CITY OF WHITE SALMON

RESOLUTION 2013-02-357

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF WHITE SALMON ADOPTING 2012 KLICKITAT COUNTY SOLID WASTE MANAGEMENT PLAN

WHEREAS, the City of White Salmon is required by RCW 70.95.080 to adopt a coordinated comprehensive Solid Waste Management Plan ("SWMP") along with the County and other municipalities located in the County; and

WHEREAS, a draft SWMP was prepared by consultant Green Solutions Environmental Consulting on behalf of the County, cities and the Solid Waste Advisory Committee, consisting of members of the cities and county as well as area business and community members; and

WHEREAS, the City has reviewed the draft SWMP and finds that it meets the statutory requirements, and provides for safe and efficient disposal of residents' solid waste.

NOW, THEREFORE, BE IT RESOLVED that the governing body of the City of White Salmon hereby adopts the document attached hereto as "Exhibit 'A'" entitled 2012 Klickitat County Solid Waste Management Plan.

PASSED AND ADOPTED by the City Council of the City of White Salmon, WA. on this 6th day of February, 2013.

Leana Johnson, City Clerk/Treasurer

David R. Poucher, Mayor

APPROVED AS TO FORM:

Kenneth Woodrich, City Attorney

GREEN SOLUTIONS

ENVIRONMENTAL CONSULTING

2012 KLICKITAT COUNTY

SOLID WASTE MANAGEMENT PLAN UPDATE

Klickitat County: Embracing the future without forgetting the past.

DECEMBER 2012

2012 KLICKITAT COUNTY

SOLID WASTE MANAGEMENT PLAN UPDATE

Prepared for

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ACKNOWLEDGEMENTS

Many individuals provided valuable assistance and cooperation in preparing this 2012 Plan Update. In particular, the following individuals were instrumental in the successful completion of this project and we wish to express our sincere appreciation to them.

KLICKITAT BOARD OF COUNTY COMMISSIONERS

Rex Johnston, District 1
David Sauter, District 2
Ray Thayer, District 3

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On the cover: A view of windmills on a hillside above the Columbia River, as seen through an opening at the Stonehenge monument that honors WWI heroes.

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INTRODUCTION

This *Solid Waste Management Plan* was prepared to provide a guide for solid waste activities in Klickitat County. This plan addresses recent changes while also looking forward to the future needs of Klickitat County. The plan was developed through a team effort by Klickitat County, the cities, and the Solid Waste Advisory Committee (SWAC). The SWAC members represented the interests of their agencies and businesses, and as residents and members of the community they also represented the public's interest.

This document was developed in response to the Solid Waste Management Act, Chapter 70.95 of the Revised Code of Washington (RCW), which states:

> "Each county within the state, in cooperation with the various cities located within such county, shall prepare a coordinated, comprehensive solid waste management plan" (RCW 70.95.080).

The minimum contents of this Plan are specified by state law (RCW 70.95.090) and further described in *Guidelines for the Development of Local Comprehensive Solid Waste Management Plans and Plan Revisions* issued by the Washington Department of Ecology (Ecology 2010a). The Solid Waste Management Act specifies that this Plan must "be maintained in a current and applicable condition" through periodic review and revisions (RCW 70.95.110).

PLAN PREPARATION AND ADOPTION PROCESS

This copy of the *Klickitat County Solid Waste Management Plan* was prepared based on comments received on a "preliminary draft" that was distributed for review and comment by the participating jurisdictions, Ecology, WUTC, the general public, and other interested parties. Comments received on the preliminary draft were reviewed with the SWAC and revisions were made as appropriate.

Once the comments from the public, Ecology and others had been addressed, a "final draft" of this plan was prepared and offered for adoption by the cities and by Klickitat County. Once adopted, this plan will be reviewed by Ecology again and only after they approve the final draft will this plan become official and the planning process will be completed.

SUMMARY OF PLAN RECOMMENDATIONS

The recommendations proposed by this plan are shown below. Additional details on the recommendations can be found in the appropriate chapter of the plan.

Waste Reduction

The following criteria were used for determining which waste reduction programs to pursue:

- Waste reduction options should be effective at the local level and suitable for a rural community.
- Waste reduction options should be incentive rather than disincentive based.
- Waste reduction options that combine County and non-County resources should be given top consideration.

The waste reduction recommendations are as follows:

<u>Education and Public Awareness</u>

- The primary efforts of the County will be to promote existing programs, facilities and other opportunities for waste reduction, including programs that reduce the volume and/or toxicity of hazardous wastes.
- The cities, towns and Republic Services will assist the County by, at a minimum, including waste reduction messages in information provided to their residents or customers at least annually.
- Distribution of waste reduction brochures will be conducted contingent on the availability of funds and other resources.
- An office waste minimization program will be implemented, or existing efforts by government and private entities will be promoted, contingent on the availability of funds and other resources.
- Businesses will be encouraged, through brochures or waste consultations (conducted by Republic Services upon request from the business), to consider evaluating their processes and policies that affect waste generation.
- Wherever possible, waste reduction education efforts will be combined with education and public awareness efforts for recycling.
- The Model Recycling Plan should be fully implemented, including speakers, brochures, and radio ads.
- Grants and state-sponsored education programs should also be pursued.
- The County recycling coordinator will work with the designated staff of the landfill contractor to develop and implement complementary waste reduction education and public awareness activities of the county and the landfill contractor.

Backyard Composting

- County staff will conduct workshops on yard debris and food waste composting. Backyard composting of yard debris and food scraps will be promoted by the County, with assistance from the cities, towns, and Republic Services as appropriate.
- The County recycling coordinator will work with the designated staff of the landfill contractor to develop and implement complementary composting education and public awareness activities of the County and the landfill contractor.

Government Programs

- Government waste reduction activities will be encouraged and promoted.

Incentive/Disincentive Based Programs

- Klickitat County will support state policies and legislation that provide incentives through tax credits, variable collection rates, and product labeling.
- Disincentives and mandatory measures (such as disposal bans) will be used as a last resort effort to increase waste reduction.

Waste Exchanges

- Waste exchange information will be made available to businesses.
- Re-use organizations and programs will be promoted.

Program Evaluation

- The effectiveness of waste reduction programs and activities will be reviewed annually.
- Waste reduction efforts will be modified as necessary on an on-going basis.

Waste reduction program costs are paid by grants and from funds generated through the Agreement with Republic Services.

Recycling

Recycling is an integral part of any comprehensive solid waste management system. Benefits from these activities include cost savings for collection, transfer, and disposal; revenues from the sale of some recyclables; and environmental benefits from reduced dependence on disposal and more efficient use of resources. The regional landfill alternative was adopted in the 1990-92 Plan Updates and the terms of the County's Agreement with Republic Services offers the opportunity for a significantly higher level of recycling in Klickitat County. Financial and technical contributions of Republic Services and the backhaul of Klickitat County's recyclables provide access to markets

that might not otherwise be available. The County recognizes that even though a significant portion of the cost for recycling programs is borne by Republic Services, the County still has an obligation to develop a system that not only reclaims resources from the waste stream but also conserves resources in the process. The County recognizes that countywide curbside collection is an important step towards achieving a 50% recycling goal, but that other steps will also be necessary to reach this goal.

The following recycling actions are recommended:

Collection of Residential Recyclable Materials

- Continue the curbside recycling program.
- Maintain a list of materials to be targeted for curbside recycling.
- Collect metals, glass, white goods, and other specified materials separately at the transfer stations.
- Maintain commingled status for other targeted recyclables.
- Increase participation in the curbside recycling program.

Buy-Back Centers

- Continue to encourage community groups to collect recyclables as a fundraising activity (see also Community Group Recycling, below).

Drop-Off Centers

- Increase drop-off locations.
- Investigate possible community group involvement for selected drop-off sites.

Community Group Recycling

- Encourage cooperation with buy-back centers.
- Continue and expand support for community cleanup events.

Small Recycling Collectors

- Encourage environmentally and neighborhood friendly recycling.
- Consider impacts on recycling before passage of nuisance ordinances.

Business and Government Facility Recycling

- Include business and government facilities in the Model Rural Recycling Program Plan.
- Establish list of targeted materials.
- Provide collection of targeted materials.

Education and Awareness

- Continue and improve present programs.
- Continue print and radio ads to promote participation in recycling.
- Enhance speaking by county staff.
- Require Republic Services to furnish a person for support of education and awareness as agreed in the Model Recycling Plan (October 30, 1999).
- Cities should provide more outreach and other assistance in promoting recycling and related programs.
- Develop uniform program for speakers.
- Install better signage on and near recycling dropboxes.

Recycling Program Evaluation

- Develop baseline data for existing tonnage and composition of recyclables collected through curbside and drop-off programs, and determine cost per ton for each program.
- Modify program as necessary.

Organics

The County could improve the recycling rate by increasing the diversion of organic materials in the following ways:

1. encourage onsite yard debris and food waste composting; and

2. re-establish the wood waste chipping program.

The following actions are recommended for these organics programs:

Composting

- Continue to promote and support onsite yard debris composting.
- Encourage onsite composting of food wastes through vermiculture and backyard composting.
- The cities, towns and Republic Services will assist the County in promoting backyard composting and, unless or until the wood waste chipping program is begun again, will also assist with promoting proper onsite handling of wood waste.
- Centralized yard debris composting sites should be investigated.
- Municipal solid waste composting is not recommended.
- Large-scale composting of yard and garden waste from in-County and imported sources should be considered as a possible addition to the Agreement between Klickitat County and Republic Services.

- Other proposals or opportunities that may arise in the future for diverting organics, such as for curbside collection, should be considered based on their relative merits such as cost-effectiveness and other factors.
- Placing containers for collecting yard debris and possibly other organics at locations where they can be monitored and a tipping fee can be collected, such as the transfer stations and possibly other locations, should be considered.

Wood Waste Chipping

- Renew the drop-off chipping site program, when local economic conditions permit it.
- Improve existing sites.
- Improve marketing of the end-products.

Solid Waste Collection

The present solid waste collection system is functioning at a satisfactory level. Solid waste collection complaints are at a minimum while collection costs are reasonable. Solid waste collection recommendations are as follows:

- The County should encourage the use of collection services when possible.
- The County should not implement mandatory collection.
- The County should develop and implement education efforts toward collection of solid waste.
- Service-providers should provide information to new customers, and to existing customers at least annually, that describes the available waste collection and recycling services as well as other information as required by Chapter 480-70-361 WAC.
- The County should maintain and make available a list of residential and commercial service-providers.
- The Klickitat County Health Department should continue to enforce solid waste regulations and laws to encourage the collection and proper disposal of solid waste in the County.
- All cities should continue to enforce compliance of city codes for garbage collection and disposal.
- The County should maintain the concepts and arrangements in the Agreement between Republic Services and Klickitat County to maintain free disposal of solid waste.

Transfer Facilities

Transfer facilities are a necessary part of all solid waste management programs where distance is a factor. Klickitat County implemented the principle of one landfill in the County many years ago, leading to the need for transfer stations to accommodate in-

County waste. Importation of waste from outside of the County by rail or barge dictates the need for an intermodal facility.

Recommendations for transfer facilities are as follows:

Transfer Stations

- Monitor growth of geographic areas and scope of activity performed at transfer stations to allow time for construction of new transfer stations or expansion of existing facilities as warranted.

Rail Intermodal facility

- Continue to monitor the existing operation for compliance with the Agreement between Klickitat County and Republic Services.
- Monitor growth and consider additions to intermodal facilities to facilitate growth in imported waste quantities.

Barge Intermodal Facility

- Continue to monitor the potential need for a barge intermodal facility.

Waste Import and Export

Waste import and export are necessary elements of regionalization for solid waste disposal. Waste import and export recommendations are as follows:

Waste Import

- Continue importing waste.
- Monitor compliance with the Agreement between the County and Republic Services.
- Agreements with exporters to a regional landfill in Klickitat County must include provisions that the exporters must have approved solid waste management plans that address exporting and include recycling and waste reduction prior to export. County and Ecology approved moderate risk waste management plans must also be included.
- The Yakama Nation's and the Gorge Commission's preferences regarding trucking of wastes should be honored where the location of the exporting jurisdiction allows reasonable alternatives. These preferences should be implemented through conditions on permits issued with regard to this Plan.

Waste Export

- Continue exportation of specific waste streams when no local disposal facilities exist.

Disposal

The following recommendations address needed activities at Horsethief Landfill, at Roosevelt Regional Landfill, and for other solid waste disposal activities.

Horsethief Landfill

- Maintain post-closure monitoring in conformance with rules and regulations.
- Maintain a dedicated fund for post-closure financing of required monitoring and site maintenance.
- Maintain the security fence to ensure structural integrity of the closure cap.
- Reduce monitoring when test results indicate stability has increased sufficiently.

Landfilling of In-County Waste

- Continue to dispose of waste at Roosevelt Regional Landfill.
- Monitor the solid waste industry trends that may require disposal at alternate sites.
- Monitor annual in-County waste classifications and quantities.

Roosevelt Regional Landfill

- Continue to dispose of in-County waste at Roosevelt Regional Landfill.
- Maintain a county inspector at the regional landfill.
- Monitor the need for an additional county inspector.
- Monitor compliance with the Agreement.
- Encourage importation from other locations up to 5 million tons per year.
- Mandate recycling at source locations.
- Continue to defer liability to the solid waste provider.
- Minimize County risk.
- Maximize County benefit.

Waste to Energy

Based on experience, small rural counties such as Klickitat, with available arid landfill disposal alternatives, cannot support the development of an incineration/resource recovery facility. Unlike the significant economic benefit derived from the development of a regional landfill facility, inclusion of the regional waste stream for an incinerator project would provide few economic benefits. Therefore, incineration or waste to energy facilities are not recommended for Klickitat County.

The highest priority for used motor oil is to recycle it. It is recommended to allow energy recovery from incineration of used motor oil as a second priority.

It is recommended to continue the use of landfill gas to produce electricity.

Administration and Enforcement

Administration

The Solid Waste Department should continue to administer the Agreement with Republic Services. This responsibility includes preparation of contract amendments or re-authorizations for consideration by the Board. It also includes oversight of the contractor's performance of its obligations under the contract, including both those relating to the landfill itself (for example, construction and operation requirements) and those relating to fee payments and the Model Rural Recycling Program. The Solid Waste Department's oversight will ensure implementation of those solid waste projects assigned by contract to Republic Services.

This 2012 Plan Update recommends that the County retain the option to develop interlocal cooperative agreements with other jurisdictions for disposal of out-of-County solid waste.

Solid Waste Advisory Committee

This 2012 Plan Update recommends SWAC be maintained as an ongoing committee that will meet at least quarterly. The SWAC should be involved in implementing elements of this 2012 Plan Update. The SWAC should continue to act in an advisory capacity to the Board of County Commissioners.

Enforcement

This 2012 Plan Update recommends continued enforcement of health issues by the Klickitat County Health Department, land use issues by the Klickitat County Planning Department, and Agreement issues by the Klickitat County Solid Waste Department.

The County should move toward the closure and cleanup of illegal dumps and should enact ordinances that provide a clearer method to prosecute those who persist in littering or illegal dumping.

Financing

This 2012 Plan Update recommends that the County should continue under its contractual agreement with Republic Services. The Agreement includes an Administration Fee and a Quarterly Solid Waste Fee payable to the County. Specific fees are also assessed to support specified needs, including scholarships and County Tourism and Community Development.

The County's solid waste program is funded by grants (primarily the CPG funds administered by Ecology) and by fees paid by Republic Services. Should grants be reduced or discontinued, then planned activities will also need to be reduced or discontinued. Should revenue produced through the Agreement with Republic Services be reduced or discontinued, then activities will also need to be curtailed.

IMPLEMENTATION SCHEDULE AND SUMMARY OF COSTS

Chapter 11 of this plan provides a summary of the implementation details for the recommendations, including lead agency, cost and schedule.

CHAPTER 1. INTRODUCTION

Klickitat County has had an operating solid waste management system since the early 1970s. Klickitat County adopted its first Solid Waste Management Plan (Plan) in 1973, consistent with the Washington State Solid Waste Management Act (Chapter 70.95 RCW). This update of the Klickitat County Solid Waste Management Plan (the "2012 Plan Update") further enhances the plans for management of solid waste in Klickitat County. The development and approval process for this 2012 Plan Update has been performed in compliance with State Planning Guidelines and existing interlocal agreements.

1.1 PURPOSE, AUTHORITY AND BACKGROUND FOR THE KLICKITAT COUNTY SOLID WASTE MANAGEMENT PLAN

1.1.1 State Planning Foundation

Chapter 70.95 RCW, the Solid Waste Management-Reduction and Recycling Act, assigns primary responsibility for solid waste planning and management to local governments. Each county is required to prepare a comprehensive solid waste management plan with a 20-year planning horizon. The plan is to be reviewed and revised periodically (approximately every five years) with technical assistance from the Washington Department of Ecology (Ecology). As described in greater detail in this chapter, the County has been working to implement the prior plan. This 2012 Plan Update further enhances the solid waste planning efforts of Klickitat County.

1.1.2 State Planning Guidelines

This 2012 Plan Update is consistent with the Guidelines for the Development of Local Solid Waste Management Plans and Plan Revisions (Ecology 2010a). These Planning Guidelines have been developed to assist local governments develop and revise comprehensive solid waste management plans. The Department of Ecology (Ecology) believes that using these guidelines will result in improved plan quality and will expedite Ecology's review of draft plans. The Planning Guidelines reflect changes in legislation and the solid waste industry.

According to State law and Ecology's Planning Guidelines, solid waste plans must include a description of all existing solid waste handling facilities, estimate the long-range needs for solid waste handling facilities projected twenty years into the future, and include a program for the orderly development of solid waste handling facilities in a manner consistent with county comprehensive land use plans. Solid waste management plans must emphasize waste reduction and source separation strategies, since these local programs are essential if the state is to achieve its goal of a 50% recycling rate. Ecology reviews each new or updated solid waste management plan, and then may approve or disapprove of the plan. Ecology's disapproval of a plan may be appealed under the Administrative Procedures Act, Chapter 34.05 RCW.

Permits for solid waste disposal sites or facilities must conform to the local solid waste management plan. Permits are issued by the local health department, which must interpret the plan and determine whether or not a proposal is in conformance. Ecology reviews permit applications for compliance with the requirements set forth in Chapter 173-350 WAC, Chapter 173-351 WAC, and with other applicable statutes and regulations, as well as for consistency with the local solid waste management plan. Ecology may appeal the issuance of a permit to the Pollution Control Hearings Board.

1.1.3 Plan Area Description

Klickitat County is situated on the Columbia River in south central Washington. Approximately, 84 miles in length, the County varies between 13 and 29 miles in width.

The County lies on the eastern end of the south flank of Mount Adams. The County borders the Simcoe Mountains on the north and contains part of the Yakama Indian Reservation. Rainfall ranges from more than 36 inches in the west to less than nine inches at the County's eastern boundary. Major rivers include the Columbia, White Salmon, Klickitat, and Little Klickitat.

The County's primary economic sectors are agriculture, timber, tourism, energy, aerospace, and solid waste disposal. The rural nature and depressed economic conditions of the County have contributed in the past to limited solid waste management activities. The operation of the Roosevelt Regional Landfill increased opportunities and options available to the County.

1.1.4 Local Governments Included in the Plan

There are three incorporated cities within Klickitat County: Bingen, Goldendale, and White Salmon. These cities have participated in previous updates of the Plan. They have participated in the preparation of this 2012 Plan Update and will need to approve the final plan. Klickitat County has entered into an Intergovernmental Agreement Regarding Solid Waste Disposal with each of the cities that designates the County as the agency responsible for selecting a method for the safe handling and disposal of solid waste generated in the County (see Appendix A). Goldendale, Bingen, and White Salmon each retain authority over collection and transportation of solid waste from their city (see discussion of collection systems in Chapter 6.)

1.1.5 Summary of the General Goals and Objectives of the Plan

There are three distinct considerations in establishing the objectives for this Plan Update. The first is to maintain the long-term, general solid waste management concepts presently in place, which are operating well and benefiting County residents. The second is to provide post-closure monitoring and maintenance of the closed Horsethief Landfill. The third is to establish specific goals, objectives, and recommendations that will enhance the existing system and meet Chapter 70.95 RCW and other rules and regulations.

The major objectives of this 2012 Plan Update are to:

1. Reduce the need for landfills by incorporating the State's priorities:

- Waste reduction
- Recycling, with source reduction of recyclable materials
- Energy recovery, incineration, or landfilling of source-separated waste
- Energy recovery, incineration or landfilling of mixed waste

2. Contribute to the statewide goal of 50% recycling by working toward a 50% waste reduction/recycling rate in the County.

3. Provide for long-term, reliable and economical solid waste handling and disposal services within the rules and regulations governing solid waste management for the cities and unincorporated areas in the County.

4. Provide for long term monitoring and maintenance of Horsethief Landfill.

5. Evaluate, consider, and maintain the regional approach to solid waste management in the County to include waste from outside the County.

6. Maintain a solid waste management system and suitable agreements between the County, the incorporated cities, franchise haulers, contract haulers, and other users of the solid waste facilities that result in minimum tariffs on the County's citizens.

7. Increase public awareness of the importance of waste reduction, recycling and proper waste disposal.

8. Minimize adverse impacts on the environment and preserve public health through sound solid waste management operating procedures.

1.1.6 Relation to Other Local Plans

This 2012 Plan Update was developed with consideration for the other planning documents that have been developed and implemented in the County. These other plans include: the Klickitat County Comprehensive Land Use Plan, as amended, which includes Data Book, Land Use, Shorelines Master, Housing, Parks and Open Space, Disaster Mitigation, Economic Development, Water Quality Management Plans, 1973 and 1977 Solid Waste Management Plans (including the 1987 Addendum), the 1990 Plan Update (including the 1992 Addendum), and their accompanying environmental documents. Agencies exporting waste to Klickitat County must, according to the agreement between the County and Republic Services, have an approved solid waste management plan that provides for export of solid waste, waste reduction and recycling at the local level.

1.2 SOLID WASTE JURISDICTION AND LEGISLATION

1.2.1 General

Two goals of the County's 2012 Plan Update are to revise the plan to reflect changes in the County's approach to solid waste management, and to incorporate new State and Federal laws and regulations. The following is a summary of the primary State and Federal laws forming the framework for planning, constructing and operating solid waste systems.

1.2.2 Federal Rules

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.

1.2.3 State Laws, Rules and Policies

The principal State laws and rules include:

A. State Laws

- Chapter 35.21 Revised Code of Washington (RCW), *Cities & Towns Miscellaneous Provisions*
- Chapter 36.58 RCW, *Solid Waste Disposal*
- Chapter 46.61.655 RCW, *Dropping Load, Other Materials - Covering*
- Chapter 70.93 RCW, *Waste Reduction, Recycling, and Model Litter Control Act*
- Chapter 70.95 RCW, *Solid Waste Management – Reduction and Recycling*
- Chapter 70.95A RCW, *Pollution Control – Municipal Bonding Authority*
- Chapter 70.95C RCW, *Waste Reduction*
- Chapter 70.95J RCW, *Municipal Sewage Sludge-Biosolids*
- Chapter 70.95K *Biomedical Waste*
- Chapter 70.105 RCW, *Hazardous Waste Management*
- Chapter 70.105D RCW, *Hazardous Waste Cleanup-Model Toxic Control Act*
- Chapter 81.77 RCW, *Solid Waste Collection Companies*
- Chapter 81.80 RCW, *Motor Freight Companies*

B. State Rules

- Chapter 173-303 Washington Administrative Code (WAC), *Dangerous Waste Regulations*
- Chapter 173-306 WAC, *Special Incinerator Ash Management Standards*

- Chapter 173-308 WAC, *Biosolids Management*
- Chapter 173-331 WAC, *Vehicle Battery Recycling*
- Chapter 173-345 WAC, *Recyclable Materials – Transporter and Facility Requirements*
- Chapter 173-350 WAC, *Solid Waste Handling Standards*
- Chapter 173-351 WAC, *Criteria for Municipal Solid Waste Landfills*

The most important of these laws and rules are briefly discussed below.

State Solid Waste Management Act

The State Solid Waste Management - Reduction and Recycling Act (Chapter 70.95 RCW) regulates the handling of solid waste in Washington State. The law assigns primary responsibility for solid waste planning, handling, and management to local government, while reserving for the State those functions necessary to ensure effective programs. Ecology has overall responsibility for carrying out the goals of Chapter 70.95 RCW, which include the establishment of a comprehensive statewide program for solid waste handling and solid waste recovery and/or recycling which will prevent land, air and water pollution and conserve the natural, economic and energy resources of the State. Ecology's duties include the adoption and enforcement of basic minimum standards for solid waste handling and providing technical and financial assistance to local governments in the planning, development, and implementation of solid waste handling programs. Considerable emphasis is placed by Ecology on encouraging and assisting local governments and private industry on developing and implementing solid waste recovery and/or recycling projects.

Chapter 70.95.090 RCW requires that a 20-year comprehensive solid waste management plan be developed by cities and counties and then be reviewed and revised periodically, with technical assistance from Ecology. These plans are required to include an assessment of the plan's impact on the cost of solid waste collection. The assessment shall be prepared in conformance with guidelines established by the Washington Utilities and Transportation Commission.

In accordance with RCW 70.95.080, each of the cities and towns located within Klickitat County are to:

1. Prepare and deliver to the Klickitat County Auditor its own solid waste management plan for integration into the County plan; or
2. Enter into an agreement with the County pursuant to which the City shall participate in preparing a joint City-County plan for solid waste management; or
3. Authorize the County to prepare a plan for the City's solid waste management for inclusion in the comprehensive County Plan.

The cities and towns located in Klickitat County have submitted agreements stating their desired method of cooperation in the management of solid waste, including the

development of solid waste management plans. Copies of these agreements are shown in Appendix A.

Chapter 70.95 RCW also defines the role that shall be taken by each county, city and jurisdictional board of health. Specifically, in the case of Klickitat County, the Klickitat County Health Department is responsible for adopting regulations or ordinances governing solid waste handling, covering, storage, collection, transportation, treatment, utilization, processing and final disposal, including the issuance of permits in accordance with an approved local comprehensive solid waste management plan. The purpose of these regulations or ordinances is to ensure that solid waste storage and disposal facilities are located, maintained and operated in such a manner as to properly protect the public health, prevent air and water pollution, and avoid the creation of nuisances.

As required by Chapter 70.95 RCW, Ecology has adopted Minimum Functional Standards (MFS) for Solid Waste Handling. These minimum standards are included in the Washington Administrative Code Chapter 173-350 WAC and Chapter 173-351 WAC. The purpose of these regulations is to set guidelines for the proper handling of solid waste for use by county, city or jurisdictional boards of health in developing their own regulations or ordinances pertaining to solid waste handling. Under Chapter 70.95 RCW, such regulations or ordinances may be more stringent than the MFS adopted by Ecology. Specifically, these guidelines contain provisions that pertain to the operation and maintenance of disposal sites and transfer stations, requirements for issuing permits, and handling of special wastes.

The State's Beyond Waste Plan

Another source of guidance on State rules and policies is the Washington State Hazardous Waste Management Plan and Solid Waste Management Plan (Ecology 2009). Commonly referred to as the "Beyond Waste plan," this plan adopts a vision that society can transition 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, the Beyond Waste plan focuses on five areas: industrial waste, small volume hazardous waste, organic materials, green building, and measuring progress. The Beyond Waste plan provides recommendations for actions that can be undertaken to achieve the goals in each of these five areas (or initiatives).

The Beyond Waste plan is discussed in greater detail in several places of this Plan Update as appropriate to the topics in each chapter. Copies of the Beyond Waste plan can also be downloaded from the Department of Ecology web site (www.ecy.wa.gov/).

Special Incinerator Ash

Historically in Washington, municipal waste incinerator ash has been managed as either a hazardous waste or solid waste. RCW 70.138 directed the Department of Ecology to develop regulations for special incinerator ash. Thus three different regulations now apply to handling and disposal of ash from municipal waste incinerators in Washington.

If the ash fails federal hazardous waste characterization tests, federal hazardous waste regulations (Subtitle C of the Resource Conservation and Recovery Act) apply. If the ash fails state hazardous waste tests, it is regulated according to the Washington Special Incinerator Ash Management Standards 173-306 WAC). If the ash passes both federal and state hazardous waste tests, it is regulated as a non-hazardous municipal solid waste.

WAC 173-306 requires that municipal waste incinerator ash be landfilled separately from other wastes in a specially designed landfill. Principal features of the design include (1) a liner to seal the bottom of the landfill, (2) a cover system to enclose the ash and minimize the amount of rainwater which flows into the ash, (3) a system of pipes to collect water which flows through the ash, and (4) a means of treating the collected water.

Additional requirements in WAC 173-306 cover ash testing, reporting, financial assurance, ash reuse, environmental monitoring, ash storage, ash transportation, and landfill siting, permitting, operations and post-closure requirements.

Municipal Sewage Sludge - Biosolids Laws

The State Legislature passed Chapter 70.95J in 1992 to implement 40 CFR Section 503. Ecology developed and approved Chapter 173-308 WAC in response to the legislative directive. Chapter 173-308 WAC among other requirements directs that, as much as possible, sewage sludge should be reused as a beneficial commodity while at the same time minimizing the risk to public health and the environment. It also establishes requirements for biosolids which are to be used in municipal solid waste landfills.

Model Litter Control and Recycling Act

The Model Litter Control and Recycling Act, Chapter 70.93 RCW provides for a permanent and continuous program to control and remove litter and to encourage recycling to be administered by Ecology. Chapter 70.93 RCW was amended in 1992 and renamed the Waste Reduction, Recycling, and Model Litter Control Act. The amendment changed the act to include waste reduction and recycling activity, and the collection of a tax on products that are common components of litter. Some of the main features of Chapter 70.93 RCW include: 1) vesting and extending police powers for litter control; 2) standardizing of litter receptacles required to be placed at public and private places frequented by the Public; 3) conducting an annual litter assessment on manufactured and marketed products; 4) distributing funds for research and development in the field of litter control; and 5) providing for fines.

