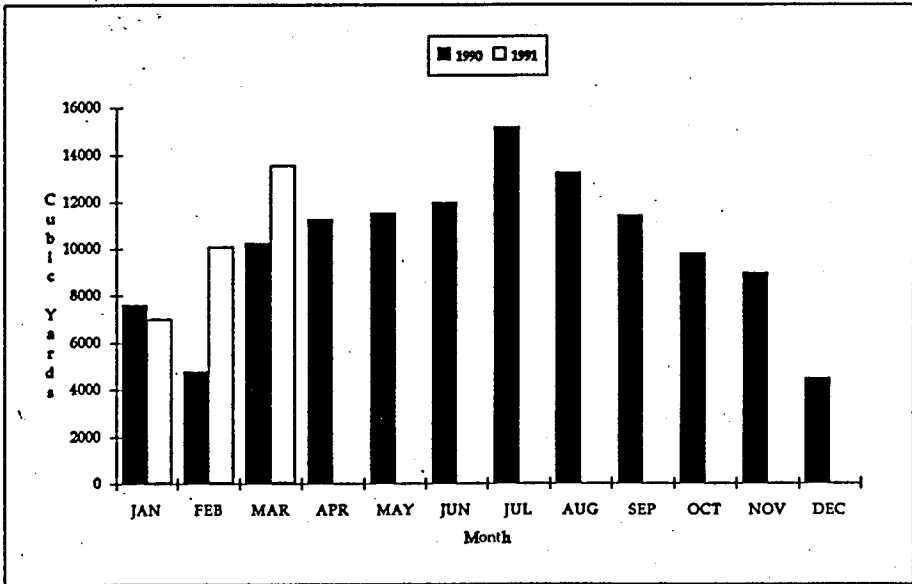
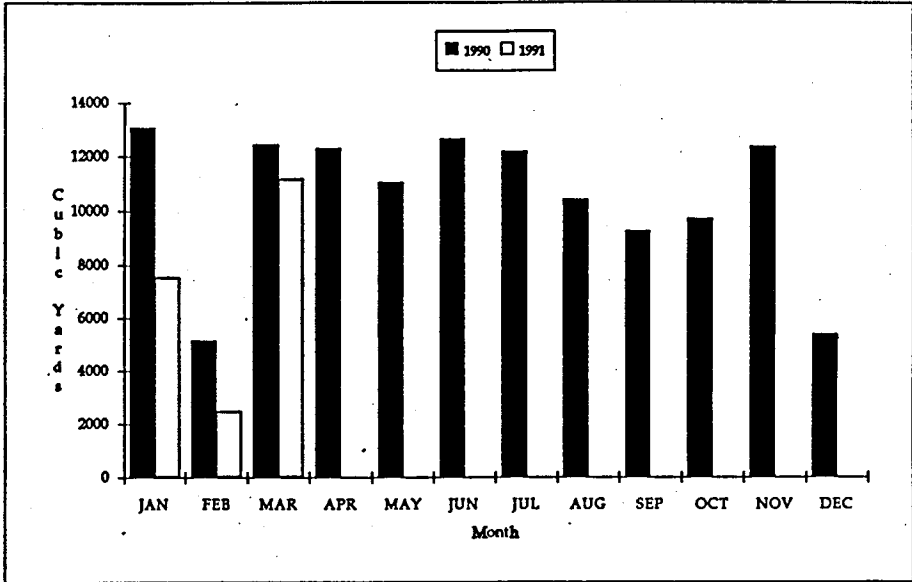


Yard Debris Processing

Grimm's Fuel Company and McFarlane's Bark, Inc.

Grimm's Fuel Company and McFarlane's Bark, Inc., receive source-separated yard debris and process the material into compost products for soil amendment or ground cover. Included in the volume received are loose yard debris, compacted yard debris, chips and sawdust.

The top right graph shows delivery to Grimm's and the bottom right graph shows delivery to McFarlane's.



