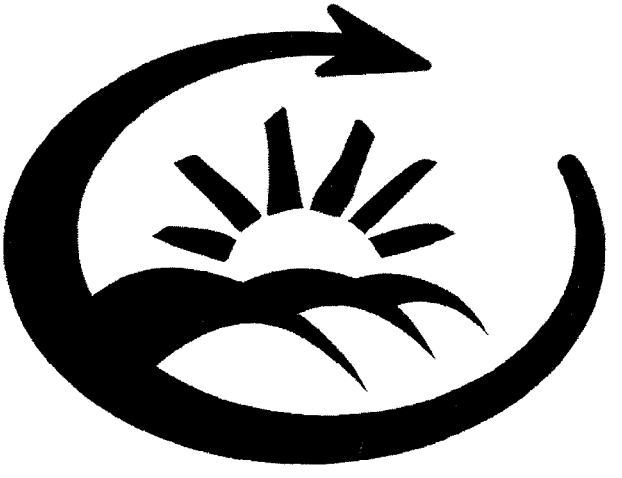
Sonoma County
Countywide Integrated Waste Management Plan
including the
Source Reduction and Recycling Element
Household Hazardous Waste Element
Siting Element, and the
Non-Disposal Facility Element

October 15, 2003



Prepared by the Sonoma County Waste Management Agency
for the jurisdictions of
Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park
Santa Rosa, Sebastopol, Sonoma, Windsor, and the County of Sonoma

SONOMA COUNTY
COUNTYWIDE INTEGRATED WASTE MANAGEMENT PLAN

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SONOMA COUNTY
COUNTYWIDE INTEGRATED WASTE MANAGEMENT PLAN

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CHAPTER ONE

EXECUTIVE SUMMARY

CHAPTER 1

EXECUTIVE SUMMARY

With the enactment of the California Integrated Waste Management Act of 1989 (AB 939), the State of California has required each city and county to prepare solid waste management planning documents that demonstrate reduction of the amount of solid waste landfilled, long-term ability to ensure the implementation of countywide diversion programs, and provision of adequate disposal capacity for local jurisdictions through the siting of disposal and transformation facilities. This planning document is known as the Countywide Integrated Waste Management Plan (CoIWMP), and includes the Source Reduction and Recycling Element (SRRE), Household Hazardous Waste Element (HHWE), Non-Disposal Facility Element (NDFE), and the Siting Element.

In 1995, the Sonoma County Waste Management Agency (SCWMA) was designated a regional agency as defined under Section 40970 of the California Public Resource Code, for the purpose of implementing, monitoring and reporting programs to meet the goals established by AB 939. In addition, the SCWMA also assumed the responsibility of maintaining all AB 939 planning documents for Sonoma County jurisdictions.

In 1997, Senate Bill 1066 modified Section 41785 of the California Public Resources Code to allow jurisdictions to request time extensions in order to meet the 50% diversion goal. In 2002, the California Integrated Waste Management Board (CIWMB) approved the SCWMA's three-year time extension which describes how the SCWMA and its member jurisdictions will meet the 50% diversion goal.

In 1999, the County of Sonoma and the AB 939 Local Task Force (LTF) began a 12-month planning process that evaluated a wide range of solid waste management options to develop a long range solid waste disposal strategy. The Sonoma County Solid Waste Management Alternatives Analysis Project Final Report (December, 2000) ("Analysis") recommended a strategy that included:

- Fully utilizing the existing waste management resources/infrastructure in both the public and private sectors. Strategy elements include Central Landfill expansion, a flow control policy, and a mandatory recycling policy.
- Maximizing waste diversion and resource utilization at a reasonable cost based on generator responsibility which will extend the useful life of an expanded Central Landfill and minimize the size necessary for a new landfill in the County. Strategy elements include mandatory recycling and an integrated resource management facility that could include organic processing and green waste processing.
- Complementing and enhancing existing and planned operations for collection/processing of refuse and recyclables, recognizing the historically accepted private sector role fulfilled through franchise agreements.

The Sonoma County Board of Supervisors and the Sonoma County Waste Management Agency accepted these recommendations and directed staff to take the necessary actions to implement them. Pursuant to this direction, the programs included in the above recommendations are described throughout Chapter 4 of this CoIWMP. Implementation of this long-term strategy would provide solid waste disposal capacity at least to the year 2050. Table 11 of the Analysis (Appendix B) describes the selected strategy and the various scenarios considered along with the advantages and disadvantages of each.

1.1 GOALS, OBJECTIVES, AND POLICIES

Chapter 2 defines the goals, objectives, and policies that form the basis of the CoIWMP. The following mission statement summarizes these goals, objectives, and policies:

The County will plan and implement programs to satisfy the county's solid waste management needs for the next fifty years in a manner that is cost-effective and is operated to follow the State of California's solid waste management hierarchy. The hierarchy consists of waste prevention (source reduction), reuse, recycling, composting, and disposal. Additionally, the solid waste management system for the county shall protect public health, safety, and well being; preserve the environment; and provide for the maximum feasible conservation of natural resources and energy.

1.2 SONOMA COUNTY PROFILE AND PLAN ADMINISTRATION

Chapter 3 summarizes cultural and demographic information specific to Sonoma County and identifies all entities responsible for various solid waste planning and implementation functions. The following list summarizes the solid waste management infrastructure of Sonoma County:

- SCWMA provides public education and information programs, regional wood waste processing and yard debris composting, beverage container recycling for local public access, funding for diversion programs, and countywide household hazardous waste programs. As a regional agency, the SCWMA also maintains all AB 939 planning documents, including the CoIWMP.
- Local jurisdictions are responsible for collection and all jurisdiction specific diversion programs.
- Sonoma County Department of Transportation and Public Works (DTPW) owns and operates all solid waste disposal facilities in Sonoma County.
- LTF acts as the solid waste advisory committee to the SCWMA and the Sonoma County Board of Supervisors providing advice and assistance in the preparation and ongoing development of solid waste management programs in the county.
- Sonoma County Health Services Department, Environmental Health Division is designated as the Local Enforcement Agency (LEA).

1.3 SONOMA COUNTY SOLID WASTE MANAGEMENT PRACTICES

1.3.1 Factors Affecting Sonoma County's Solid Waste System

The Facility Capacity Component (Chapter 4, Section 4.8) includes discussions on the solid waste collection practices by franchised haulers and transportation and storage of collected materials by both franchised haulers and other recycling businesses (page 4-141).

At this time, four companies and their subsidiaries provide franchised and licensed collection of solid waste in Sonoma County; Industrial Carting, Sonoma Garbage Collector, Waste Management, Inc., and West Sonoma County Disposal. Figure 4.1 (page 4-142) is a map of the licensed territories of the local haulers. Table 1-1, Refuse Collection Areas and Franchise Status of Sonoma County Commercial Haulers, provides a list, by jurisdiction, of the solid waste haulers and the status of their franchise and permits as of 2002.

1.3.2 Permitted Solid Waste Facilities

A discussion of the existing solid waste facilities, including the Central Disposal Site and the five transfer stations located around Sonoma County, is found in the Facility Capacity Component. Figure 4.2 (page 4-146) is a map showing the location of solid waste facilities in Sonoma County. Descriptions for each solid waste facility, including name, address, and physical location, assessor parcel number, SWIS number, permitted area, waste types accepted, average daily loading, permitted daily capacity, quantity of waste received, a five-year projection, and the site owner and operator, are also included.

At this time, the DTPW owns and operates one landfill and owns and contracts the operation of five transfer stations that provide service to Sonoma County residents. Refuse destined for disposal is delivered to the transfer stations in refuse collection trucks and then loaded into 100-cubic-yard transfer trailers for transport to the Central Disposal Site. A small quantity of debris box waste generated in Sonoma County is disposed at the Redwood Sanitary Landfill in Marin County, with lesser amounts disposed at other California landfills.

Table 1-1: Refuse Collection Areas and Franchise Status of Sonoma County Commercial Haulers (as of 2002)

Jurisdiction	Hauler	Current Franchise or Permit Status
Cloverdale	Cloverdale Disposal (WMI Subsidiary)	Ten year franchise with an evergreen clause and annual rate reviews.
Cotati	Larry's Sanitary Service (WMI Subsidiary)	Ten year franchise with an evergreen clause and periodic rate reviews at haulers request. Contract will terminate in 2005.
Healdsburg	Empire Waste Management (EWM)	Ten year franchise with annual rate reviews. Contract will terminate in 2012.
Petaluma	EWM	Five year franchise with annual rate reviews. Contract will terminate in 2004.
Rohnert Park	Rohnert Park Disposal Company	Ten year franchise with periodic rate reviews. Contract will terminate in 2008.
Santa Rosa	EWM	Ten year franchise with periodic rate reviews. Franchise will terminate in 2006.
Sebastopol	Larry's Sanitary Service (WMI Subsidiary)	Ten year franchise with annual rate reviews. Contract will terminate in 2009.
Sonoma	Sonoma Garbage Collector	Ten year franchise with periodic rate reviews at haulers request. Contract will terminate in 2013.
Unincorporated County	Cloverdale Disposal EWM Industrial Carting Larry's Sanitary Service Pacific Coast Disposal Sonoma Garbage Collector Sunrise Garbage Service West Sonoma County Disposal	Ten year license expires 2011. Ten year license expires 2011. Ten year license expires 2011. Ten year license expires 2011. Ten year license expires 2011. Ten year license expires 2011. Ten year license expires 2011. Ten year license expires 2011.
Windsor	West Sonoma County Disposal	Ten year franchise with annual rate reviews. Contract will terminate in 2007.

Recyclable materials collected by local haulers, drop-off/buy-back operations, and the material reuse/recovery program operating in the county are consolidated at private yards for shipment to secondary materials processors and end-users. Waste Management, Inc. and West Sonoma County Disposal process recyclable materials at their Intermediate Processing Centers in Santa Rosa. Processed materials are then marketed through secondary materials brokers and internal staff. Reusable materials collected at the Garbage Reincarnation, Inc. (GRI) Material Reuse/Recovery Centers (Central Disposal Site and Healdsburg Transfer Station) and the Sonoma Transfer Station Material Reuse/Recovery Center are stored on-site for resale to the general public.

Table 1-2 details the final destination of collected wastes for 2001, the most recent year that total disposal quantities are available from the CIWMB. An estimate of the quantity of waste collected in each Sonoma County jurisdiction that was landfilled at Central Disposal Site for 2001 is detailed in Table 1-3 and excludes any materials that were accepted but diverted to recycling and reuse markets (i.e., tires, scrap metal, yard debris, wood waste, and other recyclables). The information presented below is a representation based on customers reporting the jurisdiction in which they reside. There is the possibility that some customers report a city when in fact they reside in the unincorporated county.

Table 1-2: Final Destination of Sonoma County's Solid Waste for 2001 (in tons and cubic yards)

Facility Name (County)	Disposal (in tons)	Disposal (in cubic yards*)
Altamont Landfill (Alameda)	265.68	442.8
Vasco Road Landfill (Alameda)	17.8	29.67
West Contra Costa Landfill (Contra Costa)	104	173.33
Keller Canyon Landfill (Contra Costa)	4,423.88	7,373.13
Arvin Sanitary Landfill (Kern)	89.3	148.83
CWMI-B18 Nonhazardous Codisposal (Kings)	17	28.33
Azusa Land Reclamation Co. (Los Angeles)	475.73	792.88
Redwood Sanitary Landfill (Marin)	32,537.24	54,228.73
Foothill Sanitary Landfill (San Joaquin)	8.1	13.5
Forward, Inc. (San Joaquin)	258.5	430.83
North County Landfill (San Joaquin)	1.4	2.33
BJ Dropbox Sanitary Landfill (Solano)	22.85	38.08
Potrero Hills Landfill (Solano)	8,958.23	14,930.38
Central Landfill (Sonoma)	497,990	829,983.33
Fink Road Landfill (Stanislaus)	0.01	0.02
Ogden Martin Systems of Stanislaus (Stanislaus)	2.29	3.82
Totals	545,172.01	908,620.02

* Conversion factor used is 1,200 pounds per cubic yard.
Source: California Integrated Waste Management Board, "Jurisdiction Disposal and ADC by Facility." This chart is updated annually; the most recent data is available at www.ciwmb.ca.gov.

Additional information on solid waste facilities in Sonoma County can be found in Chapter Six, Siting Element, and Chapter Seven, Non-Disposal Facility Element.

1.3.3 Waste Diversion Facilities

There are a number of diversion facilities currently operating in Sonoma County, including drop-off centers, buyback centers, reuse facilities, and composting facilities. As reported in the 2001 Annual Report, diversion facilities with programs owned or funded by the SCWMA, DTPW, and local jurisdictions diverted approximately 157,000 tons of materials from the waste stream. Since waste diversion facilities, such as drop-off and buyback centers, are used for handling recyclable materials, they are discussed in the Recycling Component (Chapter 4, Section 4.4). Composting facilities diverting yard waste and other organics are discussed in the Composting Component (Chapter 4, Section 4.5). Lists of recycling activities for each jurisdiction in Sonoma County are in the Recycling Component (Table 4-9, page 4-32). Descriptions of existing and proposed waste diversion facilities are found in Chapter Seven, Non-Disposal Facility Element.

1.3.4 Market Development Activities

Market development activities are discussed in the Recycling Component (Chapter 4, Section 4.4), which includes the following six objectives developed as part of the strategy entitled *Sonoma County Recovered Materials Market Development Study* (1991):

- Monitor and influence state policy development.
- Encourage adoption of public and private procurement policies.
- Encourage use of recovered materials by existing local businesses and attract new businesses that use recovered materials.
- Develop a strategic market plan.
- Establish of a regional market development roundtable.

Table 1-3: Estimated Solid Waste Disposed at the Central Disposal Site by Jurisdiction in 2001 (in tons and cubic yards)

Jurisdiction	Disposal (in tons)	Disposal (in cubic yards*)
Cloverdale	6,783	11,305
Cotati	7,217	12,029
Healdsburg	17,769	29,615
Petaluma	55,785	92,975
Rohnert Park	31,933	53,055
Santa Rosa	192,536	320,893
Sebastopol	15,807	26,346
Sonoma	15,952	26,586
Unincorporated County	125,094	208,490
Windsor	21,653	36,088
Totals	490,428	817,381

* Conversion factor used is 1,200 pounds per cubic yard.
Source: County of Sonoma, Department of Transportation and Public Works, Integrated Waste Division, Refuse Disposal Information Management System, Source Tonnage Report.

These objectives are discussed further in the Recycling Component of Chapter 4.

Detailed descriptions of current markets and local end-uses for recovered materials, recycled material markets and end-users, factors influencing recycled materials markets, federal and state legislation designed to stimulate materials market development, and resources available to local jurisdictions and compost can be found in the Recycling Component and the Composting Component of Chapter 4.

The Composting Component includes discussions of the usability and/or marketability of compost products and how end-uses and markets can be expanded or developed. All possible products from the evaluated programs are discussed to provide as much relevant information as possible. A general description of how compost is used or marketed is followed by a listing of the local end-uses and markets currently existing. Table 1-4 lists end-use and marketing options for compost.

1.35 Recycling Market Development Zone

In 1994 Sonoma and Mendocino Counties filed an application with the CIWMB for designation as a Recycling Marketing Development Zone (RMDZ). In 1997, a redesignation was requested from the CIWMB to include Lake County, the current Zone Administrator. The RMDZ targets the following materials for feedstock: paper, glass, organics, construction and demolition debris, plastics, paint, and tires.

Sonoma County offers local incentives such as fast track permitting and reduced plan check filing fees. Consulting services are available through the Redwood Empire Small Business Development Center, the Service Corps of Retired Executives Association, and the Private Industry Council. Additional financial incentives include Sonoma County Industrial Development Bonds and Small Business Administration loan program. The Sonoma County Economic Development Board provides assistance services directed toward encouraging the startup, retention and expansion of Sonoma County businesses and jobs, particularly with small businesses; creation of new jobs and employment opportunities. The Sonoma

Table 1-4: End-Use and Marketing Options for the Use of Compost Products

Local End-Uses

- On farms as a soil amendment to improve soil texture, water retention, aeration and fertility
- By landscapers for lawn establishment, transplanting, and top dressing
- Greenhouse potting and seedling medium
- Residential garden, shrub, and lawn enhancement
- Golf course and cemetery top dressing
- By nurseries as a soil amendment for perennials
- Sod farmers and sodding services
- City, county, and state highway shoulder vegetation establishment, maintenance, and erosion control
- Mine and quarry land reclamation
- Construction erosion control
- Recreation and parks departments
- Soil manufacturers or blenders

Potential Regional Markets (long-term, stable contracts may be possible with these groups)

- State Department of Transportation, Forestry and Fire Protection, Parks and Recreation and General Services (as directed by legislation to use where possible)
- Agricultural cooperatives or organizations which would help distribute compost to farmers on a regional or state level
- Soil contractors serving large geographical areas
- Fertilizer companies which deal with soil amendments
- Brokers who market on a statewide or interstate level

County Business Environmental Alliance, working to promote the voluntary adoption of good environmental practices by local businesses and farms, periodically produces reports, newsletters, and other projects as a resource to businesses.

Mendocino County offers other incentives through the City of Willits such as the Development Center, the Ukiah Business Development Center, Community Block Grant loans, and Industrial Development Bonds. Other economic development tools include expedited permit processing, general plan and zoning amendments, business counseling and management assistance, and private loans through local banks.

In Lake County, the Lake County Business Outreach and Response Team, a local economic development corporation, is responsible for coordinating local incentives and maintains a very active network of local, State, and federal service providers. Community Development Services, a local economic development consulting firm, provides administrative support to the Lake County Business Outreach and Response Team.

1.4 SUMMARY OF THE AB 939 PLANNING DOCUMENTS

The planning documents required by AB 939 include the Source Reduction and Recycling Element (SRRE), the Household Hazardous Waste Element (HHWE), the Siting Element, and the Non-Disposal Facility Element (NDFE).

Chapter 4 is the SRRE and includes:

- discussions of regional and local planning context;
- summaries of the 1990 Solid Waste Generation Study, establishing the baseline generation and diversion rates, and the 1995/96 Waste Stream Characterization Study;
- alternatives evaluation for Source Reduction, Recycling, Composting, Special Waste, Education and Public Information, Facility Capacity, and Funding programs; and
- separate discussions on Source Reduction, Recycling, Composting, Special Waste, Education and Public Information, Facility Capacity, and Funding programs necessary to meet the AB 939 diversion goals, including descriptions of all:
    - current diversion programs,
    - planned programs,
    - contingency measures, and
    - marketing strategies for targeted material types.

Ongoing programs include:

- Source Reduction – local government programs such as in-house paper efficiency, electronic information transfer, SonoMax materials exchange, and green purchasing policies; technical assistance, education, and promotion programs such as waste evaluations and audits, on-site composting, social marketing, and public recognition; regulatory programs such as land use incentives and disincentives, mandatory waste evaluation and reporting, and bans on products or packaging; economic incentives, such as loans, grants, and loan guarantees and deposits, refunds, and rebates; rate structure modifications such as extended producer responsibility and quantity based end user fees.
- Recycling – drop-off and buyback recycling, single-family single-stream curbside collection, multi-family collection, commercial recycling, office paper recovery, material reuse and recovery centers, and floor-sort activities at the solid waste facilities.
- Composting – yard debris composting, source-separated organics composting, and a resource management facility with municipal solid waste composting.

- Special Waste – construction and demolition debris recycling; tire recycling; repair, reuse, and recycling of white and brown goods; scrap metal recycling; and wood waste processing.

- Education and Public Information – promotion of source reduction activities; using the Annual Recycling Guide to promote drop-off and buyback centers, curbside and multi-unit collection, reuse and recovery facilities, commercial single-stream, source separation, office paper, and special events recycling; assisting with the development of green purchasing policies; promotion of green building; developing a contractor's guide to recycling construction and demolition debris; promoting special events such as Earth Day, Clean Your Files Week, Second Chance Week, America Recycles Day, and Christmas tree recycling; developing a buy-recycled education program and a school education program; and using education display booths at local fairs.

Table 1-5 lists the programs selected to comply with the SCWMA's SB 1066 Time Extension Application, along with the program description, estimated diverted tons, and the percentage increase towards the 50% diversion goal. The programs include expanding residential curbside recycling and multi-family recycling collection, implementing beverage container recycling in public spaces, implementing construction and demolition debris diversion program(s), expanding yard debris collection and organics composting, expanding floor sorting and drop-off recycling services at the Central Disposal Site, and additional public education. Figures 1-1 and 1-2 graphically represent the 50% diversion goal and the 70% long range goal.

In addition to the ongoing programs, Chapter 4 discusses the landfill disposal capacity in Sonoma County, including the projections for 15 years of disposal capacity; how the programs described in the chapter are and will be funded; and how the integration of all the described programs will facilitate efficient and effective achievement of the goals and objectives of the CoIWMP.

Chapter 5 is the HHWE, which discusses existing conditions, alternatives evaluation, selected HHW programs, education and public information, and funding. Summary tables include:

- HHW waste characterization data;
- pounds of HHW collected by each program from 1996 to 2000;
- types of HHW collected in fiscal years 1999/00 and 2000/01;
- evaluation of alternative programs;
- selected HHW programs;
- HHW education and public information program implementation;
- monitoring and evaluation of HHW education and public information programs; and
- funding for HHW programs.

Ongoing programs include used oil and oil filter curbside and vendor collection, BOPs (batteries, oil and paint), electronic waste recycling, load checking at all solid waste facilities, reuse exchange program, conditionally exempt small quantity generator (CESQG) collection events, household toxic roundups, and disaster response at needed. In addition, a household toxics facility with mobile and door-to-door collection components has been selected for implementation in 2003.

Chapter 6 is the Siting Element, which includes:

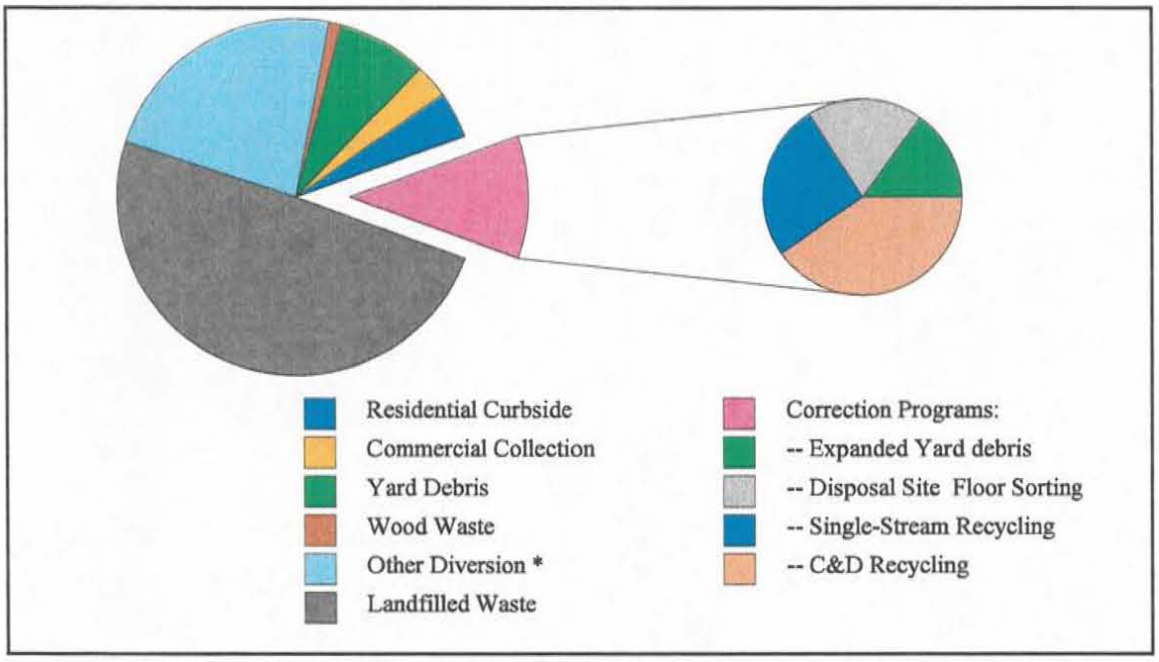
- A description of the existing solid waste disposal facilities in Sonoma County.

- A discussion of disposal capacity requirements for the next 15 years, including existing disposal capacity and anticipated countywide disposal capacity needs.
- The development of siting criteria and their application.
- Exclusionary criteria that identify constraints that make the siting of a landfill so difficult that further analysis or evaluation would be unproductive. Exclusionary criteria would eliminate all or part of lands that are within 10,000 feet of a jet aircraft runway or 5,000 feet of a propeller-driven aircraft runway; within a 100-year floodplain; restricted by State and Federal regulations over earthquake fault zones; within channels of USGS designated perennial streams; outside of Sonoma County; within the urban boundary of an incorporated city or designated community separators; within designated critical habitat or the coastal zone; or designated urban residential, rural residential, general or limited commercial, recreation and visitor serving commercial, general and limited industrial, and public/quasi-public other than landfill by the County General Plan.

Table 1-5: Additional Programs Identified to Meet the 50% Diversion Goal by 2003.

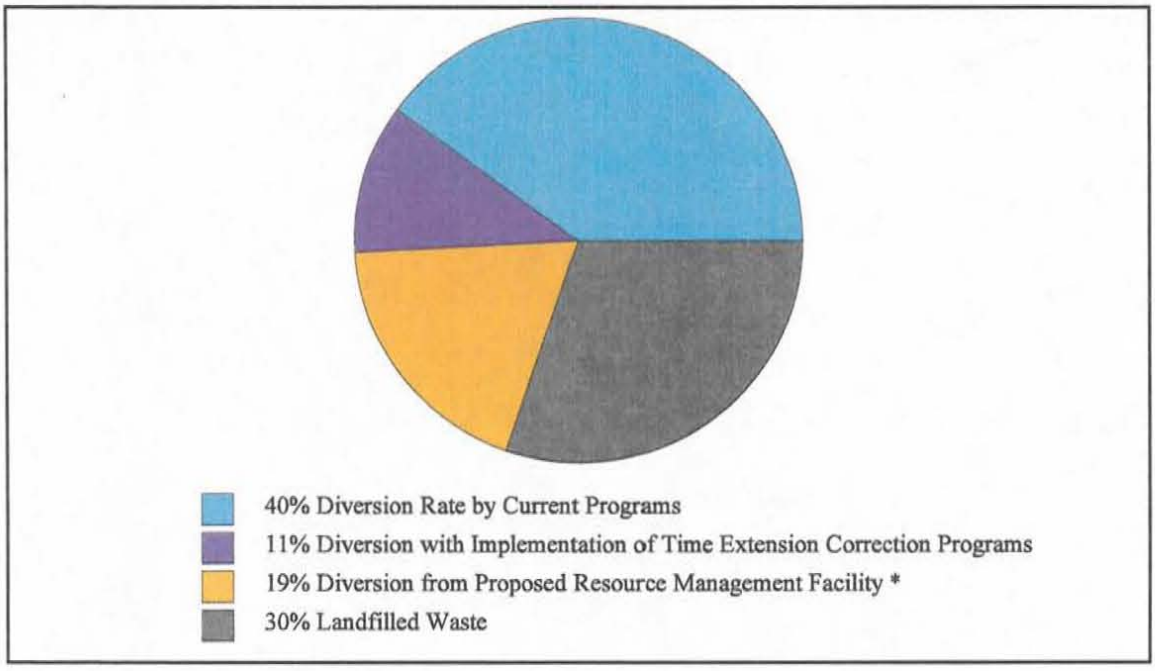
Program	Description	Estimated Diversion Tonnage	Estimated Diversion Percent
Residential curbside recycling	Evolution of source-separated residential curbside program from three 12-gallon stacking bins to single-stream automated collection in large wheeled toters.	30 tpd	2.1%
Multi-family recycling collection	Collection of recyclable materials (paper, cardboard, glass, PETE and HDPE plastic food containers) in multi-family complexes. There are approximately 23,000 multi-family units in Sonoma County.	10 tpd	0.7%
Beverage container recycling	Provide collection containers for beverage container recycling at local parks, recreation centers, downtown areas, transit locations, and other public areas. Develop and implement recycling and public education at special events.	1 tpd	0.1%
Construction and demolition recycling facility	Facility would accept debris boxes from construction and demolition sites, providing an economic incentive to encourage delivery. Material would be sorted by facility staff for recycling.	65 tpd	4.5%
Yard debris collection and organics composting	Residential curbside collection of yard debris to be increased to weekly collection. Disposal site segregation of organic materials included. Organic material currently composted at the Central Disposal Site.	25 tpd	1.7%
Floor sorting/drop-off recycling at the Central Disposal Site	The new operational improvements under construction at the Central Disposal Site include a 12-bin "Z" wall of recycling bins with a cardboard baler; separate recycling area for tires, metals, and appliances; Recycletown reuse area; household hazardous waste facility; and floor sorting of yard debris, wood debris, and other recyclable materials in the new tipping building.	30 tpd	2.1%
Public education	Planning, implementing and follow-up analysis of a social marketing effort, including reviewing available data, designing and placing radio and print advertising, direct mail pieces and other techniques to increase residential recycling behavior, and completing an written evaluation of the campaign. Educational pieces developed by this campaign will be placed on the SCWMA website.	n/a	n/a

Figure 1-1 Diversion Programs Necessary to Meet the 50% Diversion Goal.



* Diversion programs such as grocery stores, thrift stores, and for-profit recyclers.

Figure 1-2: Diversion Programs Necessary to Meet the 70% Long Range Diversion Goal.



* Additional recyclables are removed during processing; compost products are also produced.

- Comparative criteria that evaluate sites not located in exclusionary areas across a wide spectrum of environmental (groundwater, surface water, wetlands, air quality, and threatened or endangered species), engineering (soil suitability, geology, fault areas, unstable areas, flood hazards and 100-year flood plain, seismic impacts, precipitation, and erosion), socio-political (population density, adjacent land uses, access routes, parks or resource lands, presence of cultural, historic or archaeological resources, visual impacts, and transportation corridors), and economic factors (operating, site development, transportation, and parcel costs).

- Discussions of proposed solid waste facilities, consistency with the County General Plan, strategies for disposing of solid waste in excess of capacity, and implementation of the Siting Element.

Goals set forth in the Siting Element are:

- In order to help ensure the sustainability of our communities and to conserve natural resources and landfill capacity, the SCWMA, County and the Cities will continue to improve their municipal solid waste management system through emphasis on the solid waste management hierarchy of waste prevention (source reduction), reuse, recycling, composting and disposal.

- The solid waste management system in Sonoma County will be planned and operated in a manner to protect public health, safety and the environment.

- The County's solid waste disposal facilities will be sited and operated in a manner to minimize energy use, conserve natural and financial resources, and protect prime agricultural lands and other environmentally sensitive or culturally sensitive areas.

- The County will develop disposal capacity for solid waste not handled by other elements of the management hierarchy for a 50-year horizon.

- The County may purchase properties adjoining the solid waste disposal operations to provide physical and visual buffer zones for surrounding residents and land uses and provide land for potential environmental mitigations. The purchase(s) may be made as funds and properties are available.

Chapter 7 is the NDFE, which identifies existing and proposed diversion facilities in Sonoma County. Details on the following existing facilities are included in the NDFE:

- Drop-off recycling areas at the Annapolis, Guerneville, Healdsburg, Occidental, and Sonoma Transfer Stations.

- Central Disposal Site Organic Material Processing Facility, Permanent HHW Collection Facility, and Material Reuse and Recovery Facility.

- Privately operated drop-off/buyback centers and material recovery centers including Recycle America Materials Recovery Facility and Drop-Off, Industrial Carting Materials Recovery Facility, Petaluma Recycling Center, West Sonoma County Disposal Service, and Timber Cove Recycling.

- Composting facilities including Earthbound Compost, Grab 'n Grow and the Laguna Subregional Compost Facility.

All non-disposal facilities are regional facilities and are open to all Sonoma County residents and businesses.

Proposed facilities described in the NDFE include:

- Santa Rosa Transfer Station, which would include drop-off recycling services similar to existing transfer stations.
- Integrated Resource Management Facility, which would include waste sorting, organic waste processing, and potentially, on-site energy production.
- Additional Construction and Demolition Debris Recycling Facility(ies).
- Organic Material Processing Facility, located at a undetermined site other than the Central Disposal Site that would provide services similar to the existing organic material processing facility.

1.5 FINANCING OF REGIONAL PROGRAMS

Financing and funding of regional programs focusing on source reduction, recycling, composting, and special waste are discussed throughout the CoIWMP. The Funding Component (Chapter 4, Section 9) discusses current and future funding sources, including:

- collection rates
- enterprise fund
- extended producer responsibility
- flow control
- hauler franchise fees

In the event that these funding sources do not cover the estimated program costs, contingency funding sources include:

- parcel fees
- grants and loans
- new development fees
- bonds
- advanced recycling fees

Table 4-44 is the SCWMA's five-year projection of costs for regional programs, including wood waste and yard debris processing and composting, education and public information, household hazardous waste management, beverage container recycling, support of local source reduction programs, and planning activities, such as monitoring, evaluation and reporting. Ongoing funding of existing diversion programs are discussed, as well as the self-funding mechanism for the construction and demolition debris diversion program. More detailed HHWE program costs and funding sources are discussed in Chapter 5, Section 5.

1.6 SOLID WASTE GENERATION AND DIVERSION

The programs described in the CoIWMP are intended to achieve a significant diversion of waste from landfilling. Detailed tables provided in the 1990 Solid Waste Generation Study list the amount of waste generated, diverted, and disposed for 41 types of waste for Sonoma County. Based on these detailed tables the following diversion rates were established in 1990: 17% for Cloverdale; 15% for Cotati; 13% for Healdsburg; 18% for Petaluma; 17% for Rohnert Park; 20% for Santa Rosa; 12% for Sebastopol; 22% for Sonoma; and 11% for Unincorporated County. Tables 1-6 and 1-7 summarize the data from the 1990 Solid Waste Generation Study and the 1995/96 Waste Characterization Study.

With the formation of the SCWMA as a regional agency in 1993, diversion is now reported as one aggregate number. Diversion rates reported to the CIWMB were: 39% in 1995; 39% in 1996; 38% in 1997; 39% in 1998; 39% in 1999; 40% in 2000; and 40% in 2001.

Table 1-6: Solid Waste Disposed, Diverted and Generated (1990)
(Sonoma County, Including Incorporated Cities)

Waste Category	Diverted		Disposed		Generated	
	Tons	%*	Tons	%*	Tons	%*
Paper	37,035	5.8	141,760	22.2	178,795	28.0
Plastics	236	0.0	37,508	5.9	37,744	5.9
Glass	4,540	0.7	15,505	2.4	20,045	3.1
Metals	34,124	5.3	43,408	6.8	77,532	12.1
Yard Waste	1,960	0.3	83,976	13.2	85,936	13.5
Other Organics	5,000	0.8	174,916	27.4	179,916	28.2
Other Wastes	14,089	2.2	37,858	5.9	51,947	8.1
Special Wastes	11	0.0	6,576	1.0	6,588	1.0
Totals **	96,996	15.1	541,406	84.8	638,502	100.0

* Percent of total waste stream.
** Numbers may not add due to rounding.

Table 1-7: Solid Waste Disposed, Diverted and Generated (1995/96)
(Sonoma County, Including Incorporated Cities)

Waste Category	Diverted		Disposed		Generated	
	Tons	%*	Tons	%*	Tons	%*
Paper	73,089	10.7	111,047	16.2	184,136	26.9
Plastics	21,342	3.1	32,051	4.7	53,393	7.8
Glass	9,800	1.4	14,843	2.2	24,643	3.6
Metals	18,908	2.8	31,747	4.6	50,655	7.4
Yard Waste	21,101	3.1	27,500	4.0	48,601	7.1
Other Organics	91,914	13.4	144,246	21.2	236,160	34.5
Other Wastes	30,116	4.4	42,443	6.2	72,559	10.6
Special Wastes	5,722	0.8	8,653	1.3	14,375	2.1
Totals **	262,202	39.7	412,530	60.3	684,521	100.0

* Percent of total waste stream.
** Numbers may not add due to rounding.

The 1995/96 Waste Characterization Study is included in Appendix C.

While Sonoma County has been successful in implementing a wide range of diversion programs, the 50% diversion mandate has not been reached. With the approval of the SCWMA's time extension application, the programs discussed throughout this document detail the methods that Sonoma County will use to reach the 50% diversion mandate (see Figure 1-1) including:

- continuing the existing diversion programs that enabled the SCWMA to reach the current 40% diversion rate;
- expand the existing single-family curbside collection program from the existing 3-bin stacking system to single-stream collection to recycle an additional estimated 30 tons per day (tpd), for a 2.1% increase to the diversion rate;
- expand and implement new multi-unit curbside collection programs to recycle an additional estimated 10 tpd, for a 0.7% increase to the diversion rate;
- expand the existing yard debris curbside collection from every other week collection to weekly collection to recycle an additional estimated 25 tpd, for a 1.7% increase to the diversion rate;
- expand the existing material reuse and recovery operations to recycle an additional estimated 10 tpd, for a 2.1% increase to the diversion rate;
- implement new beverage container recycling to recycle an estimated one tpd, for a 0.1% increase to the diversion rate;
- expand existing County disposal site floor-sort activities to recycle an additional estimated 20 tpd, for a 2.1% increase to the diversion rate; and
- implement a construction and demolition debris diversion program to complement existing private sector programs to divert an additional estimated 65 tpd, for a 4.5% increase to the diversion rate.

CHAPTER TWO

GOALS, OBJECTIVES, AND POLICIES

CHAPTER 2

GOALS, OBJECTIVES, AND POLICIES

Direction for the county's solid waste management system is provided by AB 939 and subsequent legislation, the Sonoma County Waste Management Agency (SCWMA), and implementation regulations adopted by the California Integrated Waste Management Board (CIWMB) and is described in this chapter of the Countywide Integrated Waste Management Plan (CoIWMP). This direction is provided by a Mission Statement, Goals, Objectives, and Policies. A listing of the goals, objectives, and policies is provided for summary purposes and to emphasize their relationship to both the short- (2003-2008) and medium-term (2009-2018) planning periods and for a 50-year disposal horizon (long-term).

2.1 MISSION STATEMENT

This mission statement is implicit in, and applies to, all goals, objectives, and policies that form the basis of the CoIWMP.

The County of Sonoma will plan and implement programs to satisfy the county's solid waste management needs for the next fifty years in a manner that is cost-effective and is operated to follow the State of California's solid waste management hierarchy. The hierarchy consists of waste prevention (source reduction), reuse, recycling, composting, and disposal. In addition, the solid waste management system for the county shall protect public health, safety, and well being; preserve the environment; and provide for the maximum feasible conservation of natural resources and energy production.

2.2 GOALS

Goals are general statements of the desires of the community used in planning and implementing solid waste programs. The goals of this CoIWMP are applicable through the short- and medium-term planning periods and the general direction of Sonoma County thereafter (long-term).

GOAL A: **In order to help ensure the sustainability of our communities and to conserve natural resources and landfill capacity, the Sonoma County Waste Management Agency (SCWMA), County and the Cities will continue to improve their municipal solid waste management system through emphasis on the solid waste management hierarchy of waste prevention (source reduction), reuse, recycling, composting and disposal.**

GOAL B: **The County and the Cities will exercise regional cooperation in the achievement of solid waste planning objectives through the SCWMA.**

GOAL C: **The solid waste management system in Sonoma County will be planned and operated in a manner to protect public health, safety and the environment.**

GOAL D: **The County, the Cities and/or the SCWMA will provide public information and education programs, economic incentives, encourage voluntary participation in waste prevention (source reduction) programs and strive to strengthen markets for recycled and composted materials to achieve solid waste planning objectives.**

GOAL E: **The County and the Cities and/or the SCWMA will provide cost-effective and environmentally sound waste management services, including special waste and household hazardous waste handling and disposal, over the long term to all community residents and promote access to the services.**

GOAL F: The County's solid waste disposal facilities will be sited and operated in a manner to minimize energy use, conserve natural and financial resources, and protect prime agricultural lands and other environmentally sensitive or culturally sensitive areas.

2.3 OBJECTIVES

Objectives are measurable achievements, the attainment of which provides documentation of the success of the County, Cities and the SCWMA in meeting solid waste goals.

- The County and the Cities will achieve a 50 percent diversion (see Figure 1-1) of wastes being disposed of in County landfills by the year 2003 and a 70 percent diversion rate (see Figure 1-2) by 2015 based on 1990 rates.
- The SCWMA will distribute solid waste educational material to all county households and businesses at least annually.
- The SCWMA will monitor and evaluate, at the end of the short and medium terms, educational programs outlined in the SRRE and the HHWE to improve their effectiveness.
- The SCWMA, County and the Cities will achieve participation in the County's Household Hazardous Waste (HHW) collection program of 3 percent annually of the county's households.
- The SCWMA will achieve measurable reduction of landfill disposal of prohibited wastes documented by waste characterization studies at the end of the short term and medium term planning periods.
- The County will develop disposal capacity for solid waste not handled by other elements of the management hierarchy for a 50-year horizon. Disposal capacity is addressed in the Siting Element of the CoIWMP.

2.3.1 Siting Element Objectives

The following objectives are specific to the Siting Element and the siting of new solid waste facilities.

Short-Term Planning Period (2003 to 2008) Objectives:

- The County will use objective and consistent siting criteria and policies for the siting of solid waste disposal facilities.
- The County will document the siting process and provide the public with information on a regular basis to ensure that the public and decision-makers are fully informed. Procedures for making siting decisions will be described in addition to the reasons for selection or elimination of potential sites.
- The County will estimate the need for countywide disposal capacity for the municipal solid waste stream after all feasible diversion programs are implemented and initiate efforts to establish sufficient landfill capacity to allow for achievement of the County's policy to provide approximately 50 years of disposal capacity.

Medium-Term Planning Period (2009 to 2018) Objectives:

- The County will implement the siting process and provide public information to ensure that the public and decision-makers are fully informed. Procedures for making siting decisions will be described in addition to the reasons for selection or elimination of potential sites.

2.4 IMPLEMENTATION POLICIES

Implementation policies are actions taken by the SCWMA, County and City governments, and other agencies that result in specific behavior that will lead to the meeting of these goals and objectives. These policies facilitate the implementation of programs identified in the Source Reduction and Recycling Element (SRRE) and Household Hazardous Waste Element (HHWE).

2.4.1 Source Reduction Implementation Policies

- The SCWMA, County and the Cities will encourage innovative and creative methods and consider funding for waste prevention (source reduction), recycling, and education that will benefit the community and the environment.
- The SCWMA, County and the Cities will encourage and support the use of waste minimization practices for business, government agencies, and the public by distributing information on the availability of waste minimization options.
- The SCWMA, the County, and the Cities will continue to encourage and support backyard composting for businesses, residences, and government agencies by providing information and technical assistance.
- The SCWMA will support state and local waste exchange programs by making information available on a countywide basis. Waste exchange programs arrange contact between people who have reusable waste and those who have a use for the waste.
- The SCWMA will encourage and support the recovery, repair, and resale of discarded items by distributing information on these waste management options.

2.4.2 Recycling Implementation Policies

- The County and the Cities will provide access to residential recycling programs for all households, including single-family, multi-family, and mobile homes, that subscribe to garbage services by the end of the short-term planning period.
- The SCWMA, County and the Cities will provide convenient drop-off opportunities for recyclables.
- The SCWMA, County and the Cities will support and encourage office, commercial, industrial, and institutional recycling by providing information and technical assistance.
- The SCWMA, County and the Cities will support and encourage school recycling by providing technical assistance, performing waste audits to determine the recyclable materials, and providing information on developing in-school recycling programs.
- The County and the Cities will adopt purchasing policies for buying recycled materials to

support markets for recycled materials.

- The County will encourage the separation of materials for use in appropriate composting or reuse programs by setting differential disposal fees.

2.4.3 Composting Implementation Policies

- The SCWMA, County and the Cities will provide access to composting opportunities through implementation of composting facilities and programs which may be regional or local, public or private.

- The SCWMA will provide and administer a regional composting facility.

2.4.4 Special Waste Implementation Policies

- The SCWMA, County and the Cities will promote recycling of construction and demolition debris through education, regulation and economic incentives.

- The County will provide alternative disposal options for recyclable items or materials such as, but not limited to, yard debris, recyclable wood waste, whole tires, and appliances and ban the landfill disposal of these items.

- The SCWMA will provide the public access to information on recycling and reuse options for white goods (i.e., appliances), brown goods (i.e., furniture), e-waste (i.e., electronics) and other usable items that are disposed in debris boxes.

2.4.5 Education and Public Information Implementation Policies

- The SCWMA will provide the public access to information regarding solid and household hazardous waste issues and programs through the Eco-Desk hotline.

- The SCWMA will promote awareness of waste disposal and diversion options in the business community through advisory committees and other outreach efforts.

- The SCWMA will prepare an annual monitoring and evaluation report that documents each jurisdictions' progress in meeting integrated waste program objectives.

- The SCWMA will conduct evaluations to measure the effectiveness of education efforts at the end of the short- and medium-term planning periods and more often if appropriate for specific projects.

2.4.6 Solid Waste Management Implementation Policies

- The County Department of Transportation and Public Works, Integrated Waste Division, and the Local Enforcement Agency (County Department of Health Services, Environmental Health Division) will continue to supervise and monitor, respectively, the solid waste collection and disposal practices in the county to ensure the health and safety of the public and protection of the environment.

- The operators of solid waste facilities will document and report all prohibited wastes that are discovered as a result of load checking activities to the Local Enforcement Agency.

- The County may purchase properties adjoining the solid waste disposal operations to

provide physical and visual buffer zones for surrounding residents and land uses. The purchase(s) may be made as funds and properties are available.

- The County and/or the Cities will formalize the long standing practice in the County of permitting only public ownership of solid waste management facilities located in the county which accept any segment of the municipal waste stream.

- Direct the flow of all refuse produced in Sonoma County to integrated waste management facilities publicly owned and located within Sonoma County or its incorporated cities in order to provide cost effective waste disposal services to all community residents.

- Maintain local control over costs and environmental impacts of disposal by siting facilities within Sonoma County.

- Use the existing landfill parcel to maximize its useful life and maximize the return on the public infrastructure improvements so far as it is consistent with protection of the environment.

- Create and maintain employment opportunities for Sonoma County residents and growth opportunities for Sonoma County businesses, industries and entrepreneurs who make productive use of otherwise wasted materials.

- Complement existing and planned private sector operations for collection/processing of both refuse and recyclables.

- Provide landfill capacity at least through the year 2017 as required by state law by expanding the Central Landfill.

- Make productive use of waste that is not reused or recycled through energy production.

- The SCWMA will work to create and promote policies whereby producers are responsible for the cost and/or disposition of their products at the end of their usable life (i.e., Extended Producers Responsibility, Advanced Recycling Fees, Advanced Disposal Fees, etc.).

- Satisfy the AB 939 solid waste planning and diversion mandates in a manner that is consistent with the objectives of the community, as reflected by the deliberations and documents of the AB 939 Local Task Force and Sonoma County Waste Management Agency.

2.4.7 Implementation Policies to Facilitate Siting of Solid Waste Facilities

The following policy statements illustrate the intent and/or actions to be taken by the County and/or the Cities to achieve the goals and objectives of the Siting Element.

- The County and/or the Cities will provide solid waste disposal facilities or transfer facilities within reasonable distances of the county's population centers. This policy will provide a means for achieving the goal of conservation of natural resources and energy and minimizing the cost of disposal.

- The County and/or the Cities will formalize the long standing practice in the County of permitting only public ownership of solid waste disposal facilities located in the county

which accept any segment of the municipal waste stream.

- The County will maintain at least one of its landfills as a public access, multi-use facility providing solid waste disposal and other waste management activities.

- The County will cooperate with adjacent counties, considering their solid waste management planning and waste disposal needs. This includes possible export/import, as approved by the Board of Supervisors, of solid waste and encourages joint resolution of emergency problems.

CHAPTER THREE

COUNTY PROFILE AND PLAN ADMINISTRATION

CHAPTER 3

COUNTY PROFILE AND PLAN ADMINISTRATION

3.1 SETTING

Sonoma County, the most northerly of the nine counties in the San Francisco Bay Region, is located along the Pacific coastline about forty miles north of San Francisco and the Golden Gate Bridge. The county covers just over 1500 square miles, making it the largest of the nine Bay Area counties.

Sonoma County is bordered by the Pacific Ocean on the west, Marin County and San Pablo Bay to the south, Solano, Napa and Lake Counties to the east, and Mendocino County to the north. Because of the geographic configuration and topography of the North Bay area, transportation linkages to adjacent counties are limited to a few routes. The U.S. Highway 101 Freeway is the major north-south route, connecting the county to San Francisco and Marin County to the south and to Mendocino County to the north. The major east-west route is State Highway 12 connecting the county to Napa County to the east and extending nearly to the Pacific Ocean to the west.

The county includes a diverse mosaic of land forms, environments, and human settlements. The broad, flat Santa Rosa Plain, which lies between the Sonoma Mountains on the east and low coastal hills on the west, contains the Cities of Santa Rosa, Rohnert Park, Cotati and the Town of Windsor. The sparsely settled western side of the county, along the Pacific coastline, includes the redwood and mixed conifer forests of the Mendocino Highlands in the north and rolling oak-studded hills, dairy lands, and coastal prairies in the south. The Mayacmas Range forms the eastern boundary of the county. Along with the Sonoma Mountain range, it encloses the Sonoma Valley or "Valley of the Moon," a scenic agricultural valley which extends from near Santa Rosa southeastward to the city of Sonoma and the marshlands of San Pablo Bay. In the north, the Mayacmas Range and Mendocino Highlands enclose the Alexander and Dry Creek Valleys. In the far northeast, the remote interior of the Mayacmas Range contains the Geysers geothermal steam field.

3.2 DEMOGRAPHICS

In 2000, the Cities of Santa Rosa, Petaluma, Rohnert Park, Healdsburg, Sonoma, Sebastopol, Cotati and Cloverdale and the Town of Windsor, contained a combined population of 308,049, about 67% of the total population of 458,614. Santa Rosa, the largest city, had approximately 147,595 residents. The 150,565 residents in unincorporated areas were concentrated in urban areas located just outside several cities, notably Santa Rosa and Sonoma, and in a number of rural communities. With a 2000 population of 22,744, the Town of Windsor, which incorporated in 1992, was considered a part of the unincorporated area in the 1990 population count.

The 2000 census, by race, shows that the county is predominantly white at 74.5%, followed by Hispanic at 17.3%, Asian/pacific islander at 3.2% and black at 1.3%. Other races account for 1.0% of the population. The county's communities vary substantially in their character, and their diversity contributes to the quality of life that is desired by many residents.

The county is expected to grow by about 7,200 persons annually between 1990 and 2005. The number of households is expected to increase from 149,011 in 1990 to about 189,000 in 2005. In this document the term household refers to the people living within a housing unit.

Residential growth is projected to increase from a total of 158,310 housing units in 1990 to 199,790 total housing units in 2005. The totals include year-round and seasonal housing units, with year-round housing units comprising 151,450 units in 1990 and 192,120 units in 2005.

Net immigration accounts for about 70% of the county's growth. In the nine cities, growth is the result of both immigration of new residents and annexations of existing households at the edges of the cities.

Sonoma County's household income range shows a majority of the population (73.1%) earning incomes between $15,000 and $75,000 per year, 16.6% earning less than $15,000 per year and 10.3% earning more than $75,000 per year.

Demographic information in this chapter is excerpted from the Sonoma County General Plan (March, 1989) and the 2000 census.

Table 3-1: Sonoma County Demographics

	1990 Census	2000 Census	2005*
Population	388,222	458,614	468,540
Total Households	149,011	172,403	189,000
Total Housing Units	158,310	183,153	199,790

* Source: Sonoma County General Plan, Population and Housing Projections

3.3 TRANSPORTATION PATTERNS

Transportation patterns in Sonoma County are greatly influenced by the proximity to the south of the San Francisco Bay metropolitan region. U.S. Highway 101 is the predominant link to the Bay Area and to northern coastal California.

The county's transportation system is composed of federal and state highways, county roads, urban arterials, local and regional transit systems, as well as air and rail systems. The county's roadway network includes U.S. Highway 101, State Routes 1, 12, 116, 121 and 128, and numerous locally maintained arterials, streets and roads.

3.4 SOLID WASTE INFRASTRUCTURE

Various entities have jurisdictional responsibility for solid waste management in Sonoma County. The Sonoma County Waste Management Agency (SCWMA), formed by a Joint Powers Agreement among the County and the Cities, provides public information and education programs, diversion programs, implement regional composting, and countywide household hazardous waste programs. The SCWMA is also responsible for solid waste planning and maintaining the CoIWMP. The Cities are responsible for waste collection and diversion programs within their jurisdictions, and the County is responsible for collection in the unincorporated areas. The Sonoma County Department of Transportation and Public Works owns and operates all public solid waste disposal facilities in the county. A Local Task Force has been established to provide advice and assistance for the preparation of solid waste planning documents and is comprised of representatives appointed by the Board of Supervisors, City Councils, representatives of the solid waste and recycling industries, and representatives of environmental organizations. Enforcement of regulations pertaining to solid waste management is the responsibility of the Sonoma County Department of Health Services.

3.5 COUNTYWIDE ISSUES

Several prominent issues are facing the County of Sonoma as it attempts to meet the mandates of AB 939. Full implementation of all proposed waste diversion programs and facilities will be especially challenging as the costs for additional diversion efforts increase. The County is also proposing to both expand the existing Central Landfill, and site a new landfill. This will surely be a contested issue as with any landfill siting process.

Illegal disposal in outlying areas, and illegal importation of waste into the county are ongoing issues for DTPW staff.

3.6 MARKET DEVELOPMENT

The market for recycled materials has varied widely over the years. Without an adequate market, the short term cost of many recycling programs is greater than the cost of disposal. By virtue of its location in the San Francisco Bay Area, Sonoma County has the advantage of ready access to an international port system to market materials. However, marketing continues to be a high priority with the majority of the effort provided at the state level.

CHAPTER FOUR

SOURCE REDUCTION AND RECYCLING ELEMENT

4.1 INTRODUCTION TO THE SOURCE REDUCTION AND RECYCLING ELEMENT

The Source Reduction and Recycling Element (SRRE) for Sonoma County was developed in response to the California Integrated Waste Management Act of 1989 (AB 939). This element is incorporated into the Countywide Integrated Waste Management Plan (CoIWMP).

AB 939 mandates that all cities and counties in California prepare SRREs and that waste diversion goals of 25 percent and 50 percent be met at the local level by 1995 and 2000, respectively. Emergency regulations were drafted and adopted in February 1990 to guide plan preparations. Further legislation, AB 1820 (Sher) Chapter 145/90, makes several important changes to AB 939 that must be addressed by the cities and counties in their planning processes. Jurisdictions may file Time Extension Applications for up to three years additional time to meet the 50% diversion requirement. Although the Sonoma County Waste Management Agency (SCWMA) and its member jurisdictions have diligently implemented the various diversion programs detailed in the CoIWMP, it was unable to meet the 50% diversion goal. The SCWMA, the joint powers authority representing the jurisdictions of Sonoma County, has filed a Time Extension Application with the CIWMB to postpone the 50% diversion requirement until December 31, 2003, which was approved on June 18, 2002.

The SRRE includes four main components: source reduction, recycling, composting, and special waste. Each identifies existing diversion programs and examines, evaluates, and selects future diversion programs. In addition to the four key components, the SRRE also includes sections on goals and objectives, education and public information, disposal facility capacity, funding, and integration.

Achieving the diversion goals will require the cooperation of the private sector, public agencies, and residents of Sonoma County, through their awareness and participation in source reduction, recycling, and composting programs. The SCWMA will need to closely watch programs to gauge their effectiveness and to provide feedback to City and County officials, the Local Task Force, and the CIWMB.

4.1.1 REGIONAL PLANNING CONTEXT

Diversion goals will be met through a combination of local and countywide source reduction, recycling, and composting programs. In adopting this approach, the jurisdictions have joined the SCWMA and have agreed in concept to sponsor or develop jointly these programs and facilities.

The SCWMA is a Joint Powers Authority as defined in California's Government Code §6500. Each of the County's ten jurisdictions has one representative, and each representative has one vote. Under the original Joint Powers Agreement, the SCWMA is responsible for wood waste and yard debris diversion efforts, household hazardous waste management, and countywide waste reduction education. Refuse and recyclables collection are not within the SCWMA's scope. In 1994 the SCWMA expanded its scope of responsibilities to include the Recycling Market Development Zone (RMDZ) and solid waste management planning. It further expanded its role in 1996 by becoming a Regional Agency as defined by AB 939, assuming countywide responsibility for achieving the 25% and 50% diversion goals and to reduce the reporting responsibilities of each jurisdiction by submitting all required reports to the CIWMB. In 2000, the SCWMA again expanded its role by adding beverage container recycling to its scope of responsibilities.

As a Regional Agency, the SCWMA is responsible for maintaining all of the solid waste planning documents required by AB 939, and as such, the regional SRRE is a multi-jurisdictional document. The SRRE addresses regional programs in addition to those programs that each jurisdiction has implemented independently of the other SCWMA members.

4.1.2 LOCAL PLANNING CONTEXT

Sonoma County is located north of San Francisco and adjoins Napa, Marin, Lake and Mendocino Counties and borders the Pacific Ocean. The County is approximately 1,600 square miles in area and has a population, as of the 2000 census, of 458,614. Sonoma County is a diverse and growing county containing coastal areas, farmlands, and hilly regions. Dairies, orchards, vineyards, wineries, electronics manufacturing, and tourism are just a few of the industries to be found here. The fastest growing industry in Sonoma County is the communications industry, commonly referred to as Telecom Valley located in Petaluma.

Refuse collection in Sonoma County is handled by eight franchised private collection companies. The materials collected by these haulers may be routed through one of five transfer stations in Annapolis, Healdsburg, Occidental, Sonoma, or Guerneville. All of the waste collected by these haulers is disposed at the Central Landfill located near the City of Petaluma.

4.1.3 SUMMARY OF THE SOLID WASTE GENERATION STUDY

The Solid Waste Generation Study (SWGS) provides basic information about the amounts and types of waste disposed of and diverted by the jurisdictions. The SWGS estimated quantities of waste disposed; quantities of waste diverted through existing diversion and future diversion programs, including source reduction, recycling, and composting; and quantities of current and future waste generated. The waste stream was broken down by four waste generator types: residential, commercial, industrial, and other. The characteristics of the waste stream were determined by eight waste categories and by additional subsets of waste types. In total, 42 waste types were targeted.

The 1995/96 Waste Characterization Study provided updated information about Sonoma County's waste stream. Other organics (41.7%) and paper (27.1%) were the two largest categories of waste in the Sonoma County waste stream during the study period. Food (13.4%) and wood (10.2%) dominated the other organics category, although leaves and grass (4.3%) also contributed a noteworthy amount of waste. Sonoma County residents and businesses also disposed of considerable amounts of other mixed paper (7.4%), remainder/composite paper (6.4%) and uncoated corrugated paper (4.9%)

4.1.4 GOALS AND OBJECTIVES

Chapter 2 details the goals, objectives, and policies of this CoIWMP. The SCWMA met the mandated 25% diversion goal in 1994 and reached a 40% diversion goal in 2000. The 50% diversion goal has been extended by the CIWMB's approval of the SCWMA's Time Extension Application on June 18, 2002. The 70% diversion goal for 2015 was identified in the *Solid Waste Management Alternatives Analysis* approved by the Sonoma County Board of Supervisors on February 6, 2001 and by the SCWMA on February 21, 2001.

The Time Extension Application describes the new and expanded programs that the SCWMA will implement to reach the 50% diversion goal. Table 4.1 lists the new and expanded programs as described in the Time Extension Application. These programs are described in more detail in the recycling (section 4.4), composting (section 4.5), and special waste (section 4.6) components. Table 4.2 details the recycling and composting quantities for programs funded or operated by the SCWMA or its member jurisdictions for the year 2000.

Table 4.1: Additional Programs Identified to Meet the 50% Diversion Goal by 2003.

Program	Description	Estimated Diversion Tonnage	Estimated Diversion Percent
Residential curbside recycling	Evolution of source-separated residential curbside program from three 12-gallon stacking bins to single-stream automated collection in large wheeled toters.	30 tpd	2.1%
Multi-family recycling collection	Collection of recyclable materials (paper, cardboard, glass, PETE and HDPE plastic food containers) in multi-family complexes. There are approximately 23,000 multi-family units in Sonoma County.	10 tpd	0.7%
Beverage container recycling	Provide collection containers for beverage container recycling at local parks, recreation centers, downtown areas, transit locations, and other public areas. Develop and implement recycling and public education at special events.	1 tpd	0.1%
Construction and demolition recycling facility	Facility would accept debris boxes from construction and demolition sites, providing an economic incentive to encourage delivery. Material would be sorted by facility staff for recycling.	65 tpd	4.5%
Yard debris collection and organics composting	Residential curbside collection of yard debris to be increased to weekly collection. Disposal site segregation of organic materials included. Organic material currently composted at the Central Disposal Site.	25 tpd	1.7%
Floor sorting/drop-off recycling at the Central Disposal Site	The new operational improvements under construction at the Central Disposal Site include a 12-bin "Z" wall of recycling bins with a cardboard baler; separate recycling area for tires, metals, and appliances; Recycletown reuse area; household hazardous waste facility; and floor sorting of yard debris, wood debris, and other recyclable materials in the new tipping building.	30 tpd	2.1%
Public education	Planning, implementing and follow-up analysis of a social marketing effort, including reviewing available data, designing and placing radio and print advertising, direct mail pieces and other techniques to increase residential recycling behavior, and completing an written evaluation of the campaign. Educational pieces developed by this campaign will be placed on the SCWMA website.	n/a	n/a

4.2 EVALUATION PROCESS

Within the source reduction, recycling, composting, and special waste components of the Source Reduction and Recycling Element (SRRE), successful programs are continued and the most feasible future waste diversion alternatives were selected. This section describes the process used to select these alternatives.

The selection of alternatives was based on the requirements of the AB 939 regulations. The criteria were used to qualitatively evaluate the alternatives. Final selection of alternatives was made based on, conformance with local issues and practical program design.

4.2.1 SELECTION CRITERIA

Fourteen independent criteria were developed to evaluate waste diversion alternatives. The criteria covered a broad range of issues reflecting local needs and policies and the requirements of AB 939, including technical, economic, institutional, and policy facets of solid waste reduction and recovery. The criteria fulfill the requirements outlined in Section 18733.3 (a) and (b) of the AB 939 reflections. The 14 criteria are defined as follows.

1. **Waste Diversion Potential.** Evaluates the extent to which the alternative reduces the amount of waste requiring disposal, considering allowable AB 939 waste diversion credits.

2. **Ease of Tracking Diversion.** Considers the ease and efficiency of tracking the nature and quantity of solid waste diverted towards AB 939 objectives.

3. **Environmental Impacts.** Considers the extent to which the alternative minimizes environmental impacts, including hazards to workers or adjacent communities, noise, vectors, air emissions, leachate, odors, and visual aesthetics. Also considers broader environmental impacts (e.g., impact on energy or natural resources consumption).

4. **Operating Experience of the Alternative.** Appraises the extent to which the alternative has been successfully used in other communities and has demonstrated reliability.

5. **Conformity with Local Market Conditions.** Assesses the extent to which the alternative is compatible with existing area markets and demonstrates market/economic stability.

6. **Facility/Program Requirements.** Evaluates the extent to which the alternative can be built on existing facilities or programs already operating in the community. Also considers requirements for significant changes in local waste collection, processing, and disposal practices.

7. **Capital Cost.** Analyzes the extent to which the alternative minimizes capital or first-year expenditures.

8. **Cost Effectiveness over Lifetime.** Measures the extent to which the alternative minimizes costs per diverted ton over its operating lifetime. Considers total annual cost of operation, capitalization and revenues over the lifetime of the project.

9. **Operating Costs.** Considers the extent to which the alternative minimizes waste management operating costs (e.g., collection, transfer, disposal) for the community.

10. **Conformity with AB 939 Waste Management Hierarchy.** Identifies the extent to which the alternative complies with the hierarchy.

11. **Ease of Implementation.** Considers the extent to which the alternative minimizes the time and effort required for implementation.

12. **Private Sector Participation.** Judges the extent to which the private sector could typically participate in the development, ownership, and operation of the program or facility.

13. **Changes in Waste Type Generation or Use.** Measures the extent to which the alternatives shift solid waste generation from one type of waste to another.

14. **Adaptability to Changing Social Conditions.** Weighs the extent to which the alternative contributes to increased public awareness of solid waste management issues and waste-reducing consumer behavior.

4.2.2 EVALUATION OF ALTERNATIVES

The ability of each alternative to meet the terms of the selection criteria was examined. The final selection of alternatives was not based solely on the regulations. Selection also depended on the alternative's conformity with local issues and practical issues of program design. For example, curbside recycling may not rank well compared with some other recycling programs; however, the value of a curbside program in improving an individual's source reduction, recycling, and consumer habits may justify the implementation of the alternative over a higher-ranked alternative.

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Source Reduction Component

4.3 SOURCE REDUCTION COMPONENT

Source reduction, often referred to as waste prevention, differs from recycling, composting, transformation, and disposal in that it focuses on avoiding the creation of waste, rather than managing waste after it has been generated. Source reduction involves changing attitudes and waste-generating behavior through education, and, if necessary, through mandatory measures. Source reduction means reusing and repairing rather than replacing; purchasing and using materials that can be recycled; eliminating unnecessary packaging; and choosing nontoxic alternatives. Source reduction programs considered in this component are grouped into five categories: (1) local government programs, (2) technical assistance, education and promotional activities, (3) rate structure modification, (4) economic incentives, and (5) regulatory programs.

Source reduction occupies the highest point in California's integrated waste management hierarchy because it reduces costs and environmental impacts while conserving energy and resources. The potential of source reduction, particularly over the longer term, has not yet been realized, partly because it is difficult to measure intangible changes in behavior. To weigh the long-term cost-effectiveness of source reduction techniques, it may be necessary to look at the alternative: ever-increasing costs and dwindling landfill capacity to manage waste that need never have been generated. Education and promotional activities are intrinsically tied to public education in terms of purpose, actions, and costs. Therefore, source reduction programs and efforts are also discussed in Section 4.7, the Education and Public Information Component (page 4-126) .

4.3.1 OBJECTIVES

Section 18734.1(a) of the AB 939 regulations specifies six general source reduction objectives to accomplish during the short-term and medium-term planning periods.

- Reduce the use of non-recyclable materials.
- Replace disposable materials with reusable ones.
- Reduce packaging.
- Reduce the amount of yard debris discarded at the curb.
- Purchase repairable products.
- Use paper, cardboard, glass, metal and other materials more efficiently by reducing wastes from nonresidential generators' production operations, processes, and equipment.

4.3.1.1 Criteria for Selecting Waste Materials for Diversion

Sections 18733.1(b) and 18734.1(b) of the regulations require that the source reduction component identify priority waste types (waste materials, products, or types of packaging) for meeting the above objectives. At a minimum, the criteria listed below must be used in selecting these waste types.

- Volume of the solid waste.
- Weight of the solid waste.
- Hazard of the solid waste.
- Materials, products, or packages contributing to a waste category or waste type that are made of nonrenewable resources.
- The potential to extend the useful life of affected materials, products, or packaging.
- Whether the waste type has limited recyclability.

The following specific waste types have been targeted for source reduction.

4.3.1.2 Priority Wastes

Backyard Composting: Yard Debris

Objective: Reduce disposal of yard debris and increase levels of backyard composting.

Current diversion estimates provided by the University of California Cooperative Extension (UCCE) include approximately 10,293 tons per year (tpy) of yard waste composted at home. The specific diversion objectives listed in Table 4-2 were derived using data from the Home Compost Education annual report prepared by UCCE.

Backyard Composting: Food Waste

Objectives: Reduce disposal of food waste in regular trash.
Increase levels of food waste composting at institutional, business and residential sectors.

Current diversion estimates provided by UCCE include 659.8 tpy of food waste. The specific diversion objectives listed in Table 4-2 were derived using data from the Home Compost Education annual report prepared by UCCE

Other Wastes

In addition to these priority wastes, reuse of wine bottles will also be targeted through source reduction efforts. However, the SCWMA will not be pursuing diversion credits for this material.

Although diapers were listed as a priority waste in the previous SRRE, it has been removed from the priority list and will be managed at the proposed Resource Management Facility.

4.3.1.3 Targeted Waste: Paper

Objectives: Reduce disposal of paper in regular trash.
Increase levels of paper reuse.
Increased levels of source reduction efforts to conserve paper in institutional and business sectors.

The 1995/96 Waste Stream Characterization Study identified 27.1% of the waste stream as being paper products. The most significant components are uncoated corrugated cardboard (4.9%), newspaper (2.8%), other mixed paper (7.4%) and remainder/composite paper (6.4%). The annual Recycling Guide and SCWMA website provide current and detailed information on reducing paper use, and the SCWMA is developing new programs and refining existing programs to divert additional paper.

4.3.2 EXISTING SOURCE REDUCTION ACTIVITIES

Title 14, Chapter 9, Section 18733.2 of the regulations state that each component shall include a description of current diversion activities and identify current diversion levels by material type. This section describes:

- existing source reduction activities and the diversion rates of these programs; and
- sources used to obtain information on existing source reduction programs and establish current diversion rates.

