STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

June 15, 2010

Mr. David W. Danner
WA Utilities and Transportation Commission
1300 S. Evergreen Park Drive SW
MS FY-11
Olympia, WA 98504

SUBJECT: Final Review – *Yakima County Solid and Moderate Risk Waste Management Plan – June 2010*, WUTC Docket: TG-091750

Dear Mr. Danner:

Ecology is forwarding one copy of the formal submission of the *Yakima County Solid and Moderate Risk Waste Management Plan, June 2010* for final review under RCW 70.95.090 and 70.95.094. I can also provide the WUTC with electronic copies of the plan if they are desired.

Ecology received this Plan on June 15, 2010. Our forty-five day final review period expires on July 30, 2010. Reviewers have until July 10, 2010 to forward any comments to me.

Thank you for your continued cooperation and assistance in plan review.

Sincerely,

Christopher M. Piercy
Regional Solid Waste Planner

RECEIVED
2010 JUN 18 AM 8:38
STATE OF WASH.
UTIL. AND TRANS.
COMMISSION

Enclosure

Cc: Penny Ingram, WUTC
Wendy Mifflin, Yakima County

YAKIMA COUNTY SOLID AND MODERATE RISK WASTE MANAGEMENT PLAN

RECEIVED
2010 JUN 18 AM 8:38

Final Adopted
June 2010

YAKIMA COUNTY SOLID AND MODERATE RISK WASTE MANAGEMENT PLAN

Final Adopted: June 2010

Prepared for:

Yakima County Department of Public Services
Solid Waste Division
Yakima, Washington

Prepared by:

URS
Project 33760975

with assistance from:

Bell & Associates

Green Solutions

ACKNOWLEDGMENTS

The Yakima County Department of Public Services would like to thank the following organizations and individuals for their assistance in the development of this plan:

- SWAC members
- Washington Department of Ecology staff.

Yakima County residents and businesses also contributed to this document through comments provided during public meetings and through various other channels. The Board of County Commissioners and the Public Services Department gratefully acknowledge this input by the citizens.

YAKIMA COUNTY SOLID WASTE MANAGEMENT PLAN
TABLE OF CONTENTS

CHAPTERS

Table of Contents, Continued

Table of Contents, Continued

Table of Contents, Continued

LIST OF TABLES

List of Tables, Continued

LIST OF FIGURES

Page

SUMMARY

INTRODUCTION

This Solid and Moderate Risk Waste Management Plan (Plan) recommends strategies to manage solid waste and moderate risk waste generated in Yakima County, including the cities and towns of Naches, Tieton, Yakima, Moxee, Harrah, Wapato, Zillah, Toppenish, Granger, Sunnyside, Grandview, Selah, Union Gap and Mabton. Solid waste handling includes management, storage, collection, diversion, transportation, treatment, use, processing and final disposal. A new addition to this Plan is in the incorporation of moderate risk waste. Recommendations are provided for municipal solid waste, other special waste and moderate-risk waste.

SUMMARY OF ADDITIONAL COSTS

A summary of recommended strategies is presented in Table E-1. Over the next six years, implementation of recommended strategies is estimated to cost up to $12,445,000. This cost estimate reflects only the new services or programs to be implemented by Yakima County. It does not reflect costs associated with existing programs, nor does it reflect the significant costs incurred by private firms, public agencies, or residents who also have roles in managing solid waste in Yakima County.

Table E-1
Summary of Plan Recommendations
(Additional Costs, 2009 dollars)

Program Element	Recommendation	Six-Year Cost Estimate, $
Public Education	PE1) Public education activities	150,000
Recycling	WRR1) Contribute to State recycling goal	
	WRR2) Adopt and maintain list of designated materials	
	WRR3) Waste composition study	80,000
	WRR4) Curbside recycling in all urban areas	
	WRR5) MSW facilities provide recycling	
	WRR6) Encourage business recycling	
	WRR7) Assist with public event recycling	
Organics	O1) Ban landfill disposal of yard debris	
	O2) Issue composting services RFQ/RFP	15,000
	O3) Explore other options if needed	
Collection	C1) Bulky waste collection	
Transfer	T1) Evaluate self-haul unloading area at CLF	3,600,000
	T2) Expand transfer station at THLF	8,500,000
	T3) Buy or option property	
Disposal	D1) Maintain capacity at THLF	
	D2) Buy or option property	
	D3) Consider conversion technologies in future	
C&D/Green Building	C&D1) Promote green building	
	C&D2) Develop and maintain Green House	
	C&D3) Promote proper mgmt. of C&D waste	
Special Wastes	SP1) Promote product stewardship for tires	
	SP2) Support product stewardship programs	
	SP3) Cooperative effort for special wastes	
Disaster Debris	DD1) Coordinate with OEM	
	DD2) Develop a disaster debris plan	30,000 - 100,000
Moderate Risk Waste	MRW1) Adopt list of target materials	
	MRW2) Technical assistance by Ecology	
	MRW3) Update MRW plan with solid waste plan	
Admin. and Regulation	AR1) Illegal dumping task force	
	AR2) Consider adopting minimum service levels	
	AR3) Exercise flow control as needed	
Total Estimated Six-Year Cost of Management Recommendations		$12,375,000-12,445,000

The above table shows only the additional costs for the recommendations being made.

CHAPTER 1 - INTRODUCTION

1.1 INTRODUCTION

This Solid and Moderate Risk Waste Management Plan (Plan) recommends strategies to manage solid waste and moderate risk waste generated in Yakima County. Solid waste handling includes management, storage, collection, diversion, transportation, treatment, use, processing, and final disposal. This Plan includes recommendations for municipal solid waste (MSW), moderate risk waste (MRW) and special wastes.

1.2 PURPOSE

Washington State law assigns primary responsibility for managing solid waste and moderate-risk waste to local governments. Chapter 70.95 RCW requires local government to maintain current solid waste management plans. Chapter 70.105 RCW requires local government to develop plans for managing moderate risk waste.

The purpose of this Plan is to develop recommended management strategies for solid waste and moderate-risk waste for the period 2010 through 2015. The Plan also looks forward to ensure that sufficient processing and disposal capacity will be available for at least the next twenty years, or through 2030.

Local plans must be complete and in good standing to receive grant monies from the Coordinated Prevention Grant program, which is an important source of funding for non-disposal-related programs and activities.

1.3 GOALS AND OBJECTIVES

The mission statement for this Plan is:

> The overall goal of Yakima County and the participating jurisdictions is to ensure that Yakima County citizens continue to have efficient, reliable and affordable solid waste collection, handling, recycling and disposal services in order to improve our quality of life while protecting and preserving human health, environmental quality and natural resources.

Specific objectives include the following:

- Ensure convenient and reliable services for managing solid waste materials;
- Promote the use of innovative and economical waste handling methods;
- Encourage public-private partnerships for waste reduction and recycling programs;
- Emphasize waste reduction as a fundamental management strategy;

- Encourage the recovery of marketable resources from solid waste;
- Assist the State in achieving its goal of a 50 percent recycling rate;
- Assist the State achieve its goal of an 80 percent used motor oil reuse and re-refining rate;
- Reduce the environmental impacts to air, water, and land that are associated with waste generation, transportation, handling, recycling, and disposal;
- Reduce the occurrence and environmental impacts associated with illegal dumping;
- Ensure compliance with state and local solid and moderate risk waste regulations;
- Encourage those who design, produce, sell, or use a product to take responsibility for minimizing the product's environmental impact throughout all stages of the products' life cycle, including end of life management;
- Provide customers with information and education to promote recommended waste management practices; and
- Support the State's Beyond Waste goals, especially for the five key initiatives:
  - increased diversion of organic materials,
  - increased use of green building methods,
  - improved management of small-volume hazardous wastes,
  - improved management of industrial wastes, and
  - measuring progress.

1.4 PARTICIPANTS IN THE PLANNING PROCESS

This document was developed with the guidance of the Yakima County Solid Waste Advisory Committee (SWAC) whose participation is gratefully acknowledged. Committee members and their affiliation are shown in Table 1-1.

1.5 PLANNING AREA

The planning area includes the incorporated and unincorporated areas of Yakima County. This includes the cities and towns of Naches, Tieton, Yakima, Moxee, Harrah, Wapato, Zillah, Toppenish, Granger, Sunnyside, Grandview, Selah, Union Gap, and Mabton.

County-owned and operated solid waste facilities also serve the members of the Yakama Nation. The Yakama Nation is a federally recognized tribe, and as such, its reservation and tribal government enjoy a sovereign status. In the absence of an agreement stating otherwise, Washington State solid waste regulations do not generally apply on tribal lands, and the tribal government manages the solid waste.

One United States military installation, the Yakima Training Center, is located within Yakima County and receives solid waste management services from the County and from private vendors, as well as taking the lead on managing their own wastes.

Table 1-1
Yakima County Solid Waste Advisory Committee (SWAC)

Name	Affiliation/Title
Ron Anderson	Creekside Realty (Business)
Cus Arteaga	City of Grandview
Gary Clark	City of Zillah
Bruce Epps	City of Sunnyside
Mike Leita	Board of County Commissioners
Bob Groeneweg	Farm Bureau
Lance Hoyt	City of Toppenish
Bill Lover	City of Yakima
Paul Overby	City of Selah
Scott Robertson	Yakima Waste Systems
Page Scott	Yakima Valley Conference of Governments
Vic Valdez	Central Washington Recycling
Ted Silvestri	Ex-Officio Yakima Health District

1.6 PLANNING AUTHORITY

This plan is intended to satisfy the participating jurisdictions' responsibilities for maintaining a current solid waste management plan in accordance with Chapter 70.95 of the Revised Code of Washington (RCW), and to provide a local hazardous waste management plan in accordance with Chapter 70.105 RCW.

Cities and counties share the responsibility for developing and maintaining a local solid waste management plan. RCW 70.95.080 provides cities with three alternatives for satisfying their planning responsibilities:

- Prepare and deliver to the county auditor a city solid waste management plan for integration into the county solid waste plan;
- Enter into an agreement with the county to prepare a joint city-county plan; or
- Authorize the county to prepare a plan for the city for inclusion in the county plan.

The incorporated communities of Naches, Tieton, Yakima, Moxee, Harrah, Wapato, Zillah, Toppenish, Granger, Sunnyside, Grandview, Selah, Union Gap, and Mabton executed interlocal

agreements with Yakima County regarding solid waste management in 2003. The agreements authorize Yakima County to prepare a countywide solid and moderate risk waste management plan that includes each of these cities and towns.

Participating cities and towns have both the opportunity and responsibility to participate in Plan development, review and comment on the draft Plan, and to adopt the final Plan.

Copies of executed interlocal agreements can be found in Appendix B. Resolutions of adoption for this Plan can be found in Appendix C.

1.7 PLAN DEVELOPMENT PROCESS

The Plan was developed over a period of 19 months. The process began in June 2008 with the selection of URS Corporation, Green Solutions, and Bell & Associates (collectively "the Consultants") as the team that would lead development of the Plan. During the intervening months technical research, analysis, and recommendations were prepared by the Consultants and discussed with County staff, the Yakima Health District, the Solid Waste Advisory Committee (SWAC), the Yakima Valley Conference of Governments, Public Works Directors, City Managers, City Councils, the Board of County Commissioners, interested members of the public, and interest groups. This participatory, interactive process was undertaken in order to prepare and build support for the Plan.

The public participation process was largely focused on the SWAC. The Board of County Commissioners appoints SWAC members. Members are selected to represent a balance of interests including citizens, public interest groups, business, the waste management industry and local elected public officials. The SWAC provides guidance to the Solid Waste Division in the development of programs and policies concerning solid waste handling and disposal. The SWAC reviews and comments on rules, policies, and ordinances before they are proposed for adoption. SWAC meetings are open to the public and meeting notices are published beforehand.

The Plan was adopted by each participating city or town and by the Board of County Commissioners in meetings open to the public.

1.8 STATUS OF PREVIOUS PLANS

This Plan supersedes all previous solid and hazardous waste management plans including the *Yakima County Solid Waste Management Plan*, July 2003 (the 2003 Plan), and the *Yakima County Hazardous Waste Management Plan*, March 1991. Table 1-2 lists key recommendations from the 2003 Plan and their current implementation status.

Table 1-2
Status of Previous Solid Waste Management Recommendations

Recommendations	Status
Chapter 3: Waste Reduction, Recycling and Composting	
Overall Recycling Incentive and Funding Framework:	
Increase tip fees to fund County recycling and waste prevention programs and to provide an incentive for increased recycling.	Done
Residential Recycling Within Urban Boundaries:	
Continue the current mix of voluntary curbside collection and drop-off services.	Ongoing
Explore public sector incentives and/or funding for expanded curbside and/or drop-off recycling programs in both incorporated and unincorporated areas.	Ongoing
Residential Recycling in Rural Areas:	
Continue current program of public and private drop-off services.	Ongoing
Yard Waste Collection and Composting:	
Continue current education and collection services with the goal of meeting the needs of residents and businesses affected by the burn ban in urban areas. These services include collecting yard waste with toters and discounting the fee for yard waste at the landfill (compared with garbage).	Ongoing
Continue backyard composting and bin distribution programs.	Ongoing
Work to expand markets and end-use applications for compost products.	Ongoing
Establish partnerships with other agencies to implement joint initiatives related to organics that address environmental resource issues in Yakima County.	Ongoing
Non-Residential Recycling:	
Continue current practice of relying on the private sector to provide services.	Ongoing
Provide expanded/targeted education and assistance to businesses on recycling, waste reduction, and reducing toxicity of commercial waste.	Ongoing
In the future, consider targeting the construction and demolition sector for expanded recycling.	Ongoing
Education and Outreach:	
Continue current education and outreach programs, including school education, special events and public education campaigns. Consider expanding these programs, including using joint public/private promotional partnerships. Education should address recycling, waste prevention, composting reducing toxicity, and using safer alternatives to products containing hazardous ingredients.	Ongoing
Designated Recyclables:	
Revise the designation of Tier 1, 2, and 3 materials. The SWAC, with support from staff, is to review the designation of recyclables at least bi-annually. Decisions about the appropriate tier for different materials are to be made considering the availability and durability of markets and the feasibility of accessing those markets (including the processing facilities needed).	Ongoing
Hard to Recycle Materials; Emerging Waste Streams:	
Conduct special events to provide residents and small businesses with collection services for new recyclable items and hard to recycle materials. Materials to be targeted for collection at special events include: computers and other electronic wastes, appliances, reusable building materials, tires, fluorescent light bulbs, and clean plastic bags and film.	Ongoing
Consider supporting product stewardship initiative aimed at establishing viable collection, processing, and end markets for new and/or hard to recycle materials. Provide support for regional efforts to establish product stewardship programs for electronics. Such programs may also be appropriate for paint and products containing potentially hazardous materials. Apply principles of product stewardship to the development of local initiatives to handle emerging or problematic wastes.	Ongoing

Table 1-2, Status of Previous Solid Waste Management Recommendations, continued

Recommendations	Status
Chapter 3: Waste Reduction, Recycling and Composting, continued	
Market Development:	
Provide targeted assistance to establish and/or maintain the viability of local markets for recyclable materials. Focus assistance on materials where local (or regional) markets can effectively handle materials collected from Yakima County. Such materials include yard waste, compost, green chop, mixed glass cullet, wood waste, wood chips, concrete/aggregate, and reusable building materials. Program activities could consist of (1) assessments of the feasibility of local market development initiatives, (2) technical assistance to private sector processors and end users (3) government procurement of recycled content goods, and (4) "buy recycled" campaigns, demonstration projects, and other promotion initiatives aimed at stimulating demand for recycled materials sourced from local markets.	Ongoing
Consider providing targeted assistance to increase recycling of C&D materials with a focus on market development initiatives. For example, helping to establish viable markets for reused building materials has proven to be a viable means of increasing C&D diversion.	Not currently being done due to staff limitation
Monitoring and Evaluation:	
Continue to rely on Ecology and voluntary reporting to determine recycling levels.	Ongoing
Conduct a waste characterization study to determine the composition and source of Yakima County's municipal solid waste.	Done
Waste Reduction/Prevention:	
Continue current programs.	Ongoing
Chapter 4: Collection System	
Develop municipal garbage collection rate structures that encourage waste reduction and recycling.	Ongoing
Monitor and actively support legislation that would change the WUTC rate review process so that the process will encourage waste reduction and recycling.	WUTC supports recommendations of the SWMP
To ensure continuation of programs, require that all in-County generated MSW be hauled to a County-owned facility, or administer a fee directed at haulers that do not use the County system.	Done
Renew interlocal agreements to ensure that all waste generated within the county is hauled to County-owned facilities.	Done
Chapter 5: Transfer and Drop-Box System	
Eliminate the current drop-box system in 2003. Encourage use of convenient curbside garbage collection service.	Done
Construct a new transfer station at the Terrace Heights Landfill for handling residential and small commercial (less than 5 tons per load) self-hauling customers. Conduct transfer station facility planning and design in 2003 and construct in 2004. Transfer station facility planning shall allow for future expansion to include commercial and municipal packer trucks and large commercial self-haulers.	Done
Conduct a facility plan for the Lower Valley Transfer Station in 2003 and implement operations and facility changes in late 2003 and 2004.	Done
Explore conducting a system-wide transfer station study that analyzes all levels of service to be provided in an integrated system.	Done
Explore the possibility of siting a West Valley transfer station.	Done
Chapter 6: Waste Import and Export	
Explore the possibility of siting a County-operated regional landfill to be included in Plan 2015.	Done

Table 1-2, Status of Previous Solid Waste Management Recommendations, continued

Recommendations	Status
Chapter 7: Municipal Solid Waste Landfill and Resource Recovery	
Expand the Cheyne Road landfill as the long-term disposal site for Yakima County solid waste.	Ongoing
Periodically update the remaining capacity estimates for the landfills and document changes in the landfill surface topography.	Done
Annually review and revise, if appropriate, closure cost estimates with current costs and review closure implementation schedules to verify that the closure funds are adequate.	Done
Continue operations at Terrace Heights Landfill until capacity is reached.	Ongoing
Research new potential landfill sites.	Ongoing
Chapter 8: Construction, Demolition, and Landclearing Debris and Special Wastes	
Investigate source separation of CDL debris at work sites and recycling enhancements at County landfills. Enhance education at County and municipal permitting stations to encourage work site recycling opportunities for CDL debris.	Ongoing
Work with Yakima Health District staff and health professionals to determine the need for improved education materials, or methods of distribution for education materials, for biomedical waste.	Done
Continue current programs related to woodwaste, tire, appliances, asbestos, vehicle hulks, agricultural waste, and petroleum-contaminated soils.	Ongoing
Explore new markets for CDL and special wastes.	Ongoing
Chapter 9: Administration and Enforcement	
Discuss creating a disposal district in Yakima County or propose other means to provide adequate funding for County programs, as required to implement the recommendation in the 2002 Plan and existing regulations.	Ongoing
Review, amend, and establish solid waste ordinances and/or policies as appropriate.	Ongoing
Establish and/or continue to monitor and evaluate programs for solid waste management activities.	Ongoing
Continue to investigate and evaluate the extent, probable causes of, and possible solution to illegal dumping throughout Yakima County.	Ongoing
Chapter 10: Funding and Financing	
Complete rate structure analysis by 2002.	Done
Set solid waste surcharges, excise taxes, and tipping fees at County solid waste handling facilities at a level sufficient to generate annual revenues equal to or greater than total annual expenses and reserves for solid waste management in the county.	Done
Review tip fees at solid waste facilities to determine if the County wants to account for the true cost of operation at the point of customer disposal of waste.	Done

1.9 RELATIONSHIP TO OTHER PLANS

1.9.1 Washington's Beyond Waste Plan

The Washington Department of Ecology released a waste and toxics reduction plan in November 2004. Commonly referred to as the "Beyond Waste" plan, it adopts a vision in which society transitions to a point where waste is viewed as inefficient and most wastes have been eliminated. This transition is expected to take 20-30 years or more. In the short term (over the next five years), the Beyond Waste plan focuses on five key areas: industrial waste, small volume hazardous waste, organic materials, green building, and measuring progress.

Beyond Waste is a philosophy and a design principle that goes beyond recycling to take a "whole system" approach to the flow of resources and waste through Washington's communities. It attempts to guide people to emulate sustainable natural cycles, where discarded materials become resources for others to use. Beyond Waste means designing and managing products and processes to reduce the volume and toxicity of materials used and waste produced; to conserve and recover resources, and not to burn or landfill them. By implementing Beyond Waste strategies, Yakima County can continue to reduce discharges to land, water or air that may negatively impact human, animal or plant health. These strategies minimize waste, reduce consumption, maximize recycling, and ensure that products are made to be reused, repaired or recycled back into nature or the marketplace.

1.9.2 Plan 2015

Plan 2015 is the Yakima County Comprehensive Plan, a policy framework for development in the County prior to 2015. Volume 1 contains three chapters. Chapter I, the Policy Plan, covers demographics; goals and objectives for the natural setting, economic development, and land use; housing; parks and open space; utilities; transportation; capital facilities; and intergovernmental coordination. Chapter II, Plan Development, covers the planning process including updating and citizen involvement. Chapter III, Environmental Analysis, addresses SEPA requirements, the Growth Management Act, and alternative growth scenarios.

1.10 SUSTAINABILITY AND PRODUCT STEWARDSHIP

A sustainable process or system is one that can be maintained at a certain level indefinitely. Long before sustainability became a popular and "green" concept, waste management professionals were managing solid waste by balancing concerns about human health, environmental protection, and long-term conservation of materials, energy, and space (e.g. landfill volume), all with limited financial and staff resources. The implementation of upgraded landfill controls was a major step forward in protecting the environment and human health. Yakima County's previous solid waste management plans included waste reduction, reuse and recycling as means of conserving raw materials.

This Plan update is consistent with the philosophy of sustainability articulated in Plan 2015. In cases where the Plan recommends the construction of new facilities or renovation of existing, ones, the design and materials should attempt to incorporate policies from Plan 2015.

Product stewardship is a concept wherein manufacturers (as opposed to local government and its rate payers) take responsibility for minimizing the environmental impact of their products throughout their life cycle. Product stewardship creates the opportunity to minimize waste during product design, manufacturing, distribution, and consumption. It also develops a private-sector infrastructure to recover products at the end of their useful life, removing from local governments a portion of the historical financial burden for managing waste.

Product stewardship programs can be mandatory or voluntary, and often take the form of "take-back" programs. Product stewardship programs are funded in a variety of ways, including

advanced disposal fees collected at time of product purchase, end of life disposal fees at time of disposal, or with charges incorporated in the purchase price of the product. Product stewardship can be coupled with positive incentives such as technical assistance, education for consumers, recognition programs, tax reductions; market development plans; grants; and government procurement policies. In Washington State, product stewardship programs are being pursued for electronic wastes (e-wastes), carpet, paint, pharmaceuticals, and other materials.

1.11 REQUIRED PLAN ELEMENTS

This Plan is intended to meet and or exceed applicable requirements set by Washington State. RCW 70.95.090 establishes requirements for local solid waste management plans. Local plans are required to include the following elements:

- An inventory and description of all solid waste handling facilities including any deficiencies in meeting current needs;
- The projected 20-year needs for solid waste handling facilities;
- A program for the development of solid waste handling facilities that meets all laws and regulations, takes into account the comprehensive land use plans of participating jurisdictions, contains a six-year construction and capital acquisition program and a plan for financing both capital costs and operational expenditures;
- A program for surveillance and control (to avoid or mitigate the negative impacts of improper waste handling);
- An inventory and description of solid waste collection operations and needs within each jurisdiction, including state collection certificate holders and municipal operations;
- A comprehensive waste reduction and recycling element;
- An assessment of the plan's impact on the costs of solid waste collection; and
- A review of potential areas that meet state criteria for land disposal facilities.

RCW 70.105.220 establishes the required elements for local hazardous waste management plans identified below:

- A plan or program to manage moderate-risk wastes including an assessment of the quantities, types, generators, and fate of moderate-risk waste in the jurisdiction;
- A plan or program to provide for ongoing public involvement and education including the potential hazards to human health and the environment resulting from improper use and disposal of the waste;
- An inventory of all existing generators of hazardous waste and facilities managing hazardous waste within the jurisdiction;
- A description of the public involvement process used in developing the plan; and
- A description of the eligible zones designation in accordance with RCW 70.105.225.

1.12 REGULATORY OVERVIEW

The statutes and regulations that govern solid waste handling are briefly summarized below.

1.12.1 Solid Waste Handling Standards

A new rule governing solid waste facilities and handling practices, Chapter 173-350 of the Washington Administrative Code (WAC), also known as *Solid Waste Handling Standards* went into effect in 2003. This rule replaced Ch. 173-304 WAC. Ch. 173-350 WAC sets out standards of operation and permitting requirements for solid waste handling facilities for recycling, intermediate handling (i.e. transfer), composting, moderate risk waste, and tires (unless exempted by definition or due to beneficial use). The rule regulates landfill disposal of a new category of wastes called "inert" wastes.

The new rule also places importance on local solid waste management plans (such as this document) by requiring all solid waste handling facilities (whether exempt or requiring a permit) to conform with local solid waste plans. Ch. 173-350 also states a facility's exemption for handling only recyclable materials is contingent on meeting the definition of a recyclable material as designated in a local solid waste management plan.

Landfill disposal of solid waste is regulated under a separate rule, Ch, 173-351 WAC, *Criteria for Municipal Solid Waste Landfills.* As of 2008, this rule is in the process of being revised.

1.12.2 Hazardous Waste Management Act

In 1982, Ecology adopted rules that combined the state and federal regulation of hazardous wastes. These rules, as amended several times in the ensuing years, are contained in Chapter 173-303 WAC and are the main body of regulations for hazardous wastes in this state. In 1983, the state legislature adopted a hierarchy of hazardous waste management methods in RCW 70.105.150. In descending order of priority for management, the hierarchy is waste reduction; waste recycling; physical, chemical, and biological treatment; incineration; solidification/ stabilization treatment; and landfill.

Amendments to RCW 70.105 in 1985 and 1986 defined MRW and required that local governments (counties) develop plans for the proper management of MRW. As stated in RCW 70.105.007(3), the legislature's intent was "to promote cooperation between state and local governments by assigning responsibilities for planning for hazardous waste to the state and planning for moderate-risk waste to local government." In 1987, the legislature appropriated funds for grants to counties to assist in their planning efforts and clarified the schedule. The legislature enacted the Used Oil Recycling Act, Chapter 70.95I RCW in 1991. This statute requires local governments to manage used oil in conjunction with their MRW programs and to submit annual reports to the Department of Ecology. Local governments were required to adopt used oil recycling amendments to their MRW management plans by July 1, 1993.

New *Solid Waste Handling Standards* (Ch. 173-350 WAC) were developed by Ecology and became effective February 10, 2003. These standards address MRW facilities (including construction, record keeping and reports).

The *Dangerous Waste Regulations* (Ch. 173-303 WAC) have been amended several times to address new issues and to incorporate new provisions of state and federal regulations.

1.13 SUMMARY OF RECENT CHANGES IN SOLID WASTE REGULATION AND POLICY

Several new rules have been adopted since the previous solid and moderate-risk waste plan was developed. Several of the more important new rules and regulations are shown below (not in order of priority).

1.13.1 Ban on Improper Disposal of Electronic Waste ("E-Waste")

The Environmental Protection Agency determined that disposal of electronic wastes, otherwise known as "e-waste", into municipal solid waste landfills posed a risk to public health and the environment due to the presence of leachable quantities of lead and other toxics. This caused considerable concern about how to dispose of the rapidly growing volumes of e-waste in our society, and raised awareness about the need to encourage producer responsibility for the design, recycling, and eventual disposal of their products.

In 2006 Washington adopted a law that requires the establishment of a system to recycle electronic wastes, including computers, monitors and televisions. This system will be available at no charge to consumers, and will be financed by manufacturers of the electronic equipment. Rules to implement this law, Ch. 173-900 *Electronics Product Recycling Program*, were adopted in October 2007. The new system became effective on January 1, 2009.

1.13.2 Revenue-Sharing Agreements

A recent addition to state law (RCW 81.77.185) allows waste collection companies to retain up to 30 percent of the market revenues they receive for recyclables collected in the certificate areas. This new provision was adopted to encourage further investments in recycling and to provide motivation for increased recycling, whereas previously all market revenues were required to be used to offset expenses in the calculation of permissible rates and so certificate haulers had less incentive to maximize recycling. To implement this system, a proposal must be developed by the collection company and county, then submitted to the Washington Utilities and Transportation Commission (WUTC) for approval. The county must certify that the proposal is consistent with their solid waste management plan. The proposal must demonstrate how the retained revenues will be used to increase recycling.

As of early 2006, only a few of these agreements have been approved and only in more populated areas with larger waste streams and larger amounts of recyclables (King, Pierce and Snohomish Counties).

1.13.3 Tire Fee Reinstated

In 2009, RCW 70.95 was amended to reinstate the tire fee and to remove the sunset (expiration) date for the fee. The original tire fee, which expired in 1994, was used to clean up tire dumps, fund a special study of tires, and conduct other activities. The new fee is also intended to clean up unauthorized tire dumps and to help prevent future accumulations of tires.

1.13.4 Secured Load Requirements

A new state regulation, RCW 46.61.655, applies to people hauling garbage and other materials. The regulation states that "*no vehicle shall be driven or moved on any public highway unless such vehicle is... loaded as to prevent any of its load from dropping, sifting, leaking, or otherwise escaping.*" Significant fines may be levied against violators. In May 2005, Yakima County adopted Ordinance 4-2005, which requires users of County solid waste facilities to secure their loads. Violators are charged a five to fifteen dollar fee at the scalehouse.

1.13.5 Ban on Sale of Mercury-Containing Products

In 2006 the Mercury Education and Reduction Act (RCW 70.95M) made it illegal to sell most items that contain mercury, including thermometers, manometers, toys, games and jewelry. The sale of thermostats containing mercury is now illegal unless the manufacturer provides a thermostat recycling program. The sale of mercury-containing fluorescent light bulbs is still allowed, but labeling to warn consumers that the bulbs contain mercury is now required.

1.13.6 Flow Control of Construction and Demolition Debris Destined for Recycling

The Washington State Legislature amended RCW 70.95.305; and reenacted and amended RCW 70.95.020 effective July 24, 2005. The Act (SB5788 and HB1817) dealt with the flow control issue related to C&D waste primarily by stipulating (1) that as long as independent recyclers did not take recyclable C&D wastes directly to a landfill, but took them to permitted recycling processing centers, then the public interest of health and safety and recycling goals were being served; and (2) that a separate container for solid waste would be provided at all sites from where recyclable materials are generated and transported.

1.13.7 Transport of Recyclables

In 2005, the Washington State Legislature passed Senate Bill 5788 regarding transporter and facility requirements for recyclable materials. This bill is now reflected in RCW 70.95.400 and WAC 173-345. The purpose of this regulation is to establish minimum standards for handling the transportation of recyclables, ensure that recyclables are diverted from the waste stream for recycling, and are routed to facilities where recycling occurs. The regulation applies to businesses that transport recyclables from commercial or industrial generators that are required to possess a permit to operate issued by the Washington Utilities and Transportation Commission under chapter 81.80. This rule also applies to facilities that recycle solid waste, except for those facilities with current solid waste handling permits issued under RCW 70.95.170.

1.13.8 Public Event Recycling

Effective July 22, 2007, a new State law (RCW 70.93.093) requires a recycling program at every official gathering and sports facility in communities with established recycling programs. This law requires vendors that sell beverages in single-use bottles and cans ensure that a recycling program is available at the event.

1.13.9 Exemption from Solid Waste Handling Permit Requirements for Anaerobic Digesters.

Effective July 1, 2009, a new State law (RCW 70.95.330) allows certain anaerobic digesters an exemption from obtaining a solid waste handling permit provided they meet specified criteria.

CHAPTER 2 - WASTE STREAM

2.1 INTRODUCTION

This chapter provides information on population and waste generation rates. This data is used in various ways in the following chapters, such as assessing the need for or determining the impact of a proposed new program.

2.2 WASTE STREAM AND POPULATION PROJECTIONS

2.2.1 Population and Waste Generation Rates

Population

Current population levels and future population growth are important factors to consider for solid waste management plans. People create solid waste and in general, the more people there are (now and in the future), the more waste is created.

Table 2-1 provides current and future estimates of the population in Yakima County. This table uses population figures produced by the Washington State Office of Financial Management (OFM) for current population, which are based on the Census 2000 results and adjustments made through 2005. For future population projections, the OFM actually produces three different sets of forecasts for population growth: a low, medium and high series. The high series figures are used in Yakima County's Comprehensive Plan (Plan 2015). The high series is used by Plan 2015 because the population growth in Yakima County has been greater than normal in recent years. Although these are the official figures for population in Yakima County, the use of the high series for population projections leads to a steep increase in population growth for the period 2005 to 2010.

In addition to the population figures shown in Table 2-1, there are a large number of temporary residents who assist with farm work including general fieldwork, harvesting, and processing fruit. The number of these seasonal and migrant workers was estimated in a statewide study of this issue. For Yakima County, the number of seasonal and migrant workers, including family members who accompany them, was estimated to be 82,000 additional people per year (Larson 2000).

According to the 2000 Census, Yakima County is the second most populated county in Eastern Washington and the seventh most populated county in the state.

Waste Generation Rates

The residents and businesses in Yakima County generate solid waste in roughly equal amounts. According to the 2003 *Waste Composition Study* (Yakima County 2003a), 47.6% of the county's waste stream is from residential sources, including the waste collected through curbside service,

Table 2-1
Current and Future Population Estimates

Area	2000[1]	2005[1]	2008[2]	2010[3]	2015[3]	2020[3]	2025[3]
Yakima County, Total	222,581	229,300	245,079	255,599	279,873	303,076	326,254
Unincorporated Areas	93,192	89,060	95,017	98,989	107,884	115,951	123,994
Incorporated Areas	129,389	140,240	150,062	156,610	171,989	187,125	202,260
Cities:							
Grandview	8,377	8,705	9,254	9,620	10,533	11,406	12,279
Granger	2,530	2,835	3,002	3,113	3,405	3,696	3,988
Harrah	566	630	656	673	726	780	833
Mabton	1,891	2,065	2,129	2,172	2,378	2,575	2,772
Moxee	821	1,310	1,996	2,453	3,268	4,084	4,900
Naches	643	755	805	839	937	1,035	1,135
Selah	6,310	6,740	7,044	7,246	7,934	8,592	9,249
Sunnyside	13,905	14,710	15,465	15,968	17,484	18,934	20,382
Tieton	1,154	1,185	1,269	1,325	1,451	1,571	1,692
Toppenish	8,946	9,000	9,764	10,273	11,249	12,181	13,113
Union Gap	5,621	5,695	6,151	6,455	7,068	7,654	8,239
Wapato	4,582	4,535	4,971	5,262	5,761	6,239	6,716
Yakima	71,845	79,480	84,763	88,285	96,504	104,723	112,934
Zillah	2,198	2,595	2,794	2,926	3,291	3,655	4,019

Sources:

1. Data for the years 2000 and 2005 are from the Office of Financial Management's "April 1 Population of Cities, Towns, and Counties," www.ofm.wa.gov/pop/april1/finalpop2008.xls (OFM 2008).
2. Figures for 2008 are extrapolated from the 2005 and 2010 figures.
3. Total population data for the years 2010 through 2025 is from the OFM's "Projections of the Total Resident Population for the Growth Management Act, High Series," www.ofm.wa.gov/pop/gma/projections07.asp (OFM 2007). Population figures by area and city for the years 2010 through 2025 assume the same breakdown as 2007.

The estimated 2006 population (for use in later calculations) is 235,420, for 2007 it is 241,550, for 2008 it is 247,670, and for 2009 the projected population is 253,790.

the waste self-hauled by residents to the disposal facilities, and the waste that used to be collected through the rural dropboxes. Non-residential generators, including businesses that have their garbage collected by others and those businesses that self-haul their garbage to a disposal facility, contribute the other 52.4%. Hence, where people live is a factor for collection, transfer and disposal services. Where people work is also a factor, although in general, employment is more centralized and therefore less of an issue for collection services.

Washington State defines solid waste as "all putrescible and nonputrescible solid and semisolid wastes including, but not limited to, garbage, rubbish, ashes, industrial wastes, swill, sewage sludge, demolition and construction wastes, abandoned vehicles or parts thereof, contaminated soils and contaminated dredged material, and recyclable materials" (WAC 173-350-100).

This Plan focuses primarily on "municipal solid waste" (MSW), consisting of those wastes generated by residential and commercial sources that are meant to be handled by the County's solid waste disposal system. Wastes generated by industrial and agricultural sources are generally included to the extent that these are similar to what is disposed through the County's system and they don't require special handling. Special wastes handled separately by these sources are only addressed briefly in this Plan.

Table 2-2 shows the solid waste disposed in Yakima County at the transfer and disposal facilities. This table also shows the amount of materials recycled or diverted through various drop-off and collection programs in Yakima County, and the amount of construction and demolition (C&D) and other special wastes disposed in Yakima County or taken to other facilities. It is important to account for all of these materials in developing a waste generation

Table 2-2
Current Waste Generation Rate (2008)

Facility and Waste Stream	Annual Amount, Tons
Municipal Solid Waste (MSW);	
Terrace Heights	164,292
Cheyne Landfill	32,721
Lower Valley Transfer Station (LVTS)	37,970
Total	234,983
Recycling Tonnages[1]	74,560
MSW Subtotal	309,543
C&D Materials to Other Landfills	157,332
Special Wastes to Other Landfills	771
Additional Diverted Materials[1]	48,714
Grand Total, All Solid Waste	516,360
Population (2008)	245,080
Waste Generation Rate, lb/person/year	4,214
Waste Generation Rate, lb/person/day	11.5

Notes: MSW tonnages are 2008 figures from Yakima County records. The recycling, C&D and special waste tonnages are 2007 figures from the annual survey conducted by the Department of Ecology.
1. See Section 2.2.2 for an explanation of recycled versus diverted materials.

rate, since tonnages may shift from one facility to another in the future due to new programs, changes in rates, and other factors. The recycled and diverted tonnages, as well as the C&D and special waste tonnages, are 2007 data because this is the most recent data currently available from the Department of Ecology's annual survey.

In 2008 and 2009, Yakima County and other areas experienced a significant decrease in the amount of waste being disposed, apparently due to the economic downturn being experienced in the United States. It is unknown at this point if or when waste disposal rates may return to previous levels, so the following analysis assumes a continuation of the current rate.

In Table 2-3, waste quantities have been projected using the current (2009) per capita generation rate multiplied by population forecasts for the County. The current generation rate was calculated using a projected waste disposal figure for 2009 (235,000 tons). By using the current per capita rate for future years, the projected figures for 2010 through 2025 assume no change in waste generation or disposal practices, or in the percentage of material recycled and reduced. This approach also assumes no change in the amount of waste migrating to out-of-county facilities and other factors such as tourism remaining proportionate to increases in the general population.

Table 2-3
Projected Solid Waste Generation

Year	Total Population[1]	Waste Generated[2]	Waste Generation Rate	Amount Recycled[3]	Amount Diverted[3]	MSW Disposed[3]	Other Wastes[3,4]
Actual Amounts:							
2008	241,550	516,360	11.4	74,560 (14.4%)	48,714 (9.4%)	234,983 (45.5%)	158,103 (30.6%)
Projected Amounts:							
2009	253,790	516,360	11.1	74,560	48,714	235,000	158,100
2010	255,600	520,040	11.1	75,090	49,060	236,660	159,230
2015	279,870	569,420	11.1	82,220	53,720	259,130	174,350
2020	303,080	616,640	11.1	89,040	58,180	280,620	188,810
2025	326,250	663,790	11.1	95,850	62,620	302,070	203,240

Notes:
All figures, except the year, population and generation rate, are shown as tons per year (TPY). The waste generation rate is shown as pounds per person per day.

1. Population figures are from Table 2-1.
2. For 2008, the amount of waste generated is from Table 2-2. The amount of waste (MSW disposed) for 2009 is a projected figure based on the first half of the year, and all figures for 2009 are assumed to remain the same due to the economic problems (i.e., no growth from population or other factors). Projected waste generation figures for 2010 through 2025 are based on the waste generation rate for 2009 (11.1 pounds per person per day) and the population forecasts.
3. The projected amounts of recycling, other diversion, disposed MSW and other wastes assume the same percentage of the total waste generated as in 2008.
4. Other wastes include construction and demolition (C&D) wastes disposed at limited purpose landfills and special wastes.

2.2.2 Recycling Data

The most recent recycling survey conducted by Ecology shows that 23.1% of Yakima County's waste stream was recycled or composted in 2007 (see Table 2-4). This figure is generally called a "recycling rate," although it includes composting and some reuse as well. The figure is based on 74,560 tons reported as being recycled and composted in 2007, versus a total of 323,142 tons of waste generated (see Table 2-4).

The list of materials shown in Table 2-4 includes several materials that are not defined as recycling and so cannot be included in the calculation of the recycling rate. These "diverted" materials, which include materials burned for energy recovery and other specific materials such as asphalt and concrete, are still being put to a beneficial use but simply do not count as recycling as defined by Washington State. For instance, in 2007 a large amount of asphalt and concrete was crushed for reuse; there was also a significant amount of "compost furnish" (agricultural waste and manure) produced in Yakima County. Neither of these amounts could be included in the calculation of the recycling rate. In order for these materials to be counted, the definition of solid waste would need to be broadened to not only include those materials but also to include the wastes delivered to C&D landfills and special wastes sent to other facilities. Including these other wastes means that there is only a slight increase in the overall diversion rate (to 23.3%).

There is little data available on the current levels of waste diverted by most forms of waste reduction, although a few categories of reuse (especially textiles and building materials) are at least partially tracked. If all waste reduction activities and the missing recycling tonnages could be accounted for, the County's current diversion rate would be significantly greater.

2.2.3 Composition of Disposed MSW

Composition data is useful for designing solid waste handling and disposal programs. A waste composition study was conducted for Yakima County in 2003. The *Yakima County Waste Composition Study* (Yakima County 2003a) divided the waste stream into five categories based on source of waste and 81 categories of materials. This study was conducted at the County's three primary waste handling and disposal facilities (Terrace Heights Landfill, Cheyne Landfill, and Lower Valley Transfer Station). C&D and other special wastes are included in the results only to the extent that those materials were disposed at these facilities in 2003. A summary of the results of this study is shown in Table 2-5.

The data shown in Table 2-5 includes composition and quantity figures by material for the county's entire waste stream, plus the percentage breakdown for specific sources (types of generators). The tonnages for each material are based on the waste tonnages received in 2007 (247,361 tons) at the three primary facilities (Terrace Heights, Cheyne, and LVTS). Diverted materials (recycled materials and yard waste) are not included in the waste tonnage figure since the study only sampled materials brought to the three facilities for disposal purposes. Likewise, wastes disposed at C&D landfills and other special wastes are also not included in the waste tonnages.

Table 2-4
Recycled and Diverted Materials (2007)

Recycled Materials	Annual Tons
Aluminum Cans	342
Cardboard	23,074
Electronics	10
Fluorescent Light Bulbs	14
Food Waste	NA[1]
Glass	45
Grease, Other Rendering	11,871
HDPE Bottles	739
LDPE Bottles	2,481
Metals/White Goods	16,832
Miscellaneous	115
Mixed Waste Paper	7,691
Newspaper	NA
Office Paper	NA
PET Bottles	165
Textiles	918
Tin Cans	368
Tires	113
Used Motor Oil	2,535
Vehicle Batteries	316
Wood	NA
Yard Waste	1,685
Tons Recycled/Composted	74,560
Total Tons Generated (MSW only)[2]	323,142
Recycling Rate	23.1%
Diverted Materials	
Antifreeze	164
Asphalt/Concrete	NA
Composting Furnish	26,557
Food Waste	NA
Household Batteries	216
Household Items, Reuse	NA
Oil Filters	144
Other	982
Tires (Energy Recovery, Baled, and Reuse)	746
Tons Diverted	48,714
Tons Diverted and Recycled	123,274
Tons Disposed	248,582
Other Wastes	157,759
Total Tons Generated	529,615
Recycling Rate	23.1%
Overall Diversion Rate	23.3%

Notes: Data for recycled and diverted materials, and for the amount of "other wastes," is from the 2006 annual survey conducted by Ecology. The figure for tons disposed is from Yakima County records.

1. NA = not available. Quantity figures for materials with only one or two respondents are not shown in the above table in order to protect the confidentiality of the survey participants.

Table 2-5
Solid Waste Composition in Yakima County

Materials	Entire Waste Stream		Specific Waste Streams, Percent by Weight[1]			
	Percent by Weight[1]	Tons of Material[2]	Residential	Residential Self-Haul	Non-Res. Self-Haul	General Non-Res.
Paper	**19.5**	**48,260**	**24.25**	**11.87**	**7.19**	**21.11**
Cardboard	4.4	10,890	2.64	4.30	2.90	5.69
Newspaper	2.3	5,590	4.75	2.15	0.10	1.06
Other Recyclable Paper	6.9	17,120	10.54	3.28	1.44	6.79
Compostable Paper	4.7	11,620	5.62	1.58	0.45	5.86
Non-Recyclable Paper	1.2	3,050	0.70	0.57	2.31	1.71
Plastic	**14.4**	**35,550**	**12.72**	**8.93**	**5.79**	**18.46**
PET Bottles	0.7	1,790	1.19	0.49	0.04	0.61
HDPE Bottles	0.7	1,740	1.21	0.66	0.04	0.49
Film and Bags	5.3	13,090	5.57	1.89	3.54	6.67
Other Plastics	7.7	18,930	4.75	5.90	2.16	10.69
Glass	**4.4**	**10,830**	**4.28**	**3.25**	**0.28**	**5.32**
Clear Containers	1.4	3,400	1.98	1.41	0.06	1.15
Brown Containers	0.8	1,980	1.41	1.07	0.08	0.39
Green Containers	0.3	800	0.79	0.03	0.01	0.19
Non-Recyclable Glass	1.9	4,640	0.11	0.73	0.13	3.59
Metals	**10.6**	**26,250**	**8.91**	**14.40**	**9.80**	**10.19**
Aluminum Cans	0.6	1,380	0.86	0.38	0.03	0.50
Tin Cans	1.1	2,690	1.82	0.93	0.03	0.81
Mixed Metals	3.0	7,530	2.20	6.10	3.35	2.27
Other Ferrous	3.4	8,330	1.11	4.00	6.05	4.19
Other Non-Ferrous	0.9	2,110	0.13	1.24	0.06	1.22
Computers, Electronics	1.0	2,410	2.41	1.49	0.24	0
Other Metals	0.7	1,800	0.37	0.25	0.03	1.21
Organics, Other	**37.6**	**92,990**	**48.27**	**37.19**	**22.26**	**32.98**
Food Waste	12.9	31,790	16.91	6.39	6.14	13.72
Yard Debris	7.0	17,200	9.18	12.80	7.48	3.26
Textiles, Shoes	3.1	7,580	4.04	2.02	0.57	3.16
Carpeting	1.2	2,910	0.06	2.17	2.05	1.36
Disposable Diapers	2.5	6,080	4.87	1.40	0.02	1.69
Tires, Rubber Products	0.3	750	0.12	0.76	0.02	0.26
Haz./Special Wastes	2.1	5,080	1.05	2.02	2.53	2.54
Other Materials	8.7	21,610	12.04	9.62	3.46	7.00
Construction Debris	**13.5**	**33,480**	**1.57**	**24.36**	**54.68**	**11.94**
Wood Waste	9.8	24,230	1.06	17.24	35.46	9.25
Construction Debris	3.7	9,250	0.51	7.11	19.22	2.69
TOTAL TONS DISPOSED		**247,360**				

Notes:
1. From the "*Yakima County Waste Composition Study*," June 2003 (Yakima County 2003a).
2. Based on the 2007 disposed tonnage for Yakima County (247,361 tons).

The specific types of generators examined by the waste composition study include:

- **Residential**: this is waste brought in by garbage haulers from single-family homes and apartments.
- **Residential Self-Haul**: this is waste brought in by the homeowners and renters who generated it, although in some cases they may be assisting a family member, neighbor or friend who actually generated the waste. This type of waste is typically transported to the disposal site using a car or pickup truck.
- **Non-Residential Self-Haul**: this waste is from businesses and institutions (government offices, churches, schools, etc.), and by definition is brought to the disposal facility by an employee of that business or institution. A substantial amount of this waste stream consists of loads of construction and demolition wastes brought in by contractors.
- **General Non-Residential**: this is waste from all types of non-residential sources, including commercial, industrial, and institutional sources. By definition, this waste is delivered by a garbage hauling company, municipality, or by someone other than the waste generator themselves (i.e., this category excludes self-hauled waste).
- **Rural Dropboxes**: the disposal containers from the dropbox facilities were sampled when these were brought to Terrace Heights Landfill to be emptied. This data is not shown in Table 2-5 because these sites have since been closed.

Waste composition can be expected to change in the future due to changes in consumption patterns, packaging methods, disposal habits, tourism and other factors. These changes are very difficult to predict in the long term. Furthermore, implementation of this Plan is expected to affect waste composition in Yakima County by changing purchasing and disposal habits.

CHAPTER 3 - PROMOTION AND EDUCATION

3.1 INTRODUCTION

This chapter discusses existing promotion and education programs related to solid waste management, identifies relevant planning issues, and develops/evaluates alternative promotion and education strategies.

3.2 BACKGROUND

Public education and promotion are important elements for solid waste management systems. Yakima County residents and businesses need to be informed as to the proper and available methods for garbage disposal and recycling if they are expected to "do the right thing." Promotional activities generally extend beyond education and help to support activities such as waste reduction and recycling, although rarely is there a strict line drawn between "promotion" and "education." Residents often have several options as to how to handle many wastes, however, and promotional activities help to encourage them to take the extra steps to recycle or compost the appropriate wastes, or to avoid generating the wastes in the first place.

3.2.1 Goals and Objectives for Promotion and Education

Goals and objectives specific to promotion and education (as shown on page 1-2 of the Plan) include:

- Provide customers with information and education to promote recommended waste management practices.

3.3 EXISTING PROGRAM ELEMENTS

This section briefly describes the promotion and education programs in place at this time.

3.3.1 County-Sponsored Recycling and Waste Prevention Education, Outreach, and Promotion Programs

The Yakima County Solid Waste Division manages and delivers an extensive array of outreach programs designed to educate residents, students, and businesses about how to recycle, compost, and produce less waste. These programs also provide information on how to reduce and/or properly dispose of moderate risk wastes. These programs are described below.

Waste Reduction/Recycling

- **School Recycling** – Yakima County staff provide worm composting, backyard composting, and recycling presentations to grades K-12 in Yakima County to encourage recycling and waste reduction. Free presentations are also provided to school staff to encourage the establishment of school recycling programs. Yakima County provides two different types of recycle bins for use on school grounds and provides a demonstration of the recycle bin use (what can be recycled), as well as posters and classroom support materials.

- **Business Recycling** – Yakima County staff work with businesses and organizations to encourage recycling in the workplace. The County also provides staff education and recycling bins to establish new programs and reinforce existing programs.

- **Organics** – Yakima County encourages residents to divert their organics from the waste stream through backyard composting or curbside collection. Classes are hosted by Yakima County Solid Waste and Master Gardeners to encourage composting and natural gardening practices in Yakima County. Ongoing education classes are also provided by Yakima County Solid Waste in partnership with the Yakima Area Arboretum on topics such as grass-cycling, worm composting, natural gardening, and xeric (low water usage) gardening. In addition, presentations are provided at Master Gardener training sessions. In the fall of 2008, Yakima County, the Department of Ecology, and the City of Yakima partnered on a pilot project to distribute and educate citizens on the use of biodegradable bags for the fall City of Yakima organics collection program.

- **Residential Recycling** – Several of the public outreach activities, including the distribution of the "Yes You Can Recycle in Yakima County" brochure, address residential recycling opportunities.

- **Public Event Recycling Education** – Yakima County provides recycling education and outreach at several events throughout the year, including the Central Washington State Fair, Central Washington Home Show, Festival of Flowers, Arboretum Arbor Festival, Eagle Earth Day, EPIC Resource Fair, Yakima Training Center Safety Day, Poison Prevention Week, Engineer Week, Davis Recycle-a-Thon, and America Recycles Day.

- **Waste Reduction** – Three thousand re-usable grocery bags were given away at local grocery stores and senior centers to help keep plastic and paper grocery bags out of the waste stream.

- **Youth Environmental Summit** – The Solid Waste Division developed this free event for middle, junior and senior high students and staff. The goal of the summit is to empower students and staff to be environmental advocates and make a difference in their schools and communities. The one-day event includes guest speakers, educational displays and opportunities to network with other students and educators about developing green practices in their schools. Other organization featured at the summit include the Department of Ecology, Central Washington Recycling, Yakima Area Arboretum, Yakima Basin Water Resources Agency, Yakima Regional Clean Air Authority, Yakima Waste Systems, and WSU Master Gardeners.

Household/Small Quantity Generator Waste

Several of the public outreach activities, including the distribution of the "Yes You Can Recycle in Yakima County" brochure, address household hazardous waste disposal options. In addition, three thousand spray bottles, along with recipes for natural pesticide and cleaner alternatives, were distributed in the Yakima Valley area to reduce the use of hazardous chemicals. Yakima County has also sponsored free mercury collection events and free oil collection events. Yakima County and the Department of Ecology, through a grant from the EPA, partnered in 2008 to facilitate teacher workshop training on "Hazards on the Homefront."

Product Stewardship

Yakima County is a member of the Northwest Product Stewardship Council and applies product stewardship practices within the county.

- **Electronics** – Yakima County has developed a network of computer recyclers to divert electronics from the waste stream, and this network is promoted on the County website at www.yakimarecycles.com and through the "Yes You Can Recycle in Yakima County" brochure. At events throughout the year, Yakima County also distributes information about the new Washington State Electronic Product Recycling Program that took effect in 2009.

Litter and Illegal Dumping

- **Secure Your Load** – Several of the public outreach activities, including the distribution of the "Yes You Can Recycle in Yakima County" brochure, address the need to secure loads, higher landfill fees for unsecured loads, and potential fines for not properly securing loads.

Public Outreach

- **Website** – Yakima County continues to improve its website and has set up a more user-friendly domain name for it, www.yakimarecycles.com. This website features information about recycling resources, natural gardening, waste reduction, household hazardous waste and garbage rates.

- **Landfill Tours/Education** – Yakima County staff provide landfill tours that are interactive and that engage students with presentations and interesting handouts.

- **Public Events Recycling** – Yakima County has established a program to provide beverage container recycling bins for free to any group with an event that is open to the public and that serves or sells beverages in aluminum or plastic containers. Clearstream beverage recycle bins have been placed at the Central Washington State Fair, Central Washington Home Show, Case of the Blues and All That Jazz, Hot Shots Basketball Tournament, Festival of Flowers, Softball and Soccer Tournaments, Yakima Folklife Festival and numerous other public events.

- **Newspaper** – A "Yes You Can Recycle in Yakima County" insert has been placed periodically in the Yakima *Herald Republic* and the Spanish paper *El Sol* summarizing recycling opportunities available in Yakima County. The insert reaches 62,000 readers in Yakima County.

- **Electronic Billboard** – Yakima County promotes environmental messages throughout the year on an electronic billboard on South First Street. This billboard has addressed recycling, household hazardous waste collection, curbside recycling, unsecured loads, electronic recycling, earth day, and other topics.

3.3.2 Private and Other Recycling and Waste Prevention Education, Outreach, and Promotion Programs

Outreach and promotion efforts by the private sector are often conducted in support of their programs, although many also participate in spreading a broader message when possible. Examples of specific activities are described below.

Central Washington Recycling

Central Washington Recycling conducts outreach and education for their commercial accounts, and also provides technical assistance as needed to set up new programs. They conduct tours of their operations for school groups, and are currently conducting about 50 of these tours per year. For the drop-off sites that they service at charitable organizations (there are about 20 of these sites throughout Yakima at churches and other locations), the organizations that they work with generally do a good job of promoting participation in the recycling drop-off sites to their own members.

Basin Disposal and Yakima Waste Systems

The two main garbage collection companies in the county, Basin Disposal and Yakima Waste Systems, collect recyclables from both commercial and residential accounts. These companies provide information to their customers on proper disposal and recycling practices, as well as other recycling opportunities. This information is provided in the form of brochures, bill inserts and labels on containers. In addition, Yakima Waste Systems has done joint mailings with the City of Yakima and in 2006 co-funded (along with the City of Yakima and Yakima County) a section in the phone book (the "brown pages") that provided information on waste reduction and recycling opportunities. In 2008, Yakima County and Yakima Waste Systems collaborated on the new single stream curbside recycling program with Yakima County purchasing the educational labels denoting what recyclable materials are acceptable in the new bins and advertising the www.yakimarecycles.com website.

Other

The cities and towns, non-profit organizations, and private companies also publicize their services as appropriate.