Grimm's Fuel Company

Month	Received (cubic yards)		% Change
	1990	1991	
JAN	13045	7526	-42%
FEB	5121	2448	-52%
MAR	12418	11150	-10%
APR	12273		
MAY	11021		
JUN	12649		
JUL	12155		
AUG	10407		
SEP	9250		
OCT	9703		
NOV	12355		
DEC	5372		

McFarlane's Bark, Inc.

Month	Received (cubic yards)		% Change
	1990	1991	
JAN	7575	6972	-8%
FEB	4735	10063	112%
MAR	10215	13529	32%
APR	11251		
MAY	11525		
JUN	11965		
JUL	15170		
AUG	13241		
SEP	11405		
OCT	9783		
NOV	8922		
DEC	4431		

Glossary

Ash

The relatively inert residue that remains after a solid waste and fuel mixture has been incinerated or converted via pyrolysis. May include extraneous non-combustibles, unburned carbon as well as the mineral matter inherent in the combustible material.

Buy-Back Center

A facility dedicated to the repurchase of recyclable products from the public.

Collection

The process of picking up wastes at homes, businesses and other locations, loading them into a collection vehicle and hauling them to a waste processing facility or for final disposal.

Collection Routes

The routes followed by collection vehicles for the process of collection.

Collection System

The combination of people and equipment used in the collection of solid wastes. Solid waste collection systems may be classified to include the mode of operation, equipment used or types of wastes collected.

Combustibles

Materials in solid waste that can be ignited and then maintain combustion. In general, combustibles are organic in nature (e.g., paper, plastics, wood and food wastes).

Co-mingled (Commingled) Recyclables

Mixed recyclable materials that have been separated from non-recyclable, disposable materials in the waste stream.

Commercial Solid Waste

Wastes that originate in wholesale, manufacturing, retail or service businesses.

Compactor

Any power driven equipment designed to reduce the volume of wastes by compression.

Compost

A mixture of organic wastes that have been aerobically or anaerobically decomposed to an intermediate state. Many types of compost are poor in nitrogen and are thus poor fertilizer. Composts are generally used to improve the bulk characteristics of soils, such as their moisture retaining properties or cohesiveness.

Composting Facility

A specially designed and constructed facility that uses aerobic and anaerobic microorganisms to decompose the organic fraction of a variety of wastes; including yard debris, mixed solid waste and sewage sludge. The end product contains only inert (nonreactive) compounds that can be safely stored, handled and applied to land.

Construction and Demolition Wastes

Wastes produced in building, repair, remodeling or demolition of various types of structures. These include lumber, miscellaneous metals, concrete, asphalt, plastics, brick, rocks, glass, plastics, soil and other bulky wastes.

Disposal

All activities associated with the orderly, long-term handling of both collected solid wastes and residual wastes that occur after solid waste is processed or recovered for conversion purposes. Ultimate disposal of wastes is usually accomplished by means of sanitary landfilling.

Glossary

Disposal Site

As defined in ORS 459.005, "Land and facilities used for the disposal, handling or transfer of, or resource recovery from, solid wastes, including but not limited to dumps, landfills, sludge lagoons, sludge treatment facilities, disposal sites for septic tank pumping or cesspool

cleaning services, transfer stations, resource recovery facilities, incinerators for solid waste delivered by the public or by a solid waste collection service, composting plants and land and facilities previously used for solid waste disposal at a land disposal site." The term does not include facilities subject to certain types of special permitting requirements, landfills which receive only rocks, soil, concrete or other non-decomposable materials unless the site is used by the public either directly or through a solid waste collection service, or sites operated by certified wreckers.

Energy Recovery

As defined in ORS 459.005, "...recovery in which all or a part of the solid waste materials are processed to utilize the heat content; or other forms of energy, of or from the material." Commonly refers to the use of thermal conversion products (energy) that are released during the combustion or chemical conversion of solid waste to produce electricity and/or steam.