Although source reduction may not have the diversion potential of recycling, there are many advantages to eliminating rather than managing waste. Diversion goals for source reduction programs around the country vary widely, from 1 or 2 percent to as high as 12 percent. However, actual source reduction diversion is very difficult to quantify. The SCWMA will attempt to quantify actual source reduction rates at the end of the short and medium terms for yard and food waste.

4.3.2.1 Current Source Reduction Activities

Table 4-2 shows the current and projected source reduction diversion levels in Sonoma County.

Implementing backyard composting and backyard food waste composting outreach and education programs has increased existing on-site composting rates. UCCE was hired in 1994 by the SCWMA to provide home composting education services. Since the program's implementation, UCCE has developed demonstration gardens, offered community workshops, made classroom presentations, staffed booths at various events (fairs,

farmers markets, etc.), and distributed educational materials. As a result, UCCE has been able to demonstrate a source reduction diversion rate of 2.0% for the year 2000.

Residential Source Reduction

Specific residential source reduction programs beyond backyard composting have not been quantified by the SCWMA. However, several fairly common businesses and/or activities are known to have existed for some time and include diaper services, thrift stores, used book stores, shoe and appliance repair shops, used office furniture stores, reuse centers at County disposal sites, and garage sales and flea markets. These types of businesses and activities are promoted by the SCWMA education programs.

Commercial Source Reduction

Specific commercial source reduction programs have not been quantified by the SCWMA. However, staff is aware of at least two programs: (1) food spoils are collected from many grocery stores and restaurants and taken to hog farms; and (2) several local programs collect usable food for food kitchen programs.

4.3.3 EVALUATION OF SOURCE REDUCTION ALTERNATIVES

The regulations require a minimum evaluation of 17 specific source reduction alternatives contained in four broad categories: technical assistance, education, and promotion activities; rate structure modifications; regulatory programs; and economic incentives. A fifth category, local government source reduction programs, has also been included. Each alternative is evaluated using the criteria in Table 4.3 and on the basis of the other three issues specified in Section 18733.3(b) of the regulations: consistency with local planning, barriers to implementation, and implementation cost. The alternatives evaluated are listed in Table 4.4, and the results are found in Table 4.5.

Certain programs are most effectively performed by the SCWMA because of the expense of developing and operating individual systems for each jurisdiction. During the evaluation process, each source reduction diversion alternative was examined with respect to programs which are appropriate to regional cooperation in Sonoma County.

4.3.3.1 Local Government Source Reduction Programs

Regulations require evaluation of in-house local government programs to reduce waste at the workplace. All selected local government programs, with the exception of in-house programs, will be continued or implemented by the SCWMA.

Program Description

Each jurisdiction could undertake a variety of relatively low-cost in-house options to reduce waste and set a positive example for the public and businesses of Sonoma County. As the SCWMA gains experience in

Table 4-2:Current and Projected Source Reduction Diversion (by material type)

Program	1995		2000		2005	
	Tons	%*	Tons	%*	Tons	%*
Food Waste	208	.05	531	.1	2,187	.4
Yard Debris	1,829	.44	9,559	1.8	19,688	3.6
Total	2,037	.49	10,293	2.0	21,875	4.0

* As a percentage of the total solid waste steam for that year (1995 = 415,716 tons; 2000 = 531,055 tons, 2005 = 546,883

developing effective programs, it is in a better position to request or require similar efforts from businesses. In addition, these programs help to educate staff to change their own practices as consumers. Examples of specific options follow.

- In-House Paper Efficiency Activities: In-house paper efficiency options could include an employee education campaign to encourage in-house and at-home source reduction practices, such as use of scrap paper and reuse of packaging; purchasing double-sided copying machines; using the reverse side of forms; reducing the amount of junk mail received; expanding the use of ceramic coffee cups instead of disposable cups; and replacing paper towels with cloth towels or air dryers.

- Electronic Information Transfer: Using electronic information transfer systems, such as electronic mail and internet services, can greatly reduce the amount of paper generated in local jurisdictions' offices. An employee education campaign would help train employees about the advantages and costs savings of this type of program.

- Regional Waste Exchange: Waste exchange programs, such as Sonoma County's SonoMax or the State's CALMAX, may range from an information database to an actual facility for the collection and distribution of information and/or materials from one jurisdiction which could be useful as resources in another.

- Green Purchasing Program: The SCWMA, with assistance from the county and cities, could investigate the feasibility of establishing purchase pools between groups of jurisdictions to encourage bulk purchases and reduce packaging, as a part of a green purchasing program. Price preference policies for products containing recycled content could be implemented by each jurisdiction for materials such as paper, re-refined motor oil, and building materials.

- Countywide source reduction pilot program: The SCWMA could develop a source reduction committee to establish source reduction ideas (e.g. decreasing the use of junk mail received by county/city departments, use of reusable automotive air filters, increased use of retreaded tires, etc.) which are implemented on a pilot basis in selected departments and monitored for their effectiveness.

Table 4-3: Criteria for Evaluating Source Reduction Alternatives

- Waste Diversion Potential
- Ease of Tracking Diversion
- Environmental Impacts/Benefits
- Operating Experience
- Conformity with Local Markets
- Facility/Program Requirements
- Capital Cost
- Cost Effectiveness
- Operating Costs
- Conformity with State Hierarchy
- Ease of Implementation
- Private Sector Participation
- Changes in Waste Type Generation/Use
- Adaptability to Changing Social Conditions
- Consistency with local policies and conditions
- Local barriers to implementation
- Implementation Cost

Table 4-4: Source Reduction Alternatives Evaluated	
Program Type	**Program Alternative**
Local Government	· In-house paper efficiency program · Electronic information transfer · Waste Exchange · Green Purchasing Program (Joint purchase pools) · Countywide source reduction pilot program
Technical Assistance , Education, and Promotion	· Waste Evaluations and Audits · On-site composting programs · Technical Assistance · Education and promotion · Social marketing · Public recognition
Regulatory Programs	· Land use incentives/disincentives · Mandatory waste evaluation and reporting · Bans on products or packaging
Economic Incentives	· Loans, grants and loan guarantees · Deposits, refunds and rebates
Rate Structure Modification	· Extended Producer Responsibility (EPR) · Advanced Recycling Fee/Advanced Disposal Fee (ARF/ADF) · Quantity based end user fees

4.3.3.2 Technical Assistance, Education, and Promotion

Regulations require evaluation of five specific alternatives within this category: waste evaluations (or audits); site-of-generation composting programs; technical assistance programs; educational efforts; and public recognition.

Program Description

This combination of alternatives, with the exception of backyard composting, includes the traditional set of government educational and assistance functions to promote desired activities. Examples of how each option could be applied include the following.

- Waste Evaluations and Audits: Waste evaluations or audits can be provided by staff, or a contracted auditor, to commercial or industrial businesses at no cost or at low cost. They can help increase awareness and are the first logical step toward knowing what specific source reduction options a business should pursue. One low cost activity is to supply self-audit checklists to businesses. Waste evaluations should be designed to provide a thorough review and analysis of the processes and materials used by an agency, business, or industry and identify ways to reduce the waste generated. Waste evaluations should also review current procurement practices to evaluate potential substitution of recycled or reusable products for virgin or disposable products.

- On-Site Composting Programs: Site-of-generation composting programs attempt to encourage producers of organic material to compost on-site, prior to the material entering the waste stream. This type of effort is most broadly applicable to yard debris, but may also be extended to other organic wastes, such as food wastes, produced by residences, agricultural operations and by institutions such as schools and universities. Over a longer time frame, businesses that grow, process, or package foods or other organic materials may be a viable target for this type of program.

- Technical Assistance: Businesses and residents could be provided technical and informational assistance by conducting workshops, seminars, and public demonstrations focusing on source reduction and on-site

composting programs. Businesses may also be encouraged to develop their own resource pools (for jointly owned equipment and materials, or bulk purchasing). Technical assistance is also available from the CIWMB.

- Education: Effective use of local newspapers, radio, and television can help ensure the success of all of the alternatives contained in the technical assistance and promotion category. Consumer information can be offered through a variety of means, including local advertising and bill inserts. Information can cover many aspects of source reduction, such as explaining the county's planning process under AB 939; providing tips on shopping practices that promote source reduction (such as reuse of containers and packaging and buying in bulk to minimize packaging); providing information on how to start food waste composting at home; or by providing forms for residents to remove themselves from junk mail lists. Retail outlets can be encouraged to offer paper packaging as a more recyclable alternative to plastic packaging and to use reusable materials whenever possible. Local supermarkets and retail stores could establish an environmental shopping campaign to inform consumers about an item's environmental impact, durability, reusability, and recyclability. Employers can also be encouraged to provide information to workers regarding source reduction both at work and at home.

- Social Marketing: Community-based social marketing techniques include identifying barriers and benefits to a sustainable behavior, such as waste prevention; designing a strategy that uses behavior change tools, such as pledges or commitments from a resident or business; implementing a pilot program; and evaluating the pilot program to determine the costs and benefits of implementing the program countywide. Information gathered from social marketing techniques is used to refine marketing strategies and will provide information to justify continued funding for a project.

- Public Recognition: Voluntary source reduction activities could be documented and publicly recognized through the establishment of an awards program, such as WRAP (Waste Reduction Awards Program). A model source reduction/recycling awards program would recognize businesses, community organizations, schools, or individuals that demonstrate "model" source reduction/recycling behavior through in-house activities or through public outreach and education.

4.3.3.3 Rate Structure Modification

Regulations require consideration of two alternatives within this category: modifications to local disposal fees and quantity-based local end-user fees. Modifications to local disposal fees could be the responsibility of the County. Institution of quantity-based end-user fees (variable can rates) would more appropriately be the responsibility of each jurisdiction.

Program Description

Rate structure modifications mean increasing the disposal cost of waste materials to better reflect the true cost of disposal and to encourage reduction, reuse, or recycling. Three examples follow.

- Extended Producer Responsibility (EPR): EPR efforts aim to encourage manufacturers to take increasing responsibility to reduce the entire life-cycle impacts of a product and its packaging – energy and materials consumption, air and water emissions, the amount of toxics in the products, worker safety, and waste disposal – in product design and in the end-of-life management of the products they produce. The costs of implementing EPRs, including special handling for waste disposal, would then be included in the up-front cost of purchasing the product. EPRs are best handled at the national level where all manufactured goods would include the costs of life-cycle impacts.

- Advanced Recycling Fees/Advanced Disposal Fees (ARF/ADF): ARF/ADF is an identified sum of money charged to the manufacturer or distributor of a product representing the waste management costs of that product including disposal costs, processing, and/or recycling costs. ARF/ADF are typically passed onto the consumer. Implementing an ARF/ADF at the county level could create some significant administrative difficulties and costs. If an ARF/ADF is only applicable to a single county, some distributors may not want to handle the increased administrative burden of selling to that county even though the additional costs would

be passed onto the consumer. If an ARF/ADF is implemented, consumers may begin shopping in other areas that do not have such fees.

- Quantity-Based End-User Fees: Refuse collection rates for residences, or for commercial and industrial establishments, could be restructured by setting a cost for waste collection based on either weight or volume, rather than a flat assessment. An example is variable can rates, similar to the existing rate structure in Sonoma County, which charge parties receiving refuse collection services by the number and size of the containers set out, with each additional container charged at lower, the same or higher rates. A provision regarding the number and size of allowable containers for commercial businesses could be administered through the franchised haulers' agreements or business licensing process.

4.3.3.4 Regulatory Programs

Regulations require consideration of the following specific alternatives within this category: local land use incentives or disincentives, mandatory source reduction planning and reporting, and local bans on products or packaging.

Program Description

The regulatory programs use local legislative powers to mandate specific actions, including ones that may or may not result voluntarily from the other programs described in this section. The advantages of mandated alternatives include the public education that can result from highly visible actions, equal treatment of all parties, higher rates of participation, and minimal use of county funds. The disadvantages include cost of implementation, administration, and enforcement; potential resistance to the measures; and the unknown potential for adversely affecting local commercial activity. Examples of the alternatives follow.

- Land Use Incentives/Disincentives: Use of land use planning policies is an alternative that is generally better suited to encouraging recycling than source reduction. One possibility is to encourage the rehabilitation rather than replacement of old structures.

- Mandatory Waste Evaluation and Reporting: Requirements could be established mandating that local commercial, industrial, and institutional waste generators conduct waste evaluations and develop and implement waste reduction plans. These outline recycling and waste reduction goals for that business and identify plans to reach those goals (e.g., plans for buying recycled paper, double-sided copying, reducing purchase of disposables).

- Bans on Products or Packaging: Regulations provide that a municipality can implement a ban on a product or form of packaging, but only if it determines that the ban will *result in the reduction of waste at the source, rather than substitution by another product or package* and that the ban results *in a net environmental benefit* (Section 18734.3(d)(4))." Materials that are difficult to recycle or are a known threat to the environment, including a variety of plastics, such as polystyrene food containers, and specific products, such as six-pack rings, have been the targets of such bans. There is considerable controversy regarding the effect and the cost to affected parties of these bans. However, bans have focused public concern on serious waste-related problems and appear to have accelerated changes in corporate manufacturing and marketing practices. Products or packaging that could potentially be targeted by such an ordinance include varieties of plastic packaging that are relatively difficult to recycle, such as those made from mixed resins, or packaging that is deemed to be excessive based on specified criteria. The SCWMA could look into the feasibility of establishing countywide bans on specific materials.

4.3.3.5 Economic Incentives

Regulations require consideration of three specific forms of economic incentives: loans, grants, and loan guarantees; deposits, refunds, and rebates; and business license fees. Economic incentives could be the responsibility of the SCWMA.

Program Description

Economic incentives use local revenues and licensing powers to encourage source reduction behavior by reducing the relative cost of a desirable action. In general, and particularly with regard to the private sector, these incentives are used to meet capital or one-time costs, rather than operating costs. There is a wide range of examples of how these incentives could be used.

- Loans, Grants, and Loan Guarantees: Low-interest loans or loan guarantees, such as those offered through the Recycling Market Development Zone program, can be provided to assist qualifying businesses in making source reduction capital investments, such as the purchase of double-sided copying machines or industrial machinery that can use recycled feedstock to make new products. Grants could also be provided to local nonprofit organizations for development and promotion of source reduction activities, such as home composting workshops. Grants or loans could also be used to help initiate a local or regional waste exchange effort. The use of loans and grants for local repair businesses could also be explored.

- Deposits, Refunds, and Rebates: Deposits that are refundable at the time of replacement can be used to discourage the disposal of items such as auto or domestic consumer batteries, tires, and white goods. Rebates can be offered when a recycled alternative is purchased, such as a rechargeable battery charger or retreaded tires.

- Business License Fees: Local jurisdictions may review and consider for implementation reduced business licensing fees or reductions in other locally imposed fees for businesses that participate in source reduction activities.

Table 4-5: Source Reduction Alternatives Analysis

CRITERIA	Local Government	Technical Assistance and Promotion
1. Waste Diversion Potential	Minimal reduction of total MSW, but may be significant to total waste generated within an agency.	· Depending on the program usually less than 10% of household waste or commercial waste for active participants. · Backyard composting has substantial potential in 15-20% range in the residential waste stream. · Waste diversion potential is low when compared to the total waste stream.
2. Ease of Tracking Diversion	Easy to monitor in-house programs.	Varies by program; some difficulty to quantify, except backyard composting.
3. Environmental Impacts	None.	None.
4. Operating Experience of the Alternatives	Hundreds of government office waste reduction programs in the country.	Many recycling programs throughout the U.S. provide source reduction technical assistance.
5. Conformity with Local Markets	Not applicable	Not applicable
6. Facility/Program Requirements	Requires no new facilities or major program changes.	Would require development of backyard composting demonstration sites.
7. Capital Cost	No capital costs.	Typically low to non-existent capital costs, except for backyard composting demonstration sites. Some programs will require promotion.
8. Cost Effectiveness over Lifetime	Low initial costs for most programs will be recovered through increased life spans of products and use of fewer materials.	Costs invested in providing businesses with technical assistance should pay back in terms of long term commercial diversion potential from these activities. Public education benefit can also be included.
9. Operating Costs	Source reduction of wastes reduces need for collection, processing, and disposal.	Source reduction of wastes reduces need for collection, processing, and disposal
10. Conformity with State Hierarchy	Consistent with the highest level of hierarchy.	Consistent with the highest level of hierarchy.
11. Time of Implementation	Relatively easy to implement, 6 months or less for most operational modification. Requires in-house management and coordination responsibilities.	· Implementation time less than one year to establish program, ongoing implementation.
12. Private Sector Participation	Limited public procurement policy can aid private market development of recycled products and help support businesses selling recycled products.	Non-profit garden groups may provide technical assistance to residents on home composting.
13. Changes in Waste Type, Generation, or Use	Changes waste types to more durable, reusable products.	Changes waste types to more durable, reusable products.
14. Adaptability to Changing Social Conditions	All programs are fully adaptable to potential changes in social character.	All programs are fully adaptable to potential changes in social character.
15. Consistency with Local Conditions	All are consistent with each jurisdiction's local policies, plans and ordinances.	All are consistent with each jurisdiction's local policies, plans and ordinances.
16. Institutional Barriers to Implementation	Few barriers other than overcoming ingrained practices.	Site-of-generation composting may require permits from the County Health Department.
17. Implementation Cost	Generally, very little cost, and may result in long-term savings. Waste audits will involve labor costs.	Relatively low, mainly staff time.

Table 4-5: Source Reduction Alternatives Analysis (cont.)

CRITERIA	Rate Structure Modification	Regulatory Programs
1. Waste Diversion Potential	· Programs tend to decrease waste volume. Variable can rates may lead to an increase in weight as some residents may compact trash into a smaller can.	Rarely more than 5% with current efforts. Potential exists for higher diversion rates, depending on the specific regulations.
2. Ease of Tracking Diversion	Possible to track diversion.	Fairly difficult to monitor and quantify compliance with new regulations; would show up in SWGS.
3. Environmental Impacts	Can lead to increases in illegal dumping.	None.
4. Operating Experience of the Alternatives	· Variable can rates have been successfully implemented in several urban areas. · Bulky item surcharges operating in many communities.	A few local governments have instituted bans on non-recyclable items, primarily styrofoam.
5. Conformity with Local Markets	Not applicable.	Not applicable.
6. Facility/Program Requirements	Will require an analysis of current rates and possible modification.	Will not require major new facilities or programs.
7. Capital Cost	No capital costs.	No capital costs.
8. Cost Effectiveness over Lifetime	· Considered very cost effective. · Increased disposal fees can pay for program administration. · Half can rates may decrease residential revenues.	Banning certain materials or products may have moderate cost effectiveness compared to potential diversion.
9. Operating Costs	· Operating costs of the variable rate collection system may increase for some routes.	Source reduction of wastes reduces need for collection, processing, and disposal.
10. Conformity with State Hierarchy	Consistent with the highest level of hierarchy.	Consistent with the highest level of hierarchy.
11. Time of Implementation	· Relatively easy to implement once new rates are determined. · Cooperation with private haulers necessary.	· Regulations affecting businesses are subject to opposition. · May take up to one year to draft, introduce and adopt appropriate ordinances.
12. Private Sector Participation	· Private haulers would be directly involved in changing rates to encourage source reduction for residential and commercial customers.	Private sector compliance necessary for certain legislation.
13. Changes in Waste Type, Generation, or Use	Intent of the alternative is to change materials usage.	Bans must be carefully analyzed to prevent change in material types and use.
14. Adaptability to Changing Social Conditions	All programs are fully adaptable to potential changes in social character.	All programs are fully adaptable to potential changes in social character.
15. Consistency with Local Conditions	Modifying existing variable can rates will require voluntary but enforceable agreements from the local haulers to use a specified variable rate structure for their customers.	New ordinances would be required at the local or countywide level.

Table 4-5: Source Reduction Alternatives Analysis (cont.)		
CRITERIA	**Rate Structure Modification**	**Regulatory Programs**
16. Institutional Barriers to Implementation	An increase in variable can rates, which leads to increased costs, may lead to an increase in illegal dumping if adequate enforcement is not maintained.	May be difficult to implement and administer due to high public visibility and potential controversy. A responsible party is needed to administer and enforce the programs. Programs have the potential to reduce commercial or manufacturing activity if similar measures are not in effect in adjacent areas. Procurement ordinances and waste reduction planning requirements are probably the least difficult to implement.
17. Implementation Cost	Cost of developing and administering rate modifications is low. Variable can rates may lead to decreased revenues, although lower costs to manage the decrease in garbage volume may compensate for decreased revenues. The increased cost to garbage customers is low.	Product or packaging bans could impose the highest relative cost on the private sector, if the alternative is more expensive. Requiring mandatory waste evaluation and planning for businesses would entail administrative costs to develop and implement such a plan, but may save money in the long run. SCWMA would have increased staff costs to review and approve plans.

Table 4-5: Source Reduction Alternatives Analysis (cont.)	
CRITERIA	**Economic Incentives**
1. Waste Diversion Potential	Difficult to monitor actual diversion; data is inconclusive; assumed minimal diversion.
2. Ease of Tracking Diversion	Records of rebate programs could be analyzed, other incentives often difficult to track.
3. Environmental Impacts	None.
4. Operating Experience of the Alternatives	Use of grants and loans are more commonly targeted toward recycling. Communities are starting to provide grants/loans for organizations to provide home composting technical assistance. Funds from State and local governments becoming more limited.
5. Conformity with Local Markets	Not applicable.
6. Facility/Program Requirements	No major new facilities or programs required.
7. Capital Cost	No capital costs.
8. Cost Effectiveness over Lifetime	· Not considered very cost effective overall because of the limited audience affected by grants and loans. · May serve as an example to other businesses on what levels of source reduction can be accomplished than as a waste diversion tool.
9. Operating Costs	Costs would be incurred to the extent that grants and loans were offered.
10. Conformity with State Hierarchy	Consistent with highest level of hierarchy.
11. Time of Implementation	May meet private sector opposition.
12. Private Sector Participation	Loans and grants may encourage the private sector to engage in additional source reduction activities.
13. Changes in Waste Type, Generation, or Use	This alternative is not associated with changes in waste type, generation, or use.
14. Adaptability to Changing Social Conditions	All programs are adaptable to potential changes in social character.
15. Consistency with Local Conditions	Deposits, refunds, and rebates may be more appropriately pursued at the state and federal levels.
16. Institutional Barriers to Implementation	Loans and grants can be targeted, administered and assessed in terms of the effect on revenues and source reduction. Deposits, rebates, and refunds will be more difficult to administer due to the number of retailers involved. Although the effect on available funds is somewhat less predictable, the degree of success can be evaluated easily, and the program can be designed to be largely or completely self-supporting. Potential for litigation by affected manufacturers.
17. Implementation Cost	Economic incentives necessarily involve a loss of revenue, with the possible exception of rebates or refunds if a manufacturer is required or volunteers to provide them. Loan or grant programs can be funded to a specified total level on a first-come, first-served basis.

4.3.4 SELECTED SOURCE REDUCTION PROGRAMS

Section 4.3.3 examined the full range of programs that have been considered or actually implemented across the country. A number of alternatives, such as inducing changes in packaging design or in manufactured goods durability, are less likely to be effective at the local level. The probable effectiveness of specific alternatives based on the above evaluation, as well as on local conditions and the data developed by the 1995/96 Waste Stream Characterization Study indicating that the targeted materials are currently disposed of in significant amounts, are the overriding factors in selecting programs as well as the appropriate time frames for implementation.

Source reduction programs from all five of the broad categories have been selected for implementation. The program selection and implementation process is structured so that the full range of waste generating sectors will be included, beginning with technical assistance, promotion and education and proceeding as necessary to economic incentives. The following paragraphs provide the justification for selecting the general set of alternatives.

The alternatives are discussed in order of priority. Unless otherwise indicated, all listed programs are to be implemented by the SCWMA. Table 4-6 lists the selected programs. Programs that would best be implemented by each jurisdiction include changes in local regulations or local government procedures.

4.3.4.1 Local Government Source Reduction Programs

The SCWMA, County, and Cities selected the full range of in-house local agency source reduction alternatives for implementation. A full local government program will train local government staff to assist consumers and businesses and offer a clear signal of resolve as well as positive examples of source reduction.

In-house Programs

- County staff is currently conducting a thorough waste evaluation for selected county agencies, The Sustainable Policies and Practices Project (SP3) is an in-house effort to foster adoption of sound environmental practices for County operations, focusing on utilities, waste management, vehicles and pesticides. Solid waste management indicators focus on in-house paper efficiency and recycled content purchasing practices. Goals for the planning period 2001-2003 include evaluating the existing paper recycling program in county offices and establishing additional paper waste reduction and recycling opportunities on the main County Administration Center campus.

- Review all internal and external forms used to recommend ways to simplify and reduce forms and to increase the use of double-sided forms.

- Purchase and require in-house use of double-sided copying machines. These purchases can be phased in based on the schedule for replacing old or leased machines.

- Continue managing SonoMax, Sonoma County's regional computerized waste exchange. Coordinate these efforts, to the extent possible, with CALMAX, the State's waste exchange program.

- Continue to promote waste exchanges between businesses by supporting the operations of the Bay Area Creative Re-Use, a non-profit organization that helps businesses who have reusable items, such as office equipment, paper, and copiers, connect to non-profit organizations who need these items.

- The SCWMA adopted a Green Purchasing Policy on June 20, 2000 and will work with its member jurisdictions to adopt and implement similar policies.

4.3.4.2 Technical Assistance, Education, and Promotion

This category of potential programs was selected as the highest priority program for implementation within the area of source reduction. A broad range of source reduction technical assistance, education, and promotion programs have been selected for ongoing implementation by the SCWMA during the short-term planning period.

The programs selected for continued implementation include backyard composting programs, technical assistance programs, educational efforts, and public recognition. These specific alternatives can address all of the outlined objectives. These programs also scored very high when ranked against the SCWMA's criteria, particularly those for cost effectiveness, ease of implementation, and adaptability to social conditions.

Specific programs selected and required tasks are described below.

Waste Evaluations and Audits

- Promote existing waste evaluation checklists.
- Consider targeting large generators for individual, focused waste evaluations.

Waste audits are included as part of the Sonoma Green Business program operated by the Sonoma County Department of Emergency Services, and some haulers continue to offer waste evaluations when requested. Waste evaluations may include reviewing the inputs and outputs of a business to target waste prevention and recycling of specific large generators.

Composting Programs

- Continue to support promotional and technical assistance program to encourage backyard composting by residents. This program includes educational brochures, making school presentations, managing existing neighborhood composting demonstration sites, and attending fairs and other public events.
- Continue to encourage site-of-generation composting of yard debris and food wastes by businesses and institutions, such as schools, universities, and hospitals.

The SCWMA will continue to require its contractor, currently UCCE, to conduct random surveys of residents as needed to determine yard and food waste backyard composting rates.

Table 4-6: Selected Source Reduction Programs

Program Type	Program Alternative
Local Government Source Reduction	· In-house paper efficiency program · Electronic Information Transfer · Waste Exchange (SonoMax) · Green Purchasing Policy (Joint purchase pools)*
Technical Assistance , Education, and Promotion	· Waste Evaluations and Audits* · On-site composting programs* · Technical Assistance* · Education* · Social Marketing · Public recognition*
Regulatory Programs	· Land use incentives/disincentives · Mandatory waste evaluation and reporting · Bans on products or packaging
Economic Incentives	· Loans, grants and loan guarantees · Deposits, refunds and rebates*
Rate Structure Modification	· Extended Producer Responsibility · Quantity based end user fees

* Indicates programs will be implemented, by the SCWMA. All other programs will be implemented by the appropriate jurisdiction.

Technical Assistance

- Provide technical and informational assistance to businesses and residents by conducting workshops, seminars, and public demonstrations focusing on source reduction. Combine these workshops with information on recycling.
- Monitor the availability of technical assistance funding from the State.

Education

- Develop an effective print and electronic media program to publicize technical assistance and promotion efforts.
- Develop an environmental shopping, pre-cycle campaign.
- Include furniture repair, and small appliance repair, and second-hand businesses in the annual Recycling Guide.
- Encourage restaurants to use reusable and recyclable materials whenever possible, and to reduce total packaging use as much as possible.
- Develop an outreach program to encourage and assist employers in providing information to workers regarding source reduction and recycling at work and at home. Develop materials giving different types of businesses source reduction tips.

Education material and campaigns are discussed further in Section 4.7, Education and Public Information Component (page 4-126).

Social Marketing

- Whenever possible, the SCWMA will use social marketing techniques to identify barriers and benefits to source reduction programs. Possible tools could include obtaining pledges or commitments from a resident or business; implementing a pilot program; and evaluating the pilot program to determine the costs and benefits of implementing the program countywide. Information gathered from social marketing techniques is used to refine marketing strategies and will provide information to justify continued funding for a project.

Public Recognition

- Promote the CIWMB's Waste Reduction Awards Program (WRAP) that awards voluntary source reduction activities by businesses, community organizations, and individuals and recognize exemplary recycling efforts.

4.3.4.3 Rate Structure Modification

The following alternatives have been selected for implementation or possible implementation during the short-term planning period.

Extended Producer Responsibility (EPR)

- The SCWMA adopted a resolution to support EPR policies at its June 20, 2001 board meeting.
- As a result of this resolution, the SCWMA has become a coalition member of the Product Stewardship Institute and the National Electronic Product Stewardship Initiative (NEPSI).
- Continue efforts to further EPRs through coalitions as they develop. For example, the SCWMA is considering joining the Western Electronic Product Stewardship Initiative (WEPSI), a coalition working towards EPR's for electronics in the western states.

Advanced Recycling Fees/Advanced Disposal Fees (ARF/ADF)

- Continue to monitor and evaluate the potential for using ARF/ADF on bulky, hard to handle or non-recyclable materials.

Quantity-Based End-User Fees

- Continue to monitor and evaluate the impacts on garbage rates and revenues to improve the modified variable can rate currently offered to all residents and businesses.
- Continue to explore the potential of a variable container rate structure that provides a source reduction incentive for residents and commercial businesses.
- If feasible, develop a variable container rate structure for refuse collection to provide a source reduction incentive.

4.3.4.4 Regulatory Programs

A range of the specific regulatory programs has been selected for implementation or possible implementation These alternatives were ranked lower than the technical assistance and rate structure modification programs because of somewhat lower scores for ease of implementation and potential changes in waste type generation. Of the four specific alternatives contained in the regulatory programs, implementation of two of the alternatives were pursued early in the short-term planning period (land use incentives/disincentives, and mandatory source reduction and recycling planning and reporting). The other two alternatives (a mandatory procurement ordinance, and bans on specific products or packaging) were considered for implementation early in the medium-term following an assessment of the effectiveness of voluntary efforts. Specific programs selected for implementation or for future consideration and required tasks are discussed below.

Land-Use Incentives/Disincentives

- Each jurisdiction will review local planning, zoning, and building codes for development of incentives or disincentives to encourage rehabilitation of old structures rather than construction of new ones.

Mandatory Planning and Reporting Requirements

- Each jurisdiction will review and consider, based on voluntary efforts, a requirement for mandatory source reduction/recycling plans for businesses. This program would be implemented by each jurisdiction. Annual reports showing compliance with stated goals would be submitted to the SCWMA.

Local Bans on Products or Packaging

- The SCWMA will continue to review state and federal information on the recyclability of specific products and packaging in conjunction with other local governments in order to determine whether specific bans should be developed. The County adopted an ordinance banning polystyrene on County premises on May 24, 1989.

4.3.4.5 Economic Incentives

These alternatives generally meet the objectives detailed in Section 4.3.1. Of the three alternatives within this category two were selected for potential implementation in the short-term planning period, The other alternatives, as well as loans and loan guarantees, will be reviewed for implementation during the medium term. Specific programs selected for implementation or future consideration are described below.

Loans, Grants, and Loan Guarantees

- The County provided grants to nonprofit organizations to conduct education, public information, and technical assistance programs in fiscal years 1992/93 and 1993/94. Grant funds have been unavailable from

local jurisdictions in subsequent years. However, the SCWMA will encourage innovative and creative methods and consider funding for waste prevention (source reduction), recycling, and education that will benefit the community and the environment.

- As a member of the Sonoma/Mendocino/Lake Counties RMDZ, the SCWMA will monitor the Recycling Market Development Zone program to assist qualifying businesses in the application process for guaranteed loans from the CIWMB.

- The SCWMA will monitor state and federal grant or loan programs for individuals or organizations and keep interested local parties informed of funding availability.

Deposits, Refunds, and Rebates

- The SCWMA will review and consider a mandatory deposit and refund program for materials with special handling needs and recycling potential such as tires, auto batteries (and potentially other batteries), and white goods.

4.3.4.6 Facility Development/Expansion

The SCWMA does not anticipate that implementing any of these source reduction measures will require new and/or expanded facilities.

4.3.5 IMPLEMENTING SOURCE REDUCTION PROGRAMS

The following tasks will be implemented by the SCWMA and its member jurisdictions to help develop and maintain regional source reduction programs:

- Develop technical, educational and promotional programs targeting source reduction.

- Each member jurisdiction will provide the SCWMA with information necessary to develop educational materials.

- Continue to make new and existing source reduction education materials available to the public.

4.3.5.1 Responsible Entities and Required Tasks for Implementation

The remainder of this subsection details the role of specific entities in implementing the source reduction alternatives.

Technical Assistance, Education and Promotion

- The SCWMA will be responsible for developing the technical assistance, public education, and outreach programs.

- The technical aspects of the backyard composting program were developed by the SCWMA in conjunction with the University of California Cooperative Extension, Master Gardener Program.

Rate Structure Modifications

- Each jurisdiction will have primary responsibility for developing policy with regard to, and for ensuring implementation of, variable container rates in their specific jurisdictions. Each jurisdiction will work closely with its local hauler to develop a workable plan to improve the effectiveness of existing variable can rates. Additional responsibilities for enforcement, if necessary, will be identified after program development.

Local Government Source Reduction Programs

- The SCWMA will continue to implement SonoMax, a regional waste exchange program for Sonoma County. SonoMax listings will continue to be provided to the State for inclusion in the CALMAX newsletter.
- The SCWMA will continue to support the Bay Area Creative Re-Use in its task for promoting waste exchanges between businesses and non-profit organizations.
- Each jurisdiction will develop in-house source reduction policies, and where implemented will continue to monitor those programs for effectiveness.
- Each jurisdiction will consider adopting and implementing a green purchasing policy.

Regulatory Programs

- Each jurisdiction has responsibility for developing policy with regard to, and for ensuring implementation of, ordinances, mandatory requirements and bans within their boundaries.
- Each jurisdiction may consider programs related to land use incentives and disincentives. The SCWMA will review and recommend options for encouraging source reduction in relation to the rehabilitation and construction of buildings.

Economic Incentives

- The County will have primary responsibility for developing policy with regard to, and for ensuring implementation of, all economic incentive alternatives. Additional responsibilities for enforcement, if necessary, will be identified after program development.

4.3.5.2 Costs

Projected costs for the SCWMA include $15,100 to maintain the regional home composting program and $56,812 for Bay Area Creative Re-Use in the fiscal year 2001/02 budget. Overhead costs include administration costs and accounting, auditor and legal expenses, which are discussed below. The SCWMA's fiscal year budget includes funds for source reduction programs in the education cost center.

The costs for source reduction program alternatives share common characteristics, but also differ in key ways from the costs for recycling, composting, special waste, and household hazardous waste programs. The reason, in each instance, has to do with the nature of source reduction: programs that focus on altering waste-producing behavior rather than shifting from the use of one management technology to another. From an economic perspective, source reduction is a long-term cost avoidance measure. Source reduction reduces the scope of the solid waste problem, for which management costs are likely to continue to grow annually. As with the strong institutional commitment described above that is necessary for developing successful source reduction programs, there must also be a long-term commitment to funding these programs because objectives are likely to be met over the longer rather than the shorter term.

Unlike costs for other types of programs that "manage" the waste stream, source reduction program costs are largely administrative and are related to local government programs to reduce waste, provide technical assistance and public education, and the research, development, enactment, and enforcement of regulatory measures (such as product or disposal bans, incentive programs or rate modifications). These administrative costs include activities such as hiring program staff, developing educational materials, designing a media campaign, and conducting waste evaluations.

Capital and operating costs related to equipment purchase and use are minimal for source reduction. Examples might include the increased cost associated with the purchase of copy machines capable of making double-sided copies, changes in industrial manufacturing processes that result in less waste per unit of production, and materials needed for the compost demonstration sites. Some of these increased costs will be offset by parallel cost decreases, such as reduced paper usage resulting from double-sided copying.

It is difficult to quantify the costs associated with source reduction programs, as well as to accurately develop a direct comparison between level of program effort or funding and the resulting amount of source reduction. Fortunately, the overall level of cost associated with source reduction programs will compare favorably with those for recycling and other waste management programs. One problem is the relative intangibility of source reduction measures, and the difficulty of evaluating educational activities that lead to behavioral changes that reduce solid waste production.

The remainder of this subsection contains source reduction program cost estimates, given the above caveats, for local agencies, businesses, and consumers for each of the five categories of programs selected.

Public-Sector Costs

The SCWMA's fiscal year budget includes one full-time Public Education Coordinator to oversee development of all technical assistance programs and educational materials. A Waste Management Specialist assists with waste audits for the Sonoma Green Business Program and distributes the waste audit checklist upon request. Administrative staff oversee the management of a the home composting technical assistance and education program and the Bay Area Creative Re-Use program.

Programs to be implemented by each jurisdiction, such as in-house reduction programs, land use incentives, and variable can rates, will be conducted by existing staff.

Private-Sector Costs

Many source reduction options require a major behavioral change on the part of consumers, which will entail direct costs to businesses and consumers. However, source reduction techniques are relatively inexpensive relative to other options, such as paying for increased waste disposal costs.

Many of the programs will pay for themselves through avoided costs, or may actually generate savings over time. Private sector costs have not been estimated because they are too varied, dependent on the business's level of participation, and difficult to quantify separately from recycling costs.

4.3.6 MONITORING AND EVALUATION

Monitoring and evaluation is critical to the planning process. The programs recommended in this source reduction component will require annual review to ensure that the anticipated diversion goals are being achieved. Section 18733.6 of the AB 939 regulations outlines the requirements of the monitoring and evaluation section. The following discussion identifies the criteria to be used for evaluation, frequency of the monitoring, entities responsible for evaluation, funding sources for the monitoring, and contingency measures to be implemented if programs do not fulfill the expectations.

Monitoring and evaluation also identifies the percentage of wastes the programs divert from disposal, evaluates the effectiveness of the programs, and describes contingency steps that can be taken to improve the program's diversion potential. Table 4-7 lists the parties responsible for monitoring and evaluating the source reduction program.

4.3.6.1 Monitoring Programs

Despite the difficulties of quantification, the SCWMA considers the goal of increasing source reduction rates to be extremely important, and plans to support existing education to achieve that goal. The SCWMA will monitor programmatic efforts in the public and private sectors as outlined below, to ensure that policies and programs are being implemented. The following lists the methods that will be used by the SCWMA to monitor source reduction programs:

Technical Assistance, Education and Promotion

- Targeted social marketing surveys of businesses to determine familiarity with source reduction programs; attendance at seminars or workshops; and requests for information from the Eco-Desk hotline.

- Random social marketing surveys of residents regarding results of source reduction education and information dissemination efforts, including information on how many residents compost their yard and food waste. Identify whether the rate of participation in these activities matches the projected diversion goals.
- Conduct annual review of waste generation rates for planning and targeting source reduction programs, and publicize the results.

Rate Structure Modification

- Survey of disposal records and targeted surveys of haulers and recyclers to determine effectiveness of the modifications (conducted by the County).

Regulatory Programs

- Targeted social marketing surveys of businesses to determine the effect of mandatory planning and reporting measures, if implemented.
- Targeted social marketing surveys to determine effect of product bans, if implemented.

Table 4-7: Parties Responsible for Monitoring and Evaluating Source Reduction Programs

Category	Program	Data Collection	Evaluation and Reporting
Local Government Programs	In-house waste reduction programs	By each jurisdiction	By each jurisdiction
	Waste audits	By each jurisdiction	By each jurisdiction
	SonoMax regional waste exchange	SCWMA	SCWMA
Technical Assistance, Education and Promotion	Waste audits for businesses	SCWMA	SCWMA
	On-site composting programs	SCWMA	SCWMA
	Other technical assistance, education and promotion	SCWMA	SCWMA
Rate Structure Modification	Variable can rates	Local hauler	Cities, Sonoma County Board of Supervisors
	Extended Producer Responsibility	SCWMA	SCWMA
	Advanced Recycling Fee/Advanced Disposal Fee	SCWMA	SCWMA
Regulatory Programs	Mandatory planning and reporting requirements	Sonoma County Board of Supervisors	Sonoma County Board of Supervisors
	Local Bans	Sonoma County Board of Supervisors	Sonoma County Board of Supervisors
Economic Incentives	Loans, grants and loan guarantees	SCWMA	SCWMA
	Deposits, refunds and rebates	SCWMA	SCWMA

Local Government Programs

- Targeted surveys of agencies regarding internal waste evaluation programs; and implementation of source reduction measures (i.e., double-sided copying).
- Evaluate success of waste exchange programs by measuring usage.

Economic Incentives

- Collect and analyze data submitted by all loan or grant recipients.
- Targeted survey of retailers to determine the effectiveness of deposit and refund programs, if implemented.

4.3.6.2 Evaluating Program Effectiveness

Program effectiveness can be evaluated based on quantitative measures such as the program's ability to divert waste from disposal and qualitative measures such as the availability of the services to waste generators. A specific set of criteria, based on the following questions, are used to measure program effectiveness that should help the SCWMA identify areas where improvements are required.

- Did responsible entities execute the required tasks?
- Were the tasks implemented on schedule?
- Did the targeted sector(s) participate in the anticipated manner?
- Were all activities executed in an environmentally acceptable or approved manner?
- Do source reduction programs meet all local, state, and federal environmental requirements?
- Did each source reduction program result in an increase in source reduction?

4.3.6.3 Parties Responsible for Monitoring

The SCWMA staff will monitor and evaluate regional source reduction programs to ensure that such programs are reaching residents and businesses countywide.

4.3.6.4 Funding Requirements

Monitoring and evaluating source reduction programs will require approximately two percent of a staff person's time or approximately $1,250. Additional funds are available in the education cost center for printing and distributing source reduction educational materials. The home composting agreement includes $2,500 for printing educational materials.

4.3.6.5 Contingency Measures

Monitoring and evaluation will identify programs that meet and do not meet goals. The process can also pinpoint areas that can be improved beyond the established goals. The following contingency measures will be applied to each of the five source reduction program areas as appropriate.

1. If required tasks are not executed by the responsible entities, the SCWMA will consider the following:

   - Evaluate staffing adequacy.
   - Revise job and task descriptions.
   - Improve interagency coordination.
   - Identify reasons for lack of private sector participation and consider implementation of mandatory measures.

2. If tasks are not implemented in a timely manner, the SCWMA will consider implementation of the following:

   - Evaluate staffing adequacy.
   - Revise job and task descriptions.
   - Improve interagency coordination.
   - Identify reasons for lack of private sector participation and consider implementation of mandatory measures.

3. If targeted sectors fail to participate adequately or as anticipated, the SCWMA will consider implementation of the following:

   - Survey anticipated participants in each sector to identify reasons for lack of participation.
   - Improve and increase education and technical assistance efforts for local agencies and staff, businesses and the public.
   - Review voluntary efforts by businesses and the public to determine need to institute mandatory programs.
   - Evaluate effectiveness of economic incentives and consider increasing availability.

4. If source reduction programs do not meet local, state or federal environmental requirements, the SCWMA will consider implementation of the following:

   - Identify the nature of the problem.
   - Correct the problem as necessary.

Table 4-8: Implementation Schedule for Source Reduction Programs

PROGRAM AND IMPLEMENTATION TASK	RESPONSIBLE ENTITY	2000				2001				2002				2003				2004				2005				2006				2007				2008			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SOURCE REDUCTION																																					
Local Government Programs																																					
Continue/expand in-house paper efficiency programs	Each jurisdiction																																				
Promote electronic information transfer	Each jurisdiction																																				
Continue to perform internal waste audits	Each jurisdiction																																				
Continue regional waste exchange (SonoMax)	SCWMA																																				
Adopt and implement a Green Purchasing Policy	Each jurisdiction						X																														
Technical Assistance, Education and Promotion																																					
Continue waste evaluation and audit outreach	SCWMA																																				
Continue distribution of education and informational materials for on-site composting	SCWMA																																				
Continue distribution of source reduction education materials	SCWMA																																				
Use social marketing techniques to identify barriers and benefits to source reduction programs whenever possible.	SCWMA																																				
Promote WRAP, a public recognition program	SCWMA																																				
Rate Structure Modification																																					
Adopt a resolution in support of Extended Producer Responsibility (EPR)	SCWMA						X																														
Continue efforts to further EPRs through coalitions as they develop	SCWMA																																				
Continue to modify and evaluate garbage rates and revenues to improve the modified variable can rate	County																																				
Evaluate the potential of a variable container rate structure that provides a source reduction incentive	County															X																					
Regulatory Programs																																					
Review and consider implementing mandatory source reduction/recycling plans	Each jurisdiction																		X																		
Investigate potential land-use incentives for rehabilitation of old structures	Each jurisdiction													X																							

Table 4-8: Implementation Schedule for Source Reduction Programs (continued)

PROGRAM AND IMPLEMENTATION TASK	RESPONSIBLE ENTITY	2000				2001				2002				2003				2004				2005				2006				2007				2008			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Regulator Programs (continued)																																					
Continue to review state and federal informatin on the recyclability of specific products and packaing to determine if bans should be developed	SCWMA																																				
Economic Incentives																																					
Encourage innovative and creative methods and condier funding for source reduction, recycling, and education	SCWMA																																				
Continue to evaluate possible deposit/refund program for selected special wastes; implement as appropriate	County																																				
Monitoring and Evaluation	SCWMA			X																																	

X - Designates the initiation of a task. Shaded bars indicate the continuation of the task and/or program.

Note: Years are broken into quarters designated by 1,2,3,4.

Recycling Component

4.4 RECYCLING COMPONENT

The Recycling Component identifies existing recycling activities, evaluates potential programs, and recommends programs to help the SCWMA achieve the waste diversion mandates of AB 939. Recycling is the process of collecting and preparing discarded materials to form the raw material for new products. Recycling activities channel reusable materials to processing facilities thereby reducing the need for landfill space. The two general categories of recycling activities are source separation and mixed waste recycling. A discussion of green purchasing programs designed to foster the purchase of goods made of post-consumer materials is also included, although these procurement programs cannot be counted towards the material diversion goals.

Sonoma County waste management needs are served by one landfill and five transfer stations. These solid waste facilities have been considered when selecting recycling programs. This approach is preferable because it minimizes public concerns that accompany solid waste facility siting, and it creates additional uses for the facilities now in operation. The planning framework expands the waste management uses at each facility by requiring moderate site enhancement and reconfiguration. The six facility sites, in conjunction with numerous private facilities, provide Sonoma County waste generators with separation, processing, and recovery capabilities for the municipal waste stream.

4.4.1 OBJECTIVES

In its 2000 Annual Report to the CIWMB, the SCWMA reported a diversion rate of 40 percent. As required by PRC Section 41820(a)(6)(B), the SCWMA filed a time extension request listing the estimated diversion from new and enhanced diversion programs. By the year 2003, the SCWMA member jurisdictions will increase residential recycling by 6.5 percent and commercial recycling by 4.5 percent. Goals for those programs that address this increased recycling diversion are discussed below. The priority waste categories that will be targeted for diversion include paper, glass, metal, wood, yard debris, and plastics.

4.4.1.1 Source Separation Recycling Programs

Specific goals for source separation recycling programs include:

- Single-Family Curbside Collection Program: Expand the existing programs to recycle an additional estimated 30 tons per day (tpd), equivalent to 2.1% of the disposal tonnage, by the end of 2003.
- Multi-unit Curbside Collection Program: Implement new programs to recycle an additional estimated 10 tpd, equivalent to 0.7% of the disposal tonnage, by the end of 2003.
- Material Reuse and Recovery Operation: Expand existing programs to recycle an additional estimated 10 tpd, equivalent to 2.1% of the disposal tonnage, by the end of 2003.
- Beverage Container Recycling Program: Implement new programs to recycle an estimated one tpd, equivalent to 0.1% of the disposal tonnage, by the end of 2003.

4.4.1.2 Mixed Waste Recovery Programs

- Floor-Sort Activities: Expand existing programs to recycle an additional estimated 20 tpd, equivalent to 2.1% of the disposal tonnage, by the end of 2003.

4.4.1.3 Market Development Objectives

Since Sonoma County is subject to market forces beyond the county boundaries, a study was performed to help identify those forces and the materials affected and to formulate a market development strategy. The report titled "Sonoma County Recovered Materials Market Development Study" identifies a market strategy both the county

and individual cities can utilize. The components of that strategy include the following objectives.

- Monitoring and influencing state policy development. Local government can work to strengthen existing markets and create new ones by supporting market development legislation and monitoring the implementation of existing market development laws and agency actions.

- Encourage adoption of public and private procurement policies. Local governments have a significant effect on the marketplace by increasing their procurement of products made from recycled materials. Local government can encourage the private sector to develop similar procurement policies.

- Encourage use of recovered materials by existing local businesses and attract new businesses that use recovered materials. The cities and county can help identify materials that will be difficult to market in the short and medium term. They can encourage existing businesses to begin developing products to use those materials or develop a strategy to attract businesses that can use them.

- Develop a strategic market plan. In order to offset the potential statewide markets competition from the increase in the quantity of recovered materials from all jurisdictions, local communities can minimize the intra county competition for limited markets by coordinated approaches to program implementation.

- Establishment of a regional market development roundtable. The jurisdictions in Sonoma County can form a market development subcommittee within their regional agreement. This subcommittee can focus on local markets and participate in other groups that may form to address markets in Northern California or the Bay Area.

- Monitoring and influencing national and international market development strategy. To protect the viability of local programs, jurisdictions in Sonoma County can seek to influence federal activities. This can be achieved through monitoring the activities, joining existing organizations (National Recycling Coalition, Recycling Advisory Council, etc.), and by forming a regional policy organization, such as the roundtable discussed above.

4.4.2 CURRENT RECYCLING ACTIVITIES

Diversion efforts in Sonoma County have grown since 1985 from a network of drop-off/buyback centers and limited curbside collection service to a diversified system of recycling alternatives targeting all sectors of the community. By 1990, residential curbside and commercial recycling collection programs were widespread throughout the county. These ventures were supported by the existing network of drop-off and buyback centers and the reuse operations at the Central Disposal Site and the Healdsburg and Sonoma Transfer Stations. Table 4-9(a) to (o) summarizes recycling activities in each jurisdiction and wasteshed.

Table 4-9(a): Recycling Activities for Cloverdale as of 2002	
Buyback Centers	One buyback center (CRV only)
Residential Recycling	Single-family residential curbside recycling collection
Residential Yard Debris Collection	Every other week curbside collection
Commercial Recycling	• Corrugated cardboard • Scrap metal • Office paper • Aluminum • Glass • Plastic bottles • Wood; pallets • Pallet shrink wrap • Paper (magazines, newspaper, phone books, aseptic packaging, etc.)
Recycling Facilities at the Healdsburg Transfer Station Serving Cloverdale	
	• Drop-off recycling center • Material reuse/recovery operation

Table 4-9(b): Recycling Activities for Cotati as of 2002	
Drop-Off Centers	One drop-off center
Residential Recycling	• Single-family residential curbside recycling collection • Multi-unit recycling collection
Residential Yard Debris Collection	Every other week curbside collection
Commercial Recycling	• Corrugated cardboard • Scrap metal • Office paper • Aluminum • Glass • Plastic bottles • Wood; pallets • Pallet shrink wrap • Paper (magazines, newspaper, phone books, aseptic packaging, etc.)
Recycling Facilities at the Central Landfill Serving Cotati	
	• Drop-off recycling center • Material reuse/recovery operation

Table 4-9(c): Recycling Activities for Healdsburg as of 2002	
Buyback Centers	One buyback center (CRV only)
Residential Recycling	Single-family residential curbside recycling collection
Residential Yard Debris Collection	Every other week curbside collection
Commercial Recycling	• Corrugated cardboard • Scrap metal • Office paper • Aluminum • Glass • Plastic bottles • Wood; pallets • Pallet shrink wrap • Paper (magazines, newspaper, phone books, aseptic packaging, etc.)
Recycling Facilities at the Healdsburg Transfer Station Serving Healdsburg	
	• Drop-off recycling center • Material reuse/recovery operation

Table 4-9(d): Recycling Activities for Petaluma as of 2002	
Drop-off/Buyback Centers	Two drop-off/buyback centers; two 20/20 buyback centers (CRV only)
Residential Recycling	Single-family residential curbside recycling collection
Residential Yard Debris Collection	Every other week curbside collection
Commercial Recycling	• Corrugated cardboard • Office paper • Glass • Wood; pallets • Scrap metal • Aluminum • Plastic bottles • Pallet shrink wrap • Paper (magazines, newspaper, phone books, aseptic packaging, etc.)
Recycling Facilities at the Central Landfill Serving Petaluma	
	• Drop-off recycling center • Material reuse/recovery operation

Table 4-9(e): Recycling Activities for Rohnert Park as of 2002	
Buyback Centers	One 20/20 buyback center (CRV only)
Residential Recycling	Blue can, single-stream residential curbside recycling collection service
Residential Yard Debris Collection	Weekly curbside collection
Commercial Recycling	• Corrugated cardboard • Office paper • Glass • Wood; pallets • Scrap metal • Aluminum • Plastic bottles • Pallet shrink wrap • Paper (magazines, newspaper, phone books, aseptic packaging, etc.)
Recycling Facilities at the Central Landfill Serving Rohnert Park	
	• Drop-off recycling center • Material reuse/recovery operation

Table 4-9(f): Recycling Activities for Santa Rosa as of 2002	
Drop-off/Buyback Centers	Two drop-off/buyback centers; four 20/20 buyback centers (CRV only); two drop-off centers
Residential Recycling	Single-family residential curbside recycling collection
Residential Yard Debris Collection	Every other week curbside collection
Commercial Recycling	• Corrugated cardboard • Office paper • Glass • Wood; pallets • Scrap metal • Aluminum • Plastic bottles • Pallet shrink wrap • Paper (magazines, newspaper, phone books, aseptic packaging, etc.)
Recycling Facilities at the Central Landfill Serving Santa Rosa	
	• Drop-off recycling center • Material reuse/recovery operation

Table 4-9(g): Recycling Activities for Sebastopol as of 2002	
Drop-off/Buyback Centers	One drop-off center (cardboard only); two 20/20 buyback centers (CRV only)
Residential Recycling	Blue can, single-stream residential curbside recycling
Residential Yard Debris Collection	Weekly curbside collection
Commercial Recycling	• Corrugated cardboard • Office paper • Glass • Wood; pallets • Paper (magazines, newspaper, phone books, aseptic packaging, etc.) • Scrap metal • Aluminum • Plastic bottles • Pallet shrink wrap
Recycling Facilities at the Central Landfill Serving Sebastopol	
	• Drop-off recycling center • Material reuse/recovery operation

Table 4-9(h): Recycling Activities for Sonoma as of 2002	
Buyback Centers	One 20/20 buyback center (CRV only)
Residential Recycling	Blue can, single-stream residential curbside recycling
Residential Yard Debris Collection	Weekly curbside collection
Commercial Recycling	• Corrugated cardboard • Office paper • Glass • Wood; pallets • Paper (magazines, newspaper, phone books, aseptic packaging, etc.) • Scrap metal • Aluminum • Plastic bottles • Pallet shrink wrap
Recycling Facilities at the Sonoma Transfer Station Serving Sonoma	
	• Drop-off recycling center • Material reuse/recovery operation

Table 4-9(i): Recycling Activities for Windsor as of 2002	
Buyback Centers	One 20/20 buyback center (CRV only)
Residential Recycling	Blue can, single-stream residential curbside recycling
Residential Yard Debris Collection	Weekly curbside collection
Commercial Recycling	• Corrugated cardboard • Office paper • Glass • Wood; pallets • Paper (magazines, newspaper, phone books, aseptic packaging, etc.) • Scrap metal • Aluminum • Plastic bottles • Pallet shrink wrap
Recycling Facilities at the Healdsburg Transfer Station Serving Windsor	
	• Drop-off recycling center • Material reuse/recovery operation

Table 4-9(j): Recycling Activities for Unincorporated County Annapolis Wasteshed for 2002	
Residential Recycling	Blue can, single-stream residential curbside recycling collection serving the Sea Ranch community
Residential Yard Debris Collection	Weekly curbside collection serving the Sea Ranch community
Commercial Recycling	• Corrugated cardboard • Office paper • Glass • Wood; pallets • Paper (magazines, newspaper, phone books, aseptic packaging, etc.) • Scrap metal • Aluminum • Plastic bottles • Pallet shrink wrap
Recycling Facilities at the Anapolis Transfer Station	
	• Drop-off recycling center

Table 4-9(k): Recycling Activities for Unincorporated County Central Wasteshed for 2002	
Buyback Centers	Three buyback centers
Residential Recycling	• Blue can, single-stream residential curbside recycling • Multi-unit recycling collection
Residential Yard Debris Collection	Weekly curbside collection
Commercial Recycling	• Corrugated cardboard • Office paper • Glass • Wood; pallets • Paper (magazines, newspaper, phone books, aseptic packaging, etc.) • Scrap metal • Aluminum • Plastic bottles • Pallet shrink wrap
Recycling Facilities at the Central Landfill	
	• Drop-off recycling center • Material reuse/recovery operation

Table 4-9(l): Recycling Activities for Unincorporated County Healdsburg Wasteshed for 2002	
Residential Recycling	• Blue can, single-stream residential curbside recycling • Multi-unit recycling collection
Residential Yard Debris Collection	Weekly curbside collection
Commercial Recycling	• Corrugated cardboard • Office paper • Glass • Wood; pallets • Paper (magazines, newspaper, phone books, aseptic packaging, etc.) • Scrap metal • Aluminum • Plastic bottles • Pallet shrink wrap
Recycling Facilities at the Healdsburg Transfer Station	
	• Drop-off recycling center • Material reuse/recovery operation

Table 4-9(m): Recycling Activities for Unincorporated County Guerneville Wasteshed for 2002	
Residential Recycling	• Blue can, single-stream residential curbside recycling • Multi-unit recycling collection
Residential Yard Debris Collection	Weekly curbside collection
Commercial Recycling	• Corrugated cardboard • Scrap metal • Office paper • Aluminum • Glass • Plastic bottles • Wood; pallets • Pallet shrink wrap • Paper (magazines, newspaper, phone books, aseptic packaging, etc.)
Recycling Facilities at the Guerneville Transfer Station	
	• Drop-off recycling center

Table 4-9(n): Recycling Activities for Unincorporated County Occidental Wasteshed for 2002	
Residential Recycling	• Blue can, single-stream residential curbside recycling • Multi-unit recycling collection
Residential Yard Debris Collection	Weekly curbside collection
Commercial Recycling	• Corrugated cardboard • Scrap metal • Office paper • Aluminum • Glass • Plastic bottles • Wood; pallets • Pallet shrink wrap • Paper (magazines, newspaper, phone books, aseptic packaging, etc.)
Recycling Facilities at the Occidental Transfer Station	
	• Drop-off recycling center

Table 4-9(o): Recycling Activities for Unincorporated County Sonoma Wasteshed for 2002	
Residential Recycling	• Blue can, single-stream residential curbside recycling • Multi-unit recycling
Residential Yard Debris Collection	Weekly curbside collection
Commercial Recycling	• Corrugated cardboard • Scrap metal • Office paper • Aluminum • Glass • Plastic bottles • Wood; pallets • Pallet shrink wrap • Paper (magazines, newspaper, phone books, aseptic packaging, etc.)
Recycling Facilities at the Sonoma Transfer Station	
	• Drop-off recycling center • Material reuse/recovery operation

4.4.2.1 Current Source Separation Recycling Programs

Source separation recycling programs require separation of recyclables from non-recyclables at the place the waste is generated. Sonoma County residents and businesses are offered a number of source separation programs.

Residential Source Separation Programs

Table 4.9 provides a summary of the residential source separation programs by jurisdictions and wastesheds for Sonoma County. Programs include:

1. Residential Curbside Collection: Residential curbside collection is available to all single-family homes in Sonoma County. All curbside collection programs collect cardboard; paper (newspaper, magazines, carton board, phone books, junk mail, etc.); plastic food and beverage containers 1 through 7; glass food and beverage containers; aluminum cans, foil, and foil containers; tin, steel and bi-metal cans; aerosol cans; and aseptic packaging (milk cartons, juice boxes). Curbside programs in the cities of Rohnert Park, Santa Rosa, Sonoma, and the unincorporated county include used motor oil and used oil filters. In 2002, the curbside programs in the unincorporated county managed by Empire Waste Management began collecting small electronics, such as printers, telephones, calculators, VCRs, camcorders, stereos, fax machines, answering machines, cell phones, radios, hair dryers, curling irons, toasters, and blenders.

   Residential curbside collection is currently transitioning from the three-bin stacking system (used in most areas) to a single-stream 95-gallon blue bin (with smaller sizes available upon request). Rohnert Park and unincorporated county residents received blue bins in 2001. Residents of Sebastopol, Sonoma, and Windsor will receive blue bins in 2002. The remaining jurisdictions are considering single-stream recycling as collection services are being renegotiated or put out to competitive bidding. Local haulers have constructed the sorting lines necessary to process single-stream recyclables.

2. Drop-Off Recycling Centers: A number of drop-off centers are located throughout Sonoma County. Depending on the operational capacity of a drop-off center, materials collected may include glass food and beverage containers; aerosol cans; aluminum cans, foil, and foil containers; tin, steel and bi-metal cans; scrap metal; brown paper bags, cardboard, and carton board; computer and office paper; magazines; mixed paper and junk mail; newspaper; telephone and soft cover books; CRV plastic bottles; non-CRV plastic food and beverage containers 1 through 7; and aseptic packaging.

3. Buyback Recycling Centers: Most buyback recycling centers are the 20/20 recycling centers funded by the Department of Conservation. These centers buy back glass, plastic, and aluminum CRV beverage containers. A few of the drop-off recycling centers in Sonoma County also buy back the CRV beverage containers.

4. Multi-unit Recycling Programs: Many of the haulers offer multi-unit residential recycling services in their franchised service areas. These programs collect most of the same materials as the single-family residential recycling program, depending on the type of program requested by building managers. Except for the City of Rohnert Park where the hauler is required to provide recycling services to multi-unit residents free of charge, most multi-unit buildings are provided commercial services, and are, therefore, charged for recycling services.

5. Wood Debris Recovery Programs: Christmas tree recycling is offered to all Sonoma County residents. Nine drop-off locations are set up for three weeks beginning December 26th of each year. Residents who have residential yard debris collection can cut the tree to fit into their green container and recycle it at any time. Rohnert Park and Windsor residents can place their whole tree on the curb for collection on scheduled days. Appointments for collection by a local non-profit can be scheduled for a $5.00 donation. Once collected, Christmas trees are processed into mulch and compost products at the Central Disposal Site.

Curbside collection of other wood debris is not offered to Sonoma County residents. Those residents with wood debris must take the material to one of the county-owned solid waste facilities or private businesses that process wood debris into various mulch products.

Commercial and Industrial Source Separation Programs

Table 4.9 provides a summary of the commercial and industrial source separation programs by jurisdictions and wastesheds for Sonoma County. Programs include:

1. Commercial Collection Programs: Twenty-six recycling operators listed their commercial collection services in the 2002 Annual Recycling Guide. Depending on the recycling operator, materials collected include glass food and beverage containers; aluminum, tin, seel and bi-metal cans; scrap metal; cardboard and carton board; computer and office paper; magazines, newspaper; telephone and soft cover books; plastic beverage containers; pallets, yard debris and wood waste; and concrete and asphalt.

2. Confidential Paper Shredding and Recycling Services: Five recycling operators listed their confidential paper shredding and recycling services in the 2002 Annual Recycling Guide.

3. Plastic Shrink Wrap Recycling: In 2002, three recycling operators began collecting plastic pallet shrink wrap (polyethylene film) to meet increasing demands from manufacturers for feedstock for products such as home siding and plastic lumber.

4. Special Events Recycling: Local haulers provide containers and recycling collection service for special events.

4.4.2.2 Mixed Waste Recycling Programs

Mixed waste recycling refers to the recovery of materials after they have entered the waste stream. Load checking programs operating at the solid waste facilities in Sonoma County target self-haul customers that bring their own solid waste to the facilities. Load checking redirects banned materials, such as yard debris, wood waste, tires, and appliances to specific collection areas for processing prior to marketing the materials. In addition, other banned materials, such as CRTs and hazardous waste are handled separately for proper disposal.

Sonoma County disposal sites offer reduced disposal rates for wood waste and yard debris, which are processed into mulch and compost products at the Central Disposal Site. Materials are collected in separate bays at the transfer stations prior to transporting them.

4.4.2.3 Local Government Programs to Procure Recycled Products

Local government programs include municipal purchasing preference policies designed to increase the use of materials made with post-consumer materials, local government policies that restrict the use of materials that are not recyclable, and programs that require manufacturers to use minimum percentages of post-consumer materials in the manufacture of new goods produced in a jurisdiction.

The SCWMA adopted a Green Purchasing Policy on June 20, 2000 and is working with its member jurisdictions to adopt and implement similar policies. The SCWMA's Green Purchasing Policy includes:

- purchasing recycled products;
- requiring contractor and consultants to use products manufactured with the highest amount of postconsumer material practical;
- purchasing, leasing, or renting equipment compatible with the use of recycled products;
- requiring contractors to use recycled paper;
- promoting the use of recycled products; and
- using remanufactured products

4.4.2.4 Current Recycling Levels

Table 4.10 shows the current levels of recycling, by material type and program, in Sonoma County from programs funded by the SCWMA or it's member jurisdictions.

4.4.2.5 Anticipated Decrease in Recycling Activities

The SCWMA does not anticipate a decrease in recycling activities in the future for any of the six wastesheds in Sonoma County.

4.4.3 EVALUATION OF RECYCLING ALTERNATIVES

Title 14, Chapter 9, Section 18733.3 outlines the evaluations process to be used for the alternatives, including analysis of diversion alternatives affecting residential, commercial, and industrial wastes; existing recycling programs and their possible expansion; and the advantages and disadvantages of public versus private ownership or operation of recycling programs and facilities. This section presents a general discussion of the recycling program alternatives evaluated and the evaluation criteria.

4.4.3.1 Evaluation Process

The purpose of the alternatives evaluation process is to choose appropriate recycling programs for the various areas in Sonoma County by applying a set of technical, economic, and institutional criteria to a wide range of recycling alternatives. Each alternative is evaluated using the criteria in Table 4.11, including the issues specified in Section 18733.3(b) of the regulations: consistency with local planning, barriers to implementation, and public versus private operations. In Table 4.11, the weight of the evaluation criteria represents the relative importance of one criteria to the others and is used in the evaluation of any new programs that may be considered in the future. The alternatives evaluated are listed in Table 4.12, and the results are found in Table 4.13.

4.4.3.2 Description of Recycling Alternatives

The recycling alternatives identified cover a wide range of systems and services focusing on each of the four major waste sources (residential, commercial, industrial, and other). These programs are tailored to the specific recycling needs of rural areas to ensure high levels of participation and diversion. Table 4-12 provides a list of these alternatives.

Salvaging at waste disposal facilities was not considered due to existing anti-scavenging ordinances at the Central Landfill adopted for health and safety reasons. Instead, material reuse and recovery operations that accomplish similar goals are considered.

4.4.3.3 Source Separation Alternatives

Rural Recycling Issues

Due to the different types of residential and commercial land use patterns in Sonoma County, it is necessary to tailor selected recycling programs to meet the needs of the rural recycler. The county areas adjacent to cities and established population centers in the Highway 101 corridor area often have a decidedly urban or suburban character. Many residents subscribe to regular waste collection services, their lifestyles contribute to substantial per capita waste generation rates, and the opportunities for recycling are usually numerous and convenient. These residents are included in existing curbside recycling programs, and they usually do not require additional recycling opportunities.

There are many areas of Sonoma County that exhibit a more rural land use pattern. These rural areas are usually defined as regions with long travel distances to major population centers, fewer consumer and governmental services, limited commercial and industrial operations, non-traditional employment opportunities, and very low

per square mile population densities (under 100 people per square mile). A significant number of residents of rural areas already practice sound waste management by buying goods in bulk, growing some of their own produce, generating less packaging, and repairing and reusing durable goods (i.e., appliances, furniture, and vehicles) at a higher rate than their urban or suburban counterparts. Because of these geographic and social conditions, many of the more accepted recycling programs (i.e., curbside and commercial collections, and industrial recycling programs) are not readily adaptable or cost-effective in these areas.