3.4 STATUS OF 2003 RECOMMENDATIONS

The following table describes the accomplishments or status of the recommendations outlined in the 2003 Plan.

Table 3-1
Status of 2003 Recommendations for Promotion and Education Programs

Recommendations	Status
Continue current education and outreach programs, including school education, special events and public education campaigns. Consider expanding these programs, including using joint public/private promotional partnerships. Education should address recycling, waste prevention, composting reducing toxicity, and using safer alternative to products containing hazardous ingredients.	Ongoing

3.5 PLANNING ISSUES

Based upon a review of the existing conditions, the following planning issues have been identified as potential focus areas for the six-year and 20-year planning horizons for county-sponsored programs.

3.5.1 County-Sponsored Recycling and Waste Prevention Education, Outreach, and Promotion Programs

General

Currently, Yakima County Solid Waste provides the majority of the promotion, education and outreach programs conducted countywide. Designation of this continued responsibility will need to be determined.

Waste Reduction/Recycling

- **School Recycling** – Existing efforts for school recycling programs are working well and should be continued. There is also a statewide program that became available on August 17, 2009, the "Washington Green Schools" program, which provides on-line resources for environmental improvements (see www.wagreenschools.org/). This could be used to help schools expand waste reduction, recycling, and other conservation education and practices.

- **Business Recycling** – A significant amount of material is already being collected for recycling from the businesses in Yakima County, but more could be done to encourage waste reduction and other environmental programs (see also "business recognition programs" under Public Outreach, below).

- **Organics** – It is anticipated that management practices for organics will undergo significant changes in the near future. All new programs of any type should be aggressively publicized and promoted in the first year or two of operation.

- **Green Building** – Current efforts to promote green building practices are largely dependent on private and non-profit activities. Sources of additional support for these activities are being research and developed.

- **Residential Recycling** – Current efforts to promote existing recycling programs are adequate.

- **Public Event Recycling** – Current efforts to inform event organizers and support public event recycling appear to be working well and should be continued.

- **Waste Reduction** – Again, current efforts to promote existing waste reduction opportunities are adequate.

Household/Small Quantity General Waste

- Existing efforts do a good job of informing generators about proper handling and disposal practices for Moderate Risk Wastes (MRW), but little technical assistance is currently being provided to businesses, schools, or agricultural generators.

Product Stewardship

- **Electronics** – The new system for collecting electronics ("e-waste") is expected to vastly improve the opportunities to handle this waste stream, and the associated education campaign should provide adequate information to generators on how to properly handle e-waste. The County has already laid the groundwork for this new system through their involvement in the "Take it Back Network" and should continue to help publicize the new system.

- **Pharmaceuticals** – Programs to address waste pharmaceuticals are currently under development and it is unknown what role the County or other local service-providers may play in any new programs to address this waste material.

- **Paint** – Waste paint is currently handled at the County's MRW facility, but a different approach may be necessary or desirable in the future if a new product stewardship program for paint is implemented by manufacturers. In this case, extensive public education may be needed to inform waste generators of the new program.

- **Tires** – Product stewardship programs to address waste tires are currently in the very early planning stages and it is unknown what role the County or other local service-providers (auto repair shops and tire dealers) may have in any new programs to address this waste material. This and other programs are being evaluated by the Northwest Product Stewardship Council (see www.productstewardship.net/).

- **Fluorescent Tubes** – A collection system to handle fluorescent tubes is already in place, but any future changes should be widely publicized. In the meantime, any publicity promoting the use of fluorescent tubes or compact fluorescent light bulbs should also inform customers about disposal options.

Litter and Illegal Dumping

- **Schools Litter Awareness Program** – Litter and illegal dumping are chronic problems in Yakima County, and additional efforts in the schools would help educate children that these are undesirable activities.

- **Adopt a Road Litter Program** – The Adopt-a-Road program is helping to address roadside litter and should be continued.

- **Secure Your Load** – The fines and education efforts being conducted for properly securing loads are being effective and should be continued.

Public Outreach

- **Website** – The website for solid waste and recycling information, www.yakimarecycles.com, is an excellent tool and should continue to be maintained and expanded as appropriate.

- **Landfill Tours/Education** – Landfill tours and related educational activities provide first-hand exposure to disposal issues and should be continued.

- **Public Education/Outreach Events** – Education and outreach at public events is an important tool for spreading the word and should be continued. The events where these activities should be conducted include, but are not limited to, the Central Washington State Fair, National Night Out, Central Washington Home Show, Festival of Flowers, and Arborfest.

- **TV/Radio/Newspaper/Billboard Advertising** – Some amount of mass media advertising is essential for reaching those people that might otherwise miss the messages that are distributed through other means such as flyers in utility bills, and these activities should be continued.

- **Business Recognition Program** – Public recognition provides good publicity for businesses that practice significant waste reduction and recycling. More could be done in this area to encourage businesses to engage in these activities, and also to inform them as to proper disposal practices for MRW and other special wastes.

- **Yakima County Recycling Heroes** – This program was established to recognize local citizens for their efforts in recycling. Yakima County Recycling Heroes help the environment by saving resources and conserving landfill space. Nominees are evaluated and the three winners are announced at a Yakima County Commissioners meeting in the spring. Heroes and their stories are featured in the Yakima County Recycling Guide, which is

published and inserted in the Yakima Herald Republic around Earth Day. Recycling Heroes are also recognized on the county's website, www.yakimarecycles.com.

3.5.2 Private and Other Recycling and Waste Prevention Education, Outreach, and Promotion Programs

No specific needs or service gaps have been identified for private programs.

3.6 ALTERNATIVE STRATEGIES

3.6.1 Alternatives

Alternatives for public education include a few general options that discuss administrative and large-scale approaches, and a number of specific activities, as described below. Other public education activities (that are not shown below) are working well and should be continued.

Alternative A – Public and Private Roles

The Yakima County Solid Waste Division has historically taken the lead in public education and promotion of waste management programs. This alternative proposes a larger role for the cities, through an active partnership with the County. County staff could continue to take the lead in most areas and could provide technical assistance on an as-needed basis. Coordination could occur through the Yakima County Council of Governments (COG). Other organizations, including service groups, the haulers and other private companies (as appropriate to the program or material being promoted), could also conduct education for their own specific programs.

Alternative B – Additional Education for New Programs

Efforts to inform residents and businesses about existing recycling and waste reduction options need to be conducted on an ongoing basis, and more education is generally better in terms of results for existing programs. As new programs are developed or existing programs expanded, increased education will also be needed on at least a temporary basis to ensure that people are aware of the opportunity and participation guidelines. An example of a new program that will need to be publicized is the e-waste program (see below, under Product Stewardship).

Alternative C – Promotion for Green Building Activities

Efforts to promote green building practices could be increased with cooperation from private and non-profit activities. Because green building involves many disciplines, an effective approach to conveying the message is to partner with associations whose members have a particular interest in learning about green building methods. Additional support for these activities is further discussed in Chapter 9.

Alternative D – Public Information for Yard Debris Disposal Ban

State legislation (RCW 70.95.010 (10) establishes a goal of eliminating yard debris from landfills by 2012 in those areas that have disposal alternatives available. A ban or other approach would require extensive public education about the alternatives for properly handling yard debris. The education about this could be broadcast through county media points to include signs at the transfer stations and landfills, mailers, radio spots, County website, signs at the County and at libraries. Options for yard debris should be publicized and should include mulching lawnmowers, backyard composting and composting facilities. To be most effective, citizens could receive up to year's warning and be allowed to handle their yard debris in a convenient manner. County and city residents and businesses should also be given information as to why this change is necessary.

Alternative E – Technical Assistance for SQGs

Existing efforts are doing a good job of informing generators about proper handling and disposal practices for moderate risk waste (MRW), but little technical assistance is currently being provided to any sector (businesses, schools, residents, or agricultural generators). Public education alternatives for these generators could include county staff, private consultants, or citizen action groups offering assistance to business, organizations, and other waste generators, using fact sheets, a telephone hot line, directories, workshops, demonstration programs, newsletters, and on-site consultations. The need for technical assistance is discussed further in Chapter 12.

Alternative F – Public Education for Proper E-Waste Handling

The collection of e-waste financed by the manufacturers is one of the first product stewardship programs to be created in the State of Washington. E-Cycle Washington is a new program that began providing responsible recycling of computers in January 2009. Washington State Law requires that collection of electronics be provided free of charge to households, small businesses and school districts. The website, www.1800recycle.wa.gov, lists ten drop-off and buy back sites for Yakima County. Public outreach materials can be downloaded from this website, such as a brochure, signs, logos, mail inserts, press releases and more, and these materials can be used to help direct people to the ten collection sites.

Alternative G – Illegal Dumping Education

Illegal dumping is another problem that could be addressed through public education. Litter and illegal dumping are chronic problems in Yakima County, and these are a priority for future work. In this case, public education could be used to discourage this behavior, by publicizing the bad aspects of this activity and also informing potential violators of the applicable fines and civil penalties. Additional efforts in the schools would help educate children that these are undesirable activities. A task force to address illegal dumping could also help by bringing together key people from the several organizations that are impacted by this problem and this idea is discussed further in Chapter 14.

Alternative H – Business Recognition Program

More could be done to encourage businesses to participate in waste reduction and other environmental programs. For the businesses, a two-pronged approach could be used, by informing them of the options for reducing and recycling wastes, and also motivating them to begin these activities. Approaches that have worked well in other areas for motivating the businesses are special awards or other recognition programs.

Awards and public recognition can be used to motivate businesses to reduce waste at the source. Public recognition provides an opportunity for local jurisdictions to publicize innovative waste reduction programs, as well as encourage the business sector to participate in waste reduction activities. Leadership, innovation, volunteer activity, or setting a positive example for others to follow can be recognized by the counties and the municipalities. Local media could be encouraged to report on businesses that practice waste reduction.

3.6.2 Evaluation of Alternative Strategies

Alternative C is further evaluated in Chapter 9 and Alternative E is evaluated in Chapter 12. The other alternatives are evaluated below.

Consistency With Planning Objectives

All of the alternative strategies support the objective of providing customers with information and education to promote recommended waste management practices.

Waste Reduction / Diversion Potential

Alternative H, the business recognition program, would provide the most immediate waste reduction result because this category produces the greatest amount of waste. All other alternatives promote waste reduction by encouraging changes in behavior or facilitating the recovery of used products.

Customer Preferences

Waste reduction education and promotion programs typically enjoy strong customer support.

Implementation Costs

Alternative F is the lowest cost and so would be a desirable option under a cost criterion. The other alternatives fall into a low to medium range of costs.

3.6.3 Rating of Alternatives

The alternatives are compared with respect to the evaluation criteria in the table below. Based upon the comparison, all of the alternatives are being recommended for further development and implementation.

Table 3-2
Summary Rating of the Alternative Promotion and Education Strategies

	Alternative	Consistency with Planning Objectives	Waste Reduction / Diversion Potential	Customer Preferences	Cost to Implement	Overall Rating
A	Public and Private Roles	H	H	H	L	H
B	Education for New Programs	H	M	H	M	H
D	Public Information for Yard Debris Disposal Ban	H	H	L	M	M
F	Public Education for Proper E-Waste Handing	H	M	H	L	H
G	Illegal Dumping Education	H	M	M	M	M
H	Business Recognition Program	H	H	M	M	H

H - High M - Medium L – Low

3.7 RECOMMENDED ACTIONS

The following recommendations are being made for promotion and public education programs:

PE1) Utilize a collaborative effort for public education that includes the following activities;

- Continue existing public education and promotion activities.
- Provide additional public education for new or expanded waste diversion programs.
- Provide additional public education to support the yard debris disposal ban and to inform people about alternative handling options.
- Promote the new collection system for e-waste.
- Address illegal dumping through public education in addition to the citizens task force in Chapter 13.
- Develop and implement a business recognition program to help promote recycling and waste reduction by the commercial sector.

Yakima County will provide the overall public education program and will be the lead agency for most of these activities. Cities, service groups, haulers and other private companies will promote local programs.

The budget for these activities will consist primarily of continuing the existing budget plus small additional amounts for new activities. The county's budget for public education in 2009 is

$31,000 and the primary anticipated activities include the "Yes You Can Recycle in Yakima County" insert to every household, a billboard for six months, an electronic billboard on Nob Hill, and radio ads. The proposed recommendations above would be in addition to these activities, and would require additional budget and staff time. More details on the budget can be found in Section 14.3 and Table 14-1.

CHAPTER 4 - WASTE REDUCTION AND RECYCLING

4.1 INTRODUCTION

This chapter discusses existing waste reduction and recycling programs, identifies relevant planning issues, and develops/evaluates alternative strategies.

4.2 BACKGROUND

4.2.1 Goals and Objectives for Waste Reduction and Recycling

Goals and objectives specific to waste reduction and recycling include:

- Encourage public-private partnerships for waste reduction and recycling programs.
- Emphasize waste reduction as a fundamental management strategy.
- Encourage the recovery of marketable resources from solid waste.
- Assist the State in achieving its goal of a 50 percent recycling rate.
- Encourage those who design, produce, sell, or use a product to take responsibility for minimizing the product's environmental impact throughout all stages of the products' life cycle, including end of life management.
- Support the State's Beyond Waste goals.

4.2.2 State Legislation, Regulations, and Guidelines

Chapters 4 and 5 provide an update of the County's methods to divert waste away from landfill disposal, and to comply with State requirements regarding waste reduction and recycling opportunities and programs. The State's requirements are based in the "Waste Not Washington Act" (ESHB 1671), which declared that waste reduction and recycling must become a fundamental strategy of solid waste management. This law is reflected in various sections of the Revised Code of Washington (RCW) and Washington Administrative Code (WAC). The following goals (among others) were developed and included in RCW 70.95 as the basis for solid waste planning in Washington State:

- Washington State is to achieve a statewide recycling rate of 50%.
- Source separation of waste (at a minimum, separation into recyclable and non-recyclable fractions) must be a fundamental strategy of solid waste management.
- Steps should be taken to make recycling at least as affordable and convenient to the ratepayer as disposal of mixed solid waste.

RCW 70.95 requires that solid waste management plans demonstrate how the above goals will be met.

State law (RCW 70.95.092) requires that counties develop clear criteria for designating areas as urban or rural for the purpose of providing solid waste and recycling services. The urban-rural designations are important because they are the basis for determining the level of service that must be provided for recycling and other solid waste programs. For example, State law (RCW 70.95.090(7)(b)(i)) requires that recyclables be collected from homes and apartments in urban areas (although exceptions to this requirement can be granted if based on viable alternatives and other criteria), whereas drop-off centers and other methods can be used in rural areas. The State planning guidelines suggest that the criteria used to designate urban and rural areas can include population growth, densities of commercial properties, geographic boundaries, transportation corridors, existing urban growth boundaries determined through comprehensive land use plans, other utilities and services associated with urban areas, and/or other factors.

RCW 70.95.090 also requires a monitoring program for collection of source-separated waste from non-residential sources when there is sufficient density to economically sustain a commercial collection program. Yakima County achieves this by working cooperatively with Ecology and utilizing the data they collect through the annual Washington State Recycling Survey.

In summary, the County's existing urban and rural collection programs and the non-residential monitoring program meet or exceed the recycling service requirements in Chapter 70.95 RCW.

4.3 EXISTING PROGRAM ELEMENTS

4.3.1 Waste Reduction

Activities and practices that reduce the amount of wastes created are classified as "waste reduction." Waste reduction differs from the other two waste diversion techniques (recycling and composting) because the other methods deal with wastes after the wastes have been generated. By definition, waste reduction also includes activities and practices that reduce the toxicity of wastes that are created, and these methods are discussed in Chapter 12.

Waste reduction is the highest priority for solid waste management according to Chapter 70.95 RCW, and is preferred over recycling and composting because the social, environmental and economic costs are typically lower for waste reduction. All three methods avoid the cost of disposing of the diverted materials as garbage, but recycling and composting frequently require significant additional expenses for collecting and processing the materials. Those additional expenses are avoided in the case of waste reduction, where the waste is not produced.

Several good examples of reuse exist in Yakima County. Reuse occurs when someone else uses an item that would otherwise be discarded in the trash. Reuse occurs through second-hand stores, thrift shops, charitable organizations that collect clothing and household goods, garage sales, used bookstores, and through similar activities.

A successful and effective tool for encouraging waste reduction (and recycling) is the use of "variable rates" or "volume-based rates," where households are charged significantly more for

disposing of more garbage. Businesses are generally already charged according to the amount of garbage disposed and this approach is essentially impossible to implement for individual apartments, so this strategy typically refers only to single-family homes. Avid recyclers or households that minimize waste can also choose a "mini-can" rate (20-gallon can emptied once per week) in the areas served by Basin Disposal and Yakima Waste Systems.

An effective method of waste reduction is the composting of yard debris on the property where it was generated (typically called "backyard" or "on-site" composting). The County provides educational materials for on-site composting, has distributed composting bins, and works with several groups (the Arboretum, Master Gardeners, Master Composters, and the Natural Garden Party Program) to encourage these types of practices.

Other opportunities for reuse and waste reduction that are available in the County include a non-profit reuse store for building materials (operated by Habitat for Humanity), and reuse of polystyrene packing "peanuts" and boxes. Computer reuse is being facilitated by at least five businesses.

4.3.2 Recycling

"Recycling" refers to the act of collecting and processing materials to return them to a similar use. Recycling does not include materials burned for energy recovery or destroyed through pyrolysis and other high-temperature processes. The State's definition of recycling is "recycling means transforming or remanufacturing waste materials into usable or marketable materials for use other than landfill disposal or incineration. Recycling does not include collection, compacting, repackaging, and sorting for the purpose of transport" (Ch. 173-350 WAC).

A network of private-sector recyclers and public-sector recycling collection programs currently serves residents and businesses in Yakima County. The predominant collection method in the county is drop-off sites, with curbside and commercial services offered in some areas. Residents can take a wide range of materials to different recycling facilities. Businesses can contract with a local recycling service provider for pickup of cardboard, mixed waste paper, plastic bottle types 1-7, tin cans, and aluminum cans, or they can self-haul their materials to privately-operated drop-off sites. These services are described below.

Yakima County's waste diversion rate for 2007, the latest year for which figures are available, is estimated to be 23.3 percent. A total of 123,274 tons was reported as recycled, composted, or otherwise diverted in 2007, equal to about 1,020 pounds per person per year.

Urban Area Residential Recycling

Curbside recycling collection services are available in Moxee, Selah, Union Gap, and Yakima, and these programs collect primarily the Tier 1 materials (see Table 4-1). Curbside recycling services are also available in the urban growth area (UGA) on a subscription basis. These services are provided by Yakima Waste Systems and Basin Disposal through a variety of contractual arrangements and state-issued certificates. Yakima Waste Systems recently began a single-stream program that collects all recyclable materials in a 64-gallon cart every-other-week

from residential customers. Materials collected include newspaper, cardboard, phone books, shredded paper, mixed waste paper, plastic bottles (containers with a neck) types 1-7, aluminum and tin cans. Glass is not collected in these carts, nor are plastic bags and tubs, aluminum foil, scrap metal, batteries, and non-recyclable materials.

The City of Yakima provides garbage and yard debris collection services within its boundaries. Residential curbside recycling and commercial garbage and recycling services are provided by Yakima Waste Systems (YWS). Residents desiring curbside recycling service must therefore contract with two separate companies, one for garbage and yard debris, and another for "regular" recycling. According to YWS, approximately 10% of the eligible City households (about 2,000 to 3,000 customers altogether) have contracted for curbside recycling service. Those who sign up have a set-out rate that approaches 100%, which is higher than commonly observed in other areas, and is likely explained by the fact that users have chosen to purchase the additional recycling service and are therefore highly motivated to use it.

For urban residents who do not have access to or who do not subscribe to curbside service, there are drop-off sites and private buy-back centers located in most towns and cities. Materials collected at the drop-off sites vary but in general include aluminum and tin cans, newspaper, mixed paper, cardboard, plastic pop bottles and plastic milk jugs. A few sites also collect clear glass.

Rural Area Residential Recycling

Curbside recycling service is not available in the rural areas. Instead, rural residents rely on drop-off sites and buy-back centers. The County operates rural recycling drop-off sites in three towns: Harrah, Granger, and Zillah. In addition, the Cheyne Road Landfill, Lower Valley Transfer Station, and Terrace Heights Landfill provide drop-off recycling services to rural customers. There are several privately-operated drop-off sites in rural areas as well.

Non-Residential Recycling

Commercial-sector recycling is handled exclusively by the private sector, although the County does offer technical assistance services to businesses on request and businesses are able to use private drop-off sites. Yakima Waste Systems, Basin Disposal and Central Washington Recycling provide recycling collection service to commercial customers. Yakima Waste Systems provides commercial recycling services using a single-stream approach (all recyclable materials except glass are collected in the same container). Service is provided weekly, using 96-gallon toters and other containers up to 6 yards in capacity.

Public Event Recycling

To assist in compliance with the new law for public event recycling (RCW 70.93.093), Yakima County offers recycling bins at no charge for use at such events. The recyclables collected at these events can go to Yakima Waste Systems for sorting or the County will take them back.

Other Recycling Services

Household batteries are accepted at the County landfills and transfer stations and at 19 other locations. Appliances and tires are also accepted for a fee at the County landfills and at a few private locations.

Yakima County also provides recycling bins for use at schools. Through a grant from the Department of Ecology, the County is making 200 recycling bins available to the schools on a first come-first served basis.

Incentives for Recycling

The County provides an incentive for recycling material at the landfills and transfer station by accepting source-separated recyclables for free. Other sites also accept recyclable materials for free, allowing people to reduce their garbage bill, or they may even pay for some recyclable materials. Residents and businesses that subscribe to recycling collection services can usually reduce their garbage service and lower their overall costs.

Monitoring and Evaluation

Yakima County relies on Ecology for information on recycled quantities and an estimate of the county's recycling rate. Annual figures for recycled tonnages are reported on a voluntary basis by both public- and private-sector entities.

4.3.3 Processing Facilities

"Processing" is defined by Ch. 173-350 WAC to be "an operation to convert a material into a useful product or to prepare it for reuse, recycling, or disposal." In this chapter, "processing" refers to operations that do more than remove incidental amounts of contaminants or that do more than simply accumulate source-separated recyclables. Processing includes manual and/or machine sorting and consolidating for shipment (this can include baling of materials such aluminum, paper, and plastic).

The private sector handles the processing of all of the materials collected for recycling:

- Central Washington Recycling accepts and bales source-separated recyclables, and also shreds newspaper and mixed waste paper for their own production process.
- Yakima Waste Systems, Inc. operates a materials recovery facility that handles paper, cardboard, cans and plastics.
- Basin Disposal has the ability to hand-sort mixed recyclables from commercial sources.
- There are a few private facilities that process specific waste streams, such as NW Ag Plastics (which recycles agricultural plastics, see Chapter 10 for more details).
- Other private facilities, such as Mayflower Metals and Pacific Steel & Recycling, conduct some sorting and processing of the materials they accept.

Overall, processing facilities are considered adequate for the supply of materials, and the access to markets is above average for an eastern Washington county.

4.3.4 Markets

State regulations (RCW 70.95.090.7.c) require "a description of markets for recyclables." A description of the markets for recyclable materials collected in Yakima County is provided below. This is intended to be only a brief report of current conditions, and it should be noted that market conditions for recyclables can change drastically in a short amount of time.

Market Overview

A significant factor for recent market conditions was the substantial demand by Chinese buyers for many recyclable materials, especially paper, plastics, and steel. China was a significant force in the marketplace because they were currently improving their infrastructure and were also experiencing higher demand due to increased production of consumer goods for internal consumption and for export to the United States and other countries. Because of their higher demand, they were willing to accept lower grades of paper and plastics. With the global economic downturn that occurred in the latter half of 2008, however, demand by China and other countries decreased, and prices for many materials dropped from the highest levels ever experienced to much lower levels. These conditions are expected to last for at least six months and possibly a few years, depending on how long it takes for the U.S. economy to recover from the current problems. This huge swing in market prices underscores the need for caution when implementing new or expended programs, as well as the need for flexibility.

Another important factor for marketing of recyclable materials collected in Yakima County is the cost of transporting them to end-markets, many of which are outside of Washington State. Recyclers in eastern Washington are farther from most markets and so have less access to these markets because the transportation cost is a barrier. The low market value of many recyclable materials limits the number of materials that can be cost-effectively moved to markets.

Additional factors affecting specific materials are shown in Table 4-1.

4.3.5 Designation of Recyclable Materials

The designation of recyclable materials has taken on more importance with the recent adoption of Ch. 173-350 WAC, which defines recyclable materials as being those materials "that are identified as recyclable materials pursuant to a local comprehensive solid waste plan." As noted above, however, market conditions for recyclables can change drastically in a short amount of time and this is a problem for a long-range document such as this plan. Hence, the list of designated materials is accompanied by a description of the process for revising that list.

Table 4-2 shows the list of designated recyclable materials. This list is not intended to create a requirement that every recycling program in Yakima County collect every designated material. Instead, the intent is that through a combination of programs offered throughout the county, residents and businesses should have an opportunity to recycle all of the designated materials

Table 4-1
Markets for Recyclable Materials

Material	Primary Market(s)	Comments
Paper: Cardboard	Regional paper markets, paper mills and export.	The markets for cardboard (used in packaging) are currently weaker than for the past few years due to decreased demand for consumer goods.
Mixed Waste Paper	Michelsen Packaging, and export markets.	Michelson Packaging currently needs more of these two materials than can be provided locally.
Newspaper	Michelsen Packaging.	
Plastics: Bottles 1-7	Regional markets in western Washington and Oregon (export).	The markets for PET and HDPE bottles are currently weak, and even weaker for bottles 3-7.
Other Plastics	Primarily export.	Markets are spotty and sometimes unreliable.
Metals, including aluminum and tin cans, white goods (appliances), and ferrous and non-ferrous scrap	Regional markets in western Washington and Oregon.	Markets are currently weaker for all metals than in recent years, but are expected to return to high prices within six months to two years.
Glass: Clear Glass	Regional markets in western Washington and Oregon.	Prices are poor for clear glass but are better than for brown and green glass.
Brown and Green Glass	Regional markets in western Washington and Oregon.	Prices for brown and green glass are low or negative (i.e., the glass is recycled for a charge).
Organics: Wood	Hog fuel, mulch (clean sources only)	More information is provided in the next chapter on the markets for organic materials.
Yard Debris	Daily cover, compost	

Note: Information current as of the beginning of 2009.

through at least one program. In other words, if plastics are on the designated materials list, then at least one program in the county must collect plastics. In this case, the list has been prioritized, meaning that residents and businesses should have better access to the high priority materials.

Table 4-2 is the list of "designated recyclable materials" required by Chapter 173-350 WAC, and should be used for guidance as to the materials to be recycled in the future. This list is based on existing conditions (collection programs and markets), and future markets and technologies may

Table 4-2
List of Designated Recyclable Materials

Priority Level	Material
High Priority Materials: Materials that should be collected by all standard curbside and drop-off programs throughout the county.	Aluminum Cardboard High Grade Paper Mixed Paper Newspaper Plastic Bottles, #1 and #2 Tin Cans
Medium Priority Materials: Materials that should be collected at select locations throughout the county.	Clear Glass Ferrous Metals Motor Oil Non-Ferrous Metals Plastic Bags and Film Textiles Tires Vehicle Batteries Yard Debris Wood Waste
Low Priority Materials: Hard to recycle materials that can be recycled if markets are available.	Brown Glass Electronics Fluorescent Light Bulbs Latex Paint Plastics, #3 through #7 Plastic Containers (Non-Bottle) Poly-Coated Paper

warrant changes in this list. The following conditions are grounds for additions or deletions to the list of designated materials:

- The market price for an existing material becomes so low that it is no longer feasible to collect, process and/or ship it to markets.
- Local markets and/or brokers expand their list of acceptable items based on new uses for materials or technologies that increase demand.
- New local or regional processing or demand for a particular material develops.
- No market can be found for an existing recyclable material, causing the material to be stockpiled with no apparent solution in the near future.
- The potential for increased or decreased amounts of diversion.
- Legislative mandate.
- Other conditions not anticipated at this time.

Any proposed changes in the list of designated materials should be submitted to the Solid Waste Advisory Committee (SWAC) for their discussion. With the concurrence of the SWAC, followed by approval by the Public Works Director, minor changes in the list could be adopted without formally amending the Plan. Thus, minor changes can be addressed in about 60 to 75 days, depending on the schedule of SWAC meetings at the time of the proposed change. Should the SWAC conclude that the proposed change is a "major change" (what constitutes a "major change" is expected to be self-evident at the time, although criteria such as the length of the discussion by the SWAC and/or inability to achieve consensus could be used as indicators of what is a "major change"), then an amendment to the Plan would be necessary (a process that could take 120 days or longer to complete). In either case, Ecology should be notified of any changes made to the list of designated materials or when an amendment process is initiated.

4.4 STATUS OF 2003 RECOMMENDATIONS

The status of the recommendations made by the previous solid waste management plan (Yakima County 2003b) is shown in Table 4-3.

4.5 PLANNING ISSUES

Climate Action Response

The Beyond Waste Implementation Working Group (BWIWG) of the 2008 Climate Action Team developed specific recommendations that may be enacted into legislation in the 2009 session. The BWIWG recommended that all fibers and organics be kept out of landfills and also recommended more product stewardship programs. It is unknown at this time if these recommendations will lead to mandatory requirements or what schedule may be proposed (in other words, it is unknown at this point how these recommendations may affect Yakima County).

Glass Recycling

There is some demand for the opportunity to recycle glass in Yakima County, especially from large generators such as the wineries, but the economics of transporting glass to markets in Seattle or Portland are very poor. More glass could potentially be recycled if a local market could be developed to use the glass, or if a product stewardship or other approach could be developed.

Recycling Rates by Material

It is a long-held belief that local drop-off sites and other programs are fairly effective in collecting materials for recycling. For instance, the previous Plan stated that an estimated 70 percent of the newspaper was being recovered at that time. More recent data, however, indicates that this figure is lower, although it is unknown whether this is due to a decrease in the recovery rate for newspaper or if the previous figure was an overestimate.

Table 4-3
Status of 2003 Recommendations for Waste Reduction and Recycling

Recommendations	Status
Chapter 3: Waste Reduction, Recycling and Composting	
Overall Recycling Incentive and Funding Framework:	
Increase tip fees to fund County recycling and waste prevention programs and to provide an incentive for increased recycling.	Done
Residential Recycling Within Urban Boundaries:	
Continue the current mix of voluntary curbside collection and drop-off services.	Ongoing
Explore public sector incentives and/or funding for expanded curbside and/or drop-off recycling programs in both incorporated and unincorporated areas.	Ongoing
Residential Recycling in Rural Areas:	
Continue current program of public and private drop-off services.	Ongoing
Non-Residential Recycling:	
Continue current practice of relying on the private sector to provide services.	Ongoing
Provide expanded/targeted education and assistance to businesses on recycling, waste reduction, and reducing toxicity of commercial waste.	Ongoing
In the future, consider targeting the construction and demolition sector for expanded recycling.	Ongoing
Designated Recyclables:	
Revise the designation of Tier 1, 2, and 3 materials. The SWAC, with support from staff, is to review the designation of recyclables at least bi-annually. Decisions about the appropriate tier for different materials are to be made considering the availability and durability of markets and the feasibility of accessing those markets (including the processing facilities needed).	Ongoing
Hard to Recycle Materials; Emerging Waste Streams:	
Conduct special events to provide residents and small businesses with collection services for new recyclable items and hard to recycle materials. Materials to be targeted for collection at special events include: computers and other electronic wastes, appliances, reusable building materials, tires, fluorescent light bulbs, and clean plastic bags and film.	Ongoing
Consider supporting product stewardship for new and/or hard to recycle materials. Provide support for regional efforts to establish product stewardship programs for electronics. Such programs may also be appropriate for paint and products containing potentially hazardous materials. Apply principles of product stewardship to the development of local initiatives to handle emerging or problematic wastes.	Ongoing
Market Development:	
Provide targeted assistance to establish and/or maintain the viability of local market for recyclable materials. Focus assistance on materials where local (or regional) markets can effectively handle materials collected from Yakima County. Such materials include yard waste, compost, green chop, mixed glass cullet, wood waste, wood chips, concrete/aggregate, and reusable building materials. Program activities could consist of (1) assessments of the feasibility of local market development initiatives, (2) technical assistance to private sector processors and end users (3) government procurement of recycled content goods, and (4) "buy recycled" campaigns, demonstration projects, and other promotion initiatives aimed at stimulating demand for recycled materials sourced from local markets.	Ongoing
Consider providing targeted assistance to increase recycling of C&D materials with a focus on market development initiatives. For example, helping to establish viable markets for reused building materials has proven to be a viable means of increasing C&D diversion.	Not currently being done due to staff limitation
Monitoring and Evaluation:	
Continue to rely on Ecology and voluntary reporting to determine recycling levels.	Ongoing
Conduct a waste characterization study to determine the composition and source of Yakima County's municipal solid waste.	Done
Waste Reduction/Prevention:	
Continue current programs.	Ongoing

Table 4-4 uses data from the most recent Ecology survey (see Table 2-4) and the 2003 waste composition study (as applied to 2007 disposal tonnages, see Table 2-5) to calculate the recovery rates for specific materials. As can be seen in Table 4-4, recovery rates vary depending on the material. The recovery rate for cardboard is the highest of the materials shown, which is consistent with the fact that there are several programs offering on-site collection of cardboard from large commercial generators of this material. Newspaper is the second most recycled material (based on recovery rate), reflecting the many drop-off sites for this material.

Table 4-4
Recovery Rates for Specific Recyclable Materials

High Priority Materials	Recycled Tonnages[1]	Disposed Tonnages[2]	Recovery Rate[3]
Newspaper	3,051	5,590	35.3%
Cardboard	28,172	10,890	72.1%
Other Recyclable Paper[4]	5,577	17,120	24.6%
#1, #2 Plastic Bottles	370	3,530	9.5%
Aluminum Cans	412	1,380	23.0%
Tin Cans	151	2,690	5.3%

Notes:
1. See Table 2-4 for recycling data. These are figures for 2006.
2. See Table 2-5 for disposed tonnages. These figures were calculated using the County's 2007 total tonnage (247,360 tons) and the percentage breakdown from the 2003 waste composition study.
3. Recovery rates are calculated by dividing the recycled tonnages by the sum of the recycled and disposed tonnages.
4. "Other recyclable paper" includes mixed waste paper and office paper.

Rural Dropboxes for Recycling

A few areas of the county lack convenient access to recycling, which could be provided by dropboxes. These areas include West Valley, Lower Valley, and the Naches area. Unattended recycling dropboxes often suffer from problems due to illegal dumping of garbage.

Recycling Program Costs and Affordability

An overriding goal of Yakima's solid waste program is to keep costs and rates affordable for both residents and businesses. An increase in the tipping fee will likely be necessary to pay for new landfill capacity and other services. Recycling and other services discussed in this Plan may add to program costs and increase the rates. The key issues related to costs, rates, and affordability that should be considered as part of developing this Plan are:

- How to provide recycling services on a cost-effective basis.
- How expanded recycling services may result in disposal cost savings from extending the life of the existing landfills.
- The potential for higher tip fees to provide a stronger incentive to recycle.

Needs and Opportunities Identified by the Previous SWAC

In the development of the previous Plan, the SWAC noted several opportunities to expand and improve recycling services and identified a few key issues that needed to be addressed. Several of these are still pertinent:

- Provide more curbside service in urban areas.
- Improve the drop-off service.
- Collect more from the commercial sector.
- Collect new materials that now have markets (such as plastic film and oriented strand board).
- Address the impacts of new regulations, such as the burn ban in urban areas, on solid waste and recycling services.

Urban/Rural Service Equity and Cost

As the County establishes recycling goals and service levels for the next five to seven years, questions of equity and cost arise when considering what type of service to provide in urban versus rural communities. Issues considered included:

- How to provide equity between urban and rural residents in terms of opportunities for and convenience of recycling.
- Ensuring that rural residents have adequate service at a reasonable cost.
- Whether these service levels will need to be adjusted in the future.
- Whether minimum service levels should be established.

4.6 ALTERNATIVE STRATEGIES

4.6.1 Alternatives

Alternatives for waste reduction and recycling address the planning issues identified above and also include a few general housekeeping items (re-establishing the recycling goal and addressing the list of designated materials), as described below.

Alternative A – Waste Diversion Goal

A new goal could be set for the County's waste reduction, recycling and composting programs. Setting a goal provides a benchmark for measuring future performance. Setting an appropriate goal at this time may be difficult, however, since recycling markets are severely depressed and waste generation rates are lower due to economic reasons. This Plan could instead express support for helping to meet the statewide goal of 50% waste reduction and recycling.

Alternative B – List of Designated Materials

The list of designated recyclable materials (see Table 4-2) could simply be considered as having been adopted as part of the adoption this Plan, but adopting a recommendation specifically for

this list makes a clearer case in the future. A recommendation could be adopted that states the list shown in Table 4-2 is the accepted list of designated materials, that the interpretation of the three priority levels is as described in this Plan, and that the list should be reviewed and revised (if necessary) by the SWAC at least every two years. Revisions to this list could be based on the availability and durability of markets and the feasibility of accessing those markets.

Alternative C – Waste Composition Study

As recommended by the previous plan, Yakima County conducted a waste composition study in 2003. This study could be repeated in a few years, around 2011 to 2013, to provide an updated assessment of the performance of recycling and MRW programs. A study such as this could also provide useful information on waste generation rates by source (residential and non-residential), which would also be helpful for monitoring the performance of various programs. Such a study should be conducted over the course of a year so as to address seasonal variations. The cost of this study would be significant, in the range of $80,000 to $100,000, and so may be contingent on the availability of grant funds.

Alternative D – Increase Curbside Recycling Programs

Having more curbside programs and increased participation in existing programs would increase the tonnages collected for recycling. One option for any recycling program is to make it mandatory for residents and/or businesses to participate in it. The term mandatory is also sometimes used to refer to payment of the costs for a recycling program, in that everyone pays for recycling whether they participate or not. For residential customers, this is accomplished by including the cost of recycling in the garbage rates. Providing a financial incentive for curbside recycling would help promote participation in the program.

Voluntary recycling programs require significant effort to develop and maintain high participation rates. The keys to a successful voluntary recycling program are convenience and public education. Increasing people's knowledge of recycling methods and making sure they know how and where to take recyclables can help keep the participation rate high. Promotion of recycling must be consistent and ongoing.

If the County desires to increase the availability of rural recycling services, there would be several options for achieving this. Yakima County could:

- contract with a private company to provide residential recycling services.
- mandate specific services by an ordinance (see also Chapter 13).
- provide additional drop-off containers through contracts and/or other financial support (see also next alternative).

Counties have the authority to contract for residential recycling services under current State law (RCW 36.58.040). This authority does not extend to commercial recycling services or to garbage collection services for either residential or commercial customers (in the absence of a collection district, see Chapter 13 for more discussion on collection districts). Other companies cannot be prevented from also offering recycling services. The advantage of exercising County

authority is that the County would be in control of the system. The County could choose contractors and adjust the program as it develops to best meet the County's goals. If the County contracts for recycling services, however, the County will bear some administrative costs. It may be necessary to assess additional surcharges on the tipping fee or on solid waste collection services to fund parts of the recycling program.

For Yakima County, the preferred approach for increasing curbside recycling might be to require that services be available in each city (whether provided by the city or by a private hauler) and to require the cities to promote these services. A goal could be established to gauge the success of these programs, such as achieving a minimum of 50% participation. Steps that could be taken if this goal is not met could include increasing the financial incentive for participants, increasing the public education and promotion efforts, increasing the garbage rates, and/or other steps as appropriate to the community.

Alternative E – Recycling Dropboxes at Transfer and Disposal Facilities

One of the issues identified through the planning process is the need for additional recycling options in some areas of the county. One important method of providing a recycling opportunity is to ensure that recycling is available at all transfer and disposal facilities. Co-locating recycling opportunities at transfer and disposal facilities provides an "opportunity of last resort" as well as providing a similar network and similar level of convenience for self-haul customers (similar to the level of convenience for garbage disposal).

Alternative F – Increase Business Recycling

Many businesses recycle currently through services provided by the haulers, Central Washington Recycling and others, but many more businesses could be participating in recycling opportunities and could also be taking steps to reduce their wastes. Several methods could be used to accomplish this, including:

- county staff working with the businesses to encourage recycling and waste reduction.
- disposal bans of select materials, such as cardboard and newspaper.
- commercial recycling could be promoted through service clubs and other organizations.
- a more extensive "dump and pick" program for commercial loads.

The last of these, dump and pick activities, is being conducted now to a limited extent. Disposal bans can be effective but are politically difficult to enact and require an enforcement system. The first of the above options is also an ongoing activity and more effort is already being planned by the County in this area. This option is feasible and practical, and fits well with the business recognition program discussed in the previous chapter of this Plan. Working more closely with service clubs and similar organizations is also a good fit for the current plans and system in Yakima County.

Alternative G – Increased Waste Reduction

Waste reduction is a high-priority activity because it avoids the need to collect and recycle

materials in addition to avoiding the need to manufacture and distribute a product or material in the first place. Waste reduction could be increased through several approaches, which are generally not mutually exclusive:

- **regulation**: waste reduction could be increased through a number of mandatory measures, such as banning yard debris from disposal, requiring businesses to conduct waste reduction audits, banning certain types of packaging and/or non-recyclable materials, and other measures.

- **adult education program**: this option would provide for more educational outreach for adults in order to train them to be citizen volunteers to promote waste reduction and other recommended waste management strategies in residential and commercial situations. Formal arrangements for residents and businesses to request assistance from the volunteers would be established and promoted.

- **youth education program**: this option could consist of an expanded school program to present more information about waste reduction strategies. Information about waste reduction strategies could be presented together with other local waste management information at both public and private schools. Tours would be combined with in-classroom visits after the tour to reinforce the messages and provide additional information.

- **financial support**: this option would provide direct financial aid to support waste reduction activities. Non-profit organizations collecting used household products could be assisted with discounted disposal fees for donated items that are not reusable. In addition, a local resource guide and web page consisting of a listing of organizations that promote waste reduction activities would be maintained. The guide would include thrift shops, repair businesses, tool rental businesses and other organizations and would be periodically published in local newspapers.

- **grants**: this option would provide grants to organizations, institutions or municipalities for various waste reduction programs. This alternative would allow partnerships with others that have similar interests, thus creating more cost-effective approaches, and would allow capitalizing on the energy or resources of other organizations. The cost of this option could vary widely depending on the amounts of the grants and activities targeted.

Alternative H – Continued Support for Recycling at Public Events

The requirement to provide recycling at public events (RCW 70.93.093) is still fairly new and can be a difficult activity for event organizers to set up. The general public is still learning about the law as well. The program operated by the Yakima County Solid Waste Division, which provides bins and other support for these events, is a low-cost public service with high visibility. Continuing this service provides a positive benefit for all involved.

4.6.2 Evaluation of Alternative Strategies

Consistency With Planning Objectives

All the alternative strategies support the planning objectives of ensuring reliable services for managing solid waste materials and encouraging waste reduction and recycling programs.

Waste Reduction / Diversion Potential

All the other alternatives create or support increased diversion potential.

Customer Preferences

Customers tend to recycle if it is convenient, easy, and available at a low cost. Several of the alternatives are consistent with customer preferences by increasing the convenience of recycling, especially Alternatives D, E, F, and H. None of the alternatives contradict customer preferences.

Implementation Costs

Alternative B has the lowest cost, and the cost of Alternative H has already been budgeted. Alternative D (more curbside recycling) is the most expensive option. Alternatives C and E could also be at a significant cost, depending on the extent of the effort. Alternative F (increased business recycling) would hopefully "pay for itself" through lower garbage collection fees.

4.6.3 Rating of Alternatives

The alternatives are compared with respect to the evaluation criteria in Table 4-5.

Table 4-5
Summary Rating of the Alternative Waste Reduction and Recycling Strategies

	Alternative	Consistency with Objectives	Diversion Potential	Customer Preferences	Cost to Implement	Overall Rating
A	Waste Diversion Goal	H	M	M	L	M
B	List of Designated Materials	H	M	M	L	M
C	Waste Composition Study	H	H	M	H	M
D	Increase Curbside Recycling	H	H	M	M	H
E	Recycling at Disposal Sites	H	H	H	M	H
F	Increased Business Recycling	H	M	M	L	M
G	Increased Waste Reduction	H	M	M	M	L
H	Support for Recycling at Public Events	H	M	H	L	H

H - High M - Medium L - Low

4.7 RECOMMENDED ACTIONS

The following recommendations are being made for waste reduction and recycling programs:

WRR1) Assist Washington State in achieving the 50% recycling rate.

WRR2) Adopt the list of designated materials (Table 4-2) as part of this Plan and maintain it through periodic review and updates as appropriate.

WRR3) Conduct a waste composition study to assess recycling program performance and potential.

WRR4) Make curbside recycling services available in every urban incorporated area and promote these services.

WRR5) Provide recycling opportunities at all solid waste transfer and disposal facilities in Yakima County.

WRR6) Encourage business recycling through a cooperative effort between the County, cities, private collectors, service groups, and the businesses.

WRR7) Continue to provide support for recycling at public events.

CHAPTER 5 - ORGANICS

5.1 INTRODUCTION

This chapter discusses existing programs, identifies relevant planning issues, and develops/evaluates alternative strategies for organic materials, including yard debris, wood waste, food waste, agricultural wastes and biosolids (sewage sludge).

5.2 BACKGROUND

5.2.1 Goals and Objectives for Organics

Goals and objectives specific to organics (as shown on page 1-2 of this Plan) include:

- Encourage public-private partnerships for waste reduction and recycling programs.
- Emphasize waste reduction as a fundamental management strategy.
- Encourage the recovery of marketable resources from solid waste.
- Assist the State in achieving its goal of a 50 percent recycling rate.
- Support the State's Beyond Waste goal to increase the diversion of organic materials.

5.2.2 State Legislation, Regulations, and Guidelines for Organics

This chapter and the previous chapter (on waste reduction and recycling) provide an update of the County's waste diversion methods that comply with State requirements regarding waste diversion programs. The State requirements are based in the "Waste Not Washington" Act (ESHB 1671), which are in turn reflected in various sections of the Revised Code of Washington (RCW) and the Washington Administrative Codes (WACs). The Waste Not Washington Act declared that waste reduction and recycling must become a fundamental strategy of solid waste management. To that end, RCW 70.95 includes a statement encouraging yard debris to be eliminated from landfills by 2012 in those areas where alternatives exist.

Chapter 70.95.090 RCW also requires that collection programs for yard debris be addressed in areas where there are adequate markets or capacity for composted yard debris within or near the service area.

Reducing the amount of organics in the waste stream is one of the five key initiatives identified in the State's Beyond Waste Plan. The Beyond Waste Plan adopted a goal of "expanding and strengthening the closed-loop reuse and recycling system" for converting organic wastes into compost and other products. Included in that plan's definition of organics is yard debris, food waste, animal manures, biosolids, crop residues, wood, and low-grade or soiled paper. The

Beyond Waste Plan makes six recommendations specifically for organics:

1. **State government will lead by example by:**
   - maximizing procurement of compost and other products,
   - avoiding the purchase of products that may contaminate organic materials,
   - implementing on-site collection of organics at government agencies,
   - advertising the success of demonstration projects, and
   - evaluating and proposing appropriate incentives that will encourage organics recovery in the commercial and institutional sectors.

2. **Residential and commercial organics recovery programs will be increased by:**
   - researching and developing a package of incentives,
   - incorporating Organic Materials Initiative goals into solid waste management plans,
   - supporting organics recycling through local-level waste management contracts,
   - expanding food waste collection and processing, including developing best management practices,
   - expanding or implementing home composting programs in every county,
   - developing an education program about the needs and benefits of healthy soils, and
   - advertising the success of model projects.

3. **The quality of recycled organic products will be improved by:**
   - identifying barriers to quality, including sources of contamination, and proposing strategies to address these,
   - bringing producers and users together to develop product quality criteria,
   - promoting the use of labeling or information sheets, and
   - evaluating the need for changes in the standards for composted materials.

4. **A strategy to increase residential and agricultural recovery will be developed by:**
   - assessing barriers and various approaches to increase organics reuse and recycling in the agricultural and industrial sectors,
   - developing a set of specific actions and a timeline for increasing organics recovery and recycling throughout these sectors,
   - advertising the success of model projects, and
   - researching and developing incentives that will encourage organics recovery in the agricultural and industrial sectors.

5. **Proposing solutions to statutory and regulatory barriers by:**
   - researching and identifying statutory and regulatory requirements that inhibit development of a successful organics program,
   - developing a proposal for addressing these barriers,
   - developing a process to resolve existing and future jurisdictional conflicts among state, local and federal authorities,
   - developing and instituting a process for Ecology rule development and implementation, and
   - proposing a highest and best use hierarchy if appropriate.

6. **Develop new products and technologies for organic residuals by:**
   - identifying priority research needs for innovative new technologies and products that will help closed-loop recycling of organics,
   - encouraging and seeking funding for specific projects, and
   - developing and promoting best practices for organics collection and processing.

5.3 EXISTING PROGRAM ELEMENTS

The sections below describe existing collection and processing activities for organic materials, followed by a discussion of the existing and potential market capacity for organics.

5.3.1 Yard Debris

The Yakima County solid waste disposal facilities accept yard debris including grass clippings, leaves, garden and landscaping wastes, brush and other natural woods up to ten inches in diameter, and Christmas trees. These materials are typically generated separately from other residential and commercial waste streams, and so are more easily diverted to composting and other programs. Hay, straw plastic, sod, manure, treated wood, stumps, rocks and food waste are not accepted in the County's yard debris program.

According to the *2003 Yakima County Waste Composition Study* (Yakima County 2003a), 7% of the waste stream is comprised of yard debris, or about 17,200 tons per year (based on 2007 disposal tonnages, see Table 2-5). According to the waste composition study, 40% of the yard debris tonnage was disposed with residential garbage (waste brought in by garbage haulers from residential customers) and another 36% of this amount was brought in by residential customers self-hauling their garbage. As shown in Table 2-4, 16,674 tons of yard debris were recycled in 2006 in Yakima County, so the current recycling rate for yard debris is about 49%. It should be noted that the portion of yard debris used for daily landfill cover does not actually meet Washington State's definition of recycling. However, it is anticipated that beginning in about 2012, yard debris will no longer be used as landfill daily cover.

Existing options in Yakima County for yard debris include a variety of drop-off and curbside programs, as described below.

Yard Debris Drop-Off Programs

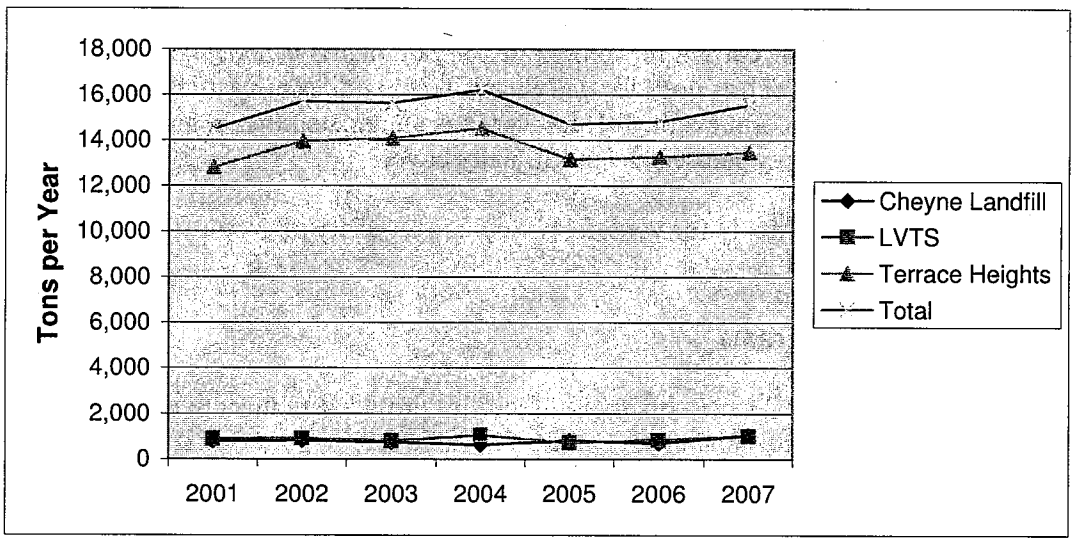
A reduced tip fee at the three County solid waste facilities provides an incentive for residents and businesses to recycle yard debris and clean wood. The 2008 fee for yard debris and clean wood at the solid waste facilities is $11.60 per ton compared with $24.05 per ton for solid waste. Yard debris collected at the landfill is periodically ground up and sold to the public as compost feed stock and used as landfill daily cover. Yard debris and wood waste have been collected separately at the County disposal facilities since at least 1992.

The amount of yard debris collected at the County facilities is shown in Table 5-1 and in Figure 5-1.

Table 5-1
Yard Debris Quantities at County Facilities (tons per year)

Year	Terrace Heights LF	Cheyne Landfill	Lower Valley TS	Total (tons)
2001	12,804	789	895	14,488
2002	13,956	831	909	15,695
2003	14,087	745	794	15,625
2004	14,524	636	1,051	16,211
2005	13,158	808	732	14,698
2006	13,258	699	856	14,813
2007	13,466	1,056	1,028	15,551
Five-Year Averages	13,699	789	892	15,356

Figure 5-1
Yard Debris Quantities at County Facilities



The City of Grandview allows the public to drop off yard debris (primarily brush) at their Public Works building and periodically pays a private company (Natural Selection Farms) to grind it. They have not been able to find a market for the resulting wood chips.

Yakima County Solid Waste and the City of Tieton are working cooperatively to establish a demonstration compost facility at the City of Tieton, in response to the enforcement of the burn ban regulations. This demonstration facility is funded in part by a grant from the Department of Ecology.

Christmas Tree Recycling Program

Yakima County continues to partner with Camp Prime Time to provide an opportunity for residents to recycle their trees at community tree grinding events. The resulting chips are used for horse bedding and similar applications.

Yard Debris Curbside Collection Programs

Currently, curbside yard debris collection is available in Toppenish, Yakima and Zillah. Yakima Waste Systems also provides yard debris collections every-other-week in their collection areas outside of the city limits, but only in the urban growth areas.

The City of Yakima's yard debris collection program is offered to single-family and multi-family residences at an additional cost of $11.75 per month for nine months of the year. A 96-gallon wheeled cart is used for weekly collections from March 1st through November 30th. About 4,400 customers subscribe to this service. About 130 of the residential customers in Toppenish (out of 2,300 residential accounts) subscribe to yard debris collection. In 2008, Toppenish collected over 1,000 bags of yard debris.

Yakima County recently received an "Alternatives to Burning" grant from Ecology to purchase 50,000 "biobags" (biodegradable bags). These bags will be used for the City of Yakima's leaf collection program in the fall of 2008 and 2009. The use of these bags will facilitate the composting of the leaves collected. Grant funds will also be used to purchase and give away 100 household compost bins.

5.3.2 Wood Wastes

According to the *2003 Yakima County Waste Composition Study* (Yakima County 2003a), 9.8% of the waste stream is comprised of wood waste, or about 24,230 tons per year (see Table 2-5). As shown in Table 2-4, 3,163 tons of wood were recycled in 2006 from Yakima County, so the current recycling rate for wood is about 11.5%.

As mentioned above, a reduced tip fee provides an incentive for residents and businesses to drop off clean wood at County disposal facilities. The 2008 fee for yard debris and clean wood at the solid waste facilities is $11.60 per ton compared with $24.05 per ton for solid waste. The wood collected at County facilities is ground and sold to businesses as hog fuel.

5.3.3 Food Wastes

According to the *2003 Yakima County Waste Composition Study* (Yakima County 2003a), 12.9% of the waste stream is comprised of food waste, or about 31,790 tons per year (based on 2007 disposal tonnages, see Table 2-5). As shown in Table 2-4, 757 tons of "food waste" were recycled in 2006, but most of this was grease collected by rendering companies. Hence, the current recycling rate for food waste is quite low (about 2.3%), although backyard composting and other reduction and diversion methods are adding an unknown amount to this rate.

5.3.4 Agricultural Wastes

In the context of this chapter, which focuses on organic materials, "agricultural wastes" are meant to include only the organic residues generated by agricultural activities (in other words, primarily crop residues and animal manures). As used in this chapter, "agricultural wastes" does not include household wastes, hazardous wastes, empty pesticide containers, contaminated soils, deceased animals, or other items that are not crop residues or animal manures. Food processing wastes are also excluded, as these are classified as an industrial waste (although some sludges from food processing plants are handled like biosolids, see discussion below, and other wastes could be handled as "food waste"). Finally, it should also be noted that there is some debate as to whether animal manures should be classified as a solid waste or not, but that issue is less important to this Plan than the opportunities to co-manage manures with other organic materials.