Regional Approaches to Solid Waste Management

A regional approach to solid waste management is authorized by the formation of metropolitan municipal corporations (Chapter 35.58 RCW) or solid waste collection districts (Chapter 36.58A RCW), or by the joint use of powers by two or more “public

agencies" (Chapter 39.34 RCW, the Interlocal Cooperation Act). The Interlocal Cooperation Act authorizes local governments to do jointly what they are authorized by Washington State law to do separately.

Under various chapters of State law (principally in Title 35 RCW for cities and Title 36 RCW for counties) as interpreted by various opinions of the State Attorney General over the years, the cities and counties have, among others, the following powers:

1. Cities and counties may own and operate disposal sites (Chapters 35.92 and 36.58 RCW). A site operated by one city may be designated as a county disposal site in a county-wide plan.

2. Cities may operate collection and transportation service (Chapter 35.92 RCW). Counties may do so only if no private contractor is able to provide service in the area involved (RCW 36.58).

3. Cities and counties may make collection service compulsory and may set rates (Chapters 35.21 and 36.58A RCW).

4. Counties have the authority to designate (Chapter 36.58 RCW), and the obligation to provide solid waste disposal sites for those unincorporated areas participating in the County's solid waste management plan (opinion of the Attorney General 5557, No. 283).

1.2.4 Local Rules and Regulations

Local rules and regulations regarding solid waste management include the following:

- Klickitat County Code 8.10*, On-site Sewage Disposal*
- Klickitat County Code 8.12*, Septic Tank Cleaning*
- Klickitat County Code 8.14, *Solid Waste Handling*
- Klickitat County Code 8.15, *Unsecured Loads*
- Klickitat County Code 8.16, *Standards For The Land Application of Biosolids*
- City of Bingen Code 8.06, *Garbage*
- City of Bingen Code 8.08, *Weed Control*
- City of Bingen Code 8.10, *Outdoor Burning Ban*
- City of Bingen Code 8.20, *Public Nuisance*
- City of Bingen Code 8.24, *Abandoned Vehicles*
- City of Bingen Code 8.28, *Junk and Junk Vehicles*
- City of Goldendale Code 8.04, *Garbage Collection*
- City of Goldendale Code 8.06, *Solid Waste Disposal*
- City of Goldendale Code 8.08, *Litter*
- City of White Salmon Code 8.06, *Junk and Junk Vehicles*
- City of White Salmon Code 8.08, *Garbage Collection and Disposal*
- City of White Salmon Code 8.10, *County Solid Waste Disposal System*
- City of White Salmon Code 8.16, *Litter Control*

The Klickitat County Health Department adopted rules and regulations which are codified as Klickitat County Code, Chapters 8.10, 8.12, 8.14, 8.15, and 8.38, defining solid waste and regulating its collection, storage, hauling and disposal. These rules and regulations have been adopted to provide that storage and handling of solid waste shall not endanger the public health or create a nuisance.

1.3 KLICKITAT COUNTY SOLID WASTE MANAGEMENT PLANNING HISTORY

The following discussions describe the history of solid waste planning in Klickitat County, and the management activities undertaken by the County under previous solid waste management plans.

1.3.1 1973-1977 Plan

Klickitat County adopted its first Solid Waste Management Plan in 1973 ("1973 Plan"). Following environmental review, including preparation of an environmental impact statement, the 1973 Plan was revised by the County's adoption of the 1977 Solid Waste Management Plan Update. The 1977 Plan Update has long provided for a single landfill within the County, and for receipt of solid waste from outside the County to support County landfill operations and to provide for additional sources of revenue to the County.

1.3.2 1986 Amendment

In May 1986, the County reestablished a Solid Waste Advisory Committee ("SWAC") to assist the County in developing programs and policies for solid waste handling and disposal, and to review and comment on proposed rules, policies, or ordinances prior to their adoption (see RCW 70.95.165).

In 1986, the County also amended its 1977 Plan and entered into a seven-year contract with Environmental Waste Systems Inc. (EWSI), a private solid waste contractor from Portland, authorizing that company to bring six to 14 loads (approximately 300 tons) of solid waste per day from R&R Recycling in Clark County and other sources to the County's Horsethief Landfill.

1.3.3 1989 Plan Update

In August 1987, the County SWAC began the process of updating the Plan. The County adopted the 1989 Update on May 4, 1989 (Resolution No. 06489). Ecology commented in its final review and approval of the 1989 Plan Update that a revised waste reduction and recycling element would be due from the County under the 1989 Legislation. Ecology also required that the next plan update provide for demolition waste, including the identification and permitting of existing sites, and the identification of the need for future sites for demolition waste. The County agreed to accelerate the timing for a plan update to address waste reduction and recycling, as well as other plan elements such as demolition and wood waste.

In September 1990, a Superior Court order effectively invalidated the County's adoption of the 1989 update and required the County to conduct additional environmental review prior to a new determination as to its Solid Waste Management Plan. However, the 1989 Plan Update was not revised because the County had already begun the 1990 Plan Update. The required environmental review (an integrated environmental impact statement) was included as part of the 1990 Plan Update.

1.3.4 1990 Plan Update

On April 3, 1990, the County ratified Ecology's acceptance of the 1989 Plan Update and immediately started on the next plan update. The 1990 Plan Update addressed waste reduction and recycling, demolition waste and demolition waste facility siting and other matters. All legal challenges to the 1990 Plan Update were rejected (see *Klickitat County Citizens against Imported Waste v. Klickitat County*, 122 Wn.2d 619, 860 P.2d 390 (1993)).

1.3.5 1992 Addendum

Several issues arose from the time of adoption of the 1990 Plan Update to 1992, including:

- Adoption of EPA regulations promulgated under RCRA Subtitle D.
- A proposal by the Regional Disposal Company (RDC) that would necessitate replacing the existing annual limits in the 1990 Plan (up to 1 million tons per year of MSW plus up to 2 million tons per year of CDL waste in a separate cell) with a single annual limit of 3 million tons per year of solid waste provided that the Roosevelt Regional Landfill met new RCRA Subtitle D design, operating, and financial assurance requirements for MSW landfills.
- Bills passed during the 1992 legislative session affecting disposal of sewage sludge.
- Possible changes to the County's Moderate Risk Waste Program that would provide for more frequent pickup of moderate risk waste at County transfer stations by RDC, and possibly for collection of agriculture waste chemicals at the Roosevelt Regional Landfill with subsequent disposal at an approved hazardous waste disposal site.
- Modifications to the County's Model Rural Recycling Program to allow greater flexibility in which recyclable materials were to be collected and to study the feasibility of in-County sorting and recovery of recyclables.
- Ecology and County concerns regarding the management of certain other waste streams such as wastes that are exempted from the disposal requirements of Washington's dangerous waste regulations, and any hazardous wastes that are "delisted" at the Federal level so they are then managed as solid waste.
- Ecology and County concerns regarding importation of out-of-state waste and the potential for minimizing moderate risk wastes included in imported waste streams.

The County reviewed these issues and, in November 1993, adopted and approved the 1992 Addendum to the 1990 Klickitat County Comprehensive Solid Waste Management Plan Update. The 1992 Addendum included an integrated Final Supplemental Environmental Impact Statement.

1.3.6 2000 Plan Update

The recommendations contained in the 2000 Plan are shown in Table 1.1, along with an assessment of the current status of those recommendations. Numerous alternatives were considered in the 2000 Plan Update. The 2000 Plan Update continued the basic policy direction and plan adopted in the 1977 Plan, the 1990 Plan Update, and the 1992 Addendum, namely, waste reduction and recycling and a central regional landfill for the County and out-of-County waste from which the recyclables have been removed.

The 2000 Solid Waste Management Plan Update represented substantial effort by the County SWAC, County Solid Waste Department, County Planning Department, County Health Department, and the Board of County Commissioners. The resulting plan provided the citizens of the County with a cost-effective solid waste management system conforming to State and Federal regulations.

Table 1.1
Recommendations from the 2000 Solid Waste Management Plan Update
Status as of 2011

Waste Reduction		
	2000 Plan Recommendations	**Status as of 2011**
1.	Implement aggressive education on waste reduction.	Ongoing. County staff provides waste reduction programs in schools, businesses and at community events, using radio ads, website and annual newsletter.
2.	Encourage onsite yard and garden composting.	Ongoing. The County website encourages composting, as well as staging workshops with community groups.
3.	Encourage waste exchange programs.	Ongoing, County staff facilitate waste exchanges between local businesses where possible.
Recycling		
	2000 Plan Recommendations	**Status as of 2011**
1.	Continue collection of residential recyclable materials.	Ongoing. Curbside recycling is offered in most of the County.
2.	Increase the number of drop-off centers.	Ongoing. Public drop-off containers have been located in Goldendale, Bingen, Bickleton, Alderdale and Glenwood.

Table 1.1, Recommendations from the 2000 Solid Waste Management Plan Update, Status as of 2011, continued		
Recycling, continued		
	2000 Plan Recommendations	**Status as of 2011**
3.	Provide incentive for community group recycling.	Ongoing. County staff work with community groups and schools whenever possible.
4.	Encourage recycling by individuals and small business.	Ongoing. County promotes recycling with radio ads, County website and an annual newsletter.
5.	Implement woodwaste chipping program.	Not accomplished. The County did operate a brush chipping program but is not doing that at this time.
6.	Collect targeted recyclables from business and government.	Ongoing. Republic Services began a more extensive commercial recycling program in 2011.
Solid Waste Collection		
	2000 Plan Recommendations	**Status as of 2011**
1.	Increase participation by residents.	County's public outreach encourages residents to handle their waste properly.
2.	Maintain provisions of the Republic Services Agreement for free disposal.	Ongoing.
Waste to Energy		
	2000 Plan Recommendations	**Status as of 2011**
1.	Increase electricity generation.	Ongoing. Republic Services and the Klickitat PUD are continuing to increase electricity generation from landfill gas.
Transfer Facilities		
	2000 Plan Recommendations	**Status as of 2011**
1.	Monitor need for improvements and additions.	Ongoing.
2.	Secure boundary of existing transfer facilities to prevent unauthorized activities.	Accomplished. All transfer sites are fenced.
3.	Improve appearance of BZ Corner transfer station.	Accomplished.
4.	Review adequacy of existing intermodal facility.	Accomplished. Intermodal facility has been improved with additional 8,000' siding.
5.	Monitor need for barge facility.	Ongoing.

Table 1.1, Recommendations from the 2000 Solid Waste Management Plan Update, Status as of 2011, continued		
Long Haul (Import/Export)		
	2000 Plan Recommendations	**Status as of 2011**
1.	Continue importation.	Ongoing. Roosevelt Regional Landfill continues to receive waste from outside of the County and the County does not export its waste.
2.	Review annual limit, and consider increases as appropriate.	Accomplished.
3.	Review expansion needs of intermodal facility.	Accomplished.
Landfilling		
	2000 Plan Recommendations	**Status as of 2011**
1.	Monitor Horsethief Landfill site.	Ongoing.
2.	Maintain Republic Services Agreement for importation of waste.	Ongoing.
3.	Review 3,000,000 ton annual limit.	Accomplished. Limit has been increased to 5,000,000 tons.
4.	Maintain backup system.	Accomplished.
Moderate Risk Hazardous Waste		
	2000 Plan Recommendations	**Status as of 2011**
1.	Implement public education.	Ongoing. The County website, radio ads, workshops, public event outreach contain information on proper hazardous waste handling and disposal, and on safer alternatives.
2.	Implement collection days/permanent facilities.	Accomplished. Four permanent HHW collection facilities have been established under the agreement with Republic Services.
3.	Implement MRHW Ordinance.	Ordinance deemed unnecessary.
4.	Implement used oil collection.	Accomplished. Used oil is collected at the four permanent HHW collection facilities.
Administration		
	2000 Plan Recommendations	**Status as of 2011**
1.	Update SWMP.	Ongoing.
2.	Use SWAC for SWMP implementation.	Ongoing.
3.	Health Department to provide surveillance and enforcement.	Ongoing.

1.3.7 Moderate Risk Waste Management Plan

The County adopted a Moderate Risk Waste (MRW) Management Plan in December 1991. The 1992 Amendment to the 1990 Solid Waste Management Plan Update recommended more frequent events and acceptance of agricultural waste. The 2000 Plan Update included a revised MRW Plan as Chapter 12. That MRW Plan is considered to be still current and is hereby incorporated by reference (see Appendix B).

1.3.8 Agreement Regarding Solid Waste Handling and Disposal

In 1989, following the recommendations of the Solid Waste Management Plan and a procurement process as authorized by Chapter 36.58 RCW, the County entered into a multi-year Agreement with the Rabanco Companies for the development of a regional landfill. That Agreement has been subject to two amendments and several addendums. The Second Amendment was adopted on August 7, 1995 and has since been modified by four addendums, the most recent of which addresses the acquisition of the Rabanco Companies by Allied Waste (Allied Waste was later purchased by Republic Services). The Fourth Addendum continues the terms of the Second Amended Agreement and further provides for Republic Services' exclusive delivery of waste collected in northwest North America to the Roosevelt Landfill. The development of the Agreement for Solid Waste Handling is detailed in the next section of this Plan.

1.4 KLICKITAT COUNTY SOLID WASTE PROJECT

1.4.1 Initial Agreement

On August 30, 1988, the SWAC recommended that the County issue a Request for Qualifications and Proposals (RFQ/P) for the private development of a landfill in the county. The County authorized the RFQ/P and issued its Notice to Contractors on October 3, 1988. The Notice to Contractors called for proposals and negotiations concerning a possible full-service contract with a contractor for the permitting, design, construction and operation of a state-of-the-art landfill to be sited within the county.

Responses to the RFQ/P were received by the County on January 23, 1989 from Burlington Environmental, Inc. ("BEI"), Rabanco Regional Landfill Company ("RRLC"), and Washington Waste Systems, Inc. ("WSI"). The County reviewed these proposals, and on February 13, 1989, the County decided to further consider the proposals of BEI and RRLC. The County conducted interviews of BEI and RRLC as required by law. The County received and considered recommendations from its Public Works and Planning Departments as well as from R.W. Beck and Associates, the County's consulting engineering firm. After review and consideration of the BEI and RRLC proposals, on March 16, 1989, the County selected RRLC as "first vendor" in an attempt to negotiate a contract with RRLC.

Public hearings on a proposed agreement with RRLC were conducted in White Salmon on May 16, 1989, Roosevelt on May 17, 1989, and Goldendale on May 18, 1989, and

written comment was received through May 25, 1989. The County considered the input received at the public hearings and in writing, and considered the reports and recommendations of its staff and consulting engineering firm. By Resolution No. 07489 the County authorized the Agreement concerning Solid Waste Handling ("Agreement") between the County and RRLC on May 26, 1989.

1.4.2 Site Selection and Development

Consistent with the Agreement, RRLC commenced the process for full environmental review on the development of a regional landfill and related solid waste management projects ("Klickitat County Solid Waste Project" or "Project"). The Project proposed three related actions: a model rural recycling and waste reduction program, a new regional landfill, and regional transportation to serve the landfill. Based on public and agency comments, the preferred alternative was to implement an augmented program of all of the reduction/recycling alternatives, a landfill at the Clark site near Roosevelt, and rail transportation.

A final environmental impact statement on the Project ("Project EIS") was issued on December 18, 1989. The Project EIS was incorporated by reference in the 1990 Plan Update and associated environmental review (see WAC 197-11-425(6)).

RRLC sought a conditional use permit ("CUP") before the County Board of Adjustment for the Clark site near Roosevelt under matter No. 89-13. The Board of Adjustment held public hearings and meetings on the CUP application on January 8, 11, 18, and 22, 1990. On January 22, 1990, the Board of Adjustment entered its Findings of Fact, Conclusions and Disposition, granting the CUP for development of a site now identified as the Roosevelt Regional Landfill.

1.4.3 Landfill Operation and Recent Developments

The Roosevelt Regional Landfill began receiving wastes on November 1, 1990. Since that time, the landfill has been maintained and improved in a number of ways. A site expansion was authorized in 2002, which expanded the total capacity from 180 million cubic yards to 245 million cubic yards and the annual limit from 3 million tons per year to 5 million tons per year. In 2003, a geosynthetic clay liner was approved for new cells as an alternative liner to the previously permitted clay liner. With collaboration between Klickitat PUD and the landfill, Klickitat PUD built an electrical power plant on site in 1998 to covert methane gas generated in the landfill to electrical power. It has a current capacity of 10 megawatts. A second power plant was commissioned in 2011 that adds an additional estimated 27.5 megawatts bringing the total capacity to approximately 37.5 megawatts of electrical power operated by Klickitat PUD. This is enough power for about 30,000 homes. A separate ash monofill was added in 1991 and serves the disposal of incinerator ash received from Spokane. The landfill currently receives waste from most of the counties in Washington State, the three neighboring states (Oregon, Idaho and Alaska), and Canada (see Table 8-1). Chapters 8 and 9 of this Plan provide more details about the landfill's current operations.

CHAPTER 2. BACKGROUND

2.1 INTRODUCTION

This chapter provides background information on the demographics and waste streams in Klickitat County. This information is required by Ecology and it is also needed in several of the following chapters of this Solid Waste Management Plan (SWMP).

The information in this chapter is organized into two additional sections:

2.2 Demographics of the Planning Area
2.3 Klickitat County's Waste Stream

2.2 DEMOGRAPHICS OF THE PLANNING AREA

2.2.1 Current Population and Trends

The population of Klickitat County is widely dispersed. The largest incorporated town in the County is Goldendale (the County seat) with a 2010 population of 3,407 (see Table 2.1). The majority of the population is located in or near Goldendale in the central part of the County, and in or near Bingen and White Salmon in the southwest corner of the County. The Alderdale area, located in the southeast corner of the County, is growing quickly as orchards and vineyards mature, and as agriculture processing and storage facilities are developed.

Table 2.1
Klickitat County Population by Area

	2000	2010	Percent Increase
Incorporated Areas:			
Bingen	672	712	6.0%
Goldendale	3,760	3,407	-9.4%
White Salmon	2,193	2,224	1.4%
Subtotal, Incorporated Area	**6,625**	**6,343**	-4.3%
Unincorporated Area	**12,536**	**13,975**	**11.5%**
Klickitat County Total	**19,161**	**20,318**	**6.0%**
Population Density, persons/square mile	**10.23**	**10.85**	

Notes: Population data is from the 2010 Census and the population density is based on 1,872.4 square miles in Klickitat County (from OFM 2011a).

Seasonal Population Fluctuations

Maryhill State Park along the Columbia River is a very popular R.V. and wind surfing destination during the summer months. There may be as many as 2,000 people in the recreational areas of Klickitat County along the Columbia River on any summer weekend. Significant game habitat in the western part of the County attracts hunters. These seasonal increases in population increase solid waste generation in the County.

Future Population Growth

Table 2.2 shows the projected population figures for Klickitat County through the year 2030. For the near future, those areas that presently have comparatively high population densities are expected to maintain those densities, and population in these areas is expected to increase if new industrial development occurs. In contrast, population levels in the sparsely-populated areas are expected to remain fairly constant. The possibility of population increases in these areas should not be overlooked, however, since future recreational subdivisions and industrial expansion may affect the County's rural character in some areas.

Table 2.2
Klickitat County Population Trends

	Total Population	Percent Change
2000	19,161	
2005	19,500	1.8%
2010	21,640	11.0%
2015	23,049	6.5%
2020	24,470	6.2%
2025	25,831	2.6%
2030	27,049	4.7%

Notes: Data is from the Washington State Office of Financial Management (OFM 2011b).

Current Economic Base and Employment

The County's economy is based on agriculture, forestry, energy, aerospace, tourism, and solid waste disposal. Energy sources include hydro-electric, natural gas, wind, timber by-products and landfill gas. The fastest growing employment sector is agriculture, reflecting the rapid development of irrigated agriculture and food processing in eastern Klickitat County. Solid waste disposal is a critical element of the local economy in terms of employment and revenues contributed to the economy. The County is using a portion of its landfill revenues to pursue an aggressive economic and community development strategy.

Development of public and private recreation sites has also contributed to the local economy. Commercial activity has received a boost from vacation home development. It can be anticipated that tourist facilities in the public and private sectors will expand and continue to help the economy. With increased recreational use, solid waste generation can be expected to increase.

A regional industrial and commercial center is located at The Dalles, Oregon, across the Columbia River from Dallesport in Klickitat County. Because of Dallesport's favorable proximity to air, water, rail, and road transportation, the area is slated for use as an industrial park. If major industrial development occurs there, it may have significant impacts on the County's overall waste stream.

Commercial centers exist primarily at Goldendale, Bingen and White Salmon. Local, rural commerce is provided at Klickitat, Lyle, Bickleton, Wishram, Glenwood and Trout Lake. Population concentrations with lower levels of commerce include BZ Corners, Husum and Roosevelt. There is also the growing community of Alderdale, which may develop as a rural commerce area. Centers of regional commerce are located across The Dalles Bridge from Dallesport at The Dalles, and at Hood River, Oregon, across from Bingen/White Salmon in Klickitat County. The levels and types of commerce are typical for a rural agriculture and forest resource-based county.

Over 60% of the work force depends on these industries for employment. Irrigation has brought more than 20% of County land into productive cropland. Timber companies, State, and Federal agencies have leased thousands of acres of land for different purposes. These lands provide hundreds of jobs to the area.

The unemployment rate for the State of Washington as of March 2011 was 9.8% while the rate for Klickitat County was 12.1%. Twelve counties had higher unemployment rates at that time.

2.2.2 Current Land Use Patterns

Current land use patterns in Klickitat County can be characterized primarily into three types: forestland, rangeland and cropland. Thirteen percent of the total area of the County is government owned. Table 2.3 lists the various land uses, acres and percentage of total land area for each category.

There are approximately 460,000 acres of rangeland and 260,000 acres of cropland in the County. The eastern portion of Klickitat County is developing with the aid of new irrigation; however, dryland crops still dominate. Orchards and truck garden farms are found along the Columbia River and in the White Salmon River Valley and upland areas. Wine vineyards have been developed in various locations. Forestland totals about 478,000 acres. The forests in the County's northern areas provide timber for the lumber industry. Most agricultural solid waste goes back into the soil. Timber wastes are used as fertilizer additives, beauty bark and ground dressing, processed wood products, and fuel for power generation.

Table 2.3
Klickitat County Land Use (1999)

	Acres	Percent
Dryland Cropland	228,437	19
Irrigated Cropland	32,333	3
Rangeland	459,995	38
Forestland	478,000	39
Urban and Built-up	2,963	0.2
Water – Area	15,425	1
	1,217,153	100

Source: From Table 3.1, 2000 Klickitat County Comprehensive Solid Waste Management Plan Update (original source is unknown).

2.2.3 Land Use Plans and Solid Waste Management

Because of the large amount of available land in the County, the dispersed population, and the favorable environment in the eastern areas, there are relatively few restrictions on the location of solid waste treatment or disposal facilities. The Klickitat County Comprehensive Plan specifies a general goal of preserving the environmental quality of the County, and includes the Solid Waste Management Plan as the governing policy for solid waste management.

The Klickitat Zoning Ordinance (No. 62678) includes solid waste disposal as a conditional use in certain residential zones. In other zones, solid waste disposal, handling, and processing are considered to be an essential public utility facility and subject to conditional use approval by the Board of Adjustment.

New disposal sites, development of recycling/transfer stations, and intermodal facilities will require permits and coordination with the Comprehensive Plan as well as compliance with the Zoning Ordinance and permitting from the Klickitat County Health Department.

2.2.4 Shoreline Management Plan

Guided by its primary goal of "protecting the existing natural qualities of all Klickitat County Rivers to the fullest extent possible under the Shoreline Management Act," the Klickitat County Shoreline Management Plan gives the highest priority for development to those commercial uses that are most dependent on a shoreline location. It recommends that service facilities be located inland away from the immediate water's edge and recreational beaches. In addition, the plan recommends that environmentally hazardous uses be prevented from locating within 200 feet of designated shoreline areas.

2.3 KLICKITAT COUNTY'S WASTE STREAM

2.3.1 Introduction

The waste stream in Klickitat County is varied as it is in most counties. The waste stream ranges from general household wastes to agricultural and industrial wastes. The description, distribution, source, and quantities are described below.

2.3.2 Municipal Solid Waste

Mixed municipal solid waste (MSW) is generally defined as waste from residential, commercial, and light industrial sources. The types of waste generated in the most sparsely populated areas of the County can further be defined as: household, agricultural, abandoned vehicles, septage, dead animals and offal. Wastes found in the towns typically include: household, commercial, industrial, septic and sewage sludges, dead animals, municipal, biomedical, construction and demolition wastes, and other miscellaneous wastes. The following discussions describe the major sources and quantities of solid waste generated in the County and entering the solid waste disposal stream.

Only about half of Klickitat County residents receive regular garbage collection services, while others self-haul their wastes to the transfer stations. Still others dispose of waste on their own property or illegally discard it. Table 2.4 compares the amounts of MSW and recyclables collected in Klickitat County to the statewide figures. As can be seen in this table, there is more MSW disposed but less recycled, for an overall per capita (per

Table 2.4
Disposal and Recycling Rates (2009)

	Klickitat County	Statewide Totals
Population (2009)	20,200	6,668,200
Recycled and Disposed Amounts (annual tons):		
Disposed	21,308	4,613,329
Recycled	1,772	3,709,389
Generated	23,080	8,322,719
Recycling Rate	7.7%	44.6%
Per Capita Rates (pounds per person per day):		
Disposed	5.78	3.79
Recycled	0.48	3.05
Generated	6.26	6.84

Source: Washington Department of Ecology Annual Survey (Ecology 2011) and Washington State Office of Financial Management (OFM 2011a).

person) generation rate that is slightly lower than the statewide average. There are several factors that potentially contribute to this lower generation rate:

- Some waste may be disposed of on site (i.e., yard debris and food waste composting.
- Some waste may be dumped illegally.
- The per capita generation rate (6.3 pounds per day) is only an estimate, and so is subject to uncertainty.

Table 2.4 only shows the figures for materials or wastes that are defined as MSW, and does not include non-MSW materials that are recycled or disposed.

2.3.3 Seasonal Trends

Waste generation is generally higher during the summer months. It can be assumed the increase is due to the following reasons:

- More yard waste is generated.
- More recreation visitors.
- Activities such as cleaning out of garages, basements, shops and buildings are more likely to occur during warm weather.

2.3.4 Special Wastes

Special wastes are those wastes that require special handling for various reasons, including potential toxicity to humans or the environment, bulky size or large quantities, or that do not fit into the regular collection system for other reasons. The following paragraphs describe special wastes generated in Klickitat County. Table 2.5 shows the available data on the quantities of these wastes disposed from Klickitat County sources.

Table 2.5
Amounts of Special Wastes Disposed from Klickitat County (2009)

	Annual Amount (tons)
Asbestos	1.97
Construction and Demolition Debris	493.0
Industrial Waste	834.5
MRW	56.7
Petroleum-Contaminated Soil	9,647.7

Source: Washington Department of Ecology Annual Status Report (Ecology 2010b).

Moderate Risk Waste

Moderate risk waste (MRW) includes both household hazardous waste (HHW) and hazardous waste from “conditionally-exempt small quantity commercial generators” (or CESQGs). The County addresses MRW through plans and programs. Klickitat County first adopted an MRW plan in December 1991 and then updated that plan in 2000. The most recent data from Ecology (Ecology 2010b) shows that 113,453 pounds (56.7 tons) of HHW, oil and CESQG wastes were collected in Klickitat County in 2009.

Asbestos

Asbestos-containing wastes generated in Klickitat County come from the replacement, remodel, or demolition of old facilities. Asbestos may be disposed in a municipal solid waste landfill provided certain conditions are met. As shown in Table 2.5, only 1.97 tons of asbestos-containing wastes were generated in 2009 in Klickitat County.

Agricultural Wastes

Most agricultural waste generated in Klickitat County never enters the County waste stream. Instead, this waste is often disposed of on-site. Agricultural waste can be placed into three categories: crop wastes, livestock waste, and agricultural chemicals.

Crop Wastes: Crop wastes include residue from small grains, hay, vegetables, seed crops, beans, and trimmings from fruit trees. The three principal means utilized in the County for disposing of crop wastes are to plow them back into the soil, burn them on site, or use them as livestock feed. Incorporating the wastes back into the soil returns organic matter and nutrients to the land. Burning crop wastes, subject to outdoor burning restrictions, provides an inexpensive disposal method for excessive crop wastes or other wastes that may be detrimental to the soil if plowed under. Burning crop wastes also reduces problems of insects and rodents, and controls plant diseases and weeds, but it can create short-term air pollution. Feeding crop wastes to livestock provides a valuable use for certain types of waste.

Livestock Wastes: Dairy farms produce cattle manure that is applied to the land in an aerial spray or by "honey wagons." Animal carcasses are usually buried or left for coyotes. The Klickitat County Health Department is the jurisdictional authority for proper disposal of these wastes.

Agricultural Chemicals: Commercial pesticide containers are labeled with product use and waste disposal instructions to inform the users of proper handling procedures. Containers must be triple rinsed before they are considered empty and thus not subject to control regulations (WAC 173-303-160; 40 CFR 261.7). Once empty, the containers can be reused, recycled (steel drums), disposed of as solid waste, or incinerated. There are reuse and recycling restrictions on these containers. Plastic is a prohibited material and may not be burned except in permitted incineration facilities.

Agricultural Plastics: Plastic products of various types are another common type of waste from agricultural practices. Plastic wastes from farms and ranches in Klickitat County include twine, pots, pesticide containers, large amounts of plastic sheeting or tarps, and other wastes depending on the nature of the activity. In the past, these materials were sometimes burned on-site, resulting in safety and air pollution problems, but recently more of these materials are being collected for recycling or proper disposal. For instance, Northwest Ag Plastics provides a free collection service (which is funded by the Agricultural Container Recycling Council) for pesticide containers in Washington, Oregon and Idaho.

Construction, Demolition and Landclearing (C&D) Wastes and Wood Wastes

Construction and demolition waste consists primarily of inert materials such as concrete, masonry, roofing, siding, metal, and wire. Landclearing waste contains wastes from preparing sites for development, such as stumps, branches, brush, rocks, and sod. The amount of C&D waste generated is quite low, amounting to only 493 tons in 2009.

Wood wastes typically include sawdust, bark, trimmings, shavings, and other byproducts of the forest products industry. Much of the wood waste generated in Klickitat County is processed by pulp mills outside the County, burned in hog fuel boilers on site, or landfilled. For the purpose of this 2012 Plan Update, sludges from wood products processing are not considered wood waste.