Different waste management strategies are required to generate additional diversion rates set for remote areas. Past experience in rural recycling has shown that the most effective approaches are those that use existing infrastructure and organizations available to these areas. Community-based organizations, civic groups, churches, special service districts (including University of California Cooperative Extension, fire, school, sewer and water districts) serve a quasi-governmental role in remote areas. These organizations act as a social hub for residents. It is logical to use these groups and volunteer labor, in cooperation with the county and/or waste hauling operations, to staff and operate recycling services. Such use of the local human resource base improves the cost-effectiveness of selected programs by bringing a local flavor to new activities. The most common approach is usually a variation of the cost-effective drop-off recycling program.

Table 4-10: 2001 Recycling and Composting Quantities for SRRE Programs Funded or Operated by the SCWMA or its Member Jurisdictions (in tons of materials diverted)

Commodity	County Drop-offs, Floor-sort and White Goods	Residential Curbside Recycling	Commercial Recycling Collection	Yard Debris Composting	Wood Waste Recovery	Tire Recycling	Total
Newspaper	821.82	20,907	1,444.25				23,173.07
Magazines	1.23						1.23
Cardboard	873	1,108	20,191.67				22,172.67
Office paper			1,339.44				1,339.44
Mixed paper	311.59	4,418.10	1,550.29				6,279.98
Poly cartons		112	38				150
Glass	537.49	9,909.38	2,004.33				12,451.20
Tin cans		1,102.33	196.02				1,298.35
Scrap metal	7,378.01						7,378.01
Aluminum cans	33.24	203.66	6.19				243.09
Foam	3.16						3.16
Rock/concrete		66					66
Mixed plastics	129.1	899.73	75.11				1,103.91
HDPE			9				9
PET		488.61	3				491.61
Reuse	525.48						525.48
Tires						153.68	153.68
Yard debris				70,660			70,660
Wood waste					9,465.00		9,465
Total	10,256.51	38,697.67	27,225.38	62,433.71	12,373.66	178.85	157,179.42

Recreational Area Recycling

Sonoma County is host to numerous county and state-sponsored tourist facilities. These tourist and recreational areas include county and state beaches, marinas, parks, and public and private campgrounds. The county also is a host to a wide variety of special events including agricultural and viticultural promotions, county fairs, and other regularly scheduled special events. These facilities generate substantial amounts of recyclable materials (primarily consisting of beverage containers and paper products) that are not always targeted for diversion at the point of generation. Because of the cyclical nature of the use of these facilities (i.e., vacation and peak season use) the establishment of a easily managed material recovery program is preferable. Most facilities only require the location of a modified recycling container. Servicing these containers can be provided by a community-based organization, the present waste hauling contractor or recycling operator.

Table 4-11: Criteria and Ranking for Evaluating Recycling Alternatives

Criteria	Weight
• Waste Diversion Potential	10
• Ease of Tracking Diversion	5
• Environmental Impacts/Benefits	11
• Operating Experience	6
• Conformity with Local Markets	8
• Facility/Program Requirements	6
• Capital Cost	6
• Cost Effectiveness	9
• Operating Costs	8
• Conformity with State Hierarchy	4
• Ease of Implementation	6
• Private Sector Participation	6
• Changes in Waste Type Generation/Use	7
• Adaptability to Changing Social Conditions	8
• Consistency with local policies and conditions	7
• Local barriers to implementation	7
• Implementation Cost	7
• Availability of end uses for recovered materials	7

Table 4-12: Recycling Alternatives

Program Type	Program Alternative
Source Separation	Drop-off centers Mobile drop-off operation Buyback centers Mobile buy-back operation Curbside recycling Single-stream curbside recycling Multi-unit recycling Commercial collection Office paper recovery Material reuse/recovery operations
Mixed Waste Recovery	Floor-sort Activities (manual) Line-bale recovery (mechanical)
Local Government Programs	Recycled material procurement

Table 4-13: Recycling Alternatives Analysis

CRITERIA	Drop-Off Centers	Buyback Centers	Mobile Buyback/Drop-Off Operations
1. Waste diversion potential	· Typically very low compared with other recycling options. · Multi-material centers generally divert less than 2% of materials from established centers. · May divert more if other alternatives are not available.	· Usually target CRV materials for high profit margins. · Programs can attain higher diversion rates when market prices are strong. · Waste diversion generally greater than drop-offs, but less than 2%.	· Usually target CRV materials for high profit margins. · Waste diversion potential not well documented, but expected to be less than 2%.
2. Ease of tracking diversion	Multi-jurisdictional tracking program can provide accurate assessments of tonnage allocation for each jurisdiction.	Multi-jurisdictional tracking program can provide accurate assessments of tonnage allocation for each jurisdiction.	Multi-jurisdictional tracking program can provide accurate assessments of tonnage allocation for each jurisdiction.
3. Environmental impacts	· Few instances of environmental violations or hazards; minimal noise and litter. · Pollutants can be adequately contained. · Requires little or no energy/natural resource use.	· Few instances of environmental violations or hazards; minimal noise and litter. · Pollutants can be adequately contained. · Requires little or no energy/natural resource use. · Traffic congestion controllable with proper siting.	· Few instances of environmental violations or hazards; little or no nuisance effects. · Pollutants can be adequately contained. · Requires some energy/natural resource use for vehicles.
4. Operating experience	· High degree of technical reliability; few periods of reduced operation or technical failure. · 2,000+ multi material programs nationwide. · Appropriate to urban and rural areas.	· Established in nearly all metropolitan areas where materials markets exist. · Several thousand single and multi materials operations in the U.S.	New programs designed to provide services to areas that may not have sufficient population base to warrant full time buyback or curbside collection operations.
5. Conformity with local markets	· Compatible with existing regional materials markets. · Local markets are available and stable.	· Compatible with existing regional materials markets. · Local markets are available and stable.	· Compatible with existing regional materials markets. · Local markets are available and stable.
6. Facility program requirements	Additional processing capacity for existing drop-off centers will be required.	Additional processing capacity for existing buyback centers will be required.	Implementation will require new program development.
7. Capital cost	· Depending on program design, capital costs ranges from less than $10,000 to $50,000 per site. · Minimal processing equipment and facility requirements.	· Capital costs for multi-material facility with processing capability is greater than $100,000. · Level of equipment depends on targeted materials and market specifications.	· Capital costs for equipment usually does not exceed $100,000 per vehicle collection unit. · Maintenance and operations costs are typical of collection vehicle expenses.

Table 4-13: Recycling Alternatives Analysis

CRITERIA	Drop-Off Centers	Buyback Centers	Mobile Buyback/Drop-Off Operations
8. Cost effectiveness	· Material revenues may be sufficient to cover operating costs. · Dependable markets and local hauling service needed. · Approximate cost per diverted ton ranges from $10 to $50.	· Material revenues typically sufficient to cover operating costs. · Dependable markets and local hauling service needed. · Management, staffing, and facility requirements can be substantial compared to drop-off centers. · Approximate cost per diverted ton is $30 to $60.	· Material revenues may be sufficient to cover operating costs. · Dependable markets and local hauling service needed. · Requires operating agreements with centralized buyback and/or processing operations. · Approximate cost per diverted ton has yet to be determined.
9. Operating costs	Alternative has a relatively small potential for reducing waste management operating costs.	Alternative has a relatively small potential for reducing waste management operating costs.	Alternative has a relatively small potential for reducing waste management operating costs.
10. Conformity with state hierarchy	The alternative is considered recycling.	The alternative is considered recycling.	The alternative is considered recycling.
11. Ease of implementation	Implementation time is less than one year. Little or no county/city staff time required to implement.	Implementation time is less than one year. Little or no county/city staff time required to implement.	Implementation time is less than one year. Some county/city staff time required to implement.
12. Private sector participation	Typically there is a large opportunity for private sector participation.	Typically there is a large opportunity for private sector participation.	Typically there is a large opportunity for private sector participation.
13. Changes in waste type, generation, or use	The alternative could create a positive shift from one waste type to another; i.e., it could cause a shift in the generation or use to a more desirable material (e.g., recyclable or marketable).	The alternative could create a positive shift from one waste type to another; i.e., it could cause a shift in the generation or use of a more desirable material (e.g., recyclable or marketable).	The alternative could create a positive shift from one waste type to another; i.e., it could cause a shift in the generation or use to a more desirable material (e.g., recyclable or marketable).
14. Adaptability to changing social conditions	The alternative provides small-to-moderate opportunities for increasing awareness in waste-reducing behavior.	The alternative provides small-to-moderate opportunities for increasing awareness in waste-reducing behavior.	The alternative provides small-to-moderate opportunities for increasing awareness in waste-reducing behavior.
15. Consistency with Local Conditions	Consistency with County siting requirements is performed on a case-by-case basis.	Consistent with local conditions.	Consistent with local conditions
16. Institutional Barriers to Implementation	None.	None.	The California Beverage Container Recycling and Litter Reduction Act does not allow certification which limits operators' ability to collect CRV for beverage containers purchased or redeemed affecting economics.
17. Public Versus Private Ownership/Operation	Typically operated by the private sector/nonprofit groups. Public sector often provides site and some promotional support. Public-sector involvement is often to enhance private operations or to fill a void in the absence of private operation.	Public sector establishment is appropriate when it does not create competition with existing private operations or when the public does not have reasonable access to a local buyback center.	Operations in state-certified convenience zones are likely to be dominated by private-sector involvement. Some similar programs are operated by local private waste haulers.

Table 4-13: Recycling Alternatives Analysis

CRITERIA	Drop-Off Centers	Buyback Centers	Mobile Buyback/Drop-Off Operations
18. Availability of end uses for recovered materials	· Aluminum can sheet suppliers purchase all UBCs · Single-colored glass cullet more desirable for new glass containers · Mixed-colored glass cullet used for glassphalt, fiberglass and acoustic tiles · Recovered steel/tin cans and ferrous metals bought by detinning plants, steel mills and iron and steel foundries · Nonferrous metals used by foundries, smelters, fabricators, etc. · Recovered plastics used to make carpets, clothing, office, supplies, etc. New products continue to grow. · New products of up to 100% post-consumer paper continue to increase.	· Aluminum can sheet suppliers purchase all UBCs · Single-colored glass cullet more desirable for new glass containers · Mixed-colored glass cullet used for glassphalt, fiberglass and acoustic tiles · Recovered steel/tin cans and ferrous metals bought by detinning plants, steel mills and iron and steel foundries · Nonferrous metals used by foundries, smelters, fabricators, etc. · Recovered plastics used to make carpets, clothing, office, supplies, etc. New products continue to grow. · New products of up to 100% post-consumer paper continue to increase.	· Aluminum can sheet suppliers purchase all UBCs · Single-colored glass cullet more desirable for new glass containers · Mixed-colored glass cullet used for glassphalt, fiberglass and acoustic tiles · Recovered steel/tin cans bought by detinning plants, steel mills and iron and steel foundries · Recovered plastics used to make carpets, clothing, office, supplies, etc. New products continue to grow. · New products of up to 100% post-consumer paper continue to increase.

Table 4-13: Recycling Alternatives Analysis

CRITERIA	Single Family/Single-Stream Curbside Recycling	Multi Unit Recycling
1. Waste diversion potential	· High potential for source separation recycling alternatives. · 5 to 25% single family residential waste diversion is attainable. Single-stream may be higher. · 5 to 10% diversion of total community waste stream is attainable with effective operations. Single-stream may be higher.	· High potential for source separation recycling alternatives. · 5 to 25% multi unit residential waste diversion is attainable. · Typically, no more than 5% diversion of total community waste stream is attainable.
2. Ease of tracking diversion	Multi-jurisdictional tracking program can provide accurate assessments of tonnage allocation for each jurisdiction.	Multi-jurisdictional tracking program can provide accurate assessments of tonnage allocation for each jurisdiction.
3. Environmental impacts	· Minor additional traffic impact from collection vehicles servicing routes. · Minimal adverse impacts.	· Minor additional traffic impact from collection vehicles servicing routes. · Minimal adverse impacts.
4. Operating experience	· 1,000+ programs nationwide. · Program design and results have varied significantly; becoming more standardized.	· 100+ programs nationwide. · Program design and results have varied significantly; becoming more standardized.
5. Conformity with local markets	Compatible with existing Sonoma County regional markets.	Compatible with existing Sonoma County regional markets.
6. Facility program requirements	· Single-stream will require more capacity. · Few or no changes in current local waste collection and disposal practices.	New processing capacity will be required for multi unit curbside collection.
7. Capital costs	· Capital costs are based on the size of the service area and the number of accounts. · Costs for containers, collection vehicles, and processing capabilities capital costs range from $10,000 to $100,000+.	· Capital costs are based on the size of the service area and the number of accounts. · Costs for containers, collection vehicles, and processing capabilities capital costs range from $30,000 to $100,000+.
8. Cost effectiveness	· Material sales alone are often insufficient to cover collection and processing costs. · If waste diversion credits are applied, program may be self-sustaining. · Cost per diverted ton may exceed $100.	· Material sales alone are often insufficient to cover collection and processing costs. · If waste diversion credits are applied, program may be self-sustaining. · Cost per diverted ton may exceed $100.
9. Operating costs	Alternative has small-to-moderate potential for reducing waste management operating costs.	Alternative has small-to- moderate potential for reducing waste management operating costs.
10. Conformity with state hierarchy	The alternative is considered recycling.	The alternative is considered recycling.
11. Ease of implementation	Implementation time is usually more than one year. Some county/city staff time required for rate approval and implementation.	· Implementation time is usually more than one year. Some county/city staff time required for rate approval and implementation. · Identification and cooperation of building owners required; potential time-consuming process. · Anti-scavenging ordinances, new contracts for services, and public awareness campaigns are required.
12. Private sector participation	Typically, there is a large opportunity for private-sector participation.	Typically, there is a large opportunity for private-sector participation.

Table 4-13: Recycling Alternatives Analysis

CRITERIA	Single Family/Single-Stream Curbside Recycling	Multi Unit Recycling
13. Changes in waste type, generation, or use	The alternative could create a positive shift from one waste type to another; i.e., it would cause a shift in the generation or use of a more desirable material (e.g., recyclable or marketable).	The alternative could create a positive shift from one waste type to another; i.e., it would cause a shift in the generation or use of a more desirable material (e.g., recyclable or marketable).
14. Adaptability to changing social conditions	The alternative provides small-to-moderate opportunities for increasing awareness/waste reducing behavior.	The alternative provides small-to-moderate opportunities for increasing awareness/waste reducing behavior.
15. Consistency with Local Conditions	Consistent with local conditions.	Consistent with local conditions.
16. Institutional Barriers to Implementation	None.	None.
17. Public Versus Private Ownership/Operation	Public and private involvement. Local franchise agreements include providing service to customers.	Most programs in Sonoma County are operated solely by the private sector. Rohnert Park began requiring multi-unit service in its new franchise agreement in 2001.
18. Availability of end uses for recovered materials	· Aluminum can sheet suppliers purchase all UBCs · Mixed-colored glass cullet used for glassphalt, fiberglass and acoustic tiles · Recovered steel/tin cans bought by detinning plants, steel mills and iron and steel foundries · Recovered plastics used to make carpets, clothing, office, supplies, etc. New products continue to grow. · New products of up to 100% post-consumer paper continue to increase.	· Aluminum can sheet suppliers purchase all UBCs · Mixed-colored glass cullet used for glassphalt, fiberglass and acoustic tiles · Recovered steel/tin cans bought by detinning plants, steel mills and iron and steel foundries · Recovered plastics used to make carpets, clothing, office, supplies, etc. New products continue to grow. · New products of up to 100% post-consumer paper continue to increase.

Table 4-13: Recycling Alternatives Analysis

CRITERIA	Commercial Source Separation Recycling	Office Paper Recovery
1. Waste diversion potential	· 5 to 15% recovery of commercial/industrial waste stream can be accomplished, depending on targeted materials. · Typically less than 5% recovery of total waste stream.	· Recovery rates can be significant for government offices, banks, and office buildings. · Generally low waste diversion potential overall.
2. Ease of tracking diversion	Tracking may be difficult as materials will be collected by several different recycling companies.	Multi-jurisdictional tracking program can provide accurate assessments of tonnage allocation for each jurisdiction.
3. Environmental hazards	· Minor additional traffic impact from collection vehicles servicing routes. · Minimal adverse impacts.	No significant impacts.
4. Operating experience	Program design and results have varied significantly.	· Several hundred programs nationwide. · Significant variation in program size and design.
5. Conformity with local markets	Compatible with existing Sonoma County regional markets.	Local paper markets available through materials processors and brokers.
6. Facility program requirements	Independent recyclers many need to expand processing capacity.	· Paper recovery programs can be easily integrated into existing facilities or programs without large alterations. · Relies on voluntary staffing and promotion in offices when established.
7. Capital costs	Independent recyclers many incur capital costs. However, it is not possible to estimate the possible improvements and costs.	Approximately $1 per desk to provide containers.
8. Cost effectiveness	· Material sales usually cover collection and processing costs. · If waste diversion credits are applied, program increase profitability and effectiveness. · Cost per diverted ton may exceed $30.	Usually offered to large-volume generators as free service by paper brokers.
9. Operating costs	Alternative has a small-to-moderate potential for reducing waste management operating costs.	Alternative has a small-to-moderate potential for reducing waste management operating costs.
10. Conformity with state hierarchy	The alternative is considered recycling.	The alternative is considered recycling.
11. Ease of implementation	Implementation is ongoing and will require some staff time for technical assistance and promotion.	Implementation time is less than one year. Little or no county/city staff time required to implement.
12. Private sector participation	The implementation of collection services will be provided solely by the private sector.	The implementation of collection services will be provided solely by the private sector
13. Changes in waste type, generation, or use	The alternative could create a positive shift from one waste type to another; i.e., it would cause a shift in the generation or use of a more desirable material (e.g., recyclable or marketable).	The alternative could create a positive shift from one waste type to another; i.e., it could cause a shift in the generation or use to a more desirable material (e.g., recyclable or marketable).
14. Adaptability to changing social conditions	The alternative provides small-to- moderate opportunities for increasing awareness/waste reducing behavior.	The alternative provides small-to- moderate opportunities for increasing awareness/waste reducing behavior.

Table 4-13: Recycling Alternatives Analysis

CRITERIA	Commercial Source Separation Recycling	Office Paper Recovery
15. Consistency with Local Conditions	Consistent with local conditions.	Consistent with local conditions.
16. Institutional Barriers to Implementation	Market prices, avoided disposal costs, scavenging, and vandalism can be major factors affecting implementation.	None.
17. Public Versus Private Ownership/Operation	Program design, implementation, operations, and marketing are typically private-sector functions. The main exception is when commercial recycling collection is a condition for granting a franchise agreement for waste collection in a jurisdiction.	· Government programs may use existing staff or contracted building maintenance workers to manage collection and marketing or contract with an outside recycling firm. · Business programs occur without public sector involvement. · Governments provide educational or technical support to the business community. · Public/private partnerships are compatible and common.
18. Availability of end uses for recovered materials	· Aluminum can sheet suppliers purchase all UBCs · Single-colored glass cullet more desirable for new glass containers · Mixed-colored glass cullet used for glassphalt, fiberglass and acoustic tiles · Recovered steel/tin cans bought by detinning plants, steel mills and iron and steel foundries · Recovered plastics used to make carpets, clothing, office, supplies, etc. New products continue to grow. · New products of up to 100% post-consumer paper continue to increase.	New products of up to 100% post-consumer paper continue to increase.

Table 4-13: Recycling Alternatives Analysis

CRITERIA	Material Reuse/Recovery Operations at Transfer Stations and Landfills	Floor-Sort Recovery Operations
1. Waste diversion potential	· Usually targets reusable and/or resalable materials from commercial and residential self-haulers. · Can target a significant portion of self-haul waste stream.	· 5 to 15% of uncompacted loads can be recovered depending on targeted material types. Recovery rate can be higher with extensive program design.
2. Ease of tracking diversion	Multi-jurisdictional tracking program can provide accurate assessments of tonnage allocation for each jurisdiction.	Moderate cost and/or time required to determine nature and amounts. Requires a sophisticated multi-jurisdictional tracking system.
3. Environmental hazards	No significant impacts assuming proper safety measures.	The option has environmental impacts or hazards that are known and controllable; some health and safety precautions for workers are required.
4. Operating experience	Variations of this program are used at facilities around the country.	Variations of this program are use at facilities around the country.
5. Conformity with local markets	· Compatible with existing Sonoma County regional materials markets for the recyclable fraction collected through operations. · Local markets for reuse of materials are well established.	· Compatible with existing Sonoma County regional materials markets. · Materials recovered from mixed waste may encounter some difficulty achieving market specifications.
6. Facility program requirements	· The alternative can be easily integrated into existing operations with some alterations. · Expansion of transfer stations will provide adequate recovery capacity.	Retrofitting/expansion of transfer stations will provide adequate processing capacity.
7. Capital costs	· Capital cost is typically less than $100,000. · Some capital requirements: sorting conveyors, baler containers, vehicles for materials transport, and incidentals.	· Capital cost is typically less than $600,000. · Some capital requirements: sorting conveyors containers, vehicles for materials transport, and incidentals.
8. Cost effectiveness	Cost ranges from $20 to $80 per diverted ton.	Cost ranges from $25 to $100 per diverted ton.
9. Operating costs	Alternative has a moderate potential for reducing waste management operating costs.	Alternative has a moderate potential for reducing waste management operating costs.
10. Conformity with state hierarchy	The alternative is considered recycling.	The alternative is considered recycling.
11. Ease of implementation	Implementation time is less than one year. Some county/city staff time required for implementation.	Implementation time can range from one to two years. Some county/city staff time required for implementation.
12. Private sector participation	Typically, there is a large opportunity for private-sector participation.	Typically, there is a large opportunity for private-sector participation.
13. Changes in waste type, generation, or use	The alternative could create a positive shift from one waste type to another; i.e., it could cause a shift in the generation or use to a more desirable material (e.g., recyclable or marketable).	The alternative would create little or no shift in waste type generation.
14. Adaptability to changing social conditions	The alternative provides small-to- moderate opportunities for increasing awareness/waste reducing behavior.	The alternative provides little opportunity for increasing awareness/waste reducing behavior.

Table 4-13: Recycling Alternatives Analysis

CRITERIA	Material Reuse/Recovery Operations at Transfer Stations and Landfills	Floor-Sort Recovery Operations
15. Consistency with Local Conditions	Consistent with local conditions.	Consistent with local conditions.
16. Institutional Barriers to Implementation	None.	May require flow control policies to ensure that waste flows are directed to the facility.
17. Public Versus Private Ownership/Operation	Can be performed by public or private operators.	· Usually owned and operated by franchised waste haulers who operate transfer stations. · Publically owned transfer or landfill operations materials recovery operations tend to be integrated into existing operations.
18. Availability of end uses for recovered materials	· Aluminum can sheet suppliers purchase all UBCs · Single-colored glass cullet more desirable for new glass containers · Mixed-colored glass cullet used for glassphalt, fiberglass and acoustic tiles · Recovered steel/tin cans and ferrous metals bought by detinning plants, steel mills and iron and steel foundries · Nonferrous metals used by foundries, smelters, fabricators, etc. · Recovered plastics used to make carpets, clothing, office, supplies, etc. New products continue to grow. · New products of up to 100% post-consumer paper continue to increase. · Reusable furniture, household goods, construction materials sold to customers	· Ferrous metals bought by detinning plants, steel mills and iron and steel foundries · Nonferrous metals used by foundries, smelters, fabricators, etc. · Tires reused as retreads, used in civil engineering and agricultural projects, and processed into crumb rubber. · Yard debris used in local yard debris and bio-solids composting operations. Products sold to local agriculture, retail and direct to residents · Wood waste processed into mulch or fuel for local markets.

Table 4-13: Recycling Alternatives Analysis

CRITERIA	Line-Bale Recovery System
1. Waste diversion potential	· 15 % to 40% of the commercial waste stream, but typically less than 20% of the total waste stream. · Depends on targeted materials, waste composition, and market availability.
2. Ease of tracking diversion	· Moderate cost and/or time required to determine diversion nature and amounts. · Requires a sophisticated multi-jurisdictional tracking system.
3. Environmental impacts	The option has environmental impacts or hazards that are known and controllable; some health and safety precautions for workers are required.
4. Operating experience	· Less than 30 commercial operations in U.S. · Many new operations in planning/design stages. · Operating experience is increasing.
5. Conformity with local markets	· Compatible with existing Sonoma County regional materials markets. · Materials recovered from mixed waste may encounter some difficulty achieving market specifications.
6. Facility/program requirements	· The alternative will require the development of major new facilities in the community or region. · Alternative could require significant changes in current local waste collection and disposal practices. · Regional authority required to oversee and manage facility development and operations. · Waste supply agreements are typically required.
7. Capital costs	Capital costs for a new site and facility range from $5,000,000 to $30,000,000.
8. Cost effectiveness	The cost is between $10 and $100 per diverted ton.
9. Operating costs	Alternative has a relatively moderate potential for reducing waste management operating costs by maximizing the avoided cost-of-disposal.
10. Conformity with state hierarchy	The alternative is considered recycling.
11. Ease of implementation	· Implementation time is greater than three years. · Would require significant city/ county staff time to implement.
12. Private sector participation	Typically there is a large opportunity for private-sector participation.
13. Change in waste type participation, or use	Alternative would create little or no change.
14. Adaptability to changing social conditions	The alternative provides little opportunities for increasing awareness/waste reducing behavior.
15. Consistency with Local Conditions	Consistent with local conditions.
16. Institutional Barriers to Implementation	May require flow control policies to ensure that waste flows are directed to the facility.
17. Public Versus Private Ownership/Operation	· Usually owned and operated by franchised waste haulers who operate transfer stations. · Publically owned transfer or landfill operations materials recovery operations tend to be integrated into existing operations.

Table 4-13: Recycling Alternatives Analysis	
CRITERIA	**Line-Bale Recovery System**
18. Availability of end uses for recovered materials	· Aluminum can sheet suppliers purchase all UBCs · Single-colored glass cullet more desirable for new glass containers · Mixed-colored glass cullet used inlassphalt, fiberglass and acoustic tiles · Recovered steel/tin cans and ferrous metals bought by detinning plants, steel mills and iron and steel foundries · Nonferrous metals used by foundries, smelters, fabricators, etc. · Recovered plastics used to make carpets, clothing, office, supplies, etc. New products continue to grow. · New products of up to 100% post-consumer paper continue to increase.

Drop-Off Centers

Drop-off centers receive materials donated by the public and are typically the least expensive to establish. They can accept one material (newspaper being the most common) or a full range of recyclable materials depending on the availability of local markets. Unattended drop-off centers that are located in rural areas suffer from litter and illegal waste disposal problems. Drop-off centers should be located in public parks, fire stations, County disposal sites, transfer stations and other facilities with controlled access and on-site security to reduce these problems.

Other collection options that may be appropriate to rural areas include roadside collection at ends of long driveways where clusters of mailboxes are likely to be located; neighborhood collection bins; and workplace recycling that serves the general public.

Mobile Drop-Off Centers

This alternative is similar to the drop-off alternative because it accepts recyclables directly from the public. However, it uses a vehicle and/or trailer for materials storage required during operations. Mobile drop-offs can be used in areas where land use patterns and population density rates are insufficient to warrant a full-time drop-off center. The mobile drop-off concept allows maximum use of equipment and personnel and extends recycling opportunities to remote areas that would not usually have access to recycling services.

Mobile drop-off services that do not pay scrap and refund value for beverage containers may provide affordable recycling services to select rural areas. These programs could also collect cardboard, newspapers, glass and other materials.

Buyback Centers

Buyback centers, including 20/20 Certified Redemption Centers, purchase recyclables directly from the public and from commercial businesses. The buyback system provides an economic incentive to the public and can recover significant portions of the waste stream that may not otherwise be recycled. Buyback centers often target aluminum cans because of their higher sales value and resulting profit margin. Depending on current market values, newspaper, glass, cardboard, plastics, aluminum/tin/bimetal cans, scrap metal, and high-grade waste paper are other materials often purchased at buyback centers. Many buyback centers also provide drop-off services and are an appropriate diversion option in rural areas.

Buyback centers must be staffed at regular hours. Weighing, processing, marketing, management, and bookkeeping operations require full-time employees, the number proportional to the tonnage of recyclables. Buyback centers are more labor and equipment intensive than drop-off programs, and high volume centers may require magnetic separators and flattener/blowers for cans as well as glass crushers, balers for paper and cardboard, forklifts, computer pay-out systems, and trucking capabilities.

Mobile Buyback Operation

This alternative is similar to the buyback alternative because it also purchases recyclables directly from the public. However, it uses a vehicle and/or trailer for all customer transactions and materials storage required during operations. Mobile buybacks can be used in areas where land use patterns and population density rates are insufficient to warrant a full-time buyback. The mobile buyback concept allows maximum use of equipment and personnel and extends recycling opportunities to remote areas that would not usually have access to recycling services.

Curbside Recycling Programs

Curbside recycling involves the scheduled collection of recyclables residents place at their curbs. Curbside collection provides the maximum convenience to residents and, compared to drop-off and buyback centers, consistently recovers the highest tonnage of recyclables from the residential waste stream.

Several operating features affect the waste diversion potential of curbside recycling, and few programs are entirely alike. Factors such as the number and type of materials collected, the frequency of collection, the amount of commingling of material types allowed, and the degree of publicity and public education can affect program performance. Although it increases program costs, the practice of providing storage containers to households is common, because it encourages participation.

Collection routes are typically serviced by a one-person crew in a vehicle equipped with compartments to hold separated materials. An array of balers, magnetic separators, can densifiers, and conveyor sorting lines are used at processing facilities for the curbside materials. Curbside recycling involves extensive program management, material collection, material processing, and promotion. Capital costs usually include vehicles, household containers, a storage site, and processing equipment. Operating costs are dominated by high labor and transportation outlays as well as amortization of debt and promotion costs. Sale of materials generates revenues, but the major economic benefit is often the avoided cost of landfill disposal.

Single-Stream Curbside Recycling Programs

This alternative is similar to the curbside recycling alternative. However, all recyclable materials are collected in a single curbside container by an automated or semi-automated collection truck. Material processing is required and typically involves both manual and mechanical sorting methods. An array of balers, magnetic separators, can densifiers, and conveyor sorting lines are used at processing facilities. Single-stream curbside recycling programs typically demonstrate a 20 to 40 percent increase in recyclable materials collected compared to other curbside recycling programs.

Multi-unit Residential Recycling Programs

Collecting recyclables from multi-unit residential buildings is similar to curbside recycling collection in that it provides a convenient means for households to recycle. However, there are significant operating differences between curbside collection and collection from multi-unit buildings.

Placing recyclables at curbside is not practical for most residents of apartment buildings, condominium complexes, or other high-density dwellings. Because of storage constraints for recyclables in apartments, most storage takes place in centralized locations, such as the waste disposal areas. The storage containers for the recyclables are typically used by several households, must be accessible to both the residents and the collection vehicle, and may require an automated collection vehicle to empty the containers.

Although multi-unit programs are often considered distinct from curbside recycling programs, levels of coordination can exist between curbside and multi-unit recycling programs, including processing, marketing, and shared use of equipment. Multi-unit buildings in unincorporated areas serviced by curbside collection could implement this service.

Except for the City of Rohnert Park where the hauler is required to provide recycling services to multi-unit

residents free of charge, most multi-unit buildings are provided commercial services, and are, therefore, charged for recycling services.

Commercial Source Separation Programs

Many types of commercial establishments offer opportunities for source separation recycling because of the high concentrations of readily recyclable materials found in their waste. Historically, the presence of commercial recycling programs has been highly dependent on market prices and on private entrepreneurial efforts. However, in the last several years, local governments have been working with private industry to implement full-scale commercial source separation recycling programs.

Commercial Collection: The material most often targeted for commercial collection is corrugated paper, one of the largest components of the commercial waste stream that can be readily recycled. Many generators of corrugated containers have ongoing recovery programs, and their containers are not included in landfill waste composition figures. Nevertheless, there often remains a significant amount of unrecovered corrugated paper in the commercial waste stream, depending on the concentration of commercial and manufacturing businesses in the community.

The collection of glass containers, especially from bars and restaurants, is also becoming a major focus of commercial recycling efforts. Other materials collected are metals, plastics, pallets, scrap wood, pallet shrink wrap, textiles, and oils, usually by scrap dealers who have made arrangements with large waste generators. The main potential for increased recovery will be with the smaller generators, such as convenience markets or small retail outlets. Typically, in rural areas most waste generators are classified as small-quantity generators.

Office Paper Recovery: The recovery of high-grade papers, such as white ledger paper and computer printouts, represents an important recycling opportunity. Office paper recycling at the desk started primarily in the public sector, spurred by federal programs in the late 1970s. Since then several large businesses and paper manufacturers, in addition to many smaller operators, have entered the office paper recycling field.

In addition to the public sector, office paper recycling programs are becoming more prevalent in the educational, utility, banking, and insurance sectors. At-the-desk recovery programs are less frequently provided to small offices because of lower office paper volumes. Multi-tenant office building programs are also less common because of the relative difficulty in coordinating unrelated tenants.

Material Reuse/Recovery Operations

Material reuse/recovery operations are a hybrid of traditional drop-off centers and landfill salvage operations, and are prompted by the increasing need for waste reduction and material reuse activities. Reuse/recovery operations are usually located at transfer stations and landfill facilities, and usually target the uncompacted self-haul fraction of the residential and commercial waste streams. In areas where landfill space is at a premium, waste management agencies often require that all recoverable materials be separated from waste prior to landfilling.

Material reuse/recovery programs are currently operated at the Central Disposal Site and the Healdsburg and Sonoma Transfer Stations. This service is available to all self-haul vehicles. The program operator sorts, stores, transfers and sells materials to available markets. Material reuse/recovery operations could be expanded at the existing facilities, and new facilities could be developed at sites not presently served by material reuse/recovery operations. Although uncompacted self-haul loads could be diverted to recovery area at the transfer stations and hand-sorted for recyclable and reusable materials, site constraints prohibit these types of activities.

4.4.3.4 Mixed Waste Recovery Alternatives

The following alternatives for mixed waste recovery are best implemented on a regional level in the wastesheds of the Central Disposal Site, and the Guerneville, Healdsburg and Sonoma Transfer Stations.

Floor-Sort Activities (manual)

The floor-sort recovery system involves several workers who manually pick through loads that have been emptied onto a designated working area. In many cases front-end loaders are used to assist with the recovery operation. Floor-sort recovery operations typically target uncompacted loads of material such as debris boxes and self-hauled waste, and are often used in conjunction with a public disposal area. Although floor-sort operations most often target uncompacted loads, they can also be used to recover material from select commercial packer loads that contain a high percentage of recoverable materials.

Floor-sort recovery activities have been developed at the Guerneville, Healdsburg, and Sonoma Transfer Stations and target material such as yard debris, wood waste, scrap metal and tires. This system generally consists of a flat tipping area where targeted loads are dumped, with below-grade storage bins for the recovered material. Because floor-sort recovery activities target specific loads with significant quantities of recoverable materials, an effective system for identifying target loads entering the facility must be developed.

The degree to which material can be feasibly and economically recovered from a mixed waste load is directly related to both the quantity and the quality of materials in a specific load. Selective routing involves organizing the collection routing system so that accounts with significant amounts of high-quality (minimally contaminated) target materials are collected on distinct routes. Accounts known to contain significant quantities of contaminants, such as restaurants, food processors, and other businesses that contain wet or otherwise undesirable materials, are kept separate. Selective routing contributes to enhanced material recovery operations efficiency.

Line-Bale Recovery (mechanical)

In a line-bale system, mixed waste is usually roughly sorted to remove large or undesirable materials and then placed on a conveyor belt. The conveyor moves the material to a picking area where workers pull off recyclables and place them in temporary storage bins for further processing, baling, or shipping to market. Additional conveyors may be incorporated to move recyclables to a bailer. Another approach is to remove contaminants and leave the primary component, usually mixed wastepaper, on the belt. This is most effective when the feed material is very rich in the primary component and contamination is not excessive.

In addition to hand-picking materials from the belt, mechanical sorting equipment such as magnetic or air vacuum equipment can also be used in line-bale operations. Line-bale systems typically process between 200 and 1,000 tons per day (TPD) and can be constructed in modules to allow for increases in the average tonnage processing requirements of a facility. Recovery efficiency depends greatly on the type of incoming solid waste, the target materials, and the type of operation. Line-bale recovery facilities can focus on a specific component, such as construction and demolition debris (see section 4.6, Special Waste Component), and can be included as up-front sorting prior to other solid waste operations such as a Resource Management Facility (see section 4.5, Composting Component).

Typically, a line-bale system works best in locations where sufficient tonnage volume is available. This increases the cost-effectiveness of process operations because the primary revenue for operators is tipping fees, not revenue generated from the sale of recovered materials. Flow control agreements are usually required to ensure that the line-bale facility can meet project finance requirements set by lenders. Usually jurisdictions agree in concept to participate in a regional agreement with other interested jurisdictions to develop and implement a conceptual master plan for this type of system. Typically a lead agency, such as the SCWMA, assumes responsibility for the development, design, construction, and operation of a regional processing system.

4.4.3.5 Local Government Programs to Procure Recycled Products

Many local government purchasing departments now have comprehensive procurement policies for recycled goods. State law allows local governments to establish preferences for purchase of durable, recyclable, recycled-content and reusable products, and to define the amount of that preference. National studies have shown that in practice, even when 5 to 10 percent price preferences are offered, actual prices paid for recycled paper are lower.

The bidding process can be modified to reduce costs for suppliers of preferred material by offering longer contracts and smaller bid groupings that are specific to subgrades of a particular material, such as paper. Suppliers of recycled materials may then compete more easily on a cost basis with suppliers of virgin materials. Preferences for durability or ease of repair could be applied to vehicles and to office and other machinery to increase the useful life of these purchases.

The SCWMA adopted its Green Purchasing Policy in 2001 and is conducting a review of current procurement practices of its member jurisdictions to ensure that recycled and reusable products are being purchased where available.

Procurement policies encouraging the use of goods made with post-consumer materials do not achieve any diversion credits for the implementing jurisdiction. It is important, however, that the SCWMA have a strong recycled material procurement commitment to demonstrate and promote the use of recycled products and to encourage markets for recovered materials.

4.4.4 SELECTED RECYCLING PROGRAMS

After an analysis of the characteristics of the solid waste stream, the level of existing waste diversion activities, and the methods of removing and processing recoverable materials, a list of potential recycling programs was developed. The program selection process incorporated the criteria for evaluating recycling alternatives (Table 4-11), the evaluation of recycling alternatives (Table 4-13) and best professional judgement. The phased implementation of these recycling alternatives will be a part of the SCWMA's overall program to reach the waste diversion goals.

Some recycling programs, such as curbside recycling, are best operated by an individual jurisdiction. Other programs may be most effectively operated through the SCWMA due to the expense of developing and operating individual systems for each jurisdiction. Many programs are specific to solid waste disposal facilities and will require agreements with contractors to detail responsibilities, authorities, and funding.

In 2000, the SCWMA reported a 40 percent diversion rate to the CIWMB. The selected recycling programs, listed by wasteshed in Table 4.14, will build on the existing foundation to reach its goals.

In addition to the selected programs, the SCWMA has determined that it is necessary to expand the existing policy for voluntary recycling to a mandatory recycling policy. The proposed revision would require that all residential, commercial, industrial, and institutional waste generators have access to recycling services so that recyclables will be separated at the source to keep them out of the solid waste stream. This may include municipal regulations prohibiting recyclables from being mixed with MSW. Emphasis is placed on recycling any material that can be easily and economically recovered such as yard debris, wood waste, newspaper, cardboard, magazines, office paper, glass containers, tin cans, aluminum cans and scrap metals. A penalty and education program could also be included to emphasize the prohibition of placing recyclables in disposed waste.

4.4.4.1 Selected Source Separation Recycling Programs

Source separation offers the potential for recovery of the highest quality material, which is directly reflected in the price and availability of markets. It is a priority for the SCWMA to promote opportunities to maximize efficient and effective source separation recycling programs.

Residential Source Separation Programs

The selection of residential source separation recycling programs focuses on the modification and expansion of the existing drop-off, buyback, and the single-family/single-stream curbside recycling programs, development of multi-unit recycling programs, and in some instances mixed waste recovery programs.

Curbside Recycling

Single-family residential curbside collection is a selected ongoing activity because of its residential waste diversion potential. All single-family residents who subscribe to trash service have curbside recycling services, and curbside recycling service is available for a fee to non-subscribers. Single-stream recycling services are already established in the unincorporated county, Cotati, Healdsburg, Rohnert Park, Santa Rosa, Sebastopol, Sonoma, and Windsor. The City of Cloverdale is currently negotiating with its hauler for single-stream recycling. The City of Petaluma is considering single-stream recycling as part of the bidding processing for its franchise agreements.

Drop-Off/Buy-Back Recycling Centers

Drop-off and buyback centers are consistent with the SCWMA's goals and are particularly strong in addressing the selection criteria of long operating experience; low environmental impacts; low capital cost; good conformity with local markets; rapid implementation; good potential for private sector participation; and high adaptability to social change. The SCWMA will continue to promote and encourage private sector drop-off and buyback centers, and the County will continue to provide drop-off services at its solid waste facilities, reduced rates for source separated wood waste, and the annual Christmas tree recycling program. These programs are consistent with the SCWMA's goal of providing access to recycling programs for all waste generators.

Multi-unit Recycling

Multi-unit residential collection has been selected for the same reasons cited for single-family curbside recycling. This program is consistent with the SCWMA's goal of providing recycling service to the maximum number of residents. As with curbside recycling this selected program is particularly strong in meeting the criteria of good operating experience, conformity with local markets, good opportunity for private sector participation and high adaptability to social changes.

Commercial Source Separation Programs

The selection of commercial source separation programs focuses heavily on the enhancement of existing programs including commercial and industrial collection of recyclables, cardboard, and office paper recycling, and private sector office paper recycling programs.

According to the 1995/95 Waste Stream Characterization Study, the commercial portion of the waste stream is 50 percent of the total waste generated. The high percentage of this waste type and the availability of commercially valuable materials requires the expansion and development of programs, including construction and demolition debris (see section 4.6, Special Waste). However, unlike the residential source separation programs, full expansion of existing programs and implementation of proposed new programs will likely leave a significant portion of the commercial sector without convenient and comprehensive recycling opportunities.

Commercial Collection Programs

Collection of recyclables from the commercial and industrial sectors, is a selected activity because it is consistent with priorities to increase commercial recycling alternatives, operating experience, minimization of environmental impacts, conformity with local markets, good opportunities for private sector participation and high adaptability to social changes.

Commercial collection programs to be promoted and expanded include the existing special events recycling; cardboard, bar and restaurant glass; and mixed waste paper recycling programs, as well as new programs targeting plastic pallet shrink wrap and construction and demolition debris (see section 4.6, Special Wastes). Recycling opportunities for special events and commercial businesses which generate large quantities of target materials are currently provided by local haulers. The major gap in the commercial collection system involves businesses which generate small quantities of materials and smaller special events, such as weddings held at wineries. The economics of source separation and collection from small operators are less favorable and as such most small businesses do not have convenient recycling opportunities. A major focus of commercial recycling

Table 4-14: Selected Recycling Programs

1. ANNAPOLIS LANDFILL WASTESHED

Source Separation Programs

Drop-off
· Continued operations of existing drop-off recycling

Single-family/Single-stream curbside collection
· Expanded program does not require facility development
· Program requires small degree of implementation activities
· Emphasis on increased participation and reducing contamination

Commercial Collection
· New program development required in short term
· Program requires small degree of implementation activities
· Focus on new programs for small businesses

Mixed Waste Recovery Programs

Floor-sort activities
· Focus on commercial/industrial waste streams
· Continued operations of existing floor-sort activities

2. CENTRAL LANDFILL WASTESHED

Source Separation Programs

Drop-off
· Expanded program needs some retrofitting of existing facilities and new drop-off site development

Single-family/Single-stream curbside collection
· Expanded program does not require facility development
· Program requires small degree of implementation activities
· Emphasis on increased participation and reducing contamination

Multi-unit collection
· Expanded program to require some development in the short term
· Program requires small degree of implementation activities

Commercial collection
· Expand existing programs in short term
· Program requires moderate degree of implementation activities
· Focus on new programs for small businesses

Office paper recovery
· Expand program in short term
· Relatively easy to implement with proper coordination

Material reuse/recovery operation
· Focus on self-haul loads
· Program development will require moderate level of implementation oversight in the short term

Mixed Waste Recovery Programs

Floor-sort activities
· Focus on commercial/industrial waste streams
· Implement floor-sort activities similar to those at transfer stations once operational improvements are complete.

3. GUERNEVILLE TRANSFER STATION WASTESHED

Source Separation Programs

Drop-off
· Continued operations of existing drop-off recycling

Single-family/Single-stream curbside collection
· Expanded program does not require facility development
· Program requires moderate degree of implementation activities

Multi-unit collection
· Expanded program to require development in the short term in appropriate areas
· Program requires small degree of implementation activities

Commercial collection
· New programs in short term
· Program requires moderate degree of implementation activities
· Focus on new programs for small businesses

Mixed Waste Recovery Programs

Floor-sort activities
· Focus on commercial/industrial waste streams
· Continued operations of existing floor-sort activities

4. HEALDSBURG TRANSFER STATION WASTESHED

Source Separation Programs

Drop-off
- Continued operations of existing drop-off recycling

Single-family/Single-stream curbside collection
- Expanded program does not require facility development
- Program requires small degree of implementation activities
- Emphasis on increased participation and reducing contamination

Multi-unit collection
- Expanded program requires development in the short term
- Program requires small degree of implementation activities

Commercial collection
- Expand programs in short term
- Program requires moderate degree of implementation activities
- Focus on new programs for small businesses

Office paper recovery
- Expand programs in short term
- Relatively easy to implement with proper coordination

Material reuse/recovery operation
- Focus on self-haul loads
- Continued operations of existing activities.

Mixed Waste Recovery Programs

Floor-sort activities
- Focus on commercial/industrial waste streams
- Continued operations of existing activities

5. OCCIDENTAL TRANSFER STATION WASTESHED

Source Separation Programs

Drop-off
- Continued operations of existing drop-off recycling

Single-family/Single-stream curbside collection
- Expanded program to appropriate areas does not require facility development
- Program requires small degree of implementation activities
- Emphasis on increased participation and reducing contamination

Multi-unit collection
- Expanded program requires some development in the short term
- Program requires some implementation activities

Commercial collection
- Expanded programs in short term
- Program requires moderate degree of implementation activities
- Focus on new programs for small businesses

Office paper recovery
- New program requires program development in short term
- Relatively easy to implement with proper coordination
- Program to be sealed to available accounts

Mixed Waste Recovery Programs

Floor-sort facility
- Focus on commercial/industrial waste streams
- Continued operations of existing activities

6. SONOMA TRANSFER STATION WASTESHED

Source Separation Programs

Drop-off
- Continued operations of existing drop-off recycling

Single-family/Single-stream curbside collection
- Expanded program to appropriate areas does not require facility development
- Program requires small degree of implementation activities
- Emphasis on increased participation and reducing contamination

Multi-unit collection
- Expanded program requires some development in the short term
- Program requires small degree of implementation activities

Commercial collection
- Focus on new programs for small businesses
- Expand programs in short term
- Program requires moderate degree of implementation activities

Office paper recovery
- Expand programs in short term
- Relatively easy to implement with proper coordination

Material reuse/recovery operation
- Focus on self-haul loads
- Continued operations of existing activities.

Mixed Waste Recovery Programs

Floor-sort facility
- Focus on commercial/industrial waste streams
- Continued operations of existing activities

7. ALL WASTESHEDS	
Recycled Products Procurement · Requires formalized policy adoption · Implementation requires small changes in procurement method	**Mandatory Recycling** · Requires access to recycling services for all waste generators so that recyclables will be separated from MSW at the source · Municipal regulations prohibiting recyclables in MSW may be required · Penalty program may be needed · Education program will be needed

programs will be further development of special event and small business recycling opportunities; a secondary focus will be on expanding the types of materials handled by the existing commercial programs.

The SCWMA's role in commercial recycling will be to motivate the private sector to recycle, and to provide technical assistance and program incentives to those businesses interested in implementing an ongoing program. Hauling and recycling companies will coordinate with commercial waste generators and the SCWMA to expand existing programs and develop new programs suitable to the specific conditions found in Sonoma County.

Office Paper Recycling

Office paper recovery is a selected alternative because of its educational value, operating experience, minimal environmental impacts, low capital cost, conformity with local markets, speed of implementation, facility/program requirements, private sector participation and high adaptability to social conditions. As with the commercial collection programs the majority of large generators are currently involved in a source separation program.

Increased recovery will likely result either through enhanced on-site storage and collection systems which provide for more positive economics, increased market value, or other means which will provide the opportunities for economical collection. The SCWMA, haulers, and other office paper recyclers plan to continue to promote office paper recycling to businesses in Sonoma County. Technical assistance in the form of waste audits assistance and information on developing office paper recovery programs will be made available through the SCWMA (see section 4.3, Source Reduction Component).

Material Reuse/Recovery Operation

Material reuse and recovery operations currently exist and will continue to operate at the Central Disposal Site and the Healdsburg and Sonoma transfer stations to provide source separated recycling services to residential, commercial, and industrial waste generators. New facilities are currently under construction at the Central Disposal Site to provide additional covered storage buildings for reuseable materials such as construction materials (wood, doors, windows, and other fixtures), household goods (furniture, books, clothing), garden equipment (mowers, tools), and a wide variety of other items. Other material recovery operations at the solid waste facilities target paper, glass, scrap metal, wood waste, appliances, and tires.

4.4.4.2 Selected Mixed Waste Recovery Programs

Since some materials are not feasibly recovered by source separation programs, the design of mixed waste recycling programs needs to be coordinated with existing and planned source separation activities. The SCWMA intends that the selected mixed waste recycling system be flexible enough to allow for maximizing source separation opportunities in the future. Details of technology, size, and location for mixed waste recycling facilities will be done through pilot projects and feasibility studies.

Floor-Sort Activities

Floor-sort activities are currently part of the operations occurring at Sonoma County transfer stations, because of

compatibility with existing collection and hauling patterns, operating experience, diversion potential and private sector participation, minimal environmental impacts, good conformity with local markets, and high adaptability to social conditions.

Floor-sort activities target uncompacted commercial/industrial loads and residential/commercial self-haul loads, and include materials such as scrap metal, wood waste, yard debris, tires, and appliances. Once the operational improvements are completed at the Central Disposal Site, floor-sort activities will be implemented as part of the daily operations.

4.4.4.3 Role of Recycling in Meeting State Diversion Goals

Most of the selected recycling programs have been in operation for several years, resulting in a 2001 diversion rate of 40%. Implementation of the single-stream curbside collection is anticipated to increase diversion by 30 tpd and generate an additional 2.1% diversion. Expansion of multi-unit recycling is anticipated to increase diversion by 10 tpd and generate an additional 0.7% diversion. Although not evaluated, continued implementation of beverage container recycling programs in recreational areas is anticipated to generate an additional 0.1% diversion. Expansion of floor-sort activities at the Central Disposal Site is anticipated to increase diversion by 30 tpd and generate an additional 2.1% diversion.

4.4.4.4 Operating, Handling, and Facility Requirements for Programs

Collection, processing, and storage requirements for the selected programs have been recently expanded by local haulers to process the increased flow of recyclables from single-stream curbside recycling, multi-unit recycling, and commercial services. Additional diversion capacity will be available at the Central Disposal Site once the operational improvements for the material reuse and recovery facility are completed. Existing recycling capacity is available at all solid waste facilities and at the sites of the twenty-six private recycling operators who offer various recycling services to residents and businesses. All County solid waste facilities have a fee structure that includes reduced rates to encourage source-separating yard debris and wood waste prior to disposal.

Long term planning includes the addition of other facilities that, if constructed, would provide for additional recycling diversion including:

- Resource management facility (RMF): This facility would include preliminary waste sorting for recyclable materials prior to the primary organic waste processing operation (see section 4.6, Composting).
- New transfer station: Located in the Santa Rosa area, this facility would operate in a manner like the other County transfer stations, including providing drop-off recycling opportunities and floor-sort activities.
- Conversion of the Central Disposal Site to a transfer station: Once the Central Disposal Site reaches capacity, the site will continue to operate as a transfer station, including drop-off recycling opportunities, material reuse and recovery operations, floor-sort activities, and HHW facility operations.

4.4.5 MARKETS AND LOCAL END-USES FOR RECOVERED MATERIALS

Beyond the objective of meeting mandated diversion goals, a critical element of the SCWMA's recycling program is to return recovered materials to market. This section discusses contains a general description of current markets and local end-uses for recovered materials, recycled material markets and end-users, factors influencing recycled materials markets, federal and state legislation designed to stimulate materials market development, and resources available to local jurisdictions.

4.4.5.1 Current Recycling Markets and End-Users

Effectively marketing materials collected through the recycling programs will provide some revenue to help offset costs and will ensure that collected materials are not returned to the waste stream. This section describes in general terms the major market categories for materials collected in the Sonoma County area, including paper, glass containers, aluminum cans, tin (steel) cans, plastic, ferrous metal and nonferrous metal. Table 4-15 summarizes the results of the local market conditions for these material categories.

Paper

Paper is generally divided into two categories: low-grade papers containing shorter fibers or mixed fibers, and high grades of paper containing primarily longer fibers that are more readily recycled into a greater number of products. Low-grade paper is divided into old newsprint (ONP), old corrugated cardboard (OCC), and mixed paper. High-grade paper includes computer printout paper, white ledger, and color ledger. Both low-grade and high-grade paper are sold to local dealers or brokers or directly to domestic and export markets. End-users for paper include paper mills, energy plants, and manufacturers of various products such as roofing felt, gypsum board, and animal bedding. Increased consumer demand and acceptance of recycled paper products, increased supplies of waste paper, and the concurrent growth in manufacturing capacity and export demand have resulted in a significant growth in the waste paper market in the last few years.

Overall market conditions for waste paper vary with changes in the price of virgin pulp and also vary independently for each grade. Generally, higher grades undergo relatively less drastic fluctuations in price than lower grades. The market for old newsprint is also influenced by seasonal fluctuations in curbside, drop off and buyback recovery programs.

High-grade de-inking waste paper such as CPO and WL are a preferred secondary fiber substitute for pulp in the high-grade paper making process due to their desirable fiber lengths. As a result, these high-grade waste papers command significantly higher prices, usually five to tenfold more, than the lower grades. Uses of mixed grades of papers are also limited and hence have a lower value.

Alternative markets or end-users for low-grade papers include Hydro mulch manufacturers, livestock producers who use the shredded paper as bedding, and sewage treatment plants for use as bulking agent for sludge composting. These markets are seldom used as primary markets but serve a useful function when traditional markets are soft or to maintain a diversity of marketing options, especially on the local level.

Old Newsprint (ONP): Old newsprint has historically been more readily available in greater quantities than other recycled materials on a residential level and is usually the largest volume item recycled through drop-off and residential curbside programs. Old newsprint is usually sold to local dealers or directly to domestic mills and export markets. Old newsprint is used in the manufacture of a growing number of products including cellulose insulation, roofing felt, construction paper, boxboard, and paperboard.

The market for old newspaper, as with other secondary fibers, tends to be cyclic, although export demand can affect these cycles. For example, many paper and paperboard producers shut down for short periods in the summer to allow for vacations and equipment repairs. Secondary fiber demand may fall during this period. Demand for old newspapers by cellulose insulation manufacturers is also seasonal, with heavy demand in the fall and winter, and much lower need of waste paper in the spring and summer.

Old Magazines: The market for old magazines has recently experienced significant expansion because of the changes in the de-inking processes at paper recycling mills. The new process favors using old magazines, which are proving to be an economical source of the clay required for ink removal. Old magazines provide necessary fibers for newsprint production and contribute to the production of finished products of superior quality.

Old Corrugated Containers (OCC): Corrugated containers are used as shipping packaging for almost every consumer product sold. End-users include manufacturers of corrugated containers, roofing felt, and gypsum board.

High-Grade Waste Paper: Waste office papers such as white ledger, colored ledger, and computer printout are among the grades of paper manufactured from long fibers. As secondary fibers, such paper grades, even though they contain ink, command a higher price than the lower grades and are generally more stable than the lower grades.

Office paper and other printed grades are commonly used as a de-ink raw material in the manufacture of similar grades of paper. Tissue, toweling, and sanitary paper manufacturers are also large consumers. Demand for high-

grade waste paper is growing as tissue and writing paper producers add new machines that can better use secondary fiber and have increased capacity.

Some local dealers will provide convenient containers, transportation, and other incentives to businesses and government agencies that generate large quantities of these grades of paper. Although these higher grades are worth much more per ton than the lower grades, residential curbside collection is usually not practical because of the relatively small amount generated.

Glass Containers

Recovered glass containers are divided by color into five main categories: amber, green, flint (clear), two-color mixed, and three-color mixed. California glass manufacturers use cullet (broken scrap glass) primarily for producing new glass containers and currently use cullet for about 50 percent of their raw material requirements.

Under the California Beverage Container Recycling and Litter Reduction Act (AB 2020, Margolin 1986) and subsequent legislation, the California Department of Conservation established a redemption and payment program (California Redemption Value or CRV) to promote the recycling of glass, aluminum, and PET beverage containers of various carbonated and distilled beverages.

Scrap glass containers (cullet) are primarily sold to manufacturers of glass containers (beneficiation plants) who purchase both color-sorted and mixed-color cullet. While single-color cullet can be readily used in the production of the more desirable clear and single-color glass containers, especially amber and green, two-and three-color mixed glass has limited value to manufacturers. For this reason, three-color glass cullet is not accepted under the CRV program. Manufacturers of glassphalt, fiberglass, and acoustic tiles are alternative markets for mixed-color cullet; however, these are lower end users and consequently pay lower prices.

Table 4-15: Market Conditions For Recyclable Materials from Sonoma County

Old Newspaper	Old Corrugated Cardboard	White Ledger	Colored Ledger	Computer paper
North Coast Fibers Broker, Bay Area 90% export/ 10% domestic	North Coast Fibers Broker, Bay Area 90% export/ 10% domestic	North Coast Fibers Broker, Bay Area 90% export/ 10% domestic	North Coast Fibers Broker, Bay Area 90% export/ 10% domestic	N. Coast Fibers Broker, Bay Area 90% export/ 10% domestic
Marin Resource Recovery San Rafael, CA export	Marin Resource Recovery San Rafael, CA export	Marin Resource Recovery San Rafael, CA export	Marin Resource Recovery San Rafael, CA export	Marin Resource Recovery San Rafael, CA export
	Inland Container Weyerhaeuser, Bay Area 50-60% domestic	Weyerhaeuser, Bay Area 50-60% domestic	Weyerhaeuser, Bay Area 50-60% domestic	Weyerhaeuser, Bay Area 50-65% domestic
Used Beverage Containers	**Steel Cans**	**Glass (Color Sorted)**	**PET**	**Scrap Metals**
Weisco, broker to Kaiser - Idaho & Corona, CA	Proler, Lathrop, CA	Owens-Illinois, Bay Area	Weisco, Broker export & southern California	Schnitzer Steel, LMC, Lakeside Metals, Bay Area export - Korea
Custom Alloy, Oakland, CA		Crinc, Bay Area		
Cogito, Oakland, CA				

In general, the California glass cullet market has been extremely unstable, with frequent oversupply problems. Due to the growing number of recycling programs coming on-line in the state, this problem is expected to continue into the future without intervention by the state government. To address this problem, AB 2622 (Eastin 1990) has been enacted which requires minimum cullet use of 25 percent by 1993, 35 percent by 1996 and 65 percent by 2005 for glass containers sold in California.

Aluminum Cans

The aluminum beverage can, also known as the Used Beverage Container (UBC), has one of the highest recovery rates in the municipal waste stream. Because of the relatively high value of scrap aluminum, inclusion of aluminum beverage cans in the CRV program, and the metal's dominance as a beverage container, thousands of independent collectors in California sell scrap cans to intermediate processors or directly to end-users' outlet stations.

The significant energy savings associated with the remanufacture of aluminum cans from recovered aluminum versus the mining and processing of bauxite ore for primary aluminum production has created a relatively strong, stable market for recovered aluminum cans. Price fluctuations in the UBC market usually reflect changes in foreign and domestic economic conditions, changes in the primary unalloyed aluminum ingot market, UBC competition between primary and secondary smelters, and seasonal variations in beverage container use that affect both UBC production and recovery rates. Reynolds, Alcoa, Kaiser, and Alcan are the major aluminum can sheet suppliers with market share in California.

Recovered aluminum cans are processed first by separating out any steel and tin cans. The aluminum cans are then usually baled or shredded prior to shipment. Few of the aluminum cans recovered in California are consumed here, since the majority of the metal is sent to secondary smelting operations in Colorado, Indiana, and Alabama. The majority of aluminum cans recovered in the United States are consumed by primary aluminum can sheet producers, such as Reynolds Metals, Kaiser Aluminum and Chemical, Alcoa and Alcan, although non-integrated secondary aluminum smelter operators have captured a larger market share in recent years. In addition, foreign end-users, particularly primary aluminum producers in Japan, are becoming more interested in these materials.

Steel (Tin)

Tin cans (tin-plated steel cans used mostly as food containers) recovered in California are primarily used by detinner processors. A smaller amount is consumed by steel makers, since tin cans must compete with readily available grades of less expensive ferrous scrap, such as shredded auto bodies. In addition, using tin cans that have not been detinned in the steel production processes is metallurgically limited, because high levels of tin, lead, and aluminum contaminate these processes.

Curbside collection is the main avenue for post-consumer steel can (tin-plated steel cans used mostly as food containers) and bimetal can (tin-plated steel can with an aluminum top) recovery. Recovered steel and bimetal cans are purchased by detinning plants, steel mills, and iron and steel foundries.

The major buyer of recovered steel cans in California is Proler International, operator of five detinning plants in the United States. The firm's plant in Lathrop, California, uses a caustic solution to strip the valuable tin coating from recovered cans. The tin solution is then electrolytically removed and formed into ingots. Food and paper labels have interfered with the detinning process in the past, but recent advances in the processing technology have improved the tolerance of these contaminants.

To respond to environmental concerns and to encourage recovery of steel cans, the steel can industry established the Steel Can Recycling Institute (SCRI) in 1988. One of SCRI's stated goals is to attain a 66 percent recycling rate for steel cans.

Ferrous Metals

The ferrous market has historically been relatively unstable with prices significantly influenced by seasonal

variations and changing economic conditions. End-users of ferrous metals are primarily scrap steel processors who purchase ferrous scrap in the form of old car bodies, auto parts, scrap iron and steel, white goods (large appliances), and steel (tin) cans. The processed ferrous metal is sold to domestic or foreign steel mills and foundries.

Nonferrous Metals

Nonferrous scrap metal includes lead, copper, brass, zinc, magnesium, and aluminum (excluding aluminum cans). Markets for nonferrous metals often act independently of each other but, similarly to the ferrous metal market, are also affected by seasonal variations and changing economic conditions. Most of the nonferrous scrap metal is generated by the manufacturing industry, with a lesser amount generated as post-consumer waste such as automobiles, building materials, and cooking utensils. Nonferrous scrap metal is purchased by scrap metal processors who, in turn, sell the processed metal to foundries, secondary smelters, fabricators, and manufacturers.

Plastics

There are six major categories of plastics: polyethylene terephthalate (PETE), high-density polyethylene (HDPE), low-density polyethylene (LDPE), polyvinyl chloride (PVC), polystyrene (PS), polypropylene (PP), and others. PETE and HDPE containers are the leading recycled post-consumer plastics in the United States, although markets are also expanding for LDPE and other plastics.

The versatility of plastics has made them widely used in modern society. Plastics comprise up to 9 percent by weight and 20 percent of California's municipal waste stream. Although the economics of post-industrial plastics recycling is favorable, post-consumer plastics recycling is generally uneconomical due to high collection and processing costs, limited processing technologies, and the lack of stable end-use markets. Plastic trade associations and industry organizations continue to develop cost-effective recycling operations.

A summary of the current status of the two main post-consumer plastics is presented below.

Polyethylene Terephthalate (PET): PET is the fastest growing plastic used in household applications due to its clarity, toughness, and barrier properties. The predominant use of PET is to package soft drinks but it is also used for some liquor bottles and peanut butter jars. PET represents about 25 percent of the plastic bottle market.

To stimulate plastics recycling, PET beverage containers are included in the CRV program. In response, the plastics industry established the Plastics Recycling Corporation of California (PRCC) which acts a broker for all PET scrap collected for recycling in the state. While most of this PET scrap has previously been sold to Asian markets for use in making fiberfill for sleeping bags and clothing, domestic markets are now expanding with the increased supplies of PET and other recovered plastics.

High-Density Polyethylene (HDPE): HDPE represents over 50 percent of the plastic bottle market. It is characterized by its stiffness, low cost, ease of forming and resistance to breaking. HDPE is primarily used for milk containers; however, it is also used for water and juice beverage bottles, bleach and detergent bottles, motor oil bottles, margarine tubs, and some grocery sacks.

Post-consumer HDPE markets are less developed in California than PET. HDPE has a tendency to retain odors which make it undesirable for use in new products. Recycled plastics also may not be used in containers that come into direct contact with food or beverages unless FDA approved. If post-consumer HDPE is made into new food and beverage containers the inside must be coated with virgin plastic. Most of California's HDPE is sold to a few domestic manufacturers of injection molded products such as piping, garbage pails, and curbside recycling bins.

Reuse Markets

There is an extensive network of organizations and individuals who reuse, repair and resell materials and articles "rescued" from the municipal waste stream. This non-traditional market for discarded materials is due, in part, to the availability of reusable materials and articles and lifestyle and philosophical orientation of many residents.

The existing reuse yards contribute diversion credits for the SCWMA. Many types of materials are reused. The primary materials and articles are listed below:

- Automobile equipment and parts (alternators, batteries, hubcaps, radiators, starters and all types of accessory items.
- Building and construction supplies (sinks, toilets, tubs, windows, doors and lumber); garden equipment (lawn mowers and rototillers).
- White goods (air conditioners, dishwashers, refrigerators and other appliances).
- Bottles (wine, soda) and packaging materials (styrofoam peanuts).

4.4.5.2 Sonoma/Mendocino/Lake Counties Recycling Market Development Zone

In 1994 Sonoma and Mendocino Counties filed an application with the CIWMB for designation as a Recycling Marketing Development Zone (RMDZ). In 1997, a redesignation was requested from the CIWMB to include Lake County, the current Zone Administrator. The RMDZ targets the following materials for feedstock: paper, glass, organics, construction and demolition debris, plastics, paint, and tires.

Sonoma County offers local incentives such as fast track permitting and reduced plan check filing fees. Consulting services are available through the Redwood Empire Small Business Development Center, the Service Corps of Retired Executives Association, and the Private Industry Council. Additional financial incentives include Sonoma County Industrial Development Bonds and Small Business Administration loan program. The Sonoma County Economic Development Board provides assistance services directed toward encouraging the startup, retention and expansion of Sonoma County businesses and jobs, particularly with small businesses; creation of new jobs and employment opportunities. The Sonoma County Business Environmental Alliance, working to promote the voluntary adoption of good environmental practices by local businesses and farms, periodically produces reports, newsletters, and other projects as a resource to businesses.

Mendocino County offers other incentives through the City of Willits such as the Development Center, the Ukiah Business Development Center, Community Block Grant loans, and Industrial Development Bonds. Other economic development tools include expedited permit processing, general plan and zoning amendments, business counseling and management assistance, and private loans through local banks.

In Lake County, the Lake County Business Outreach and Response Team, a local economic development corporation, is responsible for coordinating local incentives and maintains a very active network of local, State, and federal service providers. Community Development Services, a local economic development consulting firm, provides administrative support to the Lake County Business Outreach and Response Team.

4.4.5.3 Options for Developing Markets and Local End-Users

Markets vary widely in terms of the role of brokers and dealers in purchasing secondary materials from recycling programs. There are basically three types of potential buyers: processors or dealers, brokers, or the end-user manufacturer. A dealer purchases recyclable materials, processes them to end-user standards, and transports them to market. These processor firms include waste paper packers, paper stock dealers, scrap metal dealers, and intermediate processors that handle a wide variety of recyclables.

Some waste generators, such as grocery stores, businesses, and many scrap dealers, sell their materials to a broker who sells them to a manufacturer without processing the materials. Brokers provide advantages to consumers because they can assure a reliable supply of materials, usually at steadier prices. They also provide a service to smaller collectors who are unable to accumulate the large shipments often required by manufacturers.

End-user markets are usually manufacturers that buy the secondary materials for use as feedstock to replace or augment their use of raw materials. End-user buying practices vary due to unique requirements of individual manufacturers and changing market conditions. Some firms may buy directly from collectors or waste generators, or do so whenever market demand exceeds local supplies. Other firms set up subsidiary buyer or

dealer companies whose main purpose is to assure adequate supplies for the parent firm. Still other firms buy supplies only from dealers or brokers who are positioned to assure standard specifications and regular deliveries.

Another option for developing local markets and end users is the creation of a resource recovery park with room for many small businesses. Resource recovery parks allow residents to drop off materials that can be reused or recycled. Activities in a resource recovery park could include a drop-off or buyback recycling center; organic material drop-off and retail sale of compost products; repair, restoration, and retail sales of reusable items; and food banks. Businesses in a resource recovery park might include electronics repair, household appliance stores, reused furniture sales, vintage clothing and consignment shop, household item thrift shop, stove and porcelain refinisher, antique restoration firm, and/or artists that use discarded materials.