There is little agricultural waste that is disposed as a solid waste. Most types of agricultural wastes, whether crop residues or animal manures, can be returned to the land where these were generated. A few types, such as branches and stumps from orchards, cannot be easily returned to the land. Other types of agricultural wastes may need to be removed for disease prevention purposes or because a specific farm may not have the capacity to absorb all of the material (such is the case at times with animal manures exceeding the nitrogen-holding capacity of a farm).

Composting of animal manures is becoming an increasingly popular option. An example of this approach is provided by a farm in Sunnyside, Skyridge Farms, where a private company (Organix) processes manure to generate 25,000 cubic yards of compost annually. An example of another approach is provided by DeRuyter dairy, where animal manure is processed in an anaerobic digester to create methane and compost.

Since so much of the agricultural waste is returned to the land or handled in other ways that make it difficult to measure, there are no actual figures available on how much of these wastes are generated in Yakima County. Table 5-2 provides an estimate of the amount of agricultural wastes that are generated in Yakima County.

5.3.5 Biosolids

Sewage sludge that has been treated to meet standards for beneficial use is called "biosolids." Biosolids are defined by Chapter 173-308-080 WAC as municipal sewage sludge that is a primarily organic, semisolid product resulting from the wastewater treatment process that can be beneficially recycled and meets all applicable requirements. Biosolids are further categorized by

Federal regulations into Class A and Class B based on pathogen reduction measures and metal contamination levels. The Federal regulations (40 CFR Part 503) are self-implementing, meaning that the requirements must be met regardless of the permit status of a facility.

Table 5-2
Estimated Quantity of Agricultural Waste in Yakima County

Crop or Livestock	Annual Waste Generation Factor[1]	Number of Units[2]	Annual Tonnages[3]
Hay and Pasture	1.0 ton/acre	54,413 acres	54,413
Grain	1.5 tons/acre	42,298 acres	63,447
Potatoes	2.0 tons/acre	1,737 acres	3,474
Other Vegetables	3.0 tons/acre	15,077 acres	45,231
Orchards	2.25 tons/acre	99,834 acres	224,627
Hops	3.0 tons/acre	16,813 acres	50,439
Nursery and Greenhouse Crops	3.0 tons/acre	1,372 acres	2,744
Beef Cows	11.3 tons/head	22,866 head	258,386
Dairy Cows (mature)	14.6 tons/head	67,343 head	983,208
Other Cattle [4]	5.5 tons/head	224,822 head	1,236,521
Sheep	0.7 tons/head	2,097 head	4,613
Chickens [5]	42.0 tons/1,000 birds	300,000 birds	12,600
	Total Annual Waste Amount		**2,947,000 tons/year**

Notes:
1. Waste generation factors for crops are from "Solid Waste Generation Factors in California" (CIWMB 1974), and the generation factors for livestock are from "Agricultural Waste Issue Paper" (KC 1998).
2. Number of units is from the 2002 Census of Agriculture (USDA 2008).
3. Annual tonnages are either vegetative residues (for crops) or manures (for livestock and poultry).
4. The generation rate for "other cattle" varies from 6.4 tons per year for immature cattle to 15.5 tons per year for fully-grown cattle. The number of animals shown here is for cattle sold during year, so the generation rate is assumed to be mid-range (11.0 tons per head) for six months only.
5. Number of chickens is not available because data was withheld to protect confidential information for one or two large farms. The figure shown here (300,000 chickens) is an estimate based on previous years.

Most of the biosolids generated in Yakima County are handled by a private company, Natural Selection Farms. This company has established a network of local farms that can apply the biosolids to their crops. Natural Selection Farms accepts biosolids from out-of-county sources to meet their demand. It also composts other materials under a separate permit to create custom blends of compost for specialized applications such as mushroom growing. For farms that participate in their land application program, the Yakima Health District monitors aspects such as stockpiles and nitrogen levels.

Not all biosolids in Yakima County go to Natural Selection Farms, however, as the cost is prohibitive for some cities. At about $19 per wet ton, the cost to the City of Grandview would not be economically feasible. Instead, Grandview typically seeks interested farmers for land

application or brings part of their biosolids to the Cheyne Landfill for use as daily cover. The City of Selah is also handling its sludge separately, by drying it to create a Class A material and working with the Yakima Training Center to create a soil conditioner.

A few of the larger food manufacturing companies in Yakima County, such as Del Monte and Sno-Kist, produce a process sludge similar to biosolids that is separately handled (in these two cases, applied to trust lands on the Yakama Reservation).

The amounts of biosolids generated by municipal wastewater treatment plants in Yakima County in 2007 are shown in Table 5-3.

Table 5-3
Amount of Biosolids Utilized in Yakima County, 2007

Source	Amount Disposed in 2007, Dry Tons
City of Grandview	104
City of Mabton	48
City of Moxee	111
Town of Naches	99
City of Selah	188
City of Toppenish	150
City of Wapato	101
City of Yakima	1,638
City of Zillah	57
Subtotal, In-County Sources	2,496
Imported from Out-of-County Sources	11,702
Total Utilized in Yakima County	14,198

Source: Yakima Health District, September 2008.

5.3.6 Processing Facilities

There are several private companies in Yakima County currently involved in composting yard debris or other materials, or that blend soils using compost and other materials. Information on a few of these companies is summarized in Table 5-4. There are additional companies and farms involved in composting animal manures, but on-site composting of agricultural wastes is exempt from solid waste permitting requirements. More details on the existing activities and markets for compost can be found in the *Compost Facility Feasibility Study* (Yakima County 2009a).

The *Compost Facility Feasibility Study* (see Appendix C) was conducted in 2009 and was funded by offset cycle CPG (Coordinated Prevention Grant) funds provided by the Department of Ecology. This study assessed the need for additional composting facilities, but concluded that there was sufficient private capacity and interest that the County would likely not need to construct a new facility for the yard debris from their solid waste facilities. Instead, this study recommended that the County issue an RFQ/RFP for composting services for the yard debris.

In 2008, the County also received an "Alternatives to Burning" Grant for organics collection, composting and education. This grant was separate from the CPG funds received from Ecology for other activities.

Table 5-4
Organics Processing Facilities in Yakima County

Facility	Materials Composted	Sources	Products	Annual Amount	Market comments
Natural Selection Farms [1]	Hops, food processing organics, tree trimmings, other	Commercial sources only (no residential materials)	Compost, including special blends	50,000 cubic yards of compost produced	Plenty of demand for compost
Roy Farms	Hops	In house only	Compost	18,000 tons of materials composted	Can't produce enough for their own use
Soil Conditioners	Yard debris	Terrace Heights Landfill	Compost	500 – 1,000 tons composted	Demand is stable, driven by price and competition

Notes: 1. Natural Selection Farms also handles most of the biosolids in the county, but composts other materials under a separate permit.

5.3.7 Markets

Yard Debris

Local markets for land application of yard debris, or compost derived from yard debris, are hindered by a problem that occurred several years ago when a hops farm lost many plants after using composted yard debris. This problem was apparently caused by the presence of Clopyralid, a herbicide used to control weeds, in grass clippings used as compost feedstock. Due to the problems caused by Clopyralid, it was banned on March 1, 2002 by the Washington State Department of Agriculture (WSDA) from being used on lawns, although it still allowed to be used on golf courses and some crops. Since Clopyralid is still used in some products for the control of weeds in hay and grains, animal manures may still contain trace amounts of this chemical.

Wood Waste

Markets for wood waste are currently good and are expected to remain strong in the future, at least for hog fuel markets. Demand for hog fuel is expected to remain strong due to decreased logging and high energy prices. Decreased logging (due to less demand for lumber caused by reduced home building and other construction activity) has an impact on hog fuel prices because logging generates byproducts that are also used for hog fuel.

Markets for some types of wood waste, such as the chips generated by Grandview's brush chipping program, are sometimes a problem.

Food Waste

There are currently strong markets for cooking grease, which is the primary type of "food waste" collected currently for recycling in Yakima County. The market for grease is expected to stay strong for the foreseeable future, due largely to the ability to convert it into biodiesel.

Agricultural Wastes

Some agricultural wastes are recycled on the farm, hence are not collected and never enter the waste stream. There is a strong demand for agricultural wastes as feedstock, causing them to be collected, taken off of the farm, and then either composted or used in another process. Demand is expected to increase in the future as biomass projects, anaerobic digesters, and other types of applications are developed.

Biosolids

There appears to be more than sufficient demand for the biosolids produced in Yakima County, and in fact significant amounts are imported to help meet the local demand for crop application of this material.

5.4 STATUS OF 2003 RECOMMENDATIONS

The status of the recommendations made by the previous solid waste management plan (Yakima County 2003b) is shown in Table 5-5.

5.5 PLANNING ISSUES

Yard Debris Composting

The current use for most of the yard debris collected at County facilities (i.e., daily cover) does not meet the definition for recycling in Washington State. Plans are already underway, however, for Yakima County to examine methods for composting this material.

Market Demand

Although demand for biosolids is strong locally, there are some instances where these markets are not serving local needs due to financial or other constraints. This is also true for small quantities of yard debris or wood waste markets (such as the chips generated from brush collected by the City of Grandview).

Table 5-5
Status of 2003 Recommendations for Organics

Recommendations	Status
Chapter 3: Waste Reduction, Recycling and Composting	
Yard Waste Collection and Composting:	
Continue current education and collection services with the goal of meeting the needs of residents and businesses affected by the **burn ban** in urban areas. These services include collecting **yard waste** with toters and discounting the fee for **yard waste** at the landfill (compared with garbage).	Ongoing
Continue **backyard composting** and bin distribution programs.	Ongoing
Work to expand markets and end-use applications for **compost** products.	Ongoing
Establish partnerships with other agencies to implement joint initiatives related to **organics** that address environmental resource issues in Yakima County.	Ongoing
Education and Outreach:	
Continue current education and outreach programs, including school education, special events and public education campaigns. Consider expanding these programs, including using joint public/private promotional partnerships. Education should address recycling, waste prevention, **composting**, reducing toxicity, and using safer alternatives to products containing hazardous ingredients.	Ongoing
Market Development:	
Provide targeted assistance to establish and/or maintain the viability of local markets for recyclable materials. Focus assistance on materials where local (or regional) markets can effectively handle materials collected from Yakima County. Such materials include **yard waste, compost, green chop**, mixed glass cullet, **wood waste, wood chips,** concrete/aggregate, and reusable building materials. Program activities could consist of (1) assessments of the feasibility of local market development initiatives, (2) technical assistance to private sector processors and end users (3) government procurement of recycled content goods, and (4) "buy recycled" campaigns, demonstration projects, and other promotion initiatives aimed at stimulating demand for recycled materials sourced from local markets.	Ongoing

Climate Action Response

The Beyond Waste Implementation Working Group (BWIWG) of the 2008 Climate Action Team developed specific recommendations that may be enacted into legislation. Included in their conclusions is a recommendation that all organics be kept out of landfills. It is unknown at this time if these recommendations will lead to mandatory requirements or what schedule may be proposed; in other words, it is unknown at this point how these recommendations may affect Yakima County.

Odors from Yard Debris

Yakima County occasionally receives complaints about odors from its yard debris stockpile at Terrace Heights. The every-other-week collection of yard debris in some parts of the county may contribute to the odor problem.

Organics to Energy

Current research and technology development efforts in the solid waste industry may create opportunities in the future to convert biomass (plant material) to energy. In addition, the technology is currently available to process animal manures in anaerobic digesters to create methane, which is then used to generate electricity. Anaerobic digestion is a fairly well-proven technology that is already being used in Yakima County by DeRuyter Dairy.

Landfill Ban

As mentioned previously in this Chapter (see page 5-1), state law recommends eliminating yard debris from landfills beginning in 2012 in areas where alternative handling methods exist. Yakima County may implement a ban for yard debris, but the details of how yard debris will be kept out of the disposed waste stream is unclear at this time. The *Compost Facility Feasibility Study* addresses alternative handling options for the yard debris.

5.6 ALTERNATIVE STRATEGIES

5.6.1 Alternatives

Alternative A – Yard Debris Composting

Alternative management strategies are needed for yard debris generated in Yakima County, and those alternatives will need to address the following activities:

- collection – collection programs will be needed in all of the urban areas, and possibly in rural areas too. The rural areas could also be served by drop-off programs instead of by curbside programs (because only a small percentage of the rural residents subscribe to garbage collection, and even fewer are likely to subscribe to curbside yard debris collections). The collection programs will need to address the frequency of collection and whether that will differ from summer to winter, collection containers, and other factors. Permanent containers (toters) could be provided or biodegradable bags could be used (such as the bags being tested in the City of Yakima). Permanent containers are expensive but bags raise issues about distribution methods and public education for their proper use. Neither method addresses brush, which would need to be bundled separately or brought to a drop-off site.

- processing and marketing – the processing method(s) used will be dictated by the available markets. Yard debris is typically composted, which assumes an end-market for the compost. Other options include anaerobic digestion, direct land application, and co-composting with other materials (food waste, animal manures and/or biosolids).

- administration and regulation – various options exist for public or private facilities, or a public-private partnership, that would process and market the yard debris. The extent of the regulation needed to address the disposal ban requirements and to prevent illegal dumping of

yard debris also needs to be addressed. Specific issues, such as how to handle mixed loads of yard debris and garbage or how to handle diseased vegetation, also need to be addressed.

These options for yard debris are more fully addressed by the *Compost Facility Feasibility Study* (Yakima County 2009a). The results of that study were used to develop the recommendations shown in this Plan.

Alternative B – Wood Waste for Biomass-to-Energy

The clean wood waste collected separately at the Yakima County facilities is being ground and sold as hog fuel. This program could be expanded by collecting wood at additional locations, collecting a broader range of wood, or by tapping into other sources of wood such as forestry waste. This concept, and especially the idea of collecting forestry waste, was examined in 2003 by a study, *Review of Biomass Fuels and Technologies* (Yakima County 2003c). The study concluded that a large-scale biomass-to-energy project was not economically feasible in Yakima County.

Alternative C – Food Waste Diversion

Food waste constitutes a substantial portion of the waste stream in Yakima County (12.9% or 31,790 tons per year) that could be diverted to a composting or other processing system. The separate collection of food waste poses several problems, however, including issues with odors, container weight, liquids, vermin, and other health and sanitation problems. Collecting food waste with yard debris is being done in several western Washington communities for residential customers, but only with limited success. Participation in these programs is typically very low, and confusion over the use of biodegradable bags is leading to significant amounts of contamination by plastic bags.

Other alternatives for food waste include:

- food donations (for surplus edible food)
- animal feed
- direct land application
- rendering
- worm bins and large-scale vermicomposting
- anaerobic digestion

In general, the options for food waste diversion are vastly better for large commercial generators, several of which are already conducting their own diversion programs. Increasing the amount of food waste diversion beyond those efforts will, however, hinge at least in part on the system developed for yard debris. Since that system will be developed in the next few years, any significant advancements in food waste diversion will need to wait until the next planning cycle.

Alternative D – Process Agricultural Wastes at Central Compost Facility

Although much of the agricultural waste generated in Yakima County does not leave the farm or orchard where it is generated, increasing amounts of some agricultural wastes (hay, spoiled fruit and hops pellets) are being brought to disposal facilities. Handling these materials as part of a yard debris compost program raises concerns about pesticide residues and other contamination. A large compost facility must have the ability to convert a variety of raw materials into a variety of products. Agricultural wastes could be handled separately at these facilities and marketed to applications that are not sensitive to the very small amounts of pesticide and herbicide residues that may be present in some of the composting feedstocks. These materials should be addressed by the composting feasibility study and/or addressed in the design of any future large-scale compost facility.

Alternative E – Improve Biosolids Markets

Options for biosolids could include cooperative arrangements, market development, and other activities that would increase market options for biosolids. On the other hand, the private sector is currently handling biosolids in an effective manner, and it would be difficult to compete with the economies of scale they experience due to the large volumes of material being processed.

5.6.2 Evaluation of Alternative Strategies

Consistency With Planning Objectives

All of the alternatives are consistent with the objective of recovering materials from solid waste, although Alternatives A, C and D are more in line with the Beyond Waste goals.

Waste Reduction / Diversion Potential

Alternatives C (food waste diversion) and D (processing agricultural waste) have the greatest diversion potential.

Customer Preferences

Whether the alternatives are consistent with customer preferences depends in large part on the design of any new programs, although it is likely that agricultural waste generators would prefer to have a better alternative to landfilling of their wastes.

Implementation Costs

Implementation costs could be significant for all of these alternatives, although Alternative D (processing agricultural waste) should be cost-effective if it is to be implemented.

5.6.3 Rating of Alternatives

The alternatives are compared with respect to the evaluation criteria in the table below.

Table 5-6
Summary Rating of the Alternative Organics Strategies

	Alternative	Consistency with Planning Objectives	Waste Reduction / Diversion Potential	Customer Preferences	Cost to Implement	Overall Rating
A	Yard Debris Composting	H	H	H	M-H	H
B	Wood Waste to Energy	M	M	M	H	M
C	Food Waste Diversion	H	H	M	H	M
D	Handling Agricultural Waste at Composting Facility	H	H	H	M	H
E	Improve Biosolids Markets	M	L	M	M	L

H - High M - Medium L - Low

5.7 RECOMMENDED ACTIONS

The following recommendations are being made for organics:

O1) Implement a disposal ban on yard debris effective January 1, 2012, for all public and private disposal facilities in Yakima County and for yard debris from all sources.

O2) Develop and issue an RFQ/RFP for composting services for the yard debris collected at County disposal facilities.

O3) Explore other options, including a County owned and operated facility, if Recommendation O2 cannot be implemented due to pricing, terms or other reasons.

CHAPTER 6 - SOLID WASTE COLLECTION

6.1 INTRODUCTION

This chapter discusses existing municipal solid waste collection services in Yakima County and in the 14 participating cities and towns, identifies relevant planning issues, and develops and evaluates alternative collection strategies.

6.2 BACKGROUND

6.2.1 Goals and Objectives for Solid Waste Collection

Goals and objectives related specifically to solid waste collection include:

- Ensure convenient and reliable services for managing solid waste materials;
- Promote the use of innovative and economical waste handling methods;
- Encourage public-private partnerships for waste reduction and recycling programs;
- Emphasize waste reduction as a fundamental management strategy;
- Encourage the recovery of marketable resources from solid waste;
- Assist the State in achieving its goal of a 50 percent recycling rate;
- Reduce the environmental impacts to air, water, and land that are associated with waste generation, transportation, handling, recycling, and disposal; and
- Reduce the occurrence and environmental impacts associated with illegal dumping.

6.2.2 Legal Authority

The Washington State Department of Ecology (Ecology), the Washington Utilities and Transportation Commission (WUTC), Yakima County, cities and towns, and the Yakama Nation share the legal authority for solid waste collection within Yakima County.

Revised Code of Washington (RCW) 70.95.020 assigns primary responsibility for solid waste handling (management) to local government. Private industry's role in waste management is reflected in the legislative language: "It is the intent of the legislature that local governments are encouraged to use the expertise of private industry and to contract with the same to the fullest extent possible to carry out solid waste recovery and recycling programs" (RCW 70.95.020).

6.2.3 Incorporated Areas

Cities and towns have three alternatives for collecting solid waste within their boundaries:

1. Municipal collection: collect waste using municipal employees.

2. Contract collection: the municipality conducts a competitive procurement process and selects a private company to provide collection services.

3. Certificated collection: if a city does not wish to be involved in managing garbage collection within its boundaries, the hauler with a WUTC certificate for the area can provide those services. The city may pass an ordinance requiring that certain services be provided. A city may also require a certificated hauler to secure a license from the city.

6.2.4 Unincorporated Areas

Through its G-certificate program, the WUTC grants exclusive rights to specific haulers in unincorporated areas. RCW 81.77.030 allows the WUTC to supervise and regulate waste collection companies:

1. By fixing and altering its rates, charges, classifications, rules and regulations;

2. By regulating the accounts, service, and safety of operations;

3. By requiring the filing of annual and other reports and data;

4. By supervising and regulating such persons or companies in all other matters affecting the relationship between them and the public which they serve;

5. By requiring compliance with local solid waste management plans and related implementation ordinances; and

6. By requiring certificate holders under chapter 81.77 RCW to use rate structures and billing systems consistent with the solid waste management priorities set forth under RCW 70.95.010 and the minimum levels of solid waste collection and recycling services pursuant to local comprehensive solid waste management plans.

Washington Administrative Code (WAC) 480-70 implements RCW 81.77 by establishing standards for public safety, fair practices, just and reasonable charges, nondiscriminatory application of rates, adequate and dependable service, consumer protection, and compliance with statutes, rules and commission orders.

6.3 EXISTING PROGRAM ELEMENTS

Residential curbside waste collection is mandatory in all incorporated areas (cities and towns) of Yakima County. Residents in unincorporated areas may choose whether to subscribe to waste collection services. These services are provided primarily by Yakima Waste Systems, which is authorized by the Washington Utilities and Transportation Commission (WUTC) to collect waste within the boundaries of Yakima County. Basin Disposal is also authorized to collect waste in part of the unincorporated lower valley (east of Granger, surrounding Sunnyside and Grandview, and north of the Yakima River). More detailed information about the haulers' service areas can be found at the WUTC's website: http://www.wutc.wa.gov/solidwaste.

Residential curbside recycling is offered in/near the Yakima urban area in the cities of Yakima, Union Gap, Selah, and Moxee.

6.3.1 Waste Collection Programs

Table 6-1 lists the waste haulers operating in Yakima County and the number of accounts served.

Table 6-1
Solid Waste Collection Data

City or Town	Population[1] (2008)	Residential Accounts[2]	Commercial Accounts[3]	Collection Entity	Mandatory Service
Grandview	9,254	2,717	400	City	yes
Granger	3,002	600	120	City	yes
Toppenish	9,764	2,400	400	City	yes
Yakima	84,763	22,750[5]	2,620[4]	City, YWS[4]	yes
Harrah	656	210	30	YWS	yes
Mabton	2,172	392	116	YWS	yes
Naches	805	298	48	YWS	yes
Tieton	1,269	328	56	YWS	yes
Sunnyside	15,465	3,076	612	YWS	yes
Zillah	2,794	852	116	YWS	yes
Moxee	1,996	397	49	BDI	yes
Selah	7,044	1,890	175	BDI	yes
Union Gap	6,151	1,101	361	BDI	yes
Wapato	4,971	917	185	BDI	yes
Unincorporated area	95,017	1,807	838	BDI	no
Unincorporated area	included above	18,040	4,335	YWS	no
Total	245,079	59,057	10,345		

Notes: Data current as of January 2009. YWS = Yakima Waste Systems, BDI = Basin Disposal Inc.

1. From Table 2-1.
2. Residential collection is defined as either a can or roll cart set out for collection.
3. Commercial collection is defined as a dumpster or front-load container set out for collection.
4. Yakima Waste Systems, the only WUTC-licensed hauler for commercial waste in the City of Yakima urban area, has a total of 2,165 customers within the City. In addition, the City services 455 accounts that use a front-load container (multi-family units and City facilities).
5. City of Yakima residential solid waste customers.

As can be seen in Table 6-1, there are four municipal collection programs in Yakima County and two private haulers. The four municipal collection programs are operated by Grandview (which has a population density 1,393 people per square mile), Granger (population density of 1,873 people per square mile), Toppenish (population density of 4,285 people per square mile), and Yakima (population density of 3,211 people per square mile). Those programs operate within city boundaries, as adjusted periodically by annexations. The two private haulers operate in the unincorporated areas and in the other municipalities. The population density for the rest of the county (excluding the four municipal collection programs) is 34.5 people per square mile.

The two private haulers operating in Yakima County are:

- Basin Disposal (or BDI), which operates under the certificate #G-45. BDI of Yakima is located at 1405 W Ahtanum Road, Yakima, WA, 98903-1880, and can be contacted (509) 248-7533.
- Yakima Waste Systems (or YWS), which is now owned by Waste Connections, operates under certificate #G-89. YWS is located at 2812 1/2 Terrace Heights Drive, Yakima, WA, 98901-1408, and can be contacted (509) 248-4213.

Current information on the service areas for these companies can be found on the web page for the Washington Utilities and Transportation Commission, at:
http://www.wutc.wa.gov/webdocs.nsf/0/de2329c4aca2cfbc88256a08007c8088!OpenDocument&TableRow=3.18.2.1#3.

Recyclable materials are collected curbside from residential and commercial sources within the City of Yakima urban area. Table 6-2 shows the number of customer accounts served.

Table 6-2
Recyclables Collection

City/Town	Residential Accounts	Commercial Accounts	Collection Entity	Residential Set Out %	Tons per Year, 2008
Yakima urban area	2,617	419	YWS	65%	526
Moxee	397	5	BDI	2%	1
Selah	1,890	32	BDI	69%	293
Union Gap	1,101	41	BDI	3%	3
Unincorporated area	n/p	n/p	n/p	n/p	n/p
Total	6,922	504			607

Notes: n/p No formal program
Data current as of January 2009.

Yard debris is collected on a voluntary (subscription) basis in five of the County's incorporated areas. The City of Yakima has the highest number of participants (4,925 subscribers) and the highest level of participation (21.6%) for yard debris collection in the County. The jurisdictions that offer voluntary curbside collection of residential yard debris are shown in Table 6-3.

Table 6-3
Residential Yard Debris Collection

City/Town	Program	Rate	Collection Entity	Notes
Toppenish	Weekly 96 gallon cart	$6.53 / month	City	Collected April 1 to November 30
Yakima City	Weekly 96 gallon cart	$11.75 month (no charge for Dec to Feb)	City	Collected March 1 to November 30
Yakima urban area	Every Other Week 96 gallon cart	$4.88 per month	YWS	
Naches	Weekly 96 gallon cart	$6.47 / month	YWS	
Zillah	Weekly 96 gallon cart	$8.00 per cart	YWS	$20 cart delivery fee
Selah	Up to 3 bags collected EOW, landfilled	$1.62 for 3 plastic bags of material, not to exceed 40 pounds per bag	BDI	Collected April 18 to October 19
Union Gap	Fall collection of leaves by city crews	Cost paid by public works department	BDI	Only for fall leaves
Unincorporated area	n/p	n/p	n/p	n/p

Notes: n/p No formal program
Data current as of January 2009.

6.3.2 Disposition of Collected Waste

All waste collected within Yakima County is required to be delivered to one of the Yakima County facilities. This requirement is part of the interlocal agreement between Yakima County and the cities and towns. For the unincorporated areas, it is a matter of county policy that waste is delivered to one of the County transfer stations or landfills. See Chapter 13 for more information about the interlocal agreements and flow control.

6.4 STATUS OF 2003 RECOMMENDATIONS

Table 6-4 describes the accomplishments or status of the recommendations from the 2003 Plan.

6.5 PLANNING ISSUES

With respect to collection, the primary consideration for Yakima County is the relatively small population living outside the City of Yakima urban area. The urban area covers approximately 90 square miles from Moxee to the West Valley and from Selah in the north to Union Gap in the south. Most municipalities are located on the I-82 corridor that runs parallel to the Yakima River. Because of the distances involved, providing collection services to residents and

Table 6-4
Status of 2003 Recommendations for Solid Waste Collection

Recommendations	Status
Develop municipal garbage collection rate structures that encourage waste reduction and recycling.	Ongoing
Monitor and actively support legislation that would change the WUTC rate review process so that the process will encourage waste reduction and recycling.	WUTC Supports recommendations in the Solid Waste Management Plan
To ensure continuation of programs, require that all in-County generated MSW be hauled to a County-owned facility, or administer a fee directed at haulers that do not use the County system.	Done
Renew interlocal agreements to ensure that all waste generated within the county is hauled to County-owned facilities.	Done

businesses in the remaining 4,200 square miles of the County is more expensive. Collection costs for solid waste range from $7.74 for a 30-gallon can each week in Sunnyside to $14.05 for a 96-gallon cart each week in Granger, compared with $9.17 for a 32-gallon cart or $15.58 for a 96-gallon cart each week in Yakima. All incorporated jurisdictions have mandatory collection of garbage, but not for recycling or yard debris.

Curbside collection of recyclables is limited to the areas near the City of Yakima because of the high concentration of residents who desire the program. The variable collection rates charged within the urban area allow residents to reduce their bills by separating out recyclables and then using a smaller can or cart for garbage. Recycling services are included in the monthly garbage fee for residents in Selah, Moxee, and Union Gap. Residents of the City of Yakima pay an additional fee for recycling service.

The cost of providing curbside recycling to residents in the less populated incorporated areas and the rural areas is approximately the same as for providing garbage collection. This may seem counter-intuitive, because recycled materials generally have some market value (as opposed to garbage, for which a disposal fee must be paid at the landfill). However, there are a number of factors that increase the cost of curbside recycling in less-populated areas:

1. Less material spread over larger distances: Because curbside recycling is a service provided for an additional fee, there are fewer recycling customers than garbage customers. This means that the truck must travel farther between customers. Furthermore, because the average customer sets out fewer pounds of recyclables than garbage each week, the cost of transporting recyclables must be spread out over fewer pounds of material.

2. Similar equipment costs: Yakima Waste Systems and Basin Disposal currently utilize fully-automated trucks to collect both garbage and recyclable materials. Customers are provided with either a 64 or a 96-gallon cart for garbage, and one for recycling (if this service is elected). Garbage is compacted (compressed) in the trucks, while recyclables are not. A truck carrying garbage carries about 9 tons, while the same truck carries about 5 tons of recyclables. Thus, while the capital equipment costs are similar, there are fewer tons of recyclables over which to spread these costs.

3. Processing and transportation costs: Once garbage is in the truck, it requires no further processing and is transported directly to the landfill for disposal. In contrast, recyclables must be taken to a materials recovery facility for sorting and baling. Some of these materials are then shipped to a distant market, usually in the Seattle, Tacoma, or Portland metropolitan areas. These additional processing and shipping costs offset at least a portion of the revenue received for sale of the recyclable materials. In the last five years, commodity prices paid for recyclables such as cardboard, steel, aluminum, and paper have reached historic highs, driven by strong international demand. However, in 2008, the global economic slowdown has caused commodities prices to decline precipitously. Experience has shown that revenue from the sale of recyclable materials cannot always be relied upon to offset the higher costs per ton of collection, processing, and shipping materials to market.

Yakima County is fortunate to have a viable local market for fibers (recycled paper, cardboard, and newspaper), which are used to make packing materials for fruit. Yakima Waste Systems currently sorts paper from residential and business sources to remove glass, metal, and other detrimental materials. The sorted paper is then sold to Michelsen Packaging to produce the fruit-packing products. The value of recycled fiber in Yakima County is thus affected by the economic condition of the Yakima fruit industry.

As mentioned in Chapter 5, the State has a goal of eliminating yard debris from landfills in 2012.

6.6 ALTERNATIVE STRATEGIES

Alternative collection strategies are discussed below. Strategies are presented for incorporated and unincorporated portions of the planning area.

6.6.1 Alternatives

Solid Waste Collection

Curbside solid waste collection programs appear to be operating satisfactorily in urban and suburban areas. No waste collection alternatives seem advisable at this time.

Curbside Recycling

Both the participation rate (percentage of households setting out recyclable materials) and the quantity of materials recycled per household could be increased. Increased promotion and publicity by the haulers may help increase curbside recycling rates. The relationship of collection and recycling is addressed in greater detail in Alternative E in Chapter 4 - Waste Reduction and Recycling.

Alternative A – Local Yard Debris Drop-Off Sites

In less densely populated areas, curbside yard debris collection is probably not economical because of the distance between subscribing households. However, if residents voluntarily drop

off yard debris at a local site and the material is subsequently processed, this may be both a convenient and relatively low cost way to divert yard debris from the landfill.

Yard debris, organic waste, and clean wood waste are feedstocks that can be processed into compost or ground up and used for livestock bedding or other uses. Small amounts of these feedstock materials can be processed on an acre or two of ground with a limited amount of equipment, most of which is already in use in the agricultural areas of the County. Wood waste can be ground or chipped twice a year and stockpiled as a bulking agent for composting the organic wastes. The finished compost product can then be sold and used locally.

This concept was tested in Tieton in 2009. The County approved a pilot program in conjunction with the Tieton Public Works Department to implement this local composting program. If this program is successful, the County could consider expanding this to other communities as an alternative to curbside collection. This alternative could also be further explored and evaluated as part of the County's composting feasibility study that will be conducted in mid-2009. Any decision to include this approach in this Plan should be contingent on the findings of that study.

Alternative B – Haul Yard Debris to a Central Composting Facility

In the summer of 2009, the County conducted a feasibility study of composting various organic feedstocks including yard debris and agricultural waste at a large, centralized compost facility. Such a facility would utilize yard debris that is brought to transfer stations, as well as yard debris self-hauled by residents or businesses directly to the facility. It is likely to be a larger, more complex facility involving a shredder or grinder, equipment to aerate or turn the compost piles, and more sophisticated environmental controls for stormwater and odor. Several similar facilities are already operating in Yakima County.

Alternative C – Bulky Waste Collection

Bulky items (e.g. armchairs, sofas, mattresses) and white goods (washers, dryers, ovens) are too large for curbside collection using conventional garbage trucks. This makes them less convenient and more difficult to dispose of or to recycle. A periodic (e.g. quarterly or semi-annually) collection event at a local high school parking lot or shopping mall could help residents dispose of these items and reduce illegal dumping.

In some urban areas in western Washington, municipalities sponsor a "call to haul" program: the city contracts with a private company to pick up bulky items using a flat bed truck with a hydraulic lift. This requires residents to make appointments in advance to have their bulky items picked up, but it makes the pickup route more efficient. The City of Yakima and both of the private haulers in Yakima County already offer this service, leaving only a few areas in Yakima County that are not covered by bulky waste collections.

6.6.2 Evaluation of Alternative Strategies

Consistency with Planning Objectives

All three alternatives are consistent with the objectives of this solid waste plan.

Waste Reduction/Diversion Potential

Alternatives A and B ensure that yard debris will be diverted from landfill disposal and processed into a useful product. White goods dropped off under Alternative C could be recycled as scrap metal. While some pieces of furniture might be given to charity for re-use, most bulky furniture would be landfilled.

Customer Preferences

Alternative A gives residents a relatively convenient and potentially less expensive method of getting rid of yard debris intermittently, without having to pay for the service each week. Alternative C is potentially more convenient than hauling bulky wastes to one of the permanent County-operated waste facilities.

Implementation Costs

Alternative A could cost between $5,000 and $75,000 to implement a small local yard debris processing facility, depending on its complexity, type of equipment, and other factors. Yard debris self-haulers would probably be assessed a flat fee based on vehicle size (e.g. one rate for cars, higher rates for pickup trucks and trailers). The costs of Alternative B will be developed during the compost feasibility study. Under Alternative C, bulky waste self-haulers could be assessed a fee based on the type/size of item (different rates for armchairs, sofas, mattresses, refrigerators, stoves, etc.). After experience is gained with running these bulky waste collection events, the rates can be set with reasonable accuracy so that the revenue is about the same as the cost of running the events.

Table 6-5
Summary Rating of the Collection System Strategies

	Alternative	Consistency with Planning Objectives	Waste Reduction / Diversion Potential	Customer Preferences	Cost to Implement	Overall Rating
A	Local processing of yard debris	H	M	M-H	L-M	M
B	Haul yard debris to a central composting facility	H	H	M-H	H	H
C	Bulky waste collection	H	L-M	M-H	L	H

H - High M - Medium L - Low

6.7 RECOMMENDED ACTIONS

Recommendations based on the *Compost Facility Feasibility Study* (see Chapter 5, Organics) incorporate some aspects of Alternatives A and B. The only recommendation specific to waste collection is:

C1) Provide all areas of Yakima County with bulky waste collection services.

CHAPTER 7 – TRANSFER SYSTEM

7.1 INTRODUCTION

This chapter discusses existing transfer facilities and programs, identifies relevant planning issues, and develops/evaluates alternative strategies for transfer of solid waste to disposal sites.

7.2 BACKGROUND

The transfer system in Yakima County includes two public facilities and one private facility. The public facilities are the Lower Valley Transfer Station (LVTS) and the Terrace Heights Transfer Station (THTS). The THTS currently serves self-haulers for wastes deposited at the Terrace Heights Landfill. The private facility, owned and operated by Yakima Waste Systems (now a subsidiary of Waste Connections), is located near Granger and serves self-haulers primarily from the Yakama Nation and vicinity. The County formerly owned seven drop box facilities, but closed them in 2003 as recommended by the 2003 *Solid Waste Management Plan* (Yakima County 2003b).

7.2.1 Goals and Objectives for Transfer

The objectives of this Plan related to waste transfer include:

- Ensure convenient and reliable services for managing solid waste materials;
- Promote the use of innovative and economical waste handling methods;
- Reduce the environmental impacts to air, water, and land that are associated with waste generation, transportation, handling, recycling, and disposal;
- Reduce the occurrence and environmental impacts associated with illegal dumping;
- Ensure compliance with state and local solid and moderate risk waste regulations;
- Support the State's Beyond Waste goals, including the key initiative of increased diversion of organic materials.

An efficient transfer system supports the overall Plan. For example, transfer stations help reduce illegal dumping by providing a convenient and economical waste disposal alternative for those who generate relatively little waste, generate larger quantities on an intermittent basis, or choose not to subscribe to curbside collection services. Transfer stations also present an opportunity to recycle materials that are not picked up at curbside. They can serve as an information source about various waste management programs and options that are available to citizens.

7.2.2 State Legislation, Regulations, and Guidelines for Waste Transfer

The siting, design, and operation of transfer facilities are addressed in WAC 173-350-310, which regulates intermediate solid waste handling facilities.

7.3 EXISTING PROGRAM ELEMENTS

7.3.1 Lower Valley Transfer Station

LVTS opened in 1997 and serves both commercial and city garbage trucks and self-haulers (residents and businesses using cars, pickup trucks and other trucks). LVTS includes a single vehicle scale, scalehouse, transfer building, employee building, and areas to receive source-separated self-haul recyclables, self-haul and commercial yard debris, white goods (major appliances), tires, and limited types of moderate risk waste.

Waste tipping and transfer takes places in a 5,000 sq ft metal building with two bays for top-loading transfer trailers using a rubber tire bucket loader. A single road tractor pulls loaded trailers to the working face at Cheyne Landfill (CLF) for disposal.

In late 2003, an analysis of operating alternatives for LVTS was performed (Yakima County 2003d).

7.3.2 Terrace Heights Transfer Station

THTS was built in 2006 on the Terrace Heights Landfill site and serves self-haulers in cars and pickup trucks. Commercial and city garbage trucks bypass THTS and unload directly at the working face of the landfill. THTS shares some of the facilities that are also used by the landfill operations, including three vehicle scales, two scalehouses, and an employee building. There is a permanent household hazardous waste facility (HHWF) and shared areas for receiving source-separated self-haul recyclables, self-haul and commercial yard debris, white goods, and tires.

The transfer building is a 20,000 sq ft metal building with two bays for top-loading transfer trailers using a rubber tire bucket loader. When full, the trailers are hauled to the THLF working face and unloaded.

7.3.3 Granger Transfer Station

Yakima Waste Systems owns and operates a small transfer station in Granger. It is open to the public and primarily serves self-haulers in and around the Yakama Nation. The annual tonnage handled by this station is relatively small. Besides recyclables and white goods, it accepts some limited types of MRW, mostly latex and oil-based paints, which are then hauled to the County HHWF.

7.4 STATUS OF 2003 RECOMMENDATIONS

The status of the recommendations made by the previous solid waste management plan (Yakima County 2003b) is shown in Table 7-1.

Table 7-1
Status of 2003 Recommendations for Transfer

Recommendations	Status
Eliminate the current drop-box system in 2003. Encourage use of convenient curbside garbage collection service.	Done
Construct a new transfer station at the Terrace Heights Landfill for handling residential and small commercial (less than 5 tons per load) self-hauling customers. Conduct transfer station facility planning and design in 2003 and construct in 2004. Transfer station facility planning shall allow for future expansion to include commercial and municipal packer trucks and large commercial self-haulers.	Done
Conduct a facility plan for the Lower Valley Transfer Station in 2003 and implement operations and facility changes in late 2003 and 2004.	Done
Explore conducting a system-wide transfer station study that analyzes all levels of service to be provided in an integrated system.	Done
Explore the possibility of siting a West Valley transfer station.	Done

7.5 PLANNING ISSUES

7.5.1 Transfer Capacity

Commercial vehicles (garbage trucks, whether publicly or privately owned) generally use transfer stations during the week. Some self-haulers such as businesses and small construction or landscaping contractors are also weekday users. However, the majority of self-haulers are residential self-haulers that typically use the stations on weekends, in lieu of subscribing to regular curbside garbage collection, or when they have accumulated larger quantities of waste (e.g. spring cleaning).

7.5.2 Future Station Demand

In April 2008, URS developed the *Solid Waste Level of Service Study & Infrastructure Needs Assessment* (Yakima County 2008a). That study evaluated solid waste infrastructure needs over the next 20 years and suggested various alternatives to alleviate crowding at the transfer stations and to maintain or even increase service levels for waste transfer.

The study estimated future demand for transfer capacity based on tonnage and population projections through 2030. Table 7-2 shows the actual 2007 MSW tonnage and projected tonnage for 2030, the final year of the planning period. The annual number of vehicles was calculated based on assumed average payloads for commercial and self-haul vehicles carrying MSW and yard debris (YD). Peak hourly arrival rates in vehicles/hour (VPH) were estimated at 20% of the daily volume for commercial vehicles and 15% for self-haul vehicles.

7.5.3 Lower Valley Transfer Station

The existing 100-ft wide transfer building has space for between six and eight vehicles to unload simultaneously. It is common design practice to allow a 12-ft wide stall for a self-haul vehicle

Table 7-2
Transfer Station Demand

Station	Year	MSW (tons/year)	Vehicles/year (MSW and YD)	Peak VPH (commercial MSW)	Peak VPH (self-haul MSW)
Lower Valley	2007	37,049	25,492	8	21
	2030	56,288	38,003	12	31
Terrace Heights	2007	173,445	145,385	(tip at landfill)	108
	2030	260,135	217,027	43**	167

* Source: Yakima County 2008
** 222,428 TPY, 4 TPV, 260 days/year, peak hour = 20% of daily traffic.

and a 15-ft wide stall for a commercial vehicle. In actual practice, however, the painted lines marking the stalls become eroded or covered with trash; hence, the actual number of stalls is approximate. Commercial garbage trucks are mechanically unloaded; it is common to assume that a single stall can handle six commercial vehicles per hour (VPH). Because self-haul vehicles take more time to unload manually; the rule of thumb is only four self-haul VPH.

In 2030 the peak commercial traffic (weekdays) is estimated to be 12 VPH, which would require only two of the six commercial-width stalls. The situation is more complex for self-haul vehicles: since non-professional drivers are generally less experienced at maneuvering in tight spaces, the number of potential unloading stalls could fluctuate between six and eight. Assuming that it takes 15 minutes to park and unload a self-haul vehicle, the capacity of the station on a weekend could range from 24 to 32 VPH based on six to eight stalls. Peak hourly self-haul traffic is estimated to be 25 VPH in 2015 and 31 VPH in 2030. Therefore, beginning in about 2015, self-haul customers may experience some delays and extended waiting times on peak weekends.

On weekends at LVTS (and at most transfer stations in general), the limiting factor for station capacity is the ability to handle the volume of self-haul vehicles. The challenge is to help self-haulers back up and unload quickly, thus minimizing the time that other customers must wait in a queue.

On weekdays at LVTS, when most of the waste tonnage is handled, the limiting factor is the need to stockpile waste on the floor. The County currently uses one road tractor to pull transfer trailers to CLF for disposal. Based on a round trip of about one hour between LVTS and CLF and a payload of 20 tons, the trailer can make seven round trips and haul about 140 TPD to CLF each day. While the trailer is on the road, waste must be stored on the floor at LVTS. This restricts the ability to efficiently maneuver and unload vehicles and to swap-out trailers after they are loaded.

7.5.4 Terrace Heights Transfer Station

The 165-ft wide north wall of the transfer building is completely open and has room for 10 or more self-haul vehicles to unload simultaneously. The west wall is also open and can

accommodate up to 8 more vehicles. This allows 72 self-haul vehicles to unload per hour, assuming a turnover of 4 VPH per stall. In 2007, the peak arrival of self-haul vehicles was estimated to be about 108 VPH. This means that on some peak traffic days, the station's ability to quickly process self-haul vehicles is exceeded, and some drivers must wait in a queue for a stall to be available. This situation is expected to worsen as the population and waste stream grow.

The THTS transfer building has a modular design that allows it to be expanded by adding one or more building modules on the east side of the building. This expansion would increase the number of tipping stalls available.

THTS currently does not handle any garbage trucks, as these go directly to the working face of the landfill. When Phase 1 of THLF closes, however, the decision of either to accept them at THTS or redirect them to CLF will have an important effect on the capacity of THTS.

A complication with long-term use of THTS is that the current operating permit does not allow waste received at THTS to be hauled off-site. For THTS to serve as a transfer station after THLF closes, the permit must be modified to allow all non-recyclable waste received at THTS, whether brought in by commercial or self-haulers, to be loaded and hauled in transfer trailers to CLF.

7.5.5 Potential New Transfer Station

To provide equitable levels of service to County residents, it is desirable for transfer facilities to be conveniently located to serve urban, suburban, and rural populations. Issues related to the location of solid waste transfer facilities are:

- Increased travel distances for self-haulers as residential development expands to areas that are more remote from waste management facilities;
- The anticipated shift in the center of population and waste generation away from Terrace Heights and toward the West Valley;
- Traffic congestion for self-haulers traveling east to THTS;
- The anticipated banning of yard debris from landfill disposal in 2012; and
- The anticipated closure of THLF when Phase 1 reaches capacity.

The Level of Service Study examined options for servicing the Upper Valley after THLF closes, including various combinations of expanding THTS or building a new transfer station. All of the options examined would require THTS' permit to be modified to allow waste to be hauled to CLF. To optimize the overall transfer system, the study also recommended that the County:

- Work with haulers to review operations at LVTS and CLF.
- Reduce the number of self-haulers at County transfer facilities by using adjusting prices to encourage customers to either bring in heavier loads (make fewer trips) or subscribe to curbside collection.

7.5.6 Possible Closure of LVTS

An analysis of LVTS by R.W. Beck (Yakima County 2003d) recommended closing LVTS based on cost considerations. However, the URS study cautioned that this would increase mileage, fuel costs, and air emissions from commercial and self-haul vehicles. Furthermore, if self-haulers were sent directly to CLF and a separate self-haul unloading facility was not constructed, there would be increased safety hazards and traffic congestion. And finally, commercial and self-haul customers might object to the loss of convenient service at LVTS. Therefore, the URS study recommended that LVTS remain open to all customers.

7.5.7 Self-Haul Area at CLF

Both self-haul and commercial vehicles currently unload at the CLF working face, creating congestion, increasing the risk of accidents, and increasing the cost of landfill operations. This situation may be exacerbated when Phase 1 of THLF closes and traffic at CLF increases. Building a self-haul unloading facility at CLF would help address these problems.

7.6 ALTERNATIVE STRATEGIES

7.6.1 Alternatives

Alternative A – Property Search for New Transfer Station

To preserve the County's option to build a new transfer station at some time in the future, it is prudent to monitor the availability of suitable property. Characteristics of good potential sites include suitable land use/zoning, access to major roads and highways, reasonable topography, and environmental acceptability.

Alternative B – Transfer Options after THLF Closes

When THLF closes, one of following options must be implemented so that upper valley waste that is currently delivered to THLF in commercial vehicles will be delivered instead to CLF. Each option assumes that THTS will continue to accept self-haul waste and that its permit will be modified to allow waste to be hauled to CLF.

- Option 1: Expand THTS to serve commercial vehicles and support the hauling of waste to CLF;
- Option 2: Construct a new transfer station (at a different location) to serve commercial vehicles and support the hauling of waste to CLF;
- Option 3: Commercial vehicles haul directly to CLF.

The three options were examined in detail by the *Transfer Station Cost of Operations Analysis* (Yakima County 2009b). The study determined that there is adequate space at THTS to construct the Option 1 expansion. Option 2 involves the risks and costs of finding and purchasing suitable property, successfully completing the permitting process, design and

construction of an entirely new station. Option 3 involves increased transportation costs and the greatest increase in traffic in the vicinity of CLF. The full report is shown in Appendix D.

Alternative C – Modify Stations to Handle Yard Debris

It is anticipated that in 2012, yard debris will be banned from disposal in landfills. While both THTS and LVTS currently handle yard debris, their operations may need to be modified for more efficient handling and larger volumes of this material. In addition, some physical modification of the stations may be necessary.

Alternative D – Review Station Operation with Haulers

The County could work with the haulers to review its operations at LVTS and CLF. A number of non-capital improvements such as shifting start and close times, diverting roll-off loads away from LVTS and directly to CLF, or changing the transfer trailer schedule or configuration may reduce congestion and increase the efficiency of serving customers. The County and haulers could jointly evaluate the options and implement those that meet system objectives and cost considerations.

Alternative E – Self-Haul Facility at CLF

Self-haul and commercial vehicles currently unload in the same location at the CLF working face, creating congestion and increasing the risk of accidents. This situation may become worse when THLF closes and traffic at CLF increases. Building a self-haul unloading facility at CLF would help address these traffic congestion and safety issues.

7.6.2 Evaluation of Alternative Strategies

Consistency with Planning Objectives

All of the alternatives are consistent with the objectives of convenient and reliable services; innovative and economical waste handling methods; reduction of environmental impacts associated with waste generation, transportation, handling, recycling, and disposal; compliance with state and local solid waste regulations; and increased diversion of organic materials.

Waste Reduction/Diversion Potential

Implementation of Alternative C will help increase diversion of yard debris from County landfills. The other alternatives are neutral in that they will have little effect on waste reduction or diversion.

Customer Preferences

Alternative C could have a medium favorable impact on customer convenience if the stations are modified to more efficiently handle yard debris. Alternative E will make it safer for self-haul customers to use CLF.

Implementation Costs

Alternative A is a low-cost method of preserving the County's transfer options. Actual purchase of a suitable parcel will prevent the cost of the property from escalating in the future.

The cost of operation study determined implementation costs for the three options within Alternative B. Option 1, expansion of THTS, was selected because it provides the greatest benefit at the most reasonable cost.

Alternative C provides a relatively inexpensive way of providing the additional yard debris handling capability required by changing regulations in 2012.. Alternative D may provide improvements that offset the implementation costs. The cost of Alternative E could be either low or medium, depending on whether the self-haul area at CLF is simply a separate, well-marked unloading area at the working face, or if it is an actual structure.

Table 7-3
Summary Rating of the Transfer System Strategies

	Alternative	Consistency with Planning Objectives	Waste Reduction / Diversion Potential	Customer Preferences	Cost to Implement	Overall Rating
A	Property Search for New TS	H	L	H	L	H
B	Expand THTS to serve commercial vehicles when THLF closes	H	M	M-H	H	H
C	Modify Stations to Handle Yard Debris	H	H	M	L	M
D	Review Station Operations with Haulers	H	L	L	L	M
E	Self-Haul Facility at CLF	H	L	M	M	H

H – High M – Medium L – Low

7.7 RECOMMENDED ACTIONS

The following recommendations are being made for the transfer system:

T1) Evaluate the feasibility of a self-haul unloading facility at Cheyne Landfill.

T2) Expand the Terrace Heights Transfer Station to accommodate commercial traffic when THLF closes.

T3) Consider purchasing (or taking an option on) property suitable for a future transfer station as land becomes available and as funds allow.

CHAPTER 8 - DISPOSAL

8.1 INTRODUCTION

This chapter discusses existing programs and facilities, identifies relevant planning issues, and develops/evaluates alternative strategies for disposal of municipal solid waste.

8.2 BACKGROUND

8.2.1 Goals and Objectives for Disposal

Goals and objectives specific to disposal (as shown on page 1-2 of this Plan) include:

- Ensure convenient and reliable services for managing solid waste materials;
- Promote the use of innovative and economical waste handling methods;
- Reduce the environmental impacts to air, water, and land that are associated with disposal;
- Reduce the occurrence and environmental impacts associated with illegal dumping.

8.2.2 State Legislation, Regulations, and Guidelines for Disposal

This chapter provides an update of the County's waste disposal system, which is regulated by RCW 70.95 Solid Waste Management, WAC 173-350 Solid Waste Handling Standards, and WAC 173-351 Criteria for Municipal Solid Waste Landfills

8.2.3 Waste Disposal Statistics

As population growth occurs in the towns, cities, and unincorporated areas of Yakima County, the total tonnage of solid waste also increases. Table 8-1 summarizes the quantities of solid waste (excluding yard debris and construction/demolition debris) received at the three County-operated disposal facilities in the last seven years. From 2001 to 2007, solid waste tonnage increased by 16%, or an average of 2.5% per year. In 2008, Yakima County's tonnage decreased by 5%, largely as a result of the slowing economy.

When forecasting solid waste tonnages, it is sometimes preferable to estimate either higher or lower than the number predicted by population growth and historical waste generation patterns. When planning for the construction and operation of solid waste facilities such a transfer stations and landfills, it is prudent to project higher tonnages. This helps ensure that adequate waste-handling capacity is in place when it is needed. Conversely, when estimating revenues from tipping fees, it may be prudent to project lower tonnages, as this tends to underestimate revenues somewhat. If tonnages and revenues do in fact turn out to be low (by historical standards), this method helps reduce the size of rate increase that may be needed to meet revenue projections. To be conservative, it was decided to use lower tonnage estimates in this Plan.

The impact of the economic slowdown is reflected in the actual 2008 tonnage and in the amount projected for 2009 (Table 8-1). These are similar to the tonnages experienced in 2003 and 2004, but once the economy recovers, tonnages will probably grow at least as quickly as they did in the 2003-2007 period. It should be noted that to be conservative, these lower tonnages were also used in the solid waste rate model (Yakima County 2008b) to project revenues from tipping fees. The national economic stimulus plan that began implementation in 2009 will eventually cause more solid waste to be generated during the economic recovery.

Table 8-1
Solid Waste Received at County Facilities (tons per year)

Year	Terrace Heights Landfill	Cheyne Landfill	Lower Valley Transfer Station*	Total
2001	152,275	20,787	40,013	213,075
2002	157,189	22,902	39,778	219,868
2003	163,176	26,525	39,881	230,303
2004	166,284	27,862	40,685	234,831
2005	167,881	39,540	30,618	238,038
2006	175,892	33,539	39,062	248,493
2007	173,445	36,867	37,049	247,361
2008	164,292	32,721	37,970	234,983
2009 (projected)	162,544	34,641	37,816	235,000

*Lower Valley Transfer Station municipal solid waste is disposed of at Cheyne Landfill.

8.3 EXISTING PROGRAM ELEMENTS

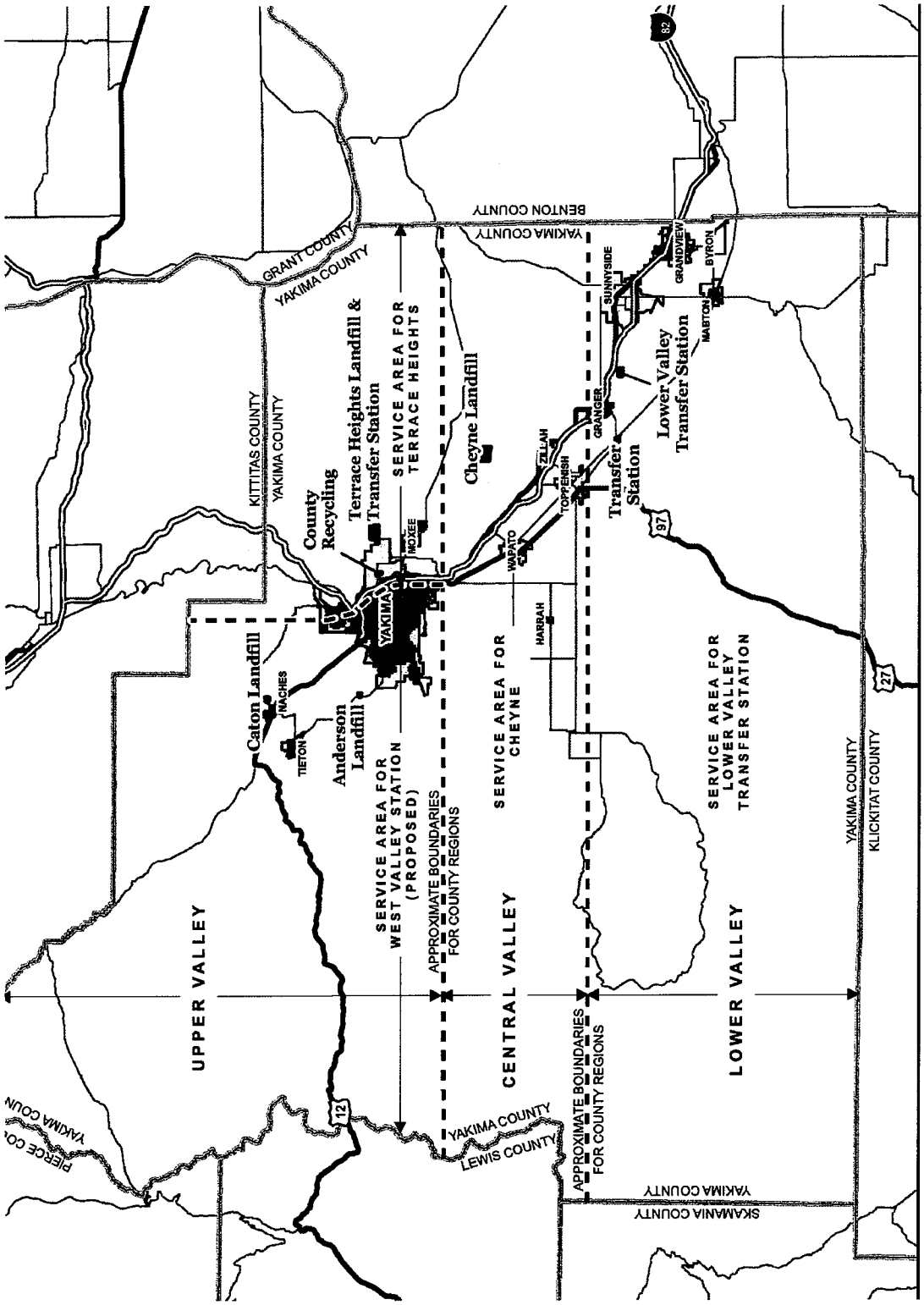
Currently operating landfills in Yakima County are show in Figure 8-1 on the following page.