Automobiles and Appliances

Local wrecking yards process scrap automobiles for salvage of recyclable parts. The remaining auto hulks are stockpiled on-site until there is sufficient quantity to call in an auto hulk processor who crushes the autos for transport to the scrap market. There are markets for scrapped automobiles in the Portland, Seattle-Tacoma, and Spokane areas.

Klickitat County has an occasional automobile hulk abandoned in rural areas, as do many rural counties in the State. If the hulk meets the definition of an "abandoned junk motor vehicle," any law enforcement officer having jurisdiction may authorize recycling or disposal. This procedure is followed for reported abandoned vehicles.

Bulky items, such as large appliances (white goods) and furniture, will not be picked up by waste haulers except by special arrangement. Private individuals may take these bulky materials to the recycling facility at any of the transfer stations, located near BZ Corners, Goldendale, Dallesport, or at the Roosevelt Regional Landfill. Since they can cause problems in ordinary landfill operations due to their bulk and air spaces, white goods are recycled at the transfer stations.

It is difficult to obtain an estimate of the total quantity of these bulky wastes. Some of the appliances and furniture are traded in for new models or are sold in the second-hand market.

Tires

Service stations and tire dealers often temporarily store used tires near their businesses until hauling to disposal locations. Tires are accepted at the transfer stations for disposal provided not more than five tires are brought in any load. The landfill cannot accept a container with more than 20 tires. Illegal dumping of used tires occurs in the County, and tire piles have accumulated in various parts of the County. These piles can present fire hazards and mosquito breeding grounds.

No estimates are available for the quantity of waste tires generated in the County. Based on a national average waste tire disposal rate of approximately 13 pounds per person per year, approximately 137 tons of waste automotive and truck tires might be generated annually in the County.

Sludge and Septic Waste

Three principal sources generate sludge and septic waste in the County: sewage treatment plants, industrial wastewater treatment plants, and septic tank sludges (septage). Sludges typically contain the scum and solids that have been recovered from the wastewater, residues from the treatment process, and moisture. Sludge composition depends on the nature of the wastewater being treated and the type of treatment process.

Wastewater treatment plant sludge is now classified as “biosolids” and not considered a solid waste. Biosolids are regulated by WAC 173-308 and Klickitat County Code 8.16.

Biomedical Waste

Biomedical waste is defined by State Law (RCW 70.95K) to include:

(a) “Animal Waste” includes animal carcasses, body parts, and bedding of animals that are known to be infected with, or that have been inoculated with, human pathogenic microorganisms infectious to humans.

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

(c) “Cultures and stocks” are 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, inoculate, and mix cultures.

(d) "Human blood and blood products" is discarded waste human blood and blood components, and materials containing free-flowing blood and blood products.

(e) "Pathological waste" includes human source biopsy materials, tissues, and anatomical parts that emanate from surgery, obstetrical procedures, and autopsy. "Pathological waste" does not include teeth, human corpses, remains, and anatomical parts that are intended for internment or cremation.

(f) "Sharps waste" is all hypodermic needles, syringes with needles attached, IV tubing with needles attached, scalpel blades, and lancets that have been removed from the original sterile package.

These wastes are typically generated by hospitals, clinics, dentists, veterinarians, and similar facilities. The Washington State Utilities and Transportation Commission (WUTC) regulates transporters of biomedical wastes. Its regulations allow 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. No data is available as to the amount of these wastes that are generated in Klickitat County.

Petroleum Contaminated Soils

Petroleum contaminated soils (PCS) usually result from cleanup of spills or leaking underground storage tanks. PCS with petroleum contamination levels below hazardous or dangerous waste regulatory limits may be deposited at Roosevelt Regional Landfill near Roosevelt. As shown in Table 2.5, 9,647.7 tons of PCS were generated in Klickitat County in 2009.

Summary

Special wastes are generally being handled adequately by collection and disposal systems that are separate from the MSW disposal system, or in some cases are being co-disposed with MSW (for C&D wastes and for PCS used as landfill cover).

2.3.5 Waste Generation Trends

In Table 2.6, 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 (21,308 tons). By using the current per capita rate for future years, the projected figures for 2010 through 2030 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 2.6
Projected Solid Waste Generation

Year	Total Population[1]	Waste Generated[2]	Amount Recycled[3]	MSW Disposed[3]
Actual Amounts:				
2009	20,200	23,080	1,772	21,308
Projected Amounts:				
2010	21,640	24,725	1,898	22,827
2015	23,049	26,335	2,022	24,313
2020	24,470	27,959	2,147	25,812
2025	25,831	29,514	2,266	27,248
2030	27,049	30,905	2,373	28,533

Notes: All figures except year and population are shown as tons per year.

1. Population figures are from Table 2-2. All other figures are expressed in tons per year.
2. Projected waste generation figures for 2010 through 2030 are based on the waste generation rate for 2009 (6.26 pounds per person per day) and the population forecasts.
3. The projected amounts of recycling for 2010 through 2030 assume the same recycling rate (7.68%) as in 2009, with disposal making up the difference between recycling and waste generation amounts.

CHAPTER 3. WASTE REDUCTION

3.1 INTRODUCTION

The Washington State Legislature found that "waste reduction must become a fundamental strategy of solid waste management" (RCW 70.95.010(4)). It went on to say, "it is therefore necessary to change manufacturing and purchasing practices and waste generation behaviors to reduce the amount of waste that becomes a governmental responsibility." The Legislature set waste reduction as the highest priority for the management of solid waste.

Ecology's Planning Guidelines (Ecology 2010a) recommend that waste reduction programs be addressed separately and not grouped with recycling (although a combined goal is acceptable). Reducing waste is achieved by reducing consumption, reuse of durable products, retrieval of materials from disposal, toxicity reduction of the waste stream, or a combination of these options. Unlike recycling, most waste reduction methods require no material processing. Ecology's Planning Guidelines suggest waste reduction be further defined in terms of toxicity reduction and volume reduction. Toxicity of waste is also discussed in the MRW Plan (see Appendix B).

Local governments are given the responsibility to develop and implement programs to achieve the goals set by the legislature. The state offers assistance to local governments by: 1) Developing statewide data and analysis such as Solid Waste in Washington State, 19th Annual Status Report (Ecology 2010b), 2) Involving counties in the statewide planning process, and, 3) Providing financial and technical assistance.

The State Legislature set goals for waste reduction and delegated responsibility to local government. Ecology set guidelines and recognized that opportunities and alternatives for waste reduction may be somewhat limited in rural areas such as Klickitat County. The Solid Waste Advisory Committee (SWAC) determined that waste reduction should be an element of the Klickitat County Solid Waste Management Plan.

When the County set their goal for a 50% recycling rate, this was intended to be a combined goal for waste reduction, recycling and composting (in other words, a "waste diversion rate" rather than just a recycling rate). The use of a combined goal is in recognition of the importance of waste reduction.

3.2 DEFINITIONS FOR WASTE REDUCTION, RECYCLING AND WASTE DIVERSION

Washington State defines waste reduction as "reducing the amount or toxicity of waste generated or reusing materials." Thus, waste reduction includes any activity that reduces or eliminates waste from being generated at its source. Typical waste sources include agencies, households, commercial businesses, farms, and recreational facilities.

Two basic principles underlie waste reduction efforts: resource conservation and waste minimization. Reducing the total volume of waste helps to conserve valuable resources such as time, energy, and materials. The preserved resources are thus made available for more productive endeavors. Waste reduction also reduces the pressure on collection and waste processing systems, and preserves landfill capacity. Waste reduction efforts typically focus on preventative measures including making changes in the production processes, in packaging, and in consumer buying and disposal practices.

Recycling is defined as the act of collecting and/or processing source-separated materials in order to return them to a usage similar in nature to their previous use. For instance, processing and re-pulping of paper products to use the fibers to make any other type of paper product (except to produce a fuel product) is defined as recycling. A broader term, waste diversion, is used to encompass all of those activities that result in the diversion of materials from landfill disposal, including activities not defined as recycling such as burning wood waste or used oil for heat energy.

3.3 INVENTORY OF EXISTING WASTE REDUCTION PRACTICES

The 2000 Plan recommended the County implement several waste reduction activities, which the County has implemented and continues to conduct. The County receives Coordinated Prevention Grant (CPG) funds and uses these funds for newspaper ads, radio, and video presentations on waste reduction, primarily for onsite composting. The CPG funds, in addition to hazardous waste funds, allow the County to maintain a waste reduction and recycling specialist to conduct outreach in these areas.

The County has made presentations to civic organizations and commercial businesses within the County. The County is also using brochures prepared by Ecology and the Klickitat County Solid Waste Department. The County continues to stage on-site composting demonstrations. Business waste prevention methods, composting, a solid waste newsletter and numerous waste reduction tips are posted on the County website. The website also shows a list of links to audio files of the radio ads. The County also coordinates with Skamania County and other agencies in hosting a two-day event called “Water Jam.” This event is an environmental education program that teaches 400 students to respect water and the complementary resources of land, air and energy.

Historically, county-wide efforts to promote waste reduction have included the distribution of stop junk mail post cards and a variety of backyard composting promotions. Due to the economic benefits associated with waste reduction (such as less money spent on packaging and containers, lower disposal costs and getting economic value from selling reusable products), individual businesses and households in Klickitat County are also undertaking a variety of actions on their own to reduce waste. Because of the informal nature of these efforts, it would be very difficult and costly to quantify the current level of waste reduction in the County.

The most visible waste reduction program in Klickitat County targets organic waste and composting of school lunch waste at Trout Lake School. The County has also

distributed approximately 1,800 compost bins using CPG funds. The bins were distributed to 12 districts in the County, and the schools sold them as a fundraiser. The County is working in cooperation with local organizations to develop compost demonstration sites and to stage composting workshops for the general public. Several workshops have been staged as of this writing. White Salmon also has a compost demonstration site with three to four compost bins. Signage and compost bins were provided by the County, and Conservation District staff maintain the site.

Several businesses and government offices have incorporated paper shredding devices in place of incineration as a means to reduce the environmental impact of destroying confidential papers. Shredded paper is reused as packing material or recycled.

For large motor oil users, motor oil heaters are commonplace and economical. Used motor oil heaters are in use at several commercial locations including Klickitat County Road Department maintenance shop, Log Processors, an automotive shop in Bingen, Republic Services and probably others. Over the past several years, it appears there has been a decrease in the amount of used oil collectors as there are fewer people changing their own oil.

3.4 WASTE REDUCTION ISSUES AND OPTIONS

3.4.1 Introduction

Suitable waste reduction programs in Klickitat County would help the County meet state solid waste management priorities, would protect environmental and natural resources, and would extend the life of disposal facilities. The quantities should be included with the recycled waste quantities because the goal of 50% is intended to include waste reduction.

Rural and urban waste reduction programs often rely most heavily on education and information programs. These education and information efforts also increase general awareness of other waste disposal and resource depletion issues. Waste reduction can, therefore, contribute to recycling and other solid waste management programs and help each agency, business, and household to improve the efficient and cost-effective operation of the system.

This section has been divided into the following categories for the purpose of identifying specific goals and recommendations:

1. Education and Public Awareness

    - Public Awareness Education
    - School Curricula
    - Business Education and Technical Assistance

2. Onsite Composting

3. Government Programs

    - Encouragement of State and Federal Programs
    - In-house Waste Reduction
    - Procurement Standards

4. Incentive/Disincentive Based Programs

    - Awards
    - Product/Packaging Prohibitions
    - Product/Container Deposits
    - Product Use/Reuse Standards
    - Variable Garbage Can Rates

5. Waste Exchanges

3.4.2 Education and Public Awareness

Education and media campaigns are key elements in promoting voluntary waste reduction. Without an awareness of the need and rationale for reducing waste, reduction efforts are unlikely to be successful. Both producers and consumers must be educated about the importance of waste reduction.

Public education efforts, such as special school presentations and curricula, are aimed at grade level audiences. Schools can take advantage of Ecology's teacher training manual titled Away With Waste (although no longer being actively distributed, this manual can still be downloaded from Ecology's website). The program is designed to educate schoolchildren about responsible solid waste management including waste reduction. Some of the programs involve bringing worm bins into the classroom. Other education activities may include: studying the economic advantages and environmental savings from waste reduction; field trips to local industries or agencies that practice waste reduction; school awards programs; and working with students to help them design waste reduction plans for their own households. Field trips to landfills and disposal sites can help emphasize the benefits of and need for waste reduction.

Informal or media based public awareness and education efforts may include: newspaper articles; public service announcements; displays at community events such as festivals, rodeos, and the County fair; distribution of waste reduction brochures to businesses and households; printed messages on grocery and shopping bags; and Internet-based information.

Education efforts targeted to the general public often focus on opportunities for waste reduction associated with buying durable goods, buying commodities in bulk, choosing products that are not excessively packaged, and selecting less hazardous household products.

Recommended durable goods include cloth diapers, metal flatware, razors with replaceable blades, reusable cloth napkins, and reusable glass or plastic cups. While similar principles can be applied to appliances and other large items, it is often more difficult for the average consumer to judge the durability of such goods.

Purchase of consumer items like soaps, grains, nuts, pet food and many other items in bulk quantities or in larger sizes also may save consumers money while reducing waste. In some stores, customers can bring their own containers back to refill from bulk bins or barrels.

Finally, household buyers can be sensitized to the amount of materials used to package items and can be encouraged to make choices between similar products based on the amount of packaging. In Klickitat County, however, consumers have less opportunity to selectively shop than in a large city. This may change to some degree as consumers become aware of waste reduction potential and start asking at local markets for products that generate less waste.

Education-based waste reduction efforts can also target businesses or public agencies by offering information and technical assistance. Such efforts often start with informal or media-based efforts designed to highlight the benefits to specific businesses. By implementing waste reduction programs, for example, businesses and agencies can cut disposal and material costs, develop a better public image, and help preserve resources. These general promotional efforts can then be followed by distribution of brochures on waste reduction methods and possibly waste consultations. EPA Waste Wise has a waste reduction and recycling program. The County could encourage local business to work with this organization to learn about successful efforts of other businesses.

A waste reduction audit may involve reviewing waste disposal and purchasing records, observing processes, further identifying waste streams and their sources, and documenting these findings. The final step of the consultation is to follow up with an economic and technical evaluation in order to choose the best options for implementation.

Businesses may reduce waste by installing equipment or processes that produce a smaller waste quantity per product, by soliciting waste reduction ideas from employees, establishing purchasing and office operating policies that identify waste reduction as a primary goal, and by evaluating waste reduction potential through a waste reduction consultation.

Implementing a Master Recycler (or Master Recycler/Composter) program would help spread the word for recycling. This type of program is often used by counties to provide a pool of informed volunteers that can assist with a variety of events, such as displays at county fairs and other events.

3.4.3 Onsite Waste Composting

Home yard debris composting (backyard composting) is considered a waste reduction strategy since it effectively removes yard debris from the waste stream before it is collected. Home yard debris composting also has the advantages of low cost and citizen involvement in addition to reducing the level of yard debris in the waste stream.

3.4.4 Government Programs

To help convince the private sector and general public to voluntarily and conscientiously practice waste reduction and recycling, governments often implement waste reduction measures in their own offices. Toward this end, the County could develop and circulate waste reduction guidelines for all offices. County offices could take internal action to reduce the amount of paper and other waste materials that are routinely discarded. For example, offices can be encouraged to routinely make double-sided rather than single-sided copies. In addition, the County could consider revising its procurement policies to encourage the purchase of more durable and/or reusable products. One possible barrier to this approach is that the County does not have a central purchasing department, so the efforts of each department would need to be addressed individually.

3.4.5 Incentive/Disincentive Programs

Legislation granting exclusive authority to the State of Washington to prohibit the sale of, or to enforce deposits or taxes on, containers for the purpose of affecting disposal of products or packaging expired on July 1, 1993. As a result, the County now has the option to use these incentive/disincentive programs if it so chooses.

An incentive-based program for waste reduction provides for financial and other incentives to reward behavior that reduces waste generation or disposal. Award programs can serve as incentives at a very low cost while also enhancing public awareness about the importance and benefits of waste reduction.

Disincentive-based programs can include bans or taxes on specific types of products, and product design or product labeling regulations. Because local markets are strongly affected by national and international forces, the effectiveness of local disincentive-based regulation is limited. Some cities and counties consider and adopt ordinances, such as product bans, which send a message about the importance of waste reduction.

Product bans most often target plastic products because they are difficult to recycle and tend to persist in the environment after disposal. Disposable diapers, non-recyclable packaging, and non-refillable beverage containers are also frequent targets of such legislation.

Variable garbage rates for residential and business customers can also be designed to provide financial incentives and disincentives aimed at increasing waste reduction. For example, added charges on second cans provide a disincentive toward throwing away more waste while mini-can rates provide an incentive for waste reduction. For

certificated (franchised) haulers, these rate changes require the approval of the Washington Utilities and Transportation Commission (WUTC) and would be administered by the local waste collection companies. For cities that have their own waste collection systems, the variable rates can be instituted by the city itself without going through the WUTC. In some cases, however, the additional administrative effort required to track variable can rates may offset a portion of the advantages provided by the waste reduction achieved.

3.4.6 Waste Exchanges

Governments can sponsor or promote waste exchanges by providing a clearinghouse of information for local businesses about potentially reusable waste materials. Because there is little industry in Klickitat County, however, the success of or need for a waste exchange program within the County is limited. There are also statewide waste exchanges based in Spokane and Seattle. Klickitat County could work to make County businesses aware of these services and encourage them to participate if the businesses produce significant quantities of waste for which no recycling opportunities exist.

The term waste exchange could include such activities as those operated by Goodwill and other re-use organizations. For example, The Church of Jesus Christ of Latter-day Saints (Mormons) picks up old materials from clothing to appliances for redistribution by gift or sale. Other programs that handle reusable items include Northwest Center, St Vincent de Paul in The Dalles, Rebuildit Center in Hood River, e-waste collection in Goldendale, and community cleanups in Bingen. Additional materials are also handled through online services such as JoeBoard.com and eBay. The quantity of materials diverted from the waste stream by these means is significant but unknown.

3.5 RECOMMENDATIONS FOR WASTE REDUCTION

The following criteria were used for determining which waste reduction programs to pursue:

- Waste reduction options should be effective at the local level and suitable for a rural community.
- Waste reduction options should be incentive rather than disincentive based.
- Waste reduction options that combine County and non-County resources should be given top consideration.

The waste reduction recommendations are as follows:

<u>Education and Public Awareness</u>

- The primary efforts of the County will be to promote existing programs, facilities and other opportunities for waste reduction, including programs that reduce the volume and/or toxicity of hazardous wastes.

- The cities, towns and Republic Services will assist the County by, at a minimum, including waste reduction messages in information provided to their residents or customers at least annually.
- Distribution of waste reduction brochures will be conducted contingent on the availability of funds and other resources.
- An office waste minimization program will be implemented, or existing efforts by government and private entities will be promoted, contingent on the availability of funds and other resources.
- Businesses will be encouraged, through brochures or waste consultations (conducted by Republic Services upon request from the business), to consider evaluating their processes and policies that affect waste generation.
- Wherever possible, waste reduction education efforts will be combined with education and public awareness efforts for recycling.
- The Model Recycling Plan should be fully implemented, including speakers, brochures, and radio ads.
- Grants and state-sponsored education programs should also be pursued.
- The County recycling coordinator will work with the designated staff of the landfill contractor to develop and implement complementary waste reduction education and public awareness activities of the county and the landfill contractor.

Backyard Composting

- County staff will conduct workshops on yard debris and food waste composting. Backyard composting of yard debris and food scraps will be promoted by the County, with assistance from the cities, towns, and Republic Services as appropriate.
- The County recycling coordinator will work with the designated staff of the landfill contractor to develop and implement complementary composting education and public awareness activities of the County and the landfill contractor.

Government Programs

- Government waste reduction activities will be encouraged and promoted.

Incentive/Disincentive Based Programs

- Klickitat County will support state policies and legislation that provide incentives through tax credits, variable collection rates, and product labeling.
- Disincentives and mandatory measures (such as disposal bans) will be used as a last resort effort to increase waste reduction.

Waste Exchanges

- Waste exchange information will be made available to businesses.
- Re-use organizations and programs will be promoted.

Program Evaluation

- The effectiveness of waste reduction programs and activities will be reviewed annually.
- Waste reduction efforts will be modified as necessary on an on-going basis.

Waste reduction activities and cost estimates for planned projects within Klickitat County over the five-year planning horizon are shown in Table 3.1.

The cost of waste reduction programs is paid by grants and from funds generated through the Agreement with Republic Services.

TABLE 3.1
ANNUAL COUNTY PROGRAM COSTS FOR WASTE REDUCTION

Recommendation	Republic	Grant	Other*	Total County	Total
Education and Public Awareness (1)	30,000	6,000	2,000	8,000	$38,000
MRW and Other (2)	10,000	11,250	3,750	15,000	$25,000
TOTAL	$40,000	$17,250	$5,750	$23,000	$63,000

Notes:
1. Public outreach, education and promotion of waste reduction program. Includes annual newsletter, radio advertising, participation in community events, workshops, telephone hotline, newspaper advertising, web site information production and maintenance and other related activities. Also includes cost of providing waste audits to business and government facilities.
2. Includes promotion of participation, education and onsite private consultation to assist managing moderate risk waste for the purpose of reducing amount or toxicity of waste generated.

Amounts for County/Grant contribution reflect the CPG Grant for 2012. Amounts for Republic Services are estimates by county staff in cooperation with Republic Services staff.

CHAPTER 4. RECYCLING

4.1 INTRODUCTION

Washington State has adopted the following overall goals for recycling:

1. Achieve a 50% statewide recycling rate.

2. Develop systems that make recycling at least as affordable and convenient to the ratepayer as mixed waste disposal.

3. Make source separation of waste a fundamental waste management strategy (source separation means keeping recyclables separate from wastes).

Local governments are given the responsibility to develop and implement programs to achieve the goals set by the legislature. Ecology offers assistance to local governments by: 1) developing statewide data and analysis such as the annual recycling survey and annual status reports on the solid waste system, 2) providing education and information materials, 3) involving counties in the statewide planning process, and 4) providing financial and technical assistance.

Ecology's Planning Guidelines suggest that even though the 50% goal for recycling statewide has not been met, recycling has been extremely successful overall. The County's goal of 50% has likewise not been met; however recycling has been successful in Klickitat County. The Planning Guidelines require that urban and rural areas must be designated to establish service levels of recycling. Designation of materials for recycling is also required.

It is the intent of this plan to have a combined goal for waste reduction, recycling and organics. This plan reaffirms the 2000 plan and sets the Klickitat County Waste Reduction and Recycling Goal at 50%. The calculation for the actual recycling rate in Klickitat County can be determined annually based on figures collected by Ecology through their recycling survey. Ecology's tonnage figures do not, however, include waste reduction practices such as backyard composting, and so these amounts should be added to the recycling tonnages to the extent this data is collected locally. Ecology's data should also be adjusted if there are additional local recyclers whose data was not included for some reason in the statewide survey.

4.2 INVENTORY OF HISTORIC AND EXISTING RECYCLING PRACTICES

The statewide recycling rate for 2009 was 44.6%, while the Klickitat County recycling rate was 7.7% (see Table 2.4).

In previous solid waste management plans, the SWAC evaluated three alternatives for recycling in Klickitat County:

1. No action plan which outlined the potential waste diverted from landfills by grass roots volunteer and private enterprise efforts without County or State involvement.

2. An aggressive plan targeting a 20% recycling goal. The 20% program included programs funded from State grants and County tax revenues.

3. A Model Rural Recycling Program targeting the 50% waste reduction and recycling goal. The recommendation for this alternative was contingent upon services provided for residents of Klickitat County by a regional landfill developer as a condition for siting and operating a landfill in Klickitat County.

The regional landfill is operating and Klickitat County, in cooperation with Republic Services, has developed a Model Rural Recycling Program Plan aimed at diverting 50% of the waste stream as was recommended in the 2000 Solid Waste Management Plan Update (see Appendix C).

The County has one full time waste coordinator to develop and implement programs for waste reduction and recycling. The waste coordinator also develops and implements programs for 1) household hazardous waste, 2) conditionally exempt small quantity generators of moderate risk waste, 3) and County road volunteer litter patrols. The waste coordinator works closely with Republic Services to implement a variety of solid waste programs under terms defined in the Agreement concerning operation of the Roosevelt Regional Landfill.

4.2.1 Curbside Collection of Recycle Materials:

Klickitat County entered a long term agreement (the “Agreement”) in 1989 with Rabanco (now owned by Republic Services) to provide garbage disposal services. The Agreement required recycling and a countywide curbside collection program was initiated at no cost to those receiving service or to the County. Republic Services continues to operate the curbside collection in most areas of the County providing services every two weeks for households and public schools. Fee based curbside service is available for commercial and government entities.

Blue plastic bags are provided by Republic Services for the curbside recycling program. Program participants place commingled recyclable materials in the blue bags and place them at the curb or roadside. The bags are picked up at roadside and hauled by truck to Roosevelt where they are loaded into longhaul containers. The containers are then hauled by train to the Rabanco Recycling Center in Seattle for processing. 1,231 tons of commingled recyclable materials were collected through the curbside/drop-off system in 2010 (see Table 4.1), with a small percentage being returned to Roosevelt Regional Landfill as contaminated materials.

Table 4.1
Recycling Tonnages Handled by Republic Services (2010)

	Scrap Metal and White Goods	Glass	Commingled Materials	Totals
Curbside Collection [1]		NA[2]	344	344
BZ Corners Drop Box	133	NA[2]	103	236
Dallesport Transfer Station	73	NA[2]	377	450
Goldendale Transfer Station	123	NA[2]	407	530[3]
Totals	329	174	1,231	1,734

Notes: Data is from annual reports provided by Republic Services to Ecology.

1. The tonnage figures for curbside collection include the recyclables picked up through dropboxes located around the county and the amounts collected from commercial and government offices.
2. Glass from all sources is combined and weighed together.
3. Figures shown for the Goldendale Transfer Station do not include the weight of 51 pallets (19.6 tons) of electronics ("e-waste").

4.2.2 Recycle Centers

There are no recycle buy-back centers in Klickitat County. The closest buy-back center is A&P Recycling, located across the Columbia River from Dallesport in The Dalles, Oregon. They are the only paying recycle center within reasonable distance.

Recycling drop-off centers are provided at the four transfer stations located at BZ Corners, Dallesport, Goldendale, and Roosevelt. They are provided through the agreement with Republic Services at no cost to citizens of Klickitat County.

White goods, motor oil and metals are accepted at all of the transfer stations at no cost to county residents. Refrigerant gases are recycled by local licensed contractors.

4.2.3 Recyclable Collectors

Klickitat County is located many miles from major commercial recyclable collectors, therefore the services are limited.

Auto salvage services are provided in many cities and include Goldendale Auto Wrecking; Howard's Wrecking Yard in Underwood, Washington; AFD Auto Salvage in The Dalles, Oregon; and Jones Auto Wrecking in The Dalles, Oregon. The value of old vehicles combined with the distance traveled in the County generally prevent any payment for vehicle hulks. Auto salvage companies will pay for vehicles if there are parts that can be removed and sold or if the vehicle can be repaired and sold.

Used batteries are collected from transfer stations by a private business. Used motor oil is collected from transfer stations and picked up from private business. Used

cooking oil from restaurants is collected by rendering companies. Others collecting in the County include Les Schwab Tire Centers and Safety Kleen Corp.

Three recyclers pick up corrugated cardboard from grocery stores. Some stores also receive backhaul service for cardboard from their suppliers.

There are two to three companies involved with recycling as a means to earn cash in Klickitat County. They are dealing in scrap metals.

4.2.4 Education and Information

The Ecology Youth Corp program was initiated in the Goldendale school system during 1991-92 with funding from Ecology. The hope was that it would spread to other school districts through the Goldendale group. Ecology funding for this program was withdrawn in the second year. As a consequence, local support dissipated. There is currently only a summer Youth Corp program targeting roadside litter.

The County has provided recycle collection bins for schools and Republic Services provides curbside collection of designated recyclable material from the schools. Copies of the Department of Ecology manual "How To Make Waste Reduction and Recycling Happen in Your School" have been distributed to the recycling coordinators in each school. Each school has developed a unique waste reduction and recycling program to fit the specifics of the site, the individual levels of commitment, and the availability of staff resources.

Efforts to foster community awareness of recycling opportunities include paid radio advertisements, periodic advertising in two local newspapers for specific events, and press releases to news agencies. Information booths have been at community events such as the Earth Day Fair and the County Fair. The County's waste coordinator is available to speak to community groups on a variety of solid waste subjects and has done so about once per month.

The County also participates in a two-day environmental program involving energy, water resources, and recycling (Water Jam). The program is well attended with over 400 students participating annually.

4.2.5 Market Influences

A major factor in evaluating any recycling effort is the available market for recycled materials. If the market is very distant and the price is low, there will be little market-driven incentive to recycle. Conversely, if the market is close and prices are high, market incentives may be able to support a strong, private-sector recycling system.

The distance to recycling markets from Klickitat County, coupled with relatively low volumes of materials, means that the cost of transportation is relatively high. High transportation costs would be incurred in delivering recyclables to central locations within the County and then in delivering those recyclable materials to markets in Seattle,

Portland, or Spokane. The distance to these markets is considerable. Goldendale is 120 miles from Portland, 212 miles from Seattle, and 247 miles from Spokane. High transportation costs have constrained the growth of a private recycling industry within Klickitat County and within other rural counties in eastern Washington.

4.3 URBAN AND RURAL DESIGNATIONS WITHIN THE PLANNING AREA

The State Planning Guidelines for preparing comprehensive solid waste management plans recognizes that solid waste management systems must account for local preferences. Accordingly, plans must designate urban and rural areas within a planning area. These designations are then used to determine minimum levels of service for recycling programs.

Over the last several years, Klickitat County has been using population and population density data as the basis for designating urban and rural areas. With a population density of 10.9 people per square mile (the ninth lowest in the state) and no cities with populations over 5,000 people, the County determined that the entire county should be considered rural for the purpose of solid waste planning.