Facility

Any assemblage of structures and/or equipment used in the collection, storage, conversion, processing or disposal of solid waste. Usually refers to a transfer station, recycling center, materials recovery processing center or energy recovery plant.

Ferrous Metals

Iron-containing metals. In the waste stream these metals usually include automobiles, refrigerators, stoves, etc. Most ferrous metals are magnetic.

Flow Control

A government entity's ability to manage and direct the waste stream by ordinance, regulation, contract or disposal cost limitation. Control of the waste stream can be critical to waste management systems of all kinds, whether they include landfills, materials recovery processing or any other type of facilities or activities.

Food Wastes

Animal or vegetable wastes resulting from the harvesting, handling, storage, sales, preparation, cooking, serving or consumption of food or food products (not including human excretory wastes). Commonly known as garbage.

General Purpose Landfill

A landfill that receives all types of residential, commercial and industrial wastes, excluding regulated hazardous wastes. See also Sanitary Landfill.

Haul Distance

The distance a collection vehicle travels after picking up a loaded container, or from its last pickup stop on a collection route, to the solid waste processing facility, and, after unloading, to the location where the empty container is to be deposited or to the beginning of a new collection route.

Haul Time

The time spent transporting solid wastes between two specific locations.

Glossary

High Grade Facilities

Dedicated facilities, or processing lines within other facilities, used to process and recover recyclable materials from high grade loads of waste. See also High Grade Wastes.

High Grade Wastes

In local usage it is defined as loads of waste paper from offices, businesses or industries that contain 90% or greater recyclable content. In general usage it defines any load of waste material which contains significant recyclable content, typically above 75%. These waste materials may include cardboard (OCC), computer paper and other high quality paper products, metals, plastics, etc.

Landfill

See Sanitary Landfill.

Material Recovery

As defined in ORS 459.005, "...any process of obtaining from solid waste, by presegregation or otherwise, materials which still have useful physical or chemical properties after serving a specific purpose and can, therefore, be reused or recycled for the same or other purpose." See also Resource Recovery.

Material Recovery or Recycling Facility (MRF)

An automated or semi-automated facility used for recovering and recycling materials from the solid waste stream. See also Intermediate Processing Center.

Mechanical Separation

The separation for wastes into various classes such as metals, glass and plastics by mechanical means.

Municipal Solid Waste (MSW)

Includes non-hazardous waste generated in households, commercial and business establishments, institutions, and light industrial wastes; it excludes industrial process wastes, agricultural wastes, mining wastes, construction and demolition wastes, and sewage sludge. In practice, specific definitions vary across jurisdictions. See also Solid Waste.

Nonferrous Metals

Metals that do not contain iron. Nonferrous metals usually include aluminum, copper, brass, bronze, silver, gold, nickel and zinc.

Oregon Revised Statutes, Chapter 459 (ORS 459)

Solid Waste Control. The statutory provisions regarding state regulation of solid waste for the State of Oregon.

Processing

Any means designed to change the form, chemical content or physical characteristics of solid wastes.

Processor

A recycling operation where secondary materials are sorted, graded, cleaned, densified or packaged. Included are scrap metal yards and waste paper dealers.

Putrescible Waste

Food wastes and other organic wastes, subject to decomposition or decay.

Recyclable Material

As defined in ORS 459.005, "...any material or group of materials that can be collected and sold for recycling at a net cost equal to or less than the cost of collection and disposal of the same material." Also refers to material that can be utilized in place of a raw or virgin material in manufacturing a product. Consists of materials derived from post consumer waste, industrial scrap, materials derived from agricultural wastes or other items.

Glossary

Recycling

As defined in ORS 459.005, "...any process by which solid waste materials are transformed into new products in such a manner that the original products may lose their identity."

Residential Solid Wastes

Wastes generated in homes generally consisting of consumer goods wastes such as newspaper, cardboard, glass, plastic, food wastes, garden and lawn wastes, etc.