8.3.1 Terrace Heights Landfill

Located about six miles east of the City of Yakima, the Terrace Heights Landfill (THLF) began operations in 1972. It does not have a bottom liner. Principal users include the cities of Selah, Moxee, Union Gap, and Yakima; the towns of Tieton and Naches; Yakima Waste Systems; agricultural, construction, and food processing firms, self-haul businesses, and residential households. Commercial and municipal garbage trucks unload at the working face of the landfill. For safety reasons, self-haulers unload inside the on-site Terrace Heights Transfer Station building; the waste is then moved in transfer trailers to the working face.

Since 2001, THLF has disposed of approximately 70% of the total solid waste received at the three County facilities. Recent estimates indicate that Phase 1 of THLF will reach capacity in about 2020 (Yakima County 2009d). Phase 2 is estimated to reach capacity in 2026, but Yakima County may choose to reserve this for emergency use (see Alternative B in subsection 8.6.1). The actual timing of closure will be affected by waste generation, recycling, and disposal rates, as well as landfill operations and design factors.

Figure 8-1
Yakima County Solid Waste Sites



8.3.2 Cheyne Landfill

Located about six miles north of the City of Zillah, the Cheyne Landfill (CLF) began operations in 1972. Principal users include the cities of Zillah, Toppenish, Wapato, Granger, Sunnyside, Grandview, Harrah and Mabton; Yakima Waste Systems; agricultural, construction, and food processing firms, self-haul businesses, and residential households. In recent years, the Cheyne Landfill (CLF) has accepted for disposal about 30% of all municipal solid waste received at County facilities. The unlined landfill Cell 1 is expected to reach capacity in 2011. Combined with the anticipated closure of THLF, it will be necessary to develop a new waste cell (Cell 2) at CLF so that the County can continue to provide long-term waste disposal at a landfill controlled and operated by the County. In May 2008, the County Solid Waste Division submitted a solid waste permit application for development of Cell 2. The desired Cell 2 expansion is consistent with the 2003 Plan and is one of several expansions envisioned for the 960-acre property.

Beginning in 2010, the development of Cell 2 would take place in three phases, each expected to hold at least five years' worth of waste. It is currently anticipated that the third phase of Cell 2 would be full in 2033, concurrent with the opening of Cell 3. Cell 2 is expected to hold 13.2 million cubic yards (about 6.4 million tons) of waste on about a 75-acre footprint. Associated facilities such as a soil stockpile, access roads, upgraded scales, a residential self-haul drop-off area, an employee breakroom, and an equipment building would occupy an additional 106 acres.

In November 2008, the Yakima Health District approved the Solid Waste Operating Permit for Cell 2. The Hearing Examiner approved the Conditional Use Permit in December 2008. In August 2009 the County received approval of its New Source Review (NSR) permit application from the Yakima Regional Clean Air Agency for the Cell 2 expansion of CLF, including a septage lagoon. Per 40 CFR 60.752, CLF will eventually require a Title V air permit for the entire site and an NSR permit for construction of a landfill gas collection and control system.

8.3.3 Other Landfills

The Anderson Landfill in Yakima and Caton Limited Purpose Landfill in Naches are privately owned and operated, limited purpose, C&D landfills that are open to the public. The Asphalt & Gravel Products Landfill in Granger no longer accepts waste; construction of the site closure is continuing in 2009. In addition, the Yakima Training Center in Yakima operates a limited purpose landfill, but it is restricted to military use only. These landfills are discussed in Chapter 9 – Construction, Demolition and Landclearing Debris and Green Building Practices.

8.3.4 Closed Landfills

There are 25 closed or abandoned disposal sites in Yakima County. The Selah Dump, sometimes called the Selah Landfill, is included on Ecology's Hazardous Sites List. The site originally had a ranking of 5, indicative of the lowest assessed risk, but Ecology revised its Hazardous Sites List and raised the Selah Dump's ranking to 3 in July 2004, which reflects a higher assessed risk (Smith 2008).

8.3.4 Waste Import

In accordance with Resolution 520-1994, disposal facilities operated by the County (i.e. THLF and CLF) are not allowed to accept out-of-county solid waste. However, the two private landfills, Caton Limited Purpose Landfill and Anderson Landfill, do accept out-of-county wastes.

8.3.5 Waste Export

Biomedical and pathological wastes are typically generated by hospitals, medical clinics, dental offices, and nursing homes and regulated under chapter 70.95K RCW. Stericycle, Inc., a publicly traded firm, collects these wastes in Yakima County. Due to privacy considerations, Stericycle does not provide more detailed information about where these wastes are generated. Stericycle exports pathological and trace chemotherapy waste to its facility in Salt Lake City, Utah for destruction via incineration. The other biomedical wastes are sent to its facility in Morton, Washington for autoclave heat treatment (Stericycle 2008).

8.4 STATUS OF 2003 RECOMMENDATIONS

The status of the recommendations made by the 2003 Plan is shown in Table 8-2.

Table 8-2
Status of 2003 Recommendations for Disposal

Recommendations	Status
Chapter 6: Waste Import and Export	
Explore the possibility of a County-operated regional landfill to be included in Plan 2015.	Done
Chapter 7: Municipal Solid Waste Landfill and Resource Recovery	
Expand Cheyne landfill as the long-term disposal site for Yakima County solid waste.	Ongoing
Periodically update the remaining capacity estimates for the landfills and document changes in the landfill surface topography.	Done
Annually review and revise, if appropriate, closure cost estimates with current costs and review closure implementation schedules to verify that the closure funds are adequate.	Done
Continue operations at Terrace Heights Landfill until capacity is reached.	Ongoing
Research new potential landfill sites.	Ongoing

8.5 PLANNING ISSUES

8.5.1 Climate Action Response

Landfill gas (LFG) generated by decomposing garbage can contain up to about 50% methane, a powerful greenhouse gas (GHG). If the methane is not captured and destroyed, it could eventually escape from the landfill into the atmosphere and contribute to global climate change. Some landfills utilize a system of perforated pipes operating under vacuum to collect LFG as it is generated. In some locations, the LFG is combusted in a reciprocating engine, gas turbine, or

steam boiler, which in turn drives an electrical generator. These combustion processes generate carbon dioxide, a less potent GHG. At most landfills, however, LFG is merely burned in a flare to destroy flammable, odorous, and toxic compounds, venting carbon dioxide to the atmosphere.

Per 40 CFR 60.752, CLF will eventually require a Title V air permit for the entire site and an NSR permit for construction of a landfill gas collection and control system.

The Terrace Heights Landfill already has an active LFG control system, installed to prevent LFG migration at the property boundary.

The Beyond Waste Implementation Working Group (BWIWG) of the 2008 Climate Action Team is currently developing specific recommendations that may be enacted into State legislation in a future session. The BWIWG may make recommendations that could require the collection and treatment of LFG. It is unknown at this time how these recommendations could affect the County's landfills.

8.5.2 Future Landfill Capacity

Data from Ecology indicates that in terms of tons of MSW disposed in 2006, THLF ranked #5 and Cheyne Road ranked #9 in the state. Once Phase 1 of THLF reaches capacity, Cheyne could receive the fifth largest MSW volume in the state. This landfill capacity represents a valuable asset owned by Yakima County and should be preserved through prudent landfill operation and waste management policies. When the capacity is finally utilized, it should be in ways that provide economic and environmental benefits to the citizens of Yakima County. Some potential alternatives for accomplishing this are discussed in Section 8.6.

8.6 ALTERNATIVE STRATEGIES

8.6.1 Alternatives

Alternative A – Preserve Landfill Capacity at Terrace Heights

Once Phase 1 of THLF reaches capacity, there is room for a Phase 2 landfill development that could dispose of an additional 5 to 7 years' worth of MSW. THLF is conveniently located near the major population center of the county. It would be prudent to maintain the option to fill Phase 2 of THLF under certain circumstances: for example, if emergency conditions caused temporary closure of the Cheyne Landfill or if high fuel prices made hauling waste to CLF prohibitively expensive.

Alternative B – Provide for Future Landfilling Needs

Unused landfill capacity, also known as "airspace," is a valuable commodity that can be "banked" for use by future generations of Yakima citizens. As such, if property suitable for landfilling becomes available at an economically attractive price, it would be worthwhile for the County to consider either taking an option on the property, or make purchase it outright.

Characteristics of a suitable property include location either adjacent to an existing landfill or near a population center; appropriate size, shape, soils, and topography; suitable land use zoning; and absence of sensitive receptor neighbors.

Alternative C – Consider Conversion Technologies

Recently, the potential use of chemical/thermal processes to convert the organic portion of solid waste into energy and/or useful products has received considerable attention. These waste conversion technologies, including pyrolysis, gasification, anaerobic digestion, and ethanol fermentation, present the interesting possibility of producing energy with less environmental impact than traditional incineration or waste-to-energy.

There is limited experience in applying these conversion technologies to MSW in the United States. MSW is a highly variable mix of materials that is more difficult to process than more homogenous waste streams such as wood chips or certain industrial wastes. Technology vendors have proposed various projects and a few pilot projects are currently operating. To be considered seriously, waste conversion technologies will need a track record of successful full-scale projects that demonstrate economic feasibility through the sale of energy and/or byproducts. In addition, they must gain public acceptance, meet regulatory compliance and environmental protection standards, and demonstrate economic viability over the long-term. MSW conversion technologies continue to be considered for projects across the country. These bear watching, especially if the current volatility in oil prices continues.

Microbial decomposition of solid waste produces methane in the form of landfill gas (LFG). Because Yakima County's arid climate is less hospitable to these microbes, buried solid waste tends to produce less LFG than it would in the wetter climate of western Washington. Actually, one ton of waste theoretically produces the same amount of LFG regardless of location, but gas production would be spread over a much longer time period due to arid conditions in Yakima County. Despite this obvious drawback, it may at some point be worthwhile considering beneficially using LFG to generate electricity rather than flaring it to control GHG emissions.

8.6.2 Evaluation of Alternative Strategies

Consistency with Planning Objectives

All three alternatives are consistent with the objectives of this solid waste plan.

Waste Reduction/Diversion Potential

Alternatives A and B will not divert material from landfill disposal, but could change which County-operated landfill would receive the waste. Alternative C could potentially divert a large amount of waste from landfill disposal.

Customer Preferences

Not applicable.

Implementation Costs

The three alternatives take a wait-and-see approach so that the costs are negligible. The cost of actually implementing any of these alternatives will be unknown until a feasibility study is conducted incorporating the economic, regulatory, and political conditions in effect at that time.

Table 8-3
Summary Rating of the Disposal System Strategies

	Alternative	Consistency with Planning Objectives	Waste Reduction / Diversion Potential	Customer Preferences	Cost to Implement	Overall Rating
A	Preserve landfill capacity at THLF	H	none	not applicable	L	H
B	Provide for future landfilling needs	H	none	not applicable	L	H
C	Consider conversion technologies	H	H	not applicable	L	H

H - High M - Medium L - Low

8.7 RECOMMENDED ACTIONS

The following recommendations are being made for disposal programs:

D1) Maintain the option to preserve capacity at the Terrace Heights Landfill.

D2) Consider purchasing (or taking an option on) property suitable for landfilling purposes as land becomes available and as funds allow.

D3) Consider conversion technologies in the future, but only if these can be proven to be feasible and cost-effective.

CHAPTER 9 - CONSTRUCTION, DEMOLITION AND LAND CLEARING DEBRIS AND GREEN BUILDING PRACTICES

9.1 INTRODUCTION

This chapter discusses existing programs, identifies relevant planning issues, and evaluates alternative strategies for construction, demolition and land clearing debris (C&D), and also addresses "green building" methods.

9.2 BACKGROUND

Construction and demolition wastes contain those materials used in the construction process or that are present in the structure being demolished. Construction wastes include substantial amounts of wood scraps, drywall scraps, and excess concrete, as well as cardboard boxes and other packaging used to hold materials or products prior to installation. Demolition wastes typically contain substantial amounts of concrete, brick, wood, drywall and other materials. Land clearing debris (tree stumps, brush and soil) is often included with C&D wastes, but little of this is actually sent to disposal facilities.

Traditional construction practices focus primarily on constructing safe homes and other buildings as quickly and inexpensively as possible. "Green building" practices take these goals one step farther, by paying closer attention to the environmental and other impacts associated not only with the construction process but also with the end product (the energy and other demands of the finished house or other structure).

9.2.1 Goals and Objectives for C&D Wastes

Overall goals and objectives that apply to construction, demolition and landclearing debris and green building methods (see page 1-2 of this Plan) include:

- Ensure convenient and reliable services for managing solid waste materials.
- Promote the use of innovative and economical waste handling methods.
- Encourage the recovery of marketable resources from solid waste when economically feasible.
- Support the State's Beyond Waste goal to increase the use of green building methods.

9.2.2 State Legislation, Regulations, and Guidelines for C&D Wastes and Green Building Practices

Construction, demolition and landclearing waste is a solid waste resulting from the construction, renovation, and demolition of buildings, roads and other man-made structures. Washington State

Administrative Code (WAC 173-350-400) allows many types of construction and demolition wastes to be disposed in limited purpose landfills. In addition, State Law prohibits the open or unregulated burning of "treated wood, metal and construction debris."

Increasing the amount of green building practices is one of the five key initiatives identified in the State's Beyond Waste Plan. Green building is defined by the Beyond Waste plan as "design and construction practices that significantly reduce or eliminate the negative impact of buildings on the environment and occupants in five broad areas: sustainable site planning; conservation of materials and resources; energy efficiency and renewable energy; safeguarding water and water efficiency; and indoor air quality." The Beyond Waste Plan adopted a short-term goal of "dramatically increasing adoption of environmentally preferable building construction, operation and deconstruction practices throughout the state and the region." A separate long-term goal was also adopted, which is for "green building to be a mainstream and usual practice throughout the state."

The Beyond Waste Plan makes seven recommendations specifically for green building:

1. Coordinate and facilitate partnerships to implement the green building action plan.
2. Lead by example in state government.
3. Provide incentives that encourage green design, construction and deconstruction and begin removing disincentives.
4. Expand capacity and markets for reusing and recycling construction and demolition materials.
5. Provide and promote statewide residential green building programs.
6. Increase awareness, knowledge and access to green building resources.
7. Encourage innovative product design.

The State legislature passed the "Sham Recycling Bill" in 2005, requiring transporters of recyclable materials to register with the state, and requiring certain recycling facilities to notify the state before commencing operation. A new state rule, the Recyclable Materials Transporter and Facility Requirements (Ch. 173-345 WAC), was developed in response to this legislation. Although originally directed at C&D recycling issues, the new rule covers all types of recyclable materials (all materials that are designated as recyclable in this Plan). The new rule prohibits delivery of recyclable materials to transfer stations and landfills. The rule does not apply to several entities, including self-haulers, cities and city contractors, and charities.

9.3 EXISTING PROGRAM ELEMENTS

9.3.1 Green Building and Other C&D Programs

Construction and demolition wastes are generated by construction companies, homeowners and others. Large amounts of C&D wastes generated by construction companies and contractors are

more likely to be collected separately from normal garbage and brought to special disposal sites. Homeowners are more likely to bring small, mixed loads containing both C&D and garbage to County disposal facilities.

A few opportunities exist in Yakima County for recycling or reusing C&D wastes:

- Metals can be brought to one of several metal recycling businesses and the County disposal facilities.
- Clean wood waste can be brought to separate collection areas at the County disposal facilities.
- Hazardous wastes related to C&D (oil-based paints, solvents, etc.) can be brought to the MRW facility at the Terrace Heights Landfill. Depending on the material and condition, some of the hazardous wastes may be reused or recycled.
- The Habitat for Humanity ReStore Shop and other non-profits accept reusable construction materials.
- Excess but usable construction materials are passed along for reuse through informal networks.

The ReStore is a division of Yakima Valley Partners/Habitat for Humanity. The ReStore acts as a fund-raising activity for the Habitat for Humanity by reselling new and used building materials that are donated to them. The ReStore handles a variety of materials, including doors, windows, hardware, cabinets, plumbing and electrical fixtures, lumber, and paint.

The Central Washington Built Green Association promotes green building to both their members and the general public. The web page for the Central Washington Built Green Association (www.builtgreencentral.org) provides information and online tools (such as checklists and buyers guides for homeowners and participation forms for members).

9.3.2 Processing Facilities

There are no C&D processing facilities in Yakima County at this time, although the ReStore does a small amount of sorting at its facility.

9.3.3 Disposal

Most of the area's C&D wastes are brought to one of two limited purpose landfills (Anderson Landfill or Caton Limited Purpose Landfill). These landfills currently charge $5 to $8 per cubic yard of waste. Until recently, there was also a third limited purpose landfill (Asphalt and Gravel Products, located in the Lower Valley area), but this landfill closed in 2008. Another facility in the Lower Valley area, Alba Excavating in Grandview, has recently accepted small amounts of concrete and asphalt. There is also a limited purpose landfill operated by the Yakima Training Center, but this is for military use only. The tonnages handled by these facilities in 2007 are shown in Table 9-1.

Table 9-1
C&D Disposal Facilities, 2007 Tons

Facility	Amount Disposed, 2007 Tons	Status
Anderson Landfill, Yakima	108,615	Open to the public
Asphalt & Gravel Products, Granger	25,096	Closed early 2008
Caton Limited Purpose Landfill, Naches	23,185	Open to the public
Yakima Training Center, Yakima	338	Operated by the military, not open to the public
Total	**157,234 tons**	

9.4 STATUS OF 2003 RECOMMENDATIONS

The status of the recommendations made by the previous solid waste management plan (Yakima County 2003b) for C&D wastes is shown in Table 9-2.

Table 9-2
Status of 2003 Recommendations for C&D Wastes

Recommendations	Status
Chapter 3: Waste Reduction, Recycling and Composting	
Market Development:	
Provide targeted assistance to establish and/or maintain the viability of local market for recyclable materials. Focus assistance on materials where local (or regional) markets can effectively handle materials collected from Yakima County. Such materials include yard waste, compost, green chop, mixed glass cullet, wood waste, wood chips, **concrete/aggregate, and reusable building materials**. Program activities could consist of (1) assessments of the feasibility of local market development initiatives, (2) technical assistance to private sector processors and end users (3) government procurement of recycled content goods, and (4) "buy recycled" campaigns, demonstration projects, and other promotion initiatives aimed at stimulating demand for recycled materials sourced from local markets.	Ongoing
Consider providing targeted assistance to **increase recycling of C&D** materials with a focus on market development initiatives. For example, helping to establish viable markets for reused building materials has proven to be a viable means of increasing C&D diversion.	Not currently being done due to staff limitation
Chapter 8: Construction, Demolition, and Landclearing Debris and Special Wastes	
Investigate source separation of **CDL debris** at work sites and recycling enhancements at County landfills. Enhance education at County and municipal permitting stations to encourage work site recycling opportunities for CDL debris.	Ongoing
Explore new markets for **CDL** and special wastes.	Ongoing

9.5 PLANNING ISSUES

Recycling and reuse alternatives cannot easily compete with the inexpensive disposal options provided by local landfills (both C&D landfills and the County facilities).

The recent closure of a limited purpose landfill in the Lower Valley area has left that area (and part of adjacent Benton County) without an inexpensive disposal option for C&D wastes.

9.6 ALTERNATIVE STRATEGIES

9.6.1 Alternatives

Potential alternatives for C&D waste include increased recycling and reuse, green building practices, new disposal options and other alternatives.

Alternative A – Promote Green Building Activities

Existing opportunities in Yakima County for green building could be promoted more extensively, such as the ReStore, deconstruction options, the use of recycled materials, and the use of more energy-efficient materials. Efforts to promote green building practices could be increased with cooperation from private and non-profit activities. One method for promoting green building is through the use of a portable model house that can be exhibited at fairs and other venues, and this type of exhibit is under development by Yakima County. Yakima County currently has a greenbuilt greenhouse located at the arboretum to promote green building.

Alternative B – Recycling of Mixed C&D Wastes

There are currently few opportunities in Yakima County for C&D recycling, although specific types of C&D materials (such as clean wood, cardboard, metals, and reusable building materials) can be diverted to various recovery operations. In general, reuse and recycling options for C&D wastes could include:

Salvage for on-site and off-site reuse: This option generally applies to demolition projects, although a small amount of reusable materials and products are also generated at construction sites. To be effective, salvaging requires pre-demolition removal of reusable materials and hence requires some additional time and steps in a project's schedule. Off-site reuse can be accomplished through a variety of means, including reuse stores and private efforts.

On-site crushing and grinding for reuse and recycling: This generally applies to concrete and asphalt, which can be crushed to serve as road base or replace other basic materials, although in some cases wood and other materials can also be handled on-site.

Source-separation for off-site processing: Source separation at construction and demolition sites can allow recycling of wood, cardboard and other materials.

Mixed C&D processing off-site: This option would require a significant investment in one or more facilities that are properly equipped and operated to process and market C&D waste.

Central site for recycling and reuse: An ideal option could be a facility, or a series of local facilities, that combine reuse and recycling as appropriate for the material. These facilities could sell salvaged products (such as doors, windows, and cabinets), as well as crush or grind other materials (such as concrete and wood) for use as aggregate or hog fuel.

Collection depots at transfer and disposal facilities: Collection containers for reusable and/or recyclable C&D materials at solid waste facilities could allow these materials to be transferred to a central processing or salvage facility. Transportation costs can be a significant barrier, however, since the recovered materials typically have only a low monetary value.

Several of the above options are already occurring and could be simply be promoted and/or expanded.

Alternative C – Promote Proper Disposal of C&D Wastes

Promotion of proper disposal of C&D wastes, including disposal at private sites, could help reduce illegal dumping of these materials. The private sites offer a reasonable cost per cubic yard, making them a desirable disposal option for remodelers and businesses to use. Although they are privately run, it could be advantageous for the County to advertise the use of these sites through posters, mailers, inserts, phone messages or booths at fairs.

Alternative D – C&D Waste Disposal Site in the Lower Valley Area

The County could explore options for a new Lower Valley C&D site. The County could conduct a joint public-private project or find a way to encourage a private company to develop a site.

Alternative E – Increased Education about Dangerous Elements of C&D Wastes

Contractors and homeowners could probably benefit from more information about the potentially hazardous materials that can be uncovered during demolition activities. Information could include proper handling and disposal, as well as the potential health impacts. Disposers of C&D waste can most easily identify potential hazards if they separate their demolished waste. Others can learn about the hazards they are exposing themselves to with County-provided brochures. Contractors and homeowners could be given a brochure when they apply for a permit. Additional information on potential hazards and proper handling could be displayed in the permitting area of the County.

9.6.2 Evaluation of Alternative Strategies

Consistency With Planning Objectives

All of the alternative strategies support the objectives of convenient and reliable services for managing solid waste materials as well as promoting the use of economical waste handling

methods. In addition, the State's Beyond Waste goal of increasing the use of green building methods is met by the Alternatives A and B.

Waste Reduction / Diversion Potential

Alternative B, recycling of mixed C&D waste, would provide immediate diversion.

Customer Preferences

Waste generators prefer the least expensive option for C&D wastes. In some cases, they may perceive illegal dumping to be the least expensive option, but they will typically choose to dispose of C&D at approved sites when provided with adequate information about their options.

Implementation Costs

Alternatives A, C and E are the lowest cost alternatives. Alternatives B and D are the most expensive options, although Alternative D (a new disposal site in the Lower Valley area) would presumably pay for itself through tipping fees.

9.6.3 Rating of Alternatives

The alternatives are compared with respect to the evaluation criteria in Table 9-3.

Table 9-3
Summary Rating of the Alternative C&D and Green Building Strategies

	Alternative	Consistency with Planning Objectives	Waste Reduction / Diversion Potential	Customer Preferences	Cost to Implement	Overall Rating
A	Promote Green Building Activities	H	M	M	L	H
B	Recycling of Mixed C&D Waste	H	H	M	H	M
C	Promote Proper Disposal of C&D Wastes	H	M	M	L	M
D	C&D Waste Disposal Site in Lower Valley	H	M	L	M	M
E	Increased Education about Dangerous Element of C&D Waste	H	M	H	L	M

H - High M - Medium L - Low

9.7 RECOMMENDED ACTIONS

The following recommendations are being made for C&D programs:

C&D1) Promote green building where possible.

C&D2) Develop and maintain a "Green House" to demonstrate green building techniques and products.

C&D3) Encourage proper reuse, recycling and/or disposal of C&D.

CHAPTER 10 – SPECIAL WASTES

10.1 INTRODUCTION

This chapter discusses existing programs, identifies relevant planning issues, and develops and evaluates alternative strategies for the management of special wastes.

10.2 BACKGROUND

Special wastes have some similarities to "normal" municipal solid waste and can be managed in a similar fashion, but with some additional precautions or special handling procedures. Improperly handled special wastes can pose elevated risks to the environment or human health and safety. For the most part, special wastes can be handled by the existing solid waste infrastructure and programs. This chapter addresses the more significant special wastes:

- Agricultural waste
- Animal carcasses
- Appliances
- Asbestos
- Biomedical/infectious waste
- Electronic waste
- Junk vehicles
- Petroleum contaminated soils
- Pharmaceuticals
- Street sweepings/vactor waste
- Tires
- Miscellaneous

10.2.1 Goals and Objectives for Special Wastes

The objectives of this Plan related to special wastes include:

- Ensure convenient and reliable services for managing solid waste materials;
- Promote the use of innovative and economical waste handling methods;
- Reduce the environmental impacts to air, water, and land that are associated with waste generation, transportation, handling, recycling, and disposal;
- Reduce the occurrence and environmental impacts associated with illegal dumping;
- Ensure compliance with state and local solid and moderate risk waste regulations.

10.2.2 Overview

Each type of special waste is governed by slightly different regulations, based on its physical and chemical characteristics and the degree of environmental, health, or safety risk that it poses. The County has established a set of Solid Waste Policy & Procedures (Yakima County 2009c) to address the acceptance of special wastes for disposal at County-owned waste facilities. These policies also cover miscellaneous materials (e.g. barrels and pallets) besides the major types of special wastes described below. The following sections of this chapter describe current programs, regulations, guidelines, and planning issues for each type of special waste.

10.3 AGRICULTURAL WASTE

10.3.1 Regulations and Guidelines

WAC 173-350-100 defines agricultural wastes as "wastes on farms resulting from the raising or growing of plants and animals including, but not limited to, crop residue, manure and animal bedding, and carcasses of dead animals weighing each or collectively in excess of fifteen pounds." WAC 173-350-230 addresses land application, the beneficial use of solid waste applied to land for its agronomic value or soil-amending capability.

10.3.2 Current Practice

As defined above, agricultural wastes are already covered in other parts of this Plan. Vegetative matter is discussed more fully in Chapter 5 – Organics, and animal carcasses are addressed below in section 10.4. In addition, empty pesticide and herbicide containers are discussed in Chapter 12 – Moderate Risk Wastes.

10.3.3 Planning Issues

Current agricultural waste management and disposal practices are generally adequate. Most of the potential wastes from agricultural operations are being composted or returned directly to the land (Yakima County 2009a).

10.4 ANIMAL CARCASSES

10.4.1 Regulations and Guidelines

Washington State is currently formulating a new policy for animal carcasses (Soelter 2009). There are three classes of animal carcasses, each with differing disposal requirements:

1. Animals that die of natural causes (but not an infectious disease) can be buried on site (typically on a farm) in accordance with Health District regulations, taken to a rendering facility such as Baker Commodities in Spokane, or taken to a landfill.

2. Animals killed by collision with motor vehicles ("road kill") can be landfilled. As a more economical alternative to paying landfill tipping fees, Washington's Department of Transportation established a carcass composting facility near Colville in Stevens County.

3. The carcasses of animals that die from an infectious disease must be treated to destroy the disease-causing agent to prevent it from infecting other animals or humans.

10.4.2 Current Practice

The County's Policy & Procedures for animals can be summarized as follows:

- Animal carcasses are accepted at the Terrace Heights Landfill (THLF) and at Cheyne Landfill (CLF). The Lower Valley Transfer Station (LVTS) accepts small animals, such as cats, dogs and goats, but the Terrace Heights Transfer Station (THTS) currently does not accept animals. When THLF closes, THTS will accept small animals.
- County facilities do not accept diseased animals or animals preserved in formaldehyde.
- Animal parts must be double-bagged.
- Customers disposing of more than five animals must complete a load certification.
- Customers are charged the same rate as for garbage disposal, as well as a special handling fee if carcasses need to be buried immediately.
- Customers wishing to dispose of infectious diseased animals are directed to the Roosevelt Regional Landfill in Roosevelt, Washington.

10.4.3 Planning Issues

Because they can potentially infect humans, two of the most important animal diseases are Bovine Spongiform Encephalopathy (BSE) and avian flu.

BSE, more commonly known as mad cow disease, BSE belongs to a family of incurable and fatal diseases characterized by dementia and caused by prions, which are a type of mutated protein. It is believed that humans can contract a similar disease by eating infected beef.

BSE-infected cattle cannot be buried in an unlined landfill such as THLF or CLF: because prions are not destroyed when the waste decomposes, they could eventually migrate to sources of drinking water. In addition, BSE-infected cattle cannot be disposed in a landfill whose leachate goes to a sewage treatment plant, because chlorination does not deactivate prions either. In 2004, BSE-infected cattle were disposed of in the Rabanco Regional Landfill near Roosevelt, Washington, which was chosen because it treats its leachate in evaporation ponds. Solids remaining after leachate evaporation are eventually returned to the landfill, thus preventing prions from reaching groundwater or surface water bodies.

Incineration is also an accepted method of BSE-cow disposal, although there are only two potentially suitable incineration facilities in Washington State. The Spokane municipal solid

waste incinerator has historically been unwilling to accept BSE-infected cattle. The biomedical/pathological waste incinerator at Washington State University in Pullman has limited capacity, and could not accept large numbers of cattle.

Avian flu is caused by bird influenza viruses. Wild birds carry these viruses without getting sick, but domesticated poultry (chickens, ducks, and turkeys) can be killed. Since 1997, avian influenza H5N1 has infected and killed humans who had close contact with infected poultry. There is concern that the H5N1 virus could mutate and eventually acquire the ability to spread easily from one person to another, without birds as the carrier. Humans have little natural immunity protection against avian flu viruses. It is believed that a highly pathogenic avian influenza virus that jumped from birds to humans was the cause of an influenza pandemic (worldwide outbreak of disease) in 1918.

On-site composting has been proven to be an effective mass disposal method for dead poultry, as the avian influenza virus is deactivated after 10 days of composting at 60° C (140 ° F). A detailed composting methodology was developed by the University of Maryland Cooperative Extension for the U.S. Department of Agriculture (Tablante, N. et al. 2006). The technique involves layering birds and litter (straw, hay, sawdust) in a long pile known as a windrow, using a small bucket loader. The composting process can be completed in about a month and the compost product is suitable for land spreading. A major advantage of composting is that it can be accomplished onsite, avoiding the need to transport large quantities of infectious waste material to a treatment site. Washington State University in Pullman operates a composting facility that composts vegetative wastes as well as some normal mortality animals from University sources. It is possible that in an emergency, this facility could potentially accept carcasses from non-university sources.

10.5 APPLIANCES

10.5.1 Regulations and Guidelines

Major appliances, also known as white goods, are considered to be a special waste because their size makes it difficult to handle them in the "normal" garbage collection system, and because some types of appliances contain chlorofluorocarbons (CFCs, or "Freon") that must be removed prior to disposal. On the federal level, the Clean Air Act prohibits the release of CFCs, and state law (RCW 70.94, the Washington Clean Air Act) also requires that CFCs be handled in a manner that prevents their release into the atmosphere. Furthermore, CFCs and hydrochlorofluoro-carbons (HCFCs) are designated as dangerous wastes under Chapter 173-303 WAC, although they are exempt from these rules if recycled properly.

10.5.2 Current Practice

White goods are composed mainly of steel, copper, plastic, and rubber, but are typically recycled as ferrous scrap metal. As a service to customers, some appliance dealers recycle the old appliance when they deliver the new one. The haulers and the City of Yakima also pick up white goods and other bulky items through "call to haul" programs. White goods are accepted for a fee

at THLF, CLF, THTS, LVTS, and Yakima Waste Systems' Granger transfer station. County staff removes the "Freon" refrigerants from refrigerators, freezers, air conditioners, and similar devices. Industrial-sized appliances must have Freon and oil removed prior to delivery at one of the disposal sites. The County contracts with a private firm to crush and bale white goods, which the County then recycles as ferrous scrap metal through a contract with a metals dealer. Some utilities also collect white goods.

10.5.3 Planning Issues

Current appliance/white goods management and disposal practices are generally adequate. However, scrap metal markets are volatile. In 2007 and early 2008, scrap metal prices were high and recycling of white goods was economically viable. In late 2008 and 2009, scrap metal prices plunged as worldwide economic conditions deteriorated, making the white goods recycling much less attractive.

10.6 ASBESTOS

10.6.1 Regulations and Guidelines

Asbestos is a naturally occurring crystalline material with excellent heat resistance, which made it useful for many fireproofing and insulation applications. Unfortunately, asbestos also breaks down into very small particles that float easily in air, and once inhaled these particles become lodged in a person's lungs and cause cancer. The cancer takes many years to develop, and so it was years before this problem was discovered and asbestos was in widespread use by that time. Its use has now been banned, but products and materials that contain asbestos can still be found in older buildings and other locations.

Several federal laws address asbestos removal and disposal, including the Toxic Substances Control Act (TSCA), the Occupational Safety and Health Act (OSHA), the Clean Air Act, and the Clean Water Act. There are also several state laws that address asbestos through worker training and protection requirements as well as disposal rules under the Dangerous Waste Regulations (WAC 173-303).

10.6.2 Current Practice

Asbestos waste is currently accepted only at THLF and requires 24 hours' advance notice for disposal. Asbestos waste is placed in a marked area at the northern edge of the landfill. When THLF closes, the County will open a new area dedicated to asbestos at the CLF expansion.

10.6.3 Planning Issues

Current asbestos waste management and disposal practices are generally adequate.

10.7 BIOMEDICAL/INFECTIOUS WASTE

10.7.1 Regulations and Guidelines

The State's definition of biomedical waste (RCW 70.95K.010) preempts that of local health jurisdictions, and includes the following waste types:

Animal waste: animal carcasses, body parts and bedding of animals that are known to be infected with, or have been inoculated with, pathogenic microorganisms infectious to humans.

Biosafety level 4 disease waste: contaminated with blood, excretions, exudates, or secretions from humans or animals who are isolated to protect others from highly communicable infectious disease that are identified as pathogenic organisms assigned to biosafety level 4 by the Center for Disease Control (CDC).

Cultures and stocks: wastes infectious to humans, including specimen cultures, cultures and stocks of etiologic agents, wastes from production of biologicals and serums, discarded live and attenuated vaccines, and laboratory waste that has come into contact with cultures and stocks of etiologic agents or blood specimens. Such waste includes, but is not limited to, culture dishes, blood specimen tubes, and devices used to transfer and inoculate cultures.

Human blood and blood products: discarded waste human blood and blood components, and materials containing free flowing blood and blood products.

Pathological waste: human source biopsy materials, tissues, and anatomical parts that emanate from surgery, obstetrical procedures and autopsy. Does not include teeth, human corpses, remains and anatomical parts that are intended for internment or cremation.

Sharps: all hypodermic needles, syringes and IV tubing with needles attached, scalpel blades, and lancets that have been removed from the original sterile package.

The Washington State Utilities and Transportation Commission (WUTC) regulates transporters of biomedical wastes. Its regulations also allow regular solid waste haulers to refuse to haul wastes that they observe to contain infectious wastes as defined by the WUTC. The WUTC has issued a statewide certificate to Stericycle to transport biomedical wastes.

The list of potential generators of biomedical waste includes medical and dental practices, hospitals and clinics, veterinary clinics, farms and ranches, as well as individual residences. Some of these may not always dispose of biomedical wastes properly. There is no definitive estimate of the quantity of syringes and other biomedical wastes that are improperly disposed locally, but haulers in other areas often report seeing syringes sticking out of garbage bags. This problem is expected to increase due to an aging population and additional medications that have recently become available for home use (for HIV, arthritis, osteoporosis and psoriasis).

10.7.2 Current Practice

Stericycle, Inc. collects biomedical/infectious wastes in Yakima County. Due to privacy considerations, Stericycle does not provide detailed information about where these wastes are generated. It sends pathological and trace chemotherapy waste to its incineration facility in Salt Lake City, Utah. The other biomedical wastes are sent to its facility in Morton, Washington for autoclave heat treatment (Stericycle 2008).

Terrace Heights Landfill and Cheyne Landfill currently accept red bag medical waste and sharps. Medical waste must be pre-approved prior to acceptance, and must be double bagged and marked with the universal biohazard symbol. Sharps must be placed in either a sharps container or in a plastic pop or milk jug with a lid and properly labeled.

10.7.3 Planning Issues

Current biomedical/infectious waste management and disposal practices are generally adequate.

10.8 ELECTRONIC WASTE

10.8.1 Regulations and Guidelines

Electronic products contain heavy metals and other chemicals at hazardous levels that make them difficult to dispose of safely. In 2006, the legislature passed the Electronic Product Recycling law (Chapter 70.95N RCW) that required manufacturers of computers, monitors, laptops and portable computers to provide recycling services throughout the state at no cost to households, small businesses, small local governments, charities and school districts. The legislature determined the need for a system that encouraged the design of electronic products that are less toxic and more recyclable. Furthermore, the responsibility for this system must be shared among all stakeholders, with manufacturers financing the collection, transportation, and recycling system. Ecology was required to create administrative rules to implement the new law. Ecology requires manufacturers to register, pay an annual administrative fee to cover the agency's costs and brand their products sold in Washington. The law also prescribes the enforcement process and associated penalties for non-compliance.

10.8.2 Current Practice

Beginning January 1, 2009, recycling of certain electronic products became available throughout Washington at no cost to households, small businesses, charities, school districts, small governments, and special purpose districts. Televisions, desktop computers, laptop computers, and monitors are covered, but peripherals such as keyboards, mice, and printers are not. This *E-Cycle Washington* program, established and overseen by the Washington Materials Management & Financing Authority (WMMFA), is unique in that it is entirely manufacturer-funded. The WMMFA will also implement a focused public education effort for *E-Cycle Washington.*

Over 200 collection sites were established, serving every Washington County and those cities

with a population of 10,000 or more. In the first month, almost two million pounds of televisions, one million pounds of computer monitors, and 280,000 pounds of computers were collected. Names and locations of collection sites can be obtained by calling 1-800-RECYCLE or going to www.ecyclewashington.org.

County-owned solid waste disposal sites accept up to five electronic units from households for disposal. Electronic wastes from businesses are not accepted due to State regulations prohibiting the disposal of dangerous waste in the landfills.

10.8.3 Planning Issues

After the initial surge of electronics that consumers have stockpiled, it is anticipated that volumes will stabilize. Industry groups and/or the state of Washington may be motivated to expand the take-back program to include other electronic items such as cell phones and stereo equipment, but this is unlikely to occur immediately due to the current state of the economy.

10.9 JUNK VEHICLES

10.9.1 Regulations and Guidelines

RCW 70.93.060 prohibits the abandonment of junk vehicles upon any property located in an unincorporated area of a county. Abandoned vehicles are also regulated under RCW 46.55, which establishes rules for removal and disposal of junk vehicles. If a junk vehicle is abandoned in violation of RCW 70.93.060, RCW 46.55.230 governs the vehicle's removal, disposal, and sale, and penalties that may be imposed against the registered owner of the vehicle.

10.9.2 Current Practice

Several recycling facilities in Yakima County provide collection and processing services for auto bodies. After fluids are removed, the auto bodies are crushed and transported out of Yakima County for recycling as ferrous scrap metal.

10.9.3 Planning Issues

Current junk vehicle waste management and disposal practices are generally adequate.

10.10 PETROLEUM CONTAMINATED SOILS

10.10.1 Regulations and Guidelines

Petroleum contaminated soils contain fuel oil, gasoline or other volatile hydrocarbons in concentrations below dangerous waste levels, but greater than cleanup levels established by Ecology. Small amounts of PCS may be disposed of as a solid waste in an approved landfill. Depending on the contamination levels, large amounts may need to be treated by a process that

removes or destroys the contamination. Treatment processes include aeration, bioremediation, thermal stripping and incineration.

Aeration of the soils during treatment exhausts volatile organic compounds including potential toxic air pollutants such as benzene into the atmosphere. Emissions of volatile organic compounds are regulated by the Yakima Regional Clean Air Agency.

10.10.2 Current Practice

Anderson Rock and Demolition Pits, a private company, is permitted by the Health District to receive and treat PCS.

10.10.3 Planning Issues

Current petroleum-contaminated soils waste management and disposal practices are generally adequate.

10.11 PHARMACEUTICALS

10.11.1 Regulations and Guidelines

Two types of material are of interest: 1) controlled substances (prescription drugs and illegal drugs) and 2) over-the-counter, non-prescription substances (e.g. aspirin, vitamins, other health supplements, cold medicines, etc.). Controlled substances are covered by their own regulations, which do not address disposal other than to prevent their re-use. Over-the-counter substances are not specifically addressed by solid waste regulations.

10.11.2 Current Practice

Law enforcement officials occasionally need to dispose of quantities of controlled substances and illegal drugs. This is typically accomplished at landfills or incinerators under conditions of increased security and secrecy.

Disposal of unused or outdated prescription and non-prescription substances occurs in an informal and inconsistent fashion. Historically, people have been told to flush unwanted prescription drugs and other medicines down the toilet. However, some of these compounds are only partially broken down (if at all) in wastewater treatment plants, and eventually show up as contaminants in ground and surface waters. Hence, people are currently being encouraged to dispose of these in their trash as solid waste. However, in most cases landfill leachate is sent to a wastewater treatment plant, which may in turn allow these compounds to escape into surface waters. Retail outlets may return outdated prescription/non-prescription substances to the manufacturer, and some may be disposed of with the trash.

10.11.3 Planning Issues

Current waste management and disposal practices for controlled substances and illegal drugs are generally adequate.

The 2008-2009 legislative session considered a new piece of legislation for pharmaceuticals (HB 1165, the Secure Medicine Return Bill). This act, which would have provided for safe collection and disposal of unwanted drugs from residential sources through a product stewardship program, did not pass but may be considered again in the future.

10.12 STREET SWEEPINGS/VACTOR WASTE

10.12.1 Regulations and Guidelines

Street sweepings and vactor wastes may be contaminated with a variety of materials, depending on the locale, unauthorized or accidental discharges, and frequency of cleaning. Both street sweepings and vactor waste may contain small amounts of petroleum hydrocarbons from motor oil that leaks from vehicles traveling on public streets. Ecology issued a draft document in July 1995 dealing with best management practices for street sweepings (Ecology 1995), and this document recommends in favor of testing street sweepings prior to management by reuse, recycling, or disposal. Currently, vactor wastes can be classified as clean fill, solid waste, or dangerous wastes, depending upon the level of contamination.

10.12.2 Current Practice

Street sweepings consist of sand, gravel, rocks, leaves, and smaller amounts of litter (paper, plastic, metal and glass) that accumulate on streets and roads and are collected by street sweeping vehicles. Street sweepings are currently disposed of as solid waste at THLF and CLF, stockpiled by the municipalities, or handled at the City of Yakima's Wastewater Treatment Plant.

Vactor waste is the solid material that accumulates in catch basins (storm drains) that collect stormwater from streets, parking lots, and other paved areas. Vactor waste is similar to street sweepings except that it is generally wet. Vactor waste is collected by vacuum suction (vactor) trucks. Vactor waste is handled at the City of Yakima Wastewater Treatment Plant.

10.12.3 Planning Issues

Current waste management and disposal practices for street sweepings and vactor waste are generally adequate.

10.13 TIRES

10.13.1 Regulations and Guidelines

WAC 173-350-100 defines waste tires as any tires that are no longer suitable for their original intended purpose because of wear, damage or defect. WAC 173-350-350 imposes restrictions on outdoor piles of more than 800 tires.

10.13.2 Current Practice

Many tire shops and auto repair shops recycle the tires they replace (typically for a fee). Waste tires are also accepted at all County-run solid waste facilities for a fee. The County currently contracts with L&S Tires, who send the tires to Seattle for use as supplementary fuel in a cement kiln.

10.13.3 Planning Issues

Recycling and disposal practices for tires replaced by an automotive facility are generally adequate. The areas of primary concern are large tire stockpiles, loads of tires that are illegally dumped on public or private property, and small quantities of tires stored by residents and businesses for disposal at some indeterminate future date.

10.14 MISCELLANEOUS

The County's Policy & Procedures address the following miscellaneous items:

- Barrels
- Confidential material
- Creosote treated material
- Drums
- Electrical transformers
- Fluorescent tubes
- Liquid wastes, including septic tank and portable toilet waste
- Oil from restaurants
- Pallets
- Underground storage tanks
- Vehicles and major vehicle components; camp trailers, campers, boats, motorcycles, snowmobiles, utility trailers, pickups; mobile homes

The County's Policy & Procedures require that the following wastes be handled as household hazardous/moderate risk wastes:

- Paint (latex and oil-based)
- Pesticides and pesticide containers

- Propane containers and compressed gas cylinders
- Residential storage tanks
- Used motor oil

10.15 STATUS OF 2003 RECOMMENDATIONS

The status of the recommendations made in Chapter 8 of the previous solid waste management plan (Yakima County 2003b) is shown in Table 10-1.

Table 10-1
Status of 2003 Recommendations for Special Wastes

RECOMMENDATION	STATUS
Work with Yakima Health District staff and health professionals to determine the need for improved education materials, or methods of distribution for education materials, for biomedical waste.	Done
Continue current programs related to woodwaste, tire, appliances, asbestos, vehicle hulks, agricultural waste, and petroleum-contaminated soils.	Ongoing
Explore new markets for special wastes.	Ongoing

10.16 ALTERNATIVE STRATEGIES

10.16.1 Potential Alternatives

Collection programs may be required or desired in the future for materials that cannot be fully anticipated at this time. As these needs arise or are identified, options should be evaluated and feasible cost-effective solutions implemented as necessary. Possible steps that could be taken include:

- **Increased education**: additional education for generators who are the sources of the waste stream could be conducted to promote safe handling and disposal practices.
- **Cooperative response**: the current practice of cooperation between Yakima County, the Health District, and Ecology to address special waste issues as they arise could be continued.
- **Collection programs**: additional or new collection programs could be developed or existing ones expanded to include additional materials or sources.
- **Conduct a waste generator survey**: the Solid Waste Division or Public Health could conduct waste generator surveys to gather more information about types and amounts of specific wastes, barriers to proper handling and disposal practices, and other factors. A survey may be a necessary first step to developing new programs.

- **Increase enforcement**: increased enforcement activities and larger penalties could be implemented.
- **Product stewardship**: new product stewardship programs could be considered or supported to address specific waste materials.
- **Other steps**: other steps not anticipated at this time but appropriate to the waste could also be considered.

10.16.2 Evaluation of Alternative Strategies

For the most part, management practices for special wastes in Yakima County are adequate; tires are the primary exception. A wait-and-see approach to the potential alternative strategies listed above seems reasonable at this time.

10.17 RECOMMENDED ACTIONS

The following recommendations are being made for special wastes:

SP1) Support development and adoption by the State of Washington of a product stewardship program for tires.

SP2) Support new product stewardship programs as appropriate.

SP3) Continue to address special wastes through a cooperative effort with the Health District and Department of Ecology, and according to the established Solid Waste Division's Policy & Procedures. Update these Policy & Procedures as necessary to address new problems or special wastes.

CHAPTER 11 - DISASTER DEBRIS MANAGEMENT

11.1 INTRODUCTION

This chapter discusses existing programs, identifies relevant planning issues, and develops/evaluates alternative strategies for disaster debris management.

11.2 BACKGROUND

Natural and man-made disasters can result in a sudden surge of a large quantity of unanticipated debris. It is critical to clear this debris immediately after a disaster to allow emergency vehicles to respond to life-threatening situations. Once the debris is cleared from the right-of-way and vehicle access is achieved, the removal and disposal of debris are still critical to the community's recovery from a disaster.

Having a plan and being prepared to address the increased quantity and different types of debris can help to protect the health and safety of the community. Furthermore, successful implementation of the plan can have a positive effect on the speed and cost of recovery, and the ability to obtain outside financial assistance for the recovery efforts.

11.2.1 Goals and Objectives for Disaster Debris

The objectives of this Plan related to disaster debris include:

- Ensure convenient and reliable services for managing solid waste materials;
- Promote the use of innovative and economical waste handling methods;
- Reduce the environmental impacts to air, water, and land that are associated with waste generation, transportation, handling, recycling, and disposal;
- Reduce the occurrence and environmental impacts associated with illegal dumping;
- Ensure compliance with state and local solid and moderate risk waste regulations;

Because disaster debris has characteristics that make it similar to both MSW and C&D debris, the management techniques used for these wastes are also applicable to disaster debris. An achievable goal for this Plan is to provide guidance for developing a stand-alone disaster debris plan.

11.2.2 Legislation, Regulations, and Guidelines for Disaster Debris

Numerous resources that provide guidance for the development of disaster debris management plans are available. The United States Environmental Protection Agency (USEPA) in March 2008 developed *Planning for Natural Disaster Debris* (US EPA 2008) as a tool for local

communities to create such a plan. An older, but useful tool is the Federal Emergency Management Agency's (FEMA) *Public Assistance Debris Management Guide* (FEMA 1999). Both of these documents are available on line and provide guidance that could assist Yakima County in developing a disaster debris management plan.

11.3 EXISTING PROGRAM ELEMENTS

11.3.1 Disaster Debris Planning

Currently, the Yakima County Office of Emergency Management has a Comprehensive Emergency Management Program (CEMP) that addresses overall emergency response to disasters. The CEMP identifies the roles and responsibilities of governmental agencies including the Public Services Department, and touches briefly on clearing debris and demolition activities. The CEMP does not address issues beyond the initial removal of debris.

It is understandable that in an emergency, timely response, saving lives, and minimizing property damage are the primary goals. Following the initial response, the management of disaster debris becomes important. Some elements of a disaster debris plan are probably already in place; however, there is work to be done in compiling a comprehensive debris management plan that coordinates between emergency responders and County agencies that provide various services under more normal circumstances.

Developing a disaster debris management plan prior to an emergency will allow for a speedier response and recovery and assist in reducing the financial impact. This plan should supplement the CEMP by elaborating on debris clearance and demolition activities. It would also provide an opportunity to address other issues such as establishing and restoring temporary staging areas, identifying potential labor resources, identifying and planning for recycling and waste minimization opportunities, and identifying potentials for minimizing the cost of response and recovery.

11.3.2 Disaster Debris (Flood, Fire, Earthquake)

From 1995 to 2007, four federally declared disasters affected Yakima County (not including fire management assistance).

- Storms, high winds, and floods in November 1995.
- Severe storms and flooding (declared in Feb. 1996).
- Severe winter storm in 1997.
- Earthquake in March 2001.

Yakima County is historically at risk primarily for storm, fire, flood and earthquake disasters. However, wind-borne ash from the 1980 volcanic eruption of Mt. St. Helens affected the County as well. The following sections discuss the types of debris that could be generated by a disaster and the potential value of advance planning for such occurrences.

Table 11-1 summarizes the types of disasters most likely to occur in or near Yakima County and the types of debris that is likely to be generated. Evaluation of potential disasters and resultant debris can help the County prepare for disaster response and recovery.

Table 11-1
Potential Disasters and Resultant Debris

Debris \ Disaster→	Biodisaster / Epidemic	Earthquakes	Tornadoes	Floods	Wildfires	Winter Storms	Volcanoes
C&D Material: concrete, asphalt, metals, wallboard, bricks, glass, wood		XX	XX	X	X	X	
Personal Property: white goods, e-waste, furniture, other personal belongings		XX	XX	X	X		
Automobiles & boats		XX	X	X	X		
Vegetative Debris: trees, yard debris, woody debris			X	XX		XX	
Animal carcasses, bedding, manure, contaminated items	XX						
Displaced Sediments: sand, soil, rock, sediment		X		XX	X		
Mixed other debris		X	X	X	X		X

X = smaller quantity XX = significant quantity

Planning for debris management would enable the County to consider alternative debris management options in a systematic manner before for a natural disaster actually occurs. It is important that the County be adequately prepared so that disaster debris actions can be cost-effective and meet community concerns, which typically include:

- Public safety and hygiene
- Prioritizing response activities to target resources in an appropriate manner
- Minimal impact or disruption of normal solid waste services
- Cost-effective solutions
- Compliance with regulations governing specific waste streams such as asbestos and hazardous waste
- Availability of facilities permitted to accept specific waste streams
- Ability to recycle portions of the waste stream
- Eligibility for cost-recovery funds through FEMA or other government programs

11.3.3 Biodisaster Waste (Diseased Animals)

The first known case of Bovine Spongiform Encephalopathy (BSE, commonly known as mad cow disease) in the United States was diagnosed in a Yakima County cow in December 2003. At the time, neither Yakima County nor the State had a written plan for handling, treatment, or

disposal of BSE-infected carcasses. Ecology and public health officials quickly devised a method of disposal at the Roosevelt Regional Landfill in Klickitat County. This particular landfill was selected because its leachate is evaporated rather than sent to a sewage treatment plant, thus preventing the spread of the BSE infectious particles known as prions, which are not deactivated by the normal sewage treatment process.

Yakima County has a large population of farm animals. Growing public health concerns about BSE, avian flu, West Nile virus and other animal-transmitted diseases make it important and timely to develop policies and plans for handling diseased animal carcasses and wastes. This topic is addressed further in Chapter 10 Special Wastes.

11.3.4 Radioactivity Release

Yakima County's proximity to the Hanford Nuclear Reservation exposes it to a potential release of radioactive materials. Since almost any material existing in Yakima County could conceivably become contaminated with radioactivity, the quantity and variety of materials that require disposal could become overwhelming. A Yakima County disaster debris plan should begin to consider methods for identifying, handling, stockpiling, and disposing of materials contaminated with radioactivity.

11.3.5 Funding Sources

To date, no sources of funding for developing a debris management plan have been identified.

11.4 STATUS OF 2003 RECOMMENDATIONS

Because the 2003 *Yakima County Solid Waste Management Plan* did not specifically address disaster debris, there are no previous recommendations for this topic.

11.5 PLANNING ISSUES

A review of background information and existing program elements identified the following issues:

1. The existing CEMP does not specifically address the disposal of disaster debris.
2. Following a disaster, it is crucial that the operation of County solid waste facilities be restored to normal. The ability to receive, process, and dispose of solid waste is critical to public health.
3. Disaster debris should be managed in a manner that minimizes interference with operation of the municipal solid waste system.
4. The existing solid waste system may need to be modified or augmented to handle the addition of large quantities of disaster debris.

5. The existing regulations for disposal of diseased animal carcasses do not address large quantities of carcasses that could result from BSE or other diseases.
6. Procedures for effective communication, debris tracking, cost control, and waste diversion during a disaster have not been developed.
7. The recovery efforts following Hurricane Katrina indicate that the proper handling of household hazardous waste was an issue of concern.

11.6 ALTERNATIVE STRATEGIES

There are three potential alternatives for disaster debris management:

11.6.1 Alternative Strategies

Alternative A – No Action

This alternative requires no action. In the event of a disaster the CEMP would be used for guidance. Decisions would be made during a disaster concurrent with a determination of the extent of damage and possible options for addressing them.