Common sense bears out the rural nature of the County. As one travels around the County, it is clear that it has no urbanized areas, and that all of its small cities and towns are rural. At such time the population of any incorporated city in Klickitat County reaches 12,500 or if the population density of the County exceeds 50 people per square mile, then the County will reconsider the possibility of urban designation for the County or appropriate portion thereof.

4.4 DESIGNATION OF RECYCLABLE MATERIALS

4.4.1 Requirements

Solid waste management plans must also designate the specific materials intended to be collected for recycling (RCW 70.95.090(c)). The State Planning Guidelines recommend that designation be defined by a process rather than by a specific list.

4.4.2 Designation Process

RCW 70.95.030(17) defines recyclable materials as “those solid wastes that are separated for recycling or reuse, such as papers, metals, and glass, that are identified as recyclable material pursuant to a local comprehensive solid waste plan.” Because of an ever-changing environment, the County will use the following process in an attempt to keep the list of recyclable materials current.

This plan creates the initial list of recyclable materials. Any individual, business, organization, agency, or county staff may make a request to add or eliminate a material

from the list. The request may be made verbally or in writing to the Klickitat County Solid Waste Advisory Committee (SWAC), through the County Solid Waste Department.

The SWAC will review the request and provide a written recommendation to the Board of County Commissioners. The Board of County Commissioners sets the initial Designated Recyclable List by adoption of this plan. The list can only be modified by the Board of County Commissioners by means of an approved resolution passed in an open public meeting. The SWAC and the Board of County Commissioners shall consider the following influences, as appropriate, in their determinations:

1. The county's recycling goal,
2. The amount of the material in the waste stream,
3. The ease of diverting the material from the waste stream,
4. The immediate market,
5. The volatility of the market for the material, and
6. Other influences as may be appropriate.

4.4.3 Designated Recyclable List (DRL)

Materials that have historically had statewide markets include the following:

- Newsprint
- Corrugated containers
- High grade paper
- Tin cans
- Metals
- Aluminum cans
- Container glass
- Fluorescent light bulbs

Material historically collected as part of the Klickitat County recyclables are:

- Newsprint
- Corrugated containers
- High grade paper
- Tin cans
- Metals
- Aluminum cans
- Container glass
- Mixed waste paper
- PET plastic bottles
- HDPE plastic bottles
- Used oil
- Batteries
- Fluorescent light bulbs

Materials that the County has considered in the development of the DRL, in addition to the above list, are as follows:

- Yard and garden waste
- Plastic type #3 and type #6
- Food waste
- Wood waste
- Land clearing debris
- Demolition waste
- Asphalt
- Tires

The County in this 2012 Plan Update adopts the following as the initial Designated Recyclable List (DRL) for Klickitat County. Figure 4.1 (shown at the end of this chapter) shows a list suitable for posting.

- Newsprint
- Corrugated cardboard
- High grade paper
- Tin cans
- Metals
- Aluminum cans
- Container glass
- Mixed waste paper
- PET plastic bottles
- HDPE plastic bottles
- Used oil
- Batteries (lead-acid and rechargeable)
- Yard and garden waste
- Asphalt
- Fluorescent light bulbs

For the materials shown in this list, it is intended that residents and businesses should have reasonable access to recycling programs for these materials. It must be recognized that what constitutes “reasonable access” will vary depending on the type of material and the location of the resident or business, but in general this means that each material must be collected through curbside (including commercial service) or drop-off programs. For asphalt, it is intended that recycling activities be conducted on a job-by-job basis. For yard and garden waste, access is provided primarily through backyard composting at this time but other options are being explored.

4.5 RECYCLING PROGRAM ISSUES AND OPTIONS

This section deals with the options available to increase the recycling rate and sets objectives to assist in reaching the County Waste Reduction and Recycle Goal of 50%.

The historic recycling rate was influenced by three factors. They are as follows:

1. Continued lack of awareness of recycling opportunities.

2. Inconvenience of recycling opportunities. The large distance between population centers and low population density are a major obstacle in all drop-off programs.

3. Diminished incentive due to: a) low or no tipping fee at the Roosevelt Regional Landfill and transfer stations; and b) availability of backyard burning permits.

The remainder of this section is devoted to specific subjects and discussing various options.

4.5.1 Collection of Residential Recyclable Materials

Possible recycling programs for Klickitat County include:

- Separate household collection of garbage and recyclables.
- Combined household collection of garbage and recyclables.
- Drop-box/buy-back centers.
- Mobile centers in addition to fixed centers.
- Community service programs that collect recyclables.

The State also indicates that these alternatives should be evaluated against the following criteria:

- Household collection or fixed recycling centers for every 5,000 to 10,000 people at convenient locations plus recycling centers at solid waste facilities.
- Consistency with designated materials.
- Consistency with local plans.
- Diversion potential maximized.
- Comparable performance with existing programs.

The following discussions evaluate possible residential programs against these criteria. Other criteria, including public convenience, ease of implementation, and resource use, are also considered.

Household or “curbside” collection of recyclables from residences is highly effective at diverting recyclables from the waste stream, especially materials such as newspaper, aluminum, tin cans, and glass containers. While curbside collection is often convenient and economical in urbanized areas, the distance between customers in rural areas often makes this option too expensive for rural areas when not otherwise subsidized. In Klickitat County’s case, however, the cost of curbside residential recycling is paid by Republic Services and so the service is free to residents. The program still has a low participation rate of approximately 37% of the households, but this is almost equal to curbside garbage service.

Material diverted from the waste stream will increase if a current list of recyclable materials is maintained. The quality of recyclable materials can be improved with better source segregation to prevent contamination. Certain materials can be commingled without suffering degradation.

4.5.2 Buy-Back Centers

The only buy-back center serving Klickitat County is A&P Recycling, located in The Dalles, Oregon. They take tin cans, newspaper, milk jugs, water bottles, magazines, glass bottles and cardboard. It is somewhat centrally located, however it is 20 and 35 miles from Klickitat County population centers. Buy-back centers increase recycling by individuals and may increase business participation in recycling, but a recycling program based on drop-off and buy-back facilities alone would not be capable of meeting the 50% recycling goal recommended by the SWAC.

Although The Dalles is somewhat centralized to all of Klickitat County, it is too far for most to use. Buy-back centers at other locations should be considered. If buy-back centers are implemented at the transfer stations, the addition of another employee to inspect and weigh materials may be required. Alternatively. Republic Services could allow a charity or a private company to provide buy-back services at the transfer stations. Recovered materials could be sold to A&P Recycling of The Dalles, sold directly to a center in Portland, Oregon, or sold to other markets.

4.5.3 Drop-Off Centers

State law now requires that recycling receptacles be located at solid waste transfer, processing, and disposal sites, or at locations convenient to county residents. Republic Services owns and operates the landfill and the existing transfer station/drop-off facilities in the county. They are located at BZ Corners, Dallesport, Goldendale, and Roosevelt. All of these sites have recycling receptacles and every effort was made to locate the facilities so they would be in convenient locations.

The distance to transfer stations is over ten miles for residents of the cities of Bingen and White Salmon. They have a combined population of nearly 15% of the county's total population. To enhance recycling, the County could encourage additional drop-off centers at central community areas such as supermarkets, churches, service stations, and grange halls with the goal of providing at least one drop-off center in each community. Community drop-off containers are already located in Bingen, Bickleton, Glenwood and Alderdale, in addition to the drop-off containers that are located at the transfer stations in Goldendale, Dallesport and BZ Corners. Additional drop off containers could be added in Lyle, Wishram, Trout Lake and Klickitat. Small drop-off receptacles could be provided at governmental buildings, public buildings, and local parks to provide separate recycling for aluminum cans or other high-grade materials, which could be emptied by local youth or community groups.

Drop-off and buy-back centers can work well in rural areas when properly supported with advertising and public information. Even with public education, however, a

recycling program based on drop-off facilities alone would not be capable of meeting the 50% recycling goal recommended by the SWAC. Nonetheless, the distance that must be traveled by rural residents to recycling collection centers can significantly affect participation rates. If the County chooses to provide drop-off centers, these centers should be open during normal working hours at convenient locations. There should be one center provided for every 5,000 to 10,000 people.

Smaller community collection sites would not normally require permits.

4.5.4 Processing Facilities

Mixed waste processing is performed to recover recyclable materials from disposed wastes. Processing costs for a local processing facility are estimated to exceed $50 per ton. Due to the potential hazards of hand sorting it may also not be reasonable to risk harm to sorters. In addition, the quantity of recyclable materials generated in the County is too low to solely justify a local processing facility, The idea of recovering recyclable material from disposed waste may become more feasible with the development of technology and with greater volumes generated locally in the future.

4.5.5 Community Group Recycling

A few community groups currently collect recyclable materials (primarily aluminum cans) in their local areas to generate funds for their organizations.

The County is always looking for ways to combine resources with motivated volunteers. The County works with fraternal organizations, clubs, non-profit organizations, other government organizations, churches, schools and the two chamber of commerce organizations in areas. The best example of this is the Community Pride event organized by Mt. Adams Chamber of Commerce and the Bingen/White Salmon Rotary Club. In response to major storms one year, the chamber board approached the County requesting help to expand the event into recycling opportunities, and it is now the biggest recycling event in the county. A second example is the compost demonstration site created and maintained by the Underwood Conservation District staff with County assistance.

Seniors, schools and other community groups such as the Boy or Girl Scouts, could be encouraged to start and maintain local recycling programs through drop boxes and/or collection drives. Community cleanup events produce small quantities of recyclable materials but provide a net benefit.

4.5.6 Small Recycling Businesses

There are individuals and small businesses in Klickitat County that provide valuable recycling services. They generally provide a service to the community, however they also sometimes accumulate materials which remain onsite at their base of operations. When this occurs, neighbors complain and sometimes the materials can cause environmental concerns. The County's Title 15 nuisance ordinance, approved in June

of 2010, prevents the accumulation of debris. The County limits junk vehicles and the accumulation of tin cans, bottles, glass, scrap metal and junk. Any storage of these materials must be covered and contained. The quantity of materials recycled by these individuals and small businesses is unknown.

4.5.7 Business and Government Facility Recycling

Commercial recycling in Klickitat County has historically consisted primarily of collection of cardboard by volunteer recyclers and recycling businesses, as well as through the drop-off containers at the transfer stations and drop box facilities provided at no charge. In addition, some restaurants recycle their cooking grease and some commercial sites hire a mobile document shredding service. Commercial recycling could be enhanced by information programs encouraging recycling of high-grade office paper and cardboard.

As of April 2011, businesses and governments have the option to subscribe to recycling services provided by Republic Services. There is a monthly fee for this service, which is determined by the size or number of the containers and the frequency of collection. The service is being provided through Republic Services under terms of the agreement between Klickitat County and Republic Services. Republic Services' contact information is available on the Klickitat County website.

State law restricts the ways in which the County can assist private businesses, however the County can provide them with technical support such as waste audits and consultation including referral to sources of recycling systems, products, and services, but little of this has been requested to date. Some businesses are taking advantage of the drop-off facilities but many others report that the cost of drop-off recycling in manpower is greater than the cost of curbside garbage service. If a business recycling program is operated by a private contractor more options are available to assist businesses.

RCW 70.95 does not require commercial recycling programs, but it does require monitoring of nonresidential waste streams where there is sufficient density to maintain such a program. Due to Klickitat County's rural designation, such a monitoring program is not recommended.

In order to reach the 50% recycling goal, more commercial sites need to participate in the recycling program. This would involve education, promotion, technical support, waste audits, awards or recognition and possibly curbside collection at significantly reduced rates or at no charge.

4.5.8 Education and Awareness

Education and awareness programs are an investment in the future success of resource conservation efforts. When children are taught at an early age and encouraged to practice recycling during all of their school years, recycling becomes a normal element of life. Education and awareness programs do, however, demand considerable time from Solid Waste Staff.

The public should be encouraged to increase and maintain high levels of recycling through an ongoing educational campaign. There are many brochures, pamphlets, and other multi-media approaches to recycling that could be adapted by Klickitat County. For example, local newspapers could occasionally be provided with press releases and articles regarding the opportunities for and benefits of recycling. An effort should be made to select information that is most relevant to rural recycling, and to seek permission to adapt and distribute materials countywide.

Three sources of funding are available for the waste reduction and recycling programs discussed in this plan: 1) County; 2) State; and 3) Republic Services.

Funding for administration, promotion and implementation of recycling programs has always been an issue. During the 1990 solid waste management plan update, the issue of funding was tied to the proposals for either a regional landfill operated by a private developer or a County-operated landfill for in-county waste only. The level of funding available for recycling programs was dramatically affected by the outcome of these two alternatives. Documents submitted to the SWAC by Rabanco (the service provider at that time) projected contributions to recycling and moderate risk waste programs in excess of $400,000 per year. Later, Allied Waste agreed when they purchased Rabanco to support waste reduction and recycling activities in the County. The obligations are defined in the document titled, Addendum No. 4 to The Second Amended Agreement Regarding Solid Waste Handling between Klickitat County and Regional Disposal Company, June 29, 1998.

Ecology's Coordinated Prevention Grant (CPG) program has allocated funds for implementation, enforcement, education and technical support of Klickitat County solid waste programs for the 18-month period from January 1, 2012 through June 30, 2013.

For a rural county such as Klickitat, in-county waste reduction and recycling benefits can be substantially realized through a program of public education stressing the benefits of these management alternatives. Aggressive education should be included as a key component in any recycling system. This education can be provided in a variety of ways including school curriculum, brochures, and guest speakers.

Ecology has developed an excellent school curriculum for educating school-age children about solid waste management, particularly waste reduction and recycling. The County can encourage and support this curriculum through the public schools. This program has already been recommended as a waste reduction option and the manuals are in place at the schools for use by teaching staff.

Many brochures on waste reduction and recycling are currently available from Ecology and other agencies at no cost. These brochures can be strategically distributed at places of public gathering, mailed to County residents, or given out in the school curriculum series. A multi-media publicity campaign using Internet, radio, and newspaper would assist in encouraging recycling.

Service and community clubs and special interest groups often seek out guest speakers for subjects of community interest. This provides an excellent forum to encourage community support for the County's solid waste management system. Presentations at schools perhaps combined with school-wide events, to local Chambers of Commerce, at trade fairs or grange meetings, community events and at the county fair can encourage recycling in schools and in the homes. This program can be provided at little or no additional cost to the local agency. State and local agencies and community groups that are actively involved in waste reduction and recycling promotion could be called on to participate in these presentations.

Table 4.2 shows the recycling potential of various materials within Klickitat County's solid waste. This table shows an estimate of the amount of recyclable materials remaining in the waste stream. To reach the 50% goal, education and awareness efforts need to be increased so that more of this material is recovered.

TABLE 4.2
POTENTIAL RECYCLING QUANTITIES

Recyclable Materials	Percent of the Waste Stream[1]	Annual Tons[2]	Potential Tons[3]
Newspaper	1.2	277	208
Cardboard	5.3	1,223	917
Other Recyclable Paper	6.7	1,546	1,159
PET Bottles	1.0	231	173
HDPE Bottles	0.7	162	121
Glass Bottles	2.6	600	450
Aluminum Cans	0.6	138	104
Tin Cans	0.7	162	121
Other Metals	4.9	1,131	848
Yard Debris	9.9	2,284	1,713
Wood	10.0	2,307	1,731
Food Waste	12.3	2,838	2,129
TOTAL	55.9	23,074	8,338

Notes:
1. Data on the amount of various materials remaining in the waste stream is from the Washington Statewide Waste Characterization Study (Ecology 2010c).
2. The annual tons of each material are based on the percent by weight figures in the previous column and Klickitat County's 2010 waste amount of 23,074 tons (from Republic Services' records).
3. The amount of "potential tons" assumes a maximum recovery rate of 75% for each material (no program can recover 100% of a material, although properly-enforced mandatory programs could achieve higher levels, perhaps as high as 90% to 95% recovery).

4.6 RECOMMENDATIONS FOR RECYCLING

Recycling is an integral part of any comprehensive solid waste management system. Benefits from these activities include cost savings for collection, transfer, and disposal; revenues from the sale of some recyclables; and environmental benefits from reduced dependence on disposal and more efficient use of resources. The regional landfill alternative was adopted in the 1990-92 Plan Updates and the terms of the County's Agreement with Republic Services offers the opportunity for a significantly higher level of recycling in Klickitat County. Financial and technical contributions of Republic Services and the backhaul of Klickitat County's recyclables provide access to markets that might not otherwise be available. The County recognizes that even though a significant portion of the cost for recycling programs is borne by Republic Services, the County still has an obligation to develop a system that not only reclaims resources from the waste stream but also conserves resources in the process. The County recognizes that countywide curbside collection is an important step towards achieving a 50% recycling goal, but that other steps will also be necessary to reach this goal.

The County could improve the recycling rate by taking the following actions:

1. provide aggressive education and public outreach;

2. increase multifamily and commercial collection of separated recyclables within the boundaries of incorporated cities;

3. enhance the existing drop-box recycling facilities at the transfer stations and at other locations if necessary;

4. cooperate with the fundraising efforts of non-profit service organizations and special interest groups collecting recyclables;

5. continue to collect recyclable scrap metals through the transfer stations and drop box facilities, and consider adding other materials;

6. continue to encourage backyard composting for yard debris and food waste (see Chapter 3); and

7. re-establish the wood waste chipping program when local economic conditions permit it (see Chapter 5).

8. review, adopt and follow the "Model Rural Recycling Program Plan."

9. explore ways to make the public more aware of options to recycle glass and to make glass recycling more convenient.

10. encourage and support cleanup/recycle/reuse events in all communities.

Achieving 50% waste reduction and recycling is ambitious. In the short-term (over the six-year planning period), the above steps might achieve between 30% and 40% recycling, with 50% remaining the goal.

The following recycling actions are recommended:

Collection of Residential Recyclable Materials

- Continue the curbside recycling program.
- Maintain a list of materials to be targeted for curbside recycling.
- Collect metals, glass, white goods, and other specified materials separately at the transfer stations.
- Maintain commingled status for other targeted recyclables.
- Increase participation in the curbside recycling program.

Buy-Back Centers

- Continue to encourage community groups to collect recyclables as a fundraising activity (see also Community Group Recycling, below).

Drop-Off Centers

- Increase drop-off locations.
- Investigate possible community group involvement for selected drop-off sites.

Processing Facilities

- No recommendations.

Community Group Recycling

- Encourage cooperation with buy-back centers.
- Continue and expand support for community cleanup events.

Small Recycling Collectors

- Encourage environmentally and neighborhood friendly recycling.
- Consider impacts on recycling before passage of nuisance ordinances.

Business and Government Facility Recycling

- Include business and government facilities in the Model Rural Recycling Program Plan.
- Establish list of targeted materials.
- Provide collection of targeted materials.

Education and Awareness

- Continue and improve present programs.
- Continue print and radio ads to promote participation in recycling.
- Enhance speaking by county staff.
- Require Republic Services to furnish a person for support of education and awareness as agreed in the Model Recycling Plan (October 30, 1999).
- Cities should provide more outreach and other assistance in promoting recycling and related programs.
- Develop uniform program for speakers.
- Install better signage on and near recycling dropboxes.

Recycling Program Evaluation

- Develop baseline data for existing tonnage and composition of recyclables collected through curbside and drop-off programs, and determine cost per ton for each program.
- Modify program as necessary.

Table 4.3 shows the estimated costs of implementing the above recommendations.

TABLE 4.3
ANNUAL PROGRAM COSTS FOR RECYCLING

Recommendation	Republic	Grants	Other	Total County	Total
Residential Curbside Collection (1)	220,000	750	250	1,000	$221,000
Buy-Back Centers (2)	NA	NA	NA	NA	NA
Drop-Off Centers (3)	NA	NA	NA	NA	NA
Community/Group Recycling (4)	3,000	1,500	500	2,000	$5,000
Small Recycling Businesses (5)	NA	NA	NA	NA	NA
Business and Government Facility (6)	NA		NA	NA	NA
Education and Awareness (7)	40,000	14,250	4,750	19,000	$59,000
Recycling Program Evaluation (8)	5,000	750	250	1,000	$6,000
TOTAL	$268,000	$17,250	$5,750	$23,000	$291,000

Notes:
1. The amount shown is the cost of providing curbside recycling collection for residential customers plus part of the cost of servicing the recycling drop boxes at the transfer stations which are used to empty the recycling collection truck.
2. This activity has not been implemented. If it were implemented it would not result in any significant cost as it involves allowing a sub-contractor on site at transfer stations or other similar facilities to provide buy-back options for specific commodities.
3. Includes the cost of servicing drop off recycling containers for communities not located near transfer stations and for school districts.
4 Shows the cost for support for recycling activities in conjunction with spring community cleanup activities such Community Pride in Bingen/White Salmon and other communities. Also includes recycling containers for public events.
5. Shows the proposed cost for support of or cooperation with small local businesses or individuals providing recycling related services not provided under the agreement between Klickitat County and the Landfill Contractor.
6. Shows the net cost for curbside collection service for business and government facilities. This is a fee based system provided at approximately break even.
7. Shows costs for public outreach, education and promotion of recycling programs. Includes the annual newsletter, radio advertising, participation in community events, workshops, telephone hotline, newspaper advertising, web site information production and maintenance and other related activities.
8. Collection of data for the purpose of evaluating participation and effectiveness of recycling programs. Also includes the cost of evaluating the data.

Amounts for County/Grant contribution reflect CPG Grant for 2012. Amounts for Republic Services are estimates by county staff in cooperation with Republic Services staff.

FIGURE 4.1

DESIGNATED RECYCLABLES LIST

Klickitat County has designated the following materials as recyclable:

- **Newsprint**
- **Corrugated cardboard**
- **High grade paper**
- **Tin cans**
- **Metals**
- **Aluminum cans**
- **Container glass**
- **Fluorescent bulbs**
- **Mixed waste paper**
- **PET plastic bottles**
- **HDPE plastic bottles**
- **Used oil**
- **Batteries (lead-acid and rechargeable)**
- **Yard and garden waste**
- **Asphalt**

For questions and answers about the process of adding or subtracting from this list, or recycling options please contact:

Klickitat County Solid Waste Department
131 West Court, MS-CH-27
Goldendale WA 98620
Phone 1-509-773-4295
Fax 1-509-773-4521
e-mail JohnLf@co.klickitat.wa.us

CHAPTER 5. ORGANICS

5.1 INTRODUCTION

An increasing amount of attention is being paid to new systems for managing organic materials. Although yard debris composting has become widespread throughout the State of Washington, an increasing amount of attention is being paid to other organics such as food waste, agricultural wastes, and wood. There is also more work being done to apply technologies such as anaerobic digestion to these wastes. The opportunities posed by organic materials led to organics being identified as one of the five key issues in the State's Beyond Waste Plan (Ecology 2009).

Reducing the amount of organics in the waste stream is one of the five key initiatives identified in the 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:**
   - o assessing barriers and various approaches to increase organics reuse and recycling in the agricultural and industrial sectors,
   - o developing a set of specific actions and a timeline for increasing organics recovery and recycling throughout these sectors,
   - o advertising the success of model projects, and
   - o researching and developing incentives that will encourage organics recovery in the agricultural and industrial sectors.

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

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

Other State laws regarding organics include the Waste Not Washington Act, which 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.

5.2 INVENTORY OF EXISTING PRACTICES FOR ORGANICS

The County used to operate a chipping service at several sites where residents could drop off brush and similar materials at no charge. The resulting chips were provided free to people who could use the chips as mulch or as animal bedding, or in a backyard composting pile. In 2004, this program handled an estimated 1,500 tons of material at a cost of $70,000 (or $46.67 per ton). This program was popular but grew to a point where the chipper could not keep up with the flow of materials. The stockpile of incoming materials became a problem, as did funding, and the program was cancelled in 2005. At this time, chipping services are provided by a few private companies, but of course they need to charge for that service and this has probably led to a return to onsite burning of brush for many residents.

There are currently no separate programs for collecting and processing food waste, but people are encouraged to include food waste in their backyard compost piles.

Wood waste is burned as hog fuel at SDS Lumber. While strictly speaking this is not defined as "recycling," it is still a beneficial use for this material.

Biodegradable agricultural wastes (i.e., crop residues and animal manures) are generally handled onsite at the farm or ranch where these are generated and thus contribute to soil health and fertility.

No centralized composting sites currently exist in Klickitat County, but a nearby facility (Dirt Huggers in The Dalles) has expressed interest in taking organic materials from Klickitat County.

The amounts of organic materials disposed in the waste stream have not been measured specifically for Klickitat County, but the results of two other studies can provide guidance for this. A recent study (Ecology 2010c) measured the amounts of organics and other materials that are in the waste stream statewide and for several regions. Klickitat County is included in the Central region for that study, which also includes Benton, Chelan, Douglas, Grant, Kittitas, Okanogan, and Yakima Counties. An older study (Yakima County 2003) also measured the materials in the disposed waste stream for the adjacent Yakima County. The results of these two studies are shown in Table 5-1.

Table 5.1
Estimated Amounts of Disposed Organics

	Statewide Amount (2009)	Yakima County (2003)
Yard Debris	8.8%	6.4%
Brush, Prunings	1.1%	0.5%
Food Waste	12.3%	12.9%
Wood Waste	10.0%	9.8%
Total Organics	32.2%	29.6%

Notes: All figures are percent by weight. Data is from the Washington Statewide Waste Characterization Study (Ecology 2010c) and the Yakima County Waste Composition Study (Yakima County 2003).

The wood waste amount shown in Table 5.1 includes a variety of types of wood, some of which can be composted, or used for hog fuel and for other applications, and some of which has little or no use (such as treated wood).

5.3 ISSUES AND OPTIONS FOR ORGANICS

This section deals with the issues and options for composting organics and other waste diversion methods.

5.3.1 Composting

In Klickitat County, yard and garden waste is estimated to account for seven to ten percent of the waste stream (see Table 5.1). Diverting this material to the extent practical is therefore an important component of any County waste reduction/recycling program.

Onsite Yard Debris Composting is considered a waste reduction strategy and therefore is covered in Section 3.4.3. As concluded in that section, onsite yard debris composting must be encouraged and reported to assist in reaching the County's 50% waste reduction and recycling goal.

Centralized Yard Debris Composting should be considered in comprehensive solid waste management plans. Centralized yard debris composting facilities could be operated privately or by local government. There has been no attempt to operate a central composting facility in the County, but centralized waste composting in localized population centers could significantly augment recycling rates in the County.

Small community based drop-off composting facilities could be operated seasonally (from spring through fall) to minimize costs and achieve a significant amount of yard debris diversion. To some extent this is happening with community garden projects, like the ones at some of the schools, at the Goldendale park and recreation district, and sites sponsored by religious organizations which are collecting moderate amounts of raw materials to generate small quantities of compost.

Central yard debris composting sites could be co-located with the wood waste chipping programs discussed in Section 5.3.2. The sites would need to be monitored closely to ensure that materials are not commingled.

Central composting sites could be part of a collection program, such as collecting yard debris through drop boxes placed at locations where they can be monitored and a tipping fee collected. A centralized compost operation has been established in The Dalles, Oregon and it could collect material from Klickitat County by placing drop-off containers at the transfer stations.

Central yard debris and garden waste compost sites located within the County must be permitted by the Klickitat County Health Department and must be operated with care as there is a potential for health, safety and nuisance issues. Odors are typically the main cause for complaints for these sites. A compost facility may also present a fire hazard during the dry season and, during the wet season, water runoff may carry solids and nitrates with a negative impact on ground and surface waters. All of the above issues must be dealt with in the choice of a site and in its design. In addition, composting

equipment is expensive to purchase and operate. It would require a major financial commitment by the County to implement this option.

Large-Scale Yard Debris Composting is being evaluated by Republic Services for the feasibility of a composting operation at their site in Roosevelt. The customer base for this operation could be served by long haul (rail), and so could include communities in the Puget Sound and other areas served by Republic Services. The remoteness of the site would reduce the possibility for complaints about nuisance odors and the large scale of the operation would provide justification for the investment in equipment.

If Republic Services establishes a composting service it may be possible for Klickitat County to implement a collection program for yard and garden waste. Under this scenario, source-separated brush, tree limbs, leaves, lawn clippings and other green waste could be accepted at the transfer stations and drop box facilities at reduced rates or at no charge for County residents. The material would be transported to the Roosevelt landfill for processing and the finished compost could be made available to local residents. The total cost to the residents of Klickitat County for this collection program would be significantly lower than if the County were to provide the entire service.

MSW Composting is a method that biodegrades the organic fraction of the waste stream and produces a soil-like inert end product that may be used as a low-grade soil amendment or ground cover. Various technologies are used to compost MSW, but they all require volumes of waste greater than the amounts produced in Klickitat County.

Non-agricultural food wastes are estimated to comprise over 12% of Klickitat County's waste stream (see Table 5.1). These wastes can be composted or used as animal feed. A facility dedicated to food waste composting would not be economical for Klickitat County because of the relatively low volume of food wastes generated locally. In addition, reliable markets for food waste compost do not yet exist. The County can instead encourage backyard composting or the use of vermiculture (which uses red worms to aid in the processing of the waste) for food waste.

5.3.2 Wood Waste Chipping

A less complicated alternative targets brush and tree limbs. A pilot program for chipping brush and tree limbs was implemented in 1995. A wood waste chipper was purchased by the County for use by the road crew for clearing trees from County road right of way. The chips were made available to the public at no charge whenever possible. Two private contractors with drum type chippers were also hired to process brush and tree limbs at collection events staged for the general public at three locations; Bingen, Dallesport and Goldendale. Brush and tree limbs were accepted at no charge on ten collection days. The finished chips were available at no charge to the public for use as mulch, as a carbon source for backyard compost piles, as animal bedding, arena bedding and for temporary mud hole patches for private drives. This approach did not require permitting through the health department because there was no green waste composting on the sites and the material was removed more or less as it is generated.

This program was popular but was cancelled in 2005 due to the cost of it and due to increasing problems with moving chipped materials off-site in a timely manner.

Overall, the wood waste chipping program was moderately successful but there were limitations to its effectiveness due to the following reasons:

- Many people do not have vehicles suitable for transportation of brush and tree limbs.
- The targeted material was limited to brush and tree limbs, which reduced the amount of material potentially handled by the program.
- There was a physical limit to the volume of material that could be hand fed into the brush chippers.
- The finished chips were difficult to load into vehicles by hand, which discouraged some potential users.