Resource Recovery

As defined in ORS 459.005, "...the process of obtaining useful material or energy resources from solid waste." A concept involving the extraction of economically usable materials or energy from wastes. It may involve recycling or physical/chemical conversion to various end products.

Reuse

As defined in ORS 459.005, "...the return of a commodity into the economic stream for use in the same kind of application as before without change in its identity."

Sanitary Landfill

A land area where municipal solid wastes are disposed of under regulatory control. An engineered disposal site for solid wastes that protects the environment. Generally includes extensive designing of a leachate collection system, a lining system and an applied management plan.

Separation

Division of wastes, either manually or mechanically, into groups of similar materials such as paper, glass or metal. Also used to describe the further sorting of materials into more specific categories such as types of glass (clear, brown, etc.), types of metals (aluminum, iron, etc.) and types of paper (newspaper, cardboard, office paper, etc.).

Solid Waste

As defined in ORS 459.005, "...all putrescible and non-putrescible wastes, including but not limited to garbage, rubbish, refuse, ashes, waste paper, and cardboard; sewage sludge, septic tank and cesspool pumpings or other sludge; commercial, industrial, demolition and construction wastes; discarded or abandoned vehicles or parts thereof; discarded home and industrial appliances; manure, vegetable or animal solid and semisolid wastes, dead animals and other wastes."

See also Construction and Demolition Debris, Commercial Wastes, Industrial Wastes, Institutional Wastes, Municipal Wastes and Residential Wastes.

The Resource Conservation and Recovery Act of 1976 (RCRA) defines solid waste to include "...garbage, refuse, sludge, from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations and from community activities..."

Source Separation

As defined in ORS 459.005, "...the person who last uses recyclable material separates the recyclable material from solid waste." The act of segregating recyclable materials from waste products at the point they are generated, prior to collection and transport to a solid waste processing facility.

State Hierarchy

The policy developed by the State of Oregon and defined in ORS 459.015 which establishes a hierarchy for managing solid waste in order to conserve energy and natural resources. The rank order listing of the hierarchy is as follows

- Reducing the amount of solid waste generated;
- Reusing material for the purpose for that it originally was intended;

Glossary

- Recycling material that cannot be reused;
- Recovering energy from solid waste that cannot be reused or recycled, so long as the energy recovery facility preserves the quality of air, water and land resources; and
- Disposal of solid waste that cannot be reused, recycled, or from which energy cannot be recovered by landfilling or other methods approved by the Department of Environmental Quality.

Ton/Tonnage

A unit of weight equal to 2,000 pounds, also called a short ton.

Transfer Station

As defined in ORS 459.005, "...a fixed or mobile facility normally used, as an adjunct of a solid waste collection and disposal system or resource recovery system, between a collection route and a disposal site."

Waste Generation

The act or process of creating solid wastes, usually as a by-product of another action.

Waste Reduction

The practice of producing smaller quantities of disposal waste. Activities by manufacturers (e.g., modifying products) and consumers (e.g. modifying purchasing decisions) that reduce toxicity or quantity of products before they are purchased.

Waste Stream

A term describing the total flow of solid waste in an area from homes, businesses, institutions and manufacturing plant that must be recycled, burned, or disposed of in landfills; or any segment thereof, such as the "residential waste stream" or the "recyclable waste stream."

Waste-To-Energy Plant

Recovery of the energy content of solid waste through incineration at a thermal conversion plant.

Yard Debris

Miscellaneous plant clippings, branches, prunings, leaves, and other discarded material derived from yards and gardens.

Yard Debris Processing Center

A facility that processes yard debris into a usable soil amendment through controlled biological decomposition.

405 Materials

Those materials set forth in Oregon Senate Bill (SB) 405 for curbside pickup in areas with a population over 4,000. Include corrugated cardboard, newspaper, glass, ferrous metals, aluminum and other non-ferrous metals, used motor oil and yard debris. Also referred to as principle recyclables.