4.4.5.4 Factors Influencing Recycled Materials Markets

Knowledge of the factors that influence material markets allows program designers to determine appropriate collection methods, the degree of processing required, and the availability of economically viable markets. These factors include domestic and international economic conditions, end-user specifications, quality of recovered materials (grade, consistency, and level of contamination), volume and density of diverted materials, purchase contracts, competition with virgin materials, transportation costs, and constraints of processing and manufacturing methods. These factors will be considered during the development of collection and recovery programs and monitored during implementation of these programs.

Market Specifications: Collected materials are processed to meet market specifications for size, weight, and contaminant levels. A wide variety of methods and equipment are available for handling and processing materials. The procedures and equipment chosen for processing depend largely on throughput volumes, detailed program design, and local market conditions.

Volume of Diverted Materials: Programs vary significantly in terms of volumes of materials collected. Most drop-off centers have very little processing capability, and rely heavily on local markets to supply containers and transportation for the bulk of the recycled materials. Numerous paper dealers, for example, will provide roll-off bins or overseas shipping containers if a program can collect enough newspaper to fill the container in a few days. The price paid for paper collected in this manner is often the same or lower than the dealer's door price, in order to cover the buyer's extra expense for equipment and transportation. Low-volume collection programs usually will have to deliver materials to market. This is because the buyer is unwilling to tie up equipment, such as roll-off containers, for long periods of time with little volume generated.

Programs that are large enough to collect a steady stream of materials, such as most buyback and curbside programs, can receive better prices, because they make better use of the buyer's equipment. A high-volume recycling program can provide the buyer with a steady supply of materials, and therefore earn a premium price as a preferred customer. Many paper dealers in the area would encourage the larger recycling programs to establish long-term purchase agreements in order to maintain a consistent supply of ONP or OCC. Most paper end-users, the mills that manufacture new paper products, do not provide transportation for either loose ONP or OCC, preferring instead to buy direct from paper dealers.

Material Density: The advantages of densifying can be considerable, especially when a recycling program can meet industry-established specification for ONP, OCC, aluminum, and tin-can bales with one high-density baler. Baled materials can give a recycling operator access to end-user markets (paper mills, aluminum smelters, detinning plants, etc.) that otherwise would be unavailable. The main reasons for baling are to reduce transportation costs by shipping high-density products to markets, to enhance storage capacity at the recycling facility, and to improve marketing options by accessing end-user as well as dealer/processor markets for the materials.

Contract Versus Open Market: There can be some benefits to recycling programs in securing a purchase contract with a scrap dealer. When demand is low and local markets are turning off supply through depressed door prices, a program with a long-term supply commitment to a dealer can rely on that market to absorb its

materials. Recycling program operators who "play the market" and change buyers according to the highest available spot price may find themselves with no available market at times when mill demand is low. Supplier loyalty is valued in the waste industry. The long-term contract can be designed to reflect current pricing based on industry-wide supply/demand fluctuations, thus securing a level of fair market price for their material regardless of changing prices over time. Sometimes the risk of losing short-term profits, when compared to the risk of losing a market, makes purchase contracts a worthwhile consideration in the long term.

Competition With Virgin Materials: Federal tax incentives such as depletion allowances for mineral and resource extraction have historically given suppliers of virgin materials an advantage in the marketplace due to the relative higher cost of recycled materials. Recently enacted California legislation described in Section 4.5.3 of this volume is designed to offset these inequalities and should stimulate recycled materials markets.

Export Markets: Export markets can significantly influence the local marketplace with their capacity to absorb large quantities of materials. The primary factors that favor export of materials include lower manufacturing costs and scarcity of natural resources. Proximity to foreign markets further encourages the export of recycled materials. On the West Coast for example, large quantities of waste paper and scrap metals are exported to markets located in the Pacific Rim countries.

However, export markets are influenced by changes in international economic and political circumstances, by fluctuations in the value of international currency in relation to the U.S. dollar, and by the overall health of the U.S. export market which affects shipping rates as products compete for a limited number of shipping containers.

Constraints of Processing and Manufacturing Methods: With the generally depressed recycled materials market, it was not economically feasible for manufactures to retool to accommodate the use of recycled materials. Consequently, there was minimal research and development being conducted to improve processing and manufacturing technologies. However, with an increasing supply of materials, consumer acceptance of recycled products, and the passage of recycled product content and procurement legislation, there is expanding development of processing and manufacturing technology for recycled materials.

Aspects of the SCWMA's program planning that will enhance the marketability of recovered materials will include the design of collection and processing systems to provide materials that meet the highest end-user specifications and quality standards, using dependable long-term contracts versus spot markets, cooperative marketing on a regional basis and developing an aggressive local market development strategy.

4.4.5.5 Market Development Legislation

This section describes a variety of existing and planned state and federal laws that focus on the support of general source reduction and market development strategies and an array of specific material market enhancement programs for recycled materials such as paper, compost, plastics, tires, and batteries. The Unincorporated County plans to continue monitoring recycling market development goals, policies, and activities on the federal and state level to identify opportunities for local application.

Federal

Resource Conservation and Recovery Act of 1976: RCRA requires the EPA to establish procurement guidelines requiring government agencies (local and federal) to buy products made of recycled materials. Call the procurement hotline at (703) 941-4452 for a copy of the guidelines and more information.

Community Reinvestment Act: LCRA requires banks to invest in community development projects through low interest loans. This could be used to help finance recycling businesses.

State

Recycling Market Development Zone (RMDZ) Program: A partnership of local governments and the CIWMB, created to provide incentives to businesses that use secondary materials from the waste stream as feedstock for their manufacturing processes. There are currently 40 zones designated by the CIWMB. The RMDZ program combines recycling with economic development to fuel new businesses, expand existing ones, and create jobs. Recycling-based manufacturers located in RMDZs are eligible to apply for low-interest loans and other assistance provided by local zone administrators and by the CIWMB's Recycling Business Assistance Referral Team. In addition to loans, the CIWMB offers financial assistance, product marketing, and permitting assistance.

Assembly Bill 467 (Strom-Martin) (Resources Recovery Allocated Credit): Would require the CIWMB to implement a grant and loan program for small recycling businesses for bridge financing; create the Small Recycling Business Grant Account for expenditure by the CIWMB upon appropriation by the Legislature. The legislative intent is to fund the account with a $1 million appropriation from the general fund.

SB 1127 (Karnette) (Rigid Plastic Packaging): Would require the CIWMB to conduct a study regarding use and disposal of polystyrene in California. Information available from this study could be used to develop markets and create collection programs.

4.4.6 IMPLEMENTING RECYCLING PROGRAMS

The chosen recycling diversion programs have a wide range of implementation and operations requirements. Successful programs will need the participation of both public-and private-sector entities. This section identifies the responsible agencies, implementation step, funding requirements, and a schedule for recycling program implementation.

4.4.6.1 Entities Responsible for Recycling Program Implementation

This section lists each local entity responsible for implementing a recycling operation, including public agencies, private companies, for-profit and nonprofit recyclers, and volunteer organizations. Operations requirements for each entity have been designed to complement the recommended program options. Each step identifies the designated individual or group responsible for oversight of the implementation process.

Source Separation Recycling Programs

Drop-Off/Buy-Back Centers

- The SCWMA will encourage private-sector development of drop-off/buy-back centers.

Single-Family Curbside and Multi-unit Collection Programs

- Each jurisdiction is responsible for contract negotiations and program supervision for single-family and multi-unit curbside collection programs.
- Private-sector contractors provide operational services for collection, processing, and materials marketing.

Commercial Collection Programs

- The SCWMA provides technical assistance and education programs to encourage commercial recycling in the private sector. Development of new and/or expansion of existing commercial recycling activities may be implemented by licensed private waste haulers, recycling firms, materials brokers and dealers, or other private firms.
- Private-sector waste haulers currently provide waste management services and recycling operators will be

involved in expansion of commercial collections as more businesses implement programs.

Office Paper Recovery

- The DTPW will develop and assist County departments to expand the office paper program for the county government offices.
- The SCWMA provides technical assistance to the private sector.
- Private-sector businesses will implement or expand office paper recovery programs based upon the effectiveness of the SCWMA's technical assistance program and the availability of paper dealers and recycling firms to service local businesses.

Material Reuse/Recovery Programs For All Wastesheds

- The County will continue to operate material reuse/recovery facilities at the Central Disposal Site and the Healdsburg and Sonoma transfer stations.

Actions Planned to Deter Unauthorized Removal of Curbside Materials

Local jurisdictions have the authority to enforce the State's anti-scavenging ordinance for curbside materials.

Mixed Waste Recovery Programs

Floor-Sort Activities

- The DTPW will continue to operate floor sorting activities.
- The DTPW will implement floor-sort activities at the Central Disposal Site tipping building once the operational improvements are completed.
- Private sector may play a role in operations.

Local Government Program for the Procurement of Recycled Products

- The SCWMA will provide assistance to each jurisdiction to implement Green Purchasing Policies.
- Each jurisdiction will educate their departments on the procurement of post-consumer recycled content products.

4.4.6.2 Tasks Required to Implement Recycling Programs

The SCWMA and its member jurisdictions have already implemented components of the described recycling program. The following tasks identify steps required to expand existing recycling activities and to implement the selected programs.

Single-Family Residential Curbside Collection

- Negotiate expanded service with appropriate hauler(s).
- Enhance the publicity/promotional program to increase household participation and the tonnages recycled.

Multi-unit Residential Collection

- Negotiate service with appropriate hauler(s) and expand operations to serve more multi-unit residences.

- Enhance the publicity/promotional program to increase household participation and the tonnages recycled.

Commercial Collections

- Publicize the private-sector commercial collections in the Annual Recycling Guide.

Office Paper Recovery

- Evaluate existing in-house programs.
- Deliver desk-side containers to additional facilities (e.g., libraries, fire stations, corporation yards).
- Conduct training sessions and ongoing employee motivational campaigns.
- Provide technical assistance program for the private sector.

Material Reuse/Recovery Operation

- The DTPW will continue to operate the existing material reuse/recovery operations at the Healdsburg and Sonoma Transfer stations.

- The DTPW will complete the construction of the expanded material reuse/recovery operation at the Central Disposal Site.

Floor-Sort Activities

- The DTPW will continue to operate existing floor-sort activities at the county-owned solid waste facilities.

- The DTPW will implement floor-sort activities at the new Central Disposal Site transfer building once construction is completed.

4.4.6.3 Local Government Programs to Procure Recycled Products

- The SCWMA and its member jurisdictions will continue to use the recycled-content procurement policies that are in place.

- The SCWMA will continue to implement its Green Purchasing Policy.

- The SCWMA will continue to work with its member jurisdictions to implement Green Purchasing Policies throughout Sonoma County.

- As part of implementing a green purchasing policy, each jurisdiction will consider adding a statement to all requests for bids indicating the jurisdiction's desire to buy recycled/reusable products given equivalent performance.

4.4.6.4 Schedules and Funding Required to Implement Recycling Programs

After individual programs were selected a detailed list of implementation tasks were developed to guide program activities. These implementation tasks are intended to serve as a checklist for program expansion and/or development.

The schedules were developed after receiving verbal and written information from the County's Local Task Force representatives. A wide variety of factors influenced the development of these tasks schedules including:

- Emphasis on maximizing source separation program diversion programs before developing mixed waste recovery programs.
- The willingness of the County to develop and operate programs.
- Time required to begin full-scale operations.

- Ability to raise capital and development funds.
- Developing an implementation schedule that coincides with budget tasks.

The recycling program implementation tasks and the schedule to phase in the program are presented in Table 4-17. The dates shown are commencement dates.

4.4.7 MONITORING AND EVALUATION

Monitoring and evaluation is critical to the planning process. The programs recommended in this recycling component will require annual review to ensure that the anticipated diversion goals are being achieved. Section 18733.6 of the AB 939 regulations outlines the requirements of the monitoring and evaluation section. The following discussion identifies the criteria to be used for evaluation, frequency of the monitoring, entities responsible for evaluation, and funding sources for the monitoring, and contingency measures to be implemented if programs do not fulfill the expectations.

Monitoring and evaluation also identifies the percentage of wastes the programs divert from disposal, evaluates the effectiveness of the programs, and describes contingency steps that can be taken to improve the program's diversion potential. Table 4-16 lists the parties responsible for monitoring and evaluating the recycling program.

4.4.7.1 Data Needs

In its preparation of the AB 939 Annual Report, the SCWMA requests that all recycling program operators who are collecting materials from those programs implemented by the SCWMA and its member jurisdictions to submit reports that identify the types and amounts of materials recycled.

4.4.7.2 Monitoring Program

The following are monitoring techniques used to review implemented recycling programs.

Source Separation Programs

Drop-Off/Buyback Centers

Program monitoring for drop-off/buyback centers will be performed using written records. Drop-off/buyback center operators and the Sonoma County DTPW will maintain records of tonnage diverted for all drop-off/buy-back centers.

Residential Curbside Collection

The program monitoring methods for single- and multi-unit residential curbside programs consist of using written records. The contracted service providers for curbside recycling will be required to submit quarterly collection reports to the SCWMA. An annual review of the curbside reports will be conducted to identify participation rates, tons recycled by material type, and program costs.

Commercial Collections Programs

The methods to be used for commercial collection program monitoring are:

- Written Records: Commercial haulers who operate commercial recycling programs within Sonoma County report annual tonnages to the SCWMA.

- Waste Characterization Study: A targeted waste sorting study may be conducted at Sonoma County solid waste facilities during the medium term to confirm diversion rates of targeted materials.

Office Paper Recovery

The objective of the office paper recovery program is to expand the existing County program to all County offices and to encourage private-sector participation in the activity. Program monitoring will be performed using written records. The Sonoma County DTPW is responsible for all reports on office paper recovery. Reports documenting the status and achievements of the technical assistance program will also be reviewed and summarized every year.

Material Reuse/Recovery Program

Detailed performance records are required monthly of the contracted program operator. The SCWMA will evaluate written records of facility operations annually as part of its AB 939 Annual Report.

Mixed Waste Recovery Programs

Floor-Sort Activities

Detailed performance records are submitted to the SCWMA on a quarterly basis for materials diverted by each solid waste facility in Sonoma County. The DTPW requires monthly reports to document throughput and recovery levels.

Local Government Programs to Procure Recycled Products

- The SCWMA will continue to work with member jurisdictions to implement Green Purchasing Policies.
- Each jurisdiction will monitor procurement policies to ensure that targeted procurement levels are being achieved.

4.4.7.3 Evaluating Recycling Program Effectiveness

Program effectiveness can be evaluated based on quantitative measures such as the program's ability to divert waste from disposal and qualitative measures such as the availability of the services to waste generators. A

specific set of criteria, based on the following questions, are used to measure program effectiveness that should help the SCWMA identify areas where improvements are required.

- Were the anticipated recycling objectives for each recycling program and targeted material type attained?
- Did the responsible entities execute the tasks required?
- Were programs implemented in a timely manner?
- Were all activities executed in an environmentally approved manner?
- Do the recycling program activities meet all local and state regulations?
- Were the markets that were identified in program design able to process the collected materials?
- Were the programs operated to maximize the use of the program by different waste sectors?

4.4.7.4 Parties Responsible for Monitoring

The SCWMA staff will monitor and evaluate regional recycling programs to ensure that such programs are reaching residents and businesses countywide (see Table 4-16). Material diversion monitoring reports will continue to be integrated into the AB 939 Annual Report.

4.4.7.5 Funding Requirements

Many of the monitoring and evaluation responsibilities are built into the individual program operation budgets. It is estimated that these monitoring and evaluation activities will require a minimum of five percent time of one SCWMA employee on an annual basis at a cost of approximately $8,000 per year. The annual expense for the County DTPW is approximately $220,000 to hire contractors to operate the material reuse/recovery operations at the Central Disposal Site and the Healdsburg and Sonoma transfer stations. Costs for the existing floor-sort activities occurring at the existing transfer stations are not separated from the operations budgets for the facilities. Funding for programs implemented through franchise agreements are included in the overall costs of providing solid waste services to the local jurisdictions.

4.4.7.6 Contingency Measures for Improving Recycling Programs

A list of contingency measures for improving recycling programs diversion rates follow. These measures will be implemented if the monitoring and evaluation program identifies the program deficiencies.

1. If the recycling diversion objectives are not attained, the SCWMA will consider implementing the following:

    - Survey the sectors involved to identify the reasons for the program's lack of success.
    - Increase incentives through legislation, regulation, or disposal rate modification.
    - Increase public education efforts in terms of frequency and/or target audience.
    - Revise objectives to reflect realistic conditions.

2. If required tasks are not executed by the responsible entities, the SCWMA will consider implementing the following:

    - Reevaluate staffing adequacy.
    - Revise job and task descriptions.
    - Improve interagency coordination.
    - Identify reasons for low public and private-sector participation.

3. If tasks are not implemented in a timely manner, the SCWMA will consider implementing the following:

    - Reevaluate staffing adequacy
    - Revise job and task descriptions
    - Improve interagency coordination.
    - Identify reasons for low public- and private-sector participation.

Table 4-16: Parties Responsible for Monitoring and Evaluating Recycling Programs

Program	Responsible Parties			Interval
	Data Collection	Evaluation	Reporting	
Drop-Off/Buyback Centers	Program Operator	SCWMA	SCWMA	Annually
Single-Family Curbside	Program Operator	Each jurisdiction	SCWMA	Annually
Multi-unit Collection	Program Operator	Each jurisdiction	SCWMA	Annually
Commercial Collection Programs	Program Operator	Program Operator	SCWMA	Annually
Office Paper Recovery	Program Operator	Each jurisdiction	SCWMA	Annually
Material Reuse/Recovery Operation	Program Operator	DTPW	SCWMA	Quarterly
Floor-Sort Recovery Facilities	Program Operator	DTPW	SCWMA	Quarterly

4. If target sectors fail to participate adequately or as anticipated in recycling programs, the SCWMA will consider implementing the following:

   - Survey the sectors to identify reasons for lack of participation.
   - Increase incentives through legislation, regulation, or disposal rate modification.
   - Provide increased access to technical assistance.
   - Increase appropriate educational and promotional activities.

5. If markets or end-users prove inadequate, the SCWMA will consider implementing the following:

   - Perform market studies to determine problems with, or constraints to, marketing or using recovered products.
   - Investigate cost-effectiveness of end-use alternatives.
   - Explore alternative markets and end-uses.
   - Increase market outreach, education, promotion, and advertising.
   - Investigate marketing and coordinate with other jurisdictions to improve the quality of material for sale.

   - Funding to encourage market development operations or recovery programs in the county.

6. If some aspect of the recycling program does not meet local, state, or federal regulations, the SCWMA will consider implementing the following:

   - Identify the problem area.
   - Correct problems to meet local, state, and federal regulations as appropriate.
   - Provide reports and documentation to regulatory agencies to serve as evidence for a variance for a particular problem area.

Table 4-17: Implementation Schedule for Recycling Programs

PROGRAM AND IMPLEMENTATION TASK	RESPONSIBLE ENTITY	2000				2001				2002				2003				2004				2005				2006				2007				2008			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
RECYCLING																																					
Drop-Off/Buyback Program																																					
Continue existing operations of drop-off centers at solid waste facilities	Public Works																																				
Encourage private sector development of new centers	SCWMA																																				
Promote private drop-off/buyback centers in the Annual Recycling Guide	SCWMA																																				
Single-Family Curbside Program																																					
Continue operations of single-family curbside program	Each jurisdiction																																				
Implement single-family/single-stream recycling program, as appropriate	Each jurisdiction																X																				
Develop promotional materials	Each jurisdiction																																				
Promote program in Annual Recycling Guide	SCWMA																																				
Multi-Unit Program																																					
Continue operations of multi-unit collection program	Each jurisdiction; haulers																																				
Expand program to additional multi-unit facilities	Haulers																X																				
Commerical Source-Separation Program																																					
Encourage private sector development of new centers	SCWMA						X																														
Promote commercial recycling programs in Annual Recycling Guide	SCWMA								X																												
Office Paper Recovery Program																																					
Evaluate in-house programs; expand program and materials collected as appropriate	Each jurisdiction						X																														
Conduct training sessions and ongoing employee motivational campaigns	Each jurisdiction								X																												
Provide technical assistance program to the private sector	SCWMA	X																																			
Recycled Materials Procurement Program																																					
Evaluate existing Green Purchasing Program of recycled goods	SCWMA												X																								
Adopt new Green Purchasing Policy	Each jurisdiction																X																				

Table 4-17: Implementation Schedule for Recycling Programs

PROGRAM AND IMPLEMENTATION TASK	RESPONSIBLE ENTITY	2000				2001				2002				2003				2004				2005				2006				2007				2008			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Materials Reuse/Recovery Program																																					
Central: Complete construction of new buildings for reuse operations; relocate existing operations; continue operations	DTPW											X																									
Continue existing operations of reuse/recovery program at Healdsburg and Sonoma transfer stations	DTPW																																				
Floor-Sort Activities																																					
Continue operating existing floor-sort activities at existing transfer stations	DTPW																																				
Complete construction of new tipping building at Central; begin floor-sort activities as part of daily operations	DTPW											X																									
Monitoring and Evaluation	SCWMA																																				

Composting Component

4.5 COMPOSTING COMPONENT

According to the 1995/96 Waste Characterization Study, yard debris represents 7% of the County's waste stream and other organics (food, wood, etc.) represents 26%. Therefore, composting continues to be a solid waste management option that can significantly reduce the amount of waste landfilled.

4.5.1 OBJECTIVES

In its 2000 Annual Report to the CIWMB, the SCWMA reported a diversion rate of 40 percent. As required by PRC Section 41820(a)(6)(B), the SCWMA filed a time extension request listing the estimated diversion from new and enhanced diversion programs. By the year 2003, the SCWMA member jurisdictions will increase residential recycling by 6.5 percent and commercial recycling by 4.5 percent. Goals for those programs that address this increased composting diversion are discussed below. The priority waste categories that will be targeted for diversion include paper, metal, wood, yard debris, and plastics.

Specific goals for the short term (2003 to 2008) for the SCWMA composting program are:

- Expand residential yard debris collection to weekly collection to divert an additional 25 tpd, equivalent to 1.7% of the disposal tonnage, by the end of 2003.
- Implement a construction and demolition debris diversion program as described in the Special Waste Component (section 4.6) which is anticipated to divert an additional estimated 65 tpd, equivalent to 4.5% of the disposal tonnage, by the end of 2003. This program will divert an undetermined amount of additional yard debris not currently captured by the existing programs.
- Expand existing floor sort activities at the solid waste facilities as described in the Recycling Component (section 4.4) which is anticipated to divert an additional estimated 20 tpd, equivalent to 2.1% of the disposal tonnage, by the end of 2003. This program will divert an undetermined amount of additional yard debris not currently captured by the existing programs.
- Continue to develop and promote local diverse uses for compost products including uses in landscape and nursery industries, vineyards and other agriculture, public works and Caltrans projects, mining (i.e., gravel) and reclamation projects, and uses by the general public.

As stated in the Sonoma County Solid Waste Management Alternatives Analysis Project final report ("Analysis"), the medium term goals for the planning period 2009 to 2018 include:

- Siting a Resource Management Facility (RMF) that will include organic waste processing and green waste composting as part of the planned operations.
- Developing a formal agreement among all the jurisdictions in Sonoma County to direct flow of refuse and green waste to the RMF.

Specific marketing goals for the SCWMA composting program are:

- Encourage and assist government agencies to develop compost specifications and standards that match the needs of large markets such as agriculture.
- Develop or support private efforts to develop an educational program that informs businesses and the general public of the beneficial uses of compost.
- Work with state and local agencies to encourage their use of compost in landscaping, construction, park, reclamation, and athletic field projects.
- Work cooperatively with other jurisdictions to acquire long-term contracts with compost buyers.

4.5.2 EXISTING COMPOSTING ACTIVITIES

Title 14, Chapter 9, Section 18736.1 of the regulations requires a description of the existing composting program and existing local market development activities including government procurement programs, economic development activities, or consumer incentives.

4.5.2.1 Current Composting Programs

Yard Debris Composting

Sonoma Compost Company (SCC) has been the contractor for the SCWMA's regional composting program since 1993. On average in 2001, the program processed 175 tpd of yard trimmings, representing a 14% reduction of the county waste stream and producing 50,000 to 60,000 cubic yard of compost and mulch annually. Twenty percent of the materials collected come from self-haul customers and 80% from the residential curbside collection and transfer stations.

Windrow composting occurs at the Central Disposal Site on about 20 acres covered with a cement treated base using the yard trimmings from residential curbside collection and the transfer stations after it has been sorted for contaminants. Materials collected from self-haul customers, which is more brush and less contaminants, are processed into mulch. Once the composting process is complete, mulches and compost are screened for size and to remove any remaining contaminants.

Material is ready for market once it is no longer fibrous, has a moisture content of 40 to 50%, and has a dark, soil-like appearance. Testing includes regulatory required tests, nutrient analysis and pesticide residue detection tests. This testing along with SCC's registration with the California Compost Quality Council, allows the products to be sold as "organic," giving customers confidence in the products. Ten percent of the final product is allocated back to the SCWMA members in direct proportion to the amount of materials generated from that jurisdiction. These allocations are used by parks departments, schools, and local non-profit organizations. Three quarters of the remaining final product is sold directly to customers, with the rest sold to the wholesale market.

Biosolids Composting

Although the 1995/96 Waste Characterization Study conducted for Sonoma County does not identify biosolids (sludge) as a significant part of the waste stream disposed at County disposal sites, biosolids can be landfilled if it meets specifications for more than 80% solids. The City of Santa Rosa Laguna Wastewater Treatment Plant uses a forced air, agitated bed system comprised of twelve, 6 feet by 10 feet by 210 feet, composting bays for its composting operation. The facility has a capacity of 50.5 wet tons which varies seasonally because additional moisture in winter months requires additional bulking materials. Laguna has been using approximately 35 tons/month of yard debris collected from residential curbside programs as a bulking material.

Manure Composting

Although the 1995/96 Waste Characterization Study conducted for Sonoma County do not identify manures as part of the County's waste stream, there is no prohibition from disposing manures at the solid waste disposal facilities. Therefore, it is possible that manures are being disposed at the facilities. Many large agricultural operations, such as dairies and horse ranches, manage their manures on site for economic reasons.

With a capacity of 10,000 cubic yards of active compost and feedstocks, Earthbound Compost processes horse and dairy manures and pomace into compost. In addition, Sonoma Valley Worm Farm uses from three to five cubic yards per week of dairy manure as feedstock for growing red worms and producing worm castings.

Food Waste Composting

From August, 2000 to April 2001, 42 businesses in the City of Rohnert Park participated in a food waste collection pilot program aimed at commercial facilities. Empire Waste Management designed a collection route that focused on collecting food waste separately from other generated wastes and delivered the food waste to the City of Santa Rosa Laguna Regional Wastewater Treatment Plant. During the pilot program, contamination of

the food waste was a significant issue that required some separation of contaminants prior to composting. Over 213 tons of food waste was collected, producing over 500 cubic yards of finished compost. After six months of operation, a cost analysis showed that this type of program would not be cost effective without a significant number of large generators to offset the costs of collecting and processing the separated compostables. The research results of this pilot program will help in the development of a future organics composting program.

4.5.2.2 Current Composting Levels

Sonoma Compost Company produces 50,000 to 60,000 cubic yard of compost and mulch annually. The current diversion for yard debris is included in Table 4.10 (see section 4.4).

4.5.2.3 Anticipated Change in Composting Activities

The SCWMA and the private companies operating composting sites do not anticipate a decrease in composting activities in Sonoma County.

4.5.3 EVALUATION OF COMPOSTING ALTERNATIVES

Title 14, Chapter 9, Section 18736.3 outlines the evaluations process to be used for the composting alternatives. Only those alternatives whose products result from the controlled biological decomposition of organic wastes source separated from the municipal solid waste stream or separated at a centralized waste processing facility may be considered. Composting alternatives do not include backyard composting or other composting that occurs at the site of generation which are considered source reduction.

4.5.3.1 Evaluation Process

The purpose of the alternatives evaluation process is to choose appropriate composting programs for the various areas in Sonoma County by applying a set of technical, economic, and institutional criteria to a range of composting alternatives. Each alternative is evaluated using the criteria in Table 4.18, including the issues specified in Section 18733.3(b) of the regulations: consistency with local planning, barriers to implementation, implementation costs, and availability of end uses for compost products. In Table 4.18, the weight of the evaluation criteria represents the relative importance of one criteria to the others and is used in the evaluation of

Table 4-18: Criteria for Evaluating Composting Alternatives

Criteria	Weight
• Waste Diversion Potential	10
• Ease of Tracking Diversion	5
• Environmental Impacts	11
• Operating Experience of the Alternatives	6
• Conformity with Local Markets	8
• Facility/Program Requirements	6
• Capital Cost	6
• Cost Effectiveness	9
• Operating Costs	8
• Conformity with State Hierarchy	4
• Time of Implementation	6
• Private-Sector Participation	6
• Changes in Waste Type, Generation/Use	7
• Adaptability to Changing Social Conditions	8
• Consistency with Local Policies and Conditions	7
• Barriers to Implementation	7
• Implementation Costs	7
• Availability of End Uses for Compost Products	7

any new programs that may be considered in the future. The alternatives evaluated are listed in Table 4.19, and the results are found in Table 4.20.

Additional information on the following specific assumptions include:

Environmental Impacts: MSW compost is relatively more contaminated than either yard debris or source-separated composts. The experience of existing MSW compost facilities combined with the evolving state of increasingly restrictive regulations point to much higher risk associated with the beneficial use of MSW compost.

Operating Experience: The components of source-separated organics composting are similar to the yard debris and MSW composting programs. Collection of source-separated organics would be an expansion of the yard debris program, and the composting facility would be less problematic than that for the MSW composting facility.

Conformity with Local Markets: MSW composting produces a lower quality product. If the public or end users do not accept the product, there is no small modification that can be done to improve the quality. An effective household hazardous waste source separation program or a switch to a different mechanical separation technology may improve the product quality.

Operating Costs: This criteria has been interpreted to mean that the alternative is less desirable if it does not moderately reduce the cost of collecting, transferring and disposing of the residual wastes. The criteria does not take into consideration the program's effect on the total cost of the integrated waste management program.

4.5.3.2 Description of the Composting Alternatives

Table 4-39 (Section 4.8, Facility Capacity) includes the amounts of yard waste and other organics diverted, disposed and generated in Sonoma County according to the 1996/96 Waste Characterization Study. Determining which organic materials to collect and compost requires consideration of the following items:

- Although the LTF has stated its preference for source separation programs and has supported the existing back yard composting program, yard debris composting program and the food waste collection pilot program, the LTF also recognizes that targeting other organic materials including food waste, non-recyclable paper, diapers and other items for MSW composting would, if implemented, enable Sonoma County to meet a 70% diversion rate by 2015.

- The existing yard debris collection program has been designed to maximize participation and diversion rates while maintaining a high level of convenience for residents and businesses. In addition, yard debris has been banned from landfill disposal in Sonoma County and a reduced tipping fee exists for source-separated yard debris.

- Although curbside collection of yard debris occurs on the same day as other recyclables and trash are collected, the method of collecting other source-separated organics will require a detailed comparative analysis and testing of the options. This can be accomplished by a regional pilot program testing and feasibility studies.

- The higher the compost quality and the lower the level of contamination the greater the number of beneficial uses for the compost products. Along with effective source separation, this consideration is used to prioritize the alternatives based on the quality of the compost produced. The higher quality will have a cost that will need to be weighed against the benefits including greater marketability, less risks and liability, and the potential for greater revenues.

Separation and Collection Systems

Waste diversion, cost effectiveness and product quality determine how compostable materials are segregated from the waste stream and how they are collected and transported to the composting site. In fact, material

collection costs typically exceed actual composting costs. Collection system options are divided into the following four general categories.

No Source Separation of Compostable Materials

Mechanical separation at a materials recovery facility (MRF) isolates a portion of the compostables. The disadvantages include high contamination of the compostables with inert materials such as glass, plastics, metals, and with toxics, such as household hazardous waste. Additionally, the recyclables are exposed to contamination by the wet organics during collection and their market value is correspondingly reduced. Using this method, typical diversion of organics is 30 to 40 percent of the waste stream. Collection costs are on a par with those of present refuse collection because one truck picks up everything at once (except recyclables, if a curbside recycling program exists). However, the need for capital-intensive mechanical separation equipment and the reduced marketability of the compost and recyclables may largely offset this savings.

Yard Debris Source Separation

- Co-collection: Source separation of yard debris into bags which are collected with the trash and separated at a transfer station, MRF, or landfill. Combined with the dedicated collection of recyclables, this system would require only two distinct pickups: recyclables and trash plus bagged yard debris. Alternatively, the refuse is bagged and these bags are thrown in with the loose yard debris.

- Source separation of yard debris: Using bags or reusable containers or deposited loose by the curb, yard debris is collected by dedicated vehicles. This would require three different collection events: yard debris, refuse, and recyclables.

- Homeowners and businesses bring yard debris to drop-off facilities. This can be in place of or in addition to other collection options.

- Combination of drop-off facilities with co-collection or source-separation of yard debris.

Other Organic Material Source Separation

In addition to yard debris, these systems could source separate and collect food scraps, soiled or wet paper, and other non-recycled paper.

- Food material could be placed in the yard debris bags to be collected with the trash and separated at a transfer station, MRF, or landfill. Along with curbside pickup of recyclables, this would require two distinct collections. Alternatively, the refuse is bagged instead of the yard and food debris.

- Same as above, with non-recycled paper added.

- Food scraps are placed with yard debris in a reusable container such as a 45-, 60- or 90-gallon can. These are picked up by a packer truck on a dedicated route. This would require three distinct collections.

- Same as above, with non-recycled paper added.

- Only commercial and industrial accounts would place food scraps with yard debris in a reusable container to be collected by a packer truck on a dedicated route.

- Wet/Dry Sort where yard, wood and food debris, non-recycled paper and all other clean organic materials are put in the "wet" container, and recyclables plus non-recyclable plastics and other non-compostables are put in the "dry" container; either the wet or dry container could be the default container for those who do not participate in the sorting process. This requires two

instead of three sorts by participants and two distinct collections – one for dry and one for wet. The dry materials are sorted into recyclables and non-recyclables at a processing facility.

- Same as above, but with the wet container being the default container.
- Homeowners and businesses bring organic materials to a drop-off facility. This can be in place of or in addition to other collection options.

Combination

Mechanical separation at a MRF can be added to the options of yard debris source separation or other organic material source separation described above to add of those organic materials not already source-separated from refuse.

Composting Systems

The composting technology employed is based on consideration of chosen organic ingredients, site parameters (e.g., size, environmental impact sensitivity) and availability of labor and capital. The organic material separation and collection method depends on the willingness of the generators to participate in source separation, the cost of alternative systems, and the desired product quality. Without source separation, mechanical separation prior to composting must accompany any additional pre-composting processing such as shredding and mixing of distinct materials. It is assumed that a portion of the processed materials will be sold as fuel and not proceed to the composting stage. Once prepared, the organic materials may be composted using the technologies discussed below.

Table 4-19: Composting Alternatives Evaluated

Yard Debris Composting	Least complex and least expensive composting method. Source-separated yard debris is collected from both residential and commercial generators on a dedicated route and taken to the composting site. Homeowners, landscapers, and other businesses may also haul yard debris to the Central Disposal Site or one of the transfer stations. Transfer trailers are used to transport the separated yard debris from the transfer stations to the Central Disposal Site. An outdoor windrow composting method is used. Some of the yard debris collected is also used as a bulking agent for municipal sludge composting.
Municipal Solid Waste Composting	Preprocessing includes material recovery operations to remove non-organic, hazardous materials, and/or valuable recyclables using human labor and/or mechanical equipment. No source separation is required, the collection system remains unchanged, and the composting technology would likely be in-vessel or fully enclosed. The composting process (i.e., anaerobic digestion) of organic materials (food waste, biosolids and septage, manures, waste straw, sawdust, lees and pomace, wash water, contaminated paper, etc.) would recover energy and produce, to the extent feasible, compost products. Volume of the MSW is greatly reduced. Screening is required for the final product to be marketed, although heavy metals and plastic contamination prevent many products from being marketable. Residuals are usually landfilled or used as ADC.
Source-Separated Organics Composting	Source-separated food, yard debris, and non-marketable paper (wet or contaminated) are either co-collected with trash or collected separately on a dedicated route. These materials are composted to produce a clean, agricultural grade compost. The composting process would be similar to either yard debris composting or MSW composting depending on the type of technology selected.

Windrow Composting

The simplest composting systems amount to piling organic materials, such as leaves and brush, and leaving the piles alone for a year or more. If space and time are abundant, this is by far the least expensive option. Most existing yard debris composting operations use a quicker method involving building elongated piles (windrows) of compost material, periodically turning the piles, and monitoring and adjusting moisture and temperature levels. Composting time depends primarily on an appropriate carbon-to-nitrogen ratio, proper moisture levels, and frequent turning to provide sufficient aeration.

Aerated Static Pile

This method operates on principles similar to windrow composting. Aeration is provided to the composting mass (e.g., by forming the piles over perforated pipes that draw air through the compost), which allows the size of the piles to be increased and largely eliminates the need for turning the piles. More controlled aeration leads to swifter decomposition and better odor control, especially in systems that filter air after it is drawn down through the piles. The land area needed can be less than that required for windrows.

In-Vessel Composting

In-vessel composting takes place in an enclosed container rather than in freestanding piles. A number of proprietary systems are available, some which produce a finished product in the vessel, and others which use the vessel to "jump-start" the process and finish the compost in either piles or windrows. Most systems provide for frequent or continuous mixing of the composting mass and allow for monitoring and adjustment of temperature, moisture, and aeration. This process decreases the time needed for decomposition and controls odor. In-vessel systems have high equipment costs, but can require less land than open-air systems.

In addition, there exists a low maintenance, modular on-site in-vessel vermicomposting system, that processes soiled paper products as well as food scraps. It works well in urban environments for schools, restaurants, and educational camps producing concentrated fertilizer at a reasonable cost.

Anaerobic Composting

This form of composting produces two usable commodities: biogas and a somewhat stabilized semisolid material having several uses, including animal bedding or feed, mulch, and as a composting ingredient. Biogas, a mixture of methane and carbon dioxide, can be used directly to generate electricity or can be upgraded and sold as pipeline-quality natural gas. Anaerobic composting includes in-vessel proprietary systems and operations resembling windrows or static piles sealed in plastic to exclude air. The high capital costs of these systems may be offset by the revenue produced by the biogas. Some systems are being developed that use both an anaerobic and an aerobic process to produce biogas and compost.

4.5.3.3 Program Alternatives Evaluated

Three composting programs were evaluated that incorporate some of the above separation and collection options. For the purposes of cost analysis, source-separated collection and windrow composting were assumed. The composting alternatives evaluated are described in Table 4-19 and the composting alternatives analysis is detailed in Table 4-20.

Table 4-20: Composting Alternatives Analysis

CRITERIA	Yard Debris Composting	MSW Composting	Source Separated Organics Composting
1. Waste Diversion Potential	Existing program diverts about 14% of Sonoma County waste stream.	Depending on collection and materials recovery, from 20 to 40 percent.	25-50%, depending on waste composition and participation rates.
2. Ease of Tracking Diversion	Diversion tracked by month.	Diversion can be easily tracked.	Diversion can be easily tracked.
3. Environmental Impacts	Potential for odor, leachate, blowing debris; impacts minimal and controllable through management.	Potential for odor, leachate,dust and vectors. Impacts of product contaminants being assessed and will determine use regulations.	Potential for odor, leachate, dust and vectors. Impacts generally can be mitigated. Product contamination is more than YD and less than MSW.
4. Operating Experience	3,800+ facilities operating in the U.S. 88+ facilities operating in California.	16+ facilities operating in the U.S.	Full-scale collection programs in Europe; several pilots in U.S. Technology is similar to MSW composting.
5. Conformity with Local Market Conditions	Strong local markets exist.	MSW compost has little history of successful marketing in US. due to contamination levels and product quality. Can be used as ADC.	Industrial organics compost is currently produced and marketed locally. Strong agricultural market potential exists.
6. Facility/ Program Requirements	Current program operates on approximately 18 acres.	Would require identification and permitting of composting site.	Would require modification of collection system. Siting and permitting of composting facility.
7. Capital Cost	No additional capital costs required.	Cost of fully enclosed composting facility is in range of $30,000-$50,000/tpd.	Composting costs are slightly lower than for MSW. Collection costs depend on system chosen.
8. Cost Effectiveness	Existing program costs are $29/ton for processing.	Costs range from $25 - $140 per ton, depending on process chosen and degree of recovery attained.	Cost per ton is highly variable, depending on composting technology and collection technique.
9. Operating Costs	Existing program costs are $29/ton for processing.	Significant avoided landfilling costs; collection costs unchanged.	Highest avoided landfilling costs; collection costs similar to yard debris composting if organics added to existing collection system.
10. Conformity with AB 939 Hierarchy	Consistent with second level of hierarchy.	Consistent with second level of hierarchy.	Consistent with second level of hierarchy.

Table 4-20: Composting Alternatives Analysis

CRITERIA	Yard Debris Composting	MSW Composting	Source Separated Organics Composting
11. Ease of Implementation	Program already established.	High capital costs require intensive planning and financial review. May take 2 to 3 years. Also dependent on product marketability	Implementation dependent on facilities, collection and marketing; could take 2 to 3 years.
12. Private Sector Participation	Private sector currently operates program and markets materials.	Large opportunity for private participation in development, operation, marketing, financing, etc.	Large opportunity for private sector participation; including development, operation, marketing, etc.
13. Changes in Waste Generation/ Use	None.	None.	None.
14. Adaptable to Social Conditions	Program includes educational components. Alternative promotes public awareness and waste reducing behavior.	Limited promotion of public awareness and waste reducing behavior. Product may be less adaptable due to contamination level.	Reliance on source separation promotes public awareness and waste reducing behavior. Product is more adaptable.
15. Consistency with Local Policies and Conditions	Consistent with local conditions.	Consistent with local conditions.	Consistent with local conditions.
16. Institutional Barriers to Implementation	Full solid waste facilities permit and other permits required.	Full solid waste facilities permit and other permits required.	Full solid waste facilities permit and other permits required.
17. Implementation Costs	No additional costs for existing program.	From $40 to $80 per incoming ton and produces residuals that must be landfilled.	Costs vary depending on scope of project and technology selected. Windrow composting of organic discards with source-separated yard debris could cost $25 to $100 per incoming ton. Iin-vessel program could cost $50 to $130 per incoming ton.
18. Availability of End Uses for Compost Products	Local markets established in residential, businesses, and agricultural sectors.	Higher quality compost can be used by landscapers, golf courses, and residential users. Low quality compost can be used as ADC, mining reclamation or land restoration.	Adding source-separated organics increases the quality of yard debris compost. Markets could include parks departments and landfill. Giveaway programs could provide an outlet for a large amount of the product and establish a market at the same time. Product would probably need to be proven to be accepted by agricultural markets.

4.5.4 SELECTED COMPOSTING PROGRAMS

After an analysis of the characteristics of the solid waste stream and the level of existing waste diversion activities, the following composting programs were selected for implementation. Additionally information from the *Sonoma County Solid Waste Management Alternatives Analysis Project Final Report* (December, 2000) was used to determine how the SCWMA would meet and exceed the 50% diversion goal set by AB 939. This section describes the selected composting programs including costs, how the selected programs meet AB 939 diversion goals, and program needs.

4.5.4.1 Description of Selected Programs

The selected composting programs are listed in Table 4-21. Program selection was based on the alternatives evaluations and data from the 1995/96 Waste Characterization Study that indicates that significant quantities of yard waste and other organics are still currently being disposed. Selected programs are yard debris composting in the short-term, source-separated organics composting in the medium-term, and MSW composting in the medium term.

Table 4-21: Composting Programs Selected

Yard Debris Composting	• Will contribute an additional 1.7% by 2003. • Focus is on diversion of yard and clean wood debris. • Self-hauled clean loads and curbside collection depend on public and business source separation. • Other materials such as grape pumice, sawdust, and manure will be accepted at the compost facility. • Compost product is used in city public works projects, agriculture and landscaping, as well as by home gardeners
Source-Separated Organics Composting	• Program will build upon and expand the existing yard debris composting program. • Other materials may include food debris, agricultural materials, non-recycled paper, municipal sewage sludge and septage, and other organic materials could be source-separated and composted. • A regional feasibility study and pilot program will be necessary to design and test program parameters. • A wet/dry collection system could be evaluated as an option to the present system and other collection options. • Aggressive marketing to farmers, residents and businesses, and public works and state highway departments will be necessary.
RMF with MSW Composting	• New facility would include preliminary waste sorting, primary organic waste processing, and potentially, an on-site energy generating element using the fuel created by the organic waste processing. • Would process solid waste not recycled or diverted by other programs such as MSW, biosolids, food waste, non-recyclable paper, manure, waste straw, sawdust, lees and pomace, and wash water. • Facility would serve commercial haulers only. • Will require 5 acres for building and traffic circulation, a building of 40,000 to 50,000 square feet with utilities. • Could be co-located with a landfill or located at a separate site.

Yard Debris Composting

Yard debris composting is a selected ongoing activity because of its diversion potential. The existing system includes residential curbside collection, reduced tipping fees for source-separated materials brought directly to the solid waste facilities, and a landfill ban of yard debris and wood waste.

In the medium term, it will be necessary to relocate the existing yard debris composting operations in order to capture the air space identified for landfill capacity. This new location would continue to be able to serve the entire county and would include features for water quality control such as roofing or a collection system to treat runoff. The new facility will include approximately 15 to 20 acres with an additional 20 acres for curing and storage.

Source-Separated Organics Composting

Once the yard debris composting program has been relocated to a new location in the beginning of the medium term, there is a potential of expanding the types of organic materials processed as part of the program to include food waste, non-recyclable paper, manure from horse and other small farms, waste straw and sawdust from animal bedding, lees and pomace from wineries and wash water from milk barns and creameries.

Participation in a regional study and pilot project similar to the food waste collection pilot program conducted in 2000 will be necessary to explore the collection options and identify efficiencies and constraints. While the emphasis on source separation of organics may require substantial preliminary study and effort, it is likely to preclude later marketing problems.

Resource Management Facility Including MSW Composting

A major new component of the solid waste management system planned for later in the medium term for Sonoma County is a resource management facility (RMF). This facility would include several waste processing steps, all conducted inside a building, including preliminary waste sorting, the primary organic waste processing operation, and potentially, an on-site energy generating element using the fuel created by the organic waste processing operation.

The RMF would process solid waste that is not recycled or diverted in other county programs, ranging from approximately 1,300 tpd in 2010 to approximately 1,600 tpd (annual averages) in 2050. Typical materials potentially used for processing include mixed municipal solid waste (MSW) from garbage collection, as well as biosolids, food waste, non-recyclable paper, manure from horse and other farms, waste straw and sawdust from animal bedding, lees and pomace from wineries and wash water from milk barns and creameries. It is assumed that approximately 25% of this tonnage would remain as residue following processing. This residue would be processed, to the extent feasible, into marketable compost products. The RMF would be open to commercial haulers only.

The preliminary waste sorting step would be intended to remove non-organic, hazardous materials, and valuable recyclables. This step may include human labor and/or mechanical equipment to physically remove these items form the waste stream before further processing.

The major function of the RMF is to process the solid waste in a manner that recovers energy from the organic portion of the waste and produces, to the extent feasible, compost products. There are various conversion technologies available to accomplish this objective, including anaerobic digestion. Although the specific technology will be selected at a future date, they would all share several elements including an initial grinding step to reduce the various waste items to a relatively homogeneous size, mixing of the solid waste with water in a closed container followed by either chemical or biological digestion, extraction of a clean fuel in the form of methane, and screening the composted material. It is expected that residual wastewater that is not recycled would

be treated and disposed of similarly to leachate treatment and disposal currently done at the Central Disposal Site.

After processing the organic fraction of the waste, the clean fuel can be used on site to produce electricity or transported off site to be used as vehicle fuel or as a clean, renewable source of energy for other activities. If an on-site energy plant is built, it may be similar to the existing power plant at the Central Disposal Site.

The RMF, regardless of technology selected, will require about 5 acres for the building and related traffic circulation with a building a minimum of 40,000 to 50,000 square feet in size, as well as electric, water, and wastewater service. The RMF could be co-located with a landfill or it could be at a separate location.

4.5.4.2 Selected Program Costs

Yard Debris Composting

The yard debris composting program is currently funded through tipping fees according to a three-party agreement between the SCWMA, the DTPW, and the contractor. Tipping fees at the solid waste facilities are lower for source-separated yard debris to encourage residents and businesses to bring clean materials for composting. These tipping fees are passed through the DTPW accounting system directly to the SCWMA to pay for the processing, composting, and marketing of all yard debris and wood waste collected. For fiscal year 2001/02 the budgeted amount for this agreement is $1,535,760. In addition, some of the tipping fee revenues are used to fund hauling yard debris to the Laguna Subregional Composting Facility for use as a bulking material for biosolids composting. For fiscal year 2001/02 $26,010 was budgeted for hauling and $48,960 was budgeted for composting at Laguna.

Source-Separated Organics Composting

Cost per ton to operate a source-separated organics composting program will be similar to those for operating the existing yard debris composting program, although the increased tons of material accepted by this program would increase the overall contracted amount. Additional costs will include purchasing land for relocating the composting facility on a site other than the Central Disposal Site and implementing stormwater management systems.

Resource Management Facility Including MSW Composting

A cost analysis was included as part of the Sonoma County Solid Waste Alternatives Analysis Final Report (December, 2000) including:

- Material recovery facility operations of the estimated 530,000 tons of MSW at a cost of $30 per ton for a total annual cost of $15,900,000.
- Transfer and disposal of residuals estimated at 182,850 tons per year at a cost of $22 per ton for a total cost of $4,022,700.
- Organics processing component of the estimated 238,500 tons remaining after material recovery operations at a cost of $40 per ton for a total annual cost of $9,540,000.
- Screening and marketing of compost products from residual solids. Value of products estimated to cover the cost of processing, resulting in a zero annual cost.
- Total program cost for the RMF is estimated at $29,462,700.

4.5.4.3 Role of Composting in Meeting State Diversion Goals

The yard debris composting program has been in operation since 1993 and currently contributes 14% towards the existing 2001 diversion rate of 40%. Additional processing, composting and marketing of yard debris materials is anticipated to increase the diversion rate by 1.7% or 25 tpd to enable the SCWMA to meet the 50% diversion goal by 2003.

Although many of the organic materials that could be processed (biosolids, manures) are not currently identified as part of Sonoma County's waste stream, expanding the yard debris composting program to a source-separated organics composting program will divert more materials.

The RMF with MSW composting will provide additional diversion above the 50% diversion goal currently required by AB 939. It is estimated that this program would allow the SCWMA to reach a diversion goal of 70% of the total waste stream in Sonoma County by 2015, the end of the medium term.

4.5.4.4 Composting Program Needs

The selected composting programs have various operational and facility needs. They are broken into three basic categories: educational programs, collection programs, and facilities. The program and facility needs are listed in Table 4-22 and briefly described below.

Operational or Handling Requirements

The existing yard debris composting program is currently on about 20 acres at the Central Disposal Site, using a cement treated base. Sufficient space is allotted to divide the incoming materials into three areas of self-haul, curbside collected, and wood waste. A two to four person crew sorts the material by hand on a continuous basis to remove contaminants. After grinding, the material is hauled in 40 cubic yard trucks to the composting pad where windrows are formed using front-end loaders. Windrows are 18 feet wide by 7 feet tall and up to 500 feet long. Turning is done 8 to 12 times during the 12 to 14 weeks that composting occurs.

Storage: 20 acres provides sufficient space for processing, composting, and storage. The existing site can accommodate the additional 25 tpd goal.

Delivery: Delivery to customers depends on end-user or market contracts. Local markets exist and users can pick up compost products or have the products delivered for a fee.

Residuals Disposal: All compost is screened to remove oversized materials and remaining contaminants. Overs are either recirculated through the composting process or used as ADC at the Central Disposal Site.

Facility Needs

The new facility, located off the Central Disposal Site, will, to a great extent, be determined by the siting and technology studies performed in the short-term. The selected composting technology will determine the site requirements and specific acreage needs. Undoubtedly siting will be a major issue. All methods will require a considerable amount of land. Some methods will require curing piles, while others will keep the composting in the active stage for a longer period of time. Other compost site criteria, recommended by Richards and Shelton of the Cornell Waste Management Institute (CWMI, 1989) include the following.

- Vacant flat land (1 to 3 percent slope)
- Open field except for buffer area
- Low residential density (distance from sensitive receptors)
- Ability to address and mitigate Environmental Impact Report criteria

- Good truck access
- Low water table (more than 2 feet below the surface)
- Potential for visual buffer
- Availability of water on-site
- No drainage problems.

Educational Programs

The yard debris composting and the source-separated composting programs rely heavily on source separation for their success. This demands an emphasis on an educational program that encourages participation. Currently, the annual Recycling Guide is the main educational tool developed by the SCWMA used to provide detailed information on how residents and businesses need to source separate yard debris materials for composting. In addition the Eco-Desk would have up-to-date information about the changes to provide to callers with specific questions. The contractor also produces other educational pieces such as newsletters and definitions of products. The source-separated organics composting program would use the same educational tools.

Collection Programs and Equipment

A pilot collection program is planned to test the viability of the selected collection option. Some collection programs will require additional trucks and crews. Co-collection programs will require separation equipment and

Table 4-22: Composting Programs Needs

Educational Programs	• Annual Recycling Guide. • Materials prepared by the contractor, including newsletters, definitions, brochures, etc. • Eco-Desk hotline.
Collection Programs and Equipment	• Specific containers such as 90-gallon toters, paper bags, and dedicated debris boxes. • Haulers provide trucks to provide dedicated collection of compostable materials. • Possible modification of existing or construction of new transfer facilities depending on collection option chosen. • DTPW provides transfer trailers to transport organic materials to composting facility. • Drop-off sites and equipment.
Composting Facility	• Great variability of design, dependent on feedstock quality and quantity, and size of site. • Possibility of expanding yard debris program to a source-separated organics composting program where facility would be able to compost a wider range of compostable organics once facility is relocated off the Central Disposal Site. • Significant acreage necessary, with considerable site development. • Equipment includes screens, shredders, turners, watering system, as well as dust, noise, and leachate mitigation equipment.
Ongoing Market Development	• Develop and disseminate promotional material to prospective end-users. • Organize product demonstrations. • Work with targeted end-users such as County Public Works Department, landscapers, and nurseries to encourage use of products. • Organize a cooperative marketing effort with other jurisdictions to tap large and/or outside markets.

crews at the transfer station or landfill and transfer trailers to transport separated yard debris or separated organics to the composting facility. Paper, plastic bags, or permanent containers will be needed at the points of generation.

Composting Facilities

Yard debris composting facility requirements vary greatly according to the size and level of technology the SCWMA chooses. A regional yard debris composting facility using windrows will likely need at least 40 acres.

A source-separated organics composting facility requires greater process control. This is accomplished by enclosing the facility and/or managing it more intensively. A larger site will likely be required than that for a yard debris composting because of the greater volume processed.

4.5.5 MARKETS AND LOCAL END-USES FOR COMPOST

This section assesses the usability and/or marketability of compost products. All possible products from the evaluated programs are discussed to provide as much relevant information as possible. A general description of how compost is used or marketed is followed by a listing of the local end-uses and markets currently existing. Table 4-23 lists end-use and marketing options for compost. The section ends with a discussion of how end-uses and markets can be expanded or developed.

4.5.5.1 The Role of Markets for Composts

The selected composting alternatives would generate three compost products requiring end-uses or markets. These are yard debris, source-separated organics, and sludge composts. Possible end-uses, or ways in which compost can be used, include:

- Agricultural soil amendment
- Landscaping soil amendment
- Greenhouse potting medium
- Additive to upgrade substandard topsoil
- Tree or shrub transplant medium
- Land reclamation amendment
- Landfill cover (daily or final)
- Lawn maintenance.

The criteria for expansion or development of compost markets vary for each type of compost produced. Some of the factors that influence the marketability of compost include:

- Buyer's specifications
- Product availability (volume and output timing)
- Product consistency
- Buyer education
- Availability and price of substitutes
- Institutional directives specifying the use of compost.

4.5.5.2 Yard Debris Compost

Yard debris compost can be relatively clean, which allows it to be used for food and horticultural crops. Its nutrient content is relatively low, and its primary value is in its organic matter content.

The SCWMA's yard debris composting program is operated by Sonoma Compost Company (SCC). SCC produces the following products from organic material generated in Sonoma County:

- Sonoma Compost produced from curbside collected and self-hauled yard trimmings.
- Sonoma Compost with additives and/or amendments, such as agricultural lime or gypsum, as requested by customers.
- Early Mulch is ground, self-hauled yard debris that has undergone a pathogen reduction process, used for agricultural and landscape applications.
- Screened Early Mulch/Vineyard Mulch is screened Early Mulch and has a neater, less woody appearance. This product can reduce soil erosion up to 95% while suppressing weeds, adding organic matter, and providing a modest nutrient boost.
- Alternative Daily Cover is ground yard debris and non-marketable "overs" from the screening process that is used as a soil alternative to cover refuse at the Central Landfill.

Speciality products, also produced by SCC, may contain additives or amendments or require different or additional processing. Speciality products are created to:

- provide materials that can be blended with Sonoma Compost to extend the supply of this popular product;
- offer alternatives when the program's primary products are not available; and
- provide products that meet a specific need in the marketplace.

4.5.5.3 Municipal Sludge Compost

The possible uses for this compost are determined by federal and state laws and regulations. It is relatively high in nutrients, heavy metals (depending on the analysis of the sludge), and potential residual pathogens. Sludge compost generated in Sonoma County by the City of Santa Rosa's Laguna Compost Facility is sold to wholesale customers.

4.5.5.4 Source-Separated Compost

If organic materials such as food scraps, processing debris, and yard debris are collected separately from MSW and composted, a relatively clean product results. This compost has a higher nutrient content than yard debris compost and can be used in the same applications. There are many such compost operations in the United States and California. These operations usually use industrially-generated organics as the feedstock. In Sonoma County, wood debris, spent mushroom growing medium, and seafood processing debris are the most common ingredients.

4.5.5.5 Current Local Compost Markets and End-Uses

The following markets exist in Sonoma County or the surrounding area for the three different types of compost. Table 4-24 shows the current availability of markets and end uses for compost products.

Yard Debris Compost

Locally marketed compost products produced by SCC are defined above (section 4.5.5.4). In addition, other small producers or yard debris compost and similar mushroom and sawdust composts are available.

Municipal Sludge Compost

Garden centers sell bagged sludge compost produced in other parts of the state to residents and landscapers. Locally, sludge compost generated by the City of Santa Rosa's Laguna Compost Facility is sold to wholesale customers.

Source-Separated Organics Compost

A well-developed market exists for products that are made by several composting companies in Sonoma County, using source-separated grape pumice, manure, and yard debris. This type of compost is also produced and used by home composters.

4.5.5.6 Markets of Last Resort

Section 18736.4.(b) calls for a description of the measures to be taken if poor market conditions prevent the SCWMA from satisfying the requirements of AB 939. Contingencies have been listed in Section 5.7.7, which could significantly improve the marketability of the compost products. Although ADC is not the highest and best use of compost products, the DTPW is authorized to use ADC as daily cover material for refuse. Daily cover requirements are sufficient to use all the compost produced, if necessary.

Table 4-23: Options for the Use of Compost Products

Local End-Uses

- On farms as a soil amendment to improve soil texture, water retention, aeration and fertility
- By landscapers for lawn establishment, transplanting, and top dressing
- Greenhouse potting and seedling medium
- Residential garden, shrub, and lawn enhancement
- Golf course and cemetery top dressing
- By nurseries as a soil amendment for perennials
- Sod farmers and sodding services
- City, county, and state highway shoulder vegetation establishment, maintenance, and erosion control
- Mine and quarry land reclamation
- Construction erosion control
- Recreation and parks departments
- Soil manufacturers or blenders

Potential Regional Markets (long-term, stable contracts may be possible with these groups)

- State Department of Transportation, Forestry and Fire Protection, Parks and Recreation and General Services (as directed by legislation to use where possible)
- Agricultural cooperatives or organizations which would help distribute compost to farmers on a regional or state level
- Soil contractors serving large geographical areas
- Fertilizer companies which deal with soil amendments
- Brokers who market on a statewide or interstate level

4.5.6 IMPLEMENTING COMPOSTING PROGRAMS

This section identifies the parties responsible for implementing the selected composting programs, as well as a detailed discussion of implementation tasks, responsible entities, dates for implementation, and costs of composting problems. This section contains sources of that information.

4.5.6.1 Responsible Entities

The responsible entities have been divided into two categories: public and private. Public agencies have ultimate responsibility for reaching the waste diversion goals mandated by AB 939, and this is reflected in the tasks assigned to them. Table 4-25 identifies the responsible public and private entities for each program.

4.5.6.2 Required Tasks

Specific tasks have been identified for each composting program. The tasks have been identified either in Table 4-25 or below with a level of detail that should be adequate for the responsible entities to establish a work plan, allocate hours, and obtain funding. For each task, the responsible entities have been identified and their roles specified.

Yard Debris Composting (short-term 2003 to 2008)

- Continue the existing yard debris composting program as described under Existing Composting Activities (section 4.5.2).
- Continue monitoring and evaluation functions with respect to diversion effectiveness, cost effectiveness, product quality, and market development
- Continue to evaluate options for expanding markets.

Yard Debris Composting (medium-term 2009 to 2018)

- Relocate operation to permanent location off the Central Landfill.
- Integrate program with the source-separated organics program.

Table 4-24: Current Availability of Markets and End-Uses for Compost Products

Yard Debris Compost	Screened compost products and mulches are being bought and used by home gardeners, organic farmers, landscapers, greenhouses, nurseries and soil blenders. Overs (larger pieces left after screening) are used as ADC.
Sludge Compost	Compost products from biosolids composting is sold by retailers to homeowners and landscapers. Sludge compost produced by Laguna Compost Facility is marketed to wholesale customers.
Source-separated Organics Compost	Markets are similar to the markets for yard debris compost Also produced and used by home composters.

Source-Separated Organics Composting (medium-term 2009 to 2018)

- Participate in a feasibility study to identify materials, costs, design parameters, and product quality needs for options within this alternative. More specifically, identify:
  - which organic materials (e.g., commercial food debris, residential food debris, soiled paper or otherwise unmarketable paper) to target for collection and composting with yard debris, sludge, or separately;
  - type of collection method (e.g., wet/dry, dedicated routing, co-collection) and how to integrate it with any existing recycling collection programs;
  - compost method and materials to co-compost, if any;
  - product characteristics and marketability;
  - program to monitor and control product quality.; and
  - appropriate public/private ownership and/or operation of collection program and composting facility.
- Based on these findings, participate in the design, permitting, and implementation of a pilot program that collects and composts these source-separated organic materials. Implement:
  - a public education campaign to encourage businesses and residents to participate in source separation;
  - a market development program for the product; and
  - monitor and evaluate the pilot program.
- Based on the findings of the pilot project, design, site, permit, and implement an on-going program.
- Explore product diversification, such as blended soils, and market expansion possibilities such as cooperative marketing and export of product.

Resource Management Facility (medium-term 2009 to 2018)

The Sonoma County Solid Waste Management Alternatives Analysis Final Report ("Analysis") identified the following required tasks for siting, designing, and constructing the RMF:

- Conduct siting study/options evaluation utilizing exclusionary criteria identified in the Analysis.
- Select a limited number of alternative sites, and conduct preliminary technical/economic analysis of alternatives sites, utilizing comparative criteria identified in the Analysis.
- Conduct public hearings on preferred sites.
- County of Sonoma Board of Supervisors approve preferred site(s).
- Conduct site specific environmental investigations of preferred site(s) to identify major environmental issues and fatal flaws.

- Land option agreement on purchase of land by County.
- Conduct CEQA analysis of preferred site/facility and alternatives. Includes preparation of engineering drawings, land use planning documents, field investigations, and supplemental EIR.
- Certify EIR.
- Solid waste facility permitting, including preparation of Joint Technical Document, Preliminary Closure/Post-Closure Maintenance Plan, waste discharge requirements, air quality permit to construct, and local land use permits.
- Bond proposal and financing.
- Facility design and pre-construction, including design studies, plans and specifications, local permits, and contractor bidding.
- Facility construction including infrastructure/civil improvements, material resource facility for sorting recyclable materials from waste stream, green waste facility construction, organics processing facility, and landfill.

4.5.6.3 Schedules and Funding

Table 4-26 contains implementation schedules for each selected composting program.

Program costs for composting programs are discussed in section 4.5.4.2. The funding source for the composting programs is the tipping fee charged at the solid waste disposal facilities (currently $29/ton) which is collected by the DTPW and passed through to the SCWMA for payment of the contractor's monthly invoices. No changes to this funding source is anticipated for the source-separated organics composting program or the Resource Management Facility.

4.5.7 MONITORING AND EVALUATION

The monitoring and evaluation process is critical to the planning process. The programs recommended in the composting component will require periodic review to ensure that the anticipated diversion goals are being achieved. Section 18733.6 of the AB 939 regulations outlines the requirements of the monitoring and evaluation section. This section covers the monitoring and evaluation process by identifying the criteria to be used for evaluation, frequency of the monitoring, entities responsible for evaluation, funding sources for the monitoring, and contingency measures to be implemented if programs do not fulfill the expectations.

4.5.7.1 Monitoring and Evaluation Process

The monitoring and evaluation process for the composting programs identifies the percentage of wastes the programs divert from the landfills, evaluates the effectiveness of the programs, and describes contingency steps that can be taken to improve the program's diversion potential.

4.5.7.2 Data Needs

In its preparation of the AB 939 Annual Report, the SCWMA requires the yard debris composting contractor to submit reports that identify the types and amounts of materials recycled, including yard debris, wood waste, and ADC.

4.5.7.3 Monitoring Programs

The following are monitoring techniques used to review implemented composting programs:

- Waste Generation Study: Used to determine the quantities, by specific waste categories, of materials being diverted from disposal and the materials disposed. Every five years, the SCWMA plans on performing waste characterization studies that may focus on specific material types or may address all materials in the waste stream.

- Targeted Organic Waste Characterization Studies: Used to determine the quantities of certain materials in the waste stream produced by specific generators would be far less expensive and feasible to do more frequently than the above study. Every five years, the SCWMA plans on performing waste characterization studies that may focus on specific material types or may address all materials in the waste stream.

- Surveys: Telephone, mail, or windshield surveys may be performed to identify participation levels in programs, quantities diverted through such programs and any changes in outreach or education programs that may increase effectiveness.

- Review of Required Information: The composting contractor is required to prepare an annual report for the yard debris composting program and to provide annual tonnages for yard debris and wood waste diverted and compost and ADC produced. This information is included in the AB 939 Annual Report prepared by the SCWMA.

4.5.7.4 Evaluating Program Effectiveness

Program effectiveness can be evaluated based on quantitative measures such as the program's ability to divert waste from the landfill and qualitative measures such as the availability of the services to waste generators. A specific set of criteria are used to measure program effectiveness and to identify areas where improvements are required. The criteria are described below.

- The key quantifiable criterion will be the actual tonnage reduction compared to the projected reduction.

- Participation rate, set-out rate, and overall capture rate by material type for each collection program implemented.

- Total cost of composting program and cost per ton of diverted material.

- Successful task execution by responsible entities.

- Environmental and public health impacts of the composting program activities and conformance with federal, state, and local regulations.

- Sustainability of program effectiveness and vulnerability to uncontrolled variables.

4.5.7.5 Parties Responsible for Monitoring

Table 4-25 lists the parties responsible for monitoring and evaluating composting programs.

4.5.7.6 Funding Requirements for Monitoring and Evaluation

The cost of monitoring and evaluating the composting programs is determined by the amount of staff time required. One half-time staff member reconciles the invoices from the composting contractor with the tags issued at the solid waste facilities to confirm the amount of yard debris and wood waste collected and processed by the contractor. That information is also used to prepare the quarterly allocation reports for SCWMA member jurisdictions. The cost of this staff person is estimated at $23,000 per fiscal year.

Table 4-25: Responsible Parties and Schedule for Monitoring and Evaluating Composting Programs

Program Monitoring Method	Responsible Party		Interval
	Data Collection	Evaluation / Reporting	
Waste Generation Study	SCWMA	SCWMA	Every five years
Targeted Organic Waste Characterization Study	SCWMA	SCWMA	Every five years
Surveys	SCWMA	SCWMA	Every five years
Review of Required Information	Haulers, Composting Contractor	SCWMA	Annually

4.5.7.7 Contingency Measures for Improving Composting Programs

Not only will the monitoring and evaluation process identify programs that do not meet their goal, but where programs do meet the goals, the process can also pinpoint areas that can be improved beyond the established goals. Contingency measures to improve composting programs are described below. These measures will be implemented if the monitoring and evaluation program identifies program deficiencies.