5.4 RECOMMENDATIONS FOR ORGANICS

The County could improve the recycling rate by increasing the diversion of organic materials in the following ways:

1. encourage onsite yard debris and food waste composting; and

2. re-establish the wood waste chipping program.

The following actions are recommended for these organics programs:

<u>Composting</u>

- Continue to promote and support onsite yard debris composting.
- Encourage onsite composting of food wastes through vermiculture and backyard composting.
- The cities, towns and Republic Services will assist the County in promoting backyard composting and, unless or until the wood waste chipping program is begun again, will also assist with promoting proper onsite handling of wood waste.
- Centralized yard debris composting sites should be investigated.
- Municipal solid waste composting is not recommended.
- Large-scale composting of yard and garden waste from in-County and imported sources should be considered as a possible addition to the Agreement between Klickitat County and Republic Services.
- Other proposals or opportunities that may arise in the future for diverting organics, such as for curbside collection, should be considered based on their relative merits such as cost-effectiveness and other factors.
- Placing containers for collecting yard debris and possibly other organics at locations where they can be monitored and a tipping fee can be collected, such as the transfer stations and possibly other locations, should be considered.

Wood Waste Chipping

- Renew the drop-off chipping site program, when local economic conditions permit it.
- Improve existing sites.
- Improve marketing of the end-products.

Table 5.2 shows the estimated costs of implementing the above recommendations.

Table 5.2
Annual County Program Costs for Organics

Recommendation	Republic	Grant	Other	Total County	Total
Onsite Composting (1)	10,000	19,000	4,000	23,000	$33,000
Drop-Off Sites for Organics (2)	NA			NA	
Wood Waste Chipping (3)	NA			NA	
TOTAL	$10,000	$19,000	$4,000	$23,000	$33,000

Notes: 1. Includes public outreach promotion and efforts to teach residents how to successfully compost organic waste at home or at the location where it is generated. This project may include distribution of compost bins or equipment, but not on an ongoing basis. Target materials include livestock manure, livestock bedding, yard debris, garden waste and food waste.
2. NA = Not Applicable. This option is being explored for future implementation and includes collection of organic waste in containers with the intent to deliver the containers to a centralized composting facility. The cost of this program could be as high as $150,000. The target materials could include brush, tree limbs, yard debris, garden waste and food waste. Option 3 would probably not be implemented if option 2 were implemented.
3. NA = Not Applicable. Wood waste chipping costs could be as high as $150,000, which is the estimated cost of restarting a program similar to the brush chipping program that was suspended in 2001. The target materials could include brush and tree limbs. Option 2 would probably not be implemented if option 3 were implemented.

The amounts for County and Grant contributions reflect the CPG Grant for 2012. The amounts for Republic Services are estimates by county staff in cooperation with Republic Services staff.

CHAPTER 6. SOLID WASTE COLLECTION

6.1 INTRODUCTION

This chapter examines the current solid waste collection services in Klickitat County, identifies potential problems in meeting present and future needs, evaluates alternatives, and recommends policies and activities that are consistent with other portions of this Plan. Solid waste collection refers to those activities of contracted and franchised (certificated) haulers who collect solid waste from residences, businesses, and institutions.

6.2 INVENTORY OF EXISTING PRACTICES

6.2.1 Legal Authorities

Legal authority for solid waste collection in Washington State is shared among a number of entities, including the Washington Utilities and Transportation Commission (WUTC), counties, cities and towns.

Washington Utilities and Transportation Commission (WUTC)

Chapter 81.77 RCW gives the WUTC a role in certifying and regulating garbage and refuse collection in counties. The provisions of chapter 81.77 RCW exempt certain garbage and refuse collection activities. The law excludes from WUTC regulation the operation of any garbage or refuse collection companies under contract to a city or town for the collection of garbage. It also excludes from regulation any city or town that itself undertakes the collection of garbage.

Certificates for solid waste collection (sometimes referred to as franchises) are issued by the WUTC. These certificates have market value and may be purchased from existing certificate holders. Certificates exist in perpetuity for the areas to which they apply. If a collector fails to adequately serve its certificated areas, however, a potential competitor may petition the WUTC to serve that area. Certificates are also issued for collection of different types of waste and may overlap certificated areas for collection of mixed municipal solid waste.

Counties

Counties are restricted from operating solid waste collection systems except as authorized by chapter 36.58A RCW. This chapter authorizes counties, under certain conditions, to establish solid waste collection districts in unincorporated areas within county boundaries for the mandatory collection of solid waste. Following the adoption of a comprehensive solid waste management plan pursuant to chapter 70.95 RCW, a county may adopt regulations and ordinances governing the storage, collection, transportation, treatment, utilization, and processing of solid waste.

Cities and Towns

Under state law, cities and towns have the following options for managing solid waste collection. None of these options eliminates the right of citizens to haul their own waste, although citizens may be required to participate in a collection system and share the financial burden.

- Cities and towns have the option to enter into contracts with private haulers for the collection of residential and commercial waste. The contract hauler does not need to hold a WUTC certificate for that area. Usually the contracts are awarded on a competitive basis to the lowest bidder.

- Cities have the option of issuing licenses for the collection of solid waste. In a licensed collection system, WUTC certificates are augmented by city licenses that provide cities and towns additional regulatory control over collections and revenues through fees.

- Municipalities may operate their own solid waste collection system.

In addition, a city or town may require mandatory collection. Under mandatory collection, a city or town may require that all residents and businesses subscribe to designated refuse collection services.

6.2.2 Collection Systems in Klickitat County

Types of Systems

Solid waste collection services are provided throughout the County by municipalities and private certificated (franchised) haulers. Each of these collection methods is described below:

- Municipal Collection: Collection operations involve city employees and equipment under the supervision and direction of a regular municipal department or official. The distinguishing feature of a municipal collection system is that the City pays the employees and the operation is set up under an appropriate municipal department.

- Certificated (Franchised) Collection: Certificated (franchised) collectors may operate under a city license or WUTC certificate. In these systems, the collection and billing arrangements are usually made between the owner of the premises and the collector. The charges for the collection service are, in some cases, fixed by ordinance, but usually the collectors are subject to rates set forth in the WUTC certificate.

Collection Services Offered

City of White Salmon

100 W, Main St., P.O. Box 2139, White Salmon, WA, 98672, 509-493-1133

The City of White Salmon Code Book includes a chapter on Garbage Collection and Disposal. Chapter 8.08 of the Municipal Code establishes a mandatory collection system. "Every owner or occupant of premises within the city, with the exception of those exempted by permit as set forth in Section 8.08.040 of this Chapter, shall use the garbage collection and disposal system provided by the city…"

Collection service is currently provided to 886 commercial and residential customers. The City operates two Peterbilt collection trucks and uses a pickup for cart delivery. Residential customers are served once per week. More frequent pickups are available for commercial customers, depending upon the number of containers and the type and amount of solid wastes generated. The collected wastes are dropped off at the Dallesport Transfer Station.

Republic Services (G-Certificate #G-12, as issued to Rabanco Ltd,, dba Allied Waste Services of Klickitat County)

925 Fairgrounds Road, Goldendale, WA 98620, 509-773-5825

Republic Services has a certificate (franchise) for all of Klickitat County except for the area served by Bingen Garbage Service. The only incorporated area served by Republic Services is Goldendale, but Republic Services does not currently hold a contract with the City of Goldendale.

Republic Services serves approximately 3,813 residential and 643 commercial customers. The company operates five rear load compaction trucks and two roll-off collection trucks. Local businesses use 1½ to 3 cubic yard dumpsters, which are collected on a regular schedule. Large drop boxes, in sizes such as 20, 40, and 50 cubic yards, are used for large businesses and special projects as needed. The collected wastes are dropped off at the Dallesport or Goldendale Transfer Stations or are brought to the landfill, depending on the location of the route.

Bingen Garbage Service (G-Certificate #51, as issued to William D. Hearn dba Bingen Garbage Service)

240 Loop Road, White Salmon, WA, 98672, 509-493-3930

Bingen Garbage Service currently serves 346 residential customers, 75 commercial, and 6 other garbage customers. Within Klickitat County, Bingen Garbage Service's service area consists of the City of Bingen, the towns of Lyle, Murdock, Dallesport, and a 22 square mile area surrounding Dallesport (portions of Township 2, Ranges 13 and 14) and as needed within the city limits of White Salmon.. A 56 square mile area of Skamania County, which includes the communities of Willard, Underwood and Cook, are also served. Bingen Garbage Service does not hold a contract for

collection with the City of Bingen, but services are provided there under the terms of the WUTC certificate.

The collected wastes are dropped off at the Wasco County Landfill.

The boundaries of the collection areas in Klickitat County for each hauler are shown in Figure 6.1.

Washington State Department of Transportation Collection

In addition to the regular year-round collection services mentioned above, the Washington State Department of Transportation (WSDOT) collects refuse from one rest area and from WSDOT litter crews in the summer months. WSDOT collects waste material from the Chamberlain Lake rest area from May through November on an as-needed basis using a pickup truck. It also collects the full litterbags that are left on the side of the highway by Ecology litter collection operations. In addition, the juvenile crew has adopted a stretch of Hwy 197 near Dallesport and WSDOT picks up the bags they leave along the highway. All waste collected by WSDOT in Klickitat County is disposed of at the transfer stations.

Klickitat County Road Department Collection

The Klickitat County Road Department uses the services available through the Juvenile Probation Department to pick up litter along county roads and hauls the bags to the transfer stations. The filled bags are collected by the Road Department and disposed at the transfer stations.

Volunteer Collection Events

The County supports local volunteer groups wanting to perform one-time only litter collection events. The volunteers usually haul their own bags to the transfer stations where the tipping fee is waived for that specific event. On other occasions, Republic Services donates a roll-off container and waives the tipping fee for a volunteer cleanup on public access land. This type of event usually include disposal of debris which will not fit in a bag.

6.2.3 Collection Containers

County residential customers use 30-32 gallon galvanized-iron or plastic containers as the main storage receptacles for solid wastes.

Many of the commercial and industrial customers in the County use containers furnished by either the municipal or franchised operator serving their area. This is usually done in order to ensure that the containers are compatible with the operator's collection system. Typically, bulk containers are of two types. Dumpsters are smaller containers, usually one to three cubic yards in capacity, that are used by commercial and smaller industrial

Figure 6.1
Solid Waste Collection Areas

customers. Larger containers or drop boxes, with a capacity over five cubic yards, are used by larger industrial customers.

6.3 SOLID WASTE COLLECTION GOALS AND OBJECTIVES

Because of the rural nature and low population density of Klickitat County, only about half (51%) of the county's households subscribe to garbage collection services. A higher percentage of non-residential entities are estimated to subscribe to garbage collection but this has not been confirmed. Many rural residents haul their own solid waste to the transfer stations. Given the high level of self-hauling, the potential exists for health hazards resulting from illegal garbage disposal in rural areas and significantly contributes to roadside litter from unsecured loads. Therefore, rural residents need to be encouraged to use regular garbage service when practical.

Currently all three service-providers (the City of White Salmon, Bingen Collection Service, and Republic Services) anticipate being able to serve their current customers and expected growth over the next six years without adding anything but replacement vehicles.

Objectives for solid waste collection are as follows:

- Continue the collection services presently in place.
- Reduce illegal dumping.
- Increase the number of customers using the collection services.
- Decrease the quantity of waste collected per service.
- Ensure collection services are available to all in the County.
- Provide information and education to the public about collection opportunities, do's and don'ts.
- Keep collection costs at a reasonable level.

6.4 RECOMMENDATIONS FOR SOLID WASTE COLLECTION

The present solid waste collection system is functioning at a satisfactory level. Solid waste collection complaints are at a minimum while collection costs are reasonable. Solid waste collection recommendations are as follows:

- The County should encourage the use of collection services when possible.
- The County should not implement mandatory collection.
- The County should develop and implement education efforts toward collection of solid waste.
- Service-providers should provide information to new customers, and to existing customers at least annually, that describes the available waste collection and recycling services as well as other information as required by Chapter 480-70-361 WAC.

- The County should maintain and make available a list of residential and commercial service-providers.
- The Klickitat County Health Department should continue to enforce solid waste regulations and laws to encourage the collection and proper disposal of solid waste in the County.
- All cities should continue to enforce compliance of city codes for garbage collection and disposal.
- The County should maintain the concepts and arrangements in the Agreement between Republic Services and Klickitat County to maintain free disposal of solid waste.

CHAPTER 7. TRANSFER FACILITIES

7.1 INTRODUCTION

Dropbox facilities and/or transfer stations are typically used to enhance operation of solid waste management systems in urban areas where large amounts of solid waste need to be transported for disposal. Such operations save energy, time, and money. In rural areas such as Klickitat County, where residents may have to travel long distances to a disposal site, small transfer stations, usually consisting of dropboxes, can make disposal and/or recycling more convenient and can help reduce the incidence of illegal dumping.

7.2 INVENTORY OF EXISTING CONDITIONS

Klickitat County contracted with Rabanco (now Republic Services) in 1989 to provide transfer station services. There are four operating transfer stations. They are located at BZ Corners, Dallesport, Goldendale, and at Roosevelt Regional Landfill. Waste is collected by private collectors, City of White Salmon, and individuals, and hauled to the transfer stations. Waste is collected at the transfer stations and then hauled in containers by truck to Roosevelt Regional Landfill. Location and operating hours of the transfer stations are as follows:

- BZ Corners Dropbox
  5 Fir Tree Road
  Husum, WA 98623
  Tue – Sat, 9 AM – 5 PM

- Dallesport Transfer Station
  126 Tidyman Road
  Dallesport, WA 98617
  Tues – Sat, 9 AM – 5 PM
  April – October, open Monday

- Goldendale Transfer Station
  1205 W. Broadway
  Goldendale, WA 98620
  Tue – Sat, 9 AM – 5 PM

- Roosevelt Dropbox
  500 Roosevelt Grade Road
  Roosevelt, WA 99356
  Mon – Sat, 7 AM to 3 PM

All four transfer stations have facilities to receive:

Garbage
Recyclable (commingled) materials
Glass
White goods
Scrap metal
Household hazardous waste
Used oil

The Dallesport and Goldendale transfer facilities are full-scale transfer stations. Access is controlled by a 6-foot chain link fence. Buildings are open only to the east for protection from prevailing west winds. The tipping floor is elevated to allow direct dumping into containers. Recycle bins accept commingled paper, plastic and beverage/food containers. Commingled ferrous and scrap metal is collected separately. Color-segregated recycling containers are provided for clear, brown and green glass. White goods are accepted and processed for recycling at both sites. Facilities for collection of small quantities of household hazardous waste are also provided. The Goldendale transfer facility also receives e-waste, defined as TVs, computers CPUs, computer monitors, laptop computers and e-reader devices.

The BZ Corner Dropbox facility is fenced. White goods are collected in the operation yard, and the site has separate containers for other recycled materials. The dropbox facility located at the Roosevelt Regional Landfill is a minimal facility but includes recycling opportunities. White goods are accepted and hauled to other transfer stations for recycling. There is no charge for the use of the Roosevelt dropbox facility.

The amounts of waste and recyclable materials collected at each of the transfer facilities in 2010 are shown in the following table.

Table 7.1
Tons of Wastes and Recyclables Handled by Klickitat County Transfer Facilities, 2010

	Solid Waste, Tons	Recyclables, Tons	Total Tons
BZ Corners Dropbox	521[1]	236	757
Dallesport Transfer Station	11,113	450	11,563
Goldendale Transfer Station	5,972	550	6,522
Roosevelt Dropbox	NA	NA	NA
Totals Tons	17,606	1,236	18,842

Notes: 1. The amount of waste handled at BZ Corners was converted from 13,894 cubic yards using an estimated density figure of 75 pounds per cubic yard.
Source: Data is from annual reports submitted by Republic Services to Ecology.

The charges for the use of the transfer stations and dropbox facilities are currently (as of mid-2011) $5.00 per cubic yard for garbage from county residents. There is no charge for the use of the Roosevelt dropbox facility, or for dropping off recyclables, including appliances from residential customers and scrap metals, nor is there a charge for residential household hazardous waste or five gallons or less of residential waste oil, at any of the transfer facilities. The charges are subject to change.

Republic Services operates an intermodal facility at Roosevelt that transfers waste filled containers imported from locations outside of Klickitat County from rail cars to trucks. The waste is then hauled by truck from the Roosevelt Intermodal Facility approximately five miles north to Roosevelt Regional Landfill. Empty containers are then returned by truck to the intermodal facility and reloaded onto railcars.

7.3 TRANSFER FACILITIES GOALS AND OBJECTIVES

Transfer facilities are often essential elements in regionalizing solid waste management systems. Their technical feasibility and performance are well documented, as is their ability to provide lower-cost waste disposal. Large transfer stations are, however, subject to siting, environmental review, and permitting requirements and to the public opposition typical of other solid waste facilities.

For environmental reasons, the County has determined that landfill capacity should be located in the arid portion of the County. Thus, under all the disposal options considered in this 2012 Plan Update, the haul distance justifies transfer facilities to serve the County. These transfer facilities could also serve as drop-off recycling stations for those citizens not receiving collection service. As the County continues to grow there may be a need for additional transfer stations. The objective is to maintain a reasonable level of service.

The Roosevelt Intermodal Facility is a necessary element to the importation of garbage. It is permitted and contracted for as part of the Republic Services Agreement with Klickitat County. It is the objective of this 2012 Plan Update to reaffirm the direction to encourage the importation of solid waste.

Rail transportation has been developed to facilitate the importation of waste from other communities to the Roosevelt Regional Landfill. Barge transportation on the Columbia River could also be developed to serve Roosevelt Regional Landfill. These transport options require intermodal transfer facilities. Haul routes from loading docks or rail terminals need to be monitored and evaluated for adequate operation. As additional sources are added to the existing waste stream, additional provisions to prevent solid waste from being spilled or windblown into the river or along rail lines and sidings may also need to be developed.

7.4 RECOMMENDATIONS FOR TRANSFER FACILITIES

Transfer facilities are a necessary part of all solid waste management programs where distance is a factor. Klickitat County implemented the principle of one landfill in the County many years ago, leading to the need for transfer stations to accommodate in-County waste. Importation of waste from outside of the County by rail or barge dictates the need for an intermodal facility.

Recommendations for transfer facilities are as follows:

Transfer Stations

- Monitor growth of geographic areas and scope of activity performed at transfer stations to allow time for construction of new transfer stations or expansion of existing facilities as warranted.

Rail Intermodal facility

- Continue to monitor the existing operation for compliance with the Agreement between Klickitat County and Republic Services.
- Monitor growth and consider additions to intermodal facilities to facilitate growth in imported waste quantities.

Barge Intermodal Facility

- Continue to monitor the potential need for a barge intermodal facility.

CHAPTER 8. WASTE IMPORT AND EXPORT

8.1 INTRODUCTION

Waste import or waste export generally refers to transporting waste across county or state borders. A transfer system is required to move wastes long distances for either import or export purposes. Transportation systems can use truck trailers, trains or barges depending on the economics and availability of these methods. In some cases, waste is transferred multiple times before its ultimate disposal.

8.2 INVENTORY OF HISTORIC AND EXISTING PRACTICES

8.2.1 Imported Waste

Wastes have been imported into Klickitat County from other locations since at least the early 1970's. The operations of Horsethief Landfill depended on revenues produced from imported waste.

In 1990, the Roosevelt Regional Landfill opened under an Agreement with the County. The plan from the outset was to dispose of in-County waste and to import waste from other areas. The operation of the regional landfill produces jobs in a distressed location, provides direct revenue to the County, and creates a stable tax base.

Waste quantities received at the Roosevelt Regional Landfill are shown in Table 8.1. The figures for "other wastes" include ash, contaminated soils and dredge spoils.

8.2.2 Exported Waste

Certain special wastes (such as septage sludges) are currently exported from the County. These wastes are discussed in Section 2.3.4. Export of Klickitat County municipal solid waste (MSW) is not considered in this 2012 Plan Update.

8.3 WASTE IMPORT/EXPORT GOALS AND OBJECTIVES

The County Agreement with Republic Services obligates the County to the importation of waste until 2032. The Agreement has a clause that allows up to three extensions (of five years each), which could extend the Agreement to 2047. The County's goal is to maintain and expand the present flow of waste to the permitted site in conformance with the Agreement and permits.

The present Agreement has an annual limit of 5,000,000 tons and other restrictions. Options range from no change, to reducing the annual limit, to increasing the limit to a

Table 8.1
Waste Tonnages Received at Roosevelt Regional Landfill (2010)

County or State	MSW	Other Wastes	Totals
Washington State:			
Adams	17,277	291	17,568
Benton		477	477
Clark	20	38,192	38,212
Clallam	34,202	12	34,214
Cowlitz	11,447	3,185	14,632
Ferry	2,387		2,387
Franklin		1,302	1,302
Grays Harbor	50,640	149	50,789
Island	44,858	618	45,476
Jefferson	18,105	164	18,270
King		507,776	507,776
Kitsap		4,676	4,676
Klickitat	19,275	4,450	23,725
Lewis	62,834	11,071	73,905
Lincoln	2,400		2,400
Mason	29,678	77	29,755
Olympia		591	591
Pend Oreille	7,751		7,751
Pierce	177	40,001	40,178
San Juan		629	629
Skagit	90,067	41,222	131,289
Snohomish	403,557	75,514	479,071
Spokane	38,690	108,215	146,905
Thurston	159,954	3,150	163,104
Walla Walla		19	19
Whatcom	55,248	12,531	67,779
Yakima	80	4,912	4,992
Washington Total	**1,048,650**	**859,221**	**1,907,871**
Out-of-State:			
Alaska Total	21,274	10,109	31,383
Idaho Total		37	37
Oregon Total	34,174	3,777	37,951
Canada Total	140,774	30,011	170,785
Grand Total	**1,245,412**	**902,616**	**2,148,028**

Note: All figures are annual tons.
MSW = Municipal Solid Wastes.
"Other Wastes" include ash, contaminated soils and dredge spoils.

larger quantity. If a larger quantity is chosen, environmental concerns need to be addressed in a manner similar to the 2000 Plan.

Klickitat County's location lends itself to the importation of solid waste from regional population centers. It is served by transportation corridors including SR 14 and SR 97 (major secondary corridors), the Burlington Northern Santa Fe Railway, and the Columbia River. These corridors connect the County to eastern population centers such as the Tri-City area and Spokane, as well as to areas west of the mountains.

Long-distance transportation systems may raise concerns about impacts to areas that lie on or adjacent to the routes being used to move waste. In Klickitat County, two conditions have been placed on the Roosevelt Regional Landfill's conditional land use permit (CUP) in response to concerns expressed about transportation impacts. The current CUP for the Roosevelt Regional Landfill (Klickitat County 2006) restricts truck traffic through the Yakama Nation Reservation and through the Columbia River Gorge National Scenic Area.

The County has the option to develop disposal facilities for the wastes that are presently exported; however the quantities of those types of wastes are so small that local disposal operations are not feasible.

8.4 RECOMMENDATIONS FOR WASTE IMPORT/EXPORT

Waste import and export are necessary elements of regionalization for solid waste disposal. Waste import and export recommendations are as follows:

Waste Import

- Continue importing waste.
- Monitor compliance with the Agreement between the County and Republic Services.
- Agreements with exporters to a regional landfill in Klickitat County must include provisions that the exporters must have approved solid waste management plans that address exporting and include recycling and waste reduction prior to export. County and Ecology approved moderate risk waste management plans must also be included.
- The Yakama Nation's and the Gorge Commission's preferences regarding trucking of wastes should be honored where the location of the exporting jurisdiction allows reasonable alternatives. These preferences should be implemented through conditions on permits issued with regard to this Plan.

Waste Export

- Continue exportation of specific waste streams when no local disposal facilities exist.

CHAPTER 9. DISPOSAL

9.1 INTRODUCTION

This chapter reviews disposal activities in Klickitat County, including landfilling as well as "waste to energy." Waste to energy is included in this chapter because it can be viewed as a disposal method for solid waste, but also because the primary current activity for waste to energy in Klickitat County is the combustion of landfill gas to produce electricity.

Waste to energy often refers to the incineration of municipal solid waste. It is generally applicable where a community has very limited areas for future landfill capacity or where solid waste must be shipped very long distances for disposal. Solid waste incineration, either with or without recovery of energy, has been poorly received by the public. In Klickitat County and other areas, waste to energy has also come to mean the use of landfill gas to power electric generators, an activity which is generally well-received by the public and others.

Since 1977, the County has pursued regionalization of disposal facilities in order to reduce tipping fees and rates for local citizens. For example, the County received waste from Skamania County during the 1970's and contracted in the 1980's with Environmental Waste Systems Inc. for importation of waste to Horsethief Landfill from Clark County. The County contracted in 1989 with Rabanco (now Republic Services) to import waste in significantly larger quantities.

9.2 INVENTORY OF EXISTING PRACTICES FOR DISPOSAL

The following discussions describe current disposal practices in Klickitat County. Municipal solid waste (MSW) is predominantly household and commercial refuse. The County operates no landfills but has responsibility for one closed landfill, Horsethief Landfill, which stopped receiving waste in 1994. A private landfill was developed by Rabanco Regional Landfill Company three miles north of Roosevelt. The landfill has been constructed to non-arid region design standards and is sized to accept up to 5 million tons per year of solid waste.

9.2.1 Horsethief Landfill

Horsethief Landfill is located in the south central part of Klickitat County and was the last County-owned landfill. Horsethief Landfill operated until 1994. It was closed because of the Columbia River Gorge National Scenic Area's determination that it was not a compatible land use. The landfill was also operating under a variance from Ecology.

9.2.2 Roosevelt Regional Landfill

Roosevelt Regional Landfill was developed in response to Klickitat County's Request for Proposals (RFP) and began operations on November 1, 1990. There are 162 million tons of remaining permitted capacity. The site contains more than 2,000 acres in which additional capacity probably can be permitted. No increase in capacity can be considered until an environmental review is completed.

The site receives waste from Klickitat County and waste from most other counties in Washington. Waste is also received from sources outside of Washington (see Table 8.1 for more details about the sources of wastes received at the Roosevelt Regional Landfill). As part of the Agreement, waste from Klickitat County is accepted at no charge at this landfill (except that fees can be charged for construction and demolition wastes, special wastes, and wastes in excess of 1,000 tons per year from businesses established after August 7, 1995). This arrangement saved the residents and businesses in Klickitat County approximately $465,000 in disposal fees in 2010.

A municipal solid waste incinerator ash monofill was constructed on the same property as the municipal solid waste landfill. It is located northeast of the MSW landfill. Ash is imported from incinerators in Washington.

9.2.3 Other Landfills

There are no other permitted solid waste landfills in Klickitat County. There are numerous old landfills that have not been utilized for several years.

9.2.4 Waste to Energy

Incinerators are used by several of the local wood products processors to recover the energy value of solid (wood) waste. Typically, tree bark and other scrap wood waste products are fed into industrial hog fuel boilers where the wood wastes are incinerated and steam is produced. The steam is then used to produce on-site electricity, operate steam-driven machinery or heat the facility.

The Klickitat County Road Department and several private companies that operate heavy equipment burn used oil for heat. The County Road Department's wash rack near Goldendale burns used oil to heat wash water.

There are no facilities that incinerate other solid wastes for energy in the County, but there are facilities that use landfill gas to generate electricity.

The Klickitat County Public Utility District No. 1 (PUD) constructed and manages landfill gas fired engines adjacent to the Roosevelt Regional Landfill. The H.W. Hill Landfill Gas Project was initially designed with four Waukesha gas engines converted to run on methane. The initial capacity was 8.4 MW. A fifth engine was added at the end of the first year of operation, boosting capacity to 10.5 megawatts.

Phase II of the Landfill Gas Project includes two 10 MW combustion turbines with an additional capacity of approximately 6 MW through a heat recovery steam generator and steam turbine. The expected capacity from this expansion is approximately 26 MW. Additional capacity will be added in the future as the volume of solid waste in the landfill increases and thus the amount of landfill gas increases.

9.3 DISPOSAL GOALS AND OBJECTIVES

9.3.1 Horsethief Landfill

Horsethief Landfill was closed in 1994 in compliance with regulations. WAC 173-304-407 requires post-closure monitoring for twenty years and WAC 173-351-500 requires post-closure care to be conducted for thirty years. The primary expense to the County at this point in time is the quarterly water monitoring costs. Recent and projected water monitoring costs for the Horsethief Landfill are shown in Table 9.1. The objectives are to comply with regulations and to maintain a safe environment, and to monitor Horsethief Landfill at a frequency necessary to confirm compliance. The goal is to reduce the cost of maintaining the site and eliminate testing as soon as results confirm stability.

TABLE 9.1
HORSETHIEF LANDFILL POST CLOSURE COSTS

Years Since Closure	Year	Quarterly Water Monitoring Costs
11	2005	$8,985
12	2006	$8,985
13	2007	$12,170
14	2008	$9,950
15	2009	$10,084
16	2010	$9,950
17	2011	$9,950
18	2012	$5,840
19	2013	$5,840
20	2014	$5,840

Source: Klickitat County Solid Waste Department.

9.3.2 Landfilling of In-County Waste

The Nineteenth Annual Status Report on Solid Waste in Washington State reports 162 million tons capacity remains at Roosevelt Regional Landfill. The landfill was created to handle Klickitat County's waste and to encourage importation of other waste to generate

jobs and revenue. The landfilling of in-County waste is a higher priority than importation. Operating a landfill the size of Roosevelt Regional Landfill for only Klickitat County waste is not feasible. There are more than thirty years of remaining capacity at the permitted rate of 5 million tons per year.

Options available to the County are: continue to use the Roosevelt Regional Landfill, establish a new site for in-County waste, or to contract for landfilling outside of the County. The objective is to provide environmentally sound disposal of in-County waste at reasonable rates. The goal is to provide disposal for at least 30 years. Monitoring of capacity and disposal rates should continue to allow adequate time for new capacity to be developed if necessary.

9.3.3 Roosevelt Regional Landfill

The object of the RFP that made Roosevelt Regional Landfill possible was to provide a safe disposal site in Klickitat County for the waste generated in-County, and to produce a stable work environment through importation of waste in quantities that also produce a continual income to County government. The existing Agreement between the County and Republic Services, which was amended in 2011, commits both to continued operation through 2032 with three, five-year extensions allowable.