Alternative B – Coordinate with the Yakima County CEMP

This alternative requires coordination with Yakima County Office of Emergency Management. A revised CEMP, with greater detail regarding debris removal and disposal activities, could provide better guidance for disaster debris management activities. Some critical decisions would have been made prior to the event along with critical lines of communication. This would allow for a quicker response and reduce the number of decisions that need to be made during a disaster while the extent of damage and possible options for addressing them were being assessed. Any revisions to the CEMP would best be done on the normal schedule for updating this document, which is updated every four years. The next update cycle is anticipated to begin in mid-2010 for an updated plan to be completed in 2011.

Alternative C – Develop a Disaster Debris Management Plan

This alternative would require the Yakima County Solid Waste Division to develop a separate disaster debris management plan. In this case, both the CEMP and a solid waste disaster debris management plan together would be used for guidance in the event of a disaster. A separate plan could provide the detail for critical lines of communication specific to debris management activities, identify disasters that would most likely impact the solid waste system, the type of debris that would be generated from each one, address the need for temporary staging areas including potential locations, contain forms and brochures that could be easily modified for use in such an event, and have identified reuse/recycle activities that would minimize disposal at landfills. The level of detail for this plan could range from simple plans consisting largely of checklists and an outline of procedures to more complex plans that would be approved by FEMA.

11.6.2 Evaluation of Alternatives

The alternatives are compared with respect to the following evaluation criteria. The criteria include consistency with planning objectives, waste reduction and diversion potential, customer's preferences, and implementation costs.

Consistency With Planning Objectives

Alternative A is not consistent with the County's objectives, as it does not emphasize waste reduction as a fundamental management strategy.

Alternative B is consistent with the County's objectives, as it would identify locations for potential temporary storage facilities and processes for establishing and closing them, which would reduce potential environmental impacts due to a disaster.

Alternative C can address many of the County's objectives such as:

1. *Keep pace with the region's population and economic growth.* In planning for disaster debris and identifying waste diversion and recycling opportunities and the capacity for landfills to hold disaster debris, the County will be better prepared to anticipate and address future needs.
2. *Ensure convenient and reliable services for managing solid waste materials.* A disaster debris management plan will assist the County in meeting customer's unique needs that would result from a disaster.
3. *Promote the use of innovative and economical waste handling methods.* This alternative provides the opportunity to consider cost-effective alternatives for handling and managing disaster debris.
4. *Emphasize waste reduction as a fundamental management strategy.* This alternative would identify waste diversion and recycling opportunities.
5. *Reduce the environmental impacts to air, water, and land that are associated with waste generation, transportation, handling, recycling, and disposal.* In establishing a plan the County can better prepare to implement methods that will minimize environmental impacts particularly by identifying locations for potential temporary storage facilities and being prepared for establishing and closing them.
6. *Ensure compliance with state and local solid and moderate risk waste regulations.* This alternative would address federal, state and local regulations to ensure compliance during a disaster.

Waste Reduction/Diversion Potential

Alternative A is not consistent with the County's objectives as it does not emphasize waste reduction as a fundamental management strategy and would force decisions to be made under very tight time constraints.

Alternative B could allow for the County to explore waste reduction and diversion potentials, but opportunities may be limited.

Alternative C would allow for the County to explore several waste reduction and diversion potentials for debris generated during a disaster. Of the three alternatives this alternative would allow for the most opportunity for waste reduction and diversion.

Customer Preference

There are no customer preferences for disaster debris as such.

Implementation Costs

Alternative A would have no implementation costs. Alternative B would require an investment in staff time and additional costs for modifying the CEMP. The cost would be minimal if this could be conducted as part of a scheduled update of the CEMP, but the expense could be in the range of $30,000 to $50,000 if conducted as a separate effort.

Alternative C would require the expense of preparing a disaster debris plan for the Solid Waste Department. The expense could range from $30,000 to $100,000, depending on the level of effort desired and whether staff time was dedicated to it or a consulting firm was hired to assist.

11.6.3 Rating of Alternatives

The three alternatives are compared with respect to the evaluation criteria in the table below. Based upon the comparison, Alternatives B and C are recommended for further development and/or implementation.

Table 11-2
Summary Rating of the Disaster Debris Strategies

	Alternative	Consistency with Planning Objectives	Waste Reduction / Diversion Potential	Cost to Implement	Overall Rating
A	No Action	L	L	L	L
B	Coordinate with Yakima County CEMP	H	M	M	M
C	Develop Disaster Debris Management Plan	H	H	H	H

H – High M – Medium L – Low

11.7 RECOMMENDED ACTIONS

The following recommendations are being made for disaster debris programs:

DD1) Coordinate with the Office of Emergency Management to prepare for disaster debris response.

DD2) Develop an internal plan for handling disaster debris, in coordination with the Office of Emergency Management.

CHAPTER 12 - MODERATE RISK WASTE

12.1 INTRODUCTION

This chapter discusses programs for moderate risk waste (MRW), identifies relevant planning issues, and develops/evaluates alternative strategies. This chapter is intended to update and replace the previous MRW Plan (the *1991 Hazardous Waste Management Plan*).

12.2 BACKGROUND

As part of this *Solid and Moderate Risk Waste Management Plan*, most of the background information required for an MRW plan is already provided by the background information in Chapters 1 and 2 of this Plan.

12.2.1 Definition of Moderate Risk Waste

Moderate risk waste (MRW) refers to waste materials that have the characteristics of and pose the same risks as hazardous wastes – they are flammable, corrosive, toxic, and/or reactive. State and Federal law do not regulate these wastes as **hazardous** wastes due to their relatively small quantities. MRW is classified as either a household hazardous waste (because it is generated in a residence) or small quantity generator waste (because it is generated by businesses in quantities below the threshold for regulation). A state law adopted in 1991 added used oil to the list of materials to be addressed by MRW programs.

Household Hazardous Waste (HHW)

The Hazardous Household Substances List developed by the Department of Ecology (Ecology) is shown in Table 12-1. When generated in a residence, all of these products become household hazardous wastes when they are discarded (if they meet they are flammable, corrosive, toxic or reactive).

Small Quantity Generator (SQG) Waste

Many businesses and institutions produce small quantities of hazardous wastes; the list is the same as for HHW (see Table 12-1). Small quantity generators (SQGs) produce **hazardous** waste at rates less than 220 pounds per month or per batch (or 2.2 pounds per month or per batch of **extremely** hazardous waste) and accumulate less than 2,200 pounds of **hazardous** waste on-site (or 22 pounds of **extremely** hazardous waste). **Extremely** hazardous wastes include certain pesticides and other poisons that are more toxic and pose greater risks than other hazardous wastes. SQGs are conditionally exempt from state and federal regulation, meaning that they are exempt only as long as they properly manage and dispose of their wastes.

Table 12-1
Hazardous Household Substances List

Substance or Class of Substance	Flammable	Toxic	Corrosive	Reactive
Group 1: Repair and Remodeling				
Adhesives, Glues Cements	•	•		
Roof Coatings, Sealants		•		
Caulking and Sealants		•		
Epoxy Resins	•	•		•
Solvent Based Paints	•	•		
Solvents and Thinners	•	•	•	•
Paint Removers and Strippers		•	•	
Group 2: Cleaning Agents				
Oven Cleaners		•	•	
Degreasers and Spot Removers	•	•	•	
Toilet, Drain and Septic Cleaners		•	•	
Polishes, Waxes and Strippers	•	•	•	
Deck, Patio, and Chimney Cleaners	•	•	•	
Solvent Cleaning Fluid	•	•	•	•
Household Bleach (>8% solution)			•	
Group 3: Pesticides				
Insecticides	•	•		
Fungicides		•		
Rodenticides		•		
Molluscides		•		
Wood Preservatives		•		
Moss Retardants		•	•	
Herbicides		•		
Fertilizers		•	•	•
Group 4: Auto, Boat, and Equipment Maintenance				
Batteries		•	•	•
Waxes and Cleaners	•	•	•	
Paints, Solvents, and Cleaners	•	•	•	•
Additives	•	•	•	•
Gasoline	•	•	•	•
Flushes	•	•	•	•
Auto Repair Materials	•	•		
Motor Oil		•		
Diesel Oil	•	•		
Antifreeze		•		
Group 5: Hobby and Recreation				
Paints, Thinners, and Solvents	•	•	•	•
Chemicals (including Photo and Pool)	•	•	•	•
Glues and Cements	•	•	•	
Inks and Dyes	•	•		
Glazes		•		
Chemistry Sets	•	•	•	•
Pressurized Bottled Gas	•	•		•
White Gas	•	•		•

Table 12-1: Hazardous Household Substances List, Continued				
Substance or Class of Substance	**Flammable**	**Toxic**	**Corrosive**	**Reactive**
Group 5: Hobby and Recreation, continued				
Charcoal Lighter Fluid	•	•		
Batteries		•	•	•
Group 6: Persistent Bioaccumulative Toxins (PBTs)				
Mercury-Containing Products	•	•	•	•
Lead-Containing Products		•		
E-Waste		•		
Polycyclic Aromatic Hydrocarbons (PAHs)		•		
Polychlorinated Biphenyl (PCBs)		•		
Group 7: Miscellaneous				
Ammunition	•	•	•	•
Asbestos		•		
Fireworks		•		
Marine Aerial Flares		•		
Pharmaceuticals		•		
Non-Controlled Substances		•		
Sharps		•		
Personal Care Products	•	•	•	•

Used Oil

Washington State law (Chapter 70.95I RCW) requires local governments to manage used oil in conjunction with their MRW programs and to submit annual reports to Ecology.

12.2.2 Goals and Objectives for MRW

Goals and objectives for the solid waste plan (see page 1-2) that are related to MRW include:

- Ensure convenient and reliable services for managing solid waste materials.
- Assist the State in achieving its goal of an 80 percent used motor oil reuse and re-refining rate.
- Reduce the environmental impacts to air, water, and land that are associated with waste generation, transportation, handling, recycling, and disposal.
- Ensure compliance with state and local solid and moderate risk waste regulations.
- Encourage those who design, produce, sell, or use a product to take responsibility for minimizing the product's environmental impact throughout all stages of the products' life cycle, including end of life management.
- Provide customers with information and education to promote recommended waste management practices.
- Support the State's Beyond Waste goals.

12.2.3 Regulations

MRW is regulated primarily by State and Federal laws that govern proper handling and disposal of these wastes. A review of the recent regulatory changes affecting solid wastes and MRW is provided in Section 1.13 of this Plan, but two additional State laws that affect MRW are the Hazardous Waste Management Act (Chapter 70.105 RCW) and the associated rules (Chapter 173-303 WAC). These are summarized below.

Hazardous Waste Management Act (Chapter 70.105 RCW)

The Hazardous Waste Management Act establishes requirements for state and local hazardous waste management plans, rules for hazardous waste generation and handling, criteria for siting hazardous waste management facilities, and local zoning designations that permit hazardous waste management facilities. The Hazardous Waste Management Act also establishes waste management priorities for hazardous wastes. In order of decreasing priority, the management priorities are:

- waste reduction
- waste recycling
- physical, chemical, and biological treatment
- incineration
- solidification/stabilization/treatment
- landfill

The waste hierarchy is a key element in determining compliance of this Plan with state requirements.

Rules implementing the Hazardous Waste Management Act are codified in the Dangerous Waste Regulations (Chapter 173-303 WAC). This regulation defines dangerous waste materials and establishes minimum handling requirements. State rules specifically exclude household hazardous waste and small quantity generator wastes from the dangerous waste regulation. The Dangerous Waste Regulations have been amended several times over the years, most recently in 2005. The 2005 amendments allow mercury-containing equipment to be managed as a universal waste, require recyclers and used oil processors to develop closure plans and meet financial responsibility requirements, and provide several other changes and updates.

12.2.4 Beyond Waste Plan

One of the five key initiatives of the state's Beyond Waste plan is "reducing small-volume hazardous waste materials and wastes." The background information for this initiative explains that perhaps as little as 1% of SQG waste is properly managed on a statewide basis. For HHW, only about 16% is estimated to be collected through local programs. Ecology estimates that as much as 144 million pounds of MRW is disposed in the state's solid waste stream. The discussion shown in the Beyond Waste plans concludes that, while local programs provide several important benefits, it is unlikely that the current system can manage all of the MRW.

The Beyond Waste plan's vision for the future of hazardous waste is based on 30-year goals for:

- safer products and services
- more efficient materials management
- greater economic vitality

The Beyond Waste plan provides several recommendations for MRW:

1. Develop a prioritized approach to identify and eliminate MRW substances that enter the solid waste stream.
2. Reduce threats from mercury.
3. Reduce threats from polybrominated diphenyl ethers (PBDEs).
4. Develop an electronics product stewardship infrastructure.
5. Ensure proper use of pesticides, including effective alternatives.
6. Reduce and manage all architectural paint wastes.
7. Lead by example in state government.
8. Ensure MRW and hazardous substances are managed according to hazards, toxicity and risk.
9. Fully implement local hazardous waste plans.
10. Ensure facilities handling MRW are in compliance with environmental laws and regulations.

The Beyond Waste plan also adopted "five-year milestones" that echo these recommendations.

12.3 EXISTING PROGRAM ELEMENTS

12.3.1 Evaluation of Current MRW and Oil Programs

The current management practices for MRW generated in Yakima County are summarized below.

Collection

MRW in Yakima County is collected primarily through drop-off programs. There are a variety of drop-off programs active in the county, including:

- The Yakima County Household Hazardous Waste Facility (HHWF) at the Terrace Heights Landfill, and satellite facilities at the other two County facilities (Cheyne Landfill and the Lower Valley Transfer Station).
- An MRW drop-off facility at the Granger Transfer Station that is owned and operated by Yakima Waste Systems. This drop-off operation is required by the Health District through the permit for this facility, and the relatively small amounts of materials collected there are brought to the HHWF.
- The Yakima Training Center collects MRW from their personnel as well as from their own operations.

- Private and public drop-off sites for waste oil: there are about 20 locations throughout Yakima County that accept used motor oil for recycling. In 2007, these sites collected 834,565 pounds (or 112,780 gallons) of used oil. In addition, the HHWF collected 104,115 pounds of oil filters and 82,488 pounds of antifreeze.
- Private and public drop-off sites for batteries: over 30 locations in Yakima County currently accept household batteries (sizes AAA through D), 9 volt batteries and smaller batteries used for hearing aids, calculators and similar applications. Most of these locations are private companies such as hardware and grocery stores. Lead-acid vehicle batteries are taken back by auto parts stores and similar retail locations that sell new batteries, and are also accepted at the County's HHWF.
- The Washington State Department of Agriculture (WSDA) conducts an agricultural chemical waste collection event in Yakima every spring, in either April or May, and in several other locations throughout the state. Due to the high level of agricultural activity, collection events in Yakima County bring in 20% of the total pesticides collected in the state (although some of this comes from outside of the county). WSDA collects fifty different chemicals at the Yakima County events. In a recent event (May 2008), WSDA collected 18,899 pounds and the average load was 320 pounds. The amount collected has been as high as 37,000 pounds (in 2006), due in part to a larger number of Yakima County farms going out of business that year. Participants must sign up in advance to bring in wastes, but there is no cost to participate. WSDA has held these events in Yakima County since 1988 and intends to continue through at least 2011 (Hoffman 2009).

SQGs and large-quantity generators also use the services of private companies that collect specific types of wastes, but little information is available on the amounts collected this way.

The HHWF accepts hazardous wastes from households and SQGs. Wastes are accepted from both at no charge, but SQGs are required to make an appointment prior to bringing in wastes. Residents can bring in HHW any time that the facility is open (currently 7:30 a.m. through 5 p.m. Wednesday through Friday and 9 a.m. through 5 p.m. Saturday). The cost of operating the HHWF is covered by Coordinated Prevention Grant (CPG) funds from Ecology, with a minimum of 25% matching funds provided by Yakima County. For the current two-year grant period (2008 and 2009), Ecology provided $525,381 in CPG funds for the HHWF.

In 2007, the HHWF served 2,454 residential customers and 776 SQGs. Table 12-2 shows the amounts collected from each source and the disposition of the materials.

Materials Exchange

The HHWF includes a materials exchange. Individuals having a use for specific products may request the product for their personal use, after signing an "Acceptance Waiver Form." Exchange products typically include paint and paint-related products, cleaners, polishes and waxes. In 2007, the waste exchange program handled about 22 of the 778 tons of MRW collected in the county.

Table 12-2
MRW Quantities Collected at the HHWF in 2007 (pounds)

Waste Type	HHW	SQG	Disposal Method
Batteries;			
Household	5,820	3,347	Treated/Landfilled
Automotive	110,430	15,510	Recycled
Ni-Cd	--	675	Recycled
Fluorescent Tubes and CFLs	1,628	25,415	Recycled
Paint;			
Latex	75,654	39,982	Recycled
Oil Based	77,594	95,340	Energy Recovery
Pesticide/Poisons	4,871	946	Energy Recovery
Waste Exchange	44,343	1,972	Reused
Other Hazardous Wastes;			
Corrosives	1,422	9,815	Treated
Flammables	768	7,624	Energy Recovery
Mercury Devices	410	5,249	Recycled
Reactives	4,048	1,929	Energy Recovery
Other		634	Varies
Totals	326,988 lb, or 163.5 tons	207,829 lb, or 103.9 tons	
Waste Oil and Related Materials;			
Used Oil	834,565 pounds, or 417.3 tons		Recycled
Used Oil Filters	104,115 pounds, or 52.1 tons		Recycled
Antifreeze	82,488 pounds, or 41.2 tons		Recycled
Grand Total	**1,555,985 pounds, or 778 tons**		

Processing

MRW to be shipped off-site for recycling or disposal is sorted at the HHWF according to its hazard classification (flammable, toxic, acid, corrosive or reactive) and consolidated for shipment. The drums of waste are stored at the facility until truckload quantities are available for transport.

Transport and Disposal

MRW is shipped to licensed hazardous waste treatment, storage and/or disposal facilities. The current oil and antifreeze contractor is the Oil Re-Refining Company. Other MRW is treated or disposed under a State of Washington service contract with Clean Harbors. Acids and bases are neutralized on-site.

HHW Education

The County conducts several activities to educate residents about proper handling and disposal of HHW. These include production and distribution of a series of brochures that address

household hazardous wastes in general, oil, and batteries. More information about HHW education and related activities is found in Section 3.3.1.

SQG Education/Technical Assistance

Many of the activities conducted by Yakima County to educate residents about HHW also serve to educate businesses about SQG wastes. There are also specific activities that target businesses, such as a brochure called "Business Hazardous Waste Disposal" that describes options for proper handling and disposal of SQG wastes. More information about SQG education and related activities is shown in Section 3.3.1

Compliance and Enforcement

Compliance issues are handled by the Yakima Health District, who responds to complaints and other problems as these are identified. The Yakima Health District receives grant funds specifically for this purpose.

Evaluation of the Effectiveness of the Current Programs

One method to assess the effectiveness of current programs for MRW is to look at the results of those programs in terms of the capture rate for various materials. The data that is available is incomplete, but the results of the *2003 Yakima County Waste Composition Study* (Yakima County 2003a) provide an indication of the amount of MRW that is being co-disposed with solid wastes. The figures do not include MRW that is being illegally dumped in sewers or elsewhere, burned, or being handled through means other than disposal with solid waste, but it is hoped that those amounts are insignificant.

The percentage of various types of MRW from the 2003 study were applied to 2007 solid waste tonnages to calculate the figures shown in Table 12-3. For calculation purposes, the residential, residential self-haul and rural dropbox waste streams were combined into a single residential category. Similarly, the commercial and non-residential self-haul figures were combined into a single non-residential disposal category. Table 12-3 also shows the quantities of specific types of MRW recovered through the HHWF and from other sources (based on Ecology's annual survey for 2007).

The figures in Table 12-3 tend to favor those materials where good data is available, such as motor oil and vehicle batteries. Coincidentally, these are also the materials with high recovery rates. Some materials not included in Table 12-3 probably have good recovery rates as well, such as those SQG wastes handled through private collection services. It should also be noted that a few of the materials with the lowest recovery rates, such as latex paint and most household batteries, are not actually hazardous wastes. Finally, it should be kept in mind that MRW waste composition data is generally not as precise as the data for other solid wastes, due to the relatively small quantities and infrequent occurrence of MRW in the waste stream.

Table 12-3
Capture Rates for MRW

Material	Disposed with Solid Waste, TPY[1]			Recycled or Treated, TPY		Capture Rate[4]
	Residential	Non-Residential	Total	HHWF[2]	Other[3]	
Motor Oil	22.0	0	22.0	417.3	2,555.1	99.3%
Oil Filters	42.5	84.1	126.6	52.1	93.8	53.5%
Antifreeze	0.7	0	0.7	41.2	167.1	99.7%
Car Batteries	0	0	0	63.0	344.6	100.0%
Household Batteries[5]	190.2	31.6	221.8	4.9	215.8	49.9%
Pesticides, Herbicides	10.0	0	10.0	2.9	NA	22.5%
Latex Paint[5]	193.4	0	193.4	57.8	NA	23.0%
Oil-Based Paint	75.4	21.9	97.3	86.5	NA	47.1%
Fluorescent Tubes	12.6	40.2	52.8	13.5	0.6	21.1%
Other Hazardous Wastes	62.2	63.0	125.2	38.8	NA	23.7%
Totals	608.8	240.8	849.6	778.0	3,377.1	83.0%

Notes: TPY = tons per year
1. Figures are from the 2003 Waste Composition Study, with the percentages from that study applied to 2007 waste tonnages.
2. See Table 12-2 for more information about HHWF tonnages.
3. "Other" tonnages are from Ecology's annual survey (not all of the same categories are tracked by Ecology's survey).
4. Capture Rate = (Tons Recycled or Treated) divided by (Tons Disposed with Solid Waste + Tons Recycled or Treated).
5. Household batteries and latex paint are not classified as hazardous wastes.
NA = not available.

12.3.2 Inventory of Generators and Facilities

RCW 70.115.220(1)(a) requires MRW plans to contain an assessment of the quantities, types, generators and fate of MRW in each jurisdiction. Not all of the necessary data to conduct a complete assessment is currently available, but the data that is available on the number of potential generators is summarized in Table 12-4.

Table 12-4
Characteristics of MRW Generators

	Residential Generators	Businesses and Institutions	Comments
Number of Households or Businesses	73,990[1]	16,354[2]	Not all residents and businesses are generators of MRW.
Number of Customers using the HHWF	2,454	776	These figures are not adjusted for multiple trips to the HHWF by the same business or resident.
Number of Participants for Other Programs	Unknown	Unknown	An unknown number of people are recycling oil or batteries through various drop-off programs, and an unknown number of businesses are disposing of wastes through drop-off programs and private collection services.

Notes:
1. The number of households (2007) includes occupied housing units only (source: Washington State Office of Financial Management).
2. The number of businesses is a 2008 figure provided by the Washington State Department of Revenue.

At first glance, the data in Table 12-4 may appear to indicate that only a low number of MRW generators (3.3% of the households and 4.7% of the potential residential and non-residential generators, respectively) bring their MRW to the HHWF. That conclusion would actually be incorrect, however, due to several factors:

- Not every household and business is an MRW generator, or at least not in every year. For residential sources especially, products may be stored for several years before the resident determines that the material is no longer useful and is thus an MRW.
- As indicated above, an unknown number of households and businesses use drop-off sites for some of the more common wastes (oil, batteries, etc.) in addition to, or in lieu of, the HHWF.
- An unknown number of SQGs and large-quantity generators use the services of private collection companies for their hazardous wastes in addition to, or in lieu of, the HHWF.

Perhaps a better way to assess the effectiveness of current programs for MRW is to look at the results of those programs in terms of the capture rate for various materials (see Table 12-3).

12.3.3 Hazardous Waste Inventory

Ecology's guidelines for MRW plans require that the following pieces of information be addressed. The following information helps provide a full inventory of hazardous waste management in a community, by addressing dangerous waste generators (i.e., large-quantity generators), contaminated sites, transporters and processing facilities, and locations where hazardous waste facilities can be sited ("zone designations"). For most of the following items, however, the actual information is both lengthy and subject to change. Rather than attempt to show all of the information here, the following provides a summary and sources for updated information.

Dangerous Waste Generators

Ecology's records show that the following numbers of businesses and institutions in Yakima County are registered as hazardous waste generators as of November 2008:

- 10 large-quantity generators,
- 23 medium-quantity generators,
- 50 small-quantity generators, and
- 23 businesses and institutions with EPA or state identification numbers but that did not generate waste in the most recent year (2007).

Remedial Action Sites

Ecology's list of confirmed and suspected contaminated sites in Yakima County can be found at www.ecy.wa.gov/programs/tcp/sites/sitelists.htm. As of November 2008, there were 391 of these sites identified in Yakima County.

Hazardous Waste Services (Transporters and Facilities)

A large number of private companies provide transportation and disposal services for a wide range of materials. The current list of these companies (the Hazardous Waste Services Directory) can be found at www.ecy.wa.gov/apps/hwtr/hwsd/default.htm.

Zone Designations

As part of the development of the original MRW plans, local jurisdictions were required by State law (RCW 70.105.225) to designate zones within their borders where hazardous waste facilities would be permitted to operate and to notify Ecology of those designations. In Yakima County, that was done as part of the 1991 plan and those designations are still in place.

12.4 STATUS OF 1991 RECOMMENDATIONS

The 1991 *Hazardous Waste Management Plan* (Yakima County 1991) made recommendations for seven program areas. These recommendations are shown in Table 12-5. Most of these recommendations have either been accomplished or are no longer applicable.

Table 12-5
Status of 1991 Recommendations for MRW

Recommendations	Status
Hazardous Waste Education:	
Developing and publicizing informational material on: - The identification of hazardous products. - Proper management of moderate risk waste. - Locally available waste management options. - Product substitutes.	Ongoing
Consider how effective a Waste Information Network Trade Fair in Yakima County would be, and whether one should be held.	Done
Provide speakers for community and business groups.	Ongoing
Establish an educational assembly or a classroom presentation program for local schools.	Ongoing
Implement a "voice-box" hotline for County residents. This hotline would feature information on current hazardous waste disposal options and management programs in Yakima County.	NA
Education on Proper Management of Agricultural Chemical Wastes:	
Yakima County recommends the Washington State Departments of Agriculture and Ecology, and the Washington State University Cooperative Extension of Yakima County take the lead in educating farmers on proper waste management techniques. Yakima County will: - Assist in providing speakers to local agricultural organizations - Help to distribute flyers or brochures on agricultural chemical waste management. - Provide information on proper management of moderate risk wastes generated from farm machinery maintenance.	Ongoing
Household Hazardous Waste Collection:	
Public Works will continue to hold the "Household Hazardous Waste Turn-In Days" collection events at each of the three landfills three times each year or at other appropriate locations and times. These events will continue through mid 1996. If a permanent facility is constructed, Public Works may wish to consider modifying the frequency or location of the collection events.	Done
A feasibility study will be done to determine potential locations for a permanent facility and the types of waste such a facility could accept. The study will determine if a permanent facility will be built in Yakima County to accept household hazardous waste, as well as moderate risk waste from small quantity generators, regulated generators' waste, and agricultural chemical waste.	Done
Public Works will implement a voluntary collection program for small "button type" batteries with local retailers throughout the County.	Done
Waste oil, paints, and auto battery collection activities will be continued at the local landfills and will be expanded if the need exists.	Ongoing
Agricultural Chemical Waste Collection:	
Yakima County recommended the Department of Agriculture hold additional "Inspection Days" in the County to collect stored agricultural chemical wastes.	Ongoing

Table 12-5: Status of 1991 Recommendations for MRW, Continued	
Recommendations	**Status**
MRW Collection from Businesses:	
Yakima County will hold at least two commercial collection events for small quantity generators. The first will be held in the spring of 1992, after sufficient time for planning and preparation by Public Works staff. The second event will be held in the fall of 1992. The events will be held for select business groups targeted by the HWM Plan. The event will be run by a private contractor, with assistance from Public Works staff for pre-event publicity and traffic control during the event. After the second event is held, Publ1c Works will evaluate the results and determine if future events should be held. This decision will take into account whether or not a permanent facility will be built that would accept small quantity generator waste.	Done
Health and Safety:	
Health and safety recommendations focus on training public personnel potentially exposed to moderate risk waste and include: - Developing a moderate risk waste component for health and safety training of public employees routinely exposed to moderate risk waste. - Offering private solid waste haulers operating in Yakima County opportunities to participate in moderate risk waste public employee training or use training materials.	Ongoing
Compliance and Enforcement:	
Upgrade or put up new signs at County solid waste facilities specifying proper waste disposal methods for moderate risk waste, and handing out flyers and brochures to users of the facilities.	Ongoing
Implementing a technical assistance, inspection and enforcement program by the Yakima County Health District for targeted businesses identified in the HWM Plan.	Ongoing
Developing ordinances regulating moderate risk waste in Yakima County.	Done
Program Evaluation:	
Have Public Works coordinate and evaluate the progress of the HWM Plan's programs.	Ongoing
Establish a technical review committee to aid in evaluating the HWM Plan's implementation.	Done
Have Public Works issue annual progress reports for each program area to the technical review committee.	Ongoing
Recommendations for State Actions:	
State government should work with the federal government to encourage manufacturers of hazardous products to reduce the amounts of hazardous constituents in these products where possible.	Ongoing
State government should work with the federal government, trade associations, and other groups to ensure adequate and clear product labeling.	Ongoing
State government, in consultation with local governments, should continue and expand its educational and technical assistance programs for moderate risk waste.	Ongoing
State government should assist local governments in developing and implementing moderate risk waste health and safety training programs.	Ongoing
State government should provide and maintain adequate funding to assist local governments in implementing local hazardous waste management activities.	Ongoing

Notes: NA = no longer applicable.

12.5 PLANNING ISSUES

There are five specific components required for local moderate risk waste management programs; two that address educational efforts and three that help fulfill the mandate to "prepare

a program to manage moderate-risk waste" (RCW 70.105.220(1)(a)). The five required elements are:

- Public education program;
- Technical assistance program for businesses;
- Collection program for household hazardous wastes and used oil;
- Collection program for business wastes; and
- A plan or program to ensure compliance by small quantity generators and others.

The existing service gaps and other issues connected to these components are discussed below.

12.5.1 Public Education

Public education activities and planning issues are discussed in greater detail in Chapter 3 of this Plan. As concluded there, the current and ongoing efforts to inform the public about opportunities for proper disposal of oil and household hazardous wastes are working well.

12.5.2 Business Technical Assistance

County staff or others are not providing technical assistance to businesses at this time. Although limited technical assistance could be provided by County staff in the future, the level of expertise required to effectively assist many businesses would require significant amounts of training for specific types of businesses, and might better be handled at the state level.

12.5.3 Household Collection

Household collection is currently being provided through the HHWF and other opportunities. One potential service gap for household collection is the idea of on-call services for elderly and disabled residents that cannot easily access the HHWF or other drop-off programs.

12.5.4 Business Collection

Business collection is currently being provided through the HHWF and other opportunities, including private contractors. One idea that could be explored for handling business MRW is to charge SQGs to use the HHWF, as is done in most other Washington counties. This approach would free up CPG funds for other solid waste programs in Yakima County.

12.5.5 Compliance and Enforcement

Compliance and enforcement is currently being conducted on an as-needed basis and there are no known problems with this approach.

12.6 ALTERNATIVE STRATEGIES

12.6.1 Alternatives

Alternative A – Public Education for Household Hazardous Waste

Household hazardous waste education programs focus on identifying household products that contain hazardous ingredients, promoting safer alternatives, and explaining how to dispose unwanted products that contain hazardous substances. Rather than continue an independent education program for moderate risk waste, Alternative A attempts to incorporate the message into other programs that also benefit from proper household hazardous waste management. Other programs that have common objectives include programs that deal with storm water, groundwater, municipal wastewater treatment, and on-site sewage systems. By coordinating the message with other resource protection and waste management programs, the message will be repeated and attention will be focused on the multiple benefits of the higher-priority management practices. The estimated additional cost of this option is about $10,000 per year, primarily for staff time and expenses to coordinate messages with other agencies.

Alternative B – Technical Assistance for Small Quantity Generators

Current programs do a good job of informing generators about proper handling and disposal practices for MRW, but little technical assistance is currently provided to any particular sector (such as businesses, schools, or agricultural generators). Technical assistance could be provided to help SQGs find ways to reduce hazardous waste generation, switch to safer alternatives, or simply identify hazardous wastes and then improve the handling practices for those wastes. This level of assistance would require extensive knowledge of various manufacturing and other business practices and specific expertise that is not easily available to County staff. Instead, the technical assistance may need to be provided by Ecology staff who can address specific types of businesses statewide.

Alternative C – List of Targeted Materials

The list of HHW targeted for collection could be broadened to encompass a greater variety of materials and would hence collect a greater amount of hazardous wastes. On the other hand, some materials are difficult and expensive to handle on a local level, and instead would be best addressed through a statewide program and/or a product stewardship approach. Therefore, this alternative proposes that the list of household hazardous waste to be collected in Yakima County should be the same as the list shown in Table 12-1, but without e-waste, which is being collected through a separate statewide program, and also without the materials shown in Group 7. Group 7 materials should be handled in other ways, such as delivering asbestos directly to the landfill, ammunition being taken by the Sheriff's office, and the bomb squad handling fireworks. Pharmaceuticals also pose a security risk at County facilities and need to be handled through a different program.

Alternative D – List of Targeted Materials

As with Alternative C, the list of materials targeted for collection from small quantity generators could be broadened to collect a greater variety and larger quantities, but some materials would be best addressed through a statewide program and/or a product stewardship approach. This alternative proposes that the small quantity generator waste list be the same as the list proposed for HHW in Alternative C.

Alternative E – User Fees for SQGs

SQG waste collection is currently being provided through the HHWF at no charge. An alternative for handling business MRW is to charge SQGs to use the HHWF, as is done in most other Washington counties. The imposition of fees may cause some of the SQGs to dispose of their MRW by mixing it in with their solid waste or disposing of it in other undesirable ways. Mixing SQG waste with solid waste can lead to accidental and dangerous exposure for garbage truck and landfill operators. Disposal of SQG waste in other ways can also create human safety issues or environmental damage problems.

12.6.2 Evaluation of Alternative Strategies

Consistency with Planning Objectives

All of the alternatives support the planning objective of ensuring compliance with state and local solid and moderate risk waste regulations and supporting the State's Beyond Waste goals. In addition, Alternatives C and D ensure convenient and reliable services for managing solid waste materials, as well as encouraging those who design, produce, sell, or use a product to take responsibility for minimizing the product's environmental impact.

Consistency with Management Hierarchy

All of the alternatives support the management hierarchy for hazardous wastes, although Alternatives A and B do this more directly.

Customer Preferences

Customers typically prefer choices rather than mandates and lower costs rather than higher costs. Education and promotion programs typically enjoy strong customer support. Alternative E is contrary to customer preferences.

Implementation Costs

Alternative B has the lowest cost to the County if Ecology staff provide technical assistance to businesses statewide.

12.6.3 Rating of Alternatives

The alternatives are compared with respect to the evaluation criteria in Table 12-6.

Table 12-6
Summary Rating of the Alternative MRW Strategies

	Alternative	Consistency with Planning Objectives	Consistency with Management Hierarchy	Customer Preferences	Cost to Implement	Overall Rating
A	Public Education for Household Hazardous Waste	H	H	M	M	H
B	Technical Assistance for Small Quantity Generators	H	H	M	H	M
C	List of Targeted Materials – Household Collection	H	M	M	M	M
D	List of Targeted Materials – Business Collection	H	M	M	M	M
E	User Fees for SQGs	M	M	L	M	L

H - High M - Medium L - Low

12.7 RECOMMENDED ACTIONS

The following recommendations are being made for MRW programs:

MRW1) Adopt the list shown in Table 12-1 of targeted materials for household hazardous waste and small quantity generator waste collections, but excluding e-waste and the materials shown in Group 7.

MRW2) Utilize technical assistance for small quantity generators provided by the Department of Ecology.

MRW3) Utilize the same schedule and process for updating the MRW Plan as for updating the solid waste management plan.

CHAPTER 13 – ADMINISTRATION AND REGULATION

13.1 INTRODUCTION

This chapter addresses the administrative and regulatory activities related to solid waste.

13.2 BACKGROUND

Yakima County, the cities, the Yakama Nation and several other organizations and agencies are responsible for providing enforcement of federal, state, and local laws and regulations that guide the planning, operation, and maintenance of the region's solid waste management system. This local enforcement authority ensures that the County system meets all applicable standards for the protection of human health and environmental quality in the region.

13.2.1 Goals and Objectives for Regulation and Administration

Goals and objectives specific to regulation and administration (as shown on page 1-2 of this Plan) include:

- Reduce the environmental impacts to air, water, and land that are associated with waste generation, transportation, handling, recycling, and disposal.
- Reduce the occurrence and environmental impacts associated with illegal dumping.
- Ensure compliance with state and local solid and moderate risk waste regulations.

13.3 EXISTING PROGRAM ELEMENTS

Administrative responsibility for solid waste handling systems in Yakima County is currently divided among several agencies and jurisdictions in local, county, and state government. Each organization involved in the Yakima County solid waste management system is described below.

Yakima County Public Services Department Solid Waste Division

The Washington State Solid Waste Management Act, RCW 70.95 assigns local government the primary responsibility for managing solid waste. Solid waste handling, as defined in RCW 70.95, includes the "management, storage, collection, transportation, treatment, utilization, processing, and final disposal of solid wastes, including the recovery and recycling of materials from solid wastes, the recovery of energy resources from solid wastes, or the conversion of the energy in solid wastes to more useful forms." RCW 36.58 authorizes Yakima County to develop, own, and operate solid waste handling facilities in unincorporated areas of the county, or to accomplish these activities by contracting with private firms. The County may regulate tipping fees, hours of operation, facility access, and waste acceptance policies at each of its facilities. The County also has the authority and responsibility to prepare comprehensive solid

waste management plans for unincorporated areas and for jurisdictions that agree to participate with the County in the planning process. The County has entered into interlocal agreements with all of the incorporated cities and towns within the county that address the plan participation and other aspects of solid waste. The interlocal agreements also require that all waste collected by or in the cities must go to a Yakima County disposal facility.

Yakima County exercises its solid waste responsibilities through the Yakima County Public Services Department, and specifically through the Solid Waste Division. The specific administrative functions performed by the Solid Waste Division include:

- Administering, staffing, and operating two landfills, two transfer stations, a moderate risk waste collection facility, and various recycling and organics collection programs.
- Administering and staffing public education programs for waste reduction and recycling.
- Administering contracts.
- Maintaining the County Solid Waste Management Plan (SWMP) as adopted relating to public health, safety, and sanitation, and providing regulations to govern the storage, collection, transfer, transportation, processing, use, and final disposal of solid waste by all persons in Yakima County.
- Providing staff support for the SWAC.

The Yakima County Solid Waste Division is funded by the fees collected at the landfills and transfer stations. Fees charged at the County's solid waste facilities are set by resolution by the Board of County Commissioners. The County also receives grant monies from Ecology for solid waste management planning activities and pilot projects. Figure 13-1 illustrates the Solid Waste Division organizational structure, and Table 13-1 shows the current budget (2009) and the actual revenues and expenses for 2007 and 2008 for the Solid Waste Division. The Solid Waste Division is staffed by about 40 employees, most of which are involved in the operation of transfer and disposal facilities.

Yakima Health District

The Yakima Health District (YHD) is responsible for enforcing solid waste regulations and issuing permits for solid waste facilities. Permits are required for all solid waste facilities in accordance with WAC 173-350 and WAC 173-351. Permitted solid waste facilities include, but are not limited to, all landfills, transfer stations, recycling processing, composting, and petroleum-contaminated soil (PCS) remediation sites. The YHD inspects all solid waste facilities that are permitted by the YHD at least once per year. The YHD also reviews permit applications to ensure that proposed facilities meet all applicable laws and regulations, conforms to the approved plan, and complies with all zoning requirements. Beginning in 2010, the YHD will review each new permit application with the Yakima County Solid Waste Advisory Committee (SWAC). The SWAC will make a recommendation about whether the application is consistent with the Plan.

Figure 13-1
Yakima County Solid Waste Division Organizational Structure

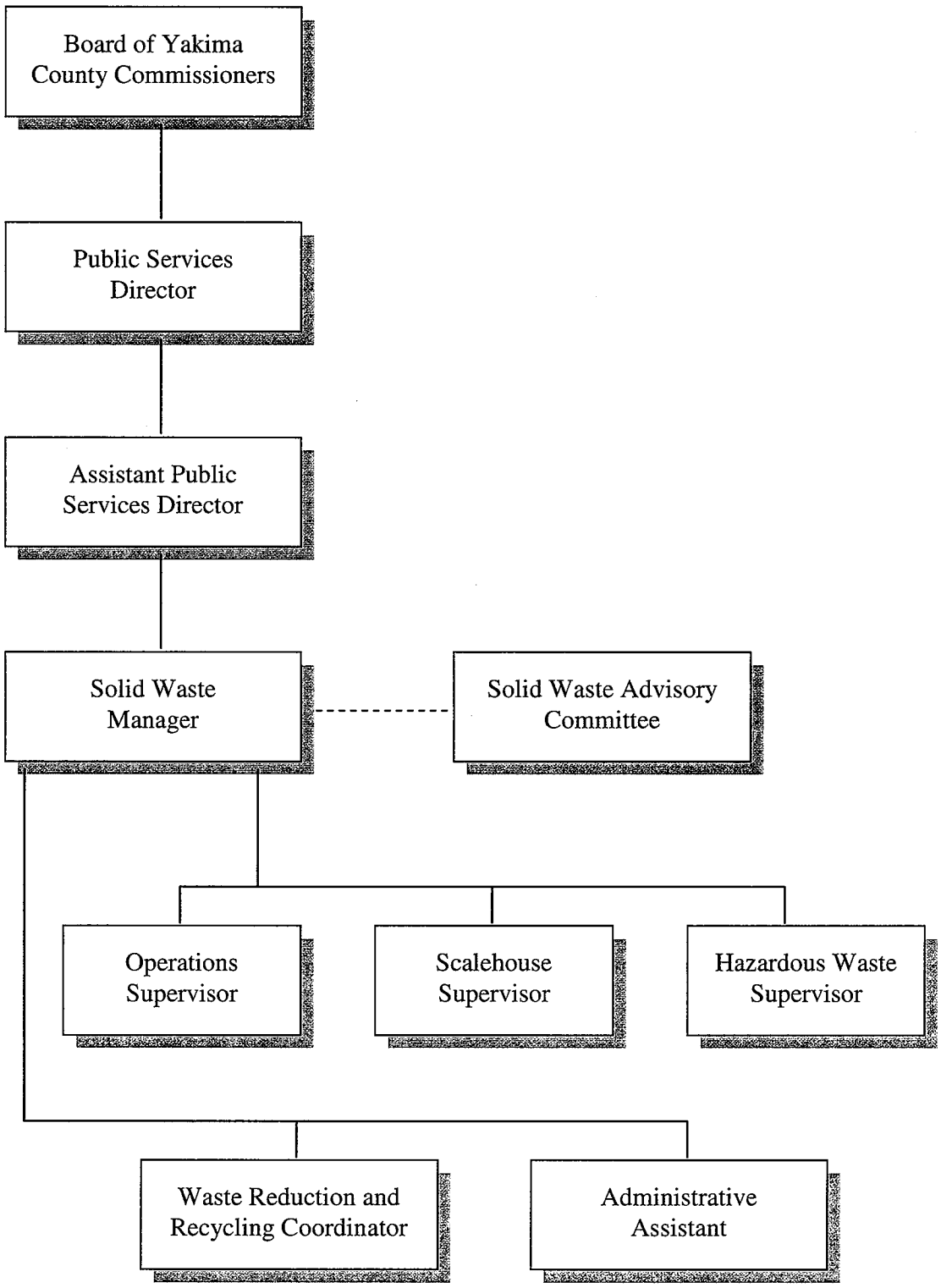


Table 13-1
Yakima County Solid Waste Budget

	2007, Actual	2008, Actual	2009, Budgeted
Revenues			
Solid Waste Fees	$ 6,616,488	$ 6,401,989	$ 6,299,570
Grants	290,902	381,548	361,590
Investment Interest	1,020,505	705,176	700,000
Miscellaneous	25,403	161650	
Total Operating Revenue	**7,953,338**	**7,504,878**	**7,361,160**
Capital Contributed to ER&R	(1,069,785)		
Adjustment from Prior Period		(162,201)	
Total Revenues	**6,883,553**	**7,339,677**	**7,361,160**
Expenditures			
Administration	569,828	593,538	644,476
Planning, Research	70,965	158,965	148,889
Depreciation	689,809	575,552	850,000
Marketing/Recycle	278,053	376,955	385,196
Operations – General Drop Box	827	803	0
Operations – Landfill	2,850,345	3,168,381	3,675,969
Operations – Transfer Station	897,162	964,892	921,061
Operations – Hazardous Wastes	416,574	446,178	524,165
Capital Outlay	1,249,149	14,006	3,000,000
Debt Service	250,775	241,596	355,000
Annual Closure Reserve	3,366,023	969,563	
Total Expenditures	**10,639,510**	**7,510,429**	**10,504,756**
Landfill Closure Reserves	**12,435,695**	**13,405,258**	**13,405,258**

Notes: All figures are in dollars.
1. The 2007 and 2008 figures are actual amounts, and the 2009 figures are the budgeted amounts.

The County pays a fixed amount to the YHD in lieu of facility permit fees. This fixed amount provides funding for the YHD's assistance to the County in the implementation of the Solid Waste Management Plan under RCW 70.95.160. The YHD also receives grant funds from Ecology for enforcement and permit fees for non-County facilities.

The permit process for solid waste facilities requires an application and approval for new sites, and an annual review and renewal for existing permits (although permits can be renewed for up to five years in some cases). The initial application form requires information about the types of waste to be disposed, environmental conditions of the area and operating plans. Permit fees are based on the estimated time needed to issue the permit and to do needed inspections and reviews.

Yakima County Solid Waste Advisory Committee (SWAC)

Per RCW 70.95.165, the Yakima County Board of County Commissioners (BOCC) has appointed the SWAC to help develop solid waste handling programs and policies. The Yakima County SWAC has adopted bylaws that can be amended by the SWAC at any time, subject to approval by the BOCC. The term of the SWAC members is two years and members can be re-appointed by the BOCC to serve consecutive terms. The SWAC consists of up to 13 members each with one vote and membership is outlined in the by-laws to include the County, Cities, Yakima Valley Conference of Governments, Business and Industry, Waste Industry, Recycling Industry, Agricultural Industry, and an ex officio position for Public Health and Safety.

Incorporated Cities

RCW 35.21.152 empowers cities to develop, own, and operate solid waste handling systems and to provide for solid waste collection services within their jurisdictions. There are 14 incorporated cities and towns in Yakima County. Four cities operate their own residential garbage collection systems and ten cities contract with a hauler to collect garbage within their city. Fees charged for the service cover the expenses of the system, although some cities also charge a "utility tax" that helps fund other city functions. Detailed information about collection in individual cities is included in Chapter 6, Collection.

The cities coordinate their activities for a number of issues through the Yakima Valley Conference of Governments (YVCOG). The YVCOG was created 42 years ago to provide a forum for addressing regional issues. The YVCOG provides assistance with growth management planning, transportation planning, other community planning, grant writing, surveys and research. The major issues currently being addressed by YVCOG include housing rehabilitation, growth management comprehensive plans, and regional transportation.

Washington State Department of Ecology

The State Solid Waste Management Act, Chapter 70.95 of the Revised Code of Washington (RCW), provides for a comprehensive, statewide solid waste management program. Ch. 70.95 RCW assigns primary responsibility for solid waste handling to local governments, giving each county, in cooperation with its cities, the task of setting up a coordinated county solid waste management plan that places an emphasis on waste reduction and recycling programs. Enforcement and regulatory responsibilities are assigned to cities, counties, or jurisdictional health departments, depending on the specific activity and local preferences, but Ecology issues permits for land application of biosolids.

The Minimum Functional Standards for Solid Waste Handling (Ch. 173-304 WAC) were promulgated by Ecology under the authority granted by Ch. 70.95 RCW. This chapter has now been replaced by Ch. 173-350 WAC, Solid Waste Handling Standards, which addresses the operational and other requirements for recycling and composting facilities as well as inert and special purpose landfills. Ch. 173-351 WAC, Criteria for Municipal Solid Waste Landfills, contains the current standards for municipal solid waste landfills. This rule is currently being

amended, a process that is expected to be completed in the fall of 2009, to address new federal regulations and change liner requirements.

The Model Litter Control and Recycling Act (RCW 70.93.060) prohibits depositing garbage on any property not properly designated as a disposal site. There is also a "litter fund" that has been created through a tax levied on wholesale and retail businesses, and the monies from this fund are being used for education, increased litter clean-up efforts, and contracts to eligible county entities for illegal dump clean-up activities.

Under the Model Toxics Control Act (RCW 70.105D), grants are available to local governments for solid waste management plans and programs, hazardous waste management plans and programs, and remedial actions to clean up existing hazardous waste sites. Solid and hazardous waste planning and programs are funded through the Coordinated Prevention Grants program administered by Ecology's Solid Waste and Financial Assurance Program. The state rule that governs this program is WAC 173-312 – Coordinated Prevention Grants. The *2008-2009 Coordinated Prevention Grant Guidelines* (Ecology publication #07-07-021) outlines the Coordinated Prevention Grant program and the fund that supports the grants. Cleanup of existing hazardous waste sites is funded through Remedial Action Grants, described in Ecology's *Remedial Action Grant Guidelines*, Publication #07-07-032.

In the 2009 legislative session, the response to the state's budget shortfall led to a sharp decrease in CPG funds available for the next grant cycle (2010 and 2011). CPG funds for the next two-year cycle were reduced from an anticipated level of $20-25 million to only $10 million. In recent years, Yakima County has used these funds to cover the cost of the Household Hazardous Waste Facility (HHWF). It is uncertain at this time how this change will affect the County's budget or HHWF operations.

Washington Utilities and Transportation Commission (WUTC)

The WUTC regulates privately-owned utilities that provide public services such as electric power, telephone, natural gas, private water, transportation, and refuse collection. The WUTC's authority over solid waste collection is established in RCW 81.77. This authority does not extend to companies operating under contract with any city or town, or to any city or town that undertakes solid waste collection. The WUTC regulates solid waste collection companies by granting "certificates of convenience and necessity" that permit collection companies to operate in specified service areas. It also regulates solid waste collection, under authority of RCW 81.77.030, by:

- Fixing collection rates, charges, classifications, rules, and regulations.
- Regulating accounts, service, and safety of operations.
- Requiring annual reports and other reports and data.
- Supervising collection companies in all matters affecting their relationship to their customers.
- Requiring collection companies to use rate structures consistent with state waste management priorities.

The WUTC requires certificate holders to provide the minimum levels of solid waste collection and recycling services established by a local SWMP and enacted through an ordinance. Solid waste companies operating in the unincorporated areas of the county must comply with the SWMP (RCW 81.77.040).

At its option, the County may notify the WUTC of its intention to have the G-certificate holder bid on the collection of source-separated recyclable materials from residences in unincorporated areas. Commercial recycling is also regulated by the WUTC, under laws that apply in general to motor freight carriers (RCW 81.80), although their oversight is limited to requiring a permit (at $100 per year) and also to require companies to carry insurance, conduct drug testing of employees, and conduct a few other activities.

This Plan contains a cost assessment (see Appendix E) prepared according to the W*UTC Cost Assessment Guidelines for Local Solid Waste Management Planning* (WUTC 2001). RCW 70.95.096 grants the WUTC 45 days to review the plan's impact on solid waste collection rates charged by solid waste collection companies regulated under RCW 81.77, and to advise the County and Ecology of the probable effects of the Plan's recommendations on those rates.

Yakima Regional Clean Air Agency (YRCAA)

The YRCAA is delegated to enforce certain federal regulations, the Washington Clean Air Act, state regulations and YRCAA regulations within the boundaries of Yakima County. This applies to all areas of Yakima County except for Yakama Nation Reservation lands, which are guided by the Federal Air Rules for Reservations (FARR) regulations, and the Yakima Training Center.

Environmental Protection Agency (EPA)

At the federal level, the Resource Conservation and Recovery Act of 1976 (RCRA), as amended by the Solid Waste Disposal Act Amendments of 1980 (42 U.S.C. 6901-6987), is the primary body of legislation dealing with solid waste. Subtitle D of RCRA deals with non-hazardous solid waste disposal and requires the development of a state comprehensive solid waste management program that outlines the authorities of local, state and regional agencies. Subtitle D requires that the state program must prohibit "open dumps" and must provide that all solid waste is disposed in an environmentally-sound manner.

Yakama Nation

The Yakama Nation is a federally recognized Indian Nation and their reservation occupies 1.4 million acres located in south central Washington. This is the largest land area of the 29 federally-recognized Tribes in Washington State. The reservation encompasses the cities of Toppenish and Wapato and the town of Harrah, as well as unincorporated areas. The Tribe is governed by a Tribal Council made up of elected members. The Council holds regular meetings and handles the business affairs of the Tribe. The Yakama Nation has inherent authority to govern all activities as they pertain to solid waste management within the exterior boundaries of the Yakama Nation Reservation.

U.S. Army

The U.S. Army is responsible for the collection of solid waste on the Yakima Training Center. Yakima Waste Systems, Inc. is the current hauler for the training center. Most of the waste that is collected from the Training Center is brought to the Terrace Heights Landfill for disposal. The Training Center owns and operates a permitted limited purpose landfill on site.

13.4 STATUS OF 2003 RECOMMENDATIONS

The status of the recommendations made by the 2003 Plan is shown in Table 13-2.

Table 13-2
Status of 2003 Recommendations for Administration and Regulation

Recommendations	Status
Chapter 4: Collection System	
To ensure continuation of programs, require that all in-County generated MSW be hauled to a County-owned facility, or administer a fee directed at haulers that do not use the County system.	Done
Renew interlocal agreements to ensure that all waste generated within the county is hauled to County-owned facilities.	Done
Chapter 9: Administration and Enforcement	
Discuss creating a disposal district in Yakima County or propose other means to provide adequate funding for County programs, as required to implement the recommendations in the 2002 Plan and existing regulations.	Ongoing
Review, amend, and establish solid waste ordinances and/or policies as appropriate.	Ongoing
Establish and/or continue to monitor and evaluate programs for solid waste management activities.	Ongoing
Continue to investigate and evaluate the extent, probable causes of, and possible solutions to illegal dumping throughout Yakima County.	Ongoing
Chapter 10: Funding and Financing	
Complete rate structure analysis by 2002.	Done
Set solid waste surcharges, excise taxes, and tipping fees at County solid waste handling facilities at a level sufficient to generate annual revenues equal to or greater than total annual expenses and reserves for solid waste management in the county.	Done
Review tip fees at solid waste facilities to determine if the County wants to account for the true cost of operations at the point of customer disposal of waste.	Done

13.5 PLANNING ISSUES

13.5.1 Unpermitted and Illegal Sites

Illegal dumping has created problems in some areas. The process for addressing this can be slow. Illegal dumping enforcement may be addressed through enforcement of State laws

regarding solid waste disposal (Ch. 173-350 WAC) or Yakima County ordinances concerning solid waste disposal and or littering. Generally, enforcement of solid waste laws and regulations is the responsibility of the Yakima Health District.

13.5.2 Minimum Service Levels

Residents in urban areas currently receive more solid waste services than residents of rural areas, although in many cases this is because rural residents choose not to subscribe to certain services. Still, a minimum service level standard would help address such inequities, and could also increase recycling and yard debris collections.

13.5.3 Collection and Disposal Districts

A collection district would also allow the County to set standards and implement services such as recycling, while a disposal district would allow the County to collect fees and implement disposal and other programs.

13.5.4 Long-Term Funding Needs

In the long run, if recycling and composting rates continue to increase and the amount of waste continues to decrease, it is possible that the County would need to find other sources of funding besides relying primarily on the tipping fee.

13.5.5 Flow Control

Flow control for the wastes collected in the cities is achieved through the interlocal agreements. It is a county policy that wastes collected in the unincorporated areas also must be delivered to the County's disposal facilities. Although the current system is working well, the County's ability to make long-range plans and invest in future disposal facilities would be improved if a flow control ordinance were adopted, thus avoiding unforeseen changes in the future.

The authority for a county to enact flow control was confirmed by a recent U.S. Supreme court case, the Haulers Association v. Oneida-Herkimer Solid Waste Management Authority (127 S. Ct. 1786 U.S., 2007). On April 30, 2007, the U.S. Supreme Court ruled in this case that a flow control requirement enacted by a local municipality did not violate the Commerce Clause of the U.S. Constitution because the processing facilities were owned and operated by a public entity, and that there was a benefit to the public from ensuring secure financing for the solid waste system. The Court also confirmed this decision in Department of Revenue of Kentucky et al. v. Davis et ux on May 19, 2008.