1. If the composting diversion objectives are not attained, the SCWMA will consider the following:

   - Use monitoring data collected and survey the sectors involved to identify the reasons for the program's lack of success.
   - Work with DTPW to pass an ordinance mandating source separation of organic materials.
   - Work with DTPW to modify disposal rates to provide greater economic incentive to source-separate.
   - Modify performance standards or requirements of private companies providing program services, or evaluate contract obligations and terminate contract if necessary.
   - Require the composting contractor to increase public education and technical assistance efforts in terms of frequency and/or target audience.
   - Reevaluate program alternatives, including a feasibility study and/or pilot of an alternative program.
   - Revise objectives to reflect realistic conditions.

2. If required tasks are not executed by the responsible entities, the SCWMA will consider implementing the following:

- Reevaluate staffing adequacy.
- Revise job and task descriptions.
- Reestablish coordination between city divisions, contractors, and the public.
- Identify reasons for insufficient private-sector participation..

3. If markets or end-users prove inadequate, the SCWMA will consider requiring the contractor to implement the following:

   - Perform market studies to determine problems with, or constraints to, marketing or using recovered products.
   - Investigate cost-effectiveness of end-use alternatives
   - Explore alternative markets and end-uses
   - Increase market outreach, education, promotion, and advertising
   - Investigate cooperative marketing opportunities and coordinate with other jurisdictions to improve the sale of material.

4. If some aspect of the composting program does not meet local, state, or federal regulations, the SCWMA will work with the DTPW to implement the following:

   - Identify the problem area.
   - Modify the program to comply with local, state, and federal regulations as appropriate.
   - Provide reports and documentation to regulatory agencies to serve as evidence for a variance for a particular problem area.

Table 4-26: Implementation Schedule for Composting Programs																															
PROGRAM AND IMPLEMENTATION TASK	RESPONSIBLE ENTITY	2000				2001				2002				2003				2004				2005			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
COMPOSTING																									
Yard Debris Composting																									
Continue operations of existing program	SCWMA																								
Continue monitoring and evaluation functions with respect to diversion effectiveness, cost effectiveness, product quality, and market development	SCWMA																								
Continue to evaluate options for expanding markets.	SCWMA																								
Monitoring and Evaluation	SCWMA																								

X - Designates the initiation of a task. Shaded bars indicate the continuation of the task and/or program.
Note: Years are broken into quarters designated by 1,2,3,4.

Table 4-26: Implementation Schedule for Composting Programs (continued)																																								
PROGRAM AND IMPLEMENTATION TASK	RESPONSIBLE ENTITY	2006				2007				2008				2009				2010				2011				2012				2013				2014			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
COMPOSTING																																								
Yard Debris Composting																																								
Continue operations of existing program	SCWMA																																							
Continue monitoring and evaluation functions with respect to diversion effectiveness, cost effectiveness, product quality, and market development	SCWMA																																							
Continue to evaluate options for expanding markets.	SCWMA																																							
Source Separated Organics Program																																								
Perform feasibility study	SCWMA																																							
Implement pilot program	SCWMA																																							
Evaluate effectivness of program	SCWMA																																							
Monitoring and Evaluation	SCWMA																																							

X - Designates the initiation of a task. Shaded bars indicate the continuation of the task and/or program.
Note: Years are broken into quarters designated by 1,2,3,4.

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Special Waste Component

4.6 SPECIAL WASTE COMPONENT

The Special Waste Component identifies existing management practices for special waste materials, reviews methods to minimize the hazardous potential of these wastes, describes waste diversion alternatives, evaluates potential waste diversion programs, and recommends specific programs to help achieve the waste diversion mandates of AB 939.

Special waste includes any waste that, at its source of generation, contains physical, chemical, or biological conditions that require special management or disposal. AB 939 requires that ash, sewage sludge, industrial sludge, asbestos, shredder waste, auto bodies, and other special wastes be discussed. For Sonoma County, other special wastes include tires, grease (as a component of industrial sludge), white and brown goods, construction and demolition debris, and wood waste.

4.6.1 OBJECTIVES

In its 2000 Annual Report to the CIWMB, the SCWMA reported a diversion rate of 40 percent. As required by PRC Section 41820(a)(6)(B), the SCWMA filed a time extension request listing the estimated diversion from new and enhanced diversion programs. By the year 2003, the SCWMA member jurisdictions will increase residential recycling by 6.5 percent and commercial recycling by 4.5 percent. Goals for the program that addresses this increased diversion for special wastes is discussed below. The priority waste categories that will be targeted for diversion include paper, glass, metal, wood, yard debris and plastics.

- Construction and Demolition Debris: Implement a construction and demolition debris diversion program to complement existing private sector programs to divert an additional estimated 65 tons per day (tpd), equivalent to 4.5% of the disposal tonnage, by the end of 2003.

4.6.2 CURRENT SPECIAL WASTE ACTIVITIES

Section 18733.2 of the California Code of Regulations requires that each component include a description of current diversion activities, identify current diversion levels by material type, and discuss any anticipated decrease in existing diversion alternatives and the effects on existing solid waste management activities. This section briefly describes the existing programs, both public and private, that are operating in or providing service to Sonoma County residents or businesses.

4.6.2.1 Asbestos

Asbestos is considered a special waste because it may pose significant public health problems when inhaled. Friable asbestos (asbestos that can become powder or dust under pressure) is a human carcinogen that primarily affects the lungs. Asbestos-containing material is found in sprayed or troweled-on surfacing materials; in insulation on pipes, boilers, and ducts; in wallboard, ceiling tiles, and floor tiles; and is generated during building maintenance, repair, or renovation operations. Asbestos-containing waste is classified as a hazardous waste if the waste contains more than 1.0 percent friable asbestos according to California Code of Regulations, Title 22. Federal regulations require that, prior to major asbestos abatement activities, advance notice be filed with the regional EPA office and the Bay Area Air Quality Management District (BAAQMD), approved removal and abatement methods be used, personnel conducting removal and abatement be properly trained and certified, and no visible emissions of dust be allowed during removal and abatement work.

Asbestos must be handled and transported in sealed nonreturnable containers (i.e., double plastic bags of 6-mil thickness, cartons, drums, or cans) or in closed vehicles from which fibers cannot escape and must be wetted to prevent the fiber from blowing if the container is damaged. Asbestos waste of more than 50 pounds must be manifested and transported by a registered hauler.

The County of Sonoma Department of Health Services (DHS) is responsible for monitoring asbestos removal and abatement work to ensure that the proper hazard minimization methods are being followed. The load checking program at the solid waste facilities minimizes the potential of improper asbestos disposal.

No asbestos generators were identified by the County. Removal, transportation, and disposal of any asbestos-containing waste is being handled by the private sector in accordance with the applicable state and federal laws. Nearby disposal facilities in Contra Costa County and Solano County were identified as accepting asbestos waste from Sonoma County. No diversion programs are necessary.

4.6.2.2 Ash

Ash is a residue from combustion of any solid or liquid material. The classification of ash as hazardous, designated, or nonhazardous is influenced by the type of combustion process that produces the ash and by the source material. The level of toxicity of the ash will determine the disposal practice. In accordance with federal and state regulations, all ash must be tested for toxins. If the ash is classified as hazardous or designated waste by the California Code of Regulations, the material must be handled, stored, transported, and disposed at a specially permitted landfill. Ash that does not fall into the hazardous or designated waste category does not require any special handling, storage, or disposal practices and is treated as any other municipal solid waste.

No ash generators were identified by the cities or County. Ash identified in the SWGS (0.01 percent) is from the self-haul waste stream and is assumed to be residential fireplace ash. Therefore, no recycling or diversion programs will be considered for this material.

4.6.2.3 Auto Bodies

Auto bodies are considered a special waste due to their size, weight, and the hazardous materials they contain. A profitable market for spare parts and a high demand for ferrous and nonferrous scrap have kept vehicles out of the landfills.

The Central Landfill accepts auto bodies, cut in half or quartered, for disposal only with proper Department of Motor Vehicle identification and paperwork. Since, the private sector provides sufficient means of disposal, auto bodies are rarely landfilled. Therefore, no diversion programs are necessary.

4.6.2.4 Shredder Waste

Shredder waste is the material remaining after metallic articles such as auto bodies, appliances, and sheet metal are shredded, including textile fibers, paint remainders, plastic, and rubber, which are all soaked with engine oil. Shredder waste is considered hazardous because of its high heavy metal content, and regulations are in place to monitor the disposal of this waste. Since no shredder waste is generated in Sonoma County, no special diversion programs are necessary.

4.6.2.5 Construction and Demolition Debris

Construction and demolition debris includes building materials, packaging, and rubble resulting from construction, remodeling, repair, and demolition of pavement, houses, commercial buildings, and other structures. Typical materials in this category include rock, concrete, brick, asphalt, roofing materials, sand, soil, lumber and wood waste, ferrous and nonferrous metals, cardboard and plastic shrink wrap.

Many private companies in Sonoma County accept rock, concrete, brick and asphalt for lower fees than those at the Central Disposal Site. These companies reprocess the material into the required specifications for road base, gravel, and other products. Therefore, most of these materials generated in Sonoma County are no longer landfilled. The materials reuse and recovery operations at the Central Disposal Site and the Healdsburg and Sonoma transfer stations accept reusable lumber and other reusable construction debris such as toilets, sinks, tubs, and cabinets. In 2002, three private companies began collecting shrink wrap to be used for producing new materials such as plastic lumber. Cardboard and metals are accepted at numerous drop-off centers throughout the county. Wood waste is discussed below.

Even though these programs are ongoing, it is estimated that an additional 4.5% of the waste stream is construction

and demolition debris that can be easily separated. Additional alternatives are discussed in Section 4.6.3.

4.6.2.6 Sewage Sludge

Most households and businesses located inside incorporated cities are connected to a sanitary sewer system. The balance use septic tank systems. Septic tank waste is disposed of by certified/permitted haulers. Many treatment facilities serve Sonoma County, including Sonoma Valley Reclamation Facility, the Russian River Reclamation Facility, the Santa Rosa Laguna Subregional Waste Water Treatment Plant (Laguna), the Forestville, Bodega Bay, Occidental, Windsor, Graton, Sea Ranch, Larkfield, and Geyserville facilities. Except for Laguna, the sludge produced by these plants is either dried on site in ponds or sent to either the Redwood Sanitary Landfill in Marin County or the Central Disposal Site. Laguna also land applies municipal biosolids to agricultural lands (approximately 10,000 wet tons per year). Synagro operates an approved land application program in Sonoma County, accepting biosolids from some local jurisdictions and some out-of-county generators.

Existing programs for composting sewage sludge and other alternatives are discussed in the Composting Component (see section 4.5).

4.6.2.7 Industrial Sludge

Industrial sludge is liquid or semi-liquid waste generated by industry and manufacturers. Industrial sludges are not identified as part of the disposed or diverted waste stream in the SWGS. Therefore, no diversion programs are considered.

Grease

In Sonoma County, restaurant grease that is not collected by renderers is discharged by the haulers into a tanker truck at the East Bay Mud Treatment Plant in Oakland.

Other future grease diversion programs include (1) reducing the amount of grease through use of biological cultures at the generation site (restaurant) and (2) processing the grease in digestors at the waste water treatment plant. The resulting sludge residue would be hauled to the landfill or possibly incorporated in future composting programs. No additional programs are considered for grease.

4.6.2.8 Tires

Tires are classified as a special waste because they are difficult to manage and dispose of at landfills due to the tire "float" phenomenon, fire hazard potential, and vector problems. Managed as a banned material, approximately 10,000 tires are collected annually at the solid waste facilities in Sonoma County by WSCD. Waste Tire Products, located in the Sacramento area, uses tires from Sonoma County and other jurisdictions in the following ways: 65% are used in civil engineering projects; 14% are processed into crumb rubber; 14% are used in agriculture; and 7% are selected for reuse as retreads.

4.6.2.9 White and Brown Goods

White goods refers to appliances such as refrigerators, washers, dryers, air conditioners, and other bulky appliances that are generally white colored. Managed as a banned materials, all white goods that are accepted at the solid waste facilities are baled as scrap metal. White goods that contain chlorofluorocarbons (CFCs) found in refrigeration and cooling systems are first processed to collect the CFCs before baling. Approximately 1,500 tons of white goods are diverted from County disposal sites as scrap metal each year.

Brown goods refers to what were traditionally brown appliances, such as televisions, stereo equipment, musical instruments, electronic equipment of all kinds, computers, printers, copiers, VCRs, and compact disc players. Now commonly known as e-waste, these items are being treated as characteristically hazardous. In 2002, televisions and computer monitors were banned from landfill disposal and are now collected for recycling the

hazardous and non-hazardous components (see Chapter 5). Also in 2002, WMI began a pilot program collecting small appliances and electronics in the single-stream curbside bins (see section 4.4). The material reuse and recovery programs operating at the Central Disposal Site and the Healdsburg and Sonoma transfer stations accept working white and brown goods, as do many private businesses throughout Sonoma County, for resale to the general public.

4.6.2.10 Wood Waste

Wood waste is classified as a special waste because of its bulk and difficulty in handling. Lumber, tree stumps, building materials, large furniture items, and other household and commercial items are included. Unpainted wood waste is accepted at the solid waste facilities at a reduced disposal fee and is processed into mulch products for sale to the general public, a program that diverts over 12,000 tons per year. In addition, there are several private companies in Sonoma County that accept wood waste to produce mulch products. The wood waste processing and marketing program is a regional program managed by the SCWMA. Reusable building materials, furniture, and other items made of wood are accepted at the material reuse and recovery centers (see section 4.4).

4.6.2.11 Litter Abatement

The SCWMA currently funds a Roadside Cleanup Program to address litter abatement along rural roads in Sonoma County. Funding is provided through grant funds from the Beverage Container Recycling Program. The DTPW funds the Community Cleanup Program that offers waived disposal fees to each jurisdiction for a maximum of two community cleanups per year, not to exceed a total of 10 calendar days. Participants are required to complete an application and obtain prior approval for waived disposal fees before holding a community cleanup which must benefit public property or the community as a whole. Other cleanups that occur in Sonoma County include river and beach cleanups. Each of these types of cleanups are required to recycle all beverage containers, scrap metal, appliances, tires, yard debris and wood debris, in addition to properly disposing of all hazardous wastes.

4.6.2.12 Disaster Waste

In Sonoma County's recent history natural disasters have occurred, including flooding, mud slides and earthquakes, that unexpectantly increase the amount of solid waste that needs to be disposed. In such instances, existing programs are mobilized and adjusted to handle the increased flow of materials that result. Disaster waste will continue to be handled in the same manner as solid waste, including the diversion of all banned materials (yard debris, wood waste, tires, appliances) and recyclables and the proper disposal of hazardous wastes.

4.6.2.13 Current Special Waste Diversion Levels

Current diversion for special wastes are included in Table 4.10 (see section 4.4).

4.6.2.14 Anticipated Decrease in Special Waste Activities

No existing special waste diversion programs are expected to decrease or be phased out. Diversion of some special wastes is expected to be enhanced so that existing programs can become more effective in diverting waste or minimizing hazard potential.

4.6.3 EVALUATION OF SPECIAL WASTE ALTERNATIVES

The purpose of the alternatives evaluation process is to choose appropriate special waste programs for the various areas in Sonoma County by applying a set of technical, economic, and institutional criteria to a wide range of special waste alternatives. Each alternative is evaluated using the criteria in Table 4.27, including the issues specified in Section 18733.3(b) of the regulations: consistency with local planning, barriers to implementation, and implementation costs. In Table 4.27, the weight of the evaluation criteria represents the relative importance of one criteria to the others and is used in the evaluation of any new programs that may be considered in the

future. The alternatives evaluated are listed in Table 4.28, and the results are found in Tables 4.29 to 4.31.

4.6.3.1 Description of Special Waste Alternatives

Twelve special waste alternatives were considered to manage construction and demolition debris, tires, wood waste, and discarded white and brown goods. The alternatives are intended to divert the special wastes from landfilling and to reduce the potential hazards associated with the materials.

Construction and Demolition Debris

Asphalt and concrete, the major components of the construction and demolition debris waste stream, have been targeted for analysis. In addition, construction and demolition debris material sorting targeting debris boxes from construction, remodeling, and demolition projects is also evaluated.

Asphalt/Concrete Recycling

Asphalt recycling can be performed at the construction site or at a recycling facility using a hot or cold process. Both methods involve crushing the deteriorated asphalt aggregate and processing it before laying the material on the roadway to be compacted.

Concrete recovered from utility installation, street repair operations, site demolition, and renovation operations can be recycled. Concrete recycling involves breaking up the concrete, removing any reinforcing steel, crushing and removing embedded steel and asphalt, crushing the remaining concrete again into various sizes depending on the end-user needs, and stockpiling the material prior to resale. The concrete aggregate produced can be used in new concrete mixes or as subbase aggregate. Steel is sold to steel mills for recycling.

Construction and Demolition Debris Material Sorting

Construction and demolition debris material sorting can be a simple operation consisting of a concrete pad and

Table 4-27: Criteria for Evaluating Special Waste Alternatives

Criteria	Weight
• Waste Diversion Potential	10
• Ease of Tracking Diversion	5
• Environmental Impacts/Benefits	12
• Operating Experience	6
• Conformity with Local Markets	8
• Facility/Program Requirements	6
• Capital Cost	6
• Cost Effectiveness	9
• Operating Costs	8
• Conformity with State Hierarchy	4
• Ease of Implementation	6
• Private Sector Participation	6
• Changes in Waste Type Generation/Use	7
• Adaptability to Changing Social Conditions	8
• Consistency with local policies and conditions	7
• Local barriers to implementation	7
• Implementation Cost	7
• Availability of end uses for recovered materials	7

debris boxes using labor to sort the materials or a more complex operation including a mechanical line, heavy equipment to move the materials, and labor to work on the sorting line.

Tires

Managed as a banned material, tires have been targeted for diversion activities. Six tire diversion alternatives are identified and described below.

Physical Reuse of Tires

Physical reuse of tires includes direct use of old tires for landscape borders, highway crash barriers, artificial reefs and breakwaters, erosion control, playground materials, dock bumpers, fishing reefs, and other creative, innovative methods.

Tire Retreading

About 10 to 30 percent of old tires can be retreaded for vehicle use. Typically, this practice has been limited to bus, truck, and other large tires, because passenger car retreads are not economically competitive with new, Inexpensive, imported tires. Tow processes are used for retreading: mold-cured and precured. In the mold-cured process, uncured tread rubber is applied, the tire is placed in a mold to form the desired tread pattern, and tread

Table 4-28: Special Waste Alternatives Evaluated

Asphalt/Concrete Recycling	Reuse/recycle of asphalt millings and concrete from construction and demolition activity.
C&D Material Sorting	Sort C&D materials from debris boxes coming from construction, remodeling, and demolition projects for diversion of targeted materials.
Tire Reuse	Reuse scrap tires in projects.
Tire Retreading	Separate tires for retreading; procure retreaded tires where possible; encourage public to use retreads.
Crumb Rubber for Tires	Scrap tires broken into small particles.
Tire Shredding	Slice tires into 2-foot by 2-foot sections for landfilling or other uses.
Tire-Derived Fuel	Whole or shredded tires processed into small (2-inch by 2-inch) chips for use as fuel supplement for industry.
Whole-Tire Incineration	Whole tires used as a source of fuel for energy facilities.
Repair and Reuse of White and Brown Goods	Appliances are repaired and resold or donated to new users.
Salvaging of Scrap Metals from White Goods	Dismantling and shredding of appliances for scrap value after any hazardous materials are removed.
Recovery and Chipping of Wood Waste	Separating construction and demolition wood debris and large stumps for chipping into landscape materials and other uses.

rubber is vulcanized. In the precured process, a precured, premolded rubber tread is applied. Retreading facilities are established in the surrounding area.

Retreading reduces the number of tires entering the waste stream. About 95 percent of the tire is reused in the retread process. However, some waste is generated, such as rejected casings and rubber buffing. The casings can be shredded or incinerated. Another by-product is crumb rubber.

Crumb Rubber from Tires

In this process, scrap rubber is broken into small particles by mechanical or cryogenic processing. Mechanical processes break the tires down into small pieces and remove the fiber and steel. In cryogenic processing, tires are frozen to extremely low temperatures (-20° F or less), smashed into smaller pieces, and separated into rubber, fiber, and wire.

Crumb rubber can be used for rubberized asphalt; sports, recreational, and feedlot surfaces; soil improvements; oil spill clean-up; and new rubber products. It can replace up to 50 percent of the virgin rubber needed to make carpet backing, doormats, friction-breaking material, roofing adhesives, car underseals and other protective coatings, and new rubber products.

Tire Shredding

Tire shredding is a mechanical process that slices the tire into 6 to 10 pieces. Tire shredding reduces the volume of the tires, allowing for easier handling. If shredded into smaller pieces, the shredded tires can be used as tire-derived fuel.

Tire-Derived Fuel

Since tire rubber has a high energy value, whole tires can be shredded into small chips (about 2 square inches or less) for use as a fuel supplement in pulp, paper, lumber, cement, and other heavy industries. When blending fuel, tire chips can be substituted for as much as 10 percent of the existing fuel supply. Incorporating rubber into the fuel supply creates no additional significant emission or odor problems. Specialized fuel-metering systems can assure environmental conformity.

Whole-Tire Incineration

In this process, whole or shredded tires are used as the sole source of fuel for an incineration plant that produces steam and electricity. The tires are loaded by conveyor into a large boiler and burned at temperatures between 2,000°F and 2,500°F. The heat of the incineration heats water flowing through the boiler walls. The hot water produces high-pressure steam that powers a turbine generator, which produces electricity that is sold to local utilities or industrial users.

Slag, the solid material that remains in the boiler, is about 95 percent ferrous metal (the bead wire and steel belts) that can be used as a road-building material or as an additive in cement. Gases produced during incineration go through a series of filters that remove particulates. The particles contain a high level of zinc and are sold to smelter operations for reclamation. The gas finally passes through a scrubber, where it is sprayed with limestone mist to remove sulfur compounds. Scrubber waste can be used in nonagricultural land applications.

White and Brown Goods

Existing recycling successfully diverts the majority of white goods disposed in the county. Discarded appliances can be repaired and reused to extend their lives or baled as scrap metal once the hazardous materials are removed. Reusable brown goods can be diverted to material reuse and recovery facilities and to private businesses such as thrift stores. E-Waste is evaluated in Chapter 5.

Table 4-29: Special Waste Alternatives: Construction and Demolition Debris Program Evaluation

Criteria	Asphalt and Concrete Recycling	C&D Materials Sorting
1. Waste diversion potential	Less than 5% of the total waste stream.	Estimated to be 4.5% of total waste stream.
2. Ease of tracking diversion	Easily targeted material, readily separated.	Easily targeted material, readily separated.
3. Environmental impact	Some potential environmental impacts (dust and noise). Impacts are known and controllable.	Some potential environmental impacts (dust and noise). Impacts are known and controllable.
4. Operating experience	High degree of technical reliability.	Existing programs operating throughout the State.
5. Conformity with local market conditions	Local markets and end-users currently exist.	Local markets and end-users currently exist.
6. Facility/program requirements	Few facility requirements are expected.	Minimum requirement is a concrete pad, debris boxes and labor to sort. Material sorting lines may be constructed by private sector.
7. Capital cost	None. Jurisdictions typically use private companies.	Low for sorting pad. Material sorting lines require high initial capital investment.
8. Cost effectiveness	Cost effective for local jurisdictions since they typically use private companies to perform work.	· Material revenues may be sufficient to cover operating costs. · Dependable markets and local hauling service needed. · Approximate cost per diverted ton has yet to be determined.
9. Operating costs	Moderate portion of waste requiring landfill; some reduction in waste management costs anticipated.	Moderate portion of waste requiring landfill; some reduction in waste management costs anticipated.
10. Conformity with AB 939 hierarchy	Consistent with the second level of the hierarchy.	Consistent with the second level of the hierarchy.
11. Ease of implementation	Implementation time one to three years with some staff assistance.	Implementation time less than one year for temporary program. Longer for development of material sorting lines by private sector.
12. Private-sector participation	Significant opportunities for private-sector involvement as processor and end-user.	Significant opportunities for private-sector involvement as processor and end-user.
13. Changes in waste type generation/use	Operation expected to have little or no impact on waste generation type or use.	Operation expected to have little or no impact on waste generation type or use.
14. Adaptable to social conditions	Does not promote increased public awareness or waste reducing behavior.	Does not promote increased public awareness or waste reducing behavior.
15. Consistency with Local Conditions	Consistent with local conditions.	Consistent with local conditions.
16. Institutional Barriers to Implementation	None.	None.
17. Implementation Cost	None.	Unknown at this time, but include hiring a contractor to sort the material.
18. Availability of end uses for recovered materials	Asphalt is reprocessed into new asphalt. Concrete reprocessed and used in new concrete mixes and as subbase aggregate.	Wood: reuse, mulch and fuel. Scrap metal: various recycling markets. Cardboard: recycled into new cardboard and various paper products. Asphalt/concrete: concrete mixes, subbase aggregate. Shrink wrap: plastic lumber. Asphalt roofing: paving materials. Gypsum: new drywall.

Table 4-30: Special Waste Alternatives: Tire Management Program Evaluation

Criteria	Tire Shredding	Physical Reuse	Retreading
1. Waste diversion potential	0.1% of the total waste stream.	0.1% of the total waste stream.	0.1% of the total waste stream.
2. Ease of tracking diversion	Accurate assessments can be performed at moderate cost of time and money.	Accurate assessments of activity may be difficult or costly.	Accurate assessments can be performed at moderate cost of time and money.
3. Environmental impact	Generally no adverse impacts or nuisance effects.	Generally no adverse impacts or nuisance effects.	Generally no adverse impacts or nuisance effects.
4. Operating experience	High degree of technical reliability; extensively used in U.S.	High reliability; generally not technical in nature.	High degree of technical reliability; extensively used in U.S.
5. Conformity with local market conditions	No markets exist for tire shreds in the county.	Currently limited local end-use markets.	· Markets exist in the commercial and government sector for truck, bus, and other large tires. · Passenger tire retread markets require development.
6. Facility/program requirements	None.	No facility requirements. Tire reuse program requirements will require development.	Retread programs will require development and management.
7. Capital cost	None.	None.	None.
8. Cost effectiveness	The cost effectiveness is between $10 and $100 per diverted ton.	The cost effectiveness varies depending on the use; however, in most cases the cost is between $10 and $100 per diverted ton.	The cost effectiveness is between $10 and $100 per diverted ton.
9. Operating costs	Little or no impact on current waste management costs. Private sector program.	Little or no impact on reducing waste management costs; amount diverted anticipated to be small.	Moderate impact on waste management costs through reduction in bulk collected and avoided landfill costs.
10. Conformity with AB 939 hierarchy	This alternative reduces the handling and disposal problems associated with tires; however, it does not receive any diversion credit if tire shreds are landfilled.	Physical reuse conforms with the highest level of the hierarchy.	Retreading conforms with the second level of the hierarchy.
11. Ease of implementation	Tires are diverted at the landfill for shredding. Implementation time for expansion is less than one year if markets are identified.	Implementation time less than one year.	Retreading facilities exist in the surrounding area. Implementation time is less than one year.
12. Private-sector participation	Highly established in the private sector.	Moderate opportunities for private-sector involvement as end-users.	Highly established in the private sector.
13. Changes in waste type generation/use	This alternative is expected to create little or no shift in waste type generation or use.	This alternative is expected to create little or no shift in waste type generation or use.	This alternative is expected to create little or no shift in waste type generation or use.
14. Adaptable to social conditions	Alternative does not increase public awareness or waste-reducing behavior.	Provides small opportunity for increasing public awareness.	Alternative does not increase public awareness or waste-reducing behavior.

Table 4-30: Special Waste Alternatives: Tire Management Program Evaluation

Criteria	Tire Shredding	Physical Reuse	Retreading
15. Consistency with Local Conditions	Consistent with local conditions.	Consistent with local conditions.	Consistent with local conditions.
16. Institutional Barriers to Implementation	None.	None.	None.
17. Implementation Cost	Minimal costs to hire hauling contractor to deliver tires to a private facility.	Minimal costs to hire hauling contractor to deliver tires to a private facility.	Minimal costs to hire hauling contractor to deliver tires to a private facility.
18. Availability of end uses for recovered materials	Incineration only.	Potential users include residents, small businesses, schools, and local government.	Local government and truck, bus, taxi and others use retreads.

Table 4-30: Special Waste Alternatives: Tire Management Program Evaluation

Criteria	Crumb Rubber	Tire-Derived Fuel	Whole-Tire Incineration
1. Waste diversion potential	0.1% of the total waste stream.	0.1% of the total waste stream.	0.1% of the total waste stream.
2. Ease of tracking diversion	Difficult to obtain accurate diversion numbers from existing facilities.	Difficult to obtain accurate diversion numbers from existing facilities.	Difficult to obtain accurate diversion numbers from existing facilities.
3. Environmental impact	Generally no adverse impacts assuming proper management and appropriate siting of the facility.	· Few instances of adverse environmental impact in the shredding process. · Impacts of TDF incineration are known and controllable.	· Air pollution impacts not fully understood. · May contribute to air basin degradation.
4. Operating experience	Existing operations use buffings; few known whole-tire facilities.	A high degree of technical reliability; few periods of reduced operations.	Existing operations have had periods of closure or serious technical problems.
5. Conformity with local market conditions	Potential short-term market opportunities for crumb rubber product use.	Potential short-term market opportunities for shredded product as fuel.	Energy market opportunities exist for power sales to local utility or industry.
6. Facility/program requirements	No facility requirements. Use private-sector facility.	No facility requirements. Use private-sector facility.	No facility requirements. Use private-sector facility.
7. Capital cost	None.	None.	None.
8. Cost effectiveness	· Dependent on strong end-user markets for crumb rubber. · Cost per diverted ton is approximately $25.	· Dependent on strong end- user markets for tire chips. · Cost per diverted ton is approximately $17.	· Normally requires large on- or near-site tire volumes for cost effectiveness. · Cost per diverted ton is approximately $170.
9. Operating costs	Little or no impact on current waste management costs.	Little or no impact on current waste management costs.	Little or no impact on current waste management costs.
10. Conformity with AB 939 hierarchy	Conforms with the second level of the hierarchy.	Transformation process, the lowest level of the hierarchy.	Incineration is in the lowest level of the hierarchy.
11. Ease of implementation	Implementation time 1.5 to 3 years for design, construction, equipment testing, market development, etc.	Assuming a private-sector tire shredding facility exists, implementation time required will be 1.5 to 2 years for market development and possible retrofitting of existing boiler facilities.	Assuming there is a current market to incinerate tires, implementation time required to negotiate contract will be less than one year.
12. Private-sector participation	Significant opportunities exist for private-sector development and operation.	Significant opportunities exist for private-sector development and operation.	Significant opportunities exist for private-sector development and operation.
13. Changes in waste type generation/use	Operation expected to have little or no impact on waste generation type or use.	Operation expected to have little or no impact on waste generation type or use.	Operation expected to have little or no impact on waste generation type or use.
14. Adaptable to social conditions	Does not promote waste-reducing behavior or public awareness.	Does not promote waste-reducing behavior or public awareness.	Does not promote waste-reducing behavior or public awareness.
15. Consistency with Local Conditions	Consistent with local conditions.	Consistent with local conditions.	Consistent with local conditions.

Table 4-30: Special Waste Alternatives: Tire Management Program Evaluation

Criteria	Crumb Rubber	Tire-Derived Fuel	Whole-Tire Incineration
16. Institutional Barriers to Implementation	None.	None.	None.
17. Implementation Cost	Minimal costs to hire hauling contractor to deliver tires to a private facility.	Minimal costs to hire hauling contractor to deliver tires to a private facility.	Minimal costs to hire hauling contractor to deliver tires to a private facility.
18. Availability of end uses for recovered materials	Local governments use rubberized asphalt in some projects. Other uses include sports, recreational and feedlot surfaces, soli improvements, oil spill clean up and new rubber products (i.e., carpet backing, doormats, roofing adhesives).	Fuel supplement used in pulp, paper, lumber, cement, and other heavy industries.	Incineration only.

Table 4-31: Special Waste Alternatives: White and Brown Goods and Wood Waste Program Evaluation

Criteria	White and Brown Goods Repair and Reuse	White and Brown Goods Scrap Metal Recovery	Wood Waste Recovery
1. Waste diversion potential	Less than 2% of the total waste stream.	Less than 2% of the total waste stream.	About 10% of the total waste stream.
2. Ease of tracking diversion	Difficult to track diversion; time is in management of program.	Relatively easy to track diversion; time is in management of program.	Diversion numbers provided by private contractor under regional agreement.
3. Environmental impact	Generally no adverse impacts.	· Few instances of adverse environmental impacts (related to the hazardous substances in some white goods). · Impacts are known and controllable.	Generally no adverse environmental impact. Little nuisance effect if properly sited for noise and dust. Some energy use required.
4. Operating experience	High degree of reliability; few technical failures.	High degree of reliability; few technical failures.	High degree of reliability; few technical failures.
5. Conformity with local market conditions	Residents will serve as the local market for repaired goods. Market subject to fluctuation.	Scrap metal markets exist.	Residents will serve as the local market for repaired goods. Market subject to fluctuation.
6. Facility/program requirements	None. Program exists.	None. Program exists.	None. Program exists.
7. Capital cost	None.	None.	None; absorbed by private contractor.
8. Cost effectiveness	· The cost effectiveness varies depending on the level of repair required and number of repairable items. · Cost per diverted ton is between $10 and $100.	· The cost effectiveness varies depending on the cost of removal and disposal of hazardous materials. · Cost per diverted ton is between $10 and $100.	Cost per diverted ton is between $10 and $12.
9. Operating costs	Moderate impact on reducing waste management operating costs due to reduced bulk in waste stream.	Moderate impact on reducing waste management operating costs due to reduced bulk in waste stream.	Moderate impact on reducing waste management operating costs due to reduced bulk in waste stream.
10. Conformity with AB 939 hierarchy	Conforms with the highest level of the hierarchy.	Conforms with the second level of the hierarchy.	Landscape product or compost conforms to the second level of the hierarchy. Hog fuel product involves transformation.
11. Ease of implementation	Existing program by private businesses.	Scrap metal recovery is an existing program.	Existing program.
12. Private-sector participation	Significant opportunities for private sector to own and operate a repair yard for white goods.	Significant opportunities for private-sector involvement both as the scrap metal salvager and end-user.	Some opportunities for private sector.
13. Changes in waste type generation/use	Operation expected to have little or no impact on waste generation type or use.	Operation expected to have little or no impact on waste generation type or use.	Operation expected to have little or no impact on waste generation type or use.
14. Adaptable to social conditions	Promotes high level of public awareness and waste-reducing behavior.	Some opportunity to promote public awareness.	Promotes high level of public awareness and waste-reducing behavior.

Table 4-31: Special Waste Alternatives: White and Brown Goods and Wood Waste Program Evaluation			
Criteria	**White and Brown Goods Repair and Reuse**	**White and Brown Goods Scrap Metal Recovery**	**Wood Waste Recovery**
15. Consistency with Local Conditions	Consistent with local conditions.	Consistent with local conditions.	Consistent with local conditions.
16. Institutional Barriers to Implementation	None.	None.	None.
17. Implementation Cost	None.	None.	None.
18. Availability of end uses for recovered materials	Existing local retail market for reconditioned appliances.	Extensive scrap metal markets exist.	Local material reuse and recovery centers sell usable wood products; mulch and fuel markets exist for chipped wood.

Wood Waste Recovery

Wood waste recovery programs target all generators. This material is easily separated at the source and is often received separated at the Central Disposal Site. Material includes tree stumps, pallets, building materials, furniture, and other household and commercial items and is stockpiled in separate areas at landfills and transfer stations. Reuse programs repair and sell some items, and the balance may be chipped for landscape materials, used as fuel, or used as a bulking agent for sludge compost programs.

4.6.4 SELECTED SPECIAL WASTE PROGRAMS

Special waste programs were selected based on local conditions and concerns, best professional judgment, and the SWGS indicating these materials are currently being disposed of in significant quantities. Section 19733.4 of the regulations require a detailed discussion on the selection of certain alternatives for implementation; the development of anticipated diversion rates; identification of anticipated end-uses for the diverted materials; handling and disposal requirements; and required facilities.

4.6.4.1 Selected Special Waste Programs

The special waste management programs selected are listed in Table 4-32 and includes ongoing operations of existing programs. These programs focus on available reuse and recycling techniques and build on existing area recycling activities.

Construction and Demolition Debris

The SCWMA estimates that there is an additional 4.5% diversion that can be obtained from implementing a construction and demolition debris diversion program that includes asphalt, concrete, lumber, metal, yard debris, gypsum, roofing, cardboard and plastic wrap as targeted materials. The educational component necessary for this program is discussed in Section 4.7. Although the SCWMA is confident that the private sector will develop the facilities necessary to sort construction and demolition debris that is currently delivered to disposal, a temporary C&D diversion program is proposed for the Central Disposal Site so that materials can be diverted as soon as possible. This temporary program will consist of a concrete pad, debris boxes, and labor provided by a contractor to sort those loads identified as having significant fractions of divertable materials. Economic incentives to deliver source-separated materials will be implemented at all disposal sites, and additional material

bans will be considered.

Economic incentives are currently in place at the County's solid waste facilities that effectively divert the majority of asphalt and concrete from landfill disposal. Private businesses exist that accept materials, including asphalt, concrete, rock, brick, and tile roofing, for drop-off or low fees compared to the existing tipping fee. Therefore, a separate program that targets asphalt and concrete specifically is no longer necessary. The annual Recycling Guide lists eight private businesses that accept asphalt, concrete, rock, brick, and tile roofing.

Tires

Managed as a banned material, tires will continue to be collected by a contractor (currently WSCD) for handling and shipped to Waste Tire Products for processing. Under the agreement with the DTPW, the contractor is required to market the tires collected from the County's solid waste facilities and to make appropriate adjustments should the markets change. Currently, tires from Sonoma County are used in civil engineering and agricultural projects, processed into crumb rubber, and retreaded.

White and Brown Goods

Managed as a banned material, white goods will continue to be separated for proper removal of hazardous materials and baled as scrap metal. Economic incentives existing at all solid waste facilities redirect some appliances to private businesses that repair and resale them. Although some repair and reuse is expected to continue, the SCWMA recognizes that the changes in technology to more energy efficient appliances will increase the number of old appliances that are recycled. The material reuse and recovery operations at the Central Disposal Site and the Healdsburg and Sonoma transfer stations will continue to accept working appliances for resale.

Table 4-32: Selected Special Waste Programs

Category	Program	Implementation Steps
Construction and Demolition	C&D Material Sorting	• Evaluate additional landfill bans on C&D materials • Analyze a separation surcharge for debris boxes and other loose loads containing banned materials • Create a temporary mixed C&D separation program to be operated by a private contractor at the Central Disposal Site • Educate permit staff, developers, and the public
Tires	Tire Management	• Continue existing collection program at all solid waste facilities • Maintain contractor agreement to market tires
White and Brown Goods	Repair and Reuse	• Educate public about repair, resale and donation opportunities • Educate public about material reuse and recovery operations
	Scrap Metal Salvaging	• Remove hazardous material • Bale scrap metal
Wood Waste	Wood Waste Processing	• Separate material suitable for repair, reuse, and resale • Separate material for chipping as landscape/soil amendment products • Educate public on reuse program and availability of landscape products

The annual Recycling Guide currently lists 13 businesses that will collect appliances for recycling. A few of those businesses may repair some for resale. Listings for appliances are also accepted for SonoMax, the quarterly newsletter for the SCWMA's material exchange program.

Brown goods, such as furniture and small electronics in working condition, will continue to accepted at the material reuse and recovery operations at the Central Disposal Site and the Healdsburg and Sonoma transfer stations. In addition, there are many private businesses and non-profit organizations throughout Sonoma County that accept these materials, a few of which are listed in the annual Recycling Guide.

Computer monitors and televisions (CRTs) are now being managed as a banned material and are being collected for removal of hazardous materials and recycling of non-hazardous components. Economic incentives existing at all solid waste facilities may redirect some CRTs to private businesses for repair and resale or donation (see Chapter 5). Six local businesses that accept a variety of electronics for repair and resale, donation, and recycling are listed in the annual Recycling Guide.

Wood Waste Recovery

The SCWMA will continue to manage the wood waste diversion program as a regional program funded through tipping fees at the County's solid waste facilities. Wood waste that is delivered to the transfer stations is stockpiled and then transferred to the Central Disposal Site. As a banned material, wood waste is currently directed to a separate area at the Central Disposal Site where it is chipped for use as mulch products or as fuel. The mulch products are also cured in windrows to eliminate pathogens prior to selling the products to local businesses or the public. Some wood waste is reusable lumber, which is accepted at various drop-offs throughout the county including the material reuse and recovery programs operating at the Central Disposal Site and the Healdsburg and Sonoma transfer stations.
Currently, the wood waste program is diverting approximately 12,000 tons per year. With the implementation of the construction and demolition debris material sorting program, additional wood waste will be diverted from disposal.

Six private businesses are listed in the annual Recycling Guide as accepting various types of wood waste. Local haulers that provide debris box services include information about how to separate wood waste from other materials in order to reduce the overall cost of disposal to their customers.

4.6.4.2 Costs

Programs that are operated by DTPW processing white and brown goods, managing the material reuse and recovery centers, and tire collection are funded through tipping fee revenues. Education programs are funded by a surcharge collected as part of the tipping fees and are implemented by the SCWMA. For most of the selected programs, there will be no direct public-sector costs associated with the program other than administration, public education, monitoring, and evaluation.

Costs for asphalt and concrete recycling and processing of tires collected at the solid waste facilities are handled by the private sector. Since the program is still being developed, costs for the temporary C&D material sorting facility are not available. The annual contract for tire collection and management is $24,850 in 2001. The cost for removing hazardous materials from appliances is $22,000 per year. The costs for managing the material reuse and recovery centers is approximately $261,000 of which an estimated 10% is for managing white and brown goods. Collection and transportation of CRTs to a recycling facility is $126,000 per year. Each of these contracts are part of the DTPW's fiscal year budgets. The SCWMA contracts for the wood waste processing program at a cost of $140,800 per year.

4.6.4.3 Role of Special Wastes in Meeting State Diversion Goals

Most of the selected special waste programs have been in operation for several years, resulting in a 2000 diversion rate of 40%. In addition, implementation of the construction and demolition debris material sorting is

anticipated to provide an additional 4.5% towards the 50% diversion goal. Current diversion tonnages of special waste materials can be found in Table 4-10 (see section 4.4).

4.6.4.4 Operating, Handling, and Facility Requirements

Section 18733.4 (d) and (e) of the regulations require a description of the proposed methods for handling and disposal necessary to implement selected programs as well as a description of any new or expanded facilities needed to implement selected programs.

Construction and Demolition Debris

The SCWMA is confident that the private sector will develop the facilities necessary to sort construction and demolition debris that is currently delivered to disposal sites as mixed loads in debris boxes. In order to begin diverting the material as soon as possible, a temporary C&D material sorting program is proposed for the Central Disposal Site. This temporary program will consist of a concrete pad, debris boxes, and labor provided by a contractor to sort those loads identified as having significant fractions of divertable materials. Economic incentives to deliver source-separated materials will be implemented at all disposal sites, and additional material bans will be considered.

Some of the recovered materials, including wood waste, can be added to the programs currently operating at the Central Disposal Site. The contractor will be responsible for finding markets for all materials sorted, including scrap metal and cardboard. The SCWMA will rely on private sector facilities for crushing and storing materials such as asphalt and concrete for resale or reuse.

Tires

Since tires are a banned material, they will continue to be collected in a separate area at the solid waste facilities so that the private contractor can remove them for processing and delivery to market. Special handling fees for tires are part of the existing disposal fee structure.

White and Brown Goods

Since white goods are a banned material, they will continue to be collected in a separate area at the solid waste facilities so that the hazardous materials can be removed prior to baling as scrap metal and delivery to market. CRTs will also be collected in a separate area at the solid waste facilities so that the private contractor can remove them for processing and delivery to market. Special handling fees for these materials are part of the existing disposal fee structure.

The materials reuse and recovery centers will continue to accept reusable brown goods. No new facilities are expected to be necessary for handling white and brown goods.

Wood Waste

Existing wood waste collection and processing operations will continue to handle reusable and unusable materials delivered to the solid waste facilities. Existing operations include providing separate collection areas at the transfer stations prior to transferring the material to the Central Disposal Site, providing a site for processing wood waste at the Central Disposal Site, economic incentives for source-separated loads in the form of lower tipping fees, and providing space for reusable lumber at the materials reuse and recovery centers.

No new facilities are required for the current wood waste processing program. If the composting program is relocated in the future, wood waste processing would continue to be included as part of the operations. Future facility requirements for the composting program are discussed in section 4.5.

4.6.5 MARKETS AND LOCAL END-USES FOR RECOVERED MATERIALS

The anticipated end-uses and end-users for the materials recovered by the selected special waste programs are shown in Table 4-33.

4.6.6 IMPLEMENTING SPECIAL WASTE PROGRAMS

Section 18733.5 requires identification of the entity or entities responsible for implementing the program, a description of implementation tasks, task implementation schedules for the short-term and medium-term planning periods, and identification of implementation costs and revenues.

4.6.6.1 Responsible Entities

The DTPW will be the primary party responsible for implementation and coordination of the special waste program. Where feasible and efficient, DTPW will coordinate county programs with SCWMA educational efforts. Responsible parties for each program are listed in Table 4-34.

Table 4-33: Anticipated End-Uses and End-Users of Recovered Materials

Construction and Demolition Debris
- Economic incentives will remain in effect for concrete and asphalt. Higher tipping fees have effectively moved disposal of these materials to private companies for processing.
- A temporary C&D material sorting area will be implemented at the Central Disposal Site under an agreement with a private contractor. Materials will be marketed by the contractor.

Tires
- Targeted retread markets will include local government and truck, bus, taxi, and other transportation operators.
- Targeted end-users for the physical reuse program will include individual residents, small businesses, schools, and local government, the State Department of Transportation, and others as identified in the program.
- Crumb rubber end-users will include local government asphalt paving contractors who will use rubberized asphalt. Possible end-uses include sports, recreational, and feedlot surfaces; soil improvements; and oil spill cleanup.
- Locally, shredded tires are currently not recycled. Recycling opportunities for this product will require investigation and development if this program is pursued as an alternative to incineration. The SCWMA will monitor state activities in the area of tire shred markets development and will use identified options if they are found locally suitable.

White and Brown Goods
- Opportunities for reuse, repair, and donation will continue to be included in the annual Recycling Guide.
- Scrap metal recovered from unrepairable white/brown goods will be sold to local scrap metal processors.
- Hazardous materials will be collected and properly disposed.

Wood Waste
- Dimensional lumber and other wood will be recycled and reused as lumber or chipped and distributed to area residents/businesses or to contracted industrial facilities as fuel.
- Reusable furniture will be resold or donated to new users.

Table 4-34: Responsible Entities for Special Waste Programs		
Program	Responsible Party	
	Program Management and Data Collection	Evaluation and Reporting
Construction and demolition debris	DTPW	SCWMA
Tire management	DTPW	SCWMA
White and brown goods	DTPW	SCWMA
Wood waste recovery	SCWMA	SCWMA

4.6.6.2 Required Tasks

For each special waste program, specific tasks have been identified at a level of detail that is adequate for establishing a work plan, allocating hours, and budgeting (Table 4.35). To clearly define the roles to be taken, the responsible entities are noted for each task. In addition, the implementation date and costs of each task are provided.

4.6.6.3 Schedules and Funding

Table 4.35 is the implementation schedule for the special waste programs.

Tipping fees are the main funding source for the special waste programs operated by the DTPW. A tipping fee surcharge is the funding source for the wood waste processing program and all special waste education efforts.

4.6.7 MONITORING AND EVALUATION

The monitoring and evaluation process is critical to the planning process. The programs recommended in the special waste component will require periodic review to ensure that the anticipated diversion goals are being achieved. Section 18733.6 of the regulations outlines the requirements of the monitoring and evaluation including identifying the evaluation criteria, frequency of the monitoring, entities responsible for evaluation, and contingency measures to be implemented if programs do not fulfill the expectations.

4.6.7.1 Data Needs

The following data will provide a base for comparing projected diversion of the materials against the actual tonnages. The comparison will then indicate the effectiveness of the diversion program.

Construction and Demolition Debris

Once a contractor is hired to sort C&D loads at the Central Disposal Site, data needs for monitoring the construction and demolition debris program include:

- Monthly reports from the contractor including actual tons for each material type diverted, material ground for ADC, and the residue landfilled.

Tires

Data needs for monitoring the tire program include:

- Actual numbers of tires disposed of at the County transfer stations and the Central Disposal Site

- Percentages of each method of tire reuse (i.e., retreads, civil engineering projects, etc.).
- Percentage of tires processed into crumb rubber.

White and Brown Goods

Data needs for monitoring the white and brown goods program include:

- Monthly reports from the contractor operating the material reuse and recovery centers including estimates of reusable brown goods sold and tonnage of scrap metal collected.
- Number of white goods accepted at the solid waste facilities.

Wood Waste Recovery

Data needs for monitoring the wood waste recovery program include:

- Estimates of quantity and type of wood waste generated including furniture, tree stumps, and lumber
- Actual tonnages of wood waste chipped for mulch and fuel.
- Actual tonnage of wood waste used for ADC.
- Identification of end-user groups/markets.

4.6.7.2 Monitoring Techniques and Programs

The specific monitoring activities to evaluate the special waste programs are designed to obtain data useful in measuring the success of the special waste programs both quantitatively and qualitatively and to target data that are possible to obtain and cost-effective to collect. Descriptions of the monitoring activities are as specific as possible to ensure a thorough monitoring program.

1. Construction and Demolition Debris: Program monitoring will be performed using written records in the form of reports and invoices provided by the contractor to track the amount of material diverted from landfill. Actual tonnages will be included in the AB 939 Annual Report to the CIWMB.

2. Tires: Program monitoring will be performed using written records in the form of reports and invoices provided by the contractor to track the amount of material diverted from landfill. In addition, the contractor will provide annual estimates of how tires collected in Sonoma County were reused, recycled and otherwise processed for proper disposal. Actual tonnages will be included in the AB 939 Annual Report to the CIWMB..

3. White and Brown Goods: Program monitoring will be performed using written records in the form of reports and invoices provided by the contractor operating the material reuse and recovery centers to track the amount of material diverted from landfill. In addition, DTPW records at the solid waste facilities will be used for tracking the numbers of appliances received. Actual tonnages will be included in the AB 939 Annual Report to the CIWMB.

4. Wood Waste: Program monitoring will be performed using written records in the form of reports and invoices provided by the contractor to track the amount of material diverted from landfill. In addition, DTPW records at the solid waste facilities will be used for tracking the tons of wood waste received. Actual tonnages will be included in the AB 939 Annual Report to the CIWMB.

4.6.7.3 Evaluating Program Effectiveness

Program effectiveness can be evaluated based on quantitative measures such as the program's ability to divert waste from the landfill and qualitative measures such as the availability of the services to waste generators. A

specific set of criteria is used to measure program effectiveness. The criteria should help identify areas where improvements are required. The criteria are described below.

- Were the anticipated special waste diversion objectives attained?
- Did the responsible entities execute the tasks required?
- Were the tasks implemented on schedule?
- Were all recovered materials successfully marketed/used?
- Is the cost per diverted ton within reason?
- Were all activities executed in an environmentally acceptable and approved manner?
- Do the special waste program activities meet or exceed all local, state, and federal regulations?

Each criterion will be applied to each special waste activity: construction and demolition debris, white and brown goods recovery, waste wood recovery, and tire management. Contingency measures will be considered for those criteria that receive negative responses. Section 4.6.7.6 describes those contingency measures.

4.6.7.4 Parties Responsible for Monitoring

Programs implemented using a regional approach will be managed and monitored by the SCWMA and will reflect the generation and diversion of the special wastes. Programs at the solid waste facilities will be management and monitored by the DTPW. Table 4-34 shows the division of responsibility between the two agencies.

4.6.7.5 Funding Requirements

The cost of monitoring and evaluating the special waste programs is determined by the amount of staff time committed to the project. An estimate is five to eight percent of a staff person's time each year could be required. This would cost approximately $1,500 to $5,100 per year.

4.6.7.6 Contingency Measures

Not only will the monitoring and evaluation process identify programs that do not meet their goals, but when programs do meet the goals, the process can pinpoint areas that can be improved beyond the established goals. Contingency measures to improve special waste programs are described below.

1. If the special waste diversion objectives are not attained, the County will consider implementing the following:

    - Increase economic incentives by adjusting disposal rates for specific special wastes.
    - Request the SCWMA to increase the education program in terms of frequency and/or number of targets.
    - Revise objectives to reflect more realistic goals.

2. If required tasks are not executed by the responsible entities, the County will consider implementing the following:

    - Revise job and task descriptions.
    - Reevaluate County staffing adequacy.
    - Identify reasons for lack of private-sector participation.

3. If tasks are not implemented in a timely manner, the County will consider implementing the following:

    - Examine factors affecting program implementation.
    - Reevaluate County staffing adequacy.

- Revise job and task descriptions.
- Revise implementation schedule as necessary.
- Identify reasons for lack of private-sector participation.

4. If markets/end-users prove inadequate, the County will consider requiring contractors to:

   - Evaluate markets to determine problems with, or constraints to, marketing/using recovered materials.
   - Investigate cost effectiveness of end-use alternatives.
   - Explore alternative markets and end-uses.
   - Increase market outreach and advertising.
   - Investigate marketing and coordination with other jurisdictions to improve the sales of materials.

5. If markets/end-users prove inadequate, the SCWMA will consider:

   - Increasing education and promotion.
   - Investigating jurisdictional procurement policies to support markets.

6. If the cost per diverted ton is not within a reasonable range, the County will consider implementing the following:

   - Review operating and maintenance plan for the program to identify ways to reduce expenses.
   - Investigate markets for recovered materials.
   - Modify or discontinue program.

7. If some aspect of the special waste program does not meet local, state, or federal regulations, the County will consider implementing the following:

   - Identify the problems in materials and programs.
   - Correct problems to meet local, state, and federal regulations, as needed, including termination of program.

8. If hazard minimization of white and brown goods does not occur prior to disposal or shredding, the County will consider implementing the following:

   - Identify the reason why the hazardous elements are not being removed and disposed properly.
   - Increase incentives through legislation, regulation, and disposal rates.
   - Provide increased access to technical assistance for the contractor responsible for dismantling the hazardous elements prior to disposal.
   - Monitor program more closely and/or more frequently, perhaps through coordination with the Sonoma County Environmental Health Department.

Table 4-35: Implementation Schedule for Special Waste Programs

PROGRAM AND IMPLEMENTATION TASK	RESPONSIBLE ENTITY	2000				2001				2002				2003				2004				2005				2006				2007				2008			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SPECIAL WASTE																																					
Construction and Demolition Debris Program																																					
Evaluate additional landfill bans on C&D materials	DTPW										X																										
Analyze a separation surcharge for debris boxes and other loose loads containing banned materials	DTPW										X																										
Create a C&D separation program to be operated by a private contractor at the Central Disposal Site	DTPW										X																										
Educate permit staff, developers and the public	DTPW												X																								
Tire Program																																					
Continue existing collectin program at all solid waste facilities	DTPW																																				
Maintain contractor agreement to market tires	DTPW																																				
White and Brown Goods Program																																					
Educate public abour repair, resale and donation opportunities	SCWMA																																				
Educate public about material reuse and recovery operations	SCWMA																																				
Remove hazardous material from items designated as scrap metal and balc for market	DTPW																																				
Wood Waste Recovery Program																																					
Separate material suitable for repair, reuse, and resale	SCWMA																																				
Separate material for chipping as landscape and/or soil amendment	SCWMA																																				
Educate public on reuse program and availability of landscape products	SCWMA																																				
Monitoring and Evaluation	SCWMA																																				

X - Designates the initiation of a task. Shaded bars indicate the continuation of the task and/or program.

Note: Years are broken into quarters designated by 1,2,3,4.

Education and Public Information Component

4.7 EDUCATION AND PUBLIC INFORMATION COMPONENT

The Education and Public Information Component recommends programs to maximize awareness and understanding of waste diversion programs for the residential, commercial (including local government), and industrial sectors. Education and promotional activities are intrinsically tied to the other plan elements in terms of purpose, actions, and scope. A good public education program will create a positive atmosphere for recycling and waste reduction, resulting in a high degree of participation.

Sonoma County takes a regional approach to developing and implementing public education programs for residents and businesses in Sonoma County. Public education campaigns planned on a regional level can lead to significant results and cost savings. The SCWMA has a Public Education Coordinator (PEC) on staff that is responsible for the coordination, implementation, and oversight of the public education programs. Additionally, each city will identify a staff person and dedicate time to creating and implementing jurisdiction specific programs and ensuring that their city is being served by regional programs.

4.7.1 OBJECTIVES

The objectives of the education and public information programs are to increase awareness of and participation in established and new programs to reduce waste by residents and businesses, including non-English-speaking populations. These objectives will be achieved by promoting source reduction (including repair and reuse), recycling, and composting concepts and activities and bringing recycling into the schools by providing information and technical assistance. Specific objectives include:

- The SCWMA, County, Cities, and private waste haulers will coordinate and work cooperatively to provide education to residents and businesses in Sonoma County.
- Maintain a central information source for providing information on source reduction, recycling, composting, hazardous waste and other disposal options.
- Provide residents and businesses with practical information on environmental shopping and the three R's: reduce, reuse, and recycle.
- Increase awareness and encourage maximum participation in programs that reduce the materials in the waste stream, including buyback and drop-off centers, residential curbside recycling, business recycling, and home composting.
- Maximize participation in recycling at multi-family complexes.
- Promote source separation of yard debris by residents and businesses to maximize the use of composting programs.
- Increase awareness of commercial recycling programs, including programs for asphalt, concrete, construction and demolition debris, and wood waste.
- Promote purchase of recycled products in the government and private sector.
- Identify effective communication strategies and implement programs to encourage behaviors that reduce, reuse, and recycle products and materials in non-English speaking communities.
- Use community-based social marketing techniques to increase diversion of targeted wastes, initially paper and yard debris, from the residential waste stream.

- The SCWMA, Cities, and private waste haulers will coordinate and work cooperatively to gather annual recycling/diversion program descriptions with estimated tonnages to be provided to the SCWMA for inclusion in the AB 939 Annual Report.

4.7.2 CURRENT EDUCATION AND PUBLIC INFORMATION ACTIVITIES

In addition to the public information and education materials distributed by local haulers and recycling facilities, the SCWMA conducts a number of public education activities aimed at local residents and businesses. These include the following:

4.7.2.1 Annual Recycling Guide

Targeted towards residents and businesses, the SCWMA produces an annual Recycling Guide--the definitive local resource on source reduction, reuse, recycling, composting, proper disposal of hazardous waste and disposal options in Sonoma County. Sections include motor oil/filter and antifreeze recycling locations; curbside recycling; drop-off recycling; an alphabetized A to Z list by material reuse and recycling; and disposal site information. The theme of the Recycling Guide changes annually reflecting the addition of local programs, targeted diversion materials and statewide initiatives.

About 218,000 Recycling Guides are distributed annually through either bulk mailings or as an insert in the Pacific Bell telephone directory. In addition, distributions are accomplished through grocery store tabloid stands, welcome neighbor organizations, city utility offices, fairs/public events and the Eco-Desk. A .pdf downloadable version of the Guide is available on our web site at www.recyclenow.org.

4.7.2.2 Eco-Desk Hotline

The Eco-Desk Information Hotline (565-DESK) is a telephone and e-mail answering service for responses to inquiries from Sonoma County residents and businesses on all aspects of source reduction, recycling, disposal, and household hazardous waste management. SCWMA staff answers the Eco-Desk 12:00 p.m. to 3:00 p.m., Monday through Friday. At all other times, an extensive telephone message system provides detailed information to the public on a variety of topics including household hazardous waste, oil/filter collection centers (English and Spanish), paint, SonoMax, plastics and seasonal Christmas Tree recycling. Messages left in any of the voice mail boxes are generally responded to the next business day.

The Eco-Desk hotline phone number is advertised on all SCWMA publications, on the SCWMA's web site, in the Pac Bell directory, on single-stream "blue cart" recycling container labels, on countywide applied "No Toxics" refuse can stickers and on promotional giveaways.

The Eco-Desk also serves as a feedback mechanism that provides information on issues and questions the public has about solid waste management. Annual reports are prepared summarizing call volume, questions posed, referrals and web site activity.

4.7.2.3 SCWMA Web Sites

The Eco-Desk web site at www.recyclenow.org is a comprehensive web site that enhances the Eco-Desk resources and currently features 30 unique pages related to residential, business, composting, waste reduction, green building, waste reduction and disposal sites. The "search" function allows residential and business users to locate reuse/recycling by material and area, and the home page changes frequently for special topics and events.

The SonoMax web site at www.recyclenow.org/sonomax is a dedicated business materials exchange web site that allows users to search through materials available and wanted and to post new listings. SonoMax listings compiled on the Eco-Desk database are uploaded weekly onto the web site server.

4.7.2.4 Brochures

The SCWMA provides brochures produced by the Sonoma County Department of Transportation and Public Works (DTPW) on topics including the Central Disposal Site and the load checking program. Brochures produced by the California Integrated Waste Management Board (CIWMB) and Department of Conservation (DOC) are also available.

4.7.2.5 Information Fact Sheets

In addition to the Recycling Guide, the SCWMA has developed a number of information fact sheets for business and residential topics. Fact sheets that focus on business include paper and office recycling; special events recycling; plastics reuse and recycling; hazardous waste management; recycling, reuse and recognition programs; and hazardous waste haulers. Fact sheets that focus on residents include: proper handling of syringes/needles; *A Healthy Environment Begins at Home*; and *Eco-Holiday Guide*.

In addition, depending on planned events, fliers are prepared for industry-specific topics (e.g., wine industry). Fact sheets addressing common questions and answers regarding the landfill, developed by the DTPW, are also distributed by the SCWMA.

4.7.2.6 Presentations

SCWMA staff is available to make presentations to schools and community groups on various topics including source reduction, recycling, composting, and the AB 939 planning process. In addition, a list of speakers capable of making presentations on solid waste issues is maintained by the PEC.

4.7.2.7 Solid Waste Facility Tours

DTPW staff provide tours of the Central Disposal Site which includes the reuse/recycling center, the landfill gas-to-energy system, and the composting site, supported by an overall discussion of site operations.

4.7.2.8 Resource Library

SCWMA staff maintains a resource library containing magazines, videos, and other resources on solid waste management and recycling which is available to the public.

4.7.2.9 Information/Education Exhibits

SCWMA staff develops and staffs an interactive educational booth at the annual Sonoma County Fair and Harvest Fair. Design of the exhibit reflects the annual Recycling Guide's theme. In addition, elements of the exhibit are used at other fairs throughout the year such as the Business Environmental Alliance annual conference, Garden Symposium, Wineries Conference, Earth Day events, and health, environment and safety Days for local company employees. Display components are reused and refurbished when appropriate.

The current educational exhibit focuses on green building. Funded by a one-year grant from the CIWMB, the "Green Building Products Showcase" targets building design professional and features 96 environmentally preferable building products. This portable 2' wide x 8' long x 7' tall traveling display is featured at county/city building departments and at local events (e.g., Harvest Fair and Fall and Spring Home Show). Handouts at the exhibit include a summary of products displayed, sources (including local manufacturer information whenever possible), and a summary of recycling/reuse opportunities for construction/demolition debris including wood, concrete/asphalt, etc. The related web page at www.recyclenow.org/green-building reinforces the topics at the showcase display.

4.7.2.10 Christmas Tree Recycling

The DTPW coordinates and conducts an annual countywide recycling program for Christmas trees. This campaign is promoted through the use of press releases, posters and brochures.

4.7.2.11 Local Hauler Educational Efforts

Local haulers provide detailed information on the recycling services offered to their customers, including curbside recycling services; source-separated debris box services for yard debris, wood waste, scrap metal, and other materials; and hauler-operated buy-back and drop-off centers. Some haulers produce and mail monthly or quarterly newsletters to their customers. The haulers have dedicated staff that assist local schools and businesses by setting up recycling programs, conducting tours, and making presentations. In addition, haulers are being required to implement additional educational programs by local jurisdictions as new franchise agreements are being negotiated.

4.7.2.12 AB 939 Annual Report

The SCWMA prepares and submits its AB 939 Annual Report to the CIWMB in August of each year for the prior year's diversion efforts. The Annual Report includes detailed descriptions of the progress of each program that is diverting materials from landfill disposal in Sonoma County. As an educational tool, the Annual Report is available by request and provides up-to-date program information, including diversion tonnages for programs operated by the jurisdictions. A one-page summary of key data (Annual Diversion Report Card) is also distributed to interested parties.

4.7.3 PUBLIC EDUCATION STRATEGY AND TECHNIQUES

This section describes various techniques used by the SCWMA to disseminate education and public information materials.

4.7.3.1 Media Relations

Paid advertising is included in the SCWMA's budget to provide information about the various programs available. The following methods are used to promote source reduction, recycling, composting, and disposal options related to specific programs managed by the SCWMA:

1. Radio: Radio messages are cost-effective since they reach "hard-to-target" groups such as members of rural communities and minorities.

2. Public Service Announcements: In addition to securing paid radio time, public service announcements (PSAs) are easy and inexpensive to produce and provide a supplemental opportunity to promote specific activities. They cannot, however, be the sole basis of a public education plan since radio and television stations will run them only as time permits.

3. Television: SCWMA uses the City of Santa Rosa Community Media Center to provide information on various solid waste issues and publicizing programs on their bulletin board. Information dissemination through television may be cost-effective for joint public information efforts, particularly for the widely dispersed populations of Sonoma County.

4. Transit and Outdoor Information Dissemination: Outdoor billboards and transit materials can increase a campaign's visibility and raise specific issues particularly in more urban areas. For the unincorporated County, this method will likely be less applicable. The PEC will assess the need and desire for using transit and outdoor information dissemination as part of the countywide education effort.

5. Newspapers/News Stories: Newspaper messages are placed on an on-going basis in local newspapers. Studies show that newspaper messages about local recycling opportunities are more effective in rural area papers than in metropolitan area papers. Additionally, press releases and press events notify the media of newsworthy facts and upcoming diversion programs.

6. On-Line Media Relations: With the increased use of the internet by residents and businesses, on-line media relations continues to develop as an information source. Many websites, in addition to the SCWMA's, feature links to information on topics such as recycling, waste prevention, green building, and other environmental topics.

4.7.3.2 Community-Based Social Marketing Techniques

Community-based social marketing techniques (CBSM) include:

- Identifying barriers and benefits to a sustainable behavior, such as waste prevention or recycling, using focus groups and surveys.
- Designing a strategy that uses behavior change tools, including pledges or commitments from a resident or business, prompts to help people remember a behavior, and development of community norms to encourage desired actions.
- Implementing a pilot program. It is necessary to test social marketing techniques on a smaller selected group to determine whether or not the techniques will actually change behaviors, such as increasing the amount of recyclables. Unsuccessful techniques can be reevaluated and tested again before investment in countywide efforts.
- Evaluating the pilot program to determine the costs and benefits of implementing the program countywide. Once it is determined that a technique is successful, the appropriate educational materials can be developed and distributed.

Information gathered from social marketing techniques is used to refine marketing strategies and will provide information to justify continued funding for a project. The SCWMA will use community-based social marketing techniques to determine how to effectively increase diversion of wastes, such as paper and yard debris, that continue to be a large percentage of Sonoma County's waste stream.

4.7.3.3 Commercial/Industrial Strategy for Waste Diversion

The SCWMA will be responsible for developing and implementing a new comprehensive business-centered program for the Commercial/Industrial sector. The SCWMA program goal is to motivate businesses to reduce the volume and toxicity of wastes disposed and adopt principles of sustainability which further their business priorities.

To the extent that funding allows, the SCWMA will strive to provide personal contact and technical assistance to businesses and trade groups as well as to disseminate written educational materials. Commercial/Industrial contacts will focus on meeting the needs of businesses by providing new ideas, solutions to specific problems, review of waste needs and services, and technical assistance to help businesses meet their goals and improve their bottom line. The SCWMA will also collaborate with other agencies representing related environmental issues such as disaster planning, energy, water, waste water and hazardous wastes, to leverage resources, avoid duplication of efforts and maximize contact opportunities with businesses.

This approach may include providing information to industry associations, business leaders/innovators, and individual companies about environmentally sound business practices that promote sustainability, industrial

ecology, business efficiency, and cost savings. Funding for new commercial waste programs will be generated from landfill surcharges, City fees, and/or other funding sources.

Planned program components include the following steps:

1. Conduct Preliminary Analysis.
   - Analyze the Sonoma County business environment.
   - Create and maintain a Sonoma County business database.
   - Identify and rank high volume waste generators.
   - Identify and rank large generating types of businesses by sector and SIC.
   - Identify highest volume recyclable materials to target.
   - Review effective commercial programs in other California communities.

2. Prioritize Objectives and Design Programs.
   - Rank priorities by sector, industries, generators and materials initially.
   - First year priority will be the construction and demolition sector (developers, contractors, landscapers).
   - Update priorities annually depending on previous year's activities and outcomes.
   - Design program and materials.