The Agreement can be renegotiated as both parties agree. Significant changes would be subject to environmental review. The County could choose not to dispose of waste at Roosevelt Regional Landfill; however, disposal costs would increase from the present free disposal.

The Agreement requires access to be granted to the County for inspection purposes. The County presently has one inspector working at the landfill 40 hours per week. The public was assured during public hearings that adequate inspectors would be provided by the County. The specific objective was to insure compliance with the Agreement. The options include either increasing or decreasing the amount of onsite County inspector time.

The County actively participated in developing a market to make the results of their RFP successful. The objective was to have adequate importation quantities to maintain the success of the project. The options range from providing no more assistance to economic development to aggressively pursuing selected markets.

The Agreement requires all waste to be subjected to recycling and removal of hazardous waste before it can be accepted at Roosevelt Regional Landfill. All generating locations must have an approved Solid Waste Management Plan or equivalent. The County could be more aggressive in monitoring recycling and removal of hazardous waste from waste streams coming from out-of-County sources.

An objective of the Agreement was to minimize County risk while maximizing benefit. Risks and benefits are not necessarily constant and can change as rules, regulations,

laws and financial conditions change. The County's goal is to continue operation of the Roosevelt Regional Landfill in compliance with regulations and the Agreement, and progressively keep risk low while maximizing benefits.

9.3.4 Waste to Energy

Municipal solid waste incineration, with or without energy recovery, is not a reasonable alternative for a rural, arid county such as Klickitat with adequate and inexpensive landfill disposal alternatives. Given the current design criteria for incineration, environmental controls and the low price of electricity, development of a small incinerator facility for Klickitat County is not practical or cost-effective. Tipping fees at existing incinerators generally exceed $100.00 per ton. The County's goal is to not incinerate MSW.

The largest potential source of waste fuel is the wood products industry. Businesses in the wood products industry use wood waste and byproducts to heat their facilities or to generate electricity. It is the objective of the County to continue to allow existing practices. The goal is to continue producing energy.

There may be additional areas that could burn used oil for heat. There is concern about air quality when used motor oil is burned. The County's objective is to provide alternatives to burning used motor oils. The goal is to reduce the amount of incinerated motor oil.

The remaining potential burnable wastes in the County are generated by residences and businesses and are contained in the current waste stream. Although incinerators are available in sizes that would match the County's waste stream quantities, the opportunity to do so for rural counties is typically not cost-effective. The objective is to keep the cost of waste handling to an acceptable level. The goal is to continue use of free disposal provided by the Agreement.

Landfill gas generation will increase and will be capable of generating additional electricity. Gas will be produced for many years. The objective is to use this gas for power generation instead of disposing of gas by burning it off in a flare. The goal is to use the gas for beneficial purposes.

9.4 DISPOSAL RECOMMENDATIONS

The following recommendations address needed activities at Horsethief Landfill, at Roosevelt Regional Landfill, and for other solid waste disposal activities.

<u>Horsethief Landfill</u>

- Maintain post-closure monitoring in conformance with rules and regulations.
- Maintain a dedicated fund for post-closure financing of required monitoring and site maintenance.
- Maintain the security fence to ensure structural integrity of the closure cap.

- Reduce monitoring when test results indicate stability has increased sufficiently.

Landfilling of In-County Waste

- Continue to dispose of waste at Roosevelt Regional Landfill.
- Monitor the solid waste industry trends that may require disposal at alternate sites.
- Monitor annual in-County waste classifications and quantities.

Roosevelt Regional Landfill

- Continue to dispose of in-County waste at Roosevelt Regional Landfill.
- Maintain a county inspector at the regional landfill.
- Monitor the need for an additional county inspector.
- Monitor compliance with the Agreement.
- Encourage importation from other locations up to 5 million tons per year.
- Mandate recycling at source locations.
- Continue to defer liability to the solid waste provider.
- Minimize County risk.
- Maximize County benefit.

Waste to Energy

Based on experience, small rural counties such as Klickitat, with available arid landfill disposal alternatives, cannot support the development of an incineration/resource recovery facility. Unlike the significant economic benefit derived from the development of a regional landfill facility, inclusion of the regional waste stream for an incinerator project would provide few economic benefits. Therefore, incineration or waste to energy facilities are not recommended for Klickitat County.

The highest priority for used motor oil is to recycle it. It is recommended to allow energy recovery from incineration of used motor oil as a second priority.

It is recommended to continue the use of landfill gas to produce electricity.

CHAPTER 10. ADMINISTRATION AND ENFORCEMENT

10.1 INTRODUCTION

The successful operation of any solid waste system requires coordination with the system's users. An established network for communication between the County, participating cities, franchised carriers, contractors, and users ensures that the needs of all customers are considered in any major decisions regarding the system. Communication among system users is enhanced by the Solid Waste Advisory Committee (SWAC) maintaining an active role in solid waste planning.

10.2 BACKGROUND AND EXISTING CONDITIONS

10.2.1 Disposal System Administration

The solid waste programs and disposal Agreement are administered by the Klickitat County Solid Waste Department. The Solid Waste Director reports to the Board of County Commissioners (the Board) on solid waste issues. The Solid Waste Department consists of the following personnel:

Solid Waste Director: Manages the Solid Waste Department, including budget, personnel, and programs.

Recycling Coordinator: Provides leadership and support for community, individual, government, and business efforts in waste reduction and recycling. Serves as a backup to the Solid Waste Technician and makes public presentations.

Solid Waste Technician: Works onsite at Roosevelt Regional Landfill to monitor operations of the landfill, and travels to waste generating locations to monitor the types of waste generated and recycle efforts.

Secretary (50% Solid Waste Department): Provides office support for the Solid Waste Department, including secretarial duties for SWAC.

10.2.2 Solid Waste Advisory Committee

Chapter 70.95 RCW requires that a permanent Solid Waste Advisory Committee (SWAC) be established for the County. The SWAC is defined as follows:

> Each county shall establish a local solid waste committee to assist in the development of programs and policies concerning solid waste handling and disposal and to review and comment upon proposed rules, policies, or ordinances prior to their adoption. The solid waste advisory committee shall consist of a minimum of nine (9) members appointed by the Board of

County Commissioners. Four (4) members shall be appointed by each Commissioner. If possible, the mix of the members shall represent a balance of interests including, but not limited to, citizens, public interest groups, business, the waste management industry, and local elected public officials.

The SWAC has met regularly to assist in the development of this plan.

10.2.3 Enforcement

Chapter 70.95 RCW assigns to the local health jurisdiction the major responsibility for ensuring that solid waste facilities are operated in a manner consistent with required standards. In Klickitat County, the jurisdictional health organization is the County Health Department. They are responsible for inspecting and issuing permits for solid waste facilities. Ecology reviews permits submitted by the Health Department and may elect to appeal permits to the Pollution Control Hearings Board.

Roosevelt Regional Landfill is a large regional landfill operating in the County under an Agreement between Republic Services and Klickitat County, and under permits issued by the County Health Department and Washington State Department of Ecology. The County Solid Waste Department, County Health Department and Ecology have cooperated in all aspects of observation and monitoring. Consultants have been hired by one or more of these agencies to provide additional expertise as needed.

10.2.4 Financing

During the life of Horsethief Landfill, administration and enforcement was limited due to inadequate funds. There was a continual effort to attract waste from out-of-county sources to help pay the cost of operation. During operation of Horsethief Landfill, the County had to supplement landfill revenues with general County funds. After operation of Roosevelt Regional Landfill began and Horsethief Landfill stopped receiving waste, the County was finally able to stop supporting solid waste activities.

The County set up a reserve account for closure and post-closure and officially closed Horsethief Landfill in 1994. The reserve account in the amount $45,000 remains in place, but there has been no activity in the account. It was intended to be drawn down through the year as needed for monitoring and maintenance and then at the beginning of each year it was to be restored to the original $45,000. It was intended that the replacement funds would come from the “Administrative Fee” generated from the Agreement between Republic Services and Klickitat County.

The Agreement generates revenues intended for the use of the County through the Administrative Fee and a “Quarterly Solid Waste Fee.” These funds are used as the Board of County Commissioners determines. In general, the Administrative Fee and Quarterly Solid Waste Fee are shown as revenue in various department budgets. These fees are based on a formula that depends on the amounts of waste disposed at the landfill each quarter.

The County Solid Waste Department operates with funds derived from the Agreement between Republic Services and the County and also uses funds derived from grants. Table 10.1 shows the Solid Waste Department revenues and expenditures. The County Health Department revenue is generated by permit fees and grants. The revenue for the County Planning Department is generated from permit fees and from the general County revenue.

10.3 ADMINISTRATION AND ENFORCEMENT GOALS AND OBJECTIVES

10.3.1 Disposal System Administration

The objective of this 2012 Plan Update is to provide a balanced administrative approach to waste reduction, waste recycling, and waste disposal. This 2012 Plan Update reaffirms the previous plans in that the County should continue under the Agreement. The intent was to provide all funding for solid waste disposal administration from funds derived from the Agreement and grants. Even though operation of a large regional landfill puts an increased demand on administration, the County has not needed to support solid waste administration from general County funds since implementation of the Agreement.

Operation of a privately-owned regional landfill requires the Solid Waste Director to provide an increased level of administration, inspection and oversight. Additional consultants are needed to observe liner installation and analyze some test results. One Solid Waste Technician is needed to assist with administration, inspection, waste reduction and recycling programs. One Solid Waste Technician is needed onsite at Roosevelt Regional Landfill. Staff support requires one person half time.

The County has the option to perform more or less inspections at Roosevelt Regional Landfill and generating municipalities; support fewer or a greater numbers of programs to enhance waste reduction and recycle efforts; or get out of the Agreement with Republic Services and let them function as any other business in the County.

10.3.2 Solid Waste Advisory Committee

The objective is to use the broad-based knowledge of the SWAC members and their knowledge of the communities to provide a balanced approach to management of solid waste in Klickitat County. Four SWAC members are appointed from each of the three County Commissioner Districts. The SWAC's by-laws are included as Appendix D.

The Solid Waste Advisory Committee (SWAC) has been an active participant in previous solid waste issues, including the updates of the Comprehensive Solid Waste Management Plan prepared in 1973, 1977, 1989, 1990, 1992 and 2000. They have presented ideas and content during the preparation of this 2012 Plan Update and reviewed drafts as they were prepared.

The number serving on the SWAC could be reduced to nine members or SWAC could remain in place with twelve members. Their work could consist of assisting with updates of the Solid Waste Management Plan and they could also have direct involvement in the implementation of elements of the plan, as they do now.

The SWAC could operate under increased responsibilities by adding other duties to their assignment. This option maintains the existing SWAC with twelve members. Their work would continue in the updates of the SWMP as needed. In addition, the SWAC would take an active role in implementing the plan. Their assistance could be in the form of developing presentations for schools or public groups, developing demonstration programs, running a booth at the County Fair, etc. This would require more frequent meetings.

The SWAC could take on additional involvement by breaking down tasks and assigning certain elements such as waste reduction, recycling, or moderate risk waste to different subcommittees. This would require subcommittee meetings in addition to the regular SWAC meetings.

10.3.3 Enforcement

The object of this 2012 Plan Update is to ensure that the solid waste system is administered and managed in accordance with solid waste laws and regulations. State law assigns major responsibility for administering solid waste handling laws and regulations to the local jurisdictional health department. Klickitat County Health Department's responsibilities include:

1. Issuing solid waste facility permits;
2. Granting of variances;
3. Handling complaints and public inquiries concerning compliance with solid waste laws and regulations;
4. Inspection of facilities to monitor compliance with rules, regulations, and permits;
5. Conducting groundwater monitoring and explosive gas monitoring to check compliance with the performance standards;
6. Reviewing and commenting upon Ecology guidance documents and Technical Information Memoranda; and
7. Pursuing cleanup of illegal dumps in the County.

Representatives of the Health Department have been involved in the preparation of this 2012 Plan Update. The Klickitat County Health Department will continue to work with the Solid Waste Department to implement regulations and to pursue cleanup of illegal dumps within the County. Existing staff can meet present and projected workload.

The Klickitat County Planning Department enforces provisions of any conditional use permit and other land use rules and regulations. An effort is underway to reduce duplication of efforts by each County department. The intent is to reduce the workload without reducing enforcement.

The existing staff level of the Solid Waste Department meets the present enforcement demands; however, if Roosevelt Regional Landfill increases its operation then additional staff and/or consultants may be needed.

10.3.4 Financing

The objective of the recent solid waste plans was to pay for all Solid Waste Department related matters directly from fees generated through the Agreement and from grants. The objective of this 2012 Plan Update remains unchanged.

The County does not handle waste and has no solid waste handling facilities. The County has the authority to create a Solid Waste District and has the authority to levy a tax on those within the district. There is no need for taxing or other funding methods because of the successful implementation of the Agreement.

The County Health Department has the authority to charge fees for permits and services. The Health Department has in place a fee schedule for permits they issue. The Health Department also receives revenue in the form of grants and direct transfer of funds from the County General Fund.

The Health Department could charge no fee for solid waste related matters and cover costs from funds received from the County. This method would reduce the funds available for other County projects. The Health Department could raise permit fees to a level where they are self-supporting. The Health Department could also continue a balanced approach of revenue from fees and County support.

10.4 RECOMMENDATIONS FOR ADMINISTRATION AND ENFORCEMENT

The following administration and enforcement activities are recommended:

Administration

The Solid Waste Department should continue to administer the Agreement with Republic Services. This responsibility includes preparation of contract amendments or re-authorizations for consideration by the Board. It also includes oversight of the contractor's performance of its obligations under the contract, including both those relating to the landfill itself (for example, construction and operation requirements) and those relating to fee payments and the Model Rural Recycling Program. The Solid Waste Department's oversight will ensure implementation of those solid waste projects assigned by contract to Republic Services.

This 2012 Plan Update recommends that the County retain the option to develop interlocal cooperative agreements with other jurisdictions for disposal of out-of-County solid waste.

Solid Waste Advisory Committee

This 2012 Plan Update recommends SWAC be maintained as an ongoing committee that will meet at least quarterly. The SWAC should be involved in implementing elements of this 2012 Plan Update. The SWAC should continue to act in an advisory capacity to the Board of County Commissioners.

Enforcement

This 2012 Plan Update recommends continued enforcement of health issues by the Klickitat County Health Department, land use issues by the Klickitat County Planning Department, and Agreement issues by the Klickitat County Solid Waste Department.

The County should move toward the closure and cleanup of illegal dumps and should enact ordinances that provide a clearer method to prosecute those who persist in littering or illegal dumping.

Financing

This 2012 Plan Update recommends that the County should continue under its contractual agreement with Republic Services. The Agreement includes an Administration Fee and a Quarterly Solid Waste Fee payable to the County. Specific fees are also assessed to support specified needs, including scholarships and County Tourism and Community Development.

Table 10.1 shows the costs of the County's solid waste program and expected revenues from grants, and fees paid by Republic Services. Should grants be reduced or discontinued, planned activities will also need to be reduced or discontinued. Should revenue produced through the Agreement with Republic Services be reduced or discontinued, then activities will also need to be curtailed.

Table 10.1
SOLID WASTE DEPARTMENT
REVENUES AND EXPENDITURES
(dollars)

Year	Revenues				Expenditures	Ending Balance
	Beginning Balance	Landfill Fees	Grants	Other Revenue		
2008 (actual)	51,498	197,938	123,989	40,346	317,841	95,930
2009 (actual)	95,930	333,908	51,025	31,463	363,375	148,951
2010 (actual)	148,951	320,000	49,104	11,527	352,628	176,954
2011 (budgeted)	177,301*	170,000	82,168	125,000	423,305	131,164

Note: The beginning balance for 2011 differs slightly from ending balance for 2010 due to an adjustment made for the actual balance.

CHAPTER 11. IMPLEMENTATION PLAN

11.1 INTRODUCTION

This chapter of the *Klickitat County Solid Waste Management Plan* (the 2012 Plan Update) provides information about the costs and schedule for implementing the recommendations made in this plan. Information is also provided on monitoring progress and maintaining the plan.

11.2 RECOMMENDED STRATEGIES

The recommendations made in previous chapters of the 2012 Plan Update are shown below for reference purposes, and later sections of this chapter discuss costs and implementation responsibilities for these recommendations. More details about specific recommendations can be found in the respective chapters.

Waste Reduction

The waste reduction recommendations are as follows:

Education and Public Awareness

- The primary efforts of the County will be to promote existing programs, facilities and other opportunities for waste reduction, including programs that reduce the volume and/or toxicity of hazardous wastes.
- The cities, towns and Republic Services will assist the County by, at a minimum, including waste reduction messages in information provided to their residents or customers at least annually.
- Distribution of waste reduction brochures will be conducted contingent on the availability of funds and other resources.
- An office waste minimization program will be implemented, or existing efforts by government and private entities will be promoted, contingent on the availability of funds and other resources.
- Businesses will be encouraged, through brochures or waste consultations (conducted by Republic Services upon request from the business), to consider evaluating their processes and policies that affect waste generation.
- Wherever possible, waste reduction education efforts will be combined with education and public awareness efforts for recycling.
- The Model Recycling Plan should be fully implemented, including speakers, brochures, and radio ads.
- Grants and state-sponsored education programs should also be pursued.
- The County recycling coordinator will work with the designated staff of the landfill contractor to develop and implement complementary waste reduction education and public awareness activities of the county and the landfill contractor.

Backyard Composting

- County staff will conduct workshops on yard debris and food waste composting. Backyard composting of yard debris and food scraps will be promoted by the County, with assistance from the cities, towns, and Republic Services as appropriate.
- The County recycling coordinator will work with the designated staff of the landfill contractor to develop and implement complementary composting education and public awareness activities of the County and the landfill contractor.

Government Programs

- Government waste reduction activities will be encouraged and promoted.

Incentive/Disincentive Based Programs

- Klickitat County will support state policies and legislation that provide incentives through tax credits, variable collection rates, and product labeling.
- Disincentives and mandatory measures (such as disposal bans) will be used as a last resort effort to increase waste reduction.

Waste Exchanges

- Waste exchange information will be made available to businesses.
- Re-use organizations and programs will be promoted.

Program Evaluation

- The effectiveness of waste reduction programs and activities will be reviewed annually.
- Waste reduction efforts will be modified as necessary on an on-going basis.

Waste reduction program costs are paid by grants and from funds generated through the Agreement with Republic Services.

Recycling

The following recycling actions are recommended:

Collection of Residential Recyclable Materials

- Continue the curbside recycling program.
- Maintain a list of materials to be targeted for curbside recycling.

- Collect metals, glass, white goods, and other specified materials separately at the transfer stations.
- Maintain commingled status for other targeted recyclables.
- Increase participation in the curbside recycling program.

Buy-Back Centers

- Continue to encourage community groups to collect recyclables as a fundraising activity (see also Community Group Recycling, below).

Drop-Off Centers

- Increase drop-off locations.
- Investigate possible community group involvement for selected drop-off sites.

Community Group Recycling

- Encourage cooperation with buy-back centers.
- Continue and expand support for community cleanup events.

Small Recycling Collectors

- Encourage environmentally and neighborhood friendly recycling.
- Consider impacts on recycling before passage of nuisance ordinances.

Business and Government Facility Recycling

- Include business and government facilities in the Model Rural Recycling Program Plan.
- Establish list of targeted materials.
- Provide collection of targeted materials.

Education and Awareness

- Continue and improve present programs.
- Continue print and radio ads to promote participation in recycling.
- Enhance speaking by county staff.
- Require Republic Services to furnish a person for support of education and awareness as agreed in the Model Recycling Plan (October 30, 1999).
- Cities should provide more outreach and other assistance in promoting recycling and related programs.

- Develop uniform program for speakers.
- Install better signage on and near recycling dropboxes.

Recycling Program Evaluation

- Develop baseline data for existing tonnage and composition of recyclables collected through curbside and drop-off programs, and determine cost per ton for each program.
- Modify program as necessary.

Organics

The following actions are recommended for organics programs:

Composting

- Continue to promote and support onsite yard debris composting.
- Encourage onsite composting of food wastes through vermiculture and backyard composting.
- The cities, towns and Republic Services will assist the County in promoting backyard composting and, unless or until the wood waste chipping program is begun again, will also assist with promoting proper onsite handling of wood waste.
- Centralized yard debris composting sites should be investigated.
- Municipal solid waste composting is not recommended.
- Large-scale composting of yard and garden waste from in-County and imported sources should be considered as a possible addition to the Agreement between Klickitat County and Republic Services.
- Other proposals or opportunities that may arise in the future for diverting organics, such as for curbside collection, should be considered based on their relative merits such as cost-effectiveness and other factors.
- Placing containers for collecting yard debris and possibly other organics at locations where they can be monitored and a tipping fee can be collected, such as the transfer stations and possibly other locations, should be considered.

Wood Waste Chipping

- Renew the drop-off chipping site program, when local economic conditions permit it.
- Improve existing sites.
- Improve marketing of the end-products.

Solid Waste Collection

Solid waste collection recommendations are as follows:

- The County should encourage the use of collection services when possible.
- The County should not implement mandatory collection.
- The County should develop and implement education efforts toward collection of solid waste.
- Service-providers should provide information to new customers, and to existing customers at least annually, that describes the available waste collection and recycling services as well as other information as required by Chapter 480-70-361 WAC.
- The County should maintain and make available a list of residential and commercial service-providers.
- The Klickitat County Health Department should continue to enforce solid waste regulations and laws to encourage the collection and proper disposal of solid waste in the County.
- All cities should continue to enforce compliance of city codes for garbage collection and disposal.
- The County should maintain the concepts and arrangements in the Agreement between Republic Services and Klickitat County to maintain free disposal of solid waste.

Transfer Facilities

Recommendations for the transfer facilities are as follows:

Transfer Stations

- Monitor growth of geographic areas and scope of activity performed at transfer stations to allow time for construction of new transfer stations or expansion of existing facilities as warranted.

Rail Intermodal Facility

- Continue to monitor the existing operation for compliance with the Agreement between Klickitat County and Republic Services.
- Monitor growth and consider additions to intermodal facilities to facilitate growth in imported waste quantities.

Barge Intermodal Facility

- Continue to monitor the potential need for a barge intermodal facility.

Waste Import and Export

Waste import and export recommendations are shown below.

Waste Import

- Continue importing waste.
- Monitor compliance with the Agreement between the County and Republic Services.
- Agreements with exporters to a regional landfill in Klickitat County must include provisions that the exporters must have approved solid waste management plans that address exporting and include recycling and waste reduction prior to export. County and Ecology approved moderate risk waste management plans must also be included.
- The Yakama Nation's and the Gorge Commission's preferences regarding trucking of wastes should be honored where the location of the exporting jurisdiction allows reasonable alternatives. These preferences should be implemented through conditions on permits issued with regard to this Plan.

Waste Export

- Continue exportation of specific waste streams when no local disposal facilities exist.

Disposal

The following recommendations address needed activities at Horsethief Landfill, at Roosevelt Regional Landfill, and for other solid waste disposal activities.

Horsethief Landfill

- Maintain post-closure monitoring in conformance with rules and regulations.
- Maintain a dedicated fund for post-closure financing of required monitoring and site maintenance.
- Maintain the security fence to ensure structural integrity of the closure cap.
- Reduce monitoring when test results indicate stability has increased sufficiently.

Landfilling of In-County Waste

- Continue to dispose of waste at Roosevelt Regional Landfill.
- Monitor the solid waste industry trends that may require disposal at alternate sites.
- Monitor annual in-County waste classifications and quantities.

Roosevelt Regional Landfill

- Continue to dispose of in-County waste at Roosevelt Regional Landfill.
- Maintain a county inspector at the regional landfill.
- Monitor the need for an additional county inspector.
- Monitor compliance with the Agreement.
- Encourage importation from other locations up to 5 million tons per year.
- Mandate recycling at source locations.
- Continue to defer liability to the solid waste provider.
- Minimize County risk.
- Maximize County benefit.

Waste to Energy

Based on experience, small rural counties such as Klickitat, with available arid landfill disposal alternatives, cannot support the development of an incineration/resource recovery facility. Unlike the significant economic benefit derived from the development of a regional landfill facility, inclusion of the regional waste stream for an incinerator project would provide few economic benefits. Therefore, incineration or waste to energy facilities are not recommended for Klickitat County.

The highest priority for used motor oil is to recycle it. It is recommended to allow energy recovery from incineration of used motor oil as a second priority.

It is recommended to continue the use of landfill gas to produce electricity.

Administration and Enforcement

The Solid Waste Department should continue to administer the Agreement with Republic Services. This responsibility includes preparation of contract amendments or re-authorizations for consideration by the Board. It also includes oversight of the contractor's performance of its obligations under the contract, including both those relating to the landfill itself (for example, construction and operation requirements) and those relating to fee payments and the Model Rural Recycling Program. The Solid Waste Department's oversight will ensure implementation of those solid waste projects assigned by contract to Republic Services.

This 2012 Plan Update recommends that the County retain the option to develop interlocal cooperative agreements with other jurisdictions for disposal of out-of-County solid waste.

Solid Waste Advisory Committee

This 2012 Plan Update recommends SWAC be maintained as an ongoing committee that will meet at least quarterly. The SWAC should be involved in implementing elements of this 2012 Plan Update. The SWAC should continue to act in an advisory capacity to the Board of County Commissioners.

Enforcement

This 2012 Plan Update recommends continued enforcement of health issues by the Klickitat County Health Department, land use issues by the Klickitat County Planning Department, and Agreement issues by the Klickitat County Solid Waste Department.

The County should move toward the closure and cleanup of illegal dumps and should enact ordinances that provide a clearer method to prosecute those who persist in littering or illegal dumping.

Financing

This 2012 Plan Update recommends that the County should continue under its contractual agreement with Republic Services. The Agreement includes an Administration Fee and a Quarterly Solid Waste Fee payable to the County. Specific fees are also assessed to support specified needs, including scholarships and County Tourism and Community Development.

The County's solid waste program is funded by grants (primarily the CPG funds administered by Ecology) and by fees paid by Republic Services. Should grants be reduced or discontinued, then planned activities will also need to be reduced or discontinued. Should revenue produced through the Agreement with Republic Services be reduced or discontinued, then activities will also need to be curtailed.

11.3 IMPLEMENTATION STRATEGY

Table 11-1 shows the lead agency, cost and schedule for the recommendations made in the 2012 Plan Update. The costs shown in this table are the program costs for conducting the specific activities, and in some cases there will be additional costs to the participants of these programs. As can be seen in Table 11-1, most of the activities recommended by this 2012 Plan Update are ongoing activities.

Table 11-1
Six-Year Implementation Plan

Recommendations	Lead Agency	Estimated Cost[1]	Implementation Schedule					
			2012	2013	2014	2015	2016	2017
3. Waste Reduction								
Education and public awareness	KCSW, RS, cities	$31,000/yr	Ongoing					
Backyard composting	KCSW	included	Ongoing					
Government programs	KCSW	Included	Ongoing					
Incentive/disincentive programs	KCSW	Included	Ongoing					
Waste exchanges	KCSW	Included	Ongoing					
Program evaluation	KCSW, SWAC	$2,000/yr	X	X	X	X	X	X
4. Recycling								
Residential collection	RS, KCSW	$221,000/yr	Ongoing (but need to increase participation)					
Buy-back centers	KCSW	NA	Ongoing					
Drop-off centers	KCSW	NA	X	X	(need to increase locations in 2012 and 2013)			
Community group recycling	KCSW	NA	Ongoing					
Small recycling collectors	KCSW, RS	NA	Ongoing					
Business and gvt. facility recycling	KCSW, RS	NA	X	X	(need to increase program access)			
Education and awareness	KCSW, RS	$50,000/yr	Ongoing (with improvements)					
Program evaluation	KCSW, SWAC	$5,000/yr	X	(need baseline and then possibly program modifications)				
5. Organics								
Composting	KCSW, RS, cities	$8,000/yr	Ongoing					
Wood waste chipping	KCSW	$150,000/yr		X	X	X	X	X

Notes: Recommendations are shown above in an abbreviated form due to space constraints.

Abbreviations used for lead agencies include KCSW = Klickitat County Solid Waste Dept., RS = Republic Services, SWAC = Solid Waste Advisory Committee, KCHD = Klickitat County Health Dept., KCPD = Klickitat County Planning Dept., and "others" = various private and public entities. Where multiple lead agencies are listed, the first party shown is generally in the lead and will be assisted by the others shown.

Estimated costs are generally annual costs, unless the recommendation is for a one-time expense. NA = not applicable, which generally means that little or no costs (except perhaps for a small amount of staff time) is associated with a recommendation. Included = included in figure above).

Table 11-1, Six-Year Implementation Plan, continued

Recommendations	Lead Agency	Estimated Cost[1]	Implementation Schedule					
			2012	2013	2014	2015	2016	2017
6. Collection								
Solid waste collection programs	KCSW, all haulers, cities, KCHD	NA	Ongoing					
7. Transfer Facilities								
Transfer stations	KCSW	NA	Ongoing					
Rail intermodal facilities	KCSW	NA	Ongoing					
Barge intermodal facilities	KCSW, RS	NA	Ongoing					
8. Waste Import and Export								
Waste import	RS KCSW	NA	Ongoing					
Waste export	KCSW, others	NA	Ongoing					
9. Disposal								
Horsethief Landfill	KCSW	$5,840/yr	X	X	X			
Landfilling of in-county waste	KCSW	NA	Ongoing					
Roosevelt Regional Landfill	RS, KCSW	NA	Ongoing					
Waste to energy	Others	NA	Ongoing					
10. Administration and Regulation								
Administration	KCSW	$200,000/yr	Ongoing					
Solid Waste Advisory Committee	KCSW	NA	Ongoing					
Enforcement	KCHD, KCSW, KCPD	Included	Ongoing					
Financing	KCSW	NA	Ongoing					

Notes: Recommendations are shown above in an abbreviated form due to space constraints.
Abbreviations used for lead agencies include KCSW = Klickitat County Solid Waste Dept., RS = Republic Services, SWAC = Solid Waste Advisory Committee, KCHD = Klickitat County Health Dept., KCPD = Klickitat County Planning Dept., and "others" = various private and public entities. Where multiple lead agencies are listed, the first party shown is generally in the lead and will be assisted by the others shown.
Estimated costs are generally annual costs, unless the recommendation is for a one-time expense. NA = not applicable, which generally means that little or no costs (except perhaps for a small amount of staff time) is associated with a recommendation.