13.6 ALTERNATIVE STRATEGIES

13.6.1 Alternatives

Alternative A – Illegal Dumping

Litter and illegal dumping are chronic problems in Yakima County, and these are a priority for future work. The SWAC, or a separate task force, could address illegal dumping by bringing together key people from the several organizations that are impacted by this problem. Community members are aware of the impact of illegal dumping and may quite readily contribute to a set of solutions. If the SWAC takes the lead on this effort, other interested parties could be invited to participate in a special session or workshop on this issue.

Alternative B – Minimum Service Levels

One alternative to the current collection system in Yakima County is to adopt a service level ordinance. This approach could be used to institute new programs or services in the unincorporated areas of the County and also possibly in the cities. A service level ordinance could be used to change the rates or billing practices, for instance by "embedding" the cost of recycling into garbage collection fees. Also called a "recycling discount," this approach helps to encourage recycling because it appears that people are receiving a discount from their garbage bill by agreeing to recycle. Pierce County uses this approach, as do several other areas. Implementing either the mandatory pay/voluntary participation approach or recycling discounts in the certificated areas would require the County to adopt a service level ordinance that provides the foundation for this approach. The service level ordinance could also address yard debris collection.

Alternative C – Collection and Disposal Districts

Chapter 36.58 RCW, Solid Waste Disposal, establishes the counties' rights and responsibilities regarding solid waste management, including the authority to establish solid waste disposal districts. The authority to establish solid waste collection districts is provided in Chapter 36.58A. Either district can include the incorporated areas of a city or town only with the city's consent. A solid waste district (for collection or disposal) could centralize functions that are now handled by a variety of county and city agencies, but it may be difficult to develop a consensus on the formation and jurisdiction of either type of district. Either type of district may be able to alleviate illegal dumping and other problems through the institution of mandatory garbage collection (for a collection district only) and/or different financing structures.

RCW 36.58.040 prohibits counties from operating a solid waste collection system, but the establishment of a solid waste collection district that can act in a similar capacity is allowed by Ch. 36.58A RCW. A collection district can be created following the adoption of a solid waste management plan; however a collection district does not appear to possess taxing authority. According to RCW 36.58A.040, the revenue-generating authority of a collection district is limited.

A solid waste disposal district is a quasi-municipal corporation with taxing authority set up to provide and fund solid waste disposal services. A disposal district has the usual powers of a corporation for public purposes, but it does not have the power of eminent domain. The county legislative authority (i.e., the Board of County Commissioners) would be the governing body of the solid waste disposal district.

RCW 36.58.130 allows the creation of a disposal district to provide for all aspects of solid waste disposal. This includes processing and converting waste into useful products, but specifically does not allow the collection of residential or commercial garbage. A disposal district may enter into contracts with private or public agencies for the operation of disposal facilities, and then levy taxes or issue bonds to cover the disposal costs. Thus, a disposal district established in Yakima County could assess each resident or business (in incorporated areas only with the city's approval) a pro rata share of the cost of disposal. This could help to discourage illegal dumping by covering at least part of the disposal cost through mandatory payments, so that the additional expense for proper disposal would be lower than it is currently. In other words, the assessment by the disposal district would be paid regardless of where the resident or business dumped the waste or whether it was self-hauled or transported by a commercial hauler, and the latter two options would be less expensive by the amount of disposal costs already paid.

RCW 36.58.140 states that a disposal district may "collect an excise tax on the privilege of living in or operating a business in the solid waste disposal taxing district, provided that any property which is producing commercial garbage shall be exempt if the owner is providing regular collection and disposal." The district has a powerful taxing authority, since it may attach a lien to each parcel of property in the district for delinquent taxes and penalties, and these liens are superior to all other liens and encumbrances except property taxes.

The funds obtained by a disposal district tax may be used "for all aspects of disposing of solid wastes...exclusively for district purposes" (RCW 36.58.130). Potential uses include:

- Cleanup of roadside litter and solid wastes illegally disposed of on unoccupied properties within the district.
- Public information and education about waste reduction and recycling.
- Defraying a portion of the cost of disposal.
- Subsidizing waste reduction/recycling activities.
- Subsidizing the Moderate Risk Waste Facility and collection events.
- Closure and post-closure costs for the old landfill and for other solid waste facilities.
- Solid waste planning.

Three counties have implemented disposal districts (Ecology 2004):

1. In Lewis County, a disposal district is being used to provide a cohesive financial and control structure between the County and its principal cities to respond to the demands of a Superfund landfill site. The District does charges a tipping fee, but not an excise tax.

2. Whatcom County has implemented an excise tax on authorized waste collection services as allowed by state law. This effectively charges haulers $8.50 per ton, which haulers pass on to their customers and pay to the County regardless of where they take their waste.

3. San Juan County operates its own transfer station system and faced significant tonnage and revenue loss recently due to price competition. Hence, that county developed a disposal district to move some of its expenses to an excise tax, thus lowering its tipping fee and increasing revenues through increased waste tonnages.

Alternative D – Funding Options

Solid waste operations in Yakima County are financially self-supporting. Almost all revenue needed to achieve this goal is currently generated through tipping fees, but other options do exist. Ecology has examined funding methods as part of the Beyond Waste project (Ecology 2004), and the options that they have identified are shown in the Table 13-3 and in Appendix F.

13.6.2 Evaluation of Alternative Strategies

The alternatives are compared with respect to the evaluation criteria below.

Consistency with Planning Objectives

All four alternatives are consistent with the objectives of this solid waste plan.

Customer Preferences

Customers generally prefer flexibility and low-cost alternatives, and hence may not like Alternatives B and C. They may be neutral on Alternative D, depending on whether any new funding mechanisms were perceived as an increase in costs or not. Most people would probably prefer Alternative A if it led to a cleaner environment.

Implementation Costs

The implementation costs for Alternative D are not applicable, since these are methods for collecting additional funds. Alternatives B and C would not cost much to implement, although Alternative B could lead to higher costs for others. Alternative A would also not cost much to implement but could lead to higher costs depending on the recommendations of the task force.

13.6.3 Rating of Alternatives

The alternatives are compared with respect to the evaluation criteria in Table 13-4.

Table 13-3
Potential Funding Methods for Solid Waste Management

Possible Funding Methods	Potential Implementation Agency			
	City	County	State	Private Sector
User Fees, Rates, Surcharges				
1. Cost-of-Service-Based Rates	X	X		X
2. Other Volume-Based Rates	X			
3. Fixed Per-Customer Service Rates	X			X
4. Collection Rate Surcharges	X			
5. Planning Fees		X		
6. Weight or Volume-Based Disposal Fees	X	X		X
7. Fixed Per-Customer Disposal Fees	X	X		X
8. Disposal Surcharges	X	X		
Taxes				
9. MTCA Funds, Hazardous Substance Tax		(x)	X	
10. State Litter Tax		(x)	X	
11. Disposal District Excise Tax		X		
12. Mandatory Collection		X		
13. Franchise Fees	X		X	
Specialized Fees				
14. Advance Recovery Fees			X	
15. Permitting Fees		X (HD)		
Other				
16. Enforcement Fines/Penalties		X		
17. Sales of Recyclable Materials	X	X		X
18. Recycling Fees/Charges	X	X		X
19. Sales of Recovered Energy		X		X
20. Utility Tax	X			
21. General Fund Revenues	X	X		
22. Bond Financing		X		(x)
23. Public Works Assistance Account	X			

X = Implementing authority, (x) = potentially benefits from funding method but cannot implement it, HD = Health District.

Chapter 4: Waste Reduction and Recycling

Chapter 4 discusses existing programs and provides recommendations for two related topics: waste reduction and recycling. The following recommendations are proposed for these:

WRR1) Assist Washington State in achieving the 50% recycling rate.

WRR2) Adopt the list of designated materials (Table 4-2) as part of this Plan and maintain it through periodic review and updates as appropriate.

WRR3) Conduct a waste composition study to assess recycling program performance and potential.

WRR4) Make curbside recycling services available in every urban incorporated area and promote these services.

WRR5) Provide recycling opportunities at all solid waste transfer and disposal facilities in Yakima County.

WRR6) Encourage business recycling through a cooperative effort between the County, cities, private collectors, service groups, and the businesses.

WRR7) Continue to provide support for recycling at public events.

Two of the above recommendations, WRR1 and WRR2, are policies that have no direct costs, but that could lead to additional costs through new programs that may be needed in the future. One of the recommendations (WRR7) is an ongoing activity that does not require an additional expense. Conducting a waste composition study (WRR3) is contingent upon the availability of a grant or other funds to pay for it. The County has the primary responsibility for all of these recommendations except for WRR4, for which the municipalities are responsible.

Chapter 5: Organics

Chapter 5 discusses several types of organic materials. There are significant opportunities for additional programs addressing these wastes, leading to the following recommendations:

O1) Implement a disposal ban on yard debris effective January 1, 2012, for all public and private disposal facilities in Yakima County and for yard debris from all sources.

O2) Develop and issue an RFQ/RFP for composting services for the yard debris collected at County disposal facilities.

O3) Explore other options, including a County owned and operated facility, if Recommendation O2 cannot be implemented due to pricing, terms or other reasons.

Yakima County is the lead agency for all of the Organics recommendations.

Chapter 6: Collection

Chapter 6 discusses existing municipal solid waste collection services in unincorporated Yakima County and in the 14 participating cities and towns. These services are performing well, and only one recommendation was made for this topic:

C1) Provide all areas of Yakima County with bulky waste collection services.

As most areas of the County already have this service available, this is essentially an ongoing activity.

Chapter 7: Transfer

Chapter 7 discusses existing and potential transfer facilities and programs. The following recommendations were made for future changes in the transfer system:

T1) Evaluate the feasibility of a self-haul unloading facility at Cheyne Landfill.

T2) Expand the Terrace Heights Transfer Station to accommodate commercial traffic when THLF closes.

T3) Consider purchasing (or taking an option on) property suitable for a future transfer station as land becomes available and as funds allow.

Yakima County would take the lead in implementing these recommendations. T2 involves the highest cost, but is critical to the continued operation of the solid waste system. The timing of T2 is a function of when THLF is projected to reach capacity, which in turn will be affected by the duration and severity of the current economic downturn and subsequent recovery.

Chapter 8: Disposal

The current system of County-owned and privately-owned landfills in the county is working well, but a few changes should be considered for the future:

D1) Maintain the option to preserve capacity at the Terrace Heights Landfill.

D2) Consider purchasing (or taking an option on) property suitable for landfilling purposes as land becomes available and as funds allow.

D3) Consider conversion technologies in the future, but only if these can be proven to be feasible and cost-effective.

The County is the lead agency for solid waste disposal. Because it owns and operates two MSW landfills, the County has considerable autonomy and flexibility in choosing disposal options and their timing.

Chapter 9: Construction and Demolition Wastes and Green Building Practices

Chapter 9 discusses two related topics: the waste materials resulting from construction, demolition and land clearing activities, and the concept of "green building." The following recommendations are being proposed at this time for these two topics:

C&D1) Promote green building where possible.

C&D2) Develop and maintain a "Green House" to demonstrate green building techniques and products.

C&D3) Encourage proper reuse, recycling and/or disposal of C&D.

Yakima County is the lead agency for all three of these recommendations, and all three are essentially ongoing activities. Assistance with Recommendation C&D3 should be provided by the private sector and cities where appropriate.

Chapter 10: Special Wastes

Chapter 10 discusses the various materials that are considered "special wastes" because they pose somewhat elevated risks or require additional precautions or special handling procedures. For the most part, special wastes can be handled by the existing solid waste infrastructure and programs, but with a few additional considerations:

SP1) Support development and adoption by the State of Washington of a product stewardship program for tires.

SP2) Support new product stewardship programs as appropriate.

SP3) Continue to address special wastes through a cooperative effort with the Health District and Department of Ecology, and according to the established Solid Waste Division's Policy & Procedures. Update these Policy & Procedures as necessary to address new problems or special wastes.

The County is the lead agency for these recommendations, which would be initiated by others.

Chapter 11: Disaster Debris Management

Chapter 11 discusses the management of debris generated by a natural or human-caused disaster and makes the following recommendations:

DD1) Coordinate with the Office of Emergency Management to prepare for disaster debris response.

DD2) Develop an internal plan for handling disaster debris, in coordination with the Office of Emergency Management.

The County Solid Waste Division is the lead agency for these two recommendations.

Chapter 12: Moderate Risk Waste (MRW)

Chapter 12 provides an update of the Yakima County Moderate Risk Waste plan, originally adopted in 1991. As with most counties, there had been no need to update the MRW plan prior to this time, but recent changes have made an update desirable. The following recommendations are being proposed for MRW programs:

MRW1) Adopt the list shown in Table 12-1 of targeted materials for household hazardous waste and small quantity generator waste collections, but excluding e-waste and the materials shown in Group 7.

MRW2) Utilize technical assistance for small quantity generators provided by the Department of Ecology.

MRW3) Utilize the same schedule and process for updating the MRW Plan as for updating the solid waste management plan.

Yakima County has the primary authority for two of these recommendations (MRW1 and MRW3). The Department of Ecology has the primary authority for MRW2, the cost and schedule for which will be highly dependent on the amount of assistance requested by generators.

Chapter 13: Administration and Regulation

The administration and regulation of the solid waste system is an activity that is shared among several parties, including the County, Health District, cities and towns, Yakama Nation and private sector. The County and Health District have the primary responsibility for these activities, except on the Yakama Reservation where the Yakama Nation has the primary authority for solid waste activities.

AR1) Address illegal dumping problems in Yakima County with a task force and the SWAC.

AR2) Consider adopting minimum service levels in the future.

AR3) Exercise flow control authority as needed to enforce the policy that all solid wastes generated in Yakima County is delivered to a County solid waste facility. Adopt a flow control ordinance or other steps if necessary.

The County is the lead agency for these recommendations, the additional costs for which are largely limited to a portion of staff time (for existing staff).

14.3 ESTIMATED ADDITIONAL COSTS

Table 14-1 shows the approximate budget for Plan recommendations that incur additional costs above and beyond current programs.

Table 14-1
Six-Year Implementation Budget for Additional Costs (in $1,000's)

Recommendation	2010	2011	2012	2013	2014	2015
3. Public Education						
PE1) Public education activities	25	25	25	25	25	25
4. Recycling						
WRR3) Waste composition study			80			
WRR4) Curbside recycling in all urban areas	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
WRR5) Solid waste facilities provide recycling	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
5. Organics						
O2) Issue RFQ/RFP for composting services	15					
6. Collection						
No additional costs						
7. Transfer						
T1) Evaluate self-haul unloading area at CLF				250	3,350	
T2) Expand THTS (Note 3)						8,500
T3) Buy or option property	Note 4	Note 4	Note 4	Note 4	Note 4	Note 4
8. Disposal						
D2) Buy or option property	Note 4	Note 4	Note 4	Note 4	Note 4	Note 4
9. C&D/Green Building						
No additional costs						
10. Special Wastes						
No additional costs						
11. Disaster Debris						
DD2) Develop disaster debris plan		30 to 100				
12. MRW						
MRW2) Technical assistance by Ecology	Note 5	Note 5	Note 5	Note 5	Note 5	Note 5
13. Admn. and Regulation						
No significant additional costs						
Total Additional Costs	40	55 to 125	105	275	3,375	8,525

Notes:
1. All figures are in thousands of dollars.
2. Costs for curbside recycling in additional urban areas and collection containers at solid waste facilities are highly contingent on details of the chosen approach. Insufficient information is currently available to accurately determine these costs.
3. Expansion of THTS to enable hauling of waste to CLF will begin in 2015. The budget shown includes equipment and construction costs that will be spread over several years beginning in 2015.
4. Cost of property depends on size, location, and timing. Insufficient information is currently available to accurately determine cost.
5. Cost information is unknown at this time.

14.4 SIX-YEAR IMPLEMENTATION SCHEDULE

The proposed implementation schedule and primary responsibility is shown in Table 14-2. The Yakima County Solid Waste Advisory Committee (SWAC) will review and comment on proposed resolutions and ordinances prior to their adoption.

Table 14-2
Six-Year Implementation Schedule

Recommendation	Implementation Responsibility	Year of Implementation					
3. Public Education		**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
PE1) Public education activities	YC SWD	Ongoing					
4. Recycling		**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
WRR1) Contribute to State recycling goal	YC SWD	Ongoing					
WRR2) Adopt and maintain list of designated materials	YC SWD	Ongoing					
WRR3) Waste composition study	YC SWD		X	X	X		
WRR4) Curbside recycling in all urban areas	Municipalities	Ongoing					
WRR5) MSW facilities provide recycling	YC SWD	Ongoing					
WRR6) Encourage business recycling	YC SWD	Ongoing					
WRR7) Assist with public event recycling	YC SWD	Ongoing					
5. Organics		**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
O1) Ban LF disposal of yard debris	YC SWD			X			
O2) Issue composting services RFQ/RFP	YC SWD		X				
O3) Explore other options if needed	YC SWD		X				
6. Collection		**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
C1) Bulky waste collection	Haulers	Ongoing					
7. Transfer		**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
T1) Evaluate self-haul unloading area at CLF	YC SWD			X			
T2) Expand transfer station at THLF	YC SWD						X
T3) Buy or option property	YC SWD	Ongoing					
8. Disposal		**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
D1) Maintain capacity at THLF	YC SWD	Ongoing					
D2) Buy or option property	YC SWD	Ongoing					
D3) Consider conversion technologies in future	YC SWD	Ongoing					

Table 14-2, Six-Year Implementation Schedule, continued

Recommendation	Implementation Responsibility	Year of Implementation					
9. C&D/Green Building		**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
C&D1) Promote green building	YC SWD	Ongoing					
C&D2) Develop and maintain Green House	YC SWD	X					
C&D3) Promote proper mgmt. of C&D waste	YC SWD	Ongoing					
10. Special Wastes		**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
SP1) Promote product stewardship for tires	Ecology		X				
SP2) Support product stewardship programs	YC SWD	Ongoing					
SP3) Cooperative effort for special wastes	YC SWD	Ongoing					
11. Disaster Debris		**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
DD1) Coordinate with OEM	YC SWD	Ongoing					
DD2) Develop a disaster debris plan	YC SWD		X				
12. MRW		**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
MRW1) Adopt list of target materials	YC SWD	X					
MRW2) Technical assistance by Ecology	Ecology		X	X	X	X	X
MRW3) Update MRW plan with solid waste plan	YC SWD						X
13. Administration and Regulation		**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
AR1) Illegal dumping task force	YC SWD	X	X				
AR2) Consider adopting minimum service levels	YC SWD	X	X	X	X	X	X
AR3) Exercise flow control as needed	YC SWD	Ongoing					

14.5 TWENTY-YEAR IMPLEMENTATION PROGRAM

Solid waste management in Yakima County will continue to evolve based on changes in population, demographics, the local, state, and national economy, regulations, and advancements in waste handling and recycling. Because this Plan is being updated during an economic downturn and the timing and extent of a recovery are currently unknown, it is particularly difficult to project waste generation and the resultant need for additional facilities and programs.

Fortunately, Yakima County's current solid waste management system is functioning effectively. County operation of two landfills forms the foundation of the system, giving it stability and local

control. The proposed diversion of yard debris from County landfills, the upgrade to the Terrace Heights transfer station, and the eventual closure of Phase 1 of the Terrace Heights Landfill will all have some effect on the solid waste system, but these will not be large changes.

The current process of solid waste rate reviews and adjustments provides adequate funding for solid waste programs and facilities. If in the future it becomes advisable to seek additional sources of funding, Chapter 13 provides a list of potential alternate funding sources.

14.6 PROCEDURES FOR AMENDING THE PLAN

The Solid Waste Management-Reduction and Recycling Act (RCW 70.95) requires local governments to maintain their solid waste plans in current condition. Plans must be reviewed and revised, if necessary, at least every five years. This 2009 Plan should be reviewed in 2015. Before that time, the Plan can be kept in current condition through amendments. An "amendment" is defined as a simpler process than a revision. If there is a significant change in the solid waste system, however, a revision may be necessary before the five-year period is done.

Changes in the Plan may be initiated by Yakima County, working with the SWAC to develop and review proposed changes, or by outside parties. For the latter, individuals or organizations wishing to propose plan amendments before the scheduled review must petition Yakima County's Solid Waste Manager in writing. The petition should describe the proposed amendment, its specific objectives, and explain why immediate action is needed prior to the next scheduled review. The Solid Waste Manager will investigate the basis for the petition and prepare a recommendation for the Director of the Public Services Department.

If the Public Services Director decides that the petition warrants further consideration, the petition will be referred to the SWAC for review and recommendation. The Solid Waste Manager will draft the proposed amendment together with the SWAC. Whether the proposed amendment has been initiated by Yakima County or an outside party, the proposed amendment must be submitted to the legislative bodies of all participating jurisdictions and the Department of Ecology for review and comment. Adoption of the proposed amendment will require the concurrence of all affected jurisdictions.

The Public Services Director may develop reasonable rules for submitting and processing proposed plan amendments, and may establish reasonable fees to investigate and process petitions. All administrative rulings of the Director may be appealed to the Board of Yakima County Commissioners.

Minor changes may occur in the solid waste management system, whether due to internal decisions or external factors. These can be adopted without going through a formal amendment process. If there is uncertainty about whether or not a change is "minor," it should be discussed by the SWAC and a decision made based on the consensus of that committee.

Implicit in the development and adoption of this Plan is the understanding that in the future, the County may need to take emergency action for various reasons, and that these actions can be

undertaken without the need to amend this Plan beforehand. In this case, Yakima County staff will endeavor to inform the SWAC and other key stakeholders as soon as feasibly possible, but not necessarily before new actions are implemented. If the emergency results in permanent and significant changes to the Yakima County solid waste system, an amendment to this plan will be prepared in a timely fashion. If, however, the emergency actions are only undertaken on a temporary or short-term basis, an amendment will not be considered necessary. Any questions about what actions may be considered "temporary" or "significant" should be brought to the SWAC for their advice.

REFERENCES

REFERENCES

CIWMB 1974. *Solid Waste Generation Factors in California*, California Integrated Waste Management Board, July 1974.

Ecology 1995. *Best Management Practices for Management and Disposal of Street Wastes*, Washington State Department of Ecology, July 1995.

_____ 2004. *Financing Solid Waste for the Future*, Publication #04-07-032, Washington State Department of Ecology, November 2004.

FEMA 1999. *Public Assistance Debris Management Guide*, FEMA 325, Federal Emergency Management Agency, April 1999.

Hoffman 2009. Joe Hoffman, Washington State Department of Agriculture. Telephone conversation with Sharon Hlavka, Green Solutions, concerning agricultural waste collection events, on January 12, 2009 and September 25, 2009.

KC 1998. *Agricultural Waste Issue Paper*, King County, Washington, November 1998.

Larson 2000. *Migrant and Seasonal Farmworker Enumeration Profile Study*, Washington, September 2000.

OFM 2007. *Projections of the Total Resident Population for the Growth Management Act*, High Series (www.ofm.wa.gov/pop/gma/projections07.asp), Office of Financial Management, October 2007.

_____ 2008. *April 1 Population of Cities, Towns, and Counties*, (www.ofm.wa.gov/pop/april1/finalpop2008.xls), Office of Financial Management, April 2008.

Smith, Frosti. Central Region, Dept. of Ecology. Telephone conversation with Terrill Chang, URS Corporation, concerning July 16, 2004 change in ranking of Selah Dump on Hazardous Sites List, Oct. 30, 2008.

Soelter, Sonia. Washington State Department of Agriculture. Telephone conversation with Terrill Chang, URS Corporation, February 6, 2009.

Stericycle 2008. Telephone conversation with Terrill Chang, URS, concerning disposal of biomedical waste from Yakima County, November 3, 2008.

Tablante, N. et al, 2006. *Guidelines for In-house Composting of Catastrophic Poultry Mortality*, Maryland Cooperative Extension, University of Maryland, Fact Sheet 801, 2006.

USDA 2008. *2002 Census of Agriculture*, National Agricultural Statistics Service, United States Department of Agriculture, September 2008.

US EPA 2008. *Planning For Natural Disaster Debris*, EPA530-K-08-001, United States Environmental Protection Agency, Office of Solid Waste and Emergency Response/Office of Solid Waste, March 2008.

WUTC 2001. *Cost Assessment Guidelines for Local Solid Waste Management Planning*, Washington Utilities and Transportation Commission, August 2001.

Yakima County 1991. *Hazardous Waste Management Plan.* Prepared by Parametrix, Sumner, Washington, March 1991.

_____ 2003a. *Waste Composition Study.* Prepared by Green Solutions, South Prairie, Washington, June 2003.

_____ 2003b. *Solid Waste Management Plan.* Prepared by Parametrix, Sumner, Washington, July 2003.

_____ 2003c. *Review of Biomass Fuels and Technologies.* Prepared by R. W. Beck, Seattle, Washington. November 2003.

_____ 2003d. *LVTS Analysis of Facility Operating Alternatives.* Prepared by R.W. Beck, Seattle, Washington, November 2003.

_____ 2008a. *Solid Waste Level of Service Study & Infrastructure Needs Assessment.* Prepared by URS Corporation. April 2008.

_____ 2008b. *Yakima County Solid Waste Division Rate Report.* Prepared by Bell & Associates, September 2008.

_____ 2009a. *Compost Facility Feasibility Study.* Prepared by URS Corporation. August 2009.

_____ 2009b. *Transfer Station Cost of Operations Analysis.* Prepared by URS Corporation. August 2009.

_____ 2009c. *Solid Waste Policy & Procedures*, Yakima County, February 12, 2009.

_____ 2009d. *Terrace Heights Landfill Site Capacity Analysis Report.* Prepared by RW Beck. September 2009.

Yakima Regional Clean Air Agency 2008. *"State of the Air" Report to Yakima County*, from Director Gary Pruitt to the Communities, 2008.

APPENDIX A

SWAC BYLAWS and RESOLUTION OF APPOINTMENT

BOARD OF YAKIMA COUNTY COMMISSIONERS

IN THE MATTER OF ESTABLISHING THE YAKIMA COUNTY SOLID WASTE ADVISORY COMMITTEE AND ADOPTING COMMITTEE BY-LAWS	))))	Resolution No. 459-2007

WHEREAS, it is the intention of the Board of County Commissioners of Yakima County, Washington to establish a Solid Waste Advisory Committee as required by RCW 70.95.165 ; and,

WHEREAS, the Solid Waste Advisory Committee shall be established to assist the Board of County Commissioners of Yakima County, Washington in the development of programs and policies concerning solid waste handling and disposal, in the preparation of solid waste management plans and by reviewing and commenting on proposed rules, policies or ordinances relating to solid waste prior to adoption in accordance with the attached by-laws and organizational structure; now, therefore;

BE IT HEREBY RESOLVED by the Board of County Commissioners of Yakima County, Washington that the Yakima County Solid Waste Advisory Committee is established, and the attached by-laws are adopted for the aforesaid Solid Waste Advisory Committee.

Dated this 18th day of September, 2007

Michael D. Leita, Chairman

Ronald F. Gamache, County Commissioner

J. Rand Elliott, County Commissioner
Constituting the Board of County Commissioners for Yakima County, Washington

ATTEST:

Christina Steiner, Clerk of the Board

Tiera L. Girard
Deputy Clerk of the Board

YAKIMA COUNTY
SOLID WASTE ADVISORY COMMITTEE
BYLAWS
Adopted by Resolution No. 459-2007

I. ORGANIZATION – COMPOSITION AND PURPOSE

The Yakima County Solid Waste Advisory Committee (SWAC) shall consist of up to thirteen (13) members appointed by the Board of Yakima County Commissioners and any number of ex-officio members. The SWAC shall assist the Yakima County Board of Commissioners in the development of programs and policies concerning solid waste handling and disposal, in the preparation of solid waste management plans and by reviewing and commenting on proposed rules, policies or ordinances relating to solid waste prior to their adoption.

II. OFFICERS/MEMBERSHIP

A. **Members** – The SWAC shall be composed of thirteen (13) members, each having one vote. Membership is as follows:

1. Yakima County Board of Commissioners (1)
2. City of Yakima (1)
3. Two Cities with Population exceeding 5,000 (2)
4. Three Cities with Population under 5,000 (3)
5. Yakima Valley Conference of Governments (1)
6. Business and Industry Representative (1)
7. Waste Industry Representative (1)
8. Recycling Industry Representative (1)
9. Agriculture Industry Representative (1)
10. Public Health and Safety Representative (1)

B. **Ex-Officio Members** – The Yakima County Board of Commissioners may appoint non-voting ex-officio members to the SWAC.

C. **Appointments** – Members shall be appointed by the Board of County Commissioners.

D. **Terms** – Members shall serve a term of two (2) years commencing from the appointment date. Members may be reappointed to serve consecutive terms. Reappointment shall be subject to confirmation by the Yakima County Board of Commissioners.

E. **Chair** – The initial Chairperson shall be appointed for a two (2) year term by the Board of County Commissioners. Subsequent chairpersons shall be elected by the SWAC sitting in regular, open public meetings. The Chair will preside over committee meetings and coordinate development of the agenda with the Yakima County Public Services – Solid Waste Division Manager. The Chair will sign all correspondence originated by the SWAC on behalf thereof.

F. **Vice Chair** – A majority of the SWAC shall elect one of its members as Vice Chair. The term of the Vice Chair shall be for two (2) years. The Vice Chair will preside over SWAC meetings in the absence of the Chair.

G. **Secretary** – The Yakima County Public Services – Solid Waste Division Manager, or designate, shall act as Secretary to the SWAC.

H. **Attendance** – A SWAC member who accrues three (3) consecutive, unexcused absences from regular meetings may be removed from the SWAC by the Board of County Commissioners with the concurrence of two-thirds majority of the SWAC members.

III. MEETINGS

A. **Regular Meetings** – Meetings of the SWAC shall be called when necessary by the Chair. It is anticipated that meetings will be held monthly during active review of Solid Waste Management Plan Updates and at a minimum not less than semi- annually during off-planning years. At least fourteen (14) days prior notice shall be given.

B. **Minutes/Agendas** – Minutes of all meetings shall be kept by the Secretary and distributed to the members within three (3) weeks after a meeting. Agendas shall be prepared by the Solid Waste Division staff with input and verbal approval by the Chair and distributed to the SWAC members at least seven (7) days in advance of any regularly scheduled meeting. Meeting minutes will be approved by the SWAC at the next regular meeting.

C. **Public Access** – All regular meetings of the SWAC shall be held in a place that is open and easily accessible to the public. Provision shall be made for public comment at each meeting. Approved meeting minutes shall be available to the public on request. The SWAC is subject to, and will conform with, the provisions of RCW 42.30, the State Open Meeting Act.

D. Quorum – A quorum is required to be present before an official, regular meeting of the SWAC can take place. A simple majority of the voting members of the SWAC shall constitute a quorum.

IV. RECOMMENDATIONS

The role and purpose of the SWAC shall be to advise and make recommendation to the Yakima County Board of Commissioners on matters within their scope and charge as provided for in SWAC By-Laws. Written reports, recommendations and correspondence submitted to the Yakima County Board of Commissioners shall be forwarded on behalf of a majority of the members over the signature of the Chair. Minority reports, if any, shall be attached to, and forwarded with such reports, recommendations or correspondence without comment by the Chair.

V. WAIVER OF RULES

Any of the above rules or procedures may be waived by a majority vote of the quorum provided further that the reason therefore be included in each motion for waiver.

VI. AMENDMENT OF BYLAWS

Any of the By-Laws may be amended or repealed, and new By-Laws may be adopted, by two-thirds majority vote of the quorum and approval by the Yakima County Board of Commissioners. Prior notice of thirty (30) days shall be given to the SWAC before undertaking amendatory action.

BOARD OF YAKIMA COUNTY COMMISSIONERS

IN THE MATTER OF APPOINTING)
MEMBERS TO THE YAKIMA COUNTY) Resolution No. 617-2007
SOLID WASTE ADVISORY COMMITTEE)

WHEREAS, the Board of County Commissioners of Yakima County, Washington adopted Resolution 459-2007 establishing the Yakima County Solid Waste Advisory Committee and adopting the by-laws for the aforesaid Solid Waste Advisory Committee; and

WHEREAS, the by-laws for the Solid Waste Advisory Committee require the Board of County Commissioners of Yakima County, Washington to appoint members to the Solid Waste Advisory Committee; now, therefore,

BE IT HEREBY RESOLVED by the Board of County Commissioners of Yakima County, Washington that the voting members be, and hereby are, appointed to the Yakima County Solid Waste Advisory Committee as follows:

Yakima County Board of Commissioners	Ronald Gamache
City of Yakima	Bill Lover
City of Sunnyside	Bruce Epps
City of Grandview	Cus Arteaga
City of Zillah	Gary Clark
City of Toppenish	Lance Hoyt
City of Selah	John Tierney
Yakima Valley Conference of Governments	J. Page Scott
Business and Industry	Ron Anderson
Waste Industry	Scott Robertson
Recycling Industry	Vic Valdez
Agricultural Industry	Bob Groeneweg

BE IT FURTHER RESOLVED by the Board of County Commissioners of Yakima County, Washington that the ex-officio non-voting member be, and hereby is, appointed to the Yakima County Solid Waste Advisory Committee as follows:

Yakima Health District — Ted Silvestri

Done this 18th day of December, 2007.

SEAL OF THE BOARD OF YAKIMA COUNTY COMMISSIONERS STATE OF WASHINGTON

Michael D. Leita, Chairman

Ronald F. Gamache, County Commissioner

J. Rand Elliott, County Commissioner
Constituting the Board of County Commissioners for Yakima County, Washington

ATTEST:

Christina Steiner, Clerk of the Board

APPENDIX B

INTERLOCAL AGREEMENT

APPENDIX B
INTERLOCAL AGREEMENT

INTRODUCTION

All of the cities and towns in Yakima County have executed interlocal agreements with Yakima County for solid waste management purposes. To avoid wasting paper and other resources (since all of the agreements are identical except for the signatures), this appendix shows only one of those agreements. Copies of the other agreements can be viewed at the Yakima County Solid Waste Division's offices.

SOLID WASTE INTERLOCAL AGREEMENT

This Agreement is entered into between Yakima County, a political subdivision of the State of Washington and City of Grandview, a municipal corporation of the State of Washington, hereinafter referred to as "County" and "City" respectively.

PREAMBLE

This Agreement is entered into pursuant to Chapter 39.34 RCW for the purpose of cooperative management of solid waste in Yakima County. It is the intent of the parties to work cooperatively in establishing a Solid Waste Management Plan pursuant to Chapter 70.95 and with emphasis on the established priorities for solid waste management of waste reduction; waste recycling; energy recovery, incineration, or landfilling of separated waste; and landfilling of mixed wastes. The parties acknowledge their intent to meet or surpass applicable environmental standards with regard to the solid waste system.

I. DEFINITIONS

For purposes of this Agreement the following definitions shall apply:

"Landfill" means a disposal facility or part of a facility at which waste is placed in or on land and which is not a land treatment facility, as that term is defined in and may be modified by amendment to RCW 70.95.030.

"Moderate Risk Waste" means (a) any waste that exhibits any of the characteristics of hazardous waste but is exempt from regulation under this chapter solely because the waste is generated in quantities below the threshold for regulation and (b) any household wastes which are generated from the disposal of substances identified by the department as hazardous household substances, as that term is defined in and may be modified by amendment to RCW 70.105.010.

"Solid Waste" means all putrescible and nonputrescible solid and semi-solid wastes, including but not limited to garbage, rubbish, ashes, industrial wastes, swill, demolition and construction wastes, abandoned vehicles or parts thereof, and discarded commodities, but shall not include dangerous, hazardous or extremely hazardous waste, as that term is defined in and may be modified by amendment to RCW 70.105.010.

"Solid Waste Advisory Committee" or SWAC means a group formed pursuant to RCW 70.95.040 — .070 and comprised of representatives of unincorporated Yakima County, incorporated cities and towns, industry and businesses appointed by the Board of Yakima County Commissioners.

"Solid Waste Management Plan" means the coordinated comprehensive plan for solid waste management and updates as required by RCW 70.95.080.

"System" means all facilities for solid waste handling owned, operated or contracted for by the County, and all administrative activities related thereto.

"Waste Recycling" means reusing waste materials and extracting valuable materials from a waste stream.

"Waste Reduction" means reducing the amount or type of waste generated but shall not include reduction through energy recovery or incineration.

II. PURPOSE

The purpose of this Agreement is to establish the respective responsibility of the parties in a solid waste management system which includes, but is not limited to: planning, waste reduction, recycling, and disposal of mixed municipal solid waste, industrial waste, demolition debris and all other waste defined as Solid Waste in RCW 70.95.030, and as Moderate Risk Waste in RCW 70.105.010.

III. TERM

This Agreement shall become effective on date of signing by the City and remain in effect for a period of 20 years.

IV. APPROVAL AND FILING

Pursuant to RCW 39.34.050, this Agreement shall be submitted to the Washington State Department of Ecology for its approval as to all matters within its jurisdiction. This Agreement shall be filed with the City Clerk, the Clerk of the Board of Yakima County Commissioners, the Yakima County Auditor, and the Secretary of State of the State of Washington.

V. REVIEW AND RENEGOTIATION

5.1 Either party may request review and/or renegotiation of any provision of this Agreement other than those specified in Section 5.2 below during the six-month period immediately preceding the fifth anniversary of the effective date of this Agreement. Such request must be in writing and must specify the provision(s) of the Agreement for which review/ renegotiation is requested. Review and/or renegotiation pursuant to such written request shall be initiated within thirty days of said receipt.

5.2 Review and/or renegotiation shall not include the issues of System rates and charges, waste stream (flow) control or diversion unless agreed to in writing by both parties.

5.3 Notwithstanding any other provision in this paragraph to the contrary, the parties may, pursuant to mutual agreement, modify or amend any provision of this Agreement at any time during the term of said Agreement.

VI. WITHDRAWAL

In the event, following unsuccessful discussion between or among the parties, that a party that has requested review and/or renegotiation of any provision of this Agreement pursuant to Section V determines it is in that party's best interest to terminate its participation in and withdraw from

the Agreement, for any reason, then that party may withdraw from the remaining term of the Agreement after final satisfaction and completion of the following two conditions: first, that the withdrawing party must have prepared and gained approval from the Department of Ecology of its own Solid Waste Management Plan pursuant to RCW 70.95 and related provisions, and including each of the elements identified in Section 9.3 of this Agreement; and second, that the withdrawing party must enter into a written agreement with the County that the withdrawing party will remain responsible to the County for, and will continue to pay to the County when due, the withdrawing party's share of System costs, capital and operating, during the remaining term of this Agreement.

VII. GENERAL OBLIGATIONS OF THE PARTIES

7.1 YAKIMA COUNTY

a. Management. Yakima County shall (1) provide county-wide solid waste management services for waste generated and collected within jurisdictions which are parties to this Agreement and (2) designate disposal facilities for all Solid Waste and Moderate Risk Waste generated and/or collected within the corporate limits of the City.

b. Planning. Yakima County shall serve as the planning authority within Yakima County for Solid Waste and Moderate Risk Waste, but shall not be responsible for planning for hazardous or dangerous waste or any other planning responsibility that is specifically delegated by State or Federal statute.

c. Operation. Yakima County, directly or by its designee, shall be the operating authority for County transfer, processing and disposal facilities (including public landfills, waste reduction or recycling facilities and energy resource recovery facilities) and shall have closure and post-closure responsibilities for landfills which are operated by Yakima County.

d. Collection Service. Yakima County shall not provide solid waste collection services within the corporate limits of the City, unless permitted by law and agreed to by both parties.

e. Support and Assistance. Yakima County shall provide limited support and technical assistance to the City if the City seeks to establish a waste reduction and recycling program compatible with the County waste reduction and recycling plan. The County may develop educational materials related to waste reduction and recycling, Moderate Risk Waste, and strategies for maximizing the usefulness of the materials and will make any such materials available to the City for its use.

f. Facilities and Services. All personal and real property acquired by Yakima County for solid waste management system purposes shall be the property of Yakima County.

7.2 CITY

a. Collection. The City shall be responsible for solid waste collection within the City's corporate limits.

b. Disposal. The City shall (1) designate the System for the disposal of all Solid Waste generated and/or collected within the City and (2) authorize the County to designate disposal facilities for the disposal of all Solid Waste including Moderate Risk Wastes, generated or collected within the corporate limits of the City, except for Solid Waste which is eliminated through Waste Reduction or Waste Recycling activities consistent with the Solid Waste Management Plan. No Solid Waste generated or collected within the City may be diverted from the System without County approval.

c. Compliance. All waste generated or collected from within the corporate limits of the City which is delivered to the System for disposal shall be in compliance with RCW 70.95 and all other federal, state and local environmental health laws, rules or regulations.

VIII. COUNTY SHALL SET DISPOSAL RATES AND OPERATING RULES FOR DISPOSAL

In establishing or amending disposal rates for System users, the County may adopt and amend by resolution rates necessary to recover all costs of operating the System, including without limitation the costs of waste planning, handling, processing, disposal, defense and payment of claims, capital improvements, operational improvements, and the closure and post-closure of landfills which are or were operated by Yakima County or for which the County is responsible. The SWAC will provide comments or recommendations to the County in considering system or rate modifications.

IX. SOLID WASTE MANAGEMENT PLAN

9.1 Yakima County is designated to prepare the Solid Waste Management Plan (SWMP) and updates, including the incorporated areas of the County pursuant to RCW 70.95.080(3).

9.2 The Solid Waste Management Plan will promote waste reduction and recycling goals that meet or exceed the Washington State Solid Waste Management priorities pursuant to Chapter 70.95 RCW.

9.3 The Solid Waste Management Plan will be prepared in accordance with Chapter 70.95 RCW and solid waste planning guidelines developed by the Department of Ecology. The plan shall include, but not be limited to:

a. Descriptions of and policies regarding management practices and facilities required for handling all waste types;

b. Schedules and responsibilities for implementing policies;

c. Policies concerning waste reduction, recycling, energy and resource recovery, collection, transfer, long-haul transport, disposal, enforcement and administration.

d. The designation of disposal site(s) for all Solid Waste collected within the incorporated and unincorporated areas of the County.

e. Capital facilities and infrastructure element.

9.4 The cost of preparation by Yakima County of the Solid Waste Management Plan will be considered a cost of the System and financed out of disposal rates.

X. UNCONTROLLABLE CIRCUMSTANCES

The parties are not liable for failure to perform pursuant to the terms of this Agreement when failure to perform was due to an Uncontrollable Circumstance. "Uncontrollable Circumstance" means any act, event or condition that has had or may reasonably be expected to have a material adverse effect on the rights or obligations of a party to this Agreement, if that act, event or condition is beyond the reasonable control of the party relying thereon as justification for not performing an obligation or complying with any condition required of that party under this Agreement.

Those acts, events or conditions are the following:

a. An act of God, hurricanes, tornadoes, epidemic, landslide, lighting, earthquake, volcano eruption, nuclear radiation, fire or explosion, extreme flooding or other extreme and atypical weather condition, an act of public enemy, war, blockade, insurrection, riot, general arrest, or restraint of government and people, civil disturbance or similar occurrence, that directly affects the System;

b. Failure of any appropriate federal, state or local agency or public or private utility having operational jurisdiction in the County, to provide and maintain and assure the maintenance of any necessary utility;

c. Appeals by third parties of permits necessary for the construction and/or operation of the System;

d. A change in law that specifically affects the processing of Solid Waste or Moderate Risk Waste;

e. Any strike or labor dispute.

XI. COMPLETE AGREEMENT

This Agreement supersedes all prior negotiations, representation and/or agreements between the parties relating to the subject matter of this Agreement and constitutes the entire contract between the parties. Any changes or revisions to this Agreement shall be in writing and authorized by both parties.

XII. WAIVER

No waiver by either party of any term or condition of this Agreement shall be deemed or construed to constitute a waiver of any other term or condition or of any subsequent breach whether of the same or a different provision of this Agreement.

XIII. THIRD PARTY BENEFICIARY

This Agreement is not entered into with the intent that it shall benefit any other entity or person except those expressly described herein, and no other such person or entity shall be entitled to be treated as a third party beneficiary of this Agreement.

XIV. SEVERABILITY AND VENUE

If any of the provisions contained in this Agreement are held illegal, invalid or unenforceable, the remaining provisions shall remain in full force and effect. Any action, suit or judicial proceeding for the enforcement of this Agreement shall be brought in Superior Court of the State of Washington in Yakima County, Washington.

XV. NOTICE

IN WITNESS WHEREOF this Agreement has been executed by each party on the date set forth below:

CITY:

MAYOR

DATE: 12/10/02

ATTEST:

Clerk

APPROVED AS TO FORM AND LEGALITY:

City Attorney

DATE: 12/10/02

BOARD OF YAKIMA COUNTY COMMISSIONERS:

Ronald F. Gamache, ~~Chairman~~

Jesse S. Palacios, County Commissioner Chair

James M. Lewis, County Commissioner

ATTEST: Carla M. Ward

Carla M. Ward, Clerk of the Board

APPROVED AS TO FORM:

Yakima County Prosecuting Attorney

SEAL OF THE BOARD OF YAKIMA COUNTY COMMISSIONERS STATE OF WASHINGTON

APPENDIX C

RESOLUTIONS OF ADOPTION

BOARD OF YAKIMA COUNTY COMMISSIONERS

IN THE MATTER OF ADOPTING THE 2010 YAKIMA COUNTY SOLID AND MODERATE RISK WASTE MANAGEMENT PLAN	)))	Resolution No. 227-2010

WHEREAS, pursuant to the provisions of RCW Chapter 70.95, the Washington State Legislature adopted legislation, the purpose of which was to establish a comprehensive state-wide program for solid waste handling, solid waste recovery and/or recycling which would prevent land, air and water pollution and conserve natural, economic and energy resources of the State of Washington; and,

WHEREAS, RCW Chapter 70.95.010, as amended in 1989 by the Legislature established the solid waste management priorities as waste reduction; waste recycling; energy recovery; incineration, landfill of separated waste; and energy recovery, incineration, or land filling of mixed wastes; and,

WHEREAS, the County of Yakima pursuant to the provision of RCW Chapter 70.95 has advised each city/town that Yakima County and the Solid Waste Advisory Committee have prepared the Yakima County Solid Waste Management Plan, which includes the cities/towns; and,

WHEREAS, each city/town has acknowledged and/or adopted the 2010 Yakima County Solid And Moderate Risk Waste Management Plan (Plan), and recognize that the Plan will be reviewed and revised every five (5) years and recognize that modifications to the Plan may be initiated by Yakima County or any City/Town respectively with proper notice; and,

WHEREAS, pursuant to the provisions of Chapter 43.21C RCW, WAC 179-11 and Yakima County Environmental Ordinance, an environmental checklist has been prepared in conjunction with the 2010 Yakima County Solid And Moderate Risk Waste Plan and a "Determination of Non-significance" has been issued in conjunction with the same; now, therefore,

BE IT RESOLVED by the Board of Yakima County Commissioners that the 2010 Yakima County Solid And Moderate Risk Waste Management Plan is hereby approved and adopted.

BE IT FURTHER RESOLVED that the Director of Public Services is directed to implement the 2010 Yakima County Solid And Moderate Risk Waste Management Plan.

Done this 1st day of June, 2010

SEAL OF THE BOARD OF YAKIMA COUNTY COMMISSIONERS STATE OF WASHINGTON

Michael D. Leita, Chairman

Kevin J. Bouchey, County Commissioner

J. Rand Elliott, County Commissioner

Constituting the Board of County Commissioners for Yakima County, Washington

ATTEST:

Christina Steiner, Clerk of the Board

RESOLUTION NO. 2010-13

A RESOLUTION OF THE CITY OF GRANDVIEW, WASHINGTON, ADOPTING THE 2010 YAKIMA COUNTY SOLID AND MODERATE RISK WASTE MANAGEMENT PLAN DATED JANUARY 2010

WHEREAS, pursuant to the provisions of RCW Chapter 70.95 and RCW Chapter 70.105, Yakima County is required to prepare and update the Solid Waste Management Plan and provide a local Moderate Risk Waste Management Plan; and,

WHEREAS, incorporated Cities and Towns in Yakima County have designated the County to develop a Solid Waste Management Plan for integrated solid waste management pursuant to Interlocal Agreement for Solid Waste Management executed by the Board of Yakima County Commissioners April 1, 2003; and,

WHEREAS, the Yakima County Solid Waste Advisory Committee recommends adoption of the 2010 Solid and Moderate Risk Waste Management Plan; and,

WHEREAS, the Washington State Department of Ecology reviewed the draft Solid and Moderate Risk Waste Management Plan and provided comments; and funding for Plan implementation has been approved by the Washington Utilities and Transportation; and,

WHEREAS, the proposed Solid and Moderate Risk Waste Management Plan has been reviewed as a non-project action under SEPA and a Determination of Non-Significance was issued on January 25, 2010; and,

WHEREAS, the adopted Solid and Moderate Risk Waste Management Plan will be submitted to the Washington State Department of Ecology for final approval,

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF GRANDVIEW, AS FOLLOWS:

The 2010 Yakima County Solid and Moderate Risk Waste Management Plan is hereby approved and adopted as the Solid and Moderate Risk Waste Management Plan for the City of Grandview.

PASSED by the **CITY COUNCIL** and **APPROVED** by the **MAYOR** at its regular meeting on February 16, 2010.

MAYOR

ATTEST:

CITY CLERK

APPROVED AS TO FORM:

CITY ATTORNEY

RESOLUTION 2010-04

IN THE MATTER OF ADOPTING THE 2010 YAKIMA COUNTY SOLID AND MODERATE RISK WASTE MANAGEMENT PLAN, DATED JANUARY 2010.

WHEREAS, pursuant to the provisions of RCW Chapter 70.95 and RCW Chapter 70.105, Yakima County is required to prepare and update the Solid Waste Management Plan and provide a local Moderate Risk Waste Management Plan; and,

WHEREAS, incorporated Cities and Towns in Yakima County have designated the County to develop a Solid Waste Management Plan for integrated solid waste management pursuant to an Interlocal Agreement for Solid Waste Management executed by the Board of Yakima County Commissions April 1, 2003; and

WHEREAS, the Yakima County Solid Waste Advisory Committee recommends adoption of the 2010 Solid and Moderate Risk Waste Management Plan, and,

WHEREAS, the Washington State Department of Ecology reviewed the draft Solid Moderate Risk Waste Management Plan and provided comments; and funding for Plan implementation has been approved by the Washington Utilities and Transportation; and,

WHEREAS, the proposed Solid and Moderate Risk Waste Management Plan has been reviewed as a non-project action under SEPA and a Determination of Non-Significance was issued on January 25, 2010; and

WHEREAS, the adopted Solid Moderate Risk Waste Management Plan will be submitted to the Washington State Department of Ecology for final approval;

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Granger, that 2010 Yakima County Solid and Moderate Risk Waste Management Plan, is hereby approved and adopted as the Solid and Moderate Risk Waste Management Plan for the City of Granger.

Dated this 23rd of March, 2010.

Ramona Fonseca
Mayor Ramona Fonseca

Attest:

Alice Koerner
Alice Koerner

Approved as to form:

Kevan Montoya

RECEIVED
MAR 24 2010
Yakima Co. Solid Waste

Public Services
MAR 23 2010

Vern___Gary___Don___Steve___
Dave___Lisa___Darrin___

RESOLUTION NO. 2010-2

IN THE MATTER OF ADOPTING THE 2010 YAKIMA COUNTY SOLID AND MODERATE RISK WASTE MANAGEMENT PLAN, DATED JANUARY 2010.

WHEREAS, pursuant to the provisions of RCW Chapter 70.95 and RCW chapter 70.105, Yakima County is required to prepare and update the Solid Waste Management Plan and provide a local Moderate Risk Waste Management Plan; and,

WHEREAS, incorporated Cities and Towns in Yakima County have designated the County to develop a Solid Waste Management Plan for integrated solid waste management pursuant to an Interlocal Agreement for Solid Waste Management executed by the Board of Yakima County Commissioners April 1, 2003; and,

WHEREAS, the Yakima County Solid Waste Advisory Committee recommends adoption of the 2010 Solid and Moderate Risk Waste Management Plan; and,

WHEREAS, the Washington State Department of Ecology reviewed the draft Solid and Moderate Risk Waste Management Plan and provided comments; and funding for Plan implementation has been approved by the Washington Utilities and Transportation; and,

WHEREAS, the proposed Solid and Moderate Risk Waste management Plan will be submitted to the Washington Ste Department of Ecology for final approval;

NOW, THEREFIRE, BE IT RESOLVED by the Town Council of the Town of Harrah, that the 2010 Yakima County Solid and Moderate Risk Waste Management Plan, is hereby approved and adopted as the Solid and Moderate Risk Waste Management Plan for the Town of Harrah.

Dated this 22nd day of March, 2010.

Town Council

Mayor: Barbara Warren

Attest:

Clerk: Pat Morrell

Approved at to form:

John E. Maxwell Attorney

RESOLUTION NO. 2010-01

IN THE MATTER OF ADOPTING THE 2010 YAKIMA COUNTY SOLID AND MODERATE RISK WASTE MANAGEMENT PLAN, DATED JANUARY 2010

WHEREAS, pursuant to the provisions of RCW Chapter 70.95 and RCW Chapter 70.105, Yakima County is required to prepare and update the Solid Waste Management Plan and provide a local Moderate Risk Waste Management Plan; and,

WHEREAS, incorporated Cities and Towns in Yakima County have designated the County to develop a Solid Waste Management Plan for integrated solid waste management pursuant to an Interlocal Agreement for Solid Waste Management executed by the Board of Yakima County Commissioners April 1, 2003; and,

WHEREAS, the Yakima County Solid waste Advisory Committee recommends adoption of the 2010 Solid and Moderate Risk Waste Management Plan, and,

WHEREAS, the Washington State Department of Ecology reviewed the draft Solid and Moderate Risk Waste Management Plan and provided comments; and funding for Plan implementation has been approved by the Washington Utilities and Transportation; and,

WHEREAS, the proposed Solid and Moderate Risk Waste Management Plan has been reviewed as a non-project action under SEPA and a Determination of Non-Significance was issued on January 25, 2010; and,

WHEREAS, the adopted Solid and Moderate Risk Waste Management Plan will be submitted to the Washington State Department of Ecology for final approval;

NOW, THEREFORE, BE IT RESOLVED BY THE City Council of the City of Mabton, that the 2010 Yakima County Solid and Moderate Risk Waste Management Plan, is hereby approved and adopted as the Solid and Moderate Risk Waste Management Plan for the City of Mabton.

Dated this 23rd day of February, 2010.

Mayor

[redacted] Approved as to form:

City Attorney

Attest:

I. Clerk Treasurer

CITY OF MOXEE
RESOLUTION 2010-10

A RESOLUTION of the City Council of the City of Moxee in the matter of adopting the 2010 Yakima County Solid and Moderate Risk Waste Management Plan dated January 2010.

WHEREAS, pursuant to the provisions of RCW Chapter 70.95 and RCW Chapter 70.105, Yakima County is required to prepare and update the Solid Waste Management Plan and provide a local Moderate Risk Waste Management Plan; and,

WHEREAS, incorporated Cities and Towns in Yakima County have designated the County to develop a Solid Waste Management Plan for integrated solid waste management pursuant to an Interlocal .Agreement for Solid Waste Management executed by the Board of Yakima County Commissioners April 1, 2003; and,

WHEREAS, the Yakima County Solid Waste Advisory Committee recommends adoption of the 2010 Solid and Moderate Risk waste management Plan, and,

WHEREAS, the Washington State Department of Ecology reviewed the draft Solid and Moderate Risk Waste Management Plan and provided comments; and funding for Plan Implementation bas been approved by the Washington Utilities and Transportation; and,

WHEREAS, the proposed Solid and Moderate Risk Waste Management Plan has been reviewed as a non-project action under SEPA and a Determination of Non-Significance was issued on January 25, 2010; and,

WHEREAS, the adopted Solid and Moderate Risk Waste Management Plan will be submitted to the Washington State Department of Ecology for final approval;

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Moxee, that the 2010 Yakima County Solid, and Moderate Risk Waste Management Plan, is hereby approved and adopted as the Solid and Moderate Risk Waste Management Plan for the City of Moxee.

PASSED AND ADOPTED BY THE CITY COUNCIL OF THE CITY OF MOXEE, WASHINGTON, this 8th day of April 2010.

Mayor Greg LaBree

ATTEST:

City Clerk - Treasurer

TOWN OF NACHES
RESOLUTION NO. 2010-07

IN THE MATTER OF ADOPTING THE 2010 YAKIMA COUNTY SOLID AND MODERATE RISK WASTE MANAGEMENT PLAN, DATED JANUARY 2010..