3. Implement New Commercial Programs.
   - Conduct ongoing outreach and education program to targeted industries and material types.
   - Provide technical assistance and problem solving to individual businesses.
   - Join business and industrial associations, make presentations, and possibly sponsor events.
   - Promote green purchasing and green building.
   - Expand the commercial waste exchange program and electronic database of users.
   - Promote market development for processing and reuse of recycled material.
   - Create public-private partnerships.

4. Monitor Effectiveness
   - Measure and track program results and effectiveness of various approaches.
   - Review priorities and adjust and/or add programs as needed to reduce the waste and other environmental impacts generated by the commercial/industrial sector.

4.7.3.4 Outreach to Non-English-Speaking Populations

Current outreach to non-English-speaking residents includes bilingual signs on single-stream blue bins and beverage container recycling bins, Spanish messages giveaways (i.e., pens, magnets, etc.), and the recorded Spanish language information on the Eco-Desk about used oil and oil filters recycling locations. In addition, public information materials are translated into Spanish for outreach to local communities.

The SCWMA recognizes that outreach to non-English-speaking residents and businesses may involve different communication techniques than outreach to English-speaking residents. SCWMA staff believes that applying community based social marketing techniques may be necessary to create a successful educational campaign for non-English-speaking populations in Sonoma County. This may involve hiring a contractor to perform focus groups to determine barriers, researching successful educational campaigns implemented by other jurisdictions, testing and evaluating behavior tools such as commitments, prompts, and norms, then developing and implementing the selected strategy.

4.7.3.5 Selected Public Education Programs to Promote Diversion

The following section, organized by program type and generator, describes some of the specific activities that have been operated by the SCWMA.

Residential Source Reduction Promotional Activities

For several years the SCWMA participated in the Bay ROC Shop Smart Campaign, a general awareness environmental shopping campaign focusing on waste reduction education in local grocery stores. Brochures developed by the CIWMB on reducing, reusing, and buying recycled-content materials and environmental shopping are distributed at special events and by request.

Working with local supermarkets, the SCWMA also conducted an annual in-store campaign – "Celebrate Earth Day Sonoma County" – to encourage the use of durable fabric shopping bags. The PEC worked with grocery store owners and distributed posters and cashier buttons during the week of Earth Day.

Home composting and vermicomposting are promoted through the SCWMA's contractor, the University of California Cooperative Extension (UCCE). UCCE uses brochures, presentations, and education booths to education residents and schools on how to compost on site. Instructions on other methods to managed yard waste on site, including grasscycling and vermicomposting, are also available from the SCWMA.

Each December, the PEC places holiday reuse and waste prevention and recycling information on the web sites and in association newsletters.

Commercial/Industrial Source Reduction Promotional Activities

To address commercial and industrial source reduction, SCWMA efforts are supported with the brochures developed by the CIWMB. A waste audit checklist is available for businesses upon request. In addition, DTPW staff provide waste audits to those businesses applying to the Sonoma Green Business Program, which is operated by the Sonoma County Department of Emergency Services. Local waste haulers also provide waste audit services. Waste reduction information is also available on the SCWMA web site.

Residential Recycling Promotional Activities

The following techniques are used to promote residential recycling in Sonoma County:

Annual Recycling Guide: The Recycling Guide provides an alphabetical listing of reuse and recycling opportunities for materials: motor oil, oil filters, and antifreeze recycling charts; curbside recycling information; drop-off recycling chart; and household toxics and other disposal options. The Recycling Guide is also available on-line at www.recyclenow.org.

Drop-Off and Buy-Back Center Promotion: The annual Recycling Guide is the main promotional tool used by the SCWMA to promote drop-off and buyback centers and includes details on the types of materials accepted by the centers.

Curbside Recycling Promotion: The annual Recycling Guide is the main promotional tool used by the SCWMA to promote curbside recycling. In addition, the local haulers distribute information regarding their programs to their customers. With the implementation of single-stream recycling, the blue recycling carts have detailed curbside recycling information applied directly to the bins.

Multi-unit Collection Promotion: Haulers provide information on the types of materials collected, including brochures on how to participate, at multi-unit complexes that offer recycling to their tenants.

Reuse/Recovery Facility Promotion. The annual Recycling Guide is the main promotional tool used by the SCWMA to promote the reuse and recovery facilities currently being operated at the Central Disposal Site and the Healdsburg and Sonoma Transfer Stations. These reuse and recovery facilities are included in the alphabetical listing under the types of materials that are accepted.

Commercial/Industrial Recycling Program Promotion

Annual Recycling Guide: In addition to general recycling information, several pages of the Recycling Guide focus on recycling services available to the business community. The Recycling Guide is also available on-line at www.recyclenow.org.

Green Building: The "Green Building Products Showcase," a portable traveling display, features 96 environmentally preferable building products and is displayed at county/city building departments and at local events (e.g., Harvest Fair and Fall and Spring Home Show). The related web page at www.recyclenow.org/green-building enforces the topics at the showcase display.

Commercial Source Separation: The annual Recycling Guide is the main promotional tool used by the SCWMA to promote source separation of recyclable materials by commercial businesses. Local haulers also provide information on how to source separate materials, such as glass, office paper, and tin, for customers who request recycling services.

Commercial Single-Stream Recycling: The annual Recycling Guide, the Eco-Desk, and the website are the SCWMA's the main promotional tools used for single-stream recycling. Where single-stream recycling is offered to commercial customers, hauler provide information when setting up new service. If a customer generates a large amount of office paper and/or cardboard, the hauler will continue to provide separate bins for recycling these materials.

Office Paper Recycling Fact Sheet: The SCWMA has developed an instructional fact sheet, available upon request, explaining how to establish office recycling programs.

Special Events Recycling Fact Sheet: The SCWMA has developed an instructional fact sheet, available upon request, explaining how to recycle materials generated at special events. In addition, this fact sheet is being distributed to agencies who issue permits for special events for inclusion in the permit application packets.

Green Purchasing Policy: The SCWMA has adopted a green purchasing policy that focuses on procurement of materials with recycled content. The SCWMA is working with each jurisdiction to adopt similar policies and to implement green purchasing within their offices.

Residential Composting Program Promotion

Home composting, a source reduction program, is promoted through the SCWMA's contractor, the University of California Cooperative Extension (UCCE). UCCE uses brochures, presentations, and education booths to educate residents and schools on composting techniques. In addition, educational materials are distributed to local businesses, such as nurseries and hardware stores, for counter display.

Residential curbside collection of yard debris is available to all residents in Sonoma County. Many communities are in transition from collection yard debris every other week to weekly collection, and are, therefore, receiving additional educational material on the changes taking place. Residents are regularly provided information by their haulers, including newsletters and brochures. In December, additional information is provided to residents on how to prepare their Christmas trees for recycling.

The composting operation is currently located at the Central Disposal Site where tours of the facility are available to school students, community groups, and other interested parties. The contractor produces brochures and informational flyers about the various materials available to the public.

Special Waste Promotional Programs

White Goods: The annual Recycling Guide is the main promotional tool used by the SCWMA to inform residents on how to donate or recycle old appliances.

Construction and Demolition Debris Programs: The annual Recycling Guide is the main promotional tool used by the SCWMA to promote recycling of construction and demolition debris. In addition, the DTPW has implemented economic incentives at the solid waste disposal facilities to encourage recycling rather than disposal of construction and demolition debris. A list of recycling and reuse locations is also available at the "Green Building Products Showcase."

The SCWMA has made a commitment to increase the amount of construction and demolition debris (C&D) recycling as part of the request for a time extension on meeting the AB 939 50% diversion goal. This commitment includes researching other jurisdictions approaches and adopting ordinances or regulations that reduce the amount of C&D waste disposed. The SCWMA believes that sufficient economic incentives exists that the private sector can successfully develop the infrastructure necessary to process the flow of materials currently being generated in Sonoma County. Until the private sector can permit, develop, and construct these facilities, a temporary C&D material sorting area is proposed for the Central Disposal Site. Special education and promotional materials will be developed to provide information about the temporary program. The SCWMA will develop instructional fact sheets regarding recycling and reuse opportunities for select C&D materials. These fact sheets, updated as needed, will be distributed with new city/county building and demolition permit applications. C&D processing facilities are included in the NDFE as proposed new facilities.

Other Residential Programs

It has been the experience of SCWMA staff that the effectiveness of educational campaigns decreases after the campaign has been offered for two or three years. Therefore, in order to keep the promotional messages fresh and interesting, SCWMA will rotate a variety of education campaigns to help keep the public interested. As new promotional campaigns are developed, SCWMA staff will evaluate the potential of implementing them in Sonoma County. Educational campaigns may include:

Earth Day: Earth Day is celebrated worldwide on April 22nd, although many programs and activities extend through that week in April. The SCWMA has conducted an annual grocery-store campaign for the past three years to encourage the use of canvas shopping bags. The PEC worked with grocery store owners and distributed posters and buttons during the week of Earth Day. Other potential programs could include educational booths at public events, government centers, and/or larger businesses and distribution of table-top displays.

Second Chance Week: Second Chance Week is an annual statewide reuse education campaign held in October. Potential programs include distributing table-top displays of information on the program to libraries and other public places and holding special collections of reusable materials at government centers and large businesses to encourage employees to donate materials rather than disposing them.

America Recycles Day: America Recycles Day is an annual national recycling education campaign held in November. The PEC distributes table-top displays of information on the mission of America Recycles Day. Recycling pledge cards for residents to complete can be found on the SCWMA's web site.

SCWMA staff will continue to develop the following educational campaigns annually:

Educational Display Booths: The PEC develops and installs educational display booths each year at the Sonoma County Fair and the Harvest Fair. The booth's theme changes annually to reflect State and local activities and is used to display information about many different waste reduction practices.

Christmas Tree Recycling: The DTPW coordinates the annual Christmas tree recycling program including public drop-off locations, curbside collection, and non-profit collection. Since the program has been in place for many years, annual press releases announcing the locations are all that is necessary for participation at the drop-off locations. Haulers provide residential curbside customers with specific instructions on how to prepare their Christmas trees for recycling in their yard debris containers. Local non-profit organizations provide pickup services for residents who schedule collection for a nominal donation.

Other Commercial/Industrial Programs

Green Building: The concepts of green building include promoting source reduction, reuse, recycling, buy recycled and efficient resource use. Activities to foster green building may include working with cities and counties on green specifications and RFPs; working with local building associations and city/county building departments on establishing criteria and/or rating system to evaluate green buildings; and promoting and educating the public and building professionals about green building and how to incorporate green building concepts into designs.

Sonoma Green Business Program's Winery Subcommittee: The PEC participates in the Sonoma Green Business Winery Subcommittee, managed by the Sonoma County Department of Emergency Services, to explore options for reuse and recycling of wine bottles, corks, film plastics, and other source reduction and recycling programs that can be implemented at wineries.

Clean Your Files Week: In the spring of each year, a national campaign focuses on paper recycling in offices. Posters, electronic mail, and brochures encourage office workers to reduce the amount of paper used and to recycle office paper.

Commercial/Industrial Outreach: The SCWMA is planning on increasing education and public information outreach towards businesses. Outreach programs would include coordinating with business groups such as the Business Alliance Council and the North Coast Builders Exchange. Outreach could include targeted materials brochures, presentations and other assistance to specific business groups, and staffing vendor tables at special workshops or seminars that focus on the business community.

Buy-Recycled Education Program

There are many benefits to developing a Buy-Recycled Education Program including:

- Reducing waste going to landfills. Diverted materials are made into new products and not disposed of, so landfill space is conserved.
- Reducing manufacturing waste and pollution. In most cases, making products from recycled materials creates less air pollution, water pollution, and waste than making products from virgin materials.
- Reducing energy consumption. Recycled products usually take less energy to make: recycled aluminum, for example, takes 95 percent less energy to make than new aluminum from bauxite ore.

- Creating jobs. The manufacturing process for recycled products creates far more jobs than waste disposal, and recycling is frequently the least expensive waste management method for cities and towns.

- Improving markets. Purchases that include recycled content help to create a demand for materials collected in local government recycling programs, thereby helping support those markets.

The SCWMA's current activities to promote buy recycled include the Green Building Products Showcase on display at city and county building departments which features recycled content construction products (including manufacturer and distributor information); extensive buy recycled information for residents and businesses on the SCWMA's web site; participation in Bay ROC's annual Buy Recycled Office Paper media campaign promotion; articles about the benefits of buying recycled in the SCWMA's newsletters; and buy recycled displays at fairs and public events.

The SCWMA is currently in the process of developing a model green procurement policy for government purchasing agents. Further SCWMA efforts to increase buying recycled could include distributing and promoting the SCWMA's model green procurement policy to the business community.

School Education Program

A good school recycling and waste reduction program is essential to an effective public information campaign. A school program establishes waste reduction ideals early. Wasteful habits can be discouraged, ensuring that future adults will be knowledgeable about important waste reduction issues. Often children are a source of information for their parents about recycling and source reduction. Also, recycling education programs go hand in hand with in-school recycling programs.

The SCWMA has already made efforts toward bringing recycling education into the schools with class presentations and the provision of recycling lessons and activities and specialized curriculum to teachers. Under contract to the SCWMA, Bay Area Creative Re-Use (BACR) makes scrap materials that would otherwise be landfilled available to teachers for various art projects and environmental education projects. Scrap materials are donated by local manufacturers and other businesses to BACR.

The AB 939 Local Task Force has formed an ad hoc committee to work with local schools to divert additional recyclable materials from their waste streams. Surveys of the superintendents of the 37 school districts in Sonoma County have shown that the majority of the school districts have policies that focus on a combination of recycling, green purchasing, and/or construction and demolition diversion. Many of the school districts have ongoing recycling programs that divert materials such as office paper, beverage containers, and yard waste.

Local haulers will continue to provide technical assistance to schools to perform waste audits to determine the recyclable materials that need to be targeted and provide information on developing in-school recycling programs. SCWMA staff are also available to provide technical assistance. DTPW staff will continue to lead tours of the Central Disposal Site for school groups upon request.

4.7.4 PROGRAM IMPLEMENTATION

Education and public information programs were selected to integrate with programs recommended in the Source Reduction, Recycling, Composting, and Special Waste components. Table 4-36 is the implementation schedule for the education and public information programs, including the identified tasks and the responsible parties.

4.7.4.1 Responsible Entities and Funding Sources

All of the programs described are ongoing and are included in the SCWMA's annual budget. In addition, the SCWMA's budget includes a full-time Public Education Coordinator (PEC) to develop and produce new

education and public information materials and to obtain existing materials from other sources such as the CIWMB.

Media efforts include writing and distributing press releases and public service announcements; developing and distributing public education materials such as the annual Recycling Guide, brochures, and fact sheets; and, radio advertising.

The SCWMA's annual budget includes a cost center for the implementation of education programs. In fiscal year 2001/02 the education cost center is anticipated to receive revenues of approximately $247,000 from the surcharge on tipping fees collected at the solid waste disposal sites in Sonoma County. Specific programs implemented under the education cost center include the Recycling Guide printing and distribution ($57,550); public information media campaign ($25,000); environmental shopping campaign ($5,000); green purchasing policy development and implementation ($10,000); home composting implementation ($15,100); telephone book advertising ($3,010); internet web site ($540); and printing for brochures, flyers, posters and other educational materials ($4,500). Staff costs include the PEC ($68,640) and administrative assistance ($18,766) Ongoing costs include overhead such as insurance, office expenses, accounting, auditing, and legal services. Future budgets are expected to continue or increase this level of support.

4.7.5 MONITORING AND EVALUATION

This section describes the methods that will be established to monitor the success of the public education programs. It also contains the evaluation criteria for determining program effectiveness, names the parties responsible for program monitoring and evaluation, describes the funding requirements, and describes contingency measures to be implemented if it is determined that the public education program is not achieving its goal. The monitoring program will occur annually, and a summary report will be prepared.

4.7.5.1 Methods to Quantify and Monitor Achievement of Public Education and Program Objectives

To establish a baseline for monitoring the effectiveness of the public education efforts, a statistically significant, randomly generated telephone survey was conducted in 1996. The survey provided information on the current level of public attitudes about and awareness of programs available to each sector in Sonoma County: non-English speaking residents, businesses, and general residents. Results of the survey showed that awareness of the curbside recycling program (86%) and recycling centers at county solid waste facilities (79%) is very high. Also, awareness of other recycling centers (66%), curbside yard debris collection (70%), home composting program (66%), and household toxic roundups (71%) is high. The Eco-Desk Hotline is also used as a method of determining and monitoring changes in public awareness. Annual reports include information on the number of calls and the category of information requested by callers.

4.7.5.2 Criteria for Evaluating Program Effectiveness

The effectiveness of the public education program will be evaluated by applying the following criteria to each activity:

1. Were all waste generators aware of the source reduction, recycling, and special waste reduction programs available to them? A random survey conducted in 1996 determined the existing level of awareness. Changes in awareness will be measured in a similar survey at the end of the short- (2003-2008) and medium-term (2009-2018) planning periods.

2. What was the participation level in the source reduction, recycling, and special waste recycling programs, based on survey information and registration within programs? The existing level was determined by the random survey conducted in 1996 and a tally of businesses currently signed up for workshops and waste audits. The same measurements will be taken for evaluating purposes in future years.

3. Were community based social marketing techniques, such as prompts, commitments, and norms, successful in increasing resident behaviors that divert more recyclable materials?

4. What were the levels of participation for environmental shopping? There may be a limited survey in major grocery stores to determine buyer attitudes and environmental purchasing patterns.

5. Were the required tasks executed?

6. Were the tasks implemented on schedule? A specific task schedule for each program will be developed in advance.

7. How much media coverage was placed successfully by the SCWMA?

4.7.5.3 Costs and Parties Responsible for Program Monitoring, Evaluating and Reporting

Surveys, program evaluation, and report preparation will be performed on a regional level. SCWMA staff is responsible for evaluating participation. The survey report will establish a baseline for the level of public awareness from which to gauge the effectiveness of the Education and Public Information Component.

The funding requirements for the annual monitoring and evaluation program include the staff time required to conduct surveys, review data, determine program effectiveness, and prepare a written report summarizing the progress toward meeting public education objectives. Funding sources are discussed in section 4.9.

4.7.5.4 Contingency Measures

The following contingency measures will be implemented if the monitoring criteria identified in section 4.7.5.2 show education objectives are not being attained.

1. If the anticipated levels of public awareness are not attained, the SCWMA plans to consider implementing the following in conjunction:

   - Target and correct identified shortcomings using information generated by the surveys conducted at the end of the short- (2003-2008) and medium-term (2009-2018).
   - Work with the DTPW to evaluate the possibility and effectiveness of installing a low-powered radio station at the Central Disposal Site as a public information distribution method
   - Work with the DTPW to evaluate the possibility and effectiveness of installing an electronic message sign at the Central Disposal Site as a public information distribution method.
   - Review the effectiveness of selected public education campaigns.

2. If the required tasks are not executed by the responsible entities, the SCWMA plans to consider implementing the following:

   - Reevaluate PEC performance and staff adequacy.
   - Revise job and task descriptions of employees involved in public education.

3. If tasks are not implemented according to schedule, the SCWMA plans to consider implementing the following:

- Reevaluate PEC performance and staff adequacy.
- Revise job and task description of the PEC and any other involved in public education.
- Revise and expand schedules to reflect changing needs identified by surveys at the end of the short- (2003-2008) and medium-term (2009-2018).

Table 4-36: Implementation Schedule for Education and Public Information Programs

PROGRAM AND IMPLEMENTATION TASK	RESPONSIBLE ENTITY	2000				2001				2002				2003				2004				2005				2006				2007				2008			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
EDUCATION AND PUBLIC INFORMATION																																					
Programs																																					
Develop and implement an educational strategy to increase diversion from the commercial and industrial sectors.	SCWMA														X																						
Develop a strategy for reaching non-English speaking residents.	SCWMA														X																						
Continue operating the Eco-Desk hotline	SCWMA																																				
Maintain the SCWMA website	SCWMA																																				
Continue to maintain a speakers bureau contact list	SCWMA																																				
Continue to distribute education and informational materials to promote existing and planned source reduction, recycling, composting, and special waste programs	SCWMA																																				
Continue to develop educational booths for various venues, including the Sonoma County Fair and Harvest Fair	SCWMA																																				
Continue to work with local schools to implement policies and programs focusing on recycling and waste reduction.	AB 939 Local Task Force and DTPW Staff																																				
Continue implementation of the Buy-Recycled Education Program including topics such as green building, recycled office paper products, and others.	SCWMA																																				
Monitoring and Evaluation	SCWMA																																				

X - Designates the initiation of a task. Shaded bars indicate the continuation of the task and/or program.

Note: Years are broken into quarters designated by 1,2,3,4.

Facility Capacity Component

4.8 FACILITY CAPACITY COMPONENT

The purpose of the Facility Capacity Component is to review the disposal capacity available to Sonoma County residents and businesses at permitted solid waste disposal facilities. The goal is to ensure that adequate landfill capacity is allocated for disposing of solid waste that cannot be diverted through source reduction, recycling, or composting activities. Non-recyclable wastes, residue from materials recovery operations, and non-processible materials and residue from incineration/transformation operations are wastes that will not be diverted from the landfills. A projection of solid waste disposal facility needs has been calculated by estimating the disposal capacity required to accommodate the total solid waste that will be generated in Sonoma County during the next 15-year period (2003 to 2018).

This section includes a description of existing permitted solid waste landfills located in Sonoma County and a projection of the county's solid waste disposal facility needs. (There are no transformation facilities located in Sonoma County.) Also included is a discussion of solid waste facilities that are to be phased out or closed, expanded, or that are newly established, and plans to import or export wastes out of Sonoma County.

4.8.1 SOLID WASTE MANAGEMENT SYSTEM

Over the years, Sonoma County has developed a comprehensive solid waste management infrastructure utilizing local transfer stations and disposal facilities. The following discussion summarizes local collection practices for both refuse and recyclables; waste generation, diversion, and disposal amounts; and transportation and storage procedures for all materials collected in Sonoma County.

4.8.1.1 Collection Practices

All municipal solid waste collected in Sonoma County is hauled by licensed commercial haulers. Table 4-37 lists these firms, their service areas, and their operating status as of 2002. Figure 4.1 shows a map of the haulers' territories.

Refuse collection service within the cities of Sonoma County is franchised via a competitive bid process. In return, the Cities receive a franchise fee from the franchised hauler serving their jurisdictions based upon the gross revenues. The County provides collection services in the unincorporated areas through commercial haulers operating in individual territories under license from the Sonoma County Department of Transportation and Public Works (DTPW). Table 4-37 summarizes the refuse collection areas franchise status for all haulers operating in Sonoma County.

4.8.1.2 Total Waste Generation

The 1992 Solid Waste Generation Studies (SWGS) and the 1995/96 Waste Characterization Study support all solid waste diversion and disposal projections. The SWGS for each jurisdiction quantify and track the flow of materials collected for both diversion and disposal by local haulers. By definition, waste diversion (source reduction, recycling, and composting) plus waste disposal by landfilling equals waste generation, or hypothetically, the amount of waste "collected" by local haulers. However, source reduction efforts, which reduce the amount of waste collected, were not separated from other diversion programs in the SWGS. Hence, waste diversion estimates presented on the following pages are slightly over estimated due to the inclusion of source reduction efforts in the calculations.

4.8.1.3 Transportation and Storage of Collected Materials

In 1985, there were five municipal solid waste landfills operating in Sonoma County. These sites were geographically dispersed throughout the county, allowing refuse collection trucks to also serve as disposal vehicles. With the closure of all of these disposal sites except the Central Landfill, a series of transfer stations have been built by the County to facilitate economical disposal of refuse generated in the

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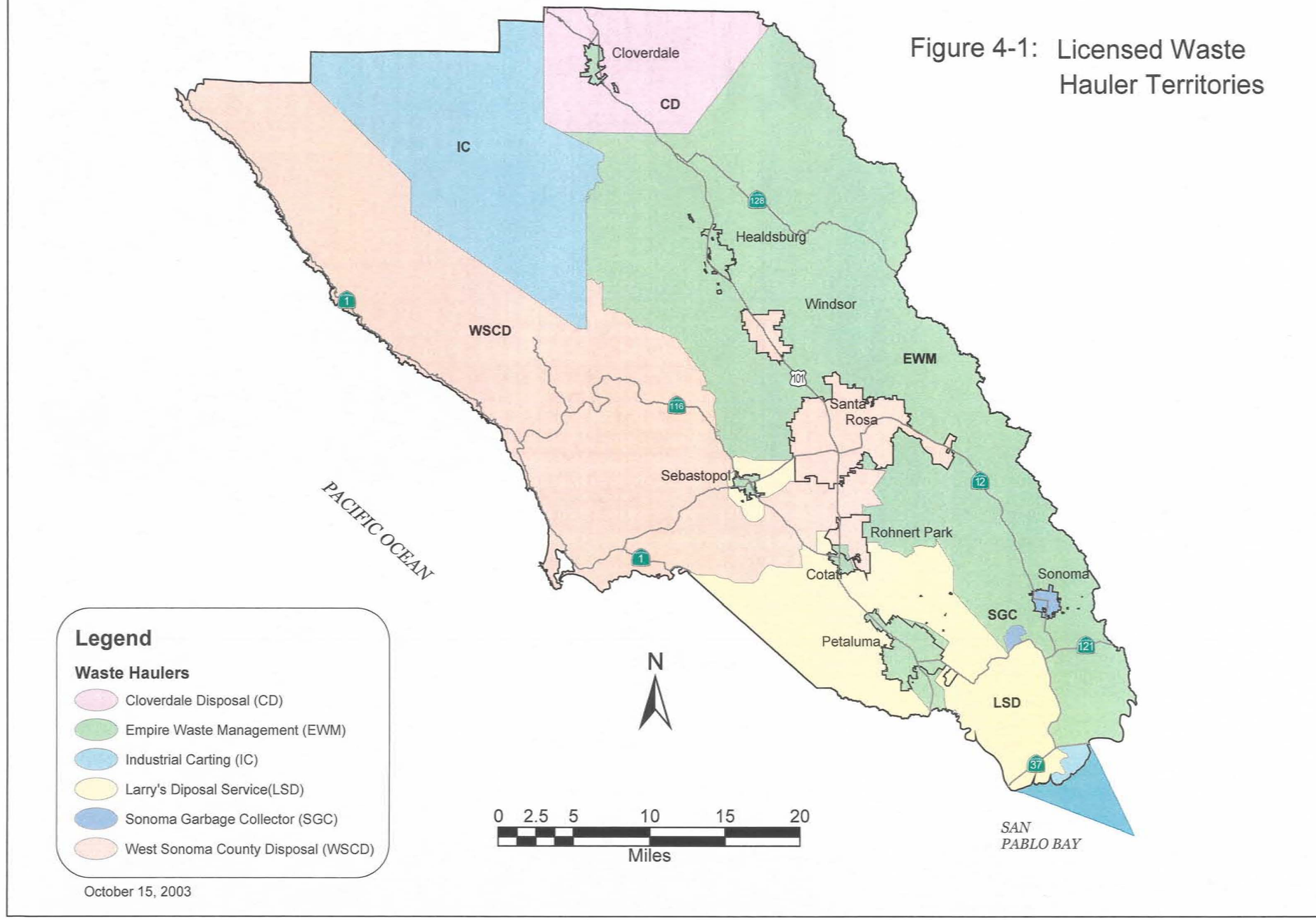
Figure 4-1: Licensed Waste Hauler Territories



county. The Annapolis, Guerneville, Sonoma, Healdsburg, and Occidental Transfer Stations are all located at sites which once served as landfills. Refuse destined for disposal is delivered to these facilities in refuse collection trucks and then loaded into 100 cubic yard long-haul vehicles for transfer to the Central Landfill. Nearly all waste collected in the county is disposed of at the Central Landfill. In addition, a small quantity of debris box waste generated in Sonoma County is disposed at the Redwood Sanitary Landfill in Marin County.

Recyclable materials collected by local haulers, drop-off/buy-back operations, and the material reuse/recovery program operating in the county are consolidated at private yards for shipment to secondary materials processors and end-users. Waste Management, Inc. and West Sonoma County Disposal process recyclable materials at their Intermediate Processing Centers in Santa Rosa. Processed materials are then marketed through secondary materials brokers and internal staff. Reusable materials collected at the Garbage Reincarnation, Inc. (GRI) Material Reuse/Recovery Centers (Central Disposal Site and Healdsburg Transfer Station) and the Sonoma Transfer Station Material Reuse/Recovery Center are stored on-site for resale to the general public.

Table 4-37: Refuse Collection Areas and Franchise Status of Sonoma County Commercial Haulers (as of 2002)

Jurisdiction	Hauler	Current Franchise or Permit Status
Cloverdale	Cloverdale Disposal (WMI Subsidiary)	Ten year franchise with an evergreen clause and annual rate reviews.
Cotati	Larry's Sanitary Service (WMI Subsidiary)	Ten year franchise with an evergreen clause and periodic rate reviews at haulers request. Contract will terminate in 2005.
Healdsburg	Empire Waste Management (EWM)	Seven year franchise with annual rate reviews. Contract will terminate in 2002.
Petaluma	EWM	Five year franchise with annual rate reviews. Contract will terminate in 2004.
Rohnert Park	Rohnert Park Disposal Company	Ten year franchise with periodic rate reviews. Contract will terminate in 2008.
Santa Rosa	EWM	Ten year franchise with periodic rate reviews. Franchise will terminate in 2006.
Sebastopol	Larry's Sanitary Service (WMI Subsidiary)	Ten year franchise with annual rate reviews. Contract will terminate in 2009.
Sonoma	Sonoma Garbage Collector	Ten year franchise with periodic rate reviews at haulers request. Contract will terminate in 2013.
Unincorporated County	Cloverdale Disposal EWM Industrial Carting Larry's Sanitary Service Pacific Coast Disposal Sonoma Garbage Collector Sunrise Garbage Service West Sonoma County Disposal	Ten year license expires 2011. Ten year license expires 2011. Ten year license expires 2011. Ten year license expires 2011. Ten year license expires 2011. Ten year license expires 2011. Ten year license expires 2011. Ten year license expires 2011.
Windsor	West Sonoma County Disposal	Ten year franchise with annual rate reviews. Contract will terminate in 2007.

Table 4-38: Solid Waste Disposed, Diverted and Generated (1990)
(Sonoma County, Including Incorporated Cities)

Waste Category	Diverted		Disposed		Generated	
	Tons	%*	Tons	%*	Tons	%*
Paper	37,035	5.8	141,760	22.2	178,795	28.0
Plastics	236	0.0	37,508	5.9	37,744	5.9
Glass	4,540	0.7	15,505	2.4	20,045	3.1
Metals	34,124	5.3	43,408	6.8	77,532	12.1
Yard Waste	1,960	0.3	83,976	13.2	85,936	13.5
Other Organics	5,000	0.8	174,916	27.4	179,916	28.2
Other Wastes	14,089	2.2	37,858	5.9	51,947	8.1
Special Wastes	11	0.0	6,576	1.0	6,588	1.0
Totals **	96,996	15.1	541,406	84.8	638,502	100.0

* Percent of total waste stream.
** Numbers may not add due to rounding.

Table 4-39: Solid Waste Disposed, Diverted and Generated (1995/96)
(Sonoma County, Including Incorporated Cities)

Waste Category	Diverted		Disposed		Generated	
	Tons	%*	Tons	%*	Tons	%*
Paper	73,089	10.7	111,047	16.2	184,136	26.9
Plastics	21,342	3.1	32,051	4.7	53,393	7.8
Glass	9.800	1.4	14,843	2.2	24,643	3.6
Metals	20,961	3.1	31,747	4.6	52,708	7.7
Yard Waste	18,363	2.7	27,500	4.0	45,863	6.7
Other Organics	94,652	13.8	144,246	21.2	158,809	23.2
Other Wastes	28,063	4.1	42,443	6.2	67,768	9.9
Special Wastes	5,722	0.8	8,653	1.3	14,375	2.1
Totals **	271,991	39.7	412,530	60.3	684,521	100.0

* Percent of total waste stream.
** Numbers may not add due to rounding.

The 1995/96 Waste Characterization Study is included in Appendix C.

4.8.2 SOLID WASTE MANAGEMENT FACILITIES

Several facilities are currently in use to consolidate, transfer, and dispose of solid waste in the county. The following sections discuss these facilities and the functions they serve within the county's solid waste management infrastructure.

4.8.2.1 Permitted Facilities

Currently, there are two permitted disposal sites (one for MSW) and six permitted transfer stations (five with public access) operating in Sonoma County. These sites, which are shown in Figure 4-2, are as follows:

Disposal Facilities

- Central Landfill
- Santa Rosa Geothermal WMU Disposal Site

Transfer Stations

- Occidental Transfer Station
- West College Transfer Station
- Guerneville Transfer Station
- Sonoma Transfer Station
- Healdsburg Transfer Station
- Annapolis Transfer Station

Transfer stations within the county have drop-off and floor-sort operations to separate recyclable materials remaining in the waste stream and consolidate refuse for transport to the Central Landfill for disposal.

A description of all permitted solid waste management facilities in the county is presented on the following pages. Each description briefly presents information regarding operations at the site, including disposal capacity, permitted capacity, permit constraints, and site characteristics, as required by Section 18744(a). Figure 4-2 shows the location of the five transfer stations and the Central Disposal Site. Table 4-40 lists the permitted facilities, the date permits were issued, and permit review dates.

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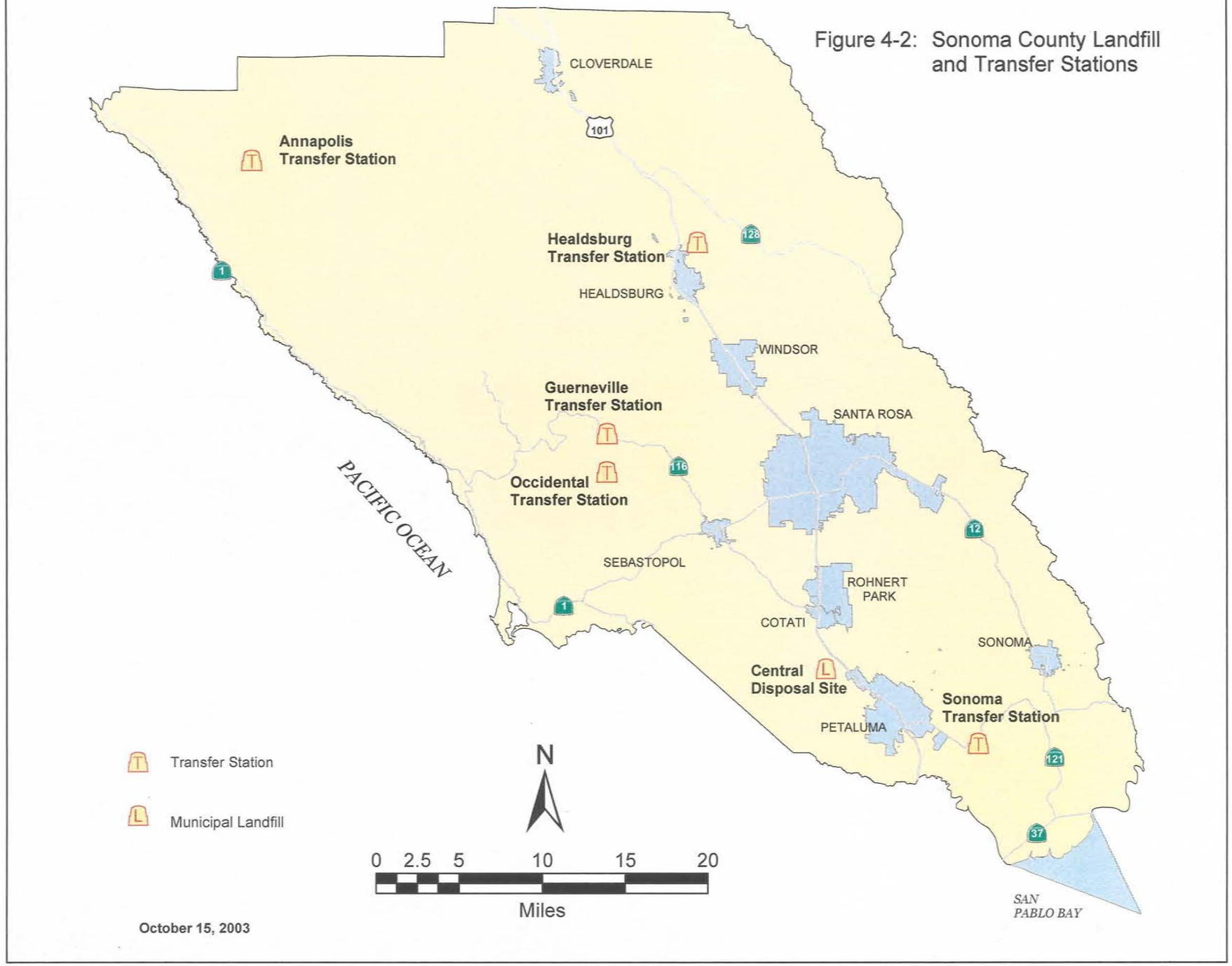
Figure 4-2: Sonoma County Landfill and Transfer Stations



DISPOSAL SITES

Central Disposal Site

Name:	Central Disposal Site
Address:	500 Mecham Road, Petaluma, CA 94952
Location:	2.8 miles southwest of the City of Cotati, in Sections 4 & 9, T5N, R8W, MDB&M
Assessor Parcel No.:	024-080-19 & 24-080-018
SWIS No.:	49-AA-0001
Permitted Area:	398.5 acres
Waste Types Accepted:	All non-hazardous wastes consisting of household and commercial wastes, agricultural and demolition wastes, sludge from wastewater treatment plants (as per Title 23, Subchapter 15, Section 2523[c]).
Average Daily Loading:	1,461 tons per day; 2,435 cubic yards per day
Permitted Daily Capacity:	2,500 tons per day; 4,167 cubic yards per day
Site Owner:	County of Sonoma, Department of Transportation and Public Works
Site Operator:	County of Sonoma, Department of Transportation and Public Works, Integrated Waste Division

Santa Rosa Geothermal WMU Disposal Site

Name:	Santa Rosa Geothermal WMU
Address:	1 Ridge Road The Geysers
Location:	SE 1/4, Section 34, T11N, R8W, MDB&M
Assessor Parcel No.:	141-04-11 & 12
SWIS No.:	49-AA-0148
Permitted Area:	7 acres
Waste Types Accepted:	Geothermal drilling muds
Average Daily Loading:	Not Available
Permitted Daily Capacity:	130 tons per day
Site Owner:	U.S. Department of the Interior
Site Operator:	Cal-Pine, Inc.

TRANSFER STATIONS

Name: **Annapolis Transfer Station**

Address: 33551 Annapolis Road, Annapolis, CA 95412

Location: Annapolis Road, southwest of the community of Annapolis

Assessor Parcel No.: 123-040-04

SWIS No.: 49-AA-0364

Permitted Area: 1.8 acres

Waste Types Accepted: MSW and inert solid wastes.

Average Daily Loading: 21.2 tons per day

Permitted Daily Capacity: 50 tons per day

Quantity of Waste Received from September 1999 to August 2000:

- 2,890 tons per year
- 12.6 tons per day (based on 228 operating days per year)
- 33 tons/day (average annual pak day tonnage)

Projection over 5-year period based on 2% per year growth rate and including Mendocino County waste):

Estimated average annual loading after five years (2005):

- 6,183 tons per year
- 22.1 tons per day average (based on 280 operating days per year)
- 36.4 tons per day peak (projected highest peak tonnage of year)

Site Owner: County of Sonoma, Department of Transportation and Public Works

Site Operator: County of Sonoma, Department of Transportation and Public Works, Integrated Waste Division

Name: **Guerneville Transfer Station**

Address: 13450 Pocket Drive, Guerneville, CA 95446

Location: Approximately 3/4 mile from State Highway 116, 3 miles east of Guerneville and 5½ miles west of Forestville (SE1/4, SEC 34, T8N, R10W, MDB&M)

Assessor Parcel No.: 085 090-02,03 & 085-100-01

SWIS No.: 49-AA-0139

Permitted Area: 1.52 acres of a 90-acre parcel

Waste Types Accepted: MSW, including municipal, agricultural, construction and demolition wastes. Hazardous wastes are not accepted at this facility.

Average Daily Loading: 64.3 tons per day

Permitted Daily Capacity: 160 tons per day

Quantity of Waste Received in 2000:

- 23,083 tons per year
- 64.3 tons per day (based on 359 operating days per year)

Projection over 5-year period based on 2% per year growth rate:

Estimated average annual loading after five years (2005)

- 25,485 tons per year
- 71 tons per day average (based on 359 operating days per year)

Site Owner: County of Sonoma, Department of Transportation and Public Works

Site Contract Operator: West Sonoma County Disposal

Name: **Healdsburg Transfer Station**

Address: 166 Alexander Valley Road, Healdsburg, CA 95446

Location: Off Alexander Valley Road, 1/4 mile east of Healdsburg Avenue, north of the City of Healdsburg

Assessor Parcel No.: 091-070-22,24,32,37 & 38

SWIS No.: 49-AA-0245

Permitted Area: 1.74 acres

Waste Types Accepted: MSW and inert solid wastes

Average Daily Loading: 206 tons per day

Permitted Daily Capacity: 435 tons per day; 1740 cubic yards per day

Quantity of Waste Received in 2000:

- 65,759 tons per year
- 184 tons per day (average based on 359 operating days per year)
- 402 tons per day (highest peak day tonnage of year)

Projection over 5-year period based on 4% per year growth rate:

Estimated average annual loading after five years (2001):

- 83,206 tons per year
- 232 tons per day (average based on 359 operating days per year)

Site Owner: County of Sonoma, Department of Transportation and Public Works

Site Contract Operator: West Sonoma County Disposal

Name: **Occidental Transfer Station**

Address: 4985 Stoetz Lane, Sebastopol, CA 95472

Location: 15 miles northwest of Interstate Highway 101, on Highway 116, west 3 miles on Green Valley Road, south 1 mile on Harrison Grade Road, and ½ mile northwest on Stoetz Lane to the Transfer Station boundary; 6½ miles northwest of the City of Sebastopol.

Assessor Parcel No.: 075-010-06

SWIS No.: 49-AA-0006

Permitted Area: 0.62 Acres

Waste Types Accepted: MSW and inert solid wastes.

Average Daily Loading: 17 tons per day; 100 cubic yards per day

Permitted Daily Capacity: 60 tons per day; 240 cubic yards per day

Quantity of Waste Received in 2000:

- 27,10 tons per year
- 10.5 tons per day (based on 257 operating days per year)

Projection over 5-year period based on 2% per year growth rate:

Estimated average annual loading after five years (2005)

- 2,992 tons per year
- 11.6 tons per day average (based on 257 operating days per year)

Site Owner: County of Sonoma, Department of Transportation and Public Works

Site Contract Operator: West Sonoma County Disposal

Name: **Sonoma Transfer Station**

Address: 4376 Stage Gulch Road, Sonoma, CA 95476

Location: 7.5 miles from Interstate Highway 101, southeast on Lakeville Highway, northeast to Stage Gulch Road to the Transfer Station entrance road; 5 miles southwest of the City of Sonoma

Assessor Parcel No.: 142-051-20

SWIS No.: 49-AA-0144

Permitted Area: 4.96 acres

Waste Types Accepted: MSW and inert solid wastes.

Average Daily Loading: 247 tons per day

Permitted Daily Capacity: 760 tons per day

Permitted Yearly Capacity: Not Applicable in Sonoma County

Quantity of Waste Received in 2000

- 88,696 tons per year
- 247 tons per day (based on 359 operating days per year)
- 447 tons per day (highest peak day tonnage of year)

Projection over 5-year period based on 2% per year growth rate:

Estimated average annual loading after five years (2005):

- 97,927 tons per year
- 273 tons per day average (based on 359 operating days per year)
- 493 tons per day peak (projected highest peak tonnage of year)

Site Owner: County of Sonoma, Department of Transportation and Public Works

Site Contract Operator: West Sonoma County Disposal

RSI: Dated September, 2000

Name: **West College Transfer Station**

Address: 35 Stony Point Road, #A, Santa Rosa, CA 95401

Location: College & Stony Point Roads, Santa Rosa

Assessor Parcel No.: Not available

SWIS No.: 49-AA-0007

Permitted Area: Temporary storage - 10,000 sq. ft.

Waste Types Accepted: Green waste

Average Daily Loading: Not Available

Permitted Daily Capacity: 10 tons per day; 80 cubic yards per day

Site Owner: City of Santa Rosa

Site Operator: City of Santa Rosa

Table 4-40: Permit Issuance and Review Dates for Solid Waste Facilities Located in Sonoma County

Facility Name	Permit Issued	Permit Review
Central Disposal Site	06/27/00	06/27/06
Santa Rosa Geothermal WMU Disposal Site	11/21/91	11/21/96
Annapolis Transfer Station	12/01/00	12/01/05
Guerneville Transfer Station	06/05/01	06/05/06
Healdsburg Transfer Station	04/14/97	04/14/02
Occidental Transfer Station	08/09/01	08/09/06
Sonoma Transfer Station	09/05/01	09/05/06
West College Transfer Station	8/18/98	8/18/03

4.8.2.2 Facilities Exempt From Permit Requirements

Because of the size and/or type of waste handles, several facilities have been granted exemptions from the requirement to obtain a solid waste facility permit, but are, nonetheless, subject to Local Enforcement Agency inspections. The following is a brief description of these operations.

Aidlin A-2: Exemption. Non-hazardous geothermal drilling mud and well cuttings only disposal sump. 4,000 cubic yards site capacity. Privately owned; operated by Calpine Corporation.

Aidlin B: Exemption. Non-hazardous geothermal drilling mud and well cuttings only disposal sump. 12,000 cubic yards site capacity. Privately owned; operated by Calpine Corporation.

Aidlin C: Exemption. Non-hazardous geothermal drilling mud and well cuttings only disposal sump. 12,000 cubic yards site capacity. Privately owned; operated by Calpine Corporation.

CCPA 2-3.3: Exemption: Non-hazardous geothermal drilling mud and well cuttings only disposal sump. 26,000 cubic yards site capacity. Privately owned; operated by Coldwater Creek Power Authority.

Cloverdale II: Inactive permitted wood waste disposal site. Estimated in-place volume of wood waste is 400,000 cubic yards. Clean closure of this site has been proposed. Owned and operated by Valley Construction and Development Corporation.

Howarth Park: Notification. Limited Quantity Transfer Station. Primarily landscape/yard waste debris generated from City of Santa Rosa Parks and Recreation Department. May accept up to 60 cubic yards or 15 tons per operating day. Owned and operated by the City of Santa Rosa.

Korbel: Exemption. Inert debris only from roadside slides and other County Roads Division maintenance activities. Privately owned; operated by Sonoma County Department of Transportation and Public Works.

Santa Rosa Biosolids North: Exemption. Agricultural land application of municipal biosolids on 450 acres. Owned and operated by the City of Santa Rosa.

Santa Rosa Biosolids South: Exemption. Agricultural land application of municipal biosolids on 670 acres. Owned and operated by the City of Santa Rosa.

Synagro: Exemption. Agricultural land application of municipal biosolids on 3,000 acres. Privately owned; operated by Synagro West, Inc.

Santa Rosa Geysers Pipeline: Notification. Non-hazardous petroleum contaminated soil storage/processing site. Approximately 800 cubic yard site capacity. Site owned by County of Sonoma and operated by City of Santa Rosa.

Tubbs Island: Exemption. Agricultural land application of municipal biosolids on 1,400 acres. Owned and operated by the Vallejo Sanitation and Flood Control District.

Unocal WMU: Exemption. Non-hazardous geothermal drilling mud and well cuttings only disposal sump. 15,530 cubic yard site capacity. Privately owned; operated by Calpine Corporation.

4.8.2.3 Illegal Disposal Activities

Illegal disposal in outlying areas and illegal importation of waste into the county are ongoing issues for DTPW staff. DTPW, Road Division, maintains the public right-of-way along county roads. A community cleanup program is operated by DTPW staff to assist communities with recycling and solid waste disposal of material illegally dumped onto public property.

Other illegal activities taking place in the county are the creation of small scale transfer stations. Illegal transfer stations are commonly operated by private construction, landscaping, and roofing companies which use their yards to consolidate materials prior to disposal. These sites create a public health nuisance for surrounding residential and commercial property owners, and as such, are reported to the Department of Health Services, Environmental Health Division for closure.

4.8.3 FUTURE DISPOSAL CAPACITY NEEDS

The projection of solid waste disposal facility needs provides an estimate of the available disposal capacity each year through 2018. The disposal needs projection anticipates future solid waste generation over that period. As a planning tool, the needs projection is calculated using certain reasonable assumptions about waste management practices and trends over the next 15 years. The actual capacity needs may vary if these assumptions do not hold true over the 15-year period. The projection of disposal capacity needs will require periodic revision to reflect future diversion rates and the evolving solid waste management environment.

4.8.3.1 Determining Disposal Capacity Needs

The projection of disposal capacity needs for the 15-year planning period from 2003 to 2018 is based on the solid waste generation projection conducted in accordance with the 1992 Solid Waste Generation Study (SWGS), as set forth in Section 18722, Article 6.1. The disposal capacity needs projection is calculated using the additional capacity equation defined in Section 18744, Article 6.2. Table 4-41 contains the additional capacity equation and definitions of its terms. Each term used in the equation was defined according to local conditions and current and future solid waste management activities.

Table 4-41: Determining Disposal Capacity Needs

Capacity Needs Equation	
For Year n:	Additional Capacity = [(G + I) - (D + TC + LF + E)]
Definition of Terms	
G =	The amount of solid waste projected to be generated in the Sonoma County.
I =	The amount of solid waste that is expected to be imported to the Sonoma County and disposed of in permitted solid waste disposal facilities through agreement(s) with other cities or counties, or through agreements with solid waste enterprises, as defined in Section 40193 of Public Resources Code.
D =	The amount diverted through successful implementation of proposed source reduction, recycling, and composting programs.
TC =	The amount of volume reduction occurring through available, permitted transformation facilities.
LF =	The amount of permitted solid waste disposal capacity that is available for disposal in Sonoma County, of solid waste generated in Sonoma County.
E =	The amount of solid waste generated in Sonoma County that is exported to solid waste disposal facilities through agreement(s) with other cities or counties, or through agreements with solid waste enterprises, as defined in Section 40193 of Public Resources Code.
n =	Each year of a 15-year period commencing in 1991.

Solid Waste Generated

The amount of solid waste generated (G) for each year in the planning period was obtained by using the CIWMB Diversion Rate Measurement Calculation Worksheet (Worksheet). The Worksheet allows changes to the reporting-year disposal tons and four input factors (population, taxable sales, employment and the consumer price index). When these changes are made to the Worksheet, it automatically computes the estimated generation rate for the reporting-year.

Solid Waste Imported

There is no solid waste imported (I) into Sonoma County. In addition to waste generated in the Unincorporated County, the Central Landfill receives all solid waste generated by the incorporated cities (Sonoma, Santa Rosa, Rohnert Park, Cotati, Petaluma, Sebastopol, Healdsburg, Cloverdale, and Windsor) of Sonoma County with the exception of a fraction, which goes to the Redwood Sanitary Landfill.

Solid Waste Diverted

The amount of solid waste diverted (D) through successful implementation of proposed source reduction, recycling, and composting programs was obtained by using the CIWMB Diversion Rate Measurement Calculation Worksheet (Worksheet). The Worksheet allows changes to the reporting-year disposal tons and four input factors (population, taxable sales, employment and the consumer price index). When these changes are made to the Worksheet, it automatically computes the estimated generation rate for the reporting-year. Subtracting the projected disposal tons from the estimated generation rate provides the estimated diversion tons.

Transformation Facility Reduction

The amount of transformation facility reduction (TC) is zero throughout the planning period. No transformation facilities exist or are planned for Sonoma County.

Permitted Disposal Capacity

The permitted disposal capacity (LF) available is the permitted disposal capacity (in cubic yards) of the Central Landfill.

Solid Waste Exported

For the years 2000 and 2001, the amount of solid waste exported (E) from Sonoma County is the actual tonnage reported to the CIWMB by the facilities who accepted waste generated in Sonoma County. A six-year average of actual tonnages reported to the CIWMB (1995 to 2000) was calculated to be 25,000 tons which is used as the estimated solid waste exported for the years 2002 to 2018.

4.8.3.2 Projecting Disposal Capacity Needs

Title 14 CCR, Section 18744 requires that the solid waste disposal facility needs projection begin with 1991. Results from the disposal capacity needs projection for the period 1990 to 2005 are shown in Table 4-42. Table 4-43 shows the needs projection for the period 2000 to 2018. Impacts of closed, new, or expanded facilities have been accounted for in the projection. All values are given in compacted, in-place cubic yards of solid waste using an estimated average compacted density of 1,200 pounds per cubic yard.

Table 4-42: Summary of 1996 Disposal Capacity Requirements (in cubic yards) for Sonoma County																	
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
G	Total Waste Generated *	406,343	414,470	422,579	431,214	439,839	448,636	457,609	466,760	476,096	485,617	495,329	505,236	515,340	525,647	536,160	546,883
G1	Information from SWGS	369,227	376,612	384,143	398,127	399,663	407,657	415,810	424,125	432,608	441,260	450,085	459,087	468,268	477,633	487,187	496,930
G2	Information from Private Landfills	37,116	37,858	38,615	39,388	40,176	40,979	41,799	42,635	43,487	44,357	45,244	46,149	47,072	48,014	48,974	49,953
I	Solid Waste Imported **	568,067	558,626	546,032	529,788	508,919	434,966	470,521	453,570	433,807	410,901	377,625	383,777	390,064	396,499	403,075	410,005
D	Solid Waste Diverted ***	38,533	50,479	66,127	86,626	113,481	149,202	167,106	187,159	209,618	234,772	266,450	271,779	277,215	282,759	288,414	294,182
TC	Transformation Reduction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LF	Available Permitted Disposal Capacity	9,649,417	8,713,543	7,790,926	6,888,264	6,013,982	5,178,707	4,394,310	3,633,286	2,900,118	2,199,833	1,538,088	931,585	314,353	0	0	0
E	Solid Waste Exported	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC	Additional Disposal Capacity Required	-8,713,543	-7,790,926	-6,888,264	-6,013,982	-5,178,707	-4,394,310	-3,633,286	-2,900,118	-2,199,833	-1,538,088	-931,585	-314,353	313,837	639,387	650,821	662,504

* Total Waste Generated: The total solid waste generated by the unincorporated county.

** Solid Waste Imported: The toal solid waste disposed by the incorporated cities at the Central Landfill.

*** Solid Waste Diverted: The total solid waste diverted by the unincorporated county from disposal.

Note: This chart summarizes the information contained in the 1996 Source Reduction and Recycling Elements for the nine jurisdictions in Sonoma County. When prepared, Windsor residents were part of the unincorporated county.

	Table 4-43 Disposal Capacity Requirements (in cubic yards and tons) for the SCWMA (2000 to 2018)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016[6]	2017[6]	2018[6]
	Solid Waste Disposed at Central Landfill (tons)	494843	497990	495000	485000	460000	465000	469700	474400	479200	484000	488900	493800	498800	503800	508900	514000	519200	524400	529644
	Solid Waste Disposed at Central Landfill (cubic yards)	824738	829983	825000	808333	766667	775000	782833	790667	798667	806667	814833	823000	831333	839667	848167	856667	865333	874000	882740
E	Solid Waste Exported (Out of County Disposal) (tons)	36607	47182	25000	25000	25000	25000	25000	25000	25000	25000	25000	25000	25000	25000	25000	25000	25000	25000	25000
I	Solid Waste Imported	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL DISPOSAL (tons)[1]	531450	545172	520000	510000	485000	490000	494700	499400	504200	509000	513900	518800	523800	528800	533900	539000	544200	549400	554644
	TOTAL DISPOSAL (cubic yards)[1]	885750	908620	866667	850000	808333	816667	824500	832333	840333	848333	856500	864667	873000	881333	889833	898333	907000	915667	924407
	Solid Waste Diverted (tons)	345984	360161	411824	449073	502369	526470	551435	577317	604322	632084	661041	690488	721265	752997	785908	820223	854458	891140	929040
D	Solid Waste Diverted (cubic yards)	576640	600268	686373	748455	837282	877450	919058	962195	1007203	1053473	1101735	1150813	1202108	1254995	1309847	1367038	1424097	1485233	1548400
	Transformation Reduction (tons)[2]	2889	3200	3200	3200	3200	3200	3200	3200	3200	3200	3200	3200	3200	3200	3200	3200	3200	3200	3200
TC	Transformation Reduction (cubic yards)[2]	4815	5333	5333	5333	5333	5333	5333	5333	5333	5333	5333	5333	5333	5333	5333	5333	5333	5333	5333
	TOTAL DIVERSION (tons)	348873	363361	415024	452273	505569	529670	554635	580517	607522	635284	664241	693688	724465	756197	789108	823423	857658	894340	932240
	TOTAL DIVERSION (cubic yards)	581455	605602	691707	753788	842615	882783	924392	967528	1012537	1058807	1107068	1156147	1207442	1260328	1315180	1372372	1429430	1490567	1553733
	TOTAL DIVERSION (percent)[4]	40%	42%	44%	47%	51%	52%	53%	54%	55%	56%	56%	57%	58%	59%	60%	60%	63%	64%	64%
	TOTAL WASTE GENERATED (tons)	880323	908533	935024	962273	990569	1019670	1049335	1079917	1111722	1144284	1178141	1212488	1248265	1284997	1323008	1362423	1401858	1443740	1486884
G	TOTAL WASTE GENERATED (cubic yards)	1467205	1514222	1558373	1603788	1650948	1699450	1748892	1799862	1852870	1907140	1963568	2020813	2080442	2141662	2205013	2270705	2336430	2406233	2478140
LF	Available Permitted Disposal Capacity (cubic yards)[3]	14024860	13200122	12338684	11497017	10672017	9888684	9097017	8297517	7490184	6674851	5851518	5020018	4180351	3332351	2476018	1611185	11737852	10855852	9965185
	Available Permitted Disposal Capacity (tons)	8429559	7934716	7436726	6941726	6456726	5996726	5531726	5062026	4587626	4108426	3624426	3135526	2641726	2142926	1639126	1130226	7216226	6697026	6172626
	Additional Disposal Capacity Required (tons)[5]	(7905430)	(7403210)	(6898210)	(6403210)	(5933210)	(5458210)	(4978510)	(4494110)	(4004910)	(3510911)	(3012011)	(2508211)	(1999411)	(1485611)	(966711)	(442711)	(6513511)	(5979111)	(5439467)
AC	Additional Disposal Capacity Required (cubic yards)[5]	(13175717)	(12338684)	(11497017)	(10672017)	(9888684)	(9097017)	(8297517)	(7490184)	(6674851)	(5851518)	(5020018)	(4180351)	(3332351)	(2476018)	(1611185)	(737852)	(10855852)	(9965185)	(9065778)

1. Projected numbers using factors (population, taxable sales, employment, and CPI) and CIWMB diversion rate calculation worksheet.
2. Transformation Reduction is the estimated amount of wood chips shipped to fuel markets by Sonoma Compost Company.
3. Available Permitted Disposal Capacity (cy) for the years 2000 and 2001 are actual numbers reported to the CIWMB for the Central Landfill.
4. Diversion Rate calculated using CIWMB Diversion Rate Measurement Calculation Worksheet. Adjustment factors for 2001 to 2015 include annual growth projections of 7% for taxable sales; 2% for employment, 3% for CPI; and CDF population projections (based on the 2000 census).
5. For Additional Disposal Capacity a negative number represents sufficient disposal capacity to meet the disposal needs for Sonoma County.
6. Calculations for years 2016, 2017, and 2018 (shaded) assume additional capacity identified in the Central Landfill Expansion Capacity Study Phase I, August 1992.

4.8.4 PLANNED DISPOSAL FACILITY CLOSURES

The Central Landfill was expanded in 2001 to provide sufficient capacity for solid waste disposal through 2015. The *Solid Waste Management Alternatives Analysis* (Analysis) adopted by the Board of Supervisors on February 6, 2001 recommends using the existing landfill to its fullest extent. The earliest estimated date of closure for Central Landfill is 2015. However, if the facility is expanded as recommended in the Analysis, there is potential for closure to be postponed further into the future.

4.8.5 NEW OR EXPANDED DISPOSAL FACILITIES

The Central Landfill, which will reach permitted capacity in 2015 with the expansion of the east canyon, is adjacent to a west canyon that has the potential of providing additional landfill capacity. If the west canyon is expanded it would provide capacity through the year 2017. The Analysis recommends siting a new landfill in Sonoma County once the Central Landfill has reached capacity.

4.8.6 EXPORT/IMPORT OF SOLID WASTE IN SONOMA COUNTY

Some municipal solid waste is exported from Sonoma County, and the majority of it consists of waste collected in debris boxes by Waste Management, Inc. However, Group I wastes, which consist of or contain toxic substances or other substances which could significantly impair the quality of the environment, are exported to out-of-county disposal/recycling facilities. In 2000, most Group I wastes generated in Sonoma County were taken to the Forward Landfill in Solano County. Currently, these wastes are still being shipped to out-of-county facilities for proper treatment and disposal.

Geothermal drilling muds and sewage sludge are the only other waste types known to be exported from the county. A small portion of the drilling muds generated in Sonoma County are transported to Lake County for landfill disposal. Most of this material, however, is kept at the drilling site and is used to reinforce the bore hole, with the remainder deposited into clay lined sumps. Similarly, a small fraction of the sewage sludge generated in the county is transported to Marin County for landfill disposal. The exact quantity and contractual terms for removal of all exported wastes, including hazardous wastes, is unknown.

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Funding Component

4.9 FUNDING COMPONENT

The success of the programs outlined in this SRRE is dependent on adequate funding. Regardless of whether programs are publicly or privately owned and operated, adequate funds will need to be collected from residents and businesses. Development of future programs will require expansion of existing funding sources. For example, additional funds may be generated by increasing residential and commercial refuse collection rates or local landfill fees. In addition, new techniques for funding programs and facilities may need to be considered.

The purpose of this section is to determine how the new or additional waste diversion programs will be funded. The Funding Component identifies the capital and annual costs required to plan, develop, implement, monitor, and evaluate the selected waste diversion programs through the short-term planning period. This section also describes the current mechanisms used to fund solid waste management activities and identifies other funding methods that may be implemented.

4.9.1 ESTIMATED PROGRAM COSTS

The estimated program costs identified in this section are those borne either directly (e.g., rates) or indirectly (e.g., property taxes) by residents and businesses. This component considers only the programs identified in the components of this plan and not the costs of existing and continuing waste management services, including those offered by franchised, licensed, or independent haulers. For example, independent scrap dealers who cover their costs of operation with the revenue from resale of their collected scrap metal are an example of a program for which costs are not measured or counted.

The SCWMA's five-year budget projection (Table 4.44) is for regional programs including yard debris and wood waste processing, household hazardous waste management, education programs, source reduction programs, beverage container recycling, and planning activities. The following assumptions were used when preparing these cost estimates:

- The presented program costs are estimates. Opportunities may exist for reducing these costs.
- Some waste diversion programs, including drop-off/buy back centers, scrap metal recycling, and composting, generate revenue from the sale of recovered materials. Markets for these materials fluctuate widely. Consequently, it is difficult to accurately project the revenue potential of recycling and composting programs.
- Opportunities for sharing resources between the various programs were considered.
- The budget projections do not include land acquisition costs. Since the CoIWMP is not site-specific, actual site costs for any new facilities, including the Resource Management Facility or other solid waste facilities, will be determined in the siting process. In some cases, new programs will use public facilities.
- Equipment and building improvement costs are counted as annual expenses.
- All costs are in 2002 dollars and no inflation rate was used in the projections.

In addition to the SCWMA's fiscal year budget, several ongoing diversion programs are funded by the DTPW including:

- Material reuse and recovery operations which include drop-off recycling for scrap metal,

Table 4-44: Projected Costs for Regional Diversion Programs

SONOMA COUNTY WASTE MANAGEMENT AGENCY

5-year Estimates

Program	Budget Category	Projected Fiscal Year				
		02-03	03-04	04-05	05-06	06-07
Wood Waste	Operating Income	179,316	188,203	197,530	207,321	217,598
	Operating Expense	179,316	188,203	197,530	207,321	217,598
	Net Cost	0	0	0	0	0
Yard Debris	Operating Income	2,108,700	2,154,364	2,262,082	2,375,187	2,493,946
	Operating Expenses	2,108,700	2,154,364	2,262,082	2,375,187	2,493,946
	Net Cost	0	0	0	0	0
Household Hazardous Waste	Operating Income	1,389,939	1,445,801	1,506,640	1,609,406	1,693,881
	Total Operating Expense	1,389,939	1,445,801	1,522,689	1,609,406	1,693,881
	Net Cost	0	0	16,049	0	0
Education	Operating Income	262,314	268,108	279,454	293,162	315,399
	Operating Expenses	262,314	268,108	279,454	293,162	315,399
	Net Cost	0	0	0	0	0
Diversion	Operating Income	238,455	256,643	220,254	264,065	294,512
	Operating Expense	238,455	256,643	269,541	283,090	301,774
	Net Cost	0	0	49,287	19,025	7,262
Planning	Operating Income	72,014	33,326	25,584	10,025	20,243
	Operating Expense	72,014	34,401	36,121	37,927	39,824
	Net Cost	0	1,075	10,537	27,902	19,581

Assumptions:

Wood Waste tipping fees will remain at $12/ton

Yard Debris tipping fees assume increase to $29/ton on January 1, 2002 and to $30/ton January 1,2003

Contract Services for the HHW facility are assumed to increase 12% for FY 02-03 and 6% thereafter.

Expenses are assumed to increase 5%/year

appliances, glass, paper, and other recyclables: $261,150 was budgeted in fiscal year 2002-03 for this program.

- Tire recycling: $24,850 was budgeted in fiscal year 2002-03 for this program.
- CRT (computer monitors and televisions) recycling: $126,000 budgeted in fiscal year 2002-03 for this program.

These programs will continue to be budgeted each fiscal year as part of the DTPW's ongoing operational expenses.

The construction and demolition debris diversion is anticipated to begin operations in March, 2003, and is expected to operate up to three years. The DTPW believes that sufficient economic incentives exists for the private sector to successfully develop the infrastructure necessary to process the flow of materials that will be handled by this temporary program. Until the private sector can permit, develop, and construct these facilities, the DTPW will operate this temporary program at the Central Disposal Site. Annual contractor expenses are anticipated to be approximately $830,000 for this program. The educational component of this program will be included in the SCWMA's budget. Funding for the educational component will be generated from a portion of the surcharge fee collected by the DTPW for unsorted debris boxes.

4.9.1.1 Impact to the Residential Ratepayer

New and expanded diversion programs for the residential sector will require additional funding. Typically, residential program costs are covered through collection rates, including the costs for collecting recyclables and yard debris. As cities competitively bid their franchised hauling contracts, many residential recycling programs have been expanded without increasing rates to the customer.

The figures included in this component are not intended to be used as a collection rate analysis or for setting future collection rates. They are only intended to show an order of magnitude of program cost impacts. Depending on the exact nature of new/expanded programs and their local operational characteristics, these figures may vary significantly.

4.9.2 CURRENT FUNDING SOURCES

The existing solid waste management programs are funded through two methods. The primary funding mechanism is the rates charged residents and businesses by their haulers for the collection and disposal of their solid waste. These rates are collected by the hauler and directly reimburse them for their collection costs. The rates also cover the tipping fees levied at the County disposal sites. Sonoma County owns these disposal sites and through tipping fees collects the revenue it needs to run these facilities. Self-haulers also pay this fee, which has proved to be an acceptable, user-based funding mechanism. These tipping fees go into a dedicated Enterprise Fund. The tipping fee includes a surcharge that is passed from the County to the SCWMA to fund wood waste processing, yard debris composting, education and public information, beverage container recycling, Bay Area Creative Reuse, and planning activities including the development and administration of the CoIWMP.

Collection rates and tipping fees are the only two funding mechanisms used. Refuse haulers in the unincorporated territories are licensed, and the DTPW does not collect a franchise fee. Refuse haulers operating in the incorporated cities are franchised, and the cities collect franchise fees.

4.9.3 FUTURE FUNDING SOURCES

Over the short-term planning period, a significant amount of money will be required to plan, develop, and

implement the selected programs. The funding mechanisms to be used in the future will depend on several variables, including:

- Public versus privately owned programs.
- Potential of expanding existing funding mechanisms to meet future requirements.
- The level of funding security provided by the funding mechanism.
- Whether a funding mechanism is equitable.
- Ease of implementing the funding mechanism.
- Cost of operating the funding mechanism.

Funds potentially available from the issuance of debt instruments and bonds is likely to be well in excess of reasonable need for any selected program described in this SRRE. Amounts potentially available are limited only by the financial health of the community backing them, the current debt environment of the community, and the political process required to approve them.

4.9.3.1 Primary Funding Sources

Collection Rates

This is the largest funding source used at present and will likely remain the largest in the short-term planning period. The County of Sonoma Board of Supervisors sets or authorizes rates sufficient to cover collection and disposal costs. An increase in these rates is one of the simplest ways to fund local waste diversion programs, especially if the existing hauler provides these additional services. A disadvantage is that only those residents and businesses that are required to sign up for refuse collection pay for the waste diversion programs financed by the rates. Self-haulers do not contribute to waste diversion programs subsidized through collection rates.