11.4 TWENTY-YEAR IMPLEMENTATION PROGRAM

Solid waste management in Klickitat 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 2012 Plan Update was prepared 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, Klickitat County's current solid waste management system is functioning effectively at this time and is anticipated to be able to continue to function effectively.

11.5 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. Hence, this 2012 Plan Update should be reviewed in 2017. 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 Klickitat 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 Klickitat County's Solid Waste Director 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 Director will investigate the basis for the petition and prepare a recommendation as to further actions to be taken on it. That recommendation will be discussed at the next SWAC meeting.

If the SWAC decides that the petition warrants further consideration, the Solid Waste Director will draft the proposed amendment together with the SWAC. Whether the proposed amendment has been initiated by Klickitat 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 Solid Waste 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 Klickitat Board of 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, Klickitat 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 Klickitat 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.

GLOSSARY

The following definitions are provided for various terms used in the 2012 Klickitat County Solid Waste Management Plan Update.

Biomedical waste: infectious and injurious waste originating from a medical, veterinary, or intermediate care facility.

Biosolids: includes sludge from the treatment of sewage at a wastewater treatment plant and semisolid waste pumped from a septic system, that has been treated to meet standards for beneficial use.

Buy-back recycling center: a facility that pays people for recyclable materials.

Commingled: recyclable materials that have been collected separately from garbage by the generator, but the recyclable materials have been mixed together in the same container.

Composting: the controlled biological decomposition of yard waste to produce a humus-like final product that can be used as a soil amendment. In this plan, backyard composting means a small-scale activity performed by homeowners on their own property, using yard wastes that they generate. Centralized composting refers to either drop-off or processing locations operated by a municipality or a business.

Corrugated cardboard (OCC): recyclable kraft liner cartons with corrugated inner liners, as typically used to ship materials. This generally does not include waxed cardboard or paperboard (cereal boxes, microwave and similar food boxes, etc.), but kraft grocery bags are included.

CPG: Coordinated Prevention Grants, a grant program administered by the Washington State Department of Ecology.

Curbside recycling: the act of collecting recyclable materials directly from residential generators, usually after the recyclable materials have been placed at the curb (or at the side of the street if no curb exists in the area) by the residents.

Ecology: Washington State Department of Ecology.

EPA: the United States Environmental Protection Agency; the federal agency responsible for promulgation and enforcement of federal environmental regulations.

E-waste: electronic waste. As defined under WAC 173-900, e-waste includes televisions and computers (desktop and laptop models).

Groundwater: water present in subsurface geological deposits (aquifers).

HDPE: high-density polyethylene, a type of plastic, commonly used in milk, detergent, and bleach bottles and other containers. Also used for lining and capping landfills.

Household hazardous waste: wastes that would be classified as hazardous due to their nature or characteristics, except that the amount is too small to be regulated. Includes aerosol cans, solvents, some paints, cleaners, pesticides, herbicides, compressed gases, oil, other petroleum products, car batteries and other materials.

Inert wastes: includes wastes that are inert in nature, such as glass, concrete, rocks, gravel, and bricks.

Mixed waste paper: all other types of paper not included in newspaper, cardboard or high-grade papers. Includes materials such as "junk mail", magazines, books, paperboard (non-corrugated cardboard), and colored printing and writing papers.

Moderate risk wastes (MRW): household hazardous waste (see definition, above), and wastes produced by businesses that potentially meet the definition of a hazardous wastes except the amount of waste produced falls below regulatory limits.

MSW: municipal solid waste, see also solid waste.

PET: polyethylene terephthalate, a type of plastic. Commonly used to refer to 2-liter beverage bottles, although other containers are also increasingly being made from this material, including liquid and solid materials such cooking oil, liquor, peanut butter, and many other food or household products.

Public education: a broad effort to present and distribute public information materials.

RCW: Revised Code of Washington.

Recycling: the act of collecting and/or processing source-separated materials in order to return them to a usage similar in nature to their previous use.

Reusable items: items that may be reused (or easily repaired), including things such as small electronic goods, household items such as dishes, and furniture.

Self-haul waste: waste that is brought to a landfill or transfer station by the person (residential self-haul) or company (non-residential or commercial self-haul) that created the waste.

Septage: a semisolid waste consisting of settled sewage solids combined with varying amounts of water and dissolved materials. This waste is pumped from a septic tank system.

Sewage sludge: the concentrated solids derived from the treatment of sewage at a municipal wastewater treatment plant. See also biosolids.

Solid waste: all putrescible and nonputrescible solid and semisolid wastes, including, but not limited to, garbage, rubbish, ashes, industrial wastes, swill, demolition and construction wastes, abandoned vehicles and parts thereof, discarded commodities, biosolids (sewage sludge and septage), wood waste, and special wastes.

Solid Waste Advisory Committee (SWAC): a group assisting Klickitat County with the development of this comprehensive solid waste management plan, composed of representatives from the general public, private industry, the City of Port Townsend and Jefferson County.

Special wastes: wastes that have particular characteristics such that they present special handling and/or disposal problems.

Source-separated: recyclable materials that have been removed from garbage or other forms of solid waste by the waste generator. This may or may not include keeping different types of recyclable materials separate from each other (see source-segregated and commingling).

SWAC: see Solid Waste Advisory Committee.

Transfer station: an intermediate solid waste disposal facility at which solid waste is temporarily deposited to await transportation to a final disposal site.

WAC: Washington Administrative Code.

Waste reduction or waste prevention: reducing the amount or type of solid waste that is generated. Also defined by state rules to include reducing the toxicity of wastes.

Waste diversion: waste diversion includes activities that are not defined as recycling but that still result in the diversion of materials from landfill disposal, such as burning wood waste or used oil for heat energy.

WUTC: Washington Utilities and Transportation Commission.

Yard debris: includes leaves, grass clippings, brush, and branches up to six inches in diameter.

REFERENCES

Ecology 2009. *Washington State Hazardous Waste Management Plan and Solid Waste Management Plan*, Publication #09-07-026, Washington State Department of Ecology, November 2009.

Ecology 2010a. *Guidelines for Development of Local Comprehensive Solid Waste Management Plans and Plan Revisions*, Publication #10-07-005, Washington Department of Ecology, February 2010.

Ecology 2010b. *Solid Waste in Washington State, 19th Annual Status Report*, Publication #10-07-031, Washington Department of Ecology, December 2010.

Ecology 2010c. *Washington Statewide Waste Characterization Study*, Publication #10-07-023, Washington Department of Ecology, June 2010.

Ecology 2011. Washington Department of Ecology, data from the 2009 annual recycling survey, email from Ecology staff (Layne Slone) to Rick Hlavka (Green Solutions), May 17, 2011.

Klickitat County 2006. Conditional Use Permit for the Roosevelt Regional Landfill, issued by the Klickitat County Board of Adjustment, September 8, 2006.

OFM 2011a. April 1 Population of Cities, Towns, and Counties, Office of Financial Management, July 2011.

OFM 2011b. Projections of the Total Resident Population for the Growth Management Act, Medium Series, Office of Financial Management, May 2011.

Yakima County 2003. *Waste Composition Study*, Yakima County, June 2003.

APPENDIX A

AGREEMENTS FROM PARTICIPATING JURISDICTIONS

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INTERGOVERNMENTAL AGREEMENT

REGARDING SOLID WASTE DISPOSAL

This Intergovernmental Agreement ("Agreement") regarding solid waste disposal is entered by and between Klickitat County and the City of Bingen, both municipal corporations of the State of Washington.

SECTION 1. RECITALS

1.1 The Klickitat County Comprehensive Solid Waste Managenent Plan (the "Comprehensive Solid Waste Management Plan") designates Klickitat County (the "County") as responsible for the selection of a method for the safe handling and disposal of Solid Waste within the County.

1.2 The County has designated or will designate a Vendor or Vendors to provide certain Solid Waste handling services for the disposal of Solid Waste generated within certain cities and towns and within unincorporated areas of the County.

1.3 In order to develop successfully the System for Solid Waste handling consistent with the obligation of cities and counties to provide for the safe and efficient handling and disposal of Solid Waste, it is necessary for Solid Waste generated in the County, including waste generated in the City of Bingen (the "City"), to be disposed of through the county System of Solid Waste Handling and it is necessary to authorize the County to designate disposal sites for the disposal of all Solid Waste generated within the City of Bingen (the "City"), to be disposed of through the County System of Solild Waste Handling and it is

necessary to authorize the County to designate disposal sites for the disposal of all Solid Waste generated within the City.

1.4 RCW 70.95.080 authorizes the County to prepare a solid waste management plan for city and town solid waste management for inclusion in the County Solid Waste Management Plan.

1.5 RCW 70.95.010 states, in part, that environmental and economic considerations in solving the state's solid waste management problems require strong consideration by local governments of regional solutions and intergovernmental cooperation.

1.6 It is the intent of this Agreement to designate the county as responsible for Solid Waste management planning, including the selection of a method for the safe handling and disposal of solid waste, reserving to the City full authority over collection, including collection of recyclable materials, transfer facilities, and transportation of City solid waste.

NOW, THEREFORE, Klickitat County and the City of Bingen understand and agree as follows:

SECTION 2. DEFINITIONS. For purposes of this Agreement, the following definitions shall apply.

2.1 "City" means the City of Bingen, Washington.

2.2 "Comprehensive Solid Waste Management Plan" means the Klickitat County Comprehensive Solid Waste Management Plan, as it may be amended from time to time.

2.3 "County" means Klickitat County, Washington.

2.4 "Recyclable materials" means recyclable materials as defined by RCW 70.95.030, and the Comprehensive Solid Waste Management Plan.

2.5 "Solid Waste" means solid waste as defined by RCW 70.95. 030.

2.6 "Solid Waste Handling" means solid waste handling as defined by RCW 170.95.030.

2.7 "Solid Waste Management" means solid waste management as defined by WAC 173-304-100(75).

2.8 "System" means all facilities for Solid Waste Handling owned, operated or provided for by the county, either directly or by contract with a Vendor, and all administrative activities related thereto. The term "System" includes all facilities or sites designated by the County for the disposal of Solid Waste.

2.9 "Vendor" means one or more private vendors with whom the County contracts or otherwise permits for the design, construction, ownership or operation of all or a part of the System.

SECTION 3. RESPONSIBILITY FOR SOLID WASTE DISPOSAL. For a period set forth in section 10 of this Agreement, the County shall be responsible for planning and providing for a System of Solid Waste Handling of all Solid Waste generated within unincorporated areas of the County and within the City to the extent provided in the Comprehensive Solid Waste Management Plan. The County shall not be responsible for disposal of nor claim that this Agreement extends to Solid Waste generated

within the City that has been eliminated through waste reduction or waste recycling activities of the City.

SECTION 4. COMPREHENSIVE PLAN

4.1 For the duration of this Agreement, the City shall participate by its representation on the County Solid Waste Advisory Committee in the Comprehensive Solid Waste Management Plan prepared and periodically reviewed and revised by the County pursuant to chapter 70.95 RCW. The City shall be responsible for the cost (based on total population within the County) of Comprehensive Solid Waste Management Plan preparation and revision; provided, however, that the City shall not be responsible for payment to the county of expenses in excess of that amount credited to the City in Section 4.2, for preparation of the comprehensive Solid Waste Management Plan. For the duration of this Agreement, the City authorizes the County to include in the Comprehensive Solid Waste Management Plan provisions for the management of Solid Waste generated in the City and by this Agreement ratifies prior and current planning efforts.

4.2 The County has received $15,000, to be made available to cities within the County for the participation in and evaluation of the Comprehensive Solid Waste Management Plan. The City's pro rata share (based on population of all cities within the County) of the $15,000 is $1,570. The County shall give credit to the City in the amount of $1,570 against the City's obligations for participation in the preparation of the Comprehensive Solid Waste Management Plan.

4.3 The County shall credit all grant funds received by the County for current or future solid waste planning, and thereby reduce obliqations of the County and City.

SECTION 5. CITY DESIGNATION OF COUNTY SYSTEM FOR SOLID WASTE DISPOSAL. In a resolution substantially in the form of Attachment A, authorizing and approving this Agreement, or as otherwise provided in the City ordinances, the City shall designate the County's system for the disposal of all Solid Waste generated within the corporate limits of the City, and shall authorize the County to designate a disposal site or sites for the disposal of all Solid Waste generated within the corporate limits of the City except for Solid Waste that is eliminated throuqh waste reduction or waste recycling activities of the City; provided, however, that this Agreement shall not impair the rights of the City to permit or approve disposal sites or sites within the corporate limits of the City. This designation of the County System shall continue in full force and effect for the duration of this Agreement. The designation of the County in this section shall not reduce or otherwise affect the City's control over Solid Waste collection as permitted by applicable state law.

SECTION 6. ENFORCEMENT. The County shall be the entity primarily responsible for enforcement of laws and regulations requiring persons to dispose of Solid Waste at sites designated by the County. The City shall cooperate with the county to aid the county in its enforcement efforts. Provided, however, the City shall have the absolute discretion regarding enforcement of laws and regulations within the City. For the duration of this Agreement, the City shall maintain in effect an ordinance providing that any person that disposes of Solid Waste generated within the City at a location other than a site designated by

the County will be subject to civil penalties, and also that any person who knowingly disposes of such Solid Waste other than at a County-designated site will be guilty of a misdemeanor. To the extent legally possible, the County shall be responsible for bringing civil or criminal actions against persons violating state statutes, County or City ordinances, or administrative regulations of the State of Washington, County or a City relating to the disposal of Solid Waste at sites designated by the County. However, in instances in which the County lacks legal authority to bring a civil or criminal action for the enforcement of applicable laws or regulations, and the City possesses that authority, the City shall bring such civil or criminal action as requested in writing by the County. The County shall pay for all costs incurred by the City in bringing a civil or criminal action at the County's request for the enforcement of laws or regulations relating to the disposal of Solid Waste. Upon the request of the County, the City also shall take steps in accordance with applicable procedures to revoke licenses or franchises previously granted by the City to persons the County and the City determine to be violating laws relating to the disposal of Solid Waste, and the County shall indemnify the City in taking such action in accordance with Section 9 of this Agreement. However, incidental disposal of Solid Waste by individuals shall not constitute a civil or criminal violation under this agreement.

SECTION 7. WASTE REDUCTION AND RECYCLING. The City and the County agree to cooperate to achieve the priorities for Solid Waste Management set forth in the comprehensive Solid Waste Management Plan. In the event that the City elects to participate in the county's waste reduction and recycling program, the terms of the City's participation shall be subject to another or supplemental agreement.

SECTION 8. CONTRACTS WITH VENDORS; NO CITY OBLIGATION TO REGIONAL LANDFILL OWNERS; FAVORED NATION.

8.l The County may at its discretion enter into a contract or contracts with a Vendor or Vendors, includinq but not limited to the owner or operator of a regional landfill facility, which contract or contracts may provide for the payment by the County, or by persons disposing Solid Waste, of minimum periodic fees or a scale of fees in accordance with applicable law and contract. The City acknowledges that in entering into such an agreement or agreements with the Vendors, the County will rely on the Cities' designation of the County as the entity with responsibility for preparing and revising the Comprehensive Solid Waste Management Plan and for designating Solid Waste disposal sites under the terms of the Comprehensive Solid Waste Management Plan and this Agreement.

8.2 The City shall not be obligated, directly or indirectly, for the collection or delivery of any specified quantity of Solid Waste to a facility designated as a Solid Waste disposal site by the County. No contract between the County and a Vendor shall purport to or be deemed to create any general obligation or special fund or utility obligation of the City.

8.3 In contracting with a Vendor concerning solid waste handling systems, the County shall provide that the City shall not be charged (a) rates for transport of Solid Waste to a disposal site in excess of rates charged other cities or towns in the County; and (b) in the event of fees for Solid Waste disposal, fees in excess of fees provided for disposal of Solid Waste from the County or other cities or towns in the County.

SECTION 9. INDEMNIFICATIONS.

9.1 Except as provided below, the County shall indemnify and hold harmless, and shall have the right and duty to defend, the City, through the County's attorneys, against any and all claims arising out of the County's operations of the System, and the right to settle those claims, recognizing that all costs incurred by the County thereby are System costs that must be satisfied from disposal rates. In providing a defense for the City, the County shall exercise good faith in that defense or settlement so as to protect the City's interests. For purposes of this paragraph, "claims arising out of the County's operations" shall include claims arising out of the ownership, control or maintenance of the system, but shall not include the claims arising out of the City's Solid Waste Handling, or other activities under the control of the City.

9.2 In the event that the County acts to defend the City against a claim, the City shall cooperate with the County.

9.3 For purposes of this section, reference to the City and to the County shall be deemed to include the officers and employees of any party, acting within the scope of their authority.

SECTION 10. DURATION. This Agreement shall continue to be in full force and effect for eight (8) years from the date of this Agreement, (the "initial period"), unless terminated as described in the following paragraph. Following the initial period, the Agreement shall continue from year-to-year unless twelve (12) months written notice of termination is given by the party seeking to terminate the Agreement.

SECTION 11. AMENDMENT, SUPPLEMENTATION OR TERMINATION. This Agreement may be amended, supplemented or terminated upon the agreement of the County and the City. Any amendment, supplement or termination shall be in writing, signed by the chief executives of the County and the City, and authorized by official action of the County and City. No amendment, supplementation or termination shall be adopted or put into effect if it impairs any obligation of the County to a Vendor or any obligation to owners of bonds issued to finance the County system.

SECTION 12. MISCELLANEOUS.

12.1 No waiver by any 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 of a different provision of this Agreement.

12.2 The parties to this Agreement find and declare that this Agreement, and the ordinances passed pursuant hereto, are to provide for the public health and safety and for the safe and efficient disposal of Solid Waste generated in the City and in unincorporated areas of the County. This Agreement is not entered into with the intent that it shall benefit any other entity or person, and no other such person or entity shall be entitled to be treated as a third party beneficiary of this Agreement.

SECTION 13 TRANSFER STATIONS.

13.1 In the event of an agreement between County and a Vendor for vendor-owned transfer stations, County shall provide in such agreement for a transfer station for the disposal of solid waste within twenty-five 25 miles of the City.

13.2 The City shall have access to the transfer station twenty-four (24) hours a day, seven (7) days a week.

This Agreement has been executed, on one or more originals, by the parties shown below and is dated as of

the 19th day of December, 1990.

Daryl C. Spalding
Daryl Spalding, Commissioner

By Charles B. Long
Charles B. Long, Mayor

Delos Reno, Commissioner

Sverre Bakke, Commissioner

AMENDMENT TO THE INTERGOVERNMENTAL AGREEMENT REGARDING SOLID WASTE DISPOSAL

THIS AMENDMENT is a written modification of the Intergovernmental Agreement Regarding Solid Waste Disposal, hereinafter called "the Agreement," of the same date and is in consideration of the mutual promises and obligations set forth in the Agreement and in this Amendment.

1. recycling: The County shall, notwithstanding provisions to the contrary in the Agreement, provide recycling services to the city at the City's written request. Such service shall meet present and any future requirements for recycling services under state and local laws. Such service shall provide for 4 the collection, transportation and disposal of recyclable materials. Any provisions of the Agreement inconsistent with this section are hereby deleted from the Agreement.

2. Transfer Station: Section 13.1 of the Agreement is deleted in its entirety and the following shall be inserted in place of the original Section 13.1 language:

> The County shall require Vendor to provide a Vendor-owned transfer station for the disposal of solid waste. Such a station shall be within twenty-five (25) miles of the City. Said transfer station should have sufficient space and sufficient capacity to accommodate without delay the unencumbered delivery of residential and non-residential solid waste as well as construction/demolition debris by the city's hauler.

3. Duration: Section 10 of the Agreement is deleted in its entirety and the following shall be inserted in place of the original Section 10 language:

This Agreement shall continue to be in full force and effect for ten (10) years from the date of this Agreement (the "initial period"), unless terminated as described herein. Following the initial period, the Agreement shall continue from year-to-year unless twelve (12) months written notice of termination is given by the City to the County.

4. Revenue Sharing: The County shall make reasonable efforts to apply proceeds received by virtue of implementation of its solid waste plan and agreements with Vendor to reduce costs charged the City for the provision of general County services.

5. Enforcement: Section 6 of the Agreement is modified to provide that the city has the sole discretion in determining whether to bring civil or criminal actions to enforce laws and regulations relating to the disposal of solid waste and whether to take steps to revoke licenses or franchise for violations of the law regarding disposal of solid waste.

THIS AGREEMENT has been executed, on one or more originals, by the parties shown below and is dated this 19th day of December, 1990.

KLICKITAT COUNTY

Daryl Spaulding, Commissioner

Delos Reno, Commissioner

Sverre Bakke, Commissioner

CITY OF BINGEN

Charles B. Long, Mayor

C08112

INTERGOVERNMENTAL AGREEMENT

REGARDING SOLID WASTE DISPOSAL

This Intergovernmental Agreement ("Agreement") regarding solid waste disposal is entered by and between Klickitat County and the City of Goldendale, both municipal corporations of the State of Washington.

SECTION 1. RECITALS

1.1 The Klickitat County Comprehensive Solid Waste Management Plan (the "Comprehensive Solid Waste Management Plan") designates Klickitat County (the "County") as responsible for the selection of a method for the safe handling and disposal of Solid Waste within the County.

1.2 The County has designated or will designate a Vendor or Vendors to provide certain Solid Waste handling services for the disposal of Solid Waste generated within certain cities and towns and within unincorporated areas of the County.

1.3 In order to develop successfully the System for Solid Waste handling consistent with the obligation of cities and counties to provide for the safe and efficient handling and disposal of Solid Waste, it is necessary for Solid Waste generated in the County, including waste generated in the City of Goldendale (the "City"), to be disposed of through the County system of Solid Waste Handling and it is necessary to authorize the County to designate disposal sites for the disposal of all Solid Waste
generated within the City.

1.4 RCW 70.95.080 authorizes the County to prepare a solid waste management plan for city and town solid waste management for inclusion in the County Solid Waste Management Plan.

1.5 RCW 70.95.010 states, in part, that environmental and economic considerations in solving the state's solid waste management problems require strong consideration by local governments of regional solutions and intergovernmental cooperation.

1.6 It is the intent of this Agreement to designate the County as responsible for the selection of a method for the safe handling and disposal of solid waste, reserving to the City full authority over collection, including collection of recyclable materials, transfer facilities, and transportation of City solid waste.

NOW, THEREFORE, Klickitat County and the City of Goldendale understand and agree as follows:

SECTION 2. DEFINITIONS. For purposes of this Agreement, the following definitions shall apply.

2.1 "City" means the City of Goldendale, Washington.

2.2 "Comprehensive Solid Waste Management Plan" means the Klickitat County Comprehensive Solid Waste Management Plan adopted by Klickitat County by Resolution No. 06489, as it may be amended from time to time.

2.3 "County" means Klickitat County, Washington.
by RCW 70.95.030, and the Comprehensive Solid Waste Management Plan.

2.5 "Solid Waste" means solid waste as defined by RCW 70.95.030.

2.6 "Solid Waste Handling" means solid waste handling as defined by RCW 170.95.030.

2.7 "Solid Waste Management" means solid waste management as defined by WAC 173-304-100(75).

2.8 "System" means all facilities for Solid Waste Handling owned, operated or provided for by the county, either directly or by contract with a Vendor, and all administrative activities related thereto. The term "System" includes all facilities or sites designated by the County for the disposal of Solid Waste.

2.9 "Vendor" means one or more private vendors with whom the County contracts or otherwise permits for the design, construction, ownership or operation of all or a part of the System.

SECTION 3. RESPONSIBILITY FOR SOLID WASTE DISPOSAL. For a period of twenty (20) years after the date of this Agreement, the County shall be responsible for providing for a System of Solid Waste Handling of all Solid Waste generated within unincorporated areas of the County and within the City to the extent provided in the Comprehensive Solid Waste Management Plan. The County shall not be responsible for disposal of nor claim that this Agreement extends to Solid Waste generated within the City that has been eliminated through waste reduction or waste recycling activities in conformity with the comprehensive Solid Waste Management Plan.

SECTION 4. COMPREHENSIVE PLAN. For the duration of this Agreement, the City shall participate in the Comprehensive Solid Waste Management Plan prepared and periodically reviewed and revised by the County pursuant to chapter 70.95 RCW. For the duration of this Agreement, the City authorizes the County to include in the Comprehensive Solid Waste Management Plan provisions for the management of Solid Waste generated in the City.

SECTION 5. CITY DESIGNATION OF COUNTY SYSTEM FOR SOLID WASTE DISPOSAL. In an ordinance authorizing and approving this Agreement, the City shall designate the County's system for the disposal of all Solid Waste generated within the corporate limits of

the City, and shall authorize the County to designate a disposal site or sites for the disposal of all Solid Waste generated within the corporate limits of the City except for Solid Waste that is eliminated throuqh waste reduction or waste recycling activities under the comprehensive Solid Waste Management Plan; provided, however, that this Agreement shall not impair the rights of the City to permit or approve disposal sites or sites within the corporate limits of the City. This designation of the County System shall continue in full force and effect for a period of twenty (20) years after the date of this Agreement. The designation of the County in this section shall not reduce or otherwise affect the City's control over Solid Waste collection as permitted by applicable state law.

SECTION 6. ENFORCEMENT. The County shall be the entity primarily responsible for enforcement of laws and regulations requiring persons to dispose of Solid Waste at sites designated by the County. The City shall cooperate with the County to aid the County in its enforcement efforts. For the duration of this Agreement, the City shall maintain in effect, an ordinance, providing that any person that disposes of Solid Waste generated within the City at a location other than a site designated by the County will be subject to civil penalties, and also that any person who knowingly disposes of such Solid Waste other than at a County designated site will be guilty of a misdemeanor. To the extent legally possible, the County shall be responsible for bringing civil or criminal actions against persons violating regulations of the State of Washington or the County relating to the disposal of Solid Waste at sites designated by the County. However, in instances in which the County lacks legal authority to bring a civil or criminal action for the enforcement of applicable laws or regulations, and the City possesses that authority, the City shall bring such civil or criminal action as requested in writing by the County. The County shall pay for all costs incurred by the City in bringing a civil or criminal action at the County's request for the enforcement of laws or regulations relating to the disposal of Solid Waste. Upon the request of the County, the City also shall take steps in accordance with applicable procedures to revoke licenses or franchises previously granted by the City to persons the County and the City determine to be violating laws relating to the disposal of Solid Waste, and the County shall indemnify the City in taking such action in accordance with Section 9 of this Agreement.

SECTION 7. WASTE REDUCTION AND RECYCLING. The City and the County agree to cooperate to achieve the priorities for Solid Waste Management set forth in the Comprehensive Solid Waste Management Plan. In the event that the City elects to participate in the County's waste reduction and recycling program, the terms of the City's participation shall be subject to another or supplemental agreement.

SECTION 8. CONTRACTS WITH VENDORS; NO CITY OBLIGATION TO REGIONAL LANDFILL OWNERS.

8.1 The County may at its discretion enter into a contract or contracts with a Vendor or Vendors, includinq but not limited to the owner or operator of a regional landfill facility, which contract or contracts may provide for the payment by the County or by persons disposing Solid Waste, of minimum periodic fees or a scale of fees in accordance with applicable law and contract. The City acknowledges that in entering into such an agreement or agreements with the Vendors, the County will rely on the City's designation of the County as the entity with responsibility for preparing and revising the Comprehensive Solid Waste Management Plan and for designating Solid Waste disposal sites under the terms of the Comprehensive Solid Waste Management Plan and this Agreement.

8.2 The City shall not be obligated, directly or indirectly, for the collection or delivery of any specified quantity of Solid Waste to a facility designated as a Solid Waste disposal site by the County. No contract between the County and a Vendor shall purport to or be deemed to create any general obligation or special fund or utility obligation of the City.

SECTION 9. INDEMNIFICATIONS.

9.1 Except as provided below, the County shall indemnify and hold harmless, and shall have the right and duty to defend, the City, through the County's attorneys, against any and all claims arising out of the County's operations of the System, and the right to settle those claims, recognizing that all costs incurred by the County thereby are System costs that must be satisfied from disposal rates. In providing a defense for the City, the County shall exercise good faith in that defense or
settlement so as to protect the City's interests. For purposes of this paragraph, "claims arising out of the County's operations" shall include claims arising out of the ownership, control or maintenance of the system, but shall not include the claims arising out of the City's Solid Waste Handling, or other activities under the control of the City.

9.2 In the event that the County acts to defend the City against a claim, the City shall cooperate with the County.

9.3 For purposes of this section, reference to the City and to the County shall be deemed to include the officers and employees of any party, acting within the scope of their authority.

SECTION 10. DURATION. This Agreement shall continue to be in full force and effect for twenty (20) years from the date of this Agreement, unless terminated as described in the following paragraph.

SECTION 11. AMENDMENT, SUPPLEMENTATION OR TERMINATION. This Agreement may be amended, supplemented or terminated upon the agreement of the County and the City. Any amendment, supplement or termination shall be in writing, signed by the chief executives of the County and the City, and authorized by resolution or ordinance of the County and City. No amendment, supplementation or termination shall be adopted or put into effect if it impairs any obligation of the County to a Vendor or any obligation to owners of bonds issued to finance the County system.

SECTION 12. MISCELLANEOUS

12.1 No waiver by any 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 of a different provision of this Agreement.

12.2 The parties to this Agreement find and declare that this Agreement, and the ordinances passed pursuant hereto, are to provide for the public health and safety and for the safe and efficient disposal of Solid Waste generated in the City and in unincorporated areas of the County. This Agreement is not entered into with the intent that it shall benefit any other entity or person, and no other such person or entity shall be entitled to be treated as a third party beneficiary of this Agreement.

DATED this 9th day of April, 2012

Clinton Baze, Mayor
City of Goldendale

DATED this 24th day of April, 2012.