WHEREAS, PURSUANT TO THE PROVISIONS OF RCW Chapter 70.95 and RCW Chapter 70.105, Yakima County is required to prepare and update the Solid Waste Management Plan and provide a local Moderate Risk Waste Management Plan; and

WHEREAS, incorporated Cities and Towns in Yakima County have designated the County to develop a Solid Waste Management Plan for integrated solid waste management pursuant to an Interlocal Agreement for Solid Waste Management executed by the Board of Yakima County Commissioners April 1, 2003; and

WHEREAS, the Yakima County Solid Waste Advisory Committee recommends adoption of the 2010 Solid and Moderate Risk Waste Management Plan; and

WHEREAS, the Washington State Department of Ecology reviewed the draft Solid and Moderate Risk Waste Management Plan and provided comments; and funding for Plan implementation has been approved by the Washington Utilities and Transportation; and

WHEREAS, the proposed Solid and Moderate Risk Waste Management Plan has been reviewed as a non-Significance was issued on January 25, 2010; and

WHEREAS, the adopted Solid and Moderate Risk Waste Management Plan will be submitted to the Washington State Department of Ecology for final approval;

NOW, THEREFORE, BE IT RESOLVED by the Town Council of the Town of Naches, that the 2010 Yakima County Solid and Moderate Risk Waste Management Plan, is hereby approved and adopted as the Solid and Moderate Risk Waste Management Plan for the Town of Naches.

ADOPTED by the Town Council and approved by the Mayor at the regular meeting of the Town Council held on the 8th day of March 2010.

ERIC WOLFE, Mayor

Attest:

TANYA LUKE, Town Clerk

Approved as to Form:

SARA WATKINS, Town Attorney

g:\mfs\inaches, town of-18441\resolutions\contract.hla.doc
10/24/2007 3:09 pmmsoffice

RESOLUTION NO. 2050

RESOLUTION APPROVING AND ADOPTING THE 2010 YAKIMA COUNTY SOLID AND MODERATE RISK WASTE MANAGEMENT PLAN, DATED JANUARY 2010

WHEREAS, pursuant to the provisions of RCW Chapter 70.95 and RCW Chapter 70.105, Yakima County is required to prepare and update the Solid Waste Management Plan and provide a local Moderate Risk Waste Management Plan, and

WHEREAS, incorporated Cities and Towns in Yakima County have designated the County to develop a Solid Waste Management Plan for integrated solid waste management pursuant to an Interlocal Agreement for Solid Waste Management executed by the Board of Yakima County Commissioners April 1, 2003, and

WHEREAS, the Yakima County Solid Waste Advisory Committee recommends adoption of the 2010 Solid and Moderate Risk Waste Management Plan, and

WHEREAS, the Washington State Department of Ecology reviewed the draft Solid and Moderate Risk Waste Management Plan and provided comments; and funding for Plan implementation has been approved by the Washington Utilities and Transportation, and

WHEREAS, the proposed Solid and Moderate Risk Waste Management Plan has been reviewed as a non-project action under SEPA and a Determination of Non-Significance was issued on January 25, 2010, and

WHEREAS, the adopted Solid and Moderate Risk Waste Management Plan will be submitted to the Washington State Department of Ecology for final approval;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SELAH, WASHINGTON that the 2010 Yakima County Solid and Moderate Risk Waste Management Plan, is hereby approved and adopted as the Solid and Moderate Risk Waste Management Plan for the City of Selah.

PASSED AND ADOPTED BY THE CITY COUNCIL OF THE CITY OF SELAH, WASHINGTON this 23rd day of February, 2010.

Robert L. Jones, Mayor

ATTEST:

Dale E. Novobielski, Clerk/Treasurer

APPROVED AS TO FORM:

Bob Noe, City Attorney

RESOLUTION 2010 - 20

ORIGINAL

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SUNNYSIDE, WASHINGTON, IN THE MATTER OF ADOPTING THE 2010 YAKIMA COUNTY SOLID AND MODERATE RISK WASTE MANAGEMENT PLAN DATED JANUARY 2010.

WHEREAS, pursuant to the provisions of RCW Chapter 70.95 and RCW Chapter 70.105, Yakima County is required to prepare and update the Solid Waste Management Plan and provide a local Moderate Risk Waste Management Plan; and,

WHEREAS, incorporated Cities and Towns in Yakima county have designated the County to develop a Solid Waste Management Plan for integrated solid waste management pursuant to an Interlocal Agreement for Solid Waste Management executed by the Board of Yakima county Commissioners April 1, 2003; and,

WHEREAS, the Yakima County Solid Waste Advisory Committee recommends adoption of the 2010 Solid and Moderate Risk Management Plan; and,

WHEREAS, the Washington State Department of Ecology reviewed the draft Solid and Moderate Risk Waste Management Plan and provided comments; and funding for Plan implementation has been approved by the Washington Utilities and Transportation; and,

WHEREAS, the proposed Solid and Moderate Risk Waste Management Plan will be submitted to the Washington State Department of Ecology for final approval;

WHEREAS, the City Council finds and determines that adoption of such Solid and Risk Waste Management Plan is in the best interests of residents of the City of Sunnyside and will promote the general health, safety and welfare.

NOW, THEREFORE, IT IS HEREBY RESOLVED BY THE CITY COUNCIL OF THE CITY OF SUNNYSIDE, WASHINGTON, as follows:

Section 1. That the 2010 Yakima County Solid and Moderate Risk Waste Management Plan, is hereby approved and adopted as the Solid and Moderate Risk Waste Management Plan for the City of Sunnyside.

Section 2. This Resolution shall be effective upon passage, approval and signatures hereon in accordance with law.

PASSED this 26th day of April, 2010.

JAMES A. RESTUCCI, MAYOR

ATTEST:

DEBORAH A. ESTRADA, CITY CLERK

APPROVED AS TO FORM:

/s/

MENKE JACKSON BEYER EHLIS & HARPER, LLP
Attorneys at Law

RESOLUTION NO. 283

IN THE MATTER OF ADOPTING THE 2010 YAKIMA COUNTY SOLID AND MODERATE RISK WASTE MANAGEMENT PLAN, DATED JANUARY 2010

WHEREAS, pursuant to the provisions of RCW Chapter 70.95 and RCW Chapter 70.105, Yakima County is required to prepare and update the Solid Waste Management Plan and provide a local Moderate Risk Waste Plan; and,

WHEREAS, incorporated Cities and Towns in Yakima County have designated the County to develop a Solid Waste Management Plan for integrated solid waste management pursuant to an Interlocal Agreement for Solid Waste Management executed by the Board of Yakima County Commissioners April 1 2003; and,

WHEREAS, the Yakima County Solid Waste Advisory Committee recommends adoption of the 2010 Solid and Moderate Risk Waste Management Plan; and,

WHEREAS, the Washington State Department of Ecology reviewed the draft Solid and Moderate Risk Management Plan and provided comments; and funding for Plan implementation has been approved by the Washington Utilities and Transportation; and,

WHEREAS, the proposed Solid and Moderate Risk Management Plan has been reviewed as a non-project action under SEPA and a Determination of Non-Significance was issued on January 25, 2010; and,

WHEREAS, the adopted Solid and Moderate Risk Waste Management will be submitted to the Washington State Department of Ecology for final approval;

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Tieton, that the 2010 Yakima County Solid and Moderate Risk Waste Management Plan, is hereby approved and adopted as the Solid and Moderate Risk Waste Management Plan for the City of Tieton.

DULY ADOPTED this 16th day of February, 2010, by the City Council of the City of Tieton, Washington.

Stanley R. Hall, Mayor

Attest:

Fred Muñoz, Clerk/Treasurer

Approved as to form:

Kevin Naught, City Attorney

RESOLUTION 2010-4

RESOLUTION ADOPTING THE YAKIMA COUNTY SOLID AND MODERATE RISK WASTE MANAGEMENT PLAN, DATED JANUARY 2010

WHEREAS pursuant to the provisions of RCW Chapter 70.95 and RCW Chapter 70.105, Yakima County is required to prepare and update the Solid Waste Management Plan and provide a local Moderate Risk Waste Management Plan, and

WHEREAS incorporated Cities and Towns in Yakima County have designated the County to develop a Solid Waste Management Plan for integrated solid waste management pursuant to an Interlocal Agreement for Solid Waste Management executed by the Board of Yakima County Commissioners on April 1, 2003, and

WHEREAS the Yakima County Solid Waste Advisory Committee recommends adoption of the 2010 Solid and Moderate Risk Waste Management Plan, and

WHEREAS the Washington State Department of Ecology reviewed the draft Solid and Moderate Risk Waste Management Plan and provided comments; and funding for Plan implementation has been approved by the Washington Utilities and Transportation, and

WHEREAS the proposed Solid and Moderate Risk Waste Management Plan has been reviewed as a non-project action under SEPA and a Determination of Non-Significance was issued on January 25, 2010, and

WHEREAS the adopted Solid and Moderate Risk Waste Management Plan will be submitted to the Washington State Department of Ecology for final approval,

NOW THEREFORE BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF TOPPENISH, WASHINGTON AS FOLLOWS:

Section 1: The 2010 Yakima County Solid and Moderate Risk Waste Management Plan is hereby approved and adopted as the Solid and Moderate Risk Waste Management Plan for the City of Toppenish.

Section 2: This resolution shall be effective immediately upon passage and signatures hereto.

PASSED by the Toppenish City Council at its regular meeting held on February 22, 2010.

BLAINE R. THORINGTON, Mayor

ATTEST:

LINDA B. MEAD, CMC, Finance Director/City Clerk

CITY OF UNION GAP, WASHINGTON
RESOLUTION NO. 876

A RESOLUTION adopting the 2010 Yakima County Solid and Moderate Risk Waste Management Plan.

WHEREAS, pursuant to the provisions of RCW Chapter 70.95 and RCW Chapter 70.105, Yakima County is required to prepare and update the Solid Waste Management Plan and provide a local Moderate Risk Waste Management Plan;

WHEREAS, incorporated Cities and Towns in Yakima County have designated the County to develop a Solid Waste Management Plan for integrated solid waste management pursuant to an Interlocal Agreement for Solid Waste Management executed by the Board of Yakima County Commissioners April 1, 2003;

WHEREAS, the Yakima County Solid Waste Advisory Committee recommends adoption of the 2010 Solid and Moderate Risk Waste Management Plan;

WHEREAS, the Washington State Department of Ecology reviewed the draft Solid and Moderate Risk Waste Management Plan and provided comments; and funding for Plan implementation has been approved by the Washington Utilities and Transportation;

WHEREAS, the proposed Solid and Moderate Risk Waste Management Plan has been reviewed as a non-project action under SEPA and a Determination of Non-Significance was issued on January 25, 2010;

WHEREAS, the adopted Solid and Moderate Risk Waste Management Plan will be submitted to the Washington State Department of Ecology for final approval;

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF UNION GAP, WASHINGTON, HEREBY RESOLVES as follows:

That the 2010 Yakima County Solid and Moderate Risk Waste Management Plan, is hereby approved and adopted as the Solid and Moderate Risk Waste Management Plan for the City of Union Gap.

PASSED this 24th day of May 2010.

Jim Lemon, Mayor

ATTEST:

Kathryn Thompson, CMC, City Clerk

APPROVED AS TO FORM:

Robert F. Noe, City Attorney

RESOLUTION NO. 2010-10

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF WAPATO, WASHINGTON IN THE MATTER OF ADOPTING THE 2010 YAKIMA COUNTY SOLID AND MODERATE RISK WASTE MANAGEMENT PLAN, DATED JANUARY 2010.

WHEREAS, pursuant to the provisions of RCW Chapter 70.95 and RCW Chapter 70.105, Yakima County is required to prepare and update the Solid Waste Management Plan and provide a local Moderate Risk Waste Management Plan; and

WHEREAS, incorporated Cities and Towns in Yakima County have designated the County to develop a Solid Waste Management Plan for integrated solid waste management pursuant to an Interlocal Agreement for solid Waste Management executed by the Board of Yakima County Commissioners April 1, 2003; and

WHEREAS, the Yakima County Solid Waste Advisory Committee recommends adoption of the 2010 Solid and Moderate Risk Waste Management Plan; and

WHEREAS, the Washington State Department of Ecology reviewed the draft Solid and Moderate Risk Waste Management Plan and provided comments; and funding for Plan implementation has been approved by the Washington Utilities and Transportation; and

WHEREAS, the proposed Solid and Moderate Risk Waste Management Plan has been reviewed as a non-project action under SEPA and a Determination of non-Significance was issued on January 25, 2010; and

WHEREAS, the adopted Solid and Moderate Risk Waste Management Plan will be submitted to the Washington State Department of Ecology for final approval;

NOW THEREFORE BE IT RESOLVED BY THE CITY COUNCIL FOR THE CITY OF WAPATO, WASHINGTON, AS FOLLOWS:

1. The City Council authorizes the interlocal agreement between Yakima County and the City of Wapato to be signed by the Mayor.

2. That this resolution shall be in full force and effect upon passage and signature.

ADOPTED BY THE CITY COUNCIL this 15th day of March, 2010.

See Clerk Line for Signature

Jesse Farias, Mayor

ATTEST:

Susan Pearson, Clerk-Treasurer

APPROVED AS TO FORM: APPearson

Sara Watkins
City Attorney

1st Touch Date: 3-1-10

2nd Touch Date: 3-15-10

RESOLUTION NO. R-2010-38

A RESOLUTION adopting the Yakima County Solid and Moderate Risk Waste Management Plan Update, dated January 2010.

WHEREAS, RCW 70.95.080 and RCW 70.105 require Yakima County, in cooperation with various cities located within the County, to prepare a coordinated comprehensive solid waste management plan and provide a local Moderate Risk Waste Management Plan; and

WHEREAS, on April 15, 2003, the Yakima City Council adopted a resolution authorizing an agreement whereby Yakima County, on behalf of the City of Yakima, was designated to develop a solid waste management plan for integrated solid waste management; and,

WHEREAS, the Yakima County Solid Waste Advisory Committee recommends adoption of the Yakima County Solid and Moderate Risk Waste Management Plan Update, dated January 2010; and,.

WHEREAS, the Washington State Department of Ecology reviewed the draft Yakima County Solid and Moderate Risk Waste Management Plan and provided comments; and funding for Plan implementation has been approved by the Washington Utilities and Transportation; and,

WHEREAS, the Yakima County Solid and Moderate Risk Waste Management Plan has been reviewed as a non-project action under SEPA and a Determination of Non-Significance was issued on January 25, 2010; and,

WHEREAS, at the earliest opportunity, the Yakima County Solid Waste Plan Update, dated January 2010, should be included in the Yakima Urban Area Comprehensive Plan by reference and a summary of the capital facilities added to the Capital Facilities Element; and,

WHEREAS, the adopted Yakima County Solid and Moderate Risk Waste Management Plan Update, dated January 2010, will be submitted to the Washington state Department of Ecology for final approval; and,

WHEREAS, the City Council of the City of Yakima deems it to be in the best interest of the City of Yakima to adopt the Yakima County Solid and Moderate Risk Waste Management Plan Update, dated January 2010, now, therefore,

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF YAKIMA:

The 2010 Yakima County Solid and Moderate Risk Waste Management Plan is hereby approved and adopted as the Yakima County Solid and Moderate Risk Waste Management Plan, January 2010, and the City Manager of the City of Yakima is hereby authorized and directed to implement the attached and incorporated "Yakima County Solid and Moderate Risk Waste Management Plan Update, dated January 2010."

ADOPTED BY THE CITY COUNCIL this 23rd day of March 2010.

Micah Cawley, Mayor

ATTEST:

Deborah Gloster
City Clerk

Public Services

APR 05 2010

Vern ___ Gary ___ Don ___ Steve ___
Dave ___ Lisa ___ Carmen ___

RESOLUTION NO. 2010- 06

A RESOLUTION ADOPTING THE 2010 YAKIMA COUNTY SOLID AND MODERATE RISK WASTE MANAGEMENT PLAN, DATED JANUARY 2010.

WHEREAS, pursuant to the provisions of RCW Chapter 70.95 and RCW Chapter 70.105, Yakima County is required to prepare and update the Solid Waste Management plan and provide a local Moderate Risk Waste Management Plan; and

WHEREAS, incorporated Cities and Towns in Yakima County have designated the County to develop a Solid Waste Management Plan for integrated solid waste management pursuant to an Interlocal Agreement for Solid Waste Management executed by the Board of Yakima County Commissioners April 1, 2003; and,

WHEREAS, the Yakima County Solid Waste Advisory Committee recommends adoption of the 2010 Solid and Moderate Risk Waste Management Plan; and,

WHEREAS, the Washington State Department of Ecology reviewed the draft Solid and Moderate Risk Waste Management plan and provided comments; and funding for Plan implementation has been approved by the Washington Utilities and Transportation; and,

WHEREAS, the proposed Solid and Moderate Risk Waste Management Plan has been reviewed as a non-project action under SEPA and a Determination of Non-Significance was issued on January 25, 2010; and,

WHEREAS, the adopted Solid and Moderate Risk Waste Management Plan will be submitted to the Washington State Department of Ecology for final approval;

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Zillah, that the 2010 Yakima County Solid and Moderate Risk Waste Management Plan; is hereby approved and adopted as the Solid and Moderate Risk Waste Management Plan for the City of Zillah.

1. Effective Date. This Resolution shall be effective upon its passage and approval by the City Council.

PASSED AND APPROVED by action of the City Council on the 16th day of February, 2010.

Gary V. Clark

Gary Clark, Mayor

ATTEST:

Sharon Bounds

Sharon Bounds, City Clerk/Treasurer

APPROVED AS TO FORM:

James C. Carmody

James C. Carmody, City Attorney

Date Approved: 2-16-10

APPENDIX D

COMPOST FACILITY FEASIBILITY STUDY

YAKIMA COUNTY COMPOST FACILITY FEASIBILITY STUDY

FINAL REPORT
August 2009

Prepared for:

Yakima County Department of Public Services
Solid Waste Division

Prepared by:

URS
Project 33761568

with assistance from:

Bell & Associates, Inc
and
Green Solutions, LLC

solids content of 25%, the total production amounts to 10,000 wet tpy, or 27 wet tpd, or 7 dry tpd.

Most of the biosolids are currently spread on farmland by Natural Selection. Composting biosolids is considerably more expensive than composting yard debris and similar materials, due to the need to comply with regulations addressing the risk of human pathogens and heavy metals. Biosolids can also easily cause odor problems.

Market Analysis

The research on markets concluded that the local residential and commercial landscaping and gardening applications are largely satisfied by existing sources of compost. In fact, compost for this type of application is currently being exported from Yakima County to markets in Seattle and Portland. Any additional compost produced for the retail market would face stiff competition on price and/or would need to be exported to out-of-county markets. Agricultural applications in the Yakima Valley, however, could absorb significantly more compost. Demand by the agricultural sector clearly exceeds the additional amount of compost that could be produced from the 35,000 tons per year of yard debris and other materials.

The market value for any additional amounts of compost produced would be approximately $12 to $16 per cubic yard (2009 figure for large quantity sales to agricultural applications). By blending the compost to produce higher-grade products or specialty mixes, the value can be increased to about $22 per cubic yard.

3.0 COMPOST FACILITY COSTS

Yard Debris Composting Costs

The following cost analysis focuses only on the yard debris collected by Yakima County. Table 2 shows the feedstock assumptions utilized for this analysis. Constructing a facility large enough to process the County's projected 31,900 tons per year of yard debris would require a minimum of 22 acres of land and a capital investment of $4.9 million. The estimated annual operational cost, including the annual debt payment on the $4.9 million capital cost, would be $1.8 million.

Table 2. Facility Feedstock Assumptions

Feedstock	Tons	Loose Cubic Yards	Ground Cubic Yards
Self Hauled Yard & Wood Waste	15,359	255,200	76,560
Yard Waste Currently in Waste Steam	16,541	85,067	63,800
TOTAL	31,900	340,267	140,360

The facility modeled uses the traditional windrows to process the feedstock into compost. Designated areas within the facility would be used to receive and store up to 14 days of yard debris and clean wood waste prior to grinding. The active composting process where the

materials are placed in windrows requires approximately 12 weeks and an area of about 11 acres. Once the materials have completed the active composting or decomposition process, the compost is moved to an area to cure for approximately 14 weeks. Once the product has cured, it is screened and either stored for sale or blended with other materials for custom blends for specific needs or for general sale to the public. See Appendix A for more information about the composting process and potential composting methods.

Other auxiliary components of the processing process will also require land. Storage buildings, roadways, and leachate / storm water upgrades need to be added to the site design. Table 3 details the size of area needed for each part of the composting process.

The primary construction cost items are the earthwork required to grade the selected area, the asphalt composting pad, and the equipment building. It is assumed that the County would construct this facility on existing County-owned land; therefore, the purchase price of the land was not considered in the total project costs. Table 4 details the estimated facility construction costs. Assuming a County bonding rate of 5% over a twenty-year period would put the annual debt payment for this facility at $396,000 per year.

Operational costs for items such as labor, equipment, and water are summarized in Table 5.

Table 3. Facility Area Requirements

Compost Facility Area	**Sizing**	
	Square Feet	Acres
Primary Composting Area		
Raw Material Receiving	52,800	1.2
Active Composting Area – Windrows	462,000	10.6
Curing Area	90,000	2.1
Compost Storage Area	50,400	1.2
Screening Area	12,500	0.3
Wood Waste Processing Area	15,000	0.3
Finished Product Storage Area	38,400	0.9
Primary Composting Area Subtotal	1,718,800	16.6
Auxiliary Area		
Buildings	15,000	0.3
Roadways	29,300	0.7
Leachate Lagoon	18,400	0.4
Storm water Management/Earth Area	101,900	2.3
Buffer Area (10%)	88,600	2.0
Auxiliary Area Subtotal	238,200	5.5
Total Area	**959,300**	**22.0**

Table 4. Facility Construction Costs

Item Description	Quantity	Unit	Unit Price	Total Price
Land Purchase				
Land (Assume County property)	22.0	acre	$0	$0
Site Work				
Siting and Permitting	1	LS	$250,000	$250,000
Mobilization and Insurance	4%	of Cost	$3,443,200	$138,000
Clearing and Grubbing	22.0	acre	$2,500	$55,100
Site Grading - General Earthwork	71,100	CY	$3	$213,300
Roadways – Gravel	600	CY	$15	$9,000
Erosion & Storm water Mgmt	1	LS	$50,000	$50,000
Leachate Lagoon	18,400	SF	$10	$184,000
Misc Site - Bollards, Signage	1	LS	$5,000	$5,000
Surveying	1	LS	$20,000	$20,000
Compost Pad				
Compost Pad Paving – Asphalt	80,200	SY	$19	$1,523,800
Public Drop-Off Area	0	CY	$350	$0
Buildings				
Maintenance Building	15,000	SF	$65	$975,000
Building Electrical	15,000	SF	$9	$135,000
Building Mechanical	15,000	SF	$12	$180,000
Roll-Up Doors	4	EA	$8,000	$32,000
Utilities				
Site Utilities (electrical, water well)	1	LS	$50,000	$50,000
Site port-a-let	1	EA	$5,000	$5,000
Site Lighting	2	EA	$3,000	$6,000
Water Storage Tank	3	EA	$20,000	$60,000
			Subtotal	$ 3,893,200
General Contractor Fees (10% of Site work, Bldg Elec./ Mechanical, Utilities				$ 263,600
Contingency (20%)				$ 778,600
Total Facility Cost				**$ 4,935,400**

Table 5. Operations and Maintenance Costs

Operations & Maintenance	Annual Cost	Operational Units
Equipment Depreciation	$179,900	8 pieces of equipment
Equipment Maintenance	$249,020	14,940 annual hours
Equipment Fuel	$203,040	50,760 gallons of fuel
Labor (9 FTEs)	$606,530	19,000 labor hours
Water	$84,216	1,403,600 gallons
Facility/Site Maintenance	$112,790	Utilities
Total	**$1,435,496**	

The 340,000 cubic yards of yard debris and wood waste will yield approximately 108,000 cubic yards of finished compost product with a wholesale value of about $12 per cubic yard (or about $41 per ton, assuming 3.4 cubic yards per ton). "High-grading" the compost by blending it with other materials such as sandy loam and screened topsoil can increase the saleable price to over $20 per cubic yard.

Assuming the County would wholesale the finished product at $12 per yard or $41 per ton, the projected revenue from the operation would be about $1.3 million. Table 6 summarizes the facility costs and revenues on an annual as well as per ton of feedstock basis (calculated based on 31,900 tons per year of feedstock).

Table 6. Facility Costs and Revenues

Expense Items	**Annual Cost**	**$ per ton**
A. Compost Facility Capital Debt Payment	$396,000	
B. Compost Facility O&M Cost	$1,435,496	
C. Total Compost Facility Expenses (A + B)	$1,831,496	
D. Cost of Processing Feedstock		$57.41
Revenue Items		
E. Estimated Revenues	$1,301,520	
F. Revenue per Ton of Feedstock (3.4 yds = 1 ton)		$40.80
G. Net Revenue (E –C)	($529,976)	
Net Processing Cost per Ton of Feedstock		**$16.61**

Not considered in the facility cost are any additional requirements to transport feedstock materials. If this facility were constructed at the Cheyne Landfill, self-haul yard debris materials would need to be ground ($8 per ton) and transported from Terrace Heights to Cheyne ($7 per ton). Assuming the County would set its disposal rate to fully recover the cost of processing yard debris, the projected fee per ton for would be $32 per ton ($8 to grind + $7 to transport + $17 to process). This estimated rate is dependent on the County being able to produce and market all the compost it produced at $41 per ton (wholesale).

If the facility could be constructed near the city of Yakima, the additional costs of grinding and transport would not be incurred; but siting a compost facility in or near an urban area is difficult because of the odor and traffic issues. One alternative would be to construct a facility that uses in-vessel composting to control odors. However, there would be substantial capital costs for the land, building and equipment that would put the facility construction cost over $10 million.

Biosolids Composting Costs

In March 2009, the City of Palo Alto, California estimated the cost of composting their dewatered biosolids at $105/wet ton processed; Palo Alto's biosolids production is 44 wet tpd. Since Yakima County's production is much smaller, the unit cost of composting biosolids is likely to be higher. Therefore, composting could cost the County in excess of $100/wet ton, or in excess of $1 million per year. It is possible that composting could be done closer to the primary source (the Yakima Wastewater Treatment Plant) than the current Natural Selection land

spreading operation. This could reduce hauling costs compared to the current practice of hauling to Sunnyside, but these savings are unlikely to significantly mitigate the overall costs.

The EPA estimated the capital cost of aerated static pile biosolids composting at $30,000 per dry ton per day, in 2002 dollars. For 7 dry tpd, this would result in a capital cost of $210,000. However, most biosolids composting facilities are much larger than what is proposed here, so the unit cost for Yakima is likely to be much higher. In 2009 dollars and taking into account the diseconomies of scale due to the very low production rate, the capital cost for Yakima County would be at least $500,000. Amortized at 6% over 20 years, this amounts to a debt service of $44,000 per year.

For O&M costs, EPA estimated $150 (in 2002 dollars) per dry ton per year for the same type of facility, which would translate to $375,000 per year, or $38 per wet ton processed. Updating the costs and accounting for the diseconomy of scale could easily push this cost above $60 per ton.

In conclusion, these costs indicate that the current biosolids disposal costs are significantly lower than the costs of composting biosolids.

4.0 POTENTIAL ALTERNATIVES

The County has two primary alternatives for composting of yard debris: 1) construct and operate its own facility or 2) procure processing and composting services from others. The primary advantages and disadvantages of each alternative are shown below.

County-Owned Compost Facility

Advantages

- The County has maximum control over feedstocks, processing, and marketing of compost products.
- The County could potentially cross-utilize equipment and personnel if the composting facility were to be sited near a County waste facility.

Disadvantages

- The County would be competing with private enterprise.
- There are costs and risks related to regulatory compliance if the County attempts to site, design, build, permit, and operate its own compost facility.
- The County has full operational responsibility for successfully composting the organics delivered to its facility.
- The County must market the end products and compete with existing businesses that have more marketing experience.

- The County must provide initial financing for the facility and then set rates so that it is financially viable.

Composting by Others

Advantages

- Well-established companies in the county already have the facilities, equipment, and expertise to operate a compost facility successfully.
- These companies are experienced in marketing compost products.
- A private company may be able to produce compost at a lower cost than the County could.
- Composting could likely begin sooner than if the County had to design, bid, build, and permit its own facility.
- Additional organic materials committed by the County could strengthen local composting businesses by providing additional feedstocks to established markets.
- The County could choose processor(s) near the places where the materials are generated.

Disadvantages

- The County would have to enter into a long-term contract with a composting vendor. If the vendor's facility had performance problems or failed to meet regulatory requirements, the County might have to intervene. Legal remedies might be costly and protracted.
- The County would have little control over processing and marketing of the compost.
- If the vendor fails or has operational problems, the County could become responsible for marketing of unsold product and finding another vendor to perform the composting.

A comparison of the two alternatives indicates that it would be reasonable for the County to first attempt to procure composting services from a private business before considering the construction of its own facility.

Procurement of Composting Services

If the County decides to pursue the services of an established composting company, it should probably utilize a two step process: 1) use a request for qualifications (RFQ) to obtain information about potential bidders and to identify a short-list of preferred bidders; and 2) use a request for proposals (RFP) to describe the specific facility/products/performance that the County desires and to solicit costs for that work.

The following list presents some of the essential items to be considered when developing an RFQ or RFP:

- Scope of services requested to meet the County goals and policies.

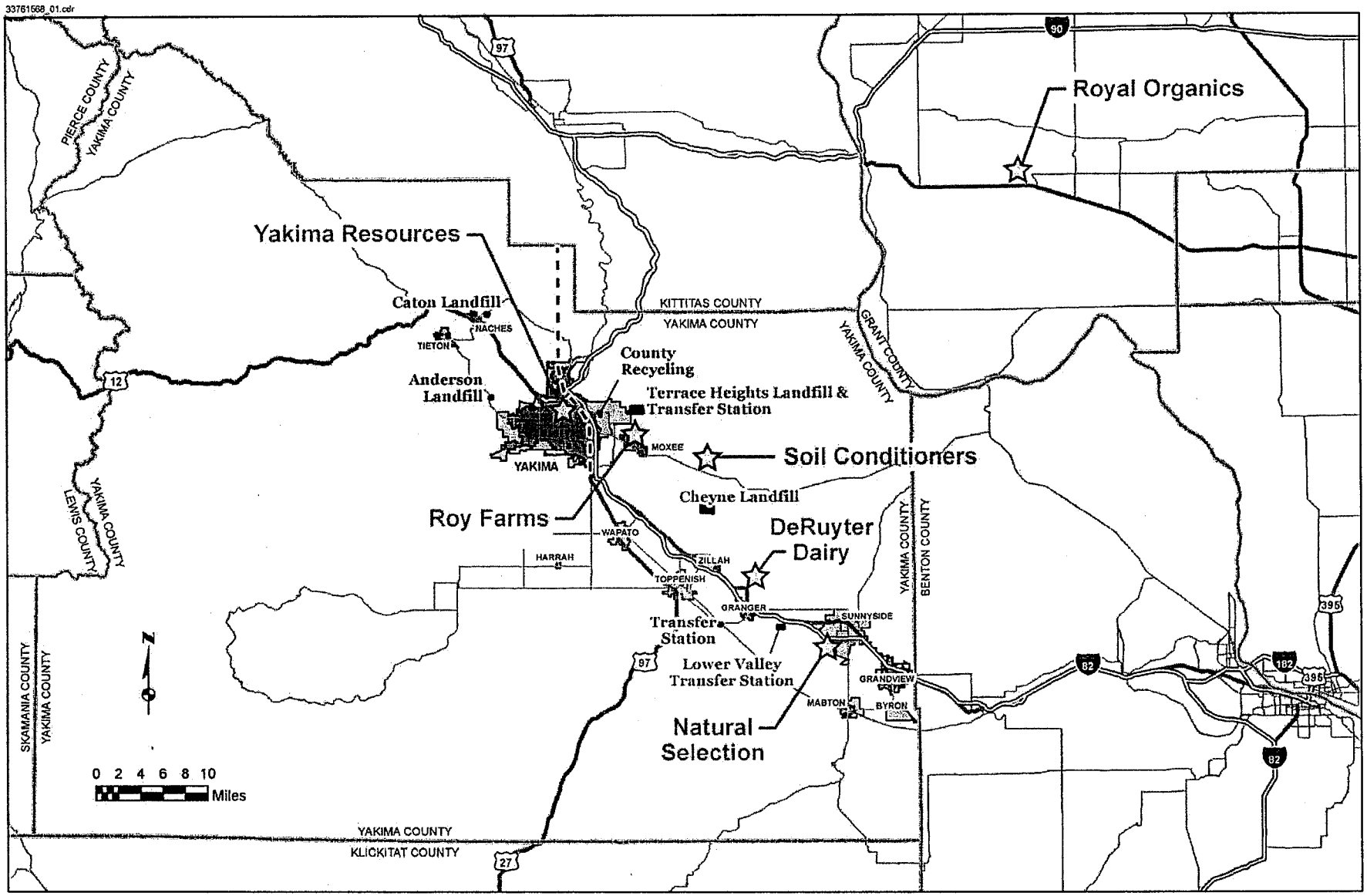
- Level of assistance from the County including drop-off sites, grinding of waste, and transportation to the contractor's facility.
- Level of effort required by the County to administer the contract and monitor compliance.
- Coordination of the Solid Waste Management Plan, solid waste policies, and County ordinances to ensure conformance with the contract (service agreement).
- List of materials to be composted (e.g. yard debris, wood waste, manure, biosolids, red water, etc.).
- Specific services (feedstock receiving, grinding, stockpiling, processing, storing, product marketing, etc.).
- Specific compost products desired.
- Throughput and facility performance requirements.
- Requirements for marketing the compost produced.
- Pollution and environmental compliance requirements.
- Permitting and regulatory compliance.
- Amount of bond and/or other financial assurances.
- Emergencies and contingencies.
- Draft contract form.
- Contract duration: a longer term contract appeals to a service provider because it allows costs (e.g. equipment amortization) to be spread over a longer period.
- The low cost bidder is not always the best option. The County will need to establish a committee to review the proposals. Proposal scoring criteria should include items other than low capital cost or low cost per ton: track record, local employment, pollution violations, type of products, compost markets served, etc.

5.0 RECOMMENDATIONS

This study recommends the following:

- The findings of this Study should be incorporated into the 2009 SWMP.
- With the concurrence of the SWAC and Commissioners, Yakima County should implement a disposal ban on yard debris effective January 1, 2012.
- The County should develop and issue a composting service RFQ, evaluate the responses, and short-list firms/teams to receive an RFP.
- If a suitable vendor or composting approach cannot be found, or if pricing or terms are unacceptable to Yakima County, it should then explore other options (including but not limited to constructing and/or operating their own facility).

Figure 1. Facility Locations



Skyridge Farm (Organix) is not shown in the above map because that site would not be available for composting additional materials (Organix would operate at a site yet to be identified).

APPENDIX A
TECHNICAL INFORMATION ON COMPOSTING

INTRODUCTION

This appendix provides a description of the composting process and the main composting systems typically used for feedstocks of the type examined in this study.

THE COMPOSTING PROCESS

Composting is the biological decomposition of the easily or rapidly biodegradable fraction of an organic material. It can occur under aerobic or anaerobic conditions. The end product, compost, is said to be organically stabilized because it consists mainly of slowly degradable fibers. Once stabilized, compost will not cause odors, create significant biological oxygen demand, or cause microorganisms to compete with plants for soil nutrients like nitrogen and phosphorus. Compost is mainly used as an amendment to improve the physical characteristics of the soil, but can also provide some nutrients depending on the feedstocks used for the compost.

Aerobic and Anaerobic Composting

Composting can be carried out aerobically or anaerobically. In an aerobic composting process, sufficient air is blown or drawn through the material to provide a continuous supply of oxygen. In this case, organic materials are converted into CO_2, water vapor, and heat, as well as some microbial biomass. The metabolic oxidation process generates heat; if the temperature rises above desirable levels, it can be controlled by increasing airflow (or by mixing more frequently in the case of windrows).

Anaerobic composting must be conducted in a closed reactor (an anaerobic digester) to exclude oxygen, which is toxic to some of the bacteria performing this bioconversion. The digester must also be kept in a narrow mesophilic or thermophilic temperature range (see below). In anaerobic digestion, the easily biodegradable material is converted into methane, CO_2, and a small amount of bacterial biomass. The resulting biogas is a medium-Btu fuel that can be used with minimal conditioning as a boiler fuel or to fuel a generator. The end product, digestate, is used as compost after an aerobic curing step.

Both aerobic and anaerobic processes yield similar amounts of compost of similar quality. The anaerobic process allows the recovery of renewable energy in the form of biogas, while the aerobic process doesn't. On the other hand, anaerobic composting is by definition an in-vessel process, so it requires a significant upfront investment. By contrast, aerobic composting can be done in the open with minimal upfront capital investment.

Several parameters need to be considered for efficient composting, including temperature, particle size, moisture content, carbon to nitrogen ratio, and nutrient amendments.

Temperature

When material is first placed in piles or windrows (long piles, generally trapezoidal in cross-section), it is usually at ambient temperature. As the microorganisms begin to aerobically decompose the material, they generate metabolic heat and the temperature of the pile or windrow begins to rise. The pile first enters the mesophilic range (85 to 113°F or 30 to 45°C) that is conducive to mesophilic microbes, then rises to the thermophilic range (113 to 158°F/45°C to 70°C) that supports thermophilic microbes. Eventually, as the composting material becomes extensively degraded, it gradually cools down to the mesophilic range and below, and it is then ready for curing and stabilization. The length of time required for this to occur depends on the material being composted and the composting system being used. It may range from a few weeks to a few months, depending on the feedstock and process used.

There are two important considerations involving temperature. First, the temperature of the composting material should reach 55°C for at least 3 days to destroy any plant, human or animal pathogens present. Secondly, the temperature should not be allowed to exceed approximately 70°C, because at temperatures above this level most microorganisms involved in composting die or enter a resting phase which slows decomposition, or can actually preclude subsequent curing.

Particle Size

Reducing particle size exposes more surface area to microbial attack and enhances decomposition. However, grinding the material too fine can allow it to become compacted and restrict the flow of air, which in turn reduces the rate of aerobic composting processes. Also, the finer the material is ground, the more energy is consumed in the grinding process.

Bulking Agent

For most approaches, it is essential to maintain aerobic conditions in the composting material. Many feedstocks such as biosolids (sewage sludge), grass clippings, and other soft and moist materials tend to compact, which restricts the airflow through the pile. This can lead to anaerobic conditions and the production of odoriferous reduced gases like hydrogen sulfide; it will also greatly slow down the process. To prevent this, it is often necessary to add a bulking agent like wood chips, which will preserve the porosity of the pile and allow aeration throughout the pile. The bulking agent is usually recovered by screening at the end of the composting cycle so it can be reused.

Moisture Content

Yard debris is often quite dry unless it contains large amounts of grass. The moisture content may be about 30% for ground yard waste. For composting, the moisture content should be between 45-60%. Moisture can be added with irrigation guns, fire hoses, or watering attachments to the vessel or windrow turner or grinder. If sludge or manure is co-composted with yard waste, it can provide moisture.

Carbon-Nitrogen Ratio

Microbial activity is affected by the carbon (C) to nitrogen (N) mass ratio of the feedstock. A C/N ratio of 30/1 or lower is considered optimum. At ratios much above this, nitrogen becomes a limiting factor for microorganisms and decomposition slows down. Yard debris that contains brushy material in addition to grass and leaves tends to have a high C/N ratio, sometimes exceeding 100 to 1.

Nutrient Amendments

If necessary, nutrients can be added to yard debris to enhance the composting process or the end product. A variety of materials can be used as a source of nutrients. All animal manures are useful as nutrient sources, although they provide differing amounts of nutrients and moisture. Sewage biosolids can be a useful amendment, providing nutrients and moisture, but the composting site must be permitted for biosolids use. Food processing wastes can also be used as an amendment. Seafood waste is a good amendment, although this waste may be seasonal; a steady supply of the chosen amendment is preferred. Inorganic nutrient sources such as fertilizers can also be used, but these generally must be purchased.

The use of nutrient amendments enhances the rate of composting of yard waste, but their use requires extra care. They should be thoroughly mixed with the yard debris as soon as possible. By co-composting a nutrient amendment with yard debris, the compost reaches a C/N ratio suitable for plant growth sooner than yard debris composted alone. The use of nutrient amendments also affects the pH of the material, both during and after composting.

Yard debris, the primary feedstock considered here, tends to be nutrient-deficient and too dry for efficient composting, so it is likely to require mixing with some moist nutrient rich material like manure. This in turn carries the potential for odor nuisances, which will tend to drive the composting operation away from residential areas, unless in-vessel or indoor composting is used.

Time Requirements

The length of time required for composting depends on the composting system used, the feedstock, the initial particle size, nutrient balance, and moisture content. Composting of yard debris may take anywhere between one and six months; generally, the speed of the process is proportional to the degree of process control, which increases from windrow to static pile to in-vessel methods.

Curing

After the material has undergone the intensive, high temperature initial composting, it is placed in a curing pile. There, it continues to compost at ambient temperature, but is not actively turned. Curing is a polishing step that completes the organic stabilization of the compost; different curing durations can yield different types of compost suited for different specific applications. Curing piles can also be used for compost storage.

COMPOSTING SYSTEMS

In ascending order of complexity and process controllability, the three major categories of composting processes are windrow, aerated static pile, and in-vessel. The following is a brief overview of each system.

Windrows

Organic materials can be piled in long rows (windrows) of roughly trapezoidal cross-section. Windrows are generally narrower than static piles because they rely entirely on natural convection and wind for aeration (hence the name windrow). They are usually shaped and mixed using a windrow turner, which straddles the pile and uses a rotating drum studded with paddles to turn and aerate the material and break up clumps. Piles are initially turned relatively frequently (possibly several times a week), but as the composting progresses the material may be turned less often.

Aerated Static Piles

This method uses perforated pipes or floor panels at the bottom of the pile to push air from a blower up through the pile (positive pressure), or pull air down through the pile (vacuum). Both methods help promote aerobic conditions throughout the pile, thus speeding up the composting process. Proper mixing and building of the pile prevents the formation of channels that would allow the flow of air to short-circuit, which would lead to uneven aeration.

The term static pile is sometimes used to describe an informal piling of feedstock without aeration that may or may not be turned occasionally. Since this process is largely uncontrolled and not optimized, it is characterized by very long processing times and is rarely used in commercial composting.

In-Vessel

In-vessel composting takes place in a partially- or fully-enclosed container (vessel) that provides maximum control over environmental conditions. A wide variety of designs exist. One system uses open-top lanes separated by concrete walls. A mechanical compost turner travels the length of the lanes, turning and aerating the material. At the far end, it moves over to the next lane and travels in the reverse direction, turning and aerating as it moves. These are indoor systems, allowing effective odor control.

Another type of in-vessel system used a converted shipping container with a perforated floor through which air from a blower was forced. The air at the top of the pile was vented outside the shipping container, usually through a biofilter to remove odors. This system was used to contain odors and prevent access by insects and vermin, making it suitable for challenging materials such as biosolids or food waste.

Variations on the Three Basic Composting Processes

Membrane Covers (Compost Tarps, Fleeces, and Blankets)

Windrows and aerated static piles can be covered with various plastic membranes (e.g. by Texel, Austrusa, Gore, etc.). They are usually selectively porous, shedding rain but allowing air circulation. One purpose of these membranes is to prevent the compost pile from being saturated by heavy rainfall and to minimize nutrient leaching from the pile. Conversely, they can also minimize water vapor loss, because the vapor tends to condense on the inside of the cover and drip back down into the pile. The inside of the cover is a favored microbe habitat, and these microbes tend to oxidize any odoriferous gases permeating through the membrane, thereby reducing odor nuisances.

Ag Bag

The Ag Bag system uses a very long tube-shaped plastic bag that entirely envelops the pile of material. Perforated pipes near the bottom of the pile supply forced air from blowers. The bag is filled with compost feedstock using a specialized loader. The Ag Bag was originally developed to ensile crops, and is widely used in that role. It is impermeable to gases and water. At the end of a cycle, the bag is cut open and discarded, and the compost is allowed to cure. The Ag Bag process is a variation on the in-vessel process since it is completely enclosed and features a controlled air supply. To remove the compost when it is finished, the cover must be sacrificed.

Each system has its own advantages and disadvantages. Factors to consider when selecting a system are:

- Land area available
- Quantity of material to be composted
- Types and characteristics of materials to be composted
- Labor available
- Financial resources
- Potential end products and their markets
- Process duration -- time frame in which the material must be converted to a usable product.

Table A-1 on the following page compares the advantages and disadvantages of the major types of composting systems.

Table A-1. Comparison of Composting Systems

Composting System	Advantages	Disadvantages
Windrow	• Relatively low facility capital costs: paved surface for piles is optional but recommended. • Can be turned with front-end loader, but a windrow turner is more efficient and effective. • Wet materials can dry rapidly, resulting in easier handling of finished product.	• Minimal control over process parameters such as temperature. • Frequent turning necessary at the beginning of a batch, resulting in relatively high operating costs. • Greatest land requirements. • Windrow-turner can be relatively expensive to buy and operate. • Work may be delayed by weather conditions, unless the operation is under roof or indoors.
Aerated Static Pile	• Capital costs intermediate between windrows and in-vessel systems; requires paved surface, and aeration system and controls. • Pile is built with a standard front-end loader, no windrow turner needed. • Better temperature control than with windrows, resulting in high degree of pathogen destruction. • Better odor control through uniform aerobic conditions in the pile. • No further mixing needed after the pile is built.	• Land requirement intermediate between windrow and static pile. • Requires blowers, air piping, instrumentation, and process control equipment. • Work may be delayed by weather conditions, unless the operation is under roof or indoors.
In-Vessel	• Lowest area requirement. • Best process control. • Protection from adverse climate conditions. • Excellent odor control. • Although seldom used, there is a potential for heat recovery, depending on the system design.	• Highest capital costs. • Reliance on specialized mechanical systems may cause delays and higher maintenance costs due to breakdowns. • Less operational flexibility than with windrow and static pile systems.
Membrane Covers and Ag Bags	• Accelerates processing time for windrows and static piles. • Some protection from adverse climate conditions. • Odor control. • Reduces moisture loss and water needs.	• Membranes increase cost over forced-aeration static pile, but may prevent the need for indoor composting, which is much higher.

APPENDIX E

TRANSFER STATION COST OF OPERATIONS ANALYSIS

TRANSFER STATION COST OF OPERATIONS ANALYSIS

FINAL REPORT
August 2009

Prepared for:

Yakima County Department of Public Services
Solid Waste Division

Prepared by:

URS
Project 33760975

with assistance from:

Bell & Associates, Inc
and
Green Solutions, LLC

CONTENTS

LIST OF TABLES

LIST OF FIGURES

TRANSFER STATION COST OF OPERATIONS ANALYSIS

1.0 INTRODUCTION

The Terrace Heights disposal facility currently receives waste from both self-haul customers (cars and pickup trucks) and commercial haulers (garbage trucks and other commercial vehicles). Self-haulers tip their waste at the Terrace Heights Transfer Station (THTS); from there it is transferred to the on-site landfill (THLF). Commercial haulers bypass THTS and take their waste directly to the working face of the landfill. When Phase 1 of THLF reaches capacity and stops receiving waste in about 2015, THTS will continue to serve self-haul customers. For commercial waste, one of the following options will need to be implemented:

Option 1: The THTS transfer building could be expanded to accept waste delivered by commercial vehicles.

Option 2: A new transfer station for commercial vehicles only could be constructed at a location other than the Terrace Heights site.

Option 3: Commercial vehicles that currently use THLF could be required to haul directly to Cheyne Landfill.

These options assume that THTS will continue to receive self-haulers, although the hours and/or days when the station is open may be changed for financial or other reasons. No matter which option is selected, THTS's operating permit will need to be modified to allow waste tipped there to be hauled to the Cheyne Landfill (CLF) for disposal. Similarly, each of the options would increase truck traffic in the vicinity of CLF.

The goal of this analysis is to examine the advantages and disadvantages, and estimate the capital, transportation and operating costs of each option listed above.

Recommendations from this analysis will be incorporated into the 2009 update of the County's *Solid and Hazardous Waste Management Plan* (Yakima County 2009).

2.0 OVERVIEW OF OPTIONS

Option 1: Expand THTS to Serve Commercial Vehicles

Transfer Building

Expected tonnages through the year 2030 and other operational issues at THTS were examined in the *Solid Waste Level of Service Study & Infrastructure Needs Assessment* (Yakima County 2008). The THTS transfer building currently serves only self-haul vehicles with its 20,000 sq ft tipping floor and two top-load trailer bays. To accommodate future expansion and accept commercial vehicles, the original design drawings suggested adding a 165-foot building expansion to the east, increasing the tipping floor by 20,000 sq ft with two top load bays (Yakima County 2003). This option provides storage for surges and emergencies as well as operational flexibility and efficiency by allowing up to four trailers to be loaded with waste simultaneously.

The metal panels and rollup doors that currently form the building's east wall would be removed, leaving the columns in place to support the roof. Some of these components might be reused to construct the new east wall. Because the former wall columns would be in the middle of the expanded tipping floor, they will need to be protected from vehicle impact. To some extent, their presence will hinder the efficient movement of waste and vehicles on the floor.

Similarly, the north-south pushwall in the southeast corner of the existing building would inhibit the ability to move waste between the new and existing floors. On the other hand, having a pushwall in that location allows waste to be stacked and stored in a smaller footprint than on the open floor. During the design of the expansion, the County should consider the relative advantages and disadvantages of keeping the pushwall.

Figure 1 shows a conceptual layout for the expanded transfer station building.

Scales and Scalehouse

The present facility has three 80-foot scales that serve both the transfer station and the landfill: one inbound, one outbound, and one reversible (bi-directional) scale. The south (inbound) scale was installed in 2006, along with a scalehouse; both are in good condition. The two northern scales are older and are pit-type scales that have experienced problems with accumulation of trash, water, snow and ice in the pits. Another disadvantage is that repair work requires that workers are trained and certified for confined space entry. The County would like to replace the two old pit scales with aboveground scales similar to the new (2006) south inbound scale. The middle scale would be reversible (bi-directional) to handle peak inbound or outbound traffic.

The old scalehouse associated with the two old scales is in need of replacement as well. It could be replaced with a small scalehouse that includes a restroom. The attendant could use the kitchenette in the existing scalehouse.

The existing inbound and outbound vehicle bypass lanes are adequate to allow non-weighing traffic to enter/exit the site quickly. Outbound transfer trailers will not be weighed at the scalehouse. Preliminary weights will be obtained from the axle scales in the loading bays, and final weights will be obtained at CLF.

Option 2: Construct a New Transfer Station to Serve Commercial Vehicles

If commercial and collection vehicles are banned from THTS when THLF reaches capacity, they could be sent to a new commercial-only transfer station where self-haulers are not allowed. A 20,000 sq ft building should be adequate to serve up to about 200 commercial vehicles per day. The station would have an inbound and an outbound scale. Vehicles with credit accounts and tare weights could bypass the outbound scale. Drivers of vehicles without accounts would pay the scalehouse attendant. Figure 2 shows a generic, non-site-specific conceptual layout for the new transfer station showing the major features: scales, scalehouse, tipping building, and employee facility.

Potential areas for locating the new station include the I-82 corridor near the City of Yakima Wastewater Treatment Plant, the industrial areas near the Yakima Public Services yard or west of Union Gap near the airport or Costco. Desirable sites would be about 10 to 15 acres and be zoned for a transfer station, or able to be re-zoned within a reasonable period of time. Sites should be accessible from a major arterial roadway and be suitable for expansion. Loaded transfer trailers would access the highway via arterial streets and then travel on I-82 to CLF.

Self-haulers would continue to use THTS, although the hours and/or days when the station is open may be changed for financial or other reasons.

Option 3: Commercial Vehicles Haul Directly to CLF

If neither Option 1 nor Option 2 is implemented, commercial vehicles would then need to drive directly to CLF when THLF reaches capacity. Most vehicles would use I-82 to reach CLF, although the last six miles would be on local streets.

Potentially, over 200 commercial vehicles per day would be hauling directly to CLF, increasing truck traffic in the vicinity.

3.0 CAPITAL COST ESTIMATES

Facility Construction Costs

The *Needs Assessment* developed construction costs for two transfer station options that were similar to Options 1 and 2 described above. Those construction cost estimates were based on cost data available in late 2007 and thus reflected a very different construction market than the spring of 2009. Table 1 and Table 2 show construction costs for Option 1 and Option 2, respectively, updated to 2009 dollars. Estimates for Site Work, Mechanical, and Electrical were increased by 6% to cover labor cost increases since 2007. On the other hand, since steel costs have fallen since 2007, the unit costs of the pre-engineered metal building and scalehouse have not been increased from 2007.

Option 1: Option 1 adds a 20,000 sq ft. tip floor and two top load bays. The cost estimate assumes that there is adequate utility capacity (water, wastewater, and power) in close proximity to the transfer building and scalehouse.

Option 2: Option 2 assumes a site of about 10-15 acres and a 20,000 sq ft transfer building with two top-load bays, inbound and outbound scales, a scalehouse, and a 4,000 sq ft staff facility with offices, lunchroom, and locker rooms/restrooms. Because Option 2 is a larger project than Option 1, the cost of General Conditions and Design Services are a smaller percentage of the overall construction costs. Because a siting study has not been performed and no suitable properties have been identified, a number of assumptions about the cost of the land were made to allow comparison with Option 1:

- Property sizes of 10 and 15 acres
- Cost per sq ft of $2 and $5
- Permitting and SEPA at $50,000
- Bringing utilities to the property line, $50,000.

The combination of acreage and square foot costs yielded an estimated average property purchase cost of about $1.9 million (2009 dollars). With permitting and utilities, the site could cost about $2 million (2009). These costs are discussed further on page 7 and Table 3.

Table 1: Construction Cost Estimate for Option 1 (2009 dollars)

	Option 1: Expand Terrace Heights TS to serve commercial vehicles	
1	**Site Work**	20,000 sq ft
	Excavation	$ 60,000
	Fill and Compaction	$ 200,000
	Site Grading	$ 15,000
	Erosion Control	$ 11,000
	Utilities - Water Supply	$ 16,000
	- Storm Water	$ 11,000
	- Sanitary Sewer	$ 16,000
	- Fire Main and Hydrants	$ 16,000
	Power Supply and Distribution	$ 27,000
	Roadways and Parking (5" over 8" base)	$ 53,000
	Electrical Room (existing; 200 sq.ft.)	NA
	Tie-in to Existing Utilities	$ 16,000
	Site Lighting	$ 11,000
	Fencing	$ 5,000
	Landscaping	$ 5,000
	Subtotal	**$ 462,000**
2	**Facilities**	
	Excavation for Foundations and Slab	$ 20,000
	Foundations and Pedestals	$ 30,000
	Building and Top-load Excavation	$ 15,000
	Gravel Fill and Compaction	$ 20,000
	Grade Slab	$ 250,000
	Foundations and Grade Beams	NA
	Retaining Walls including Foundation	$ 250,000
	Top-load Base Slab and Ramp	$ 35,000
	Pits and Trenches in Building	NA
	Structural Slab	NA
	Pre-Engineered Building doorways	$ 600,000
	Push Walls	$ 250,000
	Miscellaneous Embedded Steel	$ 10,000
	Tie-in & Revisions to Existing Bldg	$ 40,000
	Staff Facilities (use existing)	NA
	Demolish existing scales, prep new scale area	$ 50,000
	Tollbooth (100 sq ft)	$ 15,000
	Optional top-load bay enclosures/doors/embedded steel)	$ 115,000
	Subtotal	**$1,700,000**
3	**Mechanical and Electrical**	
	Fire Protection	$ 64,000
	Building Ventilation	$ 30,000
	Water Distribution	$ 11,000
	Lighting	$ 170,000
	Dust Control	$ 30,000
	Axle Scales (including control system)	$ 30,000
	Tie-in to Existing	$ 21,000
	Subtotal	**$ 356,000**
4	**Equipment Required**	
	Two aboveground truck scales (inbound, outbound)	$ 75,000
	Control System for Scales	$ 5,000
	Subtotal	**$ 80,000**
	Total Items (1, 2, 3 and 4)	**$2,598,000**
	Contingency (25%)	$ 650,000
	Subtotal	**$3,248,000**
	General Conditions (8%)	$ 260,000
	Permitting (2%)	$ 65,000
	Insurance and Bonding (3%)	$ 97,000
	Inspection and Testing (1%)	$ 32,000
	Design Services (10%)	$ 325,000
	Grand Total	**$4,027,000**

Table 2: Construction Cost Estimate for Option 2 (2009 dollars)

Option 2: New Transfer Station serving only commercial vehicles		
1	**Site Work (not site-specific)**	
	Excavation	$ 265,000
	Fill and Compaction	$ 65,000
	Site Grading	$ 53,000
	Erosion Control	$ 27,000
	- Water Supply	$ 53,000
	- Storm Water	$ 80,000
	- Sanitary Sewer (septic tank)	$ 53,000
	- Fire Main and Hydrants	$ 85,000
	Power Supply and Distribution	$ 106,000
	Roadways and Parking (5" over 8" base)	$ 212,000
	Electrical Room (200 sq.ft.)	$ 32,000
	Tie-in to Existing Utilities	$ 21,000
	Site Lighting	$ 80,000
	Fencing	$ 53,000
	Landscaping	$ 53,000
	Subtotal	**$1,438,000**
2	**Facilities**	
	Excavation for Foundations and Slab	NA
	Foundations and Pedestals	NA
	Building and Top-load Excavation	$ 42,000
	Gravel Fill and Compaction	$ 85,000
	Grade Slab	$ 196,000
	Foundations and Grade Beams	$ 32,000
	Retaining Walls including Foundation	$ 159,000
	Top-load Base Slab and Ramp	$ 265,000
	Pits and Trenches in Building	$ 32,000
	Structural Slab	$ 106,000
	Pre-Engineered Building doorways	$ 600,000
	Push Walls	$ 265,000
	Miscellaneous Embedded Steel	$ 106,000
	Tie-in to Existing Building	NA
	Staff Facilities (4,000 sq ft)	$ 600,000
	Scale area prep	$ 42,000
	Scalehouse (200 sq ft)	$ 32,000
	Subtotal	**$2,562,000**
3	**Mechanical and Electrical**	
	Fire Protection	$ 64,000
	Building Ventilation	$ 42,000
	Water Distribution	$ 32,000
	Lighting	$ 170,000
	Dust Control	$ 42,000
	Subtotal	**$ 350,000**
4	**Equipment Required**	
	Truck Scales (inbound/outbound)	$ 75,000
	Control System for Scales	$ 20,000
	Axle Scales	$ 42,000
	Drop-Boxes	$ 21,000
	Subtotal	**$ 158,000**
	Total Items (1, 2, 3 and 4)	**$4,508,000**
	Contingency (25%)	$1,127,000
	Subtotal	**$5,635,000**
	General Conditions (6%)	$ 358,000
	Permitting (1%)	$ 60,000
	Insurance and Bonding (2%)	$ 119,000
	Inspection and Testing (1%)	$ 60,000
	Design Services (8%)	$ 477,000
	Grand Total	**$6,649,000**

Construction Timing and Costs

It is anticipated that actual construction of either Option 1 or 2 would not occur until 2013 or later. For Option 1, the construction cost of about $4.0 million (2009 dollars) was projected as about $4.5 million (2013 dollars) by using a 3% annual inflation factor.