Enterprise Fund

The Enterprise Fund receives its revenues from tipping fees. Sonoma County assesses tipping fees for the use of its transfer stations and landfill. The tipping fees include an additional surcharge to fund regional waste diversion programs operated by the SCWMA. If new facilities are privately owned and/or operated, the operator itself may collect tipping fees that are adequate to cover its facility costs.

Extended Producer Responsibility

Efforts aimed to encourage manufacturers to take increasing responsibility to reduce the entire life-cycle impacts of a product and its packaging – energy and materials consumption, air and water emissions, the amount of toxics in the products, worker safety, and waste disposal – in product design and in the end-of-life management of the products they produce are currently being discussed at the national, state, and local levels. The costs of implementing EPRs, including special handling for waste disposal, would then be included in the up-front cost of purchasing the product. EPRs are best handled at the state or national level where all manufactured goods would include the costs of life-cycle impacts. EPRs are an appropriate mechanism to fund the recycling of targeted products such as computer monitors, televisions, and other electronics.

Flow Control

To cost effectively increase waste diversion and undertake the most economically beneficial waste disposal alternative(s), the local jurisdictions must be in the strongest bargaining position possible. This is accomplished by cooperative control over the flow of waste within the county, now achieved in part with flow control provisions in a few local franchise agreements. The County and cities will need to adopt common terms and stipulations for all new, renewed, or extended refuse service franchises and licenses. Such terms and stipulations would direct the flow of disposed waste to one or more disposal

sites as designated by the SCWMA, County and cities.

This alternative may require an amendment to the SCWMA's Joint Powers Authority to direct the flow of disposed waste. The amendment would also empower the SCWMA to enter into a contractual arrangement with a public or private entity for the disposal of waste generated in the County if, in the future, waste disposal was managed on a regional level.

The existence of flow control arrangements in franchised hauling waste agreements in the incorporated cities, along with provisions for licensed haulers operating in the unincorporated county areas, enables the cities and County to have control over the destination of the waste stream. Assuming that these arrangements will be maintained throughout the planning period, as well as future similar arrangements in other incorporated cities, the County can plan for facilities to handle these wastes. Without such arrangements, and the coordination and understandings that support them, facility planning on a countywide level becomes difficult, because the County and jurisdictions would not be cooperating in directing the flow of waste generated in the County. Instead, each jurisdiction, as well as the County, could conceivably undertake contractual agreement with haulers that would direct waste to several disposal sites, thus undermining the effort to plan for the integrated and efficient management of the county's total waste stream.

Hauler Franchise Fee

Refuse haulers in the unincorporated territories are licensed, and the DTPW does not collect a franchise fee. The Cities do collect franchise fees from their franchised refuse haulers. This funding mechanism is a fee levied on the franchised haulers and is either a flat fee or a percent of the hauler's gross revenues. Typically, franchise fees collected by the cities are deposited directly into their general fund for budgeting purposes, and may or may not be budgeted for implementation of solid waste programs.

4.9.3.2 Contingency Funding Sources

Parcel Fee

This method is similar to the collection of revenues by special districts. Property owners are assessed a fee that is proportional to the waste generation of the land use. It is a mechanism that gives a population/geographical base to a regional entity. This method is used in Kern County, which owns and operates 14 landfills. It is administratively burdensome and does not create the incentive for individual waste reduction.

Grants and Loans

The SCWMA applies for appropriate state and/or federal grants as they become available. Low-interest loans are a possible mechanism for funding programs, operational improvements at solid waste facilities, and new solid waste facilities.

New Development Fee

This fee would be assessed on new development and could be used to offset the increased waste management capital costs made necessary by the new development.

Bond Issues

The County may use general obligation bonds to provide capital for facilities and equipment it decides to buy and own as part of its waste diversion programs.

Advance Recycling Fees

This funding mechanism is under serious consideration at the national, state, and county levels. It derives revenue by adding a surcharge to the price of products either at the wholesale or retail level. It is an appropriate mechanism to fund the recycling of targeted products such as major appliances, electronic devices, automotive batteries and tires.

4.9.4 FUNDING PROGRAM FOR SONOMA COUNTY

Based on the program costs, existing funding sources, and other funding mechanisms available, a comprehensive funding program was developed. This funding program is designed to identify the funding sources to pay for the planning, development, implementation, and evaluation of its integrated waste management programs and facilities through the short-term planning period. As required by the regulations, contingency funding sources are also identified for the component programs. In the event of a revenue shortfall, it is likely that the County or the SCWMA will increase the amounts generated from the existing funding sources rather than switch to a different funding mechanism. The funding program is summarized in Table 4-45.

Table 4-45: Funding Program

Waste Diversion Program		Funding Source*	Contingency Funding Source
Source reduction		TF	ADJ/CR
Recycling	Drop-off centers	CR	ADJ
	Single-family curbside	CR	ADJ
	Multi-unit recycling	CR	ADJ
	Commercial source separation	CR	ADJ
	Office paper recovery	CR	ADJ
	Materials reuse/recovery operations	TF	ADJ
	Floor-sort	TF	ADJ
	Education and Public Information	TF	ADJ/FF
Composting	Yard debris	TF/CR	ADJ
	Source-separated organics	TF/CR	ADJ
Special waste	Construction and demolition debris	TF/CR	ADJ
	Wood debris	TF/CR	ADJ
	Tires	TF	ADJ
	White goods	TF	ADJ

* To be used if the program requires any public funding. Some programs, such as drop-off and buy-back centers, may be self-supporting.

TF = Tipping Fee
CR = Collection Rate
ADJ = Rate or fee will be adjusted to provide adequate funding
FF = Franchise Fee

Integration Component

4.10 INTEGRATION COMPONENT

The Integration Component provides an overview of the programs selected in the Source Reduction, Recycling, Composting, Special Waste, and Public Education components. The component demonstrates that an integrated solid waste management system has been developed drawing on a wide variety of techniques that will achieve the diversion mandates specified in Section 41780 of Division 30 of the Public Resources Code. In addition, the Integration Component contains an implementation table covering all tasks described in each component.

4.10.1 OVERVIEW OF PLANNED SOLID WASTE MANAGEMENT PRACTICES

The solid waste management programs outlined in the Source Reduction, Recycling, Composting, Special Waste, and Public Education components were designed and organized to facilitate efficient and effective achievement of the CoIWMP. Programs were selected based on their position in the integrated waste management hierarchy and on their ability to contribute to the overall diversion goals. Program feasibility and selection were based on detailed evaluation processes, experience, and local conditions. The type, source, and quantity of the materials targeted by the different diversion programs were reviewed to ensure that the source reduction, recycling, composting, and special waste programs were integrated and compatible. The following programs will most effectively reduce the amount of waste requiring disposal:

Source Reduction

- Local government source reduction programs
  - In-house paper efficiency program
  - Electronic information transfer
  - Waste exchange (SonoMax)
  - Green purchasing policy (joint purchase pools)
- Technical assistance, education, and promotion programs
  - Waste evaluations and audits
  - On-site composting programs
  - Technical assistance
  - Education
  - Social marketing
  - Public recognition
- Regulatory programs under consideration
  - Land use incentives/disincentives
  - Mandatory waste evaluation and reporting
  - Bans on products or packaging
- Economic incentives
  - Loans, grants, and loan guarantees
  - Deposits, refunds, and rebates
- Rate structure modification programs
  - Extended Producer Responsibility
  - Quantity-based end-user fees

Recycling

- Residential recycling activities
  - Single-family curbside recycling
  - Recycled goods procurement program
  - Drop-off / Buy-back centers
  - Multi-unit recycling
- Commercial recycling activities
  - Commercial collection
  - Office paper recycling
- Materials reuse/recovery operations
- Floor-sort activities

  - Special programs (e.g., phone book recycling, Christmas tree recycling, special events recycling)

Composting

- Composting
  - Yard debris composting
  - Source-separated organics composting
  - Resource management facility with MSW Composting

Special Wastes

- Construction and demolition material sorting
- Tire management
- White goods
  - Repair and reuse
  - Scrap metal salvaging
- Wood waste processing
- Litter abatement

Education

- Media relations (radio, PSAs, television, transit, newspaper, on-line, etc.)
- Community-based social marketing techniques
- Commercial/industrial strategy for waste diversion
- Outreach to non-English speaking populations
- Residential recycling promotional activities
- Commercial recycling promotional activities
- Buy-recycled education program
- School education program

Landfill Disposal

- Environmentally safe landfill disposal of wastes at permitted landfills.

4.10.2 INTEGRATION OF COMPONENTS

The components were integrated to maximize the diversion potential of all feasible source reduction,

recycling, and composting options. Preliminary integration and coordination of program alternatives was done in the program evaluation and selection stage. The compatibility of programs with other options was considered when recommending the implementation of a program. As of 2000, these programs have successfully diverted 40% of Sonoma County's waste stream from landfill disposal. The additional programs described in the components are anticipated to divert 50% of the waste stream by 2003 and more than 50% of the waste stream once all the described programs are implemented.

4.10.3 DETERMINATION OF COMPONENT PRIORITIES

Priorities for specific waste management programs has been set within the short-term (2003 to 2008) and medium-term planning periods (2009 to 2018). The following factors were used to determine priorities and timing among the programs identified in the components:

- Location of the component on the waste management hierarchy (i.e., source reduction, recycling and composting, and transformation and disposal)
- Ranking of the various programs reflected in each component
- Waste stream composition and the effectiveness of a program in addressing priority waste types
- Extent to which the program is already used and successfully operating
- Compatibility of the program with other programs

Using these factors, components and their diversion programs have been prioritized to best achieve the goals of integrated waste management.

4.10.4 ACHIEVEMENT OF DIVERSION MANDATES

In its 2000 Annual Report to the CIWMB, the SCWMA reported a diversion rate of 40 percent (see Table 4.2 for diverted tons for 2000). As required by PRC Section 41820(a)(6)(B), the SCWMA filed a time extension request listing the estimated diversion from new and enhanced diversion programs. By the year 2003, the SCWMA member jurisdictions will increase residential recycling by 6.5 percent and commercial recycling by 4.5 percent. The priority waste categories that will be targeted for diversion include paper, metal, wood, yard debris, and plastics. Specific programs that will be expanded and/or implemented to achieve the 50% diversion rate include:

- Residential curbside recycling: Evolution of source-separated residential curbside program from three 12-gallon stacking bins to single-stream automated collection in large wheeled toters. This program improvement is forecast to increase the tonnage of recyclables collected by 40% reflecting an additional estimated diversion of 30 tpd.
- Multi-family recycling collection: Collection of recyclable materials (paper, cardboard, glass, PETE and HDPE plastic food containers) in multi-family complexes. There are approximately 23,000 multi-family units in Sonoma County. Estimated new diversion is 10 tpd.
- Beverage container recycling: Provide collection containers for beverage container recycling at local parks, recreation centers, downtown areas, transit locations and other public areas and develop and implement recycling and public education at special events. Actual new diversion is anticipated to be less than 1% of the waste stream. The largest benefit of this program will be the educational value.

- Construction and demolition recycling facility: Facility would accept debris boxes from construction and demolition sites, providing an economic disincentive to encourage separation of material types (higher disposal fees for debris boxes that are not sorted). Material will be sorted by contractor for recycling. This new program is forecast to increase recyclable tonnage by an estimated 65 tpd.

- Yard debris collection and organics composting: Residential curbside collection of yard debris to be increased to weekly collection. Disposal site segregation of organic materials is included. Organic material is currently composted at the Central Disposal Site. This program improvement is forecast to increase diverted tonnage by 15% reflecting an additional estimated diversion of 25 tpd.

- Floor sorting/drop-off recycling at Central Disposal Site: The new operational improvements under construction at the Central Disposal Site include a 12-bin "Z" wall of recycling bins with a cardboard baler; separate recycling area for tires, metals, and appliances; material reuse and recovery area, household hazardous waste facility; and floor sorting of yard debris, wood waste and other recyclable materials in the new tipping building. These operational improvements are forecast to increase diverted tonnage by 30% reflecting an additional estimated diversion of 30 tpd.

- Public Education: Planning, implementing and follow-up analysis of a social marketing effort, including reviewing available data, designing and placing radio and print advertising, direct mail pieces and other techniques to increase residential recycling behavior, and completing a written evaluation of the campaign. Educational pieces developed by this campaign will be placed on the SCWMA website.

In addition, the Resource Management Facility described in the Composting Component is anticipated to increase the diversion level beyond the 50% mandate.

4.10.5 RECYCLING MARKET DEVELOPMENT ZONE

In 1994 Sonoma and Mendocino Counties were designated as a Recycling Marketing Development Zone (RMDZ). In 1997, a redesignation was requested from the CIWMB to include Lake County, the current Zone Administrator. The RMDZ targets the following materials for feedstock: paper, glass, organics, construction and demolition debris, plastics, paint, and tires.

The Sonoma County Economic Development Board provides assistance services directed toward encouraging the startup, retention and expansion of Sonoma County businesses and jobs, particularly with small businesses; creation of new jobs and employment opportunities. The Sonoma County Business Environmental Alliance, working to promote the voluntary adoption of good environmental practices by local businesses and farms, periodically produces reports, newsletters, and other projects as a resource to businesses. Consulting services are available through the Redwood Empire Small Business Development Center, the Service Corps of Retired Executives Association, and the Private Industry Council. Additional financial incentives include Sonoma County Industrial Development Bonds and Small Business Administration loan program.

Mendocino County offers other incentives through the City of Willits such as the Development Center, the Ukiah Business Development Center, Community Block Grant loans, and Industrial Development Bonds. Other economic development tools include expedited permit processing, general plan and zoning amendments, business counseling and management assistance, and private loans through local banks.

In Lake County, the Lake County Business Outreach and Response Team, a local economic development

corporation, is responsible for coordinating local incentives and maintains a very active network of local, State, and federal service providers. Community Development Services, a local economic development consulting firm, provides administrative support to the Lake County Business Outreach and Response Team.

4.10.6 MEETING THE 15-YEAR DISPOSAL REQUIREMENTS

The SRRE recommends programs that will reduce the amount of waste requiring disposal over the next 15 years. Any solid waste that is not diverted by the recommended programs will be landfilled at the Central Disposal Site. The Facility Capacity Component calculated the capacity required based on the 1992 Waste Generation Study and the 1995/96 Waste Characterization Study, reasonable assumptions about waste management practices and trends, and the available landfill capacity. The facility capacity calculations indicate that capacity is available until 2018.

4.10.7 REGIONAL IMPLEMENTATION OF DIVERSION PROGRAMS

Many of the programs described throughout the SRRE are regional programs, including yard debris composting, wood waste processing, and beverage container recycling, that are most efficiently and cost-effectively performed through a regional system. Regional education and public information programs support source reduction activities, drop-off and buy-back centers, single and multi family residential recycling, commercial recycling, tire and white goods reuse and recycling, and the materials reuse and recovery facility. Cities will continue to be responsible for the single and multi family residential recycling programs operated by their franchised haulers.

4.10.8 IMPLEMENTATION SCHEDULE

The integrated implementation schedule for the new and expanded programs is compiled from the implementation schedules developed for the Source Reduction, Recycling, Composting, Special Waste, and Public Education components. Table 4-46 shows the required annual activities including key implementation tasks for new and expanded programs, responsible entities for each task, funding sources, and task start and milestone dates. Table 4-43 (Facility Component) includes the anticipated diversion rate for each year of the 15-year period.

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Table 4-10: Implementation Schedule for Source Reduction and Recycling Element Programs

PROGRAM AND IMPLEMENTATION TASK	RESPONSIBLE ENTITY	2000				2001				2002				2003				2004				2005				2006				2007				2008			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Source Reduction Programs																																					
Local Government Programs																																					
Continue/expand in-house paper efficiency programs	Each jurisdiction																																				
Promote electronic information transfer	Each jurisdiction																																				
Continue to perform internal waste audits	Each jurisdiction																																				
Continue regional waste exchange (SonoMax)	SCWMA																																				
Adopt and implement a Green Purchasing Policy	Each jurisdiction						X																														
Technical Assistance, Education and Promotion																																					
Continue waste evaluation and audit outreach	SCWMA																																				
Continue distribution of education and informational materials for on-site composting	SCWMA																																				
Continue distribution of source reduction education materials	SCWMA																																				
Use social marketing techniques to identify barriers and benefits to source reduction programs whenever possible.	SCWMA																																				
Promote WRAP, a public recognition program	SCWMA																																				
Rate Structure Modification																																					
Adopt a resolution in support of Extended Producer Responsibility (EPR)	SCWMA						X																														
Continue efforts to further EPRs through coalitions as they develop	SCWMA																																				
Continue to modify and evaluate garbage rates and revenues to improve the modified variable can rate	County																																				
Evaluate the potential of a variable container rate structure that provides a source reduction incentive	County													X																							
Regulatory Programs																																					
Review and consider implementing mandatory source reduction/recycling plans	Each jurisdiction																			X																	
Investigate potential land-use incentives for rehabilitation of old structures	Each jurisdiction												X																								

Table 4-10: Implementation Schedule for Source Reduction and Recycling Element Programs

PROGRAM AND IMPLEMENTATION TASK	RESPONSIBLE ENTITY	2000				2001				2002				2003				2004				2005				2006				2007				2008			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Continue to review state and federal information on the recyclability of specific products and packaging to determine if bans should be developed	SCWMA																																				
Economic Incentives																																					
Encourage innovative and creative methods and consider funding for source reduction, recycling, and education	SCWMA																																				
Continue to evaluate possible deposit/refund program for selected special wastes; implement as appropriate	County																																				
Monitoring and Evaluation	SCWMA			X																																	
Recycling Programs																																					
Drop-Off/Buyback Program																																					
Continue existing operations of drop-off centers at solid waste facilities	Public Works																																				
Encourage private sector development of new centers	SCWMA																																				
Promote private drop-off/buyback centers in the Annual Recycling Guide	SCWMA																																				
Single-Family Curbside Program																																					
Continue operations of single-family curbside program	Each jurisdiction																																				
Implement single-family/single-stream recycling program, as appropriate	Each jurisdiction																X																				
Develop promotional materials	Each jurisdiction																																				
Promote program in Annual Recycling Guide	SCWMA																																				
Multi-Unit Program																																					
Continue operations of multi-unit collection program	Each jurisdiction; haulers																																				
Expand program to additional multi-unit facilities	Haulers																X																				
Commercial Source-Separation Program																																					
Encourage private sector development of new centers	SCWMA						X																														

Table 4-10: Implementation Schedule for Source Reduction and Recycling Element Programs																																								
PROGRAM AND IMPLEMENTATION TASK	RESPONSIBLE ENTITY	2000				2001				2002				2003				2004				2005				2006				2007				2008			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Promote commercial recycling programs in Annual Recycling Guide	SCWMA								X																												
Office Paper Recovery Program																																					
Evaluate in-house programs; expand program and materials collected as appropriate	Each jurisdiction						X																														
Conduct training sessions and ongoing employee motivational campaigns	Each jurisdiction								X																												
Provide technical assistance program to the private sector	SCWMA	X																																			
Recycled Materials Procurement Program																																					
Evaluate existing Green Purchasing Program of recycled goods	SCWMA												X																								
Adopt new Green Purchasing Policy	Each jurisdiction																X																				
Materials Reuse/Recovery Program																																					
Central: Complete construction of new buildings for reuse operations; relocate existing operations; continue operations	DTPW											X																									
Continue existing operations of reuse/recovery program at Healdsburg and Sonoma transfer stations	DTPW																																				
Floor-Sort Activities																																					
Continue operating existing floor-sort activities at existing transfer stations	DTPW																																				
Complete construction of new tipping building at Central; begin floor-sort activities as part of daily operations	DTPW											X																									
Monitoring and Evaluation	SCWMA																																				
Composting Programs																																					
Yard Debris Composting																																					
Continue operations of existing program	SCWMA																																				
Continue monitoring and evaluating functions with respect to diversion effectiveness, cost effectiveness, product quality, and market development	SCWMA																																				
Continue to evaluate options for expanding markets.	SCWMA																																				

Table 4-10: Implementation Schedule for Source Reduction and Recycling Element Programs																																								
PROGRAM AND IMPLEMENTATION TASK	RESPONSIBLE ENTITY	2000				2001				2002				2003				2004				2005				2006				2007				2008			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Monitoring and Evaluation	SCWMA																																								
Special Waste Programs																																								
Construction and Demolition Debris Program																																								
Evaluate additional landfill bans on C&D materials	DTPW										X																														
Analyze a separation surcharge for debris boxes and other loose loads containing banned materials	DTPW										X																														
Create a C&D separation program to be operated by a private contractor at the Central Disposal Site	DTPW										X																														
Educate permit staff, developers and the public	DTPW												X																												
Tire Program																																								
Continue existing collection program at all solid waste facilities	DTPW																																							
Maintain contractor agreement to market tires	DTPW																																							
White and Brown Goods Program																																								
Educate public about repair, resale and donation opportunities	SCWMA																																							
Educate public about material reuse and recovery operations	SCWMA																																							
Remove hazardous material from items designated as scrap metal and bale for market.	DTPW																																							
Wood Waste Recovery Program																																								
Separate material suitable for repair, reuse, and resale	SCWMA																																							
Separate material for chipping as landscape and/or soil amendment	SCWMA																																							
Educate public on reuse program and availability of landscape products	SCWMA																																							
Monitoring and Evaluation	SCWMA																																							

Table 4-10: Implementation Schedule for Source Reduction and Recycling Element Programs																																							
PROGRAM AND IMPLEMENTATION TASK	RESPONSIBLE ENTITY	2000				2001				2002				2003				2004				2005				2006				2007				2008			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Education and Public Information Programs																																								
Programs																																								
Develop and implement an educational strategy to increase diversion from the commercial and industrial sectors.	SCWMA														X																									
Develop a strategy for reaching non-English speaking residents.	SCWMA														X																									
Continue operating the Eco-Desk hotline	SCWMA																																							
Maintain the SCWMA website	SCWMA																																							
Continue to maintain a speakers bureau contact list	SCWMA																																							
Continue to distribute education and informational materials to promote existing and planned source reduction, recycling, composting, and special waste programs	SCWMA																																							
Continue to develop educational booths for various venues, including the Sonoma County Fair and Harvest Fair	SCWMA																																							
Continue to work with local schools to implement policies and programs focusing on recycling and waste reduction.	AB 939 Local Task Force and DTPW Staff																																							
Continue implementation of the Buy-Recycled Education Program including topics such as green building, recycled office paper products, and others.	SCWMA																																							
Monitoring and Evaluation	SCWMA																																							

X - Designates the initiation of a task. Shaded bars indicate the continuation of the task and/or program.

Note: Years are broken into quarters designated by 1,2,3,4.

CHAPTER 5

HOUSEHOLD HAZARDOUS WASTE ELEMENT

5.1 INTRODUCTION

Hazardous Waste is defined as material that meets criteria set forth in the Federal Resource Conservation and Recovery Act (RCRA). In simple terms it is a material that can cause harm to human health or the environment through its reactivity, flammability, corrosivity, or toxicity. Since many materials have these characteristics, the law has defined limits for each hazard class (reactivity, flammability, corrosivity, and toxicity). Any material falling within those limits is considered characteristically hazardous and must be handled as hazardous waste. California law requires that any waste material that meets RCRA hazardous characteristics or California's stricter limits must be handled as hazardous waste regardless of who generated the waste. Waste generated by residents is called Household Hazardous Waste (HHW).

By law, a hazardous waste is created when a generator determines that a product is no longer useful, thereby determining that the product is a waste. Most HHW was formerly common household products. Householders generate hazardous wastes while performing regular household activities such as cleaning, painting, making repairs, gardening, working on hobbies, and maintaining autos. The following are examples of some common types of HHW:

- Household cleaners
- Pesticides
- Car batteries
- Wood preservatives
- Auto and furniture polish
- Pesticides
- Automotive products
- Adhesives and sealants
- Paints and coatings
- Photographic chemicals
- Pool chemicals
- Motor oil
- Anti-freeze

The hazards associated with HHW are the same as those associated with industrially generated hazardous waste. Hazardous waste can burn or irritate skin and eyes and make people both acutely and chronically ill. Hazardous waste can poison people, pets and wildlife. Hazardous wastes can cause or fuel fires. Hazardous waste can contaminate soil, water and air. Specifically there is concern about hazardous waste: 1) leaching out of landfills into ground water; 2) being poured down the drain (i.e., when the waste water treatment plant is unable to treat such waste); and 3) being poured down storm drains, which lead straight to creeks and rivers.

5.2 GOAL AND OBJECTIVES OF THE HHWE

5.2.1 Goal

As stated in Chapter 2, the following goal addresses household hazardous waste management:

> The County and the Cities and/or the SCWMA will provide cost-effective and environmentally sound waste management services, including special waste and household hazardous waste handling and disposal, over the long term to all community residents and promote access to the services.

5.2.2 Objectives

The following objectives address this goal:

- The SCWMA will distribute HHW educational material to all county households and businesses at least annually.
- The SCWMA will monitor and evaluate, at the end of the short and medium terms, educational programs outlined in the SRRE and the HHWE to improve their effectiveness.
- The SCWMA, County and the Cities will achieve participation in the County's Household Hazardous Waste (HHW) collection program of 3 percent annually of the county's households.
- The SCWMA will achieve measurable reduction of landfill disposal of prohibited wastes documented by waste characterizations studies at the end of the short term and medium term planning periods.

5.3 EXISTING CONDITIONS

5.3.1 History of HHW Management in Sonoma County

5.3.1.1 Household Hazardous Waste Collections

HHW collections started in Sonoma County in 1985 in the City of Santa Rosa. Gradually each of the jurisdictions starting offering annual collections provided by their solid waste hauler. In 1993 the SCWMA assumed responsibility for HHW management and started offering Household Toxics Roundups (HTRs) countywide making all collections available to any county resident. Collection services for qualified businesses, referred to as CESQGs (Conditional Exempt Small Quantity Generators), started in 1994. A reuse program started in 1995 to redistribute reusable products to the public – a program that the public appreciates and provides a significant cost savings to the SCWMA. A door-to-door collection was added in 1998 in conjunction with the HTRs. Construction began on an HHW Facility in 2001, and opened January 2005.

5.3.1.2 Recycle Only Collections

There has been a significant increase in recycle only collection centers, referred to as BOPs (Battery, Oil, Paint). Oil recycling started at some county disposal sites in 1990. Beginning in 1990 the recycling center at the Central Disposal Site offered a latex paint exchange. This program was duplicated at three of the County's transfer stations. When the State offered grant funds for oil recycling, businesses were recruited to collect oil and more public drop-offs were created for a total of 70 oil collection locations countywide in 2001. Starting in 1996, the SCWMA asked the oil collection centers to accept antifreeze and oil filters; in 2001, 16 centers collect antifreeze and 33 collect oil filters. Curbside oil and filter collection was added in the Cities of Rohnert Park, Santa Rosa, Sonoma and the unincorporated county in 2000.

5.3.1.3 Load Checking

A load checking program was started at county disposal facilities in 1990. The program consists of spot checking commercial and residential self-haul loads for hazardous waste. The load check program emphasizes education of residents about proper HHW disposal opportunities. Identified hazardous wastes are removed from the waste stream. When a generator is not evident, waste is stored in hazardous waste lockers awaiting proper packing and disposal.

5.3.1.4 Education

A variety of educational campaigns have been implemented to encourage use of Household Toxics Roundups, oil and filter recycling, Integrated Pest Management, use of safer alternatives and not to dispose of HHW in garbage cans. Nearly all residents and businesses generate HHW. Much of the education and public information efforts have been focused towards the public as a whole. In some cases, campaigns have been directed to specific populations including boaters, Spanish speakers, sports fans, children, high school students, landfill users, and government employees. Examples of a few of the efforts undertaken include: oil recycling (multiple campaigns and target audiences), Household Toxics Roundup promotion, A Health Environment Begins at Home (children); "No Toxics" garbage can stickers; Our Water Our World IPM Store campaign; and IPM Workshops (government employees).

5.3.2 HHW Generation Rates

There is little known about how much HHW is generated annually. Sales of hazardous products do not equal the hazardous waste, since products put to their intended use are not considered wastes. Since HHW is created when the generator determines that a product is no longer useful, it is difficult to distinguish between products and wastes in storage. In practice, residents tend to store products past their useful life, which can create hazards in the home through the growth in quantities and the destabilization of some hazardous products with age. Additionally, it is unknown how much HHW is improperly disposed of in storm drains, down sewers or to the soil. What is quantified are estimates of how much is disposed of in the landfill and how much is collected in HHW collection programs.

In 1990 and 1995/96 solid waste characterization studies were conducted at Sonoma County disposal sites. Table 5-1 illustrates the HHW measured in Sonoma County's waste stream. While this chapter focuses on HHW, waste from businesses is also disposed of illegally as illustrated in Table 5-1. Businesses that generate small quantities of hazardous waste (known as CESQGs) may and are served by the HHW program in accordance with State and Federal law. Therefore, the programs listed are also designed to target some unknown portion of the hazardous waste being disposed of by businesses. It is an unknown portion as the law limits the businesses that HHW programs may serve, and it is unknown where business hazardous waste found in the waste stream is generated. Businesses that generate large quantities of hazardous waste are addressed through stringent hazardous waste regulations at the State and Federal level.

Table 5-2 illustrates how much HHW and CESQG waste was collected in Sonoma County by program type from 1996 to 2001. Table 5-3 illustrates the quantities of waste collected by waste type.

5.4 EVALUATION OF ALTERNATIVES

While Section 5.3.1 provides the program description for each of the evaluated alternatives, the evaluation is conducted in Table 5-4 Alternative Program Evaluation using criteria set forth in Title 14, Section 18751.3. This chapter evaluates all programs required to be evaluated by Title 14 and additional programs that the SCWMA considers appropriate.

5.4.1 Alternative Program Descriptions

5.4.1.1 Periodic Collection

A temporary collection center is set up in a paved, accessible location (e.g., a parking lot) for a short period (usually one or two days). Residents are encouraged to bring their household hazardous materials to the site on collection days. The center is staffed by trained personnel who collect, sort, and pack the HHW into 55-gallon drums. Wastes are transported by a licensed hauler to licensed hazardous waste facilities for recycling, treatment, or disposal. The hours, dates and locations must be advertised for each collection in advance. Periodic Collections can be very successful, but there are limitations. The residents may not be able to make the date selected or find it inconvenient. Residents are asked to store material until an event is held. Residents who are moving are often caught in the situation of not being able to move the material or properly dispose of it within their limited time frame. Rain or other situations can arise that impact participation, which can increase cost. Sites acceptable for locating Periodic Collections can be limited and/or limiting.

Table 5-1: Waste Characterization Studies at Sonoma County Disposal Sites (1992 and 1995/96)

Waste Type	1990 (tons annually)		1995/96 (tons annually)	
	Residential	Non-Residential	Residential	Non-Residential
Paint	breakout unavailable		219	54
Automotive Fluids			243	75
Household Batteries			158	57
Vehicle Batteries			217	118
Remainder Composite HHW			368	288
Subtotal	*119*	*976*	*1,205*	*592*
TOTAL	**1,095**		**1,797**	

Table 5-2: Hazardous Waste Collected by Sonoma County HHW Programs
(reported in pounds by fiscal year)

Program	00-01	99-00	98-99	97-98	96-97
Household Toxics Roundups	736,793	721,141	637,542	504,243	665,200
BOPs	596,104	579,418	504,290	programs not tracked	
Load Checking	36,667	48,517	34,558		
Door-to-Door	52,105	79,844	16,188	no program	
Curbside Oil & Filter Recycling	125,733	no program			
Vendor Collection	485,700	574,262	773,140	program not tracked	
TOTAL	**2,035,102**	**2,003,182**	**1,965,718**	**504,243**	**665,200**

Table 5-3: Waste Collected by HHW Programs by Waste Type
(reported in pounds)

Waste Category	2000-2001	1999-2000
Flammable solid/liquid	133,964	133,711
Bulked flammable liquids	59,296	98,805
Oil-base paint	206,577	164,249

Poison (excl. Aerosols)	55,937	55,114
Reactive and explosive	28	92
Inorganic acid	8,318	7,347
Organic acid	263	683
Inorganic base	12,274	11,001
Organic base	733	0
neutral oxidizers	0	308
Organic peroxides	100	131
Oxidizing acid	348	91
Oxidizing base	3,247	5,221
PCB-containing paint	0	0
Other PCB waste	3,674	2,981
Corrosive aerosols	1,663	1,556
Flammable aerosols	11,636	10,865
Poison aerosols	3,322	3,101
Antifreeze	14,497	16,700
Car Batteries	143,130	166,975
Fluorescent bulbs	7,068	3,806
Latex paint	176,582	192,115
Motor oil/oil products	1,141,018	1,062,782
Oil filters	27,227	25,693
Mercury	82	300
Medical waste (syringes)	497	459
Household batteries	4,439	4,957
Other	15,147	28,921
Asbestos	4,035	5,215
TOTAL POUNDS	**2,035,101**	**2,003,178**
Total tons	1,018	1,002

Table 5-4: Alternative Program Evaluation				
Criteria (1= high; 5= low)	**Periodic Collections**	**HHW Facility**	**Mobile Collections**	**Vendor Collection**
Potential Hazard	2	4	2	4
Accommodate Change	2	5	2	3
Implementation Lead Time	Three months	Three years	Six months	Four months
New or Expanded Facility(s)	None	Yes	Uses HHW Facility	None
Consistent with Local Conditions	Yes	Yes	Yes	Yes
Institutional Barriers	None	CEQA review and mitigations; neighbor opposition	None	None
Cost	$30,000 - $110,000/event	±$850,000 annually	$2,000 - $5,000/collection	$500/site annually
End Use of Waste	75% recycled 25% incinerated	75% recycled 25% incinerated	75% recycled 25% incinerated	Recycled
Effectiveness	Good	Excellent	Good	Fair - Excellent
Criteria (1= high; 5= low)	**Curbside Collection**	**Door-to-Door Collection**	**BOPs**	**E-waste Recycling**
Potential Hazard	2	4	5	5
Accommodate Change	2	2	2	1
Implementation Lead Time	Six months	Six months	Two months	Two months
New or Expanded Facility(s)	None	Recommend use with HHW Facility	Minimal, optional	None
Consistent with Local Conditions	Yes	Yes	Yes	Yes
Institutional Barriers	Perceived danger of spills and vandalism	None	None	None
Cost	$0.05 - $0.15/hh/mo	±$60.00/pickup (collection only)	Varies on volume $3,000 - $20,000	Varies on volume. $750/ton
End Use of Waste	Recycled	Same as HHW Facility	Recycled	Recycled
Effectiveness	Fair	Good	Excellent	Good
Criteria (1= high; 5= low)	**CESQG**	**Load Checking**	**Reuse Exchange**	**Disaster Response**
Potential Hazard	4	1	3	3
Accommodate Change	2	1	1	1
Implementation Lead Time	One month with existing program.	Two Months	One week	Days
New or Expanded Facility(s)	Uses facility(s) used for other programs	Hazardous waste lockers	None	None
Consistent with Local Conditions	Yes	Yes	Yes	Yes
Institutional Barriers	None	None	Waiver of liability	None
Cost	Costs passed through to businesses	$175,000 annually	Net cost savings vary $6,000 - $22,000	Varies
End Use of Waste	Same as HHW Facility	Same as HHW Facility	Used as product	Same as HHW Facility
Effectiveness	Fair	Poor	Not applicable	Varies

5.4.1.2 HHW Facilities

HHW Facilities provide an ongoing means for residents to properly manage HHW. These facilities vary from small, often prefabricated structures. HHW Facilities entail larger capital costs than other HHW collection options. Because of their storage and waste-handling capacity, however, these facilities can help control long-term program costs through greater flexibility and economies of scale in waste handling and disposal.

5.4.1.3 Mobile Collection

A Mobile Collection is a smaller version of a Periodic Collection and is operated in conjunction with the HHW Facilities. The HHW Facilities that supports Mobile Collections may or may not provide service directly to the public. The idea behind a mobile program is to provide convenient, local service while still reaping the flexibility and economies of scale that a HHW Facilities provides. Wastes collected by Mobile Collections can be consolidated, bulked, and/or reused at the HHW Facilities. Typically Mobile Collections are smaller and more frequent than Periodic Collections.

5.4.1.4 Vendor Collection

Since some businesses already manage hazardous wastes, they can be cost-efficient and convenient collection centers for HHW. Methods to increase vendor participation in HHW collection include identifying additional materials and vendor types (e.g., paint stores for collection of paint wastes) and providing education and/or incentives to vendors. Waste collection opportunities are specific to the product or material that each type of vendor sells (e.g., battery vendors could collect used batteries) and may be limited by cost and potential liability. SCWMA advertises participating vendors, who would benefit from increased customer traffic at their locations. In 2001, 61 vendors collect oil, 33 collect oil filters and 16 collect antifreeze. There is a State law that requires automotive battery vendors to accept trade-in batteries or collect a core charge with the new battery if a trade-in is not received. Rechargeable Battery Recycling Corp (RBRC) provides for collection of rechargeable batteries at many chain stores such as Radio Shack, Sears, Cellular One, Ace Hardware and others. In 2001, Best Buy stated they would develop a program to accept waste electronics. Several large computer manufactures have developed fee programs for recycling of their computers (e.g., Dell, HP, IBM). Extended Producer Responsibility (EPR) efforts are working to increase management of wastes by retailers and manufacturers.

5.4.1.5 Curbside Collection

Curbside Collection programs are limited to collecting oil, filter and household battery recycling due to the potential hazards involved in placing hazardous waste on the curb. Curbside oil and filter recycling can be very successful programs when run in conjunction with curbside recycling programs. Oil and filters are left at the curb with other recyclables, thereby using the existing collection infrastructure.

5.4.1.6 Door-to-Door Pickup Program

Door-to-Door Pickup programs involve pickups at residents' homes by appointment. The advantages are convenience, controlled and knowledgeable transport, early identification of

materials that pose an imminent danger, and service to non-mobile residents. However, these programs can be costly.

5.4.1.7 Batteries, Oil, and Paint Programs

Batteries, Oil, and Paint Programs (BOPs) are recycling centers for HHW. By law, BOPs can only collect recyclable HHW: oil, oil filters, batteries, antifreeze, paint and fluorescent lamps. BOPs are typically operated with non-direct supervision, meaning the public places waste in well marked containers without assistance. It is best to have some supervision of the site to discourage potential abuses. BOPs are frequently located at disposal sites and municipal corporation yards.

5.4.1.8 E-waste Recycling

Electronic Waste (E-waste) can contain hazardous components, which require that the product be disposed of as hazardous waste. Cathode Ray Tubes (CRTs), the glass tubes found in TVs and computer monitors, contain four to eight pounds of lead. CRTs have been designated as Universal Waste by the State of California and must be recycled in accordance with the Universal Waste Rule. If they are not recycled as Universal Waste, then CRTs must be treated as hazardous waste. Many experts expect that other electronic wastes will also be designated as Universal Wastes, requiring hazardous waste management. The Universal Waste Rule allows for collection of Universal Wastes at facilities that do not have hazardous waste permits so long as certain handling requirements are met. Due to the size, weight, quantity and cost of managing E-waste, HHW programs could become overwhelmed. Therefore, it is recommended that E-waste be collected at disposal sites where bulky items can be more easily managed and fees can be charged to cover the recycling costs.

5.4.1.9 Conditionally Exempt Small Quantity Generator

The law allows HHW programs to serve commercial generators that meet the regulatory definition of a Conditionally Exempt Small Quantity Generator (CESQG). A CESQG cannot generate more than 27 gallons of hazardous waste per month, excluding oil, antifreeze and latex paint if recycled. CESQGs in California must still handle their hazardous wastes like large quantity generators; however, it is sometimes difficult to find haulers that will haul small quantities and the cost per unit is more expensive. Providing hazardous waste disposal opportunities can be a very valuable service to local businesses. As shown in Table 5-1, it is necessary to serve businesses to eliminate hazardous waste from local landfills. CESQG's can be served using any of the collection programs evaluated in this chapter. The disposal cost may be passed on to the CESQG. Typically CESQGs are served on an appointment only basis and inventories of wastes are required. Transportation and disposal issues may be more involved than with the average resident. The California State Department of Toxic Substances Control offers a transportation variance for CESQG's that allow transport of up to 27 gallons if specific transportation information has been shared with the CESQG by the jurisdiction.

5.4.1.10 Load Checking

Load Checking is necessary to identify hazardous materials in the solid waste stream and to reduce the amount of HHW being disposed of as solid waste. Load Checking seeks to ensure proper management of the hazardous wastes delivered to solid waste facilities, to identify generators who place hazardous wastes in the solid waste stream, and to require them to

assume responsibility for proper waste management through education and enforcement. Monitoring consists of questioning and educating self-haulers, stopping the dumping of hazardous waste when witnessed, retrieving hazardous waste identified in the solid waste, and spot checking and sorting random loads. Load Checking programs are mandated by law.

5.4.1.11 Reuse Exchange

A good portion of the waste brought to a HHW collection program is still usable product (i.e., leftovers or unwanted product). Hazardous waste disposal is expensive, and even proper disposal has an environmental impact. Therefore, the best use of a hazardous product is to use it for its intended use. Reuse Exchange programs allow the public to take usable products at no cost, providing an avoided cost to the collection program. Experience has shown that the public likes Reuse Exchange programs.

5.4.1.12 Disaster Response

Sonoma County has experienced three Federally declared natural disasters in the past decade. For each of those disasters, special programs to capture HHW were implemented. Should Sonoma County experience any natural disasters in the future, the HHW collection system, along with resources from emergency response agencies, will be utilized to mitigate the impact of HHW on health, the environment, and the landfill.

5.5 SELECTION, IMPLEMENTATION AND MONITORING OF PROGRAMS

All of the programs evaluated in Section 5.3 have been or are being implemented in Sonoma County. The SCWMA has chosen to provide the most convenient and comprehensive service to its residents and CESQGs (Table 5-5). The Periodic Collections were operated until the HHW Facility was built. HHW Facilities were selected as the most cost effective approach to the management HHW with the ability to offer weekly service. Additionally, the HHW Facilities allow for the operation of other programs that provide convenient service in each of the SCWMA member communities. The Mobile Collection program was selected to provide convenient collection in each of the jurisdictions. Sonoma County covers 1,500 square miles, and therefore, no single facility could provide convenient service. The HHW Facilities offers a place to most efficiently manage the waste from the Mobile Collections. Door-to-Door Collection is offered as a convenience for those residents and CESQGs that are willing to pay for the convenience. Additionally it addresses the issue of residents with limited transportation options. Curbside Collection, BOPs and Vendor Collection are used to collect recyclable HHW in the most cost effective manner possible so that other more costly HHW collection programs are not overwhelmed. CESQG's are served at cost to provide CESQG's a reasonable disposal option and in acknowledgment that CESQG's must be served in order to meet the SCWMA's goal of eliminating improper disposal of hazardous waste. The Load Checking program is implemented in accordance with law, and the Reuse Exchange program is implemented to save money and limit disposal liability. The collection capabilities of each program is found in Table 5-2.

The end use or disposal of hazardous waste is highly regulated. The SCWMA adheres to the US EPA's waste management hierarchy: Reduce, Reuse, Recycle, Treat, Incinerate, Landfill. As new technologies open up recycling markets for waste, the SCWMA adjusts its disposal methods. For implementation of the selected programs, HHW facilities will be built as needed and economically feasible.

Within the limitations and requirements of law, the SCWMA collects all HHW except radioactive materials, explosives, and biological wastes (excluding syringes). Should a resident bring a waste that a program does not manage, an assessment is made to determine if there is an imminent danger posed by the waste. If a danger is determined, then the appropriate agency is notified. If an imminent danger is not identified, the resident is provided with proper disposal information.

Table 5-5: Selected Programs

Program	Implementation Dates	Responsible Agency
Periodic Collections	Started 1993 / Discontinued 2002	SCWMA
HHW Facility	2002	SCWMA
Mobile Collection	2002	SCWMA
Vendor Collection	1993	SCWMA
Curbside Collection	2000	City/County
Door-to-Door Collection	1999	SCWMA
BOPs	1990	County
E-waste Recycling	2002	County
CESQG	1994	SCWMA
Load Checking	1992	County
Reuse Exchange	1994	SCWMA
Disaster Response	As Needed	County/SCWMA

Each program is monitored annually. Waste volumes are reported annually to the State in the State's 303 Forms. Waste characterization analyses are conducted as necessary so that diversion progress can be tracked. Annually, the most recent waste characterization data and cost data are used to determine the success of programs and to modify programs accordingly. The minimal criteria used for evaluating a program's success are that it: 1) does not cost more than $1.00 per pound; 2) is collecting reasonable amounts of waste; 3) is mandated by law; and 4) is successfully supported by direct user fees.

The funding discussion for these programs is presented in Section 5.5.6 of this chapter.

5.6 EDUCATION AND PUBLIC INFORMATION

The SCWMA has conducted multiple educational and publicity campaigns on HHW and participated on State committees to improve HHW education. The SCWMA has been very successful at promoting programs and encouraging participation. However, in light of the efforts of the SCWMA and other jurisdictions, the SCWMA has concluded that significant reduction of HHW creation is outside of SCWMA's capability. The reality is that there are too many barriers to effectively educate the public about reducing the use of hazardous products, including:

1. Often there are not any non-toxic alternatives to toxic products.
2. Products are not required to list ingredients, limiting knowledge of a product's hazards.
3. Assessing "safer" toxics is a matter of debate as widely accepted standards do not exist.

4. There is not enough expertise to accurately guide the public to make better choices.

5. As a public entity, the SCWMA is limited in mentioning specific brands, which in the world of safer products can make a big difference. For example, one toilet bowl cleaner may be much safer than another, but they are both labeled as toilet bowl cleaners with no distinction.

6. There are vast numbers of product types and uses in the world of HHW.

7. The consequences of choosing one product over another is often too subtle to impact consumers. While products may not cause death or imminent cancer, the difference may still be significant. For example, one produce may cause immune system damage while a safer alternative may be just an irritant.

8. Sometimes better options are not the least toxic option. For example, a good insect control are baits. Baits are a better choice than sprays because of the containment of the toxics to a gel accessed only by the insect, yet the chemical composition of the bait can be equal or greater in toxicity to a spray.

9. Often when selecting less toxic options consumers are weighing one impacted ecosystem against another (i.e., air vs. water; mammals vs. aquatic life).

10. Current research on creating changes in behavior concludes that behaviors are simple and straight forward, and the public's barriers must be removed by the educational efforts.

King County, Washington recently conducted a lawn care campaign with a budget of $600,000 over three years. They established a baseline of sales data for targeted products, which was tracked throughout the campaign. The campaign was implemented in accordance with current research on creating behavior change. During the three-year campaign, sales of weed and feed and other targeted lawn care products increased faster than the population. There is no evidence that King County succeeded in changing any targeted behavior.

5.6.1 HHW Education Goals and Objectives

5.6.1.1 Goal

Increase proper disposal of HHW and decrease the cost of HHW management, improper disposal of HHW, and the generation of HHW.

5.6.1.2 Objectives

1. Promote HHW collection programs.

2. Work towards Extended Producer Responsibility (EPR) policies for any product that becomes an HHW upon disposal to reduce or eliminate the SCWMA's responsibility for HHW and to encourage redesign and reformulation.

3. Work towards the use of the Precautionary Principal (see Section 5.5.3.3) for the approval and continued use of chemicals.

4. Work towards State and national restrictions or bans on chemicals that create unnecessary harm to humans, wildlife or the environment.

5. Promote the five hazardous product management habits:

    1. Buy only what you need.
    2. Buy the least toxic option available.
    3. Use up what you have.
    4. Share what you cannot use.
    5. Properly dispose of what you cannot use or share.

6. Increase Integrated Pest Management (IPM) practices by SCWMA member jurisdictions.

7. Increase the use of safer janitorial supplies by SCWMA member jurisdictions through contractual agreements with janitorial contractors.

8. Participate and create regional and multi-agency campaigns on HHW or related topics (e.g. storm water).

5.6.2 Current and Historical HHW Educational and Public Information Efforts

5.6.2.1 Annual Recycling Guide

The SCWMA has produced a Sonoma County Recycling Guide annually since 1993, providing a wealth of information on recycling and household hazardous waste, including Household Toxics Roundup (HTR) dates, locations for recycling oil and filters, antifreeze, paint, and other hazardous wastes.

5.6.2.2 Eco-Desk

An information specialist answers the Eco-Desk hotline 3 hours a day, Monday through Friday. A 24-hour voice-mail system provides a variety of information such as oil and filter recycling centers (English and Spanish), HHW facility locations and operating hours, and paint recycling. Callers may leave messages in any of the information boxes and receive return calls.

5.6.2.3 Website

The SCWMA has an extensive website, www.recyclenow.org. The SCWMA website has HHW Collection information, the IPM campaign fact sheets and all the oil and filter, antifreeze and automotive battery recycling centers.

5.6.2.4 HHW Collection Programs Publicity

The SCWMA widely publicizes the HHW collection programs on an ongoing basis using a variety of methods including banners, utility bill flyers, press releases, collection schedule flyers, load checking personnel, event signs, garbage can flyers, newsletters, email notices, and word of mouth.

5.6.2.5 Oil and Filter Recycling Publicity

The SCWMA receives annual grant funds to promote oil and filter recycling. Since 1994, the SCWMA has implemented numerous campaigns, including advertising in Auto Traders, bilge pad give-aways, banners, boater cards, bumper stickers, Car Club Show sponsorship, car racing programs, collection center signs, direct mail, dockwalkers, driver's education videos, Earth Day events; fairs/event booths, give-aways (pens, t-shirts, magnets, tickets, etc.), live radio remotes, mailers to boaters, minor league baseball (trash can ads, outfield banners, program ads, radio spots), multi-family posters/flyers, newspaper articles, newspaper ads, oil container give-aways, oil change window decals, posters, radio spots, radio talk shows, radio dramas, scratcher games, shelf talkers, Spanish outreach (radio, newspapers, newsletters, container give-aways, give-aways, hotline), storm drain stenciling, teacher packets, television commercials, and utility bill flyers.

5.6.2.6 IPM Training Workshops

The SCWMA is conducting two workshops on Integrated Pest Management (IPM) techniques for City and County employees in the Winter of 2002. The workshops will focus on landscape pests and roadside maintenance. Depending on the outcome, future IPM workshops may be conducted.

5.6.2.7 IPM Store Campaign

The SCWMA, Sonoma County Water Agency and City of Santa Rosa teamed for the local implementation of a Bay Area regional IPM store campaign. The campaign was conducted in local hardware stores and nurseries. The campaign consisted of training store employees and distributing fact sheets, special displays, and shelf labels.

5.6.2.8 "No Toxics" Garbage Can Labels

To deter improper disposal of hazardous waste in garbage, "No Toxics" labels were applied to all residential garbage cans countywide. Stickers are applied to new cans as they are distributed.

5.6.2.9 Resource Lists

Resource lists are created and maintained for hazardous waste haulers, oil recyclers, fluorescent lamp recyclers and other resources as necessary. Resource lists are primarily used by the Eco-Desk when responding to specific requests for information.

5.6.2.10 Safer Alternatives Literature

The SCWMA has distributed a variety of brochures addressing safer alternatives to household hazardous wastes. Some of the brochure titles include: "Buy Smart, Buy Safe;" "Grow Smart, Grow Safe;" and "Recipes for Environmentally Friendly Cleaning."

5.6.2.11 Fair Booths/Give-aways

The SCWMA participates annually in fairs using a special booth display. Publicity give-aways, such as magnets, pens, posters, and t-shirts, are distributed from the booths.

5.6.2.12 General Media Coverage

The SCWMA receives a significant amount of press coverage for HHW issues. Each of the Roundups has been well advertised by the local media. Photos are not uncommon in print media, and there have been a handful of TV news spots and radio show spots. During the fall of 2001, HHW was the cover story on one issue of the Home and Garden section of the Press Democrat. HHW programs have also received coverage as some local hazardous waste dumping issues have arisen.

5.6.2.13 Annual Reports

Annual reports are published for the HHW program listing the programs and their accomplishments and is distributed to the SCWMA members.

5.6.2.14 Surveys

The SCWMA has conducted two telephone surveys that focused on HHW issues. The surveys have measured the public's knowledge of HHW issues and programs as high (70% or better).

5.6.2.15 California Peer Review Committee

The SCWMA participated in a statewide committee aimed at producing researched information on safer alternatives for dissemination to the public. The committee produced two websites, a program managers manual, and a mock public brochure.

5.6.2.16 Storm Drain Stenciling

The SCWMA initiated the storm drain stenciling programs in Sonoma County. The SCWMA continues to support ongoing labeling of storm drains.

5.6.2.17 Bay Area Oil Contest (Scratchers)

The SCWMA participated in the Bay Area oil campaign in 1995/96, which included an extensive radio and television campaign and scratchers for prizes.

5.6.2.18 Re-refined Oil Workshop

In 1997/98 the SCWMA sponsored two workshops conducted by the Community Environmental Council entitled *Re-refined Oil Workshop*: one for local government fleet managers and one for private fleet managers. The Cities of Petaluma and Santa Rosa use re-refined oil in their vehicle fleets. The SCWMA has printed bumper stickers to identify vehicles using re-refined oil.

5.6.2.19 Teacher Packets

Drivers education and auto shop teachers were sent an oil recycling kit every year between 1994 and 1997, including oil recycling posters, brochures, oil change record window stickers and magnets. In 1995, each teacher also received a video, *Lean Green Drivin' Machine*.

5.6.2.20 GREEN

In 1997, the SCWMA worked with 13 other local agencies, Government Resources Environmental Education Network (GREEN), to develop a campaign called *A Healthy Environment Begins at Home.* GREEN first developed a brochure that covers oil and antifreeze recycling, Household Toxics Roundups, pesticide use, hazardous waste spill clean-up, latex paint clean-up, and lead paint management, in addition to other environmental issues. GREEN expanded the campaign to include an interactive booth at the Thursday Night Market, a local weekly fair. Each week the booth was staffed by a different agency with a different emphasis. GREEN continues as a networking committee that has led to other collaborative efforts, including the IPM campaign described below.

5.6.3 Program Descriptions of New HHW Educational and Public Information Programs

5.6.3.1 HHW Program Promotion

The SCWMA will continue to promote HHW programs using the methods historically found successful, including utility bill flyers, press releases, banners, newsletters, emails, newspaper ads, radio spots, flyers, the annual Recycling Guide and the SCWMA website.

5.6.3.2 Extended Producer Responsibility (EPR) Policies

The SCWMA will continue to work for implementation of EPR policies by manufacturers. The SCWMA will join coalitions working towards EPR and lobby administrative and legislative representatives as necessary. EPR policies incorporate the life-cycle costs of a product, including recycling or disposal, into the manufacturing and sale price of a product. EPR policies promote redesign and reformulation to make recycling or disposal more cost effective. The SCWMA has already passed a resolution in support of EPR policies, joined the Product Stewardship Institute, and written a letter of support for the California Integrated Waste Management Board's 2002 Strategic Plan, which incorporates EPR policies.

5.6.3.3 Promote the Precautionary Principal

The Precautionary Principal states that decisions should be made based on a weight of scientific evidence. Currently, precedent requires proof of harm after a product has met initial requirements for introduction. Unfortunately, that standard has allowed products to remain in the market for decades after they have been determined to cause harm using a weight of evidence standard. While weight of evidence can be demonstrated with strong and consistent correlations between cause and effect, proof requires a great deal more science. Proof of harm can be difficult to establish with chemicals that are so pervasive in our community that no control group is available, such as with many pesticides. In order to measure and address the threat of such products, the SCWMA will promote the use of the Precautionary Principle. The SCWMA will introduce the public to the Precautionary Principal through available media such as press releases, the annual Recycling Guide, SCWMA website, and brochures. The SCWMA will lobby administrative and legislative representatives to adopt the Precautionary Principal at the State and Federal level. The SCWMA will join coalitions promoting the Precautionary Principal as such coalitions arise. The SCWMA will use the Precautionary Principal in making its own policy decisions.

5.6.3.4 Bans and Restrictions

Based on the Precautionary Principal, the SCWMA will work towards the ban and/or restriction of products that are demonstrated to pose harm to people, wildlife or the environment in Sonoma County. Due to the complexity of most hazardous product issues, it is far more effective to ban or restrict their distribution than to attempt to educate the public on appropriate use, disposal and alternatives. Therefore, products that pose particular or significant harm may be targeted for bans or restrictions. The SCWMA will introduce the public to the issues involving the product(s) of concern through available media such as press releases, the annual Recycling Guide, SCWMA website, and brochures. The SCWMA will lobby administrative and legislative

representatives to adopt bans or restrictions at the State and Federal level. The SCWMA will join coalitions promoting the bans or restrictions as such coalitions arise. The SCWMA will consider all desired bans and restrictions in making its own policies decisions.

5.6.3.5 Promote the Five Hazardous Product Habits

The SCWMA will promote the following hazardous product management habits:

1. Buy only what you need.
2. Buy the least toxic option available.
3. Use up what you have.
4. Share what you can't use.
5. Properly dispose of what you can't use or share.

The SCWMA will use available media, including flyers, utility bill flyers, press releases, HHW Facility signage, newsletters, emails, newspaper ads, radio spots, flyers, the annual Recycling Guide, the SCWMA website, give-aways, and posters.

5.6.3.6 Integrated Pest Management

Integrated Pest Management (IPM) incorporates a variety of management techniques to control pests. IPM does not exclude the use of pesticides, but seeks to find other solutions leaving pesticides as a last resort. IPM techniques are training intensive, and can generally not be well applied by the general public. Therefore, this program will target the training of public employees that maintain public properties to minimize the exposure of the public and the environment to pesticides and reduce disposal needs. It will also establish local government as a model and resource for other elements of the community.

5.6.3.7 Safer Janitorial Supplies

Each of the SCWMA's member jurisdictions has contracted janitorial services. The SCWMA will create guidelines designed to lead to the use of safer products by janitorial contractors. Member jurisdictions can use the guidelines in their bidding process and contracts with janitorial service providers. Since the selection of products can be very complex and involved, the guidelines will consist primarily of lists of banned or restricted ingredients with the intent to eliminate carcinogens, mutagens and teratagens. The guidelines will also include recommendations on how to further reduce the impact of products.

5.6.4 Implementation of New HHW Educational and Public Information Programs

Table 5-6 addresses the six criteria of implementation as required by Title 14, Section 18751.7(4)(d).

5.6.5 Monitoring and Evaluation of New HHW Educational and Public Information Programs

Table 5-7 addresses the six criteria of monitoring and evaluation as required by Title 14 Section 18751.7(4)(e).

5.6.6 Funding

The HHW infrastructure has already been implemented using a variety of stable funding sources as presented in Table 5-8. An SCWMA staff person is assigned to manage the HHW program and further develop the program. Limited additional funding is necessary to implement the new education and public information programs selected in this Element. Funding requirements and sources are presented in Table 5-8. The SCWMA reserves the right to modify, limit or discontinue programs as necessitated by funding limitations.

Table 5-6: Program Implementation: HHW Education and Public Information Programs				
	HHW Program Promotion	**EPR Policies**	**Precautionary Principal**	**Bans & Restrictions**
Audience	Potential Program Users	Manufactures, State and Federal Agencies and Legislators, General Public	Manufactures, State and Federal Agencies and Legislators, General Public	Manufactures, State and Federal Agencies and Legislators, General Public
Responsible Agency	SCWMA	SCWMA	SCWMA	SCWMA
Implementation Tasks	· Vary with program	· Write letters· Attend meetings· Speak on topic· Network· Sit on committees	· Write letters· Attend meetings· Speak on topic· Network· Sit on committees· Create short educational writeups	· Write letters· Attend meetings· Speak on topic· Network· Sit on committees· Create short educational writeups
Implementation Timeline	Ongoing	Ongoing	Short-term	As necessary
Implementation Cost	Varies with Program	Staff time	Staff time	Staff time
Safer Alternatives	Possibly	No	Possibly	Indirectly, yes
	Hazardous Waste Habits	**IPM**	**Janitorial Supplies**	
Audience	Residents	City and County employees who do landscaping or roadside maintenance	City and County purchasing agents and janitorial contractors	
Responsible Agency	SCWMA	SCWMA and member jurisdictions	SCWMA and member jurisdictions	
Implementation Tasks	· Develop brochures· Develop signage· Indoctrinate employees	· Organize workshops· Create networks· Develop/purchase resources	· Develop guidelines· Meet with purchasing agents	
Implementation Timeline	Short-term	Short-term	Short-term	
Implementation Cost	$2,000 annually	$10,000 annually	Staff time	
Safer Alternatives	Yes	No	No	

Table 5-7: Program Monitoring and Evaluation: HHW Education and Public Information Programs				
	HHW Program Promotion	**EPR Policies**	**Precautionary Principal**	**Bans & Restrictions**
MeasurementMethods	Participation in HHW programs being promoted	Success in establishing EPR policies	Success in changing legislative and legal mind set	Success in banning or restricting targeted products or effecting their redesign or reformulation
Evaluation Criteria	· Participation in HHW programs	· EPR policies adopted· Willing legislative sponsors · Strong coalitions	· Receptive CIWMB· Receptive legislators	· Ban/restrictions adopted· Willing legislative sponsors · Strong coalitions
Responsible Agency	SCWMA	SCWMA	SCWMA	SCWMA
Funding Requirements	None	None	None	None
Shortfall Contingencies	Modify approach being utilized	Modify "requests"	Long-term effortKeep up the pressure	Implement local bans and restrictions as necessary
Schedule	Varies with program	Flexible with legislative priorities	Long-term effortKeep up the pressure	Flexible with legislative priorities
	Hazardous Waste Habits	**IPM**	**Janitorial Supplies**	
MeasurementMethods	Phone Surveys	Increased knowledge and use of IPM techniques and active network	Inclusion of guidelines in janitorial contracts	
Evaluation Criteria	· Familiarity of public with five habits· Reported changes in behavior	· Attendance at training· Positive feedback from participants· Decrease in pesticide use	· Adoption of guidelines in contracts· Adherence of contractual requirements· Use of other recommendations	
Responsible Agency	SCWMA	SCWMA and member jurisdictions	SCWMA and member jurisdictions	
Funding Requirements	$30,000 every five years	None	None	
Shortfall Contingencies	Research new behavior change approaches	·Modify training approachSeek Council mandates	Seek Council mandates	
Schedule	Annual HHW reportFive year report	Annual HHW report	Annual HHW report	

Table 5-8: Funding			
Program	**Funding Needs**	**Funding Sources**	**Contingency Funding**
COLLECTION PROGRAMS			
Periodic Collections	Program discontinued in 2001		
HHW Facility	$600,000 annually	SCWMA Tipping Fee Surcharge	Increase to SCWMA Tipping Fee Surcharge and/or Reduce Service
Mobile Collection	$200,000 annually	SCWMA Tipping Fee Surcharge	Increase to SCWMA Tipping Fee Surcharge and/or Reduce Service
Vendor Collection	$30,000 annually	Used Oil Block Grant	Larger Portion of Used Oil Block Grant
Curbside Collection	$0.05-$0.10/HH/month	Garbage Rates	Increase Garbage Rates
Door-to-Door Collection	$100/pickup	User Fees and SCWMA Tipping Fee Surcharge	Increase User Fees and SCWMA Tipping Fee Surcharge and/or Reduce Service
BOPs	$15,000 annually	Landfill Tipping Fee	Increase to Landfill Tipping Fee and/or Reduce Service
E-waste Recycling	$750/ton, $150,000 annually	Recycling Fee	Increase Recycling Fee
CESQG	Varies	User Fees	Increase User Fees
Load Checking	$50,000 annually	Landfill Tipping Fee	Increase Landfill Tipping Fee
Reuse Exchange	Generates Cost Savings	Not Applicable	Not Applicable
EDUCATION PROGRAMS			
HHW Program Promotion	Varies, Unknown	SCWMA Tipping Fee Surcharge	Increase to SCWMA Tipping Fee Surcharge and/or Reduce Service
EPR Policies	Staff time	SCWMA Tipping Fee Surcharge	Increase to SCWMA Tipping Fee Surcharge and/or Reduce Service
Precautionary Principals	Staff time	SCWMA Tipping Fee Surcharge	Increase to SCWMA Tipping Fee Surcharge and/or Reduce Service
Bans & Restrictions	Staff time	SCWMA Tipping Fee Surcharge	Increase to SCWMA Tipping Fee Surcharge and/or Reduce Service
Hazardous Waste Habits	$2,000 annually$30,000 every 5 years	SCWMA Tipping Fee Surcharge	Increase to SCWMA Tipping Fee Surcharge and/or Reduce Service
IPM	$10,000 annually	SCWMA Tipping Fee Surcharge	Increase to SCWMA Tipping Fee Surcharge and/or Reduce Service
Janitorial Supplies	Staff time	SCWMA Tipping Fee Surcharge	Increase to SCWMA Tipping Fee Surcharge

CHAPTER 6

SITING ELEMENT

Pursuant to the California Code of Regulations (CCR), Title 14, Division 7, Article 6.5, the Siting Element presents an integrated strategy to ensure the provision of long-term disposal capacity in Sonoma County. The County will prepare and adopt a strategy to provide 15 years of combined permitted disposal capacity from the submission date of this document. The goals, objectives, and policies established for the Siting Element will be used in conjunction with siting criteria developed by County staff, the Local Task Force (LTF), and the general public to guide the process for securing required disposal capacity, either through the expansion of existing disposal sites, the construction of new solid waste disposal facilities, and/or agreements with out-of-county disposal sites. Procedural mechanisms to assure use of the established siting criteria and documentation from local jurisdictions agreeing to use procedures specified are presented. The final product is a blueprint for the long-term provision of solid waste disposal capacity.

6.1 GOALS, OBJECTIVES, AND POLICIES

The Sonoma County Waste Management Agency (SCWMA), in cooperation with the County of Sonoma, incorporated Cities and the LTF have developed a number of goals, objectives, and policies designed to encourage a high level of public involvement in solid waste facility siting processes. These goals and objectives will serve as benchmarks to evaluate and monitor the effectiveness of local policies and selected diversion programs over the short- (2007 to 2010) and medium-term (2010 to 2030) planning periods. Under legislation enacted in 1992, non-disposal facilities (transfer stations, recycling facilities, and composting projects) are not subject to the goals, objectives, policies, and siting criteria in the Siting Element. Discussion of these facilities can be found in the Non-Disposal Facility Element (NDFE) (see Chapter 7). Non-disposal facilities are mentioned in the following goals, objectives and policies only as needed for clarification.

6.1.1 Goals for the Safe Handling and Disposal of Solid Waste

The following goals are general statements regarding the siting and operation of solid waste disposal facilities.

- In order to help ensure the sustainability of our communities and to conserve natural resources and landfill capacity, the Sonoma County Waste Management Agency (SCWMA), County and the Cities will continue to improve their municipal solid waste management system through emphasis on the solid waste management hierarchy of waste prevention (source reduction), reuse, recycling, composting and disposal, with a goal of zero waste.

- The solid waste management system in Sonoma County will be planned and operated in a manner to protect public health, safety and the environment. Furthermore, all landfills that receive Sonoma County waste must be in compliance with State and Federal landfill regulations.

- Solid waste disposal facilities located in Sonoma County will be sited and operated in a manner to minimize energy use, conserve natural and financial resources, protect prime agricultural lands and other environmentally sensitive or culturally sensitive areas, and reduce greenhouse gas emissions.

- The County, in consultation with the Cities and the SCWMA, will develop a strategy for disposal capacity for solid waste not handled by other elements of the management hierarchy for at least fifteen-year horizon.

6.1.2 Objectives and Associated Programs for Achievement of Goals

The following objectives are intended to provide measurable events to document the County's progress in meeting the goals established above.

Short-Term Planning Period (2007 to 2010) Objectives

- Objective and consistent siting criteria and policies will be used for the siting of solid waste disposal facilities.

- Project proposers/owners will document the siting process and provide the public with information on a regular basis to ensure that the public and decision-makers are fully informed. Procedures for making siting decisions will be described in addition to the reasons for selection or elimination of potential sites.

- The County will estimate the need for countywide disposal capacity for the municipal solid waste stream after all feasible diversion programs are implemented and initiate efforts to establish and/or secure sufficient landfill capacity either in County and/or out of County to allow for achievement of the County's policy to provide at least fifteen years of disposal capacity.

- The County's existing transport and disposal agreements expire in August 2010. If necessary, on or before 2009, the County will initiate a process to either extend or bid new transport and disposal contracts which will secure the required landfill capacity before existing agreements expire.

Medium-Term Planning Period (2010 to 2030) Objectives

- If the County or other entities implement the siting process, it will provide public information to ensure that the public and decision-makers are fully informed. Procedures for making siting decisions will be described in addition to the reasons for selection or elimination of potential sites.

- The County, in consultation with the Cities, shall determine the necessary disposal requirements and shall ensure a minimum of 15 years of disposal capacity.

6.1.3 Policies to Facilitate Siting of Solid Waste Facilities

The following policy statements illustrate the intent and/or actions to be taken by the County

and/or the Cities to achieve the goals and objectives of the Siting Element.

- The County and/or the Cities will provide solid waste disposal facilities or transfer facilities within reasonable distances of the county's population centers. This policy will provide a means for achieving the goal of conservation of natural resources and energy and minimizing the cost of disposal.

- The County will cooperate with adjacent counties, considering their solid waste management planning and waste disposal needs. This includes possible export/import, as approved by the Board of Supervisors, of solid waste and encourages joint resolution of emergency problems.

6.2 DESCRIPTION OF EXISTING SOLID WASTE DISPOSAL FACILITIES

Landfilling of solid waste at the Central Disposal Site has been suspended. The decision of whether to use existing capacity or expand the disposal capacity will be made in the future.

The Santa Rosa Geothermal WMU Disposal Site, a Class III drilling muds disposal site owned and operated by Cal-Pine Operating Plant Services, is currently the only other landfill operating in Sonoma County. This privately-owned landfill does not accept municipal solid waste.

6.2.1 Description of the Central Disposal Site

The Central Disposal Site includes the Central Landfill, a Class III landfill. The following description briefly presents information regarding the Central Disposal Site, including disposal capacity, permitted capacity, permit constraints, and site characteristics:

Name:	Central Disposal Site
Address:	500 Mecham Road, Petaluma, CA 94952
Location:	2.8 miles southwest of the City of Cotati, in Sections 4 & 9, T5N, R8W, MDB&M
Assessor Parcel No.:	024-080-19 & 24-080-018
SWIS No.:	49-AA-0001
Permitted Area:	398.5 acres
Waste Types Landfilled:	All non-hazardous wastes consisting of household and commercial wastes, agricultural and demolition wastes, sludge from wastewater treatment plants (as per Title 23, Subchapter 15, Section 2523[c]).
Average Daily Loading:	1,461 tons per day; 2,435 cubic yards per day (in 2002)
Permitted Daily Capacity:	2,500 tons per day; 4,167 cubic yards per day

Site Owner:	County of Sonoma, Department of Transportation and Public Works
Site Operator:	County of Sonoma, Department of Transportation and Public Works, Integrated Waste Division

6.2.2 Description of other disposal sites

The following non-exclusive list presents information regarding the other disposal sites used for solid waste generated in Sonoma County:

Name:	Redwood Sanitary Landfill
Address:	P.O. Box 793, Novato, CA 94947
Location:	8590 Redwood Highway, Novato, CA 94958
SWIS No.:	21-AA-0001
Permitted Area:	210 acres
Waste Types Landfilled:	Mixed municipal, Sludge (Biosolids), Agricultural, Construction/demolition, Asbestos, Tires, Ash, Wood waste, Other designated.
Permitted Daily Capacity:	1,390 tons per day
Site Owner:	U.S.A. Waste of California
Site Operator:	Redwood Sanitary Landfill, Inc.

Name:	Potrero Hills Landfill
Address:	3675 Potrero Hills Lane, Suisun City, CA 94585
SWIS No.:	48-AA-0075
Permitted Area:	190 acres
Waste Types Landfilled:	Agricultural, Ash, Construction/demolition, Industrial, Mixed municipal, Sludge (Biosolids), Tires.
Permitted Daily Capacity:	4,330 tons per day
Site Owner:	Republic Services of California, L.L.C.
Site Operator:	Potrero Hills Landfill, Inc., P.O. Box 68, Fairfield, CA 94533

Name:	Keller Canyon Landfill
Address:	901 Bailey Road, Pittsburg, CA 94565
SWIS No.:	07-AA-0032
Permitted Area:	244 acres
Waste Types Landfilled:	Mixed municipal, Construction/demolition, Agricultural, Sludge (BioSolids), Other designated, Industrial.
Permitted Daily Capacity:	4,330 tons per day maximum (3,400 tons per day average)
Site Owner:	Keller Canyon Landfill, 901 Bailey Road, Pittsburg, CA 94565
Site Operator:	Keller Canyon Landfill, 901 Bailey Road, Pittsburg, CA 94565

Name:	Vasco Road Sanitary Landfill
Address:	4001 North Vasco Road, Livermore, CA 94550
SWIS No.:	01-AA-0010
Permitted Area:	222 acres
Waste Types Landfilled:	Contaminated soil, Industrial, Mixed municipal, Other designated, Green Materials, Construction/demolition.
Permitted Daily Capacity:	2,218 tons per day
Site Owner:	Republic Services of California I, L.L.C., 4001 Vasco Road, Livermore, CA 94550
Site Operator:	Republic Services of California I, L.L.C., 4001 Vasco Road, Livermore, CA 94550)

Name:	Hay Road Landfill
Address:	6426 Hay Road, Vacaville, CA 95687
SWIS No.:	48-AA-0002
Permitted Area:	256 acres
Waste Types Landfilled:	Construction/demolition, Agricultural, Sludge (BioSolids), Tires, Ash, Mixed municipal, Asbestos.

Permitted Daily Capacity:	2,400 tons per day maximum (1,200 tons per day average)
Site Owner:	Norcal Waste Systems, Inc., 6426 Hay Road, Vacaville, CA 95687
Site Operator:	Norcal Waste Systems, Inc., 6426 Hay Road, Vacaville, CA 95687
Name:	Yolo County Central Landfill
Address:	County Road 28H & County Road 104, Davis, CA 95616
SWIS No.:	57-AA-0001
Permitted Area:	473 acres
Waste Types Landfilled:	Tires, Sludge (BioSolids), Construction/demolition, Mixed municipal, Agricultural.
Permitted Daily Capacity:	1,800 tons per day
Site Owner:	County of Yolo Public Works Department, 292 Beamer St., Woodland, CA 95695
Site Operator:	County of Yolo Public Works Department, 292 Beamer St., Woodland, CA 95695
Name:	Clover Flat Landfill
Address:	4380 Clover Flat Road, Calistoga, CA 94515
SWIS No.:	28-AA-0002
Permitted Area:	44 acres
Waste Types Landfilled:	Agriculture, Construction/demolition, Industrial, Mixed municipal, Sludge (BioSolids), Tires.
Permitted Daily Capacity:	600 tons per day
Site Owner:	Clover Flat Landfill, Inc., 1285 Whitehall Ln., St. Helena, CA 94574
Site Operator:	Clover Flat Landfill, Inc., 1285 Whitehall Ln., St. Helena, CA 94574
Name:	Sacramento County Landfill (Kiefer)
Address:	12701 Kiefer Blvdl, Soughhouse, CA 95683

SWIS No.:	34-AA-0001
Permitted Area:	660 acres
Waste Types Landfilled:	Mixed municipal, Other designated, Sludge (BioSolids).
Permitted Daily Capacity:	10,815 tons per day maximum (6,362 tons per day average)
Site Owner:	County Sacramento, Public Works Dept., 9850 Goethe Road, Sacramento, CA 95827-3500
Site Operator:	County Sacramento, Public Works Dept., 9850 Goethe Road, Sacramento, CA 95827-3500

6.3 DISPOSAL CAPACITY REQUIREMENTS

Currently, no waste is disposed of within Sonoma County, so all waste must be exported. Tables 1A and 1B show the total waste in tons and cubic yards generated in Sonoma County by jurisdictional area, as well as unadjusted projections until 2030.

Each jurisdiction's proportion of the total county's waste was determined using the 2003 Disposal Report, as 2003 was the most recent year that all of the jurisdictions were channeling the waste through the County system. These proportions were applied to the disposal totals from the 2008 Disposal Report, and projected until 2030. A growth rate of 0.95% per year is based on the Brown, Vence, and Associates (BVA) report (Reassessment of the Long-Term Solid Waste Strategy Management Plan).

Table 1A: Sonoma County Disposal Projections in Tons 2008-2030

Year	Disposal by Jurisdiction (Tons)										
	Cloverdale	Cotati	Healdsburg	Petaluma	Rohnert Park	Santa Rosa	Sebastopol	Sonoma	Windsor	Unincorporated	Total
2008	7,077	7,034	17,964	44,965	26,830	156,292	13,733	12,782	17,505	96,112	400,293
2009	7,144	7,101	18,134	45,392	27,085	157,777	13,863	12,903	17,671	97,025	404,096
2010	7,212	7,169	18,307	45,824	27,342	159,276	13,995	13,026	17,839	97,947	407,935
2011	7,280	7,237	18,481	46,259	27,602	160,789	14,128	13,150	18,008	98,877	411,810
2012	7,349	7,306	18,656	46,698	27,864	162,316	14,262	13,274	18,179	99,817	415,722
2013	7,419	7,375	18,833	47,142	28,129	163,858	14,397	13,401	18,352	100,765	419,672
2014	7,490	7,445	19,012	47,590	28,396	165,415	14,534	13,528	18,527	101,722	423,659
2015	7,561	7,516	19,193	48,042	28,666	166,986	14,672	13,656	18,703	102,688	427,683
2016	7,633	7,587	19,375	48,498	28,938	168,573	14,812	13,786	18,880	103,664	431,746
2017	7,705	7,659	19,559	48,959	29,213	170,174	14,952	13,917	19,060	104,649	435,848
2018	7,778	7,732	19,745	49,424	29,491	171,791	15,094	14,049	19,241	105,643	439,988
2019	7,852	7,805	19,933	49,894	29,771	173,423	15,238	14,183	19,423	106,647	444,168
2020	7,927	7,880	20,122	50,368	30,054	175,070	15,383	14,317	19,608	107,660	448,388
2021	8,002	7,954	20,313	50,846	30,339	176,733	15,529	14,453	19,794	108,682	452,648
2022	8,078	8,030	20,506	51,329	30,628	178,412	15,676	14,591	19,982	109,715	456,948
2023	8,155	8,106	20,701	51,817	30,918	180,107	15,825	14,729	20,172	110,757	461,289
2024	8,233	8,183	20,898	52,309	31,212	181,818	15,976	14,869	20,364	111,809	465,671
2025	8,311	8,261	21,096	52,806	31,509	183,546	16,127	15,011	20,557	112,872	470,095
2026	8,390	8,339	21,297	53,308	31,808	185,289	16,280	15,153	20,752	113,944	474,561
2027	8,469	8,419	21,499	53,814	32,110	187,049	16,435	15,297	20,950	115,026	479,069
2028	8,550	8,499	21,703	54,325	32,415	188,826	16,591	15,442	21,149	116,119	483,620
2029	8,631	8,579	21,909	54,841	32,723	190,620	16,749	15,589	21,350	117,222	488,215
2030	8,713	8,661	22,118	55,362	33,034	192,431	16,908	15,737	21,552	118,336	492,853
Total											10,235,975

Table 1B: Sonoma County Disposal Projections in Cubic Yards 2008-2030

Year	Disposal by Jurisdiction (Cubic Yards)										
	Cloverdale	Cotati	Healdsburg	Petaluma	Rohnert Park	Santa Rosa	Sebastopol	Sonoma	Windsor	Unincorporated	Total
2008	11,794	11,723	29,938	74,939	44,715	260,476	22,887	21,302	29,173	160,180	667,128
2009	11,906	11,835	30,223	75,651	45,140	262,951	23,104	21,504	29,451	161,702	673,466
2010	12,019	11,947	30,510	76,369	45,569	265,449	23,324	21,709	29,730	163,238	679,864
2011	12,133	12,061	30,800	77,095	46,002	267,970	23,545	21,915	30,013	164,789	686,323
2012	12,249	12,175	31,092	77,827	46,439	270,516	23,769	22,123	30,298	166,354	692,843
2013	12,365	12,291	31,388	78,567	46,880	273,086	23,995	22,333	30,586	167,935	699,425
2014	12,482	12,408	31,686	79,313	47,325	275,680	24,223	22,546	30,876	169,530	706,069
2015	12,601	12,526	31,987	80,067	47,775	278,299	24,453	22,760	31,170	171,141	712,777
2016	12,721	12,645	32,291	80,827	48,229	280,943	24,685	22,976	31,466	172,766	719,548
2017	12,842	12,765	32,598	81,595	48,687	283,612	24,920	23,194	31,765	174,408	726,384
2018	12,964	12,886	32,907	82,370	49,149	286,306	25,156	23,415	32,066	176,064	733,285
2019	13,087	13,008	33,220	83,153	49,616	289,026	25,395	23,637	32,371	177,737	740,251
2020	13,211	13,132	33,535	83,943	50,088	291,772	25,637	23,862	32,679	179,426	747,283
2021	13,337	13,257	33,854	84,740	50,563	294,544	25,880	24,088	32,989	181,130	754,382
2022	13,463	13,383	34,176	85,545	51,044	297,342	26,126	24,317	33,302	182,851	761,549
2023	13,591	13,510	34,500	86,358	51,529	300,167	26,374	24,548	33,619	184,588	768,784
2024	13,720	13,638	34,828	87,178	52,018	303,018	26,625	24,781	33,938	186,342	776,087
2025	13,851	13,768	35,159	88,006	52,512	305,897	26,878	25,017	34,261	188,112	783,460
2026	13,982	13,899	35,493	88,843	53,011	308,803	27,133	25,254	34,586	189,899	790,903
2027	14,115	14,031	35,830	89,687	53,515	311,737	27,391	25,494	34,915	191,703	798,417
2028	14,249	14,164	36,171	90,539	54,023	314,698	27,651	25,736	35,246	193,524	806,001
2029	14,385	14,298	36,514	91,399	54,537	317,688	27,914	25,981	35,581	195,363	813,658
2030	14,521	14,434	36,861	92,267	55,055	320,706	28,179	26,228	35,919	197,219	821,388
Total											17,059,276

6.3.1 Existing Countywide Disposal Capacity

The existing disposal capacity is 9,160,293 cubic yards (5,496,176 tons) as of September 25, 2006. The decision to utilize the remaining landfill capacity will be determined in the future.

6.3.2 Anticipated Countywide Disposal Capacity Needs

Tables 1A and 1B display the projected countywide disposal capacity needs until 2030 in terms of tons and cubic yards, respectively. Strategies involving disposal outside of Sonoma County are discussed further in Section 6.7.

6.4 CRITERIA FOR ESTABLISHING NEW OR EXPANDING EXISTING SOLID WASTE FACILITIES

The siting criteria included in this section are based on federal, state, and local laws and policies regarding solid waste facilities. Siting criteria were developed according to Title 14, Chapter 9, Article 6.5 for preparing the Siting Element of the County Integrated Waste Management Plan (CoIWMP). The state guidelines outline specific categories of criteria to be used for establishing new, or expanding existing, solid waste facilities for ultimate disposal (landfills and transformation or incineration facilities). Several criteria were based on federal (Environmental Protection Agency) landfill locational restrictions (40 CFR 258), which are generally exclusionary in nature. It should be noted that exclusionary criteria do not necessarily exclude an entire site from consideration, but may only pertain to portions of a site.

6.4.1 Siting Criteria Development

The 1985 CoSWMP stated that public acceptance is the primary practical consideration in siting solid waste disposal facilities. The County actively sought to involve the public in the development of the siting criteria. An initial list of siting criteria was developed and presented to the public in a series of ten public workshops, five held in November, 1992 and five in February, 1993. The Sonoma County Permit Resource Management Department (PRMD) then reviewed and commented on the draft siting criteria. Based on PRMD comments and input from the LTF, the process for developing the siting criteria was revised to provide for a greater opportunity for public input into the development of the criteria. Should a public or private entity seek to create a new or expand an existing landfill, the expanded process will involve subjecting the criteria to more extensive public review during identification of specific landfill locations, an effort that was not undertaken during development of the Siting Element.

The siting criteria in this Siting Element reflect the community's interests, based on the public workshops conducted, as well as regulatory and technical considerations. The siting criteria listed provide a sound foundation for moving forward with a public process through the Siting Study and associated California Environmental Quality Act (CEQA) activities to locate new landfill site capacity.

6.4.2 Siting Criteria and Their Application

Siting criteria can be categorically defined as either exclusionary or comparative. Exclusionary criteria are generally regulatory land use restrictions created at the federal, state, or local level. Exclusionary criteria are designed to detect and eliminate clearly inappropriate sites from further consideration before undertaking the more costly and time consuming process of applying comparative criteria.

The exclusionary criteria define parameters that need to be satisfied for a piece of land to be considered for a landfill site. For example, a parcel that is located entirely in a flood plain would be excluded from further consideration as a candidate landfill site. The exclusionary criteria do not restrict development of a parcel as a landfill if only a portion of the parcel is excluded. If the land located in a flood plain included other property that would be suitable for a landfill, the portion in the flood plain could be used as landfill buffer. As a result, a property could have a portion that is excluded and not used for landfill and the remainder potentially suitable as a landfill site.

The exclusionary criteria will be applied to the entire county to identify those broad areas of the county that are not suitable for siting a new landfill prior to beginning the CEQA process. Should any public or private entity decide to resume in-County waste disposal, that entity will conduct a Siting Study to accomplish the following:

- Review the means that are available for achieving at least fifteen years of disposal capacity.
- Provide for extensive public participation in the landfill siting process, including low-income and minority populations to ensure environmental justice concerns are addressed.
- Refine the comparative criteria to reflect the public's considerations.
- Adopt the final comparative siting criteria by the Board of Supervisors at a public hearing before the criteria are used to identify potential sites.
- Seek nominations from property owners for land to be considered as a potential site.
- Apply the comparative criteria to each of the sites nominated or identified in this review by the County. Rank the sites to identify the best ones to be evaluated in a process to comply with CEQA.

The development of comparative criteria is the primary mechanism available to local constituents to influence site selection prior to the public hearing process. It is essential that local citizens be included in the process of defining local comparative criteria to minimize protracted conflict over various sites as different projects arise. The comparative criteria in this Siting Element were developed through such a public process – input received from the public at workshops, input from the LTF, and review at the public hearings conducted to adopt the 1996 CoIWMP. Comparative criteria will be further structured with numeric values and modified, as needed, in the Siting Study prior to the evaluation of any proposed landfill site.

The comparative criteria, further refined into environmental, community, economic, engineering, and administrative categories, are described in more detail in the following discussion. Should the County ever decide to pursue a new landfill site, Figure 6-2 graphically depicts the process envisioned for siting landfill capacity in Sonoma County.

6.4.2.1 Exclusionary Criteria

The first set of criteria are the exclusionary criteria. These criteria identify constraints that make

the siting of a landfill so difficult that further analysis or evaluation would be unproductive. The criteria are useful in the initial screening to identify general areas of the county which may have potentially suitable sites. The following list contains the exclusionary criteria selected by Sonoma County or required by local, state, and federal laws and regulations. Figure 6-3 is a map showing the areas of the county remaining after application of the exclusionary criteria which are reflected as the shaded portions of the county.

- Lands within 10,000 feet of a runway used by jet aircraft, or 5,000 feet of a runway used by propeller-driven aircraft
- Lands within a FEMA designated 100-year flood plain
- Lands restricted by State and Federal regulatory requirements over earthquake fault zones.
- Lands within channels of USGS designated perennial streams
- Lands within the urban boundary of an incorporated city
- Lands within designated Community Separators
- Lands within designated Critical Habitat
- Lands within the Coastal Zone
- Lands designated with the following land use in the County General Plan
    - Urban Residential
    - Rural Residential
    - General or Limited Commercial
    - Recreation and Visitor Serving Commercial
    - General and Limited Industrial
    - Public/Quasi-Public (unless the designation is applied to accommodate a landfill)

6.4.2.2 Comparative Criteria

The comparative criteria would be used to evaluate sites which are not located in exclusionary areas and that are suitable based on their physical attributes. These criteria would be used to evaluate across a wide spectrum of environmental, engineering, socio-political, and economic factors. These Comparative Criteria, with the Exclusionary Criteria, form the basis of the Siting Study. During the Siting Study these Comparative Criteria will be modified, new criteria added, and a ranking and weighting system developed.

Environmental

1.	Groundwater Flow System:	In accordance with the County General Plan, watersheds and groundwater basins should be preserved by avoiding the placement of potential pollution sources in areas with high percolation rates. Therefore, sites located outside of recharge areas are the most desirable for landfill construction and operation.
2.	Proximity to Surface Water:	The proximity of a site to surface water and existing or beneficial uses of the surface water is of obvious importance. A candidate site which is far from a surface water body would be a highly rated site. A poorly rated site would be one that is near a surface water body.
3.	Depth to Groundwater:	The water table depth in the underlying sediments is important for both landfill operational considerations (such as placement of groundwater monitoring wells) and also from a standpoint of potential groundwater contamination.
4.	Existence of Wetlands:	Federal regulations for siting landfills (40 CFR 258) prohibit the location of landfills in wetlands unless the construction and operation of the landfill will not cause or contribute to violations of state water quality standards, violate toxic effluent standards under the Clean Water Act, violate the Marine Protection Act, jeopardize endangered species, or cause degradation of wetlands. Data sources to be evaluated will include those from the California Department of Fish and Game, California Native Plant Society, and the Corps of Engineers.
5.	Air Quality - Non-Attainment for Particulates	This criterion will measure whether an area is in attainment PM_{10} and ozone. A site in a non-attainment area would be less desirable than one in an attainment or unclassified area. Wind direction and distance to nearby sensitive receptors will also be considered in evaluating this criterion.
6.	Proximity to Threatened or Endangered Species - Animals:	In accordance with federal regulations the operation of a landfill at a site which would cause or contribute to the taking of any endangered species of plant, fish, or wildlife could constitute a fatal flaw. Similarly, the facility or operation cannot result in the destruction of critical habitat of endangered or threatened species. Data sources to be evaluated will include the State Department of Fish and Game, Federal Fish and Wildlife Service, and General Plan Open Space Element, Critical Habitat designations.
7.	Proximity to Threatened and	This criterion is similar to the criterion above, except that it

Endangered Species- Plants: covers threatened or endangered plant species. Data sources to - Plants be evaluated will include the State Department of Fish and Game, California Native Plant Society, and General Plan Open Space Element, Critical Habitat designations.

Community

1. Population Density Near Site: This criterion is used as one measure of the proposed landfill's potential impact on people.

2. Compatibility with Adjacent Land Uses: Existing and proposed land uses are considered. Also considered is the site's potential for impact mitigation.

3. Residents Along Access Routes/Road Safety: This criterion reflects the number of residents being affected by haul traffic to a potential site.

4. Schools and Hospitals Along Access Routes: This criterion measures the impact of solid waste truck haul traffic, including noise, traffic congestion, and safety considerations, on sensitive receptors such as schools and hospitals.

5. Proximity to Parks or Resource Lands: Landfills would generally be excluded from within a Federal Recreation Area, State Park, Department of Natural Resources – Natural Resources Conservation Area, County Park, etc. Sites valued for their pristine environment or held in reserve for use at a future time and are incompatible with a landfill.

6. Presence of Cultural, Historic, or Archaeological Resources: This criterion excludes locations which would interfere with the County General Plan's goal of preserving sites with significant archaeological, historical, or cultural resources. These resources include sites on the National and State Historic Register, areas identified as being of archaeological importance to Native Americans, and those sites/buildings/trees that have been identified as significant by the County Landmarks Commission.

7. Visual Impacts of Site: The magnitude of the landfill visual impacts relates to the location and topography of the site and to the availability of buffers to screen the operations. Aesthetics impacts are also important to consider.

8. Proximity to Major Transportation Corridors: This criterion considers the effects of landfill traffic on local roads, as well as the costs of hauling waste to a landfill. Those sites that are close to major transportation corridors will be less likely to impact local roads and residents (traffic congestion, noise, safety concerns, etc.) than sites located farther from major roads. Those sites closer to major transportation corridors would require less fuel to reach; this would help meet the county's goal of conserving

energy.

Engineering

1. Soil Suitability: A more highly rated site would have both fine- and coarse-grained soils which could provide bottom soil liner, final soil cover and intermittent soil cover during operation. The use of on-site soils can reduce the cost of landfill construction and the impacts of importing off-site materials.

2. Geology: This criterion is a measure of the permeability/transmissivity of materials underlying a proposed site. The geologic materials that have been identified in Sonoma County can be generally divided up into two groups: (1) unconsolidated deposits and (2) semi-consolidated to consolidated rocks. The permeability and transmissivity of materials within these general groups can be an indication of site security in terms of leachate and gas containment and as an indication of barriers to groundwater movement.

3. Fault Areas: Proximity to active fault areas is an important criteria in terms of maintaining the integrity of the landfill control structures (such as leachate and gas collection) and the engineering measures that would be needed to prevent damage from seismic movements. State and Federal regulatory requirements for earthquake fault zones will be followed to evaluate potential landfill sites.

4. Unstable Areas: Locating landfills on sites that have unstable geological conditions is generally undesirable. Unstable areas are defined as those locations that are susceptible to natural or human-induced events or forces capable of impairing the integrity of some or all of those landfill structural components that are responsible for preventing releases to the environment (such as leachate or gas control structures). Criteria categories are:

   - Category A – Areas of greatest relative stability due to low slope inclination – dominantly less than 15%.
   - Category B – Areas of relatively stable rock and soil units on slopes greater than 15% containing few landslides
   - Category Bf – Locally level areas within hilly terrain - may be underlain or bounded by unstable or potentially unstable rock materials
   - Category C – Areas of relatively unstable rock and

soil units on slopes greater than 15% containing abundant landslides

- Landslide Area – Areas of lowest relative slope stability; failure and downslope movement of rock and soil has occurred or may occur

- Flood Hazard, 100-year Flood Plains: Federal regulations (40 CFR 258) prohibit the placement of a landfill within a 100-year flood plain. The hazard from floods is due primarily to potential erosion, washout of waste from the site and restrictions on reducing the water storage capacity of a watershed basin.

- Seismic Impact Zones: Federal regulations for siting landfills (40 CFR 258) prohibit development of a landfill in seismic impact zones unless it can be proven that all containment structures (leachate collection system, surface water collection system, etc.) have been designed to resist the maximum horizontal acceleration of the earth beneath the site.

- Annual Precipitation: This criterion measures how much water will need to be contained on the landfill site, both on the surface of the landfill property as runoff and within the landfill as leachate.

- Erosion Potential: Soil characteristics, slope, and surrounding topography may create conditions that are particularly susceptible to erosion (from rainfall). Erosion results in stormwater runoff having high levels of sediment with the potential for impacting water quality in surface waters. Extensive and costly engineering controls may be required to prevent stormwater runoff, and siltation and sedimentation impacts to nearby surface water.

Administrative

1. Site Capacity/Site Life: A potential site should have at least fifteen years of capacity. Sites with more capacity are ranked higher.

2. Agricultural Land: The General Plan recognizes the importance of agricultural land in the county stating that lands containing agricultural and productive woodland soils should be preserved, and conversion of this land to incompatible residential, commercial, or industrial uses be avoided.

3.	Proximity to Existing Uses of Groundwater:	Landfill operations have the potential for contamination of groundwater. Therefore, it is important to protect beneficial uses as much as possible by choosing sites located further from these areas.
4.	Airport Safety:	Federal Aviation Administration Order 5200.5 prohibits the development of landfills within 5,000 feet from a runway used by propeller-driven aircraft and 10,000 from a runway used by jet aircraft.
5.	Site Parcel Assemblage:	This category compares the various sites as to the ease (availability of information, communications, ease of acquisitions and mitigation) with which the required parcels for the landfill site could be assembled.
6.	Ownership/Acquisition Potential:	This category compares sites based the upon potential ease with which a selected property might be acquired.

Economic

1.	Total Operating Costs:	A number of elements would be combined for the total operation costs, including: (1) landfill operation costs (cost of daily and intermediate cover, and operation and maintenance of all landfill access roads and environmental monitoring systems), +(2) leachate treatment and control, (3) gas control, and (4) post-closure costs (maintaining the final cover, surface water management systems, gas control facilities, environmental monitoring facilities and the leachate treatment facilities). For all of these elements, planning level costs for labor, equipment and materials should be estimated and daily operational costs should be considered for the projected life of the selected landfill site.
2.	Site Development Costs:	These are the capital expenditures at the site including the cost of building the landfill, equipment to begin operations, and other costs of opening a landfill.
3.	Transportation Costs:	Based upon engineering and economic analysis, the cost of solid waste transport to each site would be estimated. The estimate for each site would include operation and maintenance costs incurred by the County, municipal haulers, and private/ commercial haulers for transport and transfer of solid waste.
4.	Parcel Costs:	Using the assessed valuations maintained by the county and review of other county records, the purchase price for each potential site will be estimated as appropriate.

6.4.3 Procedural Mechanisms To Assure Use Of Criteria In Siting Solid Waste Disposal

Facilities

The preliminary Siting Criteria were adopted by the County and incorporated Cities when they approved the 1996 CoIWMP. In adopting the Siting Criteria in this CoIWMP, the County and Cities confirmed the procedural mechanisms described here that will be used by the public or private entity for siting a new landfill. These procedural mechanisms include a Siting Study, which will refine the siting criteria and provide weighting and ranking factors for the comparative siting criteria with input from the LTF and public. Once into the CEQA process, the Siting Criteria may also have a role in identification and evaluation of alternatives to the proposed project.

6.5 PROPOSED SOLID WASTE FACILITIES

There are no pending applications for a solid waste facility at this time.

6.6 CONSISTENCY WITH COUNTY GENERAL PLAN

There are no current proposals for new or expanded landfills in Sonoma County at this time.

6.6.1 Sites Reserved For Solid Waste Disposal or Transformation Facilities

The Central Disposal Site is currently the only site with a landfill reserved for solid waste disposal in Sonoma County.

6.6.2 Sites Tentatively Reserved For Solid Waste Disposal or Transformation Facilities

There are no sites tentatively reserved for solid waste disposal or transformation facilities in Sonoma County.

6.7 STRATEGIES FOR DISPOSING OF SOLID WASTE IN EXCESS OF CAPACITY WHEN NEW OR EXPANDED SITES ARE NOT AVAILABLE

Due to significant uncertainties, the County of Sonoma is considering out-of county disposal at this time, although potential sites for disposal may exist within Sonoma County. The SCWMA supports efforts to identify potential in-county disposal sites.

6.7.1 Short Term Disposal Strategy

Out-of-county disposal contracts are currently in place to ensure sufficient disposal capacity until 2010. The daily tonnage commitment with contracted landfills are detailed in the table below.

6.7.2 Medium Term Disposal Strategy

The County has released an RFP that is expected to be awarded in April 2010 that will secure out-of-county landfill capacity through August 2014. Beyond this, the County's medium term (2010 - 2030) disposal strategy will consider the following options:

- Out-of-county disposal with waste transport by truck
- Out-of-county disposal with waste transport by rail

- Resumption or expansion of disposal at the Central Disposal Site

Day Type	Days per Year	TPD	Contract Capacity
Weekdays	261	1,750	456,250
Saturdays	52	750	39,107
Sundays	52	300	15,643
		Total	511,000

While the above options will secure, at minimum, 15 years of disposal capacity through contracts which specify maximum allowed daily tonnages, the options differ in capital investment and level of commitment required by participating jurisdictions. It is therefore necessary that the County work with the Cities to determine which are interested in each option. After the interest is determined, the County shall determine whether to reopen the Central Disposal Site or enter into a succession of medium term agreements (for example, ranging from two to five years) with haulers or landfills to secure at least 15 years of disposal capacity through the medium term planning horizon of 2030. Within six months of the expiration of a medium term disposal agreement, the County will begin a new RFP process or consider extending the existing agreement. At any point that the Central Disposal Site is permitted and operational, the County may make arrangements to resume disposal at the Central Disposal Site. The succession of agreements or arrangements will secure at least 15 years of disposal capacity. The selection of in-county or out-of-county disposal will depend in part on the result of any such agreements between the County, the Cities, and appropriate regulatory agencies.

Contracts between the County, haulers, and landfill owners would secure the County's ability to guarantee disposal capacity and the means with which to transport waste generated within Sonoma County. The BVA analysis and the analysis below indicate that there is adequate landfill capacity in the Bay Area for the next 15 years (source: Assessment of Long-Term Solid Waste Management Alternatives, BVA)

Landfill	County, Roundtrip Distance	Permit Estimated Closure Date	Maximum Permitted Capacity (TPD)	Average Permitted Capacity (TPD)	Current Disposal (TPD)	Available Capacity (TDP)
Redwood	Marin County, 44 miles	2024	1,390	-	1,200	190
Potrero Hills	Solano County, 136 miles	2011*	4,330	3,400	3,049	351
Keller Canyon	Contra Costa County, 147 miles	2058	3,500	2,960	2,940	20
Hay Road	Solano County, 162 miles	2070	2,400	1,200	550	650
Central Yolo	Yolo County, 180 miles	2081	1,800	-	500	1,300
Kiefer	Sacramento County, 210 miles	2035	10,815	6,362	2,500	3,862
					Total	6,373

*The current permit estimated closure date for Potrero Hills Landfill is 2011; the landfill is applying to expand operations but those expansion plans are currently in litigation.

Sources: Estimated closure date, maximum permitted capacity, and average permitted capacity were acquired from the facility permits obtained from the California Integrated Waste Management Board's Facility/Site Search webpage (http://www.ciwmb.ca.gov/swis/Search.aspx) on October 22, 2009, and current disposal TPD were obtained from Brown, Vence, and Associates, Assessment of Long-Term Solid Waste Management Alternatives in Sonoma County, Final Report, January 2006. Appendix B, Table 2.

6.7.3 Waste Transport by Truck

In response to the lack of permitted landfill capacity, the County contracted for out-of-County haul and disposal through three separate companies for a five-year period beginning September 1, 2005.

The County is in a favorable position to haul to out-of-County landfills by truck. The County currently has five transfer stations that allow for transfer of solid waste to trucks to transport the waste to out-of-County disposal sites. Another positive factor is that the County owns the sites and is already permitted to operate these transfer facilities, so no additional site acquisition, regulatory, or permitting activities are anticipated. Although flow control is important for rail haul disposal commitments, it is less critical for the strategy involving truck haul and disposal. Little new capital investment is required for truck haul and the operating costs are more easily reduced should tonnage leave the disposal system.

The potential downside to out-of-County haul and disposal is the risk of losing disposal capacity sometime in the future. Although the County may contract for certain capacity, there is no assurance that this capacity will always be available. Furthermore, landfill options are more limited than with rail haul, as the cost effectiveness of truck hauling declines rapidly as distance from Sonoma County increases.

6.7.4 Waste Transport by Rail

The infrastructure requirements for development of hauling waste by rail (WBR) to out-of County disposal sites generally include the following five components:

- Transfer Station to collect, recover divertible materials, and load residual waste into intermodal containers or consolidate for loading gondola cars
- Local Rail Yard to load intermodal containers or gondola cars on spur track
- Rail Haul for transporting containers or gondola cars over rail lines to the remote rail yard
- Remote Rail Yard to off-load the containers or material in gondola cars to the landfill or transfer vehicles for haul to the landfill
- Landfill for disposal of residual solid waste

While WBR increases accessibility to a larger number of disposal sites than truck hauling, there is significant capital investment required. This necessitates an agreement between a significant number of Cities and the County to share the capital costs, and a long term commitment to WBR in the form of 20 to 25 year contracts with the North Coast Rail Authority (NCRA) and the destination landfill(s). Potential capital investments include the retrofit of existing transfer stations to accommodate the intermodal operating system, the purchase of sufficient intermodal containers to satisfy the disposal needs of Sonoma County, and the development of at least one or more loading stations along the rail line.

In an effort to promote waste diversion and zero waste, special care must be made with regard to tonnage commitments with the destination landfill(s). Agreements will be created with flexibility such that the County's landfill capacity commitments decrease in proportion to the success of our source reduction and recycling programs. Agreements which provide an economic disincentive for waste reduction will be avoided.

6.7.5 Divestiture of County Disposal System / Reopening Central Disposal Site

The County is considering a process in which another public or private organization may assume ownership of the County Disposal System, either in part or in whole, or may reopen the Central Disposal Site itself. A new owner may pursue actions which would allow for waste to again be deposited at the Central Disposal Site. Such actions would likely include additional remediation and waste discharge requirement efforts at the site, which would occur under the direction of the RWQCB and possibly other applicable agencies. In addition, any resumed or expanded landfilling operations at the Central Disposal Site would also be subject to applicable CEQA review requirements, and may require a County Use Permit.

6.8 SITING ELEMENT IMPLEMENTATION

6.8.1 Responsible Agencies

Since all solid waste facilities in Sonoma County are currently owned by the County of Sonoma, the Board of Supervisors is the responsible agency for implementing the Siting Element. DTPW will implement the Board's policies by working with the SCWMA, PRMD, LEA, and the LTF.

In the event that a private entity should seek to establish a new or expand an existing landfill, that entity would be required to implement the Siting Element as defined in this ColWMP. This entity would implement the Board's policies by working with the SCWMA, PRMD, LEA, and LTF.

6.8.2 Implementation Tasks

Should a public or private entity decide to expand an existing or create a new landfill within Sonoma County, the following task list summarizes the process for achieving the goal of maximizing disposal capacity.

Task 1. Siting Study/Options Evaluations

a. Siting Study will include the Board of Supervisors adopting the refined Siting Criteria and an environmental and economic consideration of various long-term disposal options.

b. Screen county for candidate sites and request public nomination of sites.

c. Apply first round siting criteria to candidate sites, develop ranking, and review criteria application.

d. Complete first round ranking of sites. It is expected that 8 to 13 sites may be identified at this step.

e. Second round of screening of sites with field confirmation of significant siting criteria.

f. Rank sites and recommend 3 to 5 sites as final candidates in report to Board of Supervisors. Board accepts report and gives direction to staff to proceed with preliminary design and CEQA.

Task 2. Preliminary Design

a. Issue RFP, hold interviews and execute contract for investigation of the final candidate sites. Work will include geotechnical and hydrogeotechnical research and biological reconnaissance of the sites.

b. Prepare preliminary design including geotechnical and hydrogeotechnical investigation and biological reconnaissance.

c. Review of preliminary design report and recommendation for selected site.

d. Prepare final preliminary design report and recommendation for selected site.

Task 3. CEQA

a. Issue RFP, hold interviews and execute contract for preparation of project level EIR for candidate site(s) and selected alternatives.

b. Prepare Initial Study, present to the Environmental Review Committee, issue Notice of Preparation (NOP), meet with regulatory agencies, and hold public meetings for input for the EIR.

c. Prepare Draft EIR (DEIR).

d. Issue and circulate Notice of Completion (NOC) to open public review period.

e. Planning Commission holds hearings on DEIR and Final EIR (FEIR).

f. Board of Supervisors certifies FEIR and adopts the project selecting the best site.

Task 4. Final Design

a. Prepare final design plans and specifications for first phase improvements.

b. Bid first phase improvements and award contract.

c. Complete first phase improvements.

Task 5. General Plan Amendment

To run concurrent with design and construction. Process general plan amendment to have scheduled site zoned Public/Quasi-Public or other appropriate zoning. Includes hearing before the Planning Commission and Board of Supervisors.

Task 6. Permits

To run concurrent with design and construction. Permitting agencies include the California Integrated Waste Management Board (CIWMB), Regional Water Quality Control Board, Air Quality Management District, and Sonoma County PRMD. Documents submitted to the CIWMB will include a Joint Technical Document, including a Report of Disposal Site Information, Preliminary Closure Plan, and Preliminary Post Closure Maintenance Plan.

6.8.4 Revenue Sources

Funding for the implementation of the Sonoma County Siting Element and all facility siting programs and procedures need to be identified for any proposal concerning solid waste facility siting. If the County of Sonoma makes the decision to site a new landfill, funds for implementing the siting element would come from a tipping fee surcharge. If another public or private entity intends to establish a new landfill site, either entity would be responsible for funding the implementation of the siting element.

Sonoma Countywide Integrated Waste Management Plan
Non-Disposal Facility Element (submitted to CalRecycle 8/1/2011)

Table 7-1: Annapolis Transfer Station	
Type of Facility	Transfer Station
Location	33551 Annapolis Road
	Annapolis, CA 95412
Participating Jurisdictions	Unincorporated County, General Public
Purpose of Facility	To accept waste generated in the Northwest corner of Sonoma County and transport it to Central Disposal Site or other waste management facilities in Sonoma County (i.e., Resource Management Facility; Organic Composting Facility).
	To divert reusable, recyclable and compostable materials from the waste stream through a variety of diversion programs.
Expansion	None anticipated at this time.
Material Currently Recovered	Reusables: Paint.
	Recyclables: Newspaper, cardboard, magazines, telephone books, office paper, mixed paper, paperboard, glass, aluminum cans, tin/bi-metal cans, aluminum foil, scrap metal, plastic containers, appliances, CRT's (cathode ray tubes), yard waste, wood waste, tires, ceramics, foam/padding, auto batteries, oil, and oil filters.
% of the Regional Agency's Total Waste Stream to be Diverted	<1%; 62.45 tons in 2000. (Does not include yard and wood waste.)
Permitted Daily Capacity	50 TPD
Current Land Use	Closed landfill
Surrounding Land Use	Rural agriculture
Permit Status	49-AA-0364 Current permit issued 12/01/00. Permit to be reviewed 12/01/05
Function Within the Regional Agency's Integrated Waste Management System	The Annapolis Transfer Station serves the very rural northwest corner of Sonoma County (a two hour drive from the Central Landfill).

Table 7-2: Central Compost Site	
Type of Facility	Wood and Yard Waste Processing and Compost Facility
Location	500 Mecham Rd.
	Petaluma, CA 94952
Participating Jurisdictions	Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Santa Rosa, Sebastopol, Sonoma, Unincorporated County, Windsor, General Public
Purpose of Facility	To compost organic materials collected at the curb or self-hauled to the landfill or transfer stations and to process wood waste.
Expansion	None anticipated at this time.
% of the Regional Agency's Total Waste Stream to be Diverted	5.1%; 68,401 tons in 2000
Storage Capacity	36,000 cy at anytime
Current Land Use	Active landfill
Surrounding Land Use	Agriculture, grazing lands, rural residential
Permit Status	Standardized permit 49-AA-0266 revised 9/12/01.
Function Within the Regional Agency's Integrated Waste Management System	42.6% of the Regional Agency's waste stream is made up of compostable organic material. Since this material is such a large, easily identifiable and source separated portion of the waste stream, organics are being targeted for diversion.

Table 7-3: Central Landfill Permanent HHW Collection Facility	
Type of Facility	Permanent Household Hazardous Waste (HHW) and Conditionally Exempt Small Quantity Generator (CESQG) Collection Facility
Location	500 Mecham Rd.
	Petaluma, CA 94952
Participating Jurisdictions	Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Santa Rosa, Sebastopol, Sonoma, Unincorporated County, Windsor, General Public
Purpose of Facility	To accept hazardous waste from households and CESQGs for reuse, recycling and proper disposal.
Expansion	New facility - anticipated to begin operations in 2002
Materials to be Recovered:	All hazardous wastes excluding explosive, radioactive, medical, and water reactive materials.
% of the Regional Agency's Total Waste Stream to be Diverted	< 1%
Capacity	3,360 square foot building able to manage 192 55-gallon drums of lab-packed waste, 1,000 gallons of oil and 500 gallons of antifreeze.
Current Land Use	Active landfill
Surrounding Land Use	Agriculture, grazing lands, rural residential
Permit Status	The facility is governed by Permit by Rule (PBR). The notification and the permit documentation will be prepared prior to the opening of the facility.
Function Within the Regional Agency's Integrated Waste Management System	State law requires that all hazardous waste be banned from disposal in class III landfills including HHW. This facility is being established to offer convenient and regular collection of HHW to provide a necessary alternative to periodic collections or illegal dumping.

Table 7-4: Central Landfill/Recycletown	
Type of Facility	Disposal, Reuse and Recycling
Location	500 Mecham Rd.
	Petaluma, CA 95952
Participating Jurisdictions	Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Santa Rosa, Sebastopol, Sonoma, Unincorporated County, Windsor, General Public
Purpose of Facility	To divert reusable and recyclable materials from the waste stream and resale of usable materials to ensure their thorough use.
Expansion	The facility will be relocated, though actually space and function will be comparable. A "Z" wall will be built to accommodate thirteen 20 yard bins and one 40 yard bin. No new materials will be added in this expansion.
Material Currently Recovered	Reusables: Wood, building supplies, appliances, clothing, paint, books, bicycles, mattresses, etc.
	Recyclables: Newspaper, cardboard, magazines, office paper, telephone books, mixed paper, paperboard, glass, aluminum cans, tin/bi-metal cans, aluminum foil, scrap metal, plastic containers, appliances, CRT's (cathode ray tubes), yard waste, wood waste, tires, ceramics, foam/padding, auto batteries, oil, and oil filters.
% of the Regional Agency's Total Waste Stream to be Diverted	<1% 4,739.09 tons in 2000 (Does not include yard and wood waste.)
Current Land Use	Active landfill
Surrounding Land Use	Agriculture, grazing lands, rural residential
Permit Status	No permit is required for operation of this facility.
Function Within the Regional Agency's Integrated Waste Management System	Recycletown is the prime example of Sonoma County's holistic approach to diversion combining reuse and recycling located at the County's disposal site.

Table 7-5: Guerneville Transfer Station	
Type of Facility	Transfer Station and Recycling Drop-Off
Location	13450 Pocket Dr.
	Guerneville, CA 95446
Participating Jurisdictions	Unincorporated County, General Public
Purpose of Facility	To accept waste generated in the Russian River area of Sonoma County and transport it to Central Disposal Site or other waste management facilities in Sonoma County (i.e., Resource Management Facility; Organic Composting Facility).
	To divert recyclable and compostable materials from the waste stream with a variety of diversion programs.
Expansion	None anticipated at this time.
Material Currently Recovered	Newspaper, cardboard, magazines, office paper, telephone books, mixed paper, paperboard, glass, aluminum cans, tin/bi-metal cans, aluminum foil, scrap metal, plastic containers, appliances, CRT's (cathode ray tubes), yard waste, wood waste, tires, auto batteries, oil, and oil filters.
% of the Regional Agency's Total Waste Stream to be Diverted	<1% 1,034.66 tons in 2000 (Does not include yard and wood waste.)
Permitted Daily Capacity	160 TPD
Current Land Use	Closed landfill
Surrounding Land Use	Rural residential
Permit Status	49-AA-0139 Issued 6/05/01. Permit to be reviewed 6/05/06.
Function Within the Regional Agency's Integrated Waste Management System	The Guerneville Transfer Station provides the Russian River area of Sonoma County with disposal and diversion services.

Table 7-6: Healdsburg Transfer Station/Recycletown North	
Type of Facility	Transfer Station, Reuse and Recycling
Location	166 Alexander Valley Rd.
	Healdsburg, CA 95448
Participating Jurisdictions	Cloverdale, Healdsburg, Unincorporated County, Windsor, General Public
Purpose of Facility	To accept waste generated in the north-central area of Sonoma County and transport it to Central Disposal Site or other waste management facilities in Sonoma County (i.e., Resource Management Facility; Organic
	To divert reusable, recyclable and compostable materials from the waste stream with a variety of
Expansion	None anticipated at this time.
Material Currently Recovered	Reusables: Wood, building supplies, mattresses, appliances, clothing, paint, books, etc.
	Recyclables: Newspaper, cardboard, magazines, office paper, telephone books, mixed paper, paperboard, glass, aluminum cans, tin/bi-metal cans, aluminum foil, scrap metal, plastic containers, appliances, CRT's (cathode ray tubes), yard waste, wood waste, tires, ceramics, foam/padding, auto batteries, oil, and oil
% of Regional Agency's Total Waste Stream to be Diverted	<1% 1,840.21 tons in 2000 (Does not include yard and wood waste.)
Permitted Daily Capacity	435 TPD
Current Land Use	Closed landfill
Surrounding Land Use	Agriculture, rural residential, commercial
Permit Status	49-AA-0245 issued 4/14/97, up for review 4/14/02.
Function Within the Regional Agency's Integrated Waste Management System	Recycletown North is a prime example of Sonoma County's approach to providing diversion opportunities at the Healdsburg Transfer Station. Recycletown North provides services to the north-central portion of the

Table 7-7: Occidental Transfer Station	
Type of Facility	Transfer Station and Recycling Drop-Off
Location	4985 Stoetz Lane
	Sebastopol, CA 95472
Participating Jurisdictions	Unincorporated County, General Public
Purpose of Facility	To accept waste generated in the south-central Coastal region of Sonoma County and transport it to Central Disposal Site or other waste management facilities in Sonoma County (i.e., Resource Management Facility; Organic Composting Facility).
	To divert recyclable materials from the waste stream through a variety of diversion programs.
Expansion	None anticipated at this time.
Material Currently Recovered	Newspaper, cardboard, magazines, telephone books, office paper, mixed paper, paperboard, glass, aluminum cans, tin/bi-metal cans, aluminum foil, scrap metal, CRT's (cathode ray tubes), plastic containers, tires, oil, and oil filters.
% of the Regional Agency's Total Waste Stream to be Diverted	<1% 593.52 tons in 2000 (Occidental Transfer Station does not accept yard and wood waste.)
Permitted Daily Capacity	60 TPD
Current Land Use	Closed landfill
Surrounding Land Use	Rural residential
Permit Status	49-AA-0006 issued 8/09/01. Permit to be reviewed 8/09/06.
Function Within the Regional Agency's Integrated Waste Management System	The Occidental Transfer Station provides the south-central coastal region of Sonoma County with disposal and diversion services.

Table 7-8: Santa Rosa Transfer Station (Proposed)	
Type of Facility	Publicly-Owned Transfer Station and Recycling/Reuse Center
Location	No site has been selected.
Participating Jurisdictions	Santa Rosa, Unincorporated County, and General Public.
Purpose of Facility	To accept waste generated in the Santa Rosa area and transport it to Central Disposal Site or other waste management facilities in Sonoma County (i.e., Resource Management Facility; Organic Composting Facility).
	To divert reusable, recyclable and compostable materials from the waste stream through a variety of diversion programs.
Expansion	Not applicable.
Material Currently Recovered (proposed)	Reusables: Wood, building supplies, mattresses, appliances, clothing, paint, books, etc.
	Recyclables: Newspaper, cardboard, magazines, telephone books, office paper, mixed paper, paperboard, glass, aluminum cans, tin/bi-metal cans, aluminum foil, scrap metal, plastic containers, appliances, CRT's (cathode ray tubes), yard waste, wood waste, tires, ceramics, foam/padding, auto batteries, oil, and oil filters.
% of the Regional Agency's Total Waste Stream to be Diverted	Unknown.
Current Land Use	No site has been selected.
Surrounding Land Use	No site has been selected.
Permit Status	No site has been selected.
Function Within the Regional Agency's Integrated Waste Management System	Santa Rosa Transfer Station/Reuse and Recycling Facility will be modeled after facilities operated at the other solid waste sites providing diversion opportunities as well as local solid waste disposal site. Santa Rosa Transfer Station/Reuse and Recycling Facility is intended to provide the same services and operate in the same manner as the existing transfer station system in Sonoma County.

Table 7-9: Sonoma Transfer Station/Sonoma Recycling Center	
Type of Facility	Transfer Station and Recycling/Reuse Center
Location	4376 Stage Gulch Rd.
	Sonoma, CA 95476
Participating Jurisdictions	Sonoma, Unincorporated County, General Public
Purpose of Facility	To accept waste generated in the southeast corner of Sonoma County and transport it to Central Disposal Site or other waste management facilities in Sonoma County (i.e., Resource Management Facility; Organic Composting Facility).
	To divert reusable, recyclable and compostable materials from the waste stream through a variety of diversion programs.
	To process curbside recyclables collected by Sonoma Garbage Collectors.
Expansion	None anticipated at this time.
Material Currently Recovered	Reusables: Wood, building supplies, mattresses, appliances, clothing, paint, books, etc.
	Recyclables: Newspaper, cardboard, magazines, telephone books, office paper, mixed paper, paperboard, glass, aluminum cans, tin/bi-metal cans, aluminum foil, scrap metal, plastic containers, appliances, CRT's (cathode ray tubes), yard waste, wood waste, tires, ceramics, foam/padding, auto batteries, oil, and oil filters.
% of the Regional Agency's Total Waste Stream to be Diverted	<1% 1,875.41 tons in 2000 (Does not include yard and wood waste).
Capacity	760 TPD
Current Land Use	Closed landfill
Surrounding Land Use	Grazing lands and rock quarry
Permit Status	49-AA-0144 issued 9/5/01. Permit to be reviewed
	9/5/06.
Function Within the Regional Agency's Integrated Waste Management System	Sonoma Recycling Center is a prime example of Sonoma County's approach to providing diversion opportunities. Sonoma Transfer Station provides services to the southeast corner of the County.

Table 7-10: Redwood Empire Recycling	
Type of Facility	Recycling Drop-Off and Buy-Back Center
	Intermediate Processing Facility
Location	3400 Standish Ave.
	Santa Rosa, CA 95402
Participating Jurisdictions	Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Santa Rosa, Sebastopol, Unincorporated County, Mendocino County, Marin County, General Public
Purpose of Facility	Certified California Redemption Center.
	Process curbside recycling and commercial recycling.
	Recycling drop-off for the public.
Expansion	None anticipated at this time.
Material Currently Recovered	Aluminum cans, aluminum foil, glass, wine bottles, tin/bimetal cans, plastic containers, mixed plastic bottles, newspaper, cardboard, office paper, magazines, mixed paper, telephone books, paperboard, aseptic packages, and milk cartons.
% of the Regional Agency's Total Waste Stream to be Diverted	4%; 53,649.14 tons in 2000 (Regional Agency tons only).
Capacity	200 TPD
Current Land Use	Industrial Park
Surrounding Land Use	Industrial Park
Permit Status	NA
Function Within the Regional Agency's Integrated Waste Management System	Processes materials from curbside and commercial recycling programs. Public redemption and recycling center.

Table 7-11: Larry's Material Recovery Facility and Buy-Back Center	
Type of Facility	Recycling Buy-Back Center and Intermediate Processing Facility
Location	7085 Gravenstein Highway
	Cotati, CA 94928
Participating Jurisdictions	Cotati, Rohnert Park, Santa Rosa, Sebastopol, Unincorporated County, General Public.
Purpose of Facility	Certified California Redemption Center. Processes curbside recycling and commercial recycling.
Expansion	None anticipated at this time.
Material Currently Recovered	Aluminum cans, aluminum foil, glass, wine bottles, tin/bimetal cans, plastic containers, mixed plastic bottles, newspaper, cardboard, office paper, magazines, mixed paper, telephone books, paperboard, aseptic packages, and milk cartons.
% of the Regional Agency's Total Waste Stream to be Diverted	<1% in 2000 (Regional Agency tons only).
Capacity	60 TPD
Current Land Use	Industrial/Commercial
Surrounding Land Use	Industrial/Commercial/Retail/Agricultural
Permit Status	NA
Function Within the Regional Agency's Integrated Waste Management System	Processes materials from curbside and commercial recycling programs. Public redemption and recycling center.

Table 7-12: Industrial Carting Facility	
Type of Facility	Commercial/Curbside Sorting Facility
	Recycling Drop-Off and Buy-Back Center
Location	3911 Santa Rosa Avenue
	Santa Rosa, CA 95407
Participating Jurisdictions	General Public
Purpose of Facility	Process materials collected through curbside and
	commercial recycling programs. Recycling drop-off for the public.
Expansion	The facility will be expanded to accept additional materials by 2002.
Additional Materials Recovered:	Construction and demolition materials.
Material Currently Recovered	Glass, wine bottles, aluminum cans, aluminum foil, tin/bimetal cans, scrap metal, newspaper, cardboard, magazines, mixed paper, paperboard, and office paper.
% of the Regional Agency's Total Waste Stream to be Diverted	< 1%
Capacity	Unknown
Current Land Use	Industrial/Commercial
Surrounding Land Use	Commercial/Retail
Permit Status	NA
Function Within the Regional Agency's Integrated Waste Management System	Processes materials from commercial and curbside recycling programs. Accepts recyclables from the public.

Table 7-13: Global Materials Recovery Services' Recycling Center/Transfer Processing Facility	
Type of Facility	Recycling Drop-Off and Buy-Back Center and Transfer Processing Facility
Location	3899 Santa Rosa Avenue Santa Rosa, CA 95407
Participating Jurisdictions	General Public
Purpose of Facility	Certified California Redemption Center. Recycling drop-off for the public. Drop-off, sorting and recycling of construction and demolition debris.
Expansion	None anticipated at this time.
Material Currently Recovered	Glass, wine bottles, aluminum cans, aluminum foil, tin/bimetal cans, ferrous and non-ferrous metal, newspaper, cardboard, magazines, mixed paper, paperboard, office paper, appliances, all CRV beverage containers, and construction and demolition debris.
% of the Regional Agency's Total Waste Stream to be Diverted	< 4% based on processing 100 tons/day of incoming materials.
Capacity	Up to 400 tons/day.
Current Land Use	Industrial/Commercial
Surrounding Land Use	Commercial/Retail
Permit Status	Use permit has been issued by the County of Sonoma. Solid Waste Facility Permit application has been submitted to the CIWMB.
Function Within the Regional Agency's Integrated Waste Management System	Processes materials from commercial and industrial recycling programs. Accepts recyclables and construction and demolition debris from the public.

Table 7-14: Petaluma Recycling Center	
Type of Facility	Recycling Drop-Off and Buy-Back
	Commercial Sorting Facility
Location	315 2nd St.
	Petaluma, CA 94952
Participating Jurisdictions	General Public
Purpose of Facility	California Certified Redemption Center.
	Process materials collected through
	commercial recycling programs.
	Recycling drop-off for the public.
Expansion	Unknown
Material Currently Recovered	Glass, wine bottles, aluminum cans, aluminum foil, tin/bimetal cans, scrap metal, plastic containers, newspaper, cardboard, magazines, telephone books, paperboard, mixed paper, and office paper.
% of the Regional Agency's Total Waste Stream to be Diverted	< 1% (1,689 tons collected in 2000, not broken down by jurisdiction)
Capacity	7 TPD
Current Land Use	Commercial/Light Industrial
Surrounding Land Use	Commercial/Light Industrial
Permit Status	NA
Function Within the Regional Agency's Integrated Waste Management System	Processes materials from commercial recycling programs. Accepts recyclables from the public.

Table 7-15: West Sonoma County Disposal Service	
Type of Facility	Curbside and commercial recycling processing
Location	3417 Standish Ave.
	P.O. Box 1916
	Santa Rosa, CA 95402
Participating Jurisdictions	Rohnert Park, Windsor, Unincorporated County, and Mendocino County.
Purpose of Facility	Intermediate processing of recyclables
Expansion	None anticipated at this time
Material Currently Recovered	Cardboard, newspaper, mixed paper, paperboard, office paper, magazines, glass, aluminum cans, tin/bimetal cans, aluminum foil, plastic containers.
% of the Regional Agency's Total Waste Stream to be Diverted	<1%; 9,553.83 tons in 2000 (Regional Agency tons only).
Capacity	4,000 TPM
Current Land Use	Industrial Park
Surrounding Land Use	Industrial/Commercial
Permit Status	NA
Function Within the Regional Agency's Integrated Waste Management System	Processes recyclables from residential curbside and commercial collection programs.

Table 7-16: Novato Disposal Services	
Type of Facility	Curbside and commercial recycling processing.
Location	2543 Petaluma Blvd. S. P.O. Box 2627 Petaluma, CA 94953
Participating Jurisdictions	Marin County, Lake County, Mendocino County, Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Santa Rosa, Sebastopol, Sonoma, Windsor and Unincorporated County.
Purpose of Facility	Intermediate processing of recyclables.
Expansion	None anticipated at this time
Material Currently Recovered	Cardboard, newspaper, mixed paper, paperboard, office paper, magazines, glass, aluminum cans, tin/bimetal cans, aluminum foil, plastic containers, and tires.
% of the Regional Agency's Total Waste Stream to be Diverted	This facility processed 9,362 passenger tires, 642 truck tires, 26 tractor tires, and 10 heavy equipment tires collected from Sonoma County in 2000. All tires are shipped to Tire Recycling in Orland, California.
Capacity	100 TPD Single Stream, 24 TPD Source Separated Cardboard, 25 TPD Source Separated Metal
Current Land Use	Industrial
Surrounding Land Use	Industrial
Permit Status	NA
Function Within the Regional Agency's Integrated Waste Management System	Processes tires collected from Sonoma County solid waste disposal facilities.

Table 7-17: Integrated Resource Management Facility (Proposed)	
Type of Facility	Publicly-Owned Organic Waste Processing
Location	No site has been selected.
Participating Jurisdictions	Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Santa Rosa, Sebastopol, Sonoma, Unincorporated County, Windsor, General Public
Purpose of Facility	To pre-sort waste to remove non-organic, hazardous materials and/or valuable recyclables.
	To process solid waste in a manner that recovers energy from the organic portion of the waste stream, including an initial grinding step, mixing solid waste with water followed by either chemical or biological digestion, and extraction of a clean fuel (methane or ethanol).
Expansion	Not applicable.
% of the Regional Agency's Total Waste Stream to be Diverted	Not applicable.
Storage Capacity	Undetermined.
Current Land Use	No site has been selected.
Surrounding Land Use	No site has been selected.
Permit Status	No site has been selected.
Function Within the Regional Agency's Integrated Waste Management System	42.6% of the Regional Agency's waste stream is made up of compostable organic material. Of that approximately 13% is currently being composted at the Central Disposal Site Organic Composting Facility. The remaining 29.4% would be targeted for diversion by this facility. In addition, pre-sorting would target inorganic materials for diversion including construction and demolition debris, scrap metal, and hazardous wastes.

Table 7-18: Construction and Demolition Debris Recycling Facility(ies) (Proposed)	
Type of Facility	Construction and Demolition Debris Sorting and Recycling Facility(ies)
Location	No site(s) has been selected.
Participating Jurisdictions	All Sonoma County jurisdictions.
Purpose of Facility	To separate recyclable materials from construction and demolition debris boxes for recycling and diversion. Typically, materials in such debris boxes consist of wood, metal, cardboard, concrete, packaging, and miscellaneous construction waste. Operations could include grinding wood on site, and segregating, containerizing and shipping cardboard, paper, metals, and concrete to appropriate recycling plants.
Expansion	Not applicable.
% of the Regional Agency's Total Waste Stream to be Diverted	Estimated at 4.5% (65 tpd).
Storage Capacity	Undetermined.
Current Land Use	No site(s) has been selected.
Surrounding Land Use	No site(s) has been selected.
Permit Status	No site(s) has been selected.
Function Within the Regional Agency's Integrated Waste Management System	A facility of this type would target materials not currently recycled or diverted from landfill disposal, increase the AB 939 diversion rate, and conserve landfill space.

Table 7-19: Organic Material Processing Facility (Proposed)	
Type of Facility	Wood and Yard Waste Processing and Compost Facility
Location	No site has been selected.
Participating Jurisdictions	Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Santa Rosa, Sebastopol, Sonoma, Unincorporated County, Windsor, General Public
Purpose of Facility	To compost organic materials collected at the curb or self-hauled to the landfill or transfer stations and to process wood waste.
Expansion	Not applicable.
% of the Regional Agency's Total Waste Stream to be Diverted	Not applicable, although anticipated to be approximately the same percentage as the existing composting facility at the Central Disposal Site (12.87%; 68,401 tons in 2000).
Storage Capacity	Undetermined, although anticipated to be the same as the existing composting facility at the Central Disposal Site (36,000 cy at anytime).
Current Land Use	No site has been selected.
Surrounding Land Use	No site has been selected.
Permit Status	No site has been selected.
Function Within the Regional Agency's Integrated Waste Management System	42.6% of the Regional Agency's waste stream is made up of compostable organic material. Since this material is such a large, easily identifiable and source separated portion of the waste stream, organics are being targeted for diversion.

Table 7-20: Earthbound Compost	
Type of Facility	Composting and Soil Amendment Mixing Facility
Location	Site Location: 3400 Lichau Rd.
	Penngrove, CA 94951
	Mailing Address: P.O. Box 670
	Kenwood, CA 95452
	Contact: Nancy Summers
	(707) 833-5027, phone; (707) 833-2805, fax
Participating Jurisdictions	Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Santa Rosa, Sebastopol, Sonoma, Windsor, Sonoma County, Marin County, Napa County, Alameda County, Contra Costa County, Mendocino County Lake County, and Solano County.
Purpose of Facility	To accept organic waste for processing into soil amendments. To divert organic wastes.
Expansion	None anticipated at this time beyond the current proposal.
Material Currently Recovered	Reusables: None.
	Recyclables: Manure, pomace, soil, mushroom compost, straw, wood fines/sawdust, yard waste, and rice hulls.
% of the Regional Agency's Total Waste Stream to be Diverted	<1%, 20,000 tons annually*
Capacity	10,000 cubic yards onsite of active compost and/or feed stock.
Current Land Use	Agricultural Preserve
Surrounding Land Use	Agricultural Preserve
Permit Status	Registration permit 49-AA-0367
Function Within the Regional Agency's Integrated Waste Management System	Process organics from private sources and divert them from the landfill.

[1] The majority of the material going to this site is manure which is a restricted waste as defined by AB 939. Therefore, very little diversion can be achieved through this facility. Additionally, it is estimated that one-third of the material received from this facility will come from out of county.

Table 7-21: Grab N' Grow	
Type of Facility	Organics processing and composting, agricultural yard and wood wastes
Location	2759 Llano Road
	Santa Rosa, CA 95401
Participating Jurisdictions	General Public, Sebastopol
Purpose of Facility	Process and compost organic materials.
Expansion	The facility currently composts, the permit is to cover an increase in tonnage.
Material Currently Recovered	Agricultural, yard and wood wastes
% of the Regional Agency's Total Waste Stream to be Diverted	< 1%
Capacity	12,500 cy at any one time
Current Land Use	Land Extensive Agriculture
Surrounding Land Use	Agriculture and Rural Residential
Permit Status	Registration permit 49-AA-0369
Function Within the Regional Agency's Integrated Waste Management System	Processes and composts organic material from the general public and Sebastopol.

Table 7-22: Laguna Subregional Compost Facility	
Type of Facility	Sewage sludge composting facility
Location	4300 Llano Road
	Santa Rosa, CA 95407
Participating Jurisdictions	Subregional Water Reclamation System (Santa Rosa, Sebastopol, Rohnert Park, Cotati, Unincorporated County)
Purpose of Facility	Compost digested, dewatered sludge from sewage treatment plant.
Expansion	None anticipated at this time. Started operations in July, 1996.
Material Currently Recovered	Sewage sludge, yard and wood waste
% of the Regional Agency's Total Waste Stream to be Diverted	< 1%
Capacity	100 TPD (50 tons of sludge and 50 tons of bulking agents like yard and wood waste)
Current Land Use	Public Facilities
Surrounding Land Use	Land Extensive Agriculture, Diverse Agriculture
Permit Status	Standardized permit 49-AA-0368
Function Within the Regional Agency's Integrated Waste Management System	Processes sewage sludge from sewage treatment plant, thus diverting sludge from landfill disposal.

Table 7-23: Central Disposal Site Transfer / Processing Facility	
Type of Facility	Transfer / Processing Facility
Location	500 Mecham Road
	Petaluma, CA 94952
Participating Jurisdictions	Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Santa Rosa, Sebastopol, Sonoma, Unincorporated County, Windsor
Purpose of Facility	To accept waste generated in Sonoma County and transport it to the landfill operations at the Central Disposal Site or to an alternative permitted disposal facility outside of the County of Sonoma.
	To divert reusable, recyclable, and compostable materials from the waste stream through a variety of diversion programs.
Expansion	None anticipated at this time.
Material Currently Recovered	Ferrous and non-ferrous metal; cardboard; dirt, rock, concrete and other inerts; construction and demolition debris; organics; appliances; and carpet padding.
Percent of the Regional Agency's Total Waste Stream to be Diverted	Approximately 9% based on estimated total waste generation of 1,165,936 tons for 2003 (last available data) and 106,998 tons reused and recycled in 2003 from various diversion programs currently operating at the Central Disposal Site.
Permitted Daily Capacity	Peak daily tonnage is 2,500 tons; average daily tonnage for 2004 was 954 tons per day based on 2004 total disposal of 342,341 tons in the Central Landfill.
Anticipated Diversion Rate of Facility	23.6% (295 TPD) based on 2004 diversion of 105,972 tons and disposal of 342,341 tons in the Central Landfill.
Current Land Use	Active landfill
Surrounding Land Use	Agriculture, rural residential
Permit Status	Solid Waste Facilities Permit No. 49-AA-0001
Function Within the Regional Agency's Integrated Waste Management System	Diverts additional materials listed above from landfill disposal complementing the current yard debris composting, wood waste processing, and reuse and recycling operations at the Central Disposal Site.

Table 7-24: M & M Services, Inc.	
Type of Facility	Construction, Demolition & Inert Debris Processing Facility
Location	Site Location: 590 Caletti Ave.
	Windsor, CA 95492
	Contact: Doug Morada
	877-698-8473 phone; 707-838-8537 fax
Participating Jurisdictions	Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Santa Rosa, Sebastopol, Sonoma, Unincorporated County, Windsor
Purpose of Facility	Drop-off, sorting and recycling of construction and demolition debris.
Expansion	N/A
Material Currently Recovered	Wood, concrete, metal, glass products, plastic products, cardboard, other paper products, other misc. construction and demolition debris.
% of the Regional Agency's Total Waste Stream to be Diverted	unknown
Capacity	Up to 175 tons/day
Current Land Use	Heavy Industrial
Surrounding Land Use	Heavy Industrial
Permit Status	Town of Windsor has determined that these operations fall under their existing Zoning Ordinances and that a use permit is not required for these operations.
	Registration Permit Application has been submitted to Sonoma County Department of Health Services.
Function Within the Regional Agency's Integrated Waste Management System	Construction, Demolition & Inert Debris recycling facility