For Option 2, the County would need to purchase the land, procure the necessary permits, and extend utilities to the site. Using the same 3% inflation factor, the estimated land cost in 2013 (including permitting and utilities) would be about $2.25 million. Similarly, Option 2's construction cost of about $6.6 million (2009 dollars) was projected at about $7.5 million in 2013.

Table 3 details those numbers, as well as annual debt service at 5%:

Table 3: Construction Cost and Debt Service

Construction Year	**2009**		**2013**	
	Option 1	Option 2	Option 1	Option 2
Land, Permitting, Utilities	$ 0	$2,006,000	$ 0	$ 2,257,000
Facility Construction	$4,027,000	$6,649,000	$4,532,000	$ 7,484,000
Total Facility Cost	**$4,027,000**	**$8,655,000**	**$4,532,000**	**$9,741,000**
Annual Debt Service (20 yr @ 5%)	$ 319,000	$ 685,000	$ 359,00	$ 771,000

4.0 OPERATIONAL COST ESTIMATES

Facility Annual Staffing Needs

Expanding the THTS to handle commercial vehicles (Option 1) will require an increase in staffing over the current levels. Table 4 below shows the current staffing level and projected increase. Operational hours are assumed to remain the same: Monday-Friday 7:00 am to 5:00 pm and Saturday-Sunday 9:00 am to 5:00 pm. The station would operate 3,432 hours annually.

Table 4: THTS Staffing (Option 1)

Option 1 Staffing	Current	Additional
Scale house Attendant	4	0
Equipment Operators	1.5	4.5
Maintenance/Spotter	3	3
Transfer Drivers	2	4.5
Mechanics	0	1
Total Staffing	**10.5**	**13**

A separate commercial-only station (Option 2) would require a smaller staff than Option 1 due to mechanized unloading, fewer vehicles, more knowledgeable customers (professional drivers), and shorter hours of operation. Table 5 shows the suggested staffing level, based on a 7:00 am to 5:00 pm Monday through Friday schedule. The station would operate 2,530 hours annually.

Table 5: New Station Staffing (Option 2)

Option 2 Staffing	Initial
Scale house attendant	1.5
Equipment Operators	4
Maintenance/Spotter	3
Transfer Drivers	4
Supervisor/Lead	1
Mechanic	1
Total Staffing	**14.5**

Mobile Equipment

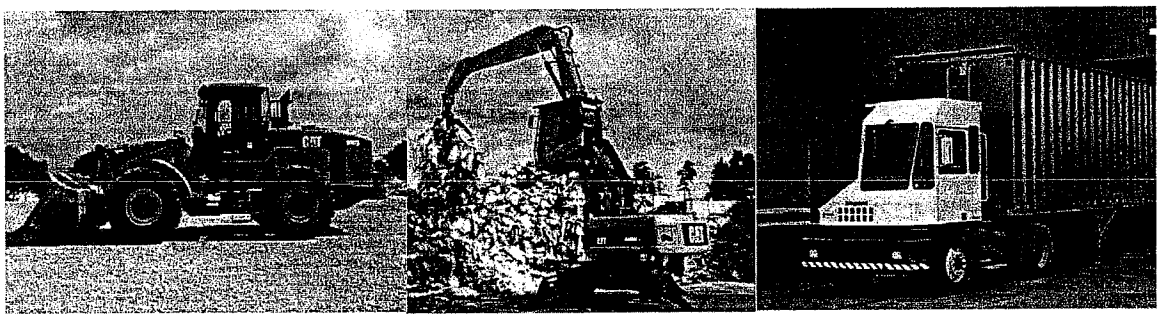
The equipment brand names mentioned here are for reference purposes only. Four front loaders will be needed to load about 175,000 tons of waste annually from the THTS tipping floor into the transfer trailers (Option 1). The existing Caterpillar (Cat) 950 will be replaced with two Cat 966s. The 966 is a larger loader capable of pushing 10 tons of compacted waste across the tipping floor without slipping. Option 2 will also require two Cat 966s. To increase payloads from the current average 22 tons up to 25 tons, a Cat 315DL tracked excavator with a modified bucket and claw will be used to distribute and tamp waste in the trailers under both options. The

excavator's steel treads can be used to crush bulky wastes such as yard debris on the floor; optional bolt-on rubber pads can be used to minimize damage to the floor. The excavator will operate from the front (tipping) side of the loadout bays, avoiding the need to construct an elevated slab behind the bays on which to run the excavator.

Transfer trailers will be moved in and out of the bays by a Kalmar Ottawa 4x2, commonly referred to as a "yard goat." The goat has a smaller turning radius than a road tractor and can increase the efficiency of moving trailers in tight spaces. Suggested mobile equipment is shown below.

Table 6: Equipment Costs

Equipment Type	Option 1	Option 2
Cat 966 Loader (2 @ $380,000 each)	$760,000	$760,000
Cat 315 Tracked Excavator	$195,000	$195,000
Yard Goat	$105,000	$105,000
Total Equipment Costs	**$1,060,000**	**$1,060,000**



From left to right: Cat 966G, wheeled excavator comparable to Cat 315DL, and Ottawa 4x2.

Additional Operating Costs for Options 1 and 2

Table 7 on the next page shows the estimated additional operational costs that would result from implementing Options 1 and 2, based on Solid Waste's budget line items. The largest line items are for labor and equipment. These costs are in addition to the costs that the County already incurs to operate THTS and that are reflected in the current disposal fee. Expenses for 2009 were compounded using a 3% annual inflation factor to calculate 2015 expenses.

Table 9: Transportation Costs to Cheyne Landfill for Options 1 and 2

Route	Capital Cost	Annual Tons	Annual Transport Cost	Round Trip Miles	Daily Trips	Cost per Roundtrip	Cost per Ton	Cost per Mile
(2009 dollars)								
Option 1	$2,464,000	162,544	$1,244,967	56	18	$194	$7.76	$3.46
Option 1 via Hw 24	$2,464,000	162,544	$1,342,272	62	18	$209	$8.37	$3.37
Option 2 (a + b)	$3,080,000	162,544	$1,306,409	n/a	25	$201	$8.05	$3.80
a) Option 2 Commercial	*$2,464,000*	*138,978*	*$1,075,594*	*52*	*22*	*$193*	*$7.73*	*$3.72*
b) Option 2 THTS self haul	*$ 616,000*	*23,566*	*$ 230,815*	*56*	*3*	*$248*	*$9.92*	*$4.43*
(2015 dollars)								
Option 1	$2,856,451	175,363	$1,575,575	56	19	$228	$9.10	$4.06
Option 1 via Hw 24	$2,856,451	175,363	$1,699,748	62	20	$246	$9.82	$3.96
Option 2 (a + b)	$3,570,561	175,363	$1,628,596	n/a	27	$232	$9.30	$4.38
a) Option 2 Commercial	*$2,856,451*	*149,939*	*$1,308,752*	*52*	*24*	*$225*	*$8.99*	*$4.32*
b) Option 2 THTS self haul	*$ 714,113*	*25,424*	*$ 280,235*	*56*	*3*	*$279*	*$11.17*	*$4.99*

Table 10: Overall Cost Comparison of Option 1 and Option 2

	2009 $	2009 $	2015 $	2015 $
Annual Operational Cost	Option 1	Option 2	Option 1	Option 2
Transfer Station (note payment)	$ 318,917	$ 685,410	$ 358,944	$ 771,474
TS Operations and Equipment	$ 1,009,489	$ 1,180,023	$ 1,236,478	$ 1,440,104
Transportation	$ 1,244,967	$ 1,306,409	$ 1,575,575	$ 1,628,596
Total Annual Cost	$ 2,573,372	$ 3,171,842	$ 3,170,997	$ 3,840,174
Total System Waste Tons	249,681	249,681	269,372	269,372
Cost per SW Ton	$10.31	$12.70	$11.77	$14.26

Transportation Costs for Option 3 (Direct Haul to Cheyne)

If neither Option 1 nor Option 2 were implemented, commercial vehicles (garbage trucks) would then need to drive directly to CLF (i.e. Option 3) once THLF reaches capacity. Assuming that all trucks would originate in downtown Yakima, the additional time required to dump is one hour and 15 minutes. This is a conservative estimate, considering the growth on the west side of Yakima and the routes serving the residents of Selah. The estimated combined cost to the collection companies and the City of Yakima to direct haul would be $2,645,000 (2009 dollars). Table 11 below details the additional estimated time and cost to direct haul from the collection route to CLF.

Table 11: Collection Route Performance under Option 3

(2009 dollars)								
Line of Business	**# of Customers (1)**	**Daily Routes**	**Annual Landfill Trips**	**Landfill Trip Hours**	**Additional Route Hours**	**Cost per Truck Hour**	**Additional Cost**	**Cost per Customer per Month (2)**
Residential Routes	52,240	24	9,672	12,090	4,992	$105	$ 1,793,610	$ 2.86
Commercial Routes	2,795	5	1,716	2,145	1,040	$120	$ 382,200	$ 11.40
Drop Box (1, 2)	4,420	9	4,420	5,525		$ 85	$ 469,625	106.25
Totals		**38**	**15,808**	**19,760**	**6,032**		**$ 2,645,435**	
(2015 dollars)								
Residential Routes	54,653	25	10,075	12,594	5,223	$125	$ 2,233,727	$ 3.41
Commercial Routes	3,037	6	2,059	2,574	1,130	$143	$ 530,722	$ 14.56
Drop Box	5,242	11	5,242	6,553		$101	$ 665,044	126.25
Totals		**42**	**17,376**	**21,720**	**6,352**		**$ 3,429,493**	

Notes

1. Drop Box is reported on number of annual pulls rather than number of customers.
2. Drop Box is reported on the cost per pull.

Since the garbage trucks will spend a significant amount of time driving to the landfill rather than collecting waste, additional hours will be required to complete their routes. Many of the collection routes in the Yakima area are laid out so that the truck is dumped twice a day, once at the mid-point of the route and again at the end. Routes will either have to be shortened and additional trucks and drivers added, or overtime will increase. Either way, additional costs will be incurred, which will then be passed on to the ratepayers. This analysis uses a very conservative assumption of 10 to 1: for every 10 collection routes, an additional route will be required if the trucks have to drive to Cheyne to dump.

To put the options in perspective, it is necessary to compare their effects on collection rates, which are set at the WUTC certificate holders' cost of service. The costs of driving the additional distance will be allocated over the respective customer base as detailed in Table 10 above. However, the cost of either Option 1 or 2 will be allocated over all waste disposed through the County solid waste system. This allocation of disposal costs over all waste tons reduces the impact on customers that receive collection services. Table 12 details and compares the impact on monthly collection rates for each option. Options 1and 2 have a lower cost impact on customers that receive collection services.

Table 12: Rate Payer Impact for Each Option (2009 dollars)

Level of Service	Option 1	Option 2	Option 3
Residential 60 gallon monthly weight	195	195	
Residential 90 gallon monthly weight	292	292	
Commercial 2 yard monthly weight	1,039	1,039	
Commercial 4 yard monthly weight	2,078	2,078	
Cost per Ton	$9.82	$12.70	
Monthly Cost			
Residential 60 gallon	$0.96	$1.24	$ 2.86
Residential 90 gallon	$1.43	$1.86	$ 2.86
Commercial 2 yard	$5.10	$6.60	$11.40
Commercial 4 yard	$10.20	$13.20	$11.40

6.0 SUMMARY OF OPTIONS

For Options 1, 2 and 3, Table 13 below summarizes the additional operational costs in 2009 dollars and the projected additional costs in 2015.

Table 13: Summary of Operational Costs

	2009 Costs			2015 Costs		
Annual Operational Cost	Option 1	Option 2	Option 3	Option 1	Option 2	Option 3
Transfer Station Note Payment	$ 318,917	$ 685,410		$ 358,944	$ 771,474	
TS Operations*	$ 829,705	$1,000,239		$ 990,712	$1,194,338	
TS Capital Equipment*	$ 179,783	$ 179,783		$ 245,766	$ 245,766	
Transportation	$1,244,967	$1,306,409	$2,645,435	$1,575,575	$1,628,596	$3,429,493
Total Annual Cost	$2,573,372	$3,171,842	$2,645,435	$3,170,997	$3,840,174	$3,429,493
Total Waste Tons	249,681	249,681		269,372	269,372	
Cost per SW Ton	$10.31	$12.70		$11.77	$14.26	
Cost per resident per month	$1.00	$1.24	$2.86	$1.15	$1.39	$3.41
Cost per commercial customer	$5.36	$6.60	$11.40	$6.12	$7.41	$14.56

*Costs have been split into two components: e.g. for Option 1, TS Operations + TS Capital Equipment = $1,009,489 as shown in Tables 7 and 10.

Figure 1: Option 1 – THTS Addition

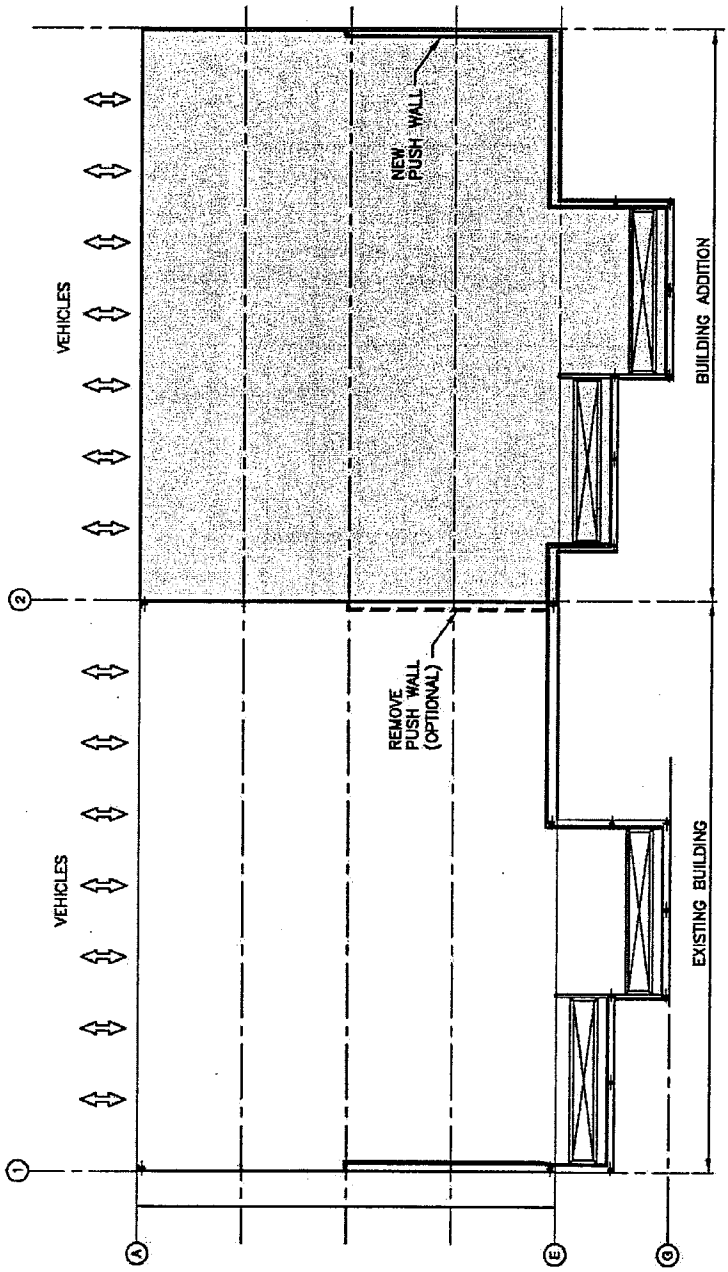
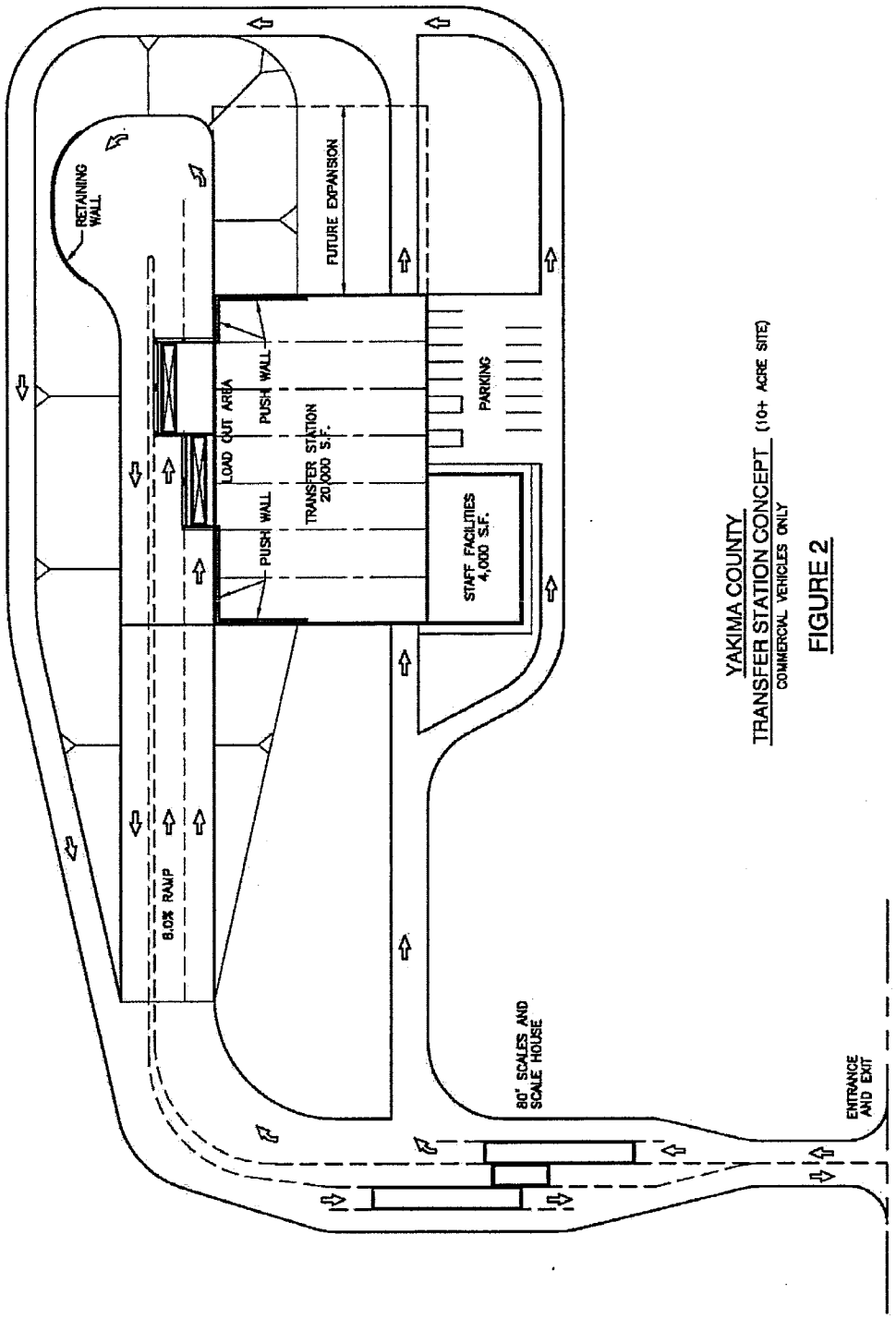


FIGURE 1: OPTION 1
EXPAND TERRACE HEIGHTS
TRANSFER STATION

Figure 2: Option 2 – New Transfer Station



REFERENCES

Yakima County 2005. *Terrace Heights Transfer Station Contract No. 2 Site Facilities.* Prepared by RW Beck. April 2005.

Yakima County 2008. *Solid Waste Level of Service Study & Infrastructure Needs Assessment.* Prepared by URS Corporation. April 2008.

Yakima County 2009. *Solid and Hazardous Waste Management Plan.* Prepared by URS Corporation. December 2009.

APPENDIX F

WUTC COST ASSESSMENT QUESTIONNAIRE

APPENDIX F
WUTC COST ASSESSMENT QUESTIONNAIRE

INTRODUCTION

By state law (RCW 70.95.090), solid waste management plans are required to include:

> "an assessment of the plan's impact on the costs of solid waste collection. The assessment shall be prepared in conformance with guidelines established by the Utilities and Transportation Commission (WUTC or Commission). The Commission shall cooperate with the Washington state association of counties and the association of Washington cities in establishing such guidelines."

The following cost assessment has been prepared in accordance with the guidelines prepared by the WUTC (WUTC 1997). The purpose of this cost assessment is not only to allow an assessment of the impact of proposed activities on current garbage collection and disposal rates, but to allow projections of future rate impacts as well. The WUTC needs this information to review the plan's impacts to the waste haulers that it regulates. For these haulers, WUTC is responsible for setting collection rates and approving proposed rate changes. Hence, WUTC will review the following cost assessment to determine if it provides adequate information for rate-setting purposes, and will advise Yakima County as to the probable collection rate impacts of proposed programs. Consistent with this purpose, the cost assessment focuses primarily on those programs (implemented or recommended) with potential rate impacts.

YAKIMA COUNTY
COST ASSESSMENT QUESTIONNAIRE

PREPARED BY Chris Bell
TELEPHONE: 360-210-4344 / 360-326-8937
DATE: October 23, 2009

Definitions: The solid waste management plan is a long-term strategy covering a twenty year span starting with 2010 as Year 1, Year 3 is 2013, and Year 6 is 2016. Yakima County's fiscal year is the same as the calendar year: January through December. The County worked in conjunction with local governments to develop a county wide comprehensive plan. No other jurisdictions have developed a plan exclusive of the County.

1. DEMOGRAPHICS: The data source for population projections used in the development of the plan is the Washington State Office of Financial Management. The base year and the associated populations are detailed in the table to the right as well as the assumed percentage increases from the plan years three, six, and ten.

Year	Plan Year	Yakima County Population	% ▲
2010	1	255,599	
2013	3	270,163	5.7%
2016	6	284,728	5.4%
2020	10	303,076	6.4%

2. WASTE STREAM GENERATION: The following table details the estimated waste generation and recycling tonnage. Waste generation is estimated at 11.1 pounds per person per day and recycling is projected at 24% of the waste generation.

Year	Plan Year	Waste Generation	MSW Disposed	Recycled and Diverted	Other Wastes
2010	1	520,040	236,660	124,150	159,230
2013	3	549,671	250,144	131,224	168,302
2016	6	579,304	263,628	138,300	177,376
2020	10	616,640	302,070	147,220	188,810

Waste Generation Assumptions:

- All figures, except the year are shown as tons per year (TPY). Projected waste generation figures for 2010 through 2020 are based on the waste generation rate for 2009 (11.1 pounds per person per day) and the population forecasts.
- The projected amounts of recycling and diversion, disposed MSW and other wastes assume the same percentage of the total waste generated as in 2008.
- MSW Disposed per person per day is 5.07 pounds or 1,852 pounds per year.
- Other wastes include construction and demolition (C&D) wastes disposed at limited purpose landfills and special wastes.

3. SYSTEM PROGRAM COMPONENT COSTS

All system costs reported in this questionnaire, with the exception of grant funds from the Washington Department of Ecology for the Moderate Risk / Household Hazardous Waste Program, are funded by user fees charged at the landfills and transfer station for disposal.

3.1 Waste Reduction Programs

Existing education and outreach waste reduction programs implemented by Yakima County and detailed in Section 3.3.1:

- School Recycling
- Business Recycling
- Organics Diversion
- Residential Recycling
- Public Event Recycling Education

Provide additional public education for new or expanded waste diversion programs such as yard debris disposal ban, collection system for e-waste, illegal dumping, and business recognition program as detailed in Section 3.6. The start-up for the expanded program is 2010.

Status	Program	Cost Yr. 1	Cost Yr. 3	Cost Yr. 6	Funding
Implemented	Education & Outreach	$32,000	$35,000	$38,000	Disposal Fee
Proposed	Expansion of PE&O	$25,000	$25,000	$25,000	Disposal Fee
	Total E&O Programs	$57,000	$60,000	$63,000	Disposal Fee

3.2 Recycling Programs

Curbside recycling collection services are available in Moxee, Selah, Union Gap, and Yakima, and these programs collect primarily the Tier 1 materials. Curbside recycling services are also available in the urban growth area on a subscription basis. Collection of yard debris is provided within the boundaries of the City of Yakima. Commercial collection of recyclables is offered by Yakima Waste Systems, Basin Disposal and Central Washington Recycling in and around the incorporated areas of the County. The cost of these recycling collection programs are already reflected in the current collection fees charged by the regulated haulers.
The County operates recycling drop-off sites at the Cheyne Road Landfill, Lower Valley Transfer Station, and Terrace Heights Landfill. In addition, these facilities accept yard debris including grass clippings, leaves, garden and landscaping wastes, brush and other natural woods up to ten inches in diameter, and Christmas trees. These materials are typically generated separately from other residential and commercial waste streams, and so are more easily diverted to composting and other programs. Hay, straw plastic, sod, manure, treated wood, stumps, rocks and food waste are not accepted in the County's yard debris program.

Yard debris collected curbside by the City of Yakima and Yakima Waste Systems in 2008 accounted for approximately 4,700 tons of the 14,400 total tons of yard debris processed by the County.

New Program – Yard Debris Collection

Alternative management strategies are needed for yard debris generated in Yakima County. Organic waste is currently being used for alternative daily cover. In the Washington State Solid Waste Management Plan, one of the recommendations is to divert organic materials such as yard debris and other organic waste into compostable materials. Yakima County has taken action on the recommendation and will ban yard waste from the landfill in 2012. An RFP will need to be developed to procure composting services from the private sector. Yard debris in the Yakima County waste stream is estimated at approximately 16,000 tons. Because the RFP has not been completed, a cost range of $5 to $20 per ton will be utilized to estimate the overall cost of this future program.

The table below summarizes County operated programs exclusive of current collection programs and costs that fall under the regulation of either the WUTC or an incorporated jurisdiction.

Status	Program	Cost Yr. 1	Cost Yr. 3	Cost Yr. 6	Funding
Implemented	Recycling Drop-off Sites	$15,000	$16,000	$17,000	Disposal Fee
Proposed	Yard Debris Composting (Low Est. 16,000 ton x $5)	$80,000	$88,000	$95,000	Disposal Fee
Proposed	Yard Debris Composting (High Est. 16,000 ton x $20)	$320,000	$353,000	$380,000	Disposal Fee

The costs of operating the recycling drop-off sites are included in the transfer station costs.

3.3 Solid Waste Collection Programs

The following table details information about the customer base of the two WUTC-regulated collection companies in Yakima County as well as the four, non-regulated, municipal collection systems. Reported amounts for both WUTC regulated haulers are for operations within the regulated areas of Yakima County; therefore, information from the incorporated areas serviced by both haulers has been excluded from the following table.

Basin Disposal, Permit #G-45			
	2010	2013	2016
Single Family Customers	6,112	6,295	6,484
Residential MSW Tons	7,946	8,184	8,429
Commercial Customers	1,608	1,656	1,706
Commercial MSW Tons	20,638	21,829	23,084
Yakima Waste Systems, Permit #G-89			
	2010	2013	2016
Single Family Customers	24,660	25,400	26,162
Residential MSW Tons	32,058	33,020	34,010
Commercial Customers	7,448	7,671	7,902
Commercial MSW Tons	89,058	94,152	99,520
Municipal Collections within Yakima County			
	2010	2013	2016
City of Yakima			
Single Family Customers	22,750	23,433	21,135
Commercial Customers	2,620	2,699	2,780
Total MSW Tons	28,057	29,460	30,933
City of Toppenish			
Single Family Customers	2,400	2,472	2,546
Commercial Customers	400	412	424
Total MSW Tons	5,990	6,290	6,604
City of Grandview			
Single Family Customers	2,717	2,799	2,882
Commercial Customers	410	422	435
Total MSW Tons	6,911	7,257	7,619
City of Granger			
Single Family Customers	600	618	637
Commercial Customers	120	124	127
Total MSW Tons	1,753	1,841	1,933

3.4 Energy Recovery & Incineration (ER&I) Programs

Not applicable to Yakima County.

3.5 Land Disposal Program

Yakima County owns and operates two landfills: Terrace Heights Landfill located 4 miles east of the City of Yakima and Cheyne Landfill located 3 miles north of Zillah. The following tables detail the source of waste tons for each landfill

Terrace Heights Landfill			
Waste Source	**Year 1**	**Year 3**	**Year 6**
WUTC Haulers	103,292	108,457	113,880
Municipal Haulers	28,057	29,460	30,933
Other / Self Haul	34,313	34,682	34,454
Total MSW Tons	165,662	172,599	179,267

Cheyne Landfill			
Waste Source	**Year 1**	**Year 3**	**Year 6**
WUTC Haulers	46,407	48,727	51,163
Municipal Haulers	14,654	15,387	16,156
Other / Self Haul	9,937	13,431	17,041
Total MSW Tons	70,998	77,545	83,361

3.5.4 Landfill Cost

The County doesn't segregate costs for each landfill and set a disposal fee independently; rather it pools the cost for both landfills. The table below summarizes the cost of operations and capital equipment for both landfills on an annual basis as well as a per ton basis.

Landfill Cost	Year 1	Year 3	Year 6
Total Cost	$4,090,600	$4,460,500	$4,799,800
MSW Tons	236,660	250,114	253,628
Cost Per Waste Ton	$17.28	$17.83	$18.92

3.6 Administration Program

	Year 1	Year 3	Year 6
Administrative	$695,500	$775,500	$866,100
Planning	$150,600	$205,700	$111,900
Recycling *	$418,100	$466,400	$517,000
Total Administrative	$1,264,200	$1,447,600	$1,495,000

*Recycling costs include tire processing costs of $150,000 in Year 1, $166,300 in Year 3, and $184,400 in Year 6.

3.7 Other Programs

The County operates a Moderate Risk Waste / Household Hazardous Waste facility at Terrace Heights Landfill. The table below details the projected operational costs as well as the two funding sources:

	Year 1	Year 3	Year 6
MRW Operational Cost	$566,200	$656,500	$687,300
Less WA. DOE Grant	($287,800)	($319,100)	($320,000)
County Program Cost	$278,400	$337,400	$367,300

In addition to the two landfills, Yakima County operates the Lower Valley Transfer Station (LVTS) just south of the town of Granger. The transfer station serves private and municipal haulers as well as self haul customers. Waste collected at the LVTS is transported and disposed at the Cheyne Landfill. Terrace Heights Landfill has a transfer station exclusively for self haul customers. The table below summarizes the operational and capital cost for both facilities.

	Year 1	Year 3	Year 6
TS Operational Costs	$1,058,300	$1,147,600	$1,272,400

The County operates a septage lagoon at Cheyne Landfill for the disposal of sewage sludge from local municipalities and private contractors servicing rural septic systems. The cost of the program is funded through the disposal fee charged for waste delivered to the facility. Historically, the fee charged for disposal has been approximately 40% of the solid waste disposal fee. For 2010, the new fee for sewage sludge is $12.00 per ton, which is 38% of the 2010 solid waste disposal fee.

4. FUNDING MECHANISMS

All system costs reported in this questionnaire are funded by user fees charged at the landfills and transfer station with the exception of interest earned on fund balances and approximately $350,000 in annual grant funds from the Washington Department of Ecology used primarily to offset the operational costs of the Moderate Risk / Household Hazardous Waste Program.

System Funding Source	2010 Amount	Funding Percentage
Disposal Fees	$7,144,800	88%
Investment Interest	$ 675,000	8%
WA DOE Grants	$ 333,000	4%

The fee for waste disposal will be $32.00 in 2010. Yard debris disposal cost is half of the waste disposal fee or $16.00 per ton. The summarized disposal fee components are detailed in the table on the right:

Rate Component	2010 Rate
Operations	$26.00
Closure / Post Closure	$ 3.00
Capital	$ 3.00
Total Disposal Fee	$32.00

Table 4.1.1 Facility Inventory
The following facilities are owned and operated by Yakima County Solid Waste Division:

Facility Name	Facility Type	Location	Final Disposal	Tip Fee per Ton*	MSW Tons *	Annual Revenues**
Lower Valley Transfer Station	Transfer Station	Granger, Washington	Cheyne Landfill	$28.00	37,016	$1,036,448
Terrace Heights Landfill	Landfill	Yakima, Washington	N/A	$28.00	159,106	$4,454,968
Cheyne Landfill	Landfill	Zillah, Washington	N/A	$28.00	33,908	$949,424

* Projected 2009 Results. Refuse and B&O taxes paid by the County to the State have historically been $0.30 per ton which is included in the tip fee.
** Annual revenues for MSW disposal only

Table 4.1.2
The following table details the projected tip fee components for the upcoming plan years. The County's policy is to utilize a sinking fund for future capital purchases. All equipment and infrastructure over the planning period will be funded through the $3.00 fee per ton.

Yakima County SW Tip Fee Components 2010 to 2016			
Rate Component	**Year 1**	**Year 3**	**Year 6**
Administration	$ 2.47	$ 2.69	$ 3.03
Planning	$ 0.53	$ 0.71	$ 0.39
Recycling	$ 1.48	$ 1.62	$ 1.81
Landfills	$ 14.50	$ 15.49	$ 16.80
Transfer Station	$ 3.75	$ 3.99	$ 4.45
MRW	$ 2.01	$ 2.28	$ 2.41
Bond P&I	$ 1.26	$ 1.22	$ 1.10
Refuse Tax	$ 2.47	$ 2.69	$ 3.03
Total Operations *(sum of components)*	$26.00	$28.00	$30.00
Closure / Post Closure	$ 3.00	$ 3.00	$ 3.00
Capital	$ 3.00	$ 3.00	$ 3.00
Total Tip Fee	**$32.00**	**$34.00**	**$36.00**

Table 4.1.3
The following table is the summarized budget for Yakima County for the years 2010 to 2016. The following assumptions were used to project expenses:

Inflation: 3%
Labor: 3.5%

Yakima County SW System Projected Budget 2010 to 2016							
	2010	2011	2012	2013	2014	2015	2016
Revenues							
Service Revenue	$7,053,549	$7,229,594	$7,316,666	$7,882,197	$7,977,149	$8,129,948	$8,789,591
Refuse / B&O Tax	$91,251	$92,740	$93,905	$95,072	$96,262	$98,187	$100,151
WA DEC Grant	$333,000	$344,700	$356,700	$369,200	$382,200	$368,000	$375,000
Fund Interest	$675,000	$700,000	$700,000	$700,000	$700,000	$700,000	$700,000
Total Revenue	$8,152,800	$7,667,035	$7,767,271	$8,346,469	$8,455,611	$8,596,135	$9,264,742
Expenses							
Administration	$695,506	$720,670	$747,530	$775,470	$804,480	$834,670	$866,050
Planning	$150,625	$102,030	$103,860	$205,690	$107,730	$109,771	$111,912
Recycling	$418,137	$435,430	$450,560	$466,390	$482,750	$499,630	$517,050
Landfills	$4,090,563	$4,147,040	$4,302,530	$4,460,483	$4,621,402	$4,709,192	$4,799,811
Transfer Stations	$1,058,250	$1,071,510	$1,108,800	$1,147,627	$1,187,808	$1,229,269	$1,272,360
MRW	$566,163	$613,314	$634,386	$656,521	$678,722	$664,050	$687,250
LTD Payments	$355,000	$350,000	$345,000	$350,000	$345,000	$325,001	$315,002
Total Expenses	$7,334,244	$7,439,995	$7,692,666	$8,062,180	$8,227,891	$8,371,584	$8,569,435
Net Income	**$818,556**	**$227,040**	**$74,605**	**$284,288**	**$227,719**	**$224,551**	**$695,306**
Rate per Ton	**$26.00**	**$26.00**	**$26.00**	**$28.00**	**$28.00**	**$28.00**	**$30.00**

Closure and post closure costs for Terrace Heights Landfill and Cheyne Landfill are summarized in the following table to the left while the accrual for capital projects is summarized in the table to the right:

Yakima County Closure / Post-Closure Cost per Ton	
Annual Closure Costs to Accrue	$736,074
Annual Post Closure Costs to Accrue	$157,500
Less Interest Earned on Fund Balances	$(320,000)
Total Closure / Post Closure Cost to Accrue	$573,574
Annual SW Tons	210,000
Cost per Ton	**$2.73**

Yakima County SW System Capital Accrual Cost per Ton	
Projected Future Capital Costs	$ 5,006,970
Projected SW Tons	1,673,389
Cost per Ton	**$2.99**

APPENDIX G

POTENTIAL FUNDING OPTIONS

APPENDIX G
POTENTIAL FUNDING OPTIONS

INTRODUCTION

This appendix shows more details about potential funding methods that could be used to support solid waste activities. The following list is derived from *Financing Solid Waste for the Future* (Ecology 2004, Publication #04-07-032).

POTENTIAL FUNDING METHODS

User Fees, Rates, Surcharges

1. **Cost-of-Service-Based Rates**: Cost-of-service-based rates, which allow for rates to cover the actual costs of providing the services, is a rate-setting methodology used by the Washington Utilities and Transportation Commission (WUTC) and some cities. Under Chapter 81.77 RCW, the WUTC has established cost-of-service-based rates for regulated solid waste collection from residents and commercial businesses in areas where certificates exist for solid waste collection companies. Under RCW 35.21.130 and 35.21.135, cities and towns may set rates through a solid waste or recyclable materials collection ordinance.

   Both cities and counties can provide for reduced rates as incentives. Cities and towns may provide reduced solid waste collection rates as incentives to residents participating in recycling programs. In WUTC-regulated areas, counties can, by ordinance, provide for reduced solid waste collection rates as incentives to residents participating in recycling programs, subject to WUTC approval.

2. **Other Volume-Based Rates**: This represents an alternative range of pricing options for solid waste collection and disposal services, such as using the rates to provide incentives for reducing wastes and incentives for separating recyclables. An example would be setting a rate where subscribers to two-can service would pay double the rate of one-can subscribers. Specific authority for counties to set such rates does not exist. These types of rates may be problematic under cost-of-service models, as they are currently used to set rates that cover costs.

3. **"Fixed" or "flat" Per-Customer Rates**: Fixed or flat per-customer rates charge each customer the same amount regardless of the volume of service. Very simply, the total costs divided by the number of households equals the rate per household. Some cities use a flat rate for all or some services (garbage, recycling, and yard waste). The WUTC uses flat rates for mandatory-pay recycling and yard waste services, but not garbage.

4. **Solid Waste/Recycling Collection Rate Surcharges**: As noted, Chapter 35.21 RCW provides authority to cities to set collection and disposal rates, which may include surcharges/fees to cover additional costs of managing the solid waste system beyond actual collection and disposal costs. Similarly, RCW 81.77.160 directs the WUTC to establish collection rates that include "all known and measurable costs related to implementation of the approved county or city comprehensive solid waste management plan."

18. **Fees/Charges for Recycling**: Public and private recycling entities may charge fees to cover the costs of recovering or recycling a variety of discarded products.

19. **Sales of Recovered Energy**: Some solid waste facilities, such as waste-to-energy facilities and landfills, are able to recover energy from the waste materials. Some landfills create energy by burning landfill gas. Sales of this energy can be used to help pay for solid waste programs.

20. **Government-Collected Funds from Private Sector Activities ("Utility Taxes")**: In some instances, pursuant to RCW 81.77.020, cities contract with private parties to provide various solid waste collection services but retain the billing function. Revenues received above the amount remitted to the contractor can be directed to other solid-waste-related programs and activities by the applicable municipality.

21. **General Fund Revenue Sources**: Governments may use general fund revenues to pay for solid waste activities, and some do rely to some extent on such funding.

22. **Bond Financing**: RCW 36.67.010 authorizes counties to sell bonds to pay for major solid waste projects. Bonding is used for capital projects (landfills, transfer stations, etc.) or large landfill remediation efforts. It is not used for regular operating expenses. Bonds can be general obligation (GO) or revenue bonds. Typically, the debt service for a bond is paid with disposal fees.

23. **Public Works Assistance Account**: A statewide solid waste collection tax has been in place since 1989. Chapter 82.18 RCW imposes a 3.6% "solid waste collection tax" on all persons using such service. Revenues collected via this tax go into the Public Works Assistance Account, which is used to provide loans and financial guarantees to local governments for public works projects, including solid waste and recycling infrastructure. This tax replaced an earlier "refuse collection tax," and that name continues to be applied to the new tax. These funds are to be used to make loans or give financial guarantees to local governments for public works projects.

APPENDIX H

SEPA CHECKLIST

APPENDIX H
SEPA CHECKLIST

INTRODUCTION

Ecology guidelines (Ecology 1999) require that the potential impacts of this *Solid Waste Management Plan* (Plan) be evaluated according to the State Environmental Policy Act (SEPA) process. This checklist has been prepared to fulfill that requirement.

The SEPA checklist prepared for this Plan is a "non-project proposal" that is intended to address the new programs recommended by the Plan. As a non-project SEPA checklist, it is unable to fully address the potential impacts of facilities mentioned in this Plan (such as the MRW facility and the central compost facility). Any new facilities may need to undergo their own SEPA review process.

ENVIRONMENTAL CHECKLIST

A. BACKGROUND INFORMATION

1. Name of proposed project, if applicable:

   Yakima County Solid and Moderate Risk Waste Management Plan

2. Name of applicant:

   Yakima County Department of Public Services

3. Address and phone number of applicant and contact person:

   Wendy Mifflin
   Yakima County Public Services - Solid Waste Division
   7151 Roza Hill Drive, Yakima, WA 98901
   Phone: (509) 574-2455, Fax: (509) 574-2458

4. Date checklist prepared:

   September 30, 2009

5. Agency requesting checklist:

   Yakima County
   Washington State Department of Ecology

6. Proposed project timing or schedule *(including phasing, if applicable)*:

   This checklist is for a non-project proposal intended to update Yakima County's long-range plans for solid and moderate risk wastes. The proposed Solid and Moderate Risk Waste Management Plan is required to undergo public review and comment, which is anticipated to begin in October 2009. A final copy of the Solid Waste Management Plan is expected to be adopted by April 2010.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

   Ecology's guidelines require solid waste management plans to be reviewed every 5 years and, if necessary, updated.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

   Does not apply

9. Do you know of pending applications for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

   NA

10. List any government approvals or permits that will be needed for your proposals, if known:

    State Law (RCW 70.95.094) and guidelines issued by the Department of Ecology (Guidelines for the Development of Local Solid Waste Management Plans and Plan Revisions, December 1999) require cities to adopt this plan (or they must develop their own plans), require a public review period (for a minimum of 30 days), require that the plan and a Cost Assessment Questionnaire be reviewed and approved by the Washington Utilities and Transportation Commission, and require Ecology to examine and approve of the preliminary draft and final plan. The Board of County Commissioners must also adopt the final draft of the plan, at about the same time that the cities adopt it.

11. Give a complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist which ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page.

    Yakima County is required by state law to maintain a "coordinated, comprehensive solid waste management plan" in a "current and applicable condition." The existing plan, adopted in 2002, needs to be updated. The proposed new plan addresses changes that have occurred in the past seven years.

    In addition to updating the discussion of current facilities and programs, the proposed solid waste management plan contains a number of recommendations. Most of these recommendations represent refinements to existing policies and programs, based on the goal of decreasing reliance on landfills (by increasing waste reduction, recycling and composting) and reducing environmental impacts caused by existing activities. The recommendations proposed in the solid waste management plan can be viewed in the plan (see the Executive Summary or Chapter 14 for a concise listing).

12. Location of the proposal. Please give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any. If a proposal should occur over a range of area, please provide the range or boundaries of the site(s). Please provide a legal description, site plan, vicinity map, and topographic map if possible. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist. *(Indicate if maps or plans have been submitted as part of a permit application.)*

    The Solid Waste Management Plan addresses activities and programs that occur throughout Yakima County. A few facilities or activities outside of the county are also involved (such as recycling markets in other areas).

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site *(circle one)*: flat, rolling, hilly, steep, slopes, mountainous, other *(describe)*: **Not applicable – non-project proposal.**

b. What is the steepest slope on the site *(approximate % slope)*? **NA.**

c. What general types of soils are found on the site *(i.e. clay, sand, gravel, peat, muck)* ? If you know the classification of agricultural soils, please specify and note any prime farmland. **NA.**

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe: **NA.**

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill: **Not applicable – non-project proposal.**

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe. **NA.**

g. About what percent of the site will be covered with impervious surfaces after project construction *(for example, asphalt or buildings)*? **NA.**

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any: **NA.**

2. Air

a. What types of emissions to the air would result from the proposal *(i.e. dust, automobile, odors, industrial wood smoke)* during construction, and when the project is completed? If any, generally describe and give approximate quantities if known. **NA.**

b. Are there any off-site sources of emissions or odor which may affect your proposal? If so, generally describe. **NA.**

c. What are the proposed measures to reduce or control emissions or other impacts, if any: **NA.**

3. Water

a. Surface:

1) Is there any surface water on or in the immediate vicinity of the site *(including year-round and seasonal stream, saltwater, lakes, ponds, associated wetlands)*? If yes, describe type, provide names, and, if known, state what stream or river it flows into. **NA.**

2) Will the project require any work over or adjacent to *(within 200 feet)* the described waters? If yes, please describe and attach available plans. **NA.**

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the are of the site that would be affected. Indicate the source of fill material. **NA.**

4) Will surface water withdrawals or diversions be required by the proposal? Give general description, purpose, and approximate quantities if known. **NA.**

5) Does the proposal lie with a 100-year flood plain? Note location on the site plan, if any. **NA.**

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge. **NA.**

b. Ground:

1) Will ground water be withdrawn or recharged? Give general description, purpose, and approximate quantities if known. **NA.**

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any *(for example: domestic sewage; industrial, containing the following chemicals; agricultural; etc.)*. Describe the general size of the system, the number of such systems, the number of houses to be served *(if applicable)*, or the number of animals or humans the system(s) are expected to serve. **NA.**

c. Water runoff *(including storm water)*:

1) Describe the source of runoff and storm water and method of collection and disposal, if any *(including quantities, if known)*. Where will this water flow? Will this water flow into other waters? If so, please describe. **NA.**

2) Could waste materials enter ground or surface waters? If so, generally describe. **NA.**

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any: **NA.**

4. Plants

a. Check "X" or circle "O" types of vegetation found on the site: **NA.**

b. What kind and amount of vegetation will be removed or altered? **NA.**

c. List threatened or endangered species known to be on or near the site. **NA.**

d. List proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any: **NA.**

5. Animals

a. Circle "O" any birds and animals which have been observed on or known to be on or near the site: **NA.**

b. List any threatened or endangered species known to be on or near the site: **NA.**

c. Is the site part of a migration route? If so, explain. **NA.**

d. Proposed measures to preserve or enhance wildlife, if any: **N/A.**

6. Energy and Natural Resources

a. What kinds of energy *(electric, natural gas, oil, wood stove, solar)* will be used to meet the completed project's needs? Describe whether it will be used for heating, manufacturing, etc. **N/A.**

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe. **N/A.**

c. What kinds of energy conservation features are included in the plans of this proposal? **N/A.**

d. What are the proposed measures to reduce or control energy impacts, if any? **N/A.**

7. Environmental Health

a. Are there any environmental health hazards, exposure to toxic chemicals, including risk of fire and explosion, spill, or hazardous waste, that occur as a result of this proposal? If so, describe. **N/A.**

b. Describe special emergency services that might be required. **N/A.**

c. What are the proposed measures to reduce or control environmental health hazards, if any? **N/A.**

8. Land and Shoreline Use

a. What is the current use of the site and adjacent properties? **N/A.**

b. Has the site been used for agricultural purposes? If so, describe. **N/A.**

c. Describe any structures on the site. **N/A.**

d. Will any structures be demolished? If so, what. **N/A.**

e. What is the current zoning classification of the site? **N/A.**

f. What is the current comprehensive plan designation of the site? **N/A.**

g. If applicable, what is the current shoreline master program environment designation of the site? **N/A.**

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify. **N/A.**

i. What are proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any: **N/A.**

j. Approximately how many people would reside or work in the completed project? **N/A.**

k. Approximately how many people would the completed project displace? **N/A.**

l. What are proposed measures to avoid or reduce displacement or other impacts, if any? **N/A.**

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing. **N/A.**

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing. **N/A.**

c. What are proposed measures to reduce or control housing impacts, if any? **N/A.**

10. Noise

a. What types of noise exist in the area which may affect your project *(for example: traffic, equipment, operation, other)*? **N/A.**

b. What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis *(for example: traffic, construction, operation, other)*? **N/A.**

c. What are the proposed measures to reduce or control noise impacts, if any? **N/A.**

11. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed? **N/A.**

b. What views in the immediate vicinity would be altered or obstructed? **N/A.**

c. What are the proposed measures to reduce or control aesthetic impacts, if any? **N/A.**

12. Light and Glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur? **N/A.**

b. Could light or glare from the finished project be a safety hazard or interfere with views? **N/A.**

c. What existing off-site sources of light or glare may affect your proposal? **N/A.**

d. What are the proposed measures to reduce or control light and glare impacts, if any: **N/A.**

13. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity? **N/A.**

b. Would the proposed project displace any existing recreational uses? If so, describe. **N/A.**

c. What are the proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any? **N/A.**

14. Historic and Cultural Preservation

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe. **N/A.**

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on the site. **N/A.**

c. What are the proposed measures to reduce or control impacts, if any? **N/A.**

15. Transportation

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any. **N/A.**

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop? **N/A.**

c. How many parking spaces would the completed project have? How many would the project eliminate? **N/A.**

d. Will the proposal require any new roads or streets, or improvements to any existing roads or streets, not including driveways? If so, generally describe *(indicate whether public or private):* **N/A.**

e. Will the project use or occur in the immediate vicinity of water, rail, or air transportation? If so, generally describe. **N/A.**

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur. **N/A.**

g. What are proposed measures to reduce or control transportation impacts, if any? **N/A.**

16. Public Services

a. Would the project result in an increased need for public services *(for example: fire protection, police protection, health care, schools, other)*? If so, generally describe. **N/A.**

b. What are proposed measures to reduce or control direct impacts on public services, if any? **N/A.**

17. Utilities

a. Circle "O" utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other *(describe)*. **N/A.**

b. Describe the utilities which are proposed for the project, the utility providing the service, and the general construction activities of the site or in the immediate vicinity which might be needed. **N/A.**

C. SIGNATURE

The above answers are true to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: /s/ Wendy Mifflin

Date Submitted: 11/3/09

D. SUPPLEMENT SHEET FOR NONPROJECT ACTIONS

(DO NOT USE THIS SHEET FOR PROJECT ACTIONS)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would effect the item at a greater intensity or at a rate then if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production or noise?

   Implementation of the proposed recommendations should help reduce the amount of water and air discharges, while increasing the proper handling of any solid or toxic wastes that are generated in the county. There should not be a significant increase or reduction in noise as a result of the recommendations.

2. How would the proposal be likely to affect plants, animals, fish or marine life?

   Any impacts to plants, animals, fish and marine life will only be incidental and should be beneficial. Activities such as reducing illegal dumping should help reduce impacts to plant and animal life. Encouraging composting of yard wastes should also be beneficial to plant life (assuming proper application of the compost).

   Proposed measures to protect or conserve plants, animals, fish or marine life?

   Not applicable.

3. How would the proposal be likely to deplete energy or natural resources?

   The proposed recommendations should help reduce energy demands and help to conserve natural resources, by increasing waste reduction and other activities. Increased recycling not only leads to conservation of natural resources but also reduces energy demands. In general, using recycled materials in place of virgin materials requires significantly less energy in the manufacturing process.

   Proposed measures to protect or conserve energy and natural resources are:

   Not applicable.

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated *(or eligible or under study)* for governmental protection; such as parks, wilderness,

wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farm lands?

These areas should be unaffected by the recommendations in the solid waste management plan.

Proposed measures to protect such resources or to avoid or reduce impacts are:

Not applicable.

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

No direct impacts to land use or shoreline use are anticipated to result from the proposed recommendations.

Proposed measures to avoid or reduce shoreline and land use impacts are:

Not applicable.

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

The proposed recommendations should not have significant effects on transportation requirements, but public services will potentially be increased through new recycling and composting programs.

Proposed measures to reduce or respond to such demand(s) are:

Not applicable.

7. Identify, if possible, whether the proposal may conflict with locate, state or federal laws or requirements for the protection of the environment.

No such conflicts are likely. The intent of updating the solid waste management plan is to comply with various laws and requirements (especially on the state level) regarding environmental protection and other factors.

FINAL
DETERMINATION OF NON-SIGNIFICANCE
(Notice of Action)

1. **Description of Proposal:** The Yakima County Planning Division has received an environmental checklist for a non-project proposal to update Yakima County's Solid and Moderate Risk Waste Management Plan. In addition to updating the Plan's discussion of current facilities and programs, the proposed solid waste management plan contains a number of recommendations. Most of these recommendations represent refinements to existing policies and programs, based on the goal of decreasing reliance on landfills (by increasing waste reduction, recycling and composting) and reducing environmental impacts caused by existing activities.

2. **File Number:** SEP09-041

3. **Applicant:** Wendy Mifflin
Yakima County Public Services – Solid Waste Division
7151 Roza Hill Drive
Yakima, WA 98901

4. **Location of Proposal:** Yakima County

5. **Lead Agency:** Yakima County Planning Division

6. **Determination:** The lead agency for this proposal has determined that it will not have a probable significant adverse impact on the environment and an Environmental Impact Statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after a careful review of the completed environmental checklist, and other information on file with the lead agency. This information (including all environmental documentation) is available to the public on request and can be examined in our offices during regular business hours. Environmental documents include the SEPA checklist, this threshold determination, and submittal materials

7. **Comment and Appeal Information:** This Final DNS is issued under WAC 197-11-340(2). There is no further comment on it. State law prohibits SEPA appeals for permits that do not have an appeal option, consequently no appeal is allowed (WAC 197-11-680(3)(v)). For information on the SEPA processes, or on other issues relating to this proposal, contact Carol Faith, Senior Project Coordinator, at (509) 574-2300.

8. **SEPA Responsible Official:**

STEVEN M. ERICKSON

9. **Position/Title:** Planning Official / SEPA Responsible Official
10. **Address:** 128 N. 2nd St., 4th Floor Courthouse, Yakima, WA 98901
11. **Date:** January 25, 2010