BOARD OF COUNTY COMMISSIONERS
Klickitat County, Washington

Ray Thayer, Chairman

David M. Sauter, Commissioner

Rex F. Johnston, Commissioner

ATTEST:
Clerk of the Board
in and for the County of Klickitat,
State of Washington

Approved as to Form

Lori Lynn Hoctor
Klickitat County Prosecuting Attorney

INTERGOVERNMENTAL AGREEMENT

REGARDING SOLID WASTE DISPOSAL

This Intergovernmental Agreement ("Agreement") regarding solid waste disposal is entered by and between Klickitat County and the City of White Salmon, both municipal corporations of the State of Washington.

SECTION 1. RECITALS

1.1 The Klickitat County Comprehensive Solid Waste Managenent Plan (the "Comprehensive Solid Waste Management Plan") designates Klickitat County (the "County") as responsible for the selection of a method for the safe handling and disposal of Solid Waste within the County.

1.2 The County has designated or will designate a Vendor or Vendors to provide certain Solid Waste handling services for the disposal of Solid Waste generated within certain cities and towns and within unincorporated areas of the County.

1.3 In order to develop successfully the System for Solid Waste handling consistent with the obligation of cities and counties to provide for the safe and efficient handling and disposal of Solid Waste, it is necessary for Solid Waste generated in the County, including waste generated in the City of White Salmon (the "City"), to be disposed of through the county System of Solid Waste Handling and it is necessary to authorize the County to designate disposal sites for the disposal of all Solid Waste generated within the City.

1.4 RCW 70.95.080 authorizes the County to prepare a solid waste management plan for city and town solid waste management for inclusion in the County Solid Waste Management Plan.

1.5 RCW 70.95.010 states, in part, that environmental and economic considerations in solving the state's solid waste management problems require strong consideration by local governments of regional solutions and intergovernmental cooperation.

1.6 It is the intent of this Agreement to designate the county as responsible for Solid Waste management planning, including the selection of a method for the safe handling and disposal of solid waste, reserving to the City full authority over collection, including collection of recyclable materials, transfer facilities, and transportation of City solid waste.

NOW, THEREFORE, Klickitat County and the City of White Salmon understand and agree as follows:

SECTION 2. DEFINITIONS. For purposes of this Agreement, the following definitions shall apply.

2.1 "City" means the City of White Salmon, Washington.
2.2 "Comprehensive Solid Waste Management Plan" means the Klickitat County Comprehensive Solid Waste Management Plan, as it may be amended from time to time.

2.3 "County" means Klickitat County, Washington.

2.4 "Recyclable materials" means recyclable materials as defined by RCW 70.95.030, and the Comprehensive Solid Waste Management Plan.

2.5 "Solid Waste" means solid waste as defined by RCW 70.95. 030.

2.6 "Solid Waste Handling" means solid waste handling as defined by RCW 170.95.030.

2.7 "Solid Waste Management" means solid waste management as defined by WAC 173-304-100(75).

2.8 "System" means all facilities for Solid Waste Handling owned, operated or provided for by the county, either directly or by contract with a Vendor, and all administrative activities related thereto. The term "System" includes all facilities or sites designated by the County for the disposal of Solid Waste.

2.9 "Vendor" means one or more private vendors with whom the County contracts or otherwise permits for the design, construction, ownership or operation of all or a part of the System.

SECTION 3. RESPONSIBILITY FOR SOLID WASTE DISPOSAL. For a period set forth in section 10 of this Agreement, the County shall be responsible for providing for a System of Solid Waste Handling of all Solid Waste generated within unincorporated areas of the County and within the City to the extent provided in the Comprehensive Solid Waste Management Plan. The County shall not be responsible for disposal of nor claim that this Agreement extends to Solid Waste generated within the City that has been eliminated through waste reduction or waste recycling activities of the City.

SECTION 4. COMPREHENSIVE PLAN

4.1 For the duration of this Agreement, the City shall participate by its representation on the County Solid Waste Advisory Committee in the Comprehensive Solid Waste Management Plan prepared and periodically reviewed and revised by the County pursuant to chapter 70.95 RCW. The City shall be responsible for the cost (based on total population within the County) of Comprehensive Solid Waste Management Plan preparation and revision; provided, however, that the City shall not be responsible for payment to the county of expenses in excess of that amount credited to the City in Section 4.2, for preparation of the comprehensive Solid Waste Management Plan. For the duration of this Agreement, the City authorizes the County to include in the Comprehensive Solid Waste Management Plan provisions for the management of Solid Waste generated in the City and by this Agreement ratifies prior and current planning efforts.

4.2 The County has received $15,000, to be made available to cities within the County for the participation in and evaluation of the Comprehensive Solid Waste Management Plan. The City's pro rata share (based on population of all cities within the County) of the $15,000 is $4,595. The County shall give credit to the City in the amount of $4,595 against the City's obligations for participation in the preparation of the Comprehensive Solid Waste Management Plan.

4.3 The County shall credit all grant funds received by the County for current or future solid waste planning, and thereby reduce obliqations of the County and City.

SECTION 5. CITY DESIGNATION OF COUNTY SYSTEM FOR SOLID WASTE DISPOSAL. In a resolution substantially in the form of Attachment A, authorizing and approving this Agreement, or as otherwise provided in City ordinances, the City shall designate the County's system for the disposal of all Solid Waste generated within the corporate limits of the City, and shall authorize the County to designate a disposal site or sites for the disposal of all Solid Waste generated within the corporate limits of the City except for Solid Waste that is eliminated throuqh waste reduction or waste recycling activities of the City; provided, however, that this Agreement shall not impair the rights of the City to permit or approve disposal sites or sites within the corporate limits of the City. This designation of the County System shall continue in full force and effect for the duration of this Agreement. The designation of the County in this section shall not reduce or otherwise affect the City's control over Solid Waste collection as permitted by applicable state law.

SECTION 6. ENFORCEMENT. The County shall be the entity primarily responsible for enforcement of laws and regulations requiring persons to dispose of Solid Waste at sites designated by the County. The City shall cooperate with the county to aid the county in its enforcement efforts. Provided, however, the City shall have the absolute discretion regarding enforcement of laws and regulations within the City. For the duration of this Agreement, the City shall maintain in effect ordinances, providing that any person that disposes of Solid Waste generated within the City at a location other than a site designated by the County will be subject to civil penalties, and also that any person who knowingly disposes of such Solid Waste other than at a County-designated site will be guilty of a misdemeanor. To the extent legally possible, the County shall be responsible for

bringing civil or criminal actions against persons violating state statutes, County or City ordinances, or administrative regulations of the State of Washington, County or a City relating to the disposal of Solid Waste at sites designated by the County. However, in instances in which the County lacks legal authority to bring a civil or criminal action for the enforcement of applicable laws or regulations, and the City possesses that authority, the City shall bring such civil or criminal action as requested in writing by the County. The County shall pay for all costs incurred by the City in bringing a civil or criminal action at the County's request for the enforcement of laws or regulations relating to the disposal of Solid Waste. Upon the request of the County, the City also shall take steps in accordance with applicable procedures to revoke licenses or franchises previously granted by the City to persons the County and the City determine to be violating laws relating to the disposal of Solid Waste, and the County shall indemnify the City in taking such action in accordance with Section 9 of this Agreement. However, incidental disposal of Solid Waste by individuals shall not constitute a civil or criminal violation under this agreement.

SECTION 7. WASTE REDUCTION AND RECYCLING. The City and the County agree to cooperate to achieve the priorities for Solid Waste Management set forth in the comprehensive Solid Waste Management Plan. In the event that the City elects to participate in the county's waste reduction and recycling program, the terms of the City's participation shall be subject to another or supplemental agreement.

SECTION 8. CONTRACTS WITH VENDORS; NO CITY OBLIGATION TO REGIONAL LANDFILL OWNERS; FAVORED NATION.

8.l The County may at its discretion enter into a contract or contracts with a Vendor or Vendors, includinq but not limited to the owner or operator of a regional landfill facility, which contract or contracts may provide for the payment by the County, or by persons disposing Solid Waste, of minimum periodic fees or a scale of fees in accordance with applicable law and contract. The City acknowledges that in entering into such an agreement or agreements with the Vendors, the County will rely on the Cities' designation of the County as the entity with responsibility for preparing and revising the Comprehensive Solid Waste Management Plan and for designating Solid Waste disposal sites under the terms of the Comprehensive Solid Waste Management Plan and this Agreement.

8.2 The City shall not be obligated, directly or indirectly, for the collection or delivery of any specified quantity of Solid Waste to a facility designated as a Solid Waste disposal site by the County. No contract between the County and a Vendor shall purport to or be deemed to create any general obligation or special fund or utility obligation of the City.

8.3 In contracting with a Vendor concerning solid waste handling systems, the County shall provide that the City shall not be charged (a) rates for transport of Solid Waste to a disposal site in excess of rates charged other cities or towns in the County; and (b) in the event of fees for Solid Waste disposal, fees in excess of fees provided for disposal of Solid Waste from the County or other cities or towns in the County.

SECTION 9. INDEMNIFICATIONS.

9.1 Except as provided below, the County shall indemnify and hold harmless, and shall have the right and duty to defend, the

City, through the County's attorneys, against any and all claims arising out of the County's operations of the System, and the right to settle those claims, recognizing that all costs incurred by the County thereby are System costs that must be satisfied from disposal rates. In providing a defense for the City, the County shall exercise good faith in that defense or settlement so as to protect the City's interests. For purposes of this paragraph, "claims arising out of the County's operations" shall include claims arising out of the ownership, control or maintenance of the system, but shall not include the claims arising out of the City's Solid Waste Handling, or other activities under the control of the City.

9.2 In the event that the County acts to defend the City against a claim, the City shall cooperate with the County.

9.3 For purposes of this section, reference to the City and to the County shall be deemed to include the officers and employees of any party, acting within the scope of their authority.

SECTION 10. DURATION. This Agreement shall continue to be in full force and effect for eight (8) years from the date of this Agreement, (the "initial period"), unless terminated as described in the following paragraph. Following the initial period, the Agreement shall continue from year-to-year unless twelve (12) months written notice of termination is given by the party seeking to terminate the Agreement.

SECTION 11. AMENDMENT, SUPPLEMENTATION OR TERMINATION. This Agreement may be amended, supplemented or terminated upon the agreement of the County and the City. Any amendment, supplement or termination shall be in writing, signed by the chief executives of the County and the City, and authorized by

official action of the County and City. No amendment, supplementation or termination shall be adopted or put into effect if it impairs any obligation of the County to a Vendor or any obligation to owners of bonds issued to finance the County system.

SECTION 12. MISCELLANEOUS.

12.1 No waiver by any 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 of a different provision of this Agreement.

12.2 The parties to this Agreement find and declare that this Agreement, and the ordinances passed pursuant hereto, are to provide for the public health and safety and for the safe and efficient disposal of Solid Waste generated in the City and in unincorporated areas of the County. This Agreement is not entered into with the intent that it shall benefit any other entity or person, and no other such person or entity shall be entitled to be treated as a third party beneficiary of this Agreement.

SECTION 13 TRANSFER STATIONS.

13.1 In the event of an agreement between County and a Vendor for vendor-owned transfer stations, County shall provide in such agreement for a transfer station for the disposal of solid waste within twenty-five 25 miles of the City.

13.2 The City shall have access to the transfer station twenty-four (24) hours a day, seven (7) days a week.

This Agreement has been executed, on one or more originals, by the parties shown below and is dated as of

the 19th day of December, 1990.

KLICKITAT COUNTY

Daryl Spalding, Commissioner

Delos Reno, Commissioner

Sverre Bakke, Commissioner

CITY OF WHITE SALMON

By Francis H. Gaddis, Mayor
FRANCIS H. GADDIS, Mayor

APPENDIX B

MRW PLAN

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CHAPTER 12. MODERATE RISK WASTE

12.1 INTRODUCTION

This Chapter is Klickitat County's Moderate Risk Hazardous Waste Management Plan (MRHWMP). The MRHWMP emphasizes programs of public education; waste reduction; waste recycling; waste treatment, storage, and disposal; and waste handling facilities. It is designed to be a moderate risk waste management plan that can be implemented in Klickitat County.

The MRHWMP focuses primarily on moderate risk waste which includes hazardous waste generated by households or by businesses in small enough quantities that it is not regulated directly by the Washington State Department of Ecology (Ecology) nor the U.S. Environmental Protection Agency (EPA).

This MRHWMP includes the geographic area of Klickitat County. The Klickitat County Solid Waste Department is the lead agency in its development. All cities and towns within the County have participated in the MRHWMP development and the councils of the incorporated cities will be asked to pass resolutions adopting the MRHWMP as part of the Comprehensive Solid Waste Management Plan.

This is an update to the first moderate risk waste plan developed for Klickitat County and has a scope of 5 years. This MRHWMP update also attempts to project moderate risk waste needs out to the year 2020. The original MRHWMP was developed in accordance with the Hazardous Waste Management Act as amended in 1985 (70.105 RCW), which required a draft plan by June 30, 1990 and implementation by December 31, 1991. This MRHWMP is being developed as part of the Klickitat County Solid Waste Management Plan.

12.1.1 The Hazardous Waste Problem and Regulations/Requirements

The following discussion reviews the problems associated with hazardous waste and focuses on smaller quantity generators of these wastes. The regulations pertaining to hazardous waste and planning requirements for local jurisdictions are also briefly reviewed.

The Local Hazardous Waste Problem

As mentioned above, this MRHWMP focuses on the wastes that are not otherwise regulated as hazardous by the Washington Department of Ecology (Ecology) or U.S. EPA. These wastes are generated in small quantities by businesses and households and are sometimes not managed appropriately.

Hazardous wastes create short and long term hazards if disposed through garbage collection, wastewater systems, pouring on the ground, burning, or other improper methods. These hazards include potential human injury and damage to environmental resources upon which the public depend — such as groundwater purity, air quality, and waste management systems. For example, a car battery placed in a local garbage container could leak acid that will ruin the garbage can, harm the sanitation worker, damage the collection vehicle and landfill machinery, and combine with other materials to create toxic gases. Eventually, acid and lead may leach into the local groundwater supply. Similarly, a solvent or acid could contaminate the local aquifer and water wells if disposed in a septic system. Some publicly-owned wastewater treatment works have been temporarily shut down due to the introduction of hazardous wastes. Further, sludges from wastewater systems, improperly disposed through land application, may allow residual heavy metals or other hazardous wastes to enter the environment. Uncontrolled burning of used oil produces noxious gases that are a threat to public health.

To mitigate these problems in Klickitat County, now and in the future, this MRHWMP "targets" hazardous wastes which should be excluded from landfills, wastewater treatment facilities, uncontrolled burning, and/or dumping. This MRHWMP has been developed in accordance with Ecology under the State Hazardous Waste Management Act, Chapter 70.105 RCW.

Hazardous/Dangerous Waste Regulations

Federal and State laws and regulations define the context in which wastes are managed and the terminology used to discuss the wastes and waste management systems. Consequently, a brief overview of pertinent laws, regulations and terminology are included.

(1) Federal Regulations

In 1976, the Resource Conservation and Recovery Act (RCRA) established federal policy and guidance for solid and hazardous wastes. RCRA was amended in 1980 by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as "Superfund", which provided for the federal cleanup of hazardous waste sites. RCRA Subtitle C pertains to hazardous waste regulation. This subtitle was modified by RCRA amendments on November 8, 1984 to reduce the generating facility threshold of regulation down from 1,000 to 100 kilograms (about 220 pounds) of hazardous waste per month or batch. These and other federal regulations are described in more detail in Section 12.5.

(2) Washington State Regulations

Ecology has the authority to implement most of the RCRA regulations and 1984 HSWA amendments — with the notable exception of Superfund cleanup programs. Consequently, in Washington, Ecology, rather than EPA, regulates hazardous waste generators. Regulation applies when the generator creates 220 pounds of hazardous or 2.2 pounds of acutely hazardous waste (according to the EPA definitions for these substances) or more per month or batch. Below these threshold quantities generators are unregulated. Ecology's Dangerous Waste Regulations (Chapter 173-303 WAC), as the name implies, distinguishes between "hazardous waste" in federal law and "dangerous waste" in State laws. Similarly, "acutely hazardous waste" in federal law is approximated by the term "extremely hazardous waste" in State law. This is needed to identify the slightly more stringent standards implemented by Ecology. Nonetheless, the generic term hazardous waste is commonly used by Ecology to refer to all regulated hazardous wastes.

Ecology regulates the handling, storage, treatment, transportation, and disposal of hazardous wastes in Washington. Regulations apply to generators that exceed the regulatory thresholds (mentioned above) of the Hazardous Waste Management Act (RCW 70.105) and the Model Toxics Control Act (WAC 173-340). For hazardous wastes generated in lesser quantities by businesses or by households, Ecology has defined the term "Moderate Risk Waste."

Businesses, schools, agencies and any other non-household source of Moderate Risk Wastes may be designated "conditionally exempt". The exemption applies so long as they do not exceed the regulatory threshold and meet special requirements listed in the Dangerous Waste Regulations. This threshold is called the quantity exclusion limit, or QEL, and is 220 or 2.2 pounds of waste generated per month or batch - depending on the kind of hazardous waste in question. Households, on the other hand, are generators of "categorically exempt waste." This means that waste generated by a household is exempt from regulation, regardless of the quantity. These exempt generators of hazardous waste are the targets for this MRHWMP. Although they are exempt hazardous waste generators, the wastes themselves are still regulated under the broader rules for solid wastes.

Substances which are considered hazardous include those listed by Ecology and the EPA and those which exhibit certain characteristics which include:

1) Toxic (poisonous),
2) Reactive (reacts violently with air or water, or is explosive),
3) Corrosive (acids and drain openers),
4) Ignitable (burns readily and sustains a flame, like gasoline).

A hazardous substance only becomes a hazardous waste when the owner considers it to be a waste or it is so defined by the Dangerous Waste Regulations. This MRHWMP focuses on hazardous wastes rather than the larger category of hazardous substances. Local hazardous waste plans must implement the following hazardous waste management techniques, in descending order of priority (RCW 70.105.150):

5) Waste Reduction
6) Waste Recycling
7) Physical, Chemical, and Biological Treatment
8) Solidification/Stabilization Treatment
9) Landfill
10) Incineration

Rather than isolating the priorities in a chapter by themselves, they must be considered as an umbrella over the total planning process.

State Planning Requirements

The generally poor management of conditionally and categorically exempt wastes has resulted in the need for programs on the local level. Programs are needed to develop alternative hazardous waste management strategies and educational outreach to the general public and small quantity generators. Subsection 70.105.220 RCW requires the preparation of local hazardous waste plans. The general requirements and process for developing the MRHWMP is contained in the planning guidelines.

The planning process must address the three basic sources of moderate risk waste:

11) Households
12) Minor Commercial Generators
13) Major Commercial Generators

The sources of minor and major commercial generators are often combined into a category called Small Quantity Generators or SQGs. Major commercial enterprises may routinely generate hazardous wastes whereas minor commercial enterprises only occasionally generate hazardous wastes. An example of a major generator might be a dry cleaner, gas station or photo processing lab where hazardous wastes are routinely generated. A grocery or hardware store may be a minor generator due to product spills or non-periodic cleaning or remodeling projects. The non-commercial source of moderate risk hazardous waste is from households. Household hazardous wastes are categorically exempt from regulation regardless of quantity. Except for the fact that the source is a household, these wastes are the same as any other hazardous waste generated by commercial operations.

Every MRHWMP must include certain elements in each of seven general parts. These parts are included in the following list:

1. Purpose and Introduction
2. Summary
3. Background of the Planning Area
4. Existing and Future Problems, Needs, and Conditions
5. MRHWMP Objectives and Alternatives
6. Recommended Programs and Actions
7. Appendices

This MRHWMP was developed in a form that encompasses the elements within these parts and expands the document structure to make it both easier to read and suitable to the special needs of the County.

Advisory Committee

As with the remainder of this Solid Waste Management Plan, this Chapter was developed with the essential input from the Solid Waste Advisory Committee (SWAC) members.

To assure that the citizens at large and local businesses were given ample opportunity to become aware of the MRHWMP and its development, a public participation plan for Klickitat County was developed by the SWAC as described below.

12.1.2 Public Participation Process

The following processes are being used to encourage the public to participate in responsible management of moderate risk wastes:

- To raise the public's awareness of the Local Hazardous Waste Planning process, a press release was developed for the local newspapers and radio indicating the existence and purpose of the solid waste advisory committee in developing the MRHWMP and the need for citizen and business participation.

- A general, non-scientific survey, designed to assess public awareness of existing solid waste services, and to further involve the public, has been circulated at community events. A more detailed telephone survey was conducted during the original MRW planning period to obtain the information needed to assess the nature of generation of exempt hazardous wastes in the County.

- School children are informed of hazardous waste issues. School administrators and teachers are encouraged to use curriculum developed about hazardous waste management.

- Service clubs, Chambers of Commerce, community councils, granges, and civic organizations are encouraged to invite speakers to address the hazardous waste issue and processes used to develop the County's MRHWMP.

12.1.3 Goals

The following goals have been selected by the SWAC to guide the development of the MRHWMP and in choosing programs which meet the needs of Klickitat County:

(a) Protect public safety, health and property, and minimize damage to the environment from the adverse effects resulting from improper handling and disposal of moderate risk hazardous wastes.

(b) Develop public awareness and responsibility for the management of moderate risk hazardous waste and ensure proper disposal.

(c) Manage moderate risk wastes in a way that is consistent within the following order of priority: waste reduction, recycling and reuse, treatment, and residuals disposal.

(d) Develop a Moderate Risk Waste Management Plan that can be reasonably implemented by Klickitat County and reflect the experience gained in managing these wastes over the previous five years, while accomplishing Goals a, b and c.

12.1.4 MRHWMP Revisions, Timeline and Lead Planning Agency

Typically, local hazardous waste plans will be updated every five years as required by Chapter 70.105 RCW. However, if significant changes are required in the MRHWMP to reflect changing needs before the 5 year period is complete, the MRHWMP will need to be revised at an earlier date. The County is the lead agency for the plan development and, as such, will coordinate any required plan revision or update as the need or statutory requirements dictate. Proposed revisions would normally be expected to come to the County from participating jurisdictions, local and regional regulatory and enforcement agencies, local wastewater system utilities and waste service companies.

The County is the primary agency responsible for the implementation of this five year plan. This MRHWMP update also includes planning projections reaching into the year 2020.

12.2 SUMMARY, FINDINGS, AND RECOMMENDATIONS

12.2.1 Summary of Planning Process, Key findings, and Recommendations

This Section summarizes the findings and conclusions from the remainder of the sections of the MRHWMP including the recommendations. Chapter 3 of this 2000 Plan Update contains a review of the planning area's physical, economic and social features, and Section 12.3 adds Hazardous Waste specific zoning information. Section 12.4 presents the results of the moderate risk waste survey of households and businesses including identification of the largest moderate risk waste generators by business type and estimated quantities of moderate risk waste generated as well as how it is disposed. It was estimated in the 1992 plan that small quantity commercial generators generated approximately 60 tons of hazardous waste per year and that households generated approximately 92 tons of hazardous waste per year. Some of these wastes are recycled, incinerated or otherwise managed appropriately, however, a significant proportion of the waste was improperly disposed of through means such as the local waste water systems, dumping or by burning in an open fire. It was estimated in 1992 that approximately 95 tons per year of hazardous waste is disposed of improperly. It is believed that improperly disposed waste quantities have decreased substantially. Based on these and other details of the survey the following targeted moderate risk waste types within the County were established:

14) Waste Oil
15) Paint and Dye Wastes
16) Spent Solvents
17) Used Batteries
18) Used Antifreeze
19) Pesticide Wastes

Section 12.5 describes the existing waste management system for moderate risk waste and the roles and responsibilities of the various public and private entities that are active in the County or have the potential to regulate moderate risk waste in the County. It also covers the existing level of personnel training and regulation of moderate risk waste in the County. The last subsection establishes the needs of the County for moderate risk waste education, recycling, collection, regulation, and agency coordination.

Stemming from the needs identified in Section 12.5, Section 12.6 identifies objectives to meet the needs

and analyzes various programs and administrative alternatives which may satisfy the objectives. A wide variety of moderate risk waste programs and actions are outlined in Section 12.6. Any or all could be implemented if there were no budgetary constraints on these activities. Consequently, each alternative is examined for its feasibility for implementation in the County from an economic basis as well as from a technical standpoint.

In Section 12.7 the most appropriate alternative programs and actions are selected by using criteria established in Section 12.6 and a ranking matrix. Each selected alternative program is then compared to the goals and objectives of the MRHWMP, the guidelines, and whether it addresses the targeted wastes. The selected programs and approximate program costs are estimated in Table 12.1.

If any of the expected sources of implementation funding are not available, that program will be curtailed to that extent.

These selections of the most appropriate alternatives are the primary object of Section 12.7 and will guide the implementation phase of the MRHWMP. These moderate risk waste program alternatives appear to be realistically feasible based on their advantages, disadvantages, compliance with the moderate risk waste management priorities, likelihood of success and costs to Klickitat County. Many have been implemented and the remainder can be implemented within the 5 year time frame of this MRHWMP. It is expected that Allied will continue to provide a large portion of the labor and funding to implement the MRHWMP recommendations. For instance, cost to the County for the Waste Acceptance Control Program listed above is zero dollars because the Agreement with Allied requires them to provide this service. Similarly, disposal costs for the household hazardous waste collection program are estimated but not collection and transportation costs because the Allied pays for these costs under terms of their Agreement with the County.

In the future, the program choices listed above will provide insight and experience in managing moderate risk waste in the County. This acquired knowledge base may point to areas where additional efforts are needed or redirection of efforts is appropriate.

12.3 BACKGROUND OF PLANNING AREA

12.3.1 Description of Hazardous Waste Treatment and Storage Facilities Zoning

In accordance with RCW 70.105.225, zones must be designated in which hazardous waste facilities for treatment and storage of regulated hazardous wastes may be sited. In Klickitat County the planning ordinance has been modified to allow the siting of hazardous waste facilities in those areas that are zoned General Industrial and Industrial Park. The areas in the County that have this zoning are, Cliffs, Dallesport, an area south of Goldendale, and an area south of Bingen.

12.4 MODERATE RISK HAZARDOUS WASTE INVENTORY

12.4.1 Introduction

(a) Overview of Moderate Risk Waste in Klickitat County

Planning for the future of hazardous waste management in the County is based on establishing how much and what kinds of hazardous waste are generated now and are expected to be generated in the future and in identifying current practices and facilities that handle the hazardous waste. This information will serve as the basis for determining what kinds of programs and facilities will be needed to manage Klickitat County's hazardous waste. It will also serve to focus attention on the County's future management programs.

Individuals and businesses that produce hazardous waste are referred to as "generators," whether they produce a few gallons of leftover paint or hundreds of tons of waste oil, solvents, or heavy metal-containing sludges. Klickitat County, with a population of 19,250 (1999), has approximately 8300 households and over 120 businesses and industries which potentially contribute to the County's hazardous waste stream. Public institutions, such as schools, hospitals, civic facilities, and state and federal agencies also may be generators.

Moderate risk wastes (MRW) are wastes not currently regulated by the Washington State Department of Ecology (Ecology) under the Dangerous Waste Regulations, Washington Administrative Code (WAC), Chapter 173-303, due to their small quantity or household origin. MRWs are either conditionally or categorically exempt from the regulations. This MRHWMP focuses on moderate risk hazardous waste generators in Klickitat

County, which include minor and major commercial generators and households.

The MRW classification is based on federal RCRA regulations that make small generators conditionally exempt from most regulatory requirements. A business that generates less than 220 pounds of hazardous waste or 2.2 pounds of extremely hazardous waste in a month is considered a conditionally exempt small quantity generator (SQG). Paint stores, printing shops, gasoline stations, medical laboratories, dry cleaners, and exterminating services, are all examples of businesses that are potential SQGs.

12.4.2 Definition of Hazardous Waste

MRWs are the same as hazardous wastes except for the quantity of waste generated or source of waste generation. Therefore, it is important to know how hazardous wastes are defined.

According to the federal definition, a hazardous waste is one which has at least one of the following properties:

20) Ignitability (burns readily)
21) Corrosivity (corrodes steel plate and/or other materials)
22) Reactivity (explodes or reacts violently)
23) Toxicity (poisonous gas, liquid, or solid)

In Washington, wastes demonstrating these characteristics, or the additional traits of persistence or bioaccumulation in the environment and positive or suspected carcinogenicity, are regulated as dangerous waste.

An extremely (or acutely) hazardous waste is a waste that the U.S. Environmental Protection Agency (U.S. EPA) (or the State of Washington) has determined to be dangerous in small quantities. Extremely hazardous wastes include, for example, certain pesticides and dioxin-containing wastes. Extremely hazardous wastes and dangerous wastes are described in Section 173-303-080 through 173-303-104, and listed in Sections 173-303-9903 through 173-303-9907 of the WAC.

12.4.3 Generators of Moderate Risk Hazardous Waste

As presented in the previous section, moderate risk waste generators encompass three groups: major commercial waste generators, minor commercial waste generators, and households. Ecology distinguishes between major and minor commercial waste generators and households as described below.

(a) Minor Commercial Generators

Minor generators are businesses that occasionally generate hazardous waste, but not regularly. They are businesses such as retail stores that generate waste through clean-up of occasional accidental spills, or disposal of off-spec or outdated materials that contain hazardous substances.

(b) Major Commercial Generators

Major generators are businesses that generate hazardous waste as an ongoing part of everyday business activities. A few examples are dry cleaners, auto body shops, service stations, pesticide applicators, and printing shops. Many small quantity generators lack the resources, technical expertise, or staffing to effectively manage their hazardous waste. Their general knowledge of existing hazardous waste regulations is often weak and hazardous waste management is considered low priority in operating a small business. This may lead to improper disposal of hazardous waste.

(c) Households

A household hazardous waste is any waste produced by a household which contains an ingredient listed in the Code of Federal Regulations (CFR) Chapter 40, [Part 261.33(e) or 261.33(f)] or exhibits characteristics of ignitability, corrosivity, reactivity, or toxicity. Table 12.2 shows common household hazardous wastes. Containers retaining a residue of hazardous material are also classified as hazardous waste. Even more so than small businesses, households often lack the incentive or opportunity to properly dispose of hazardous wastes.

12.4.4 Inventory Methodology

(a) Survey Overview

Local generator surveys, supplemented by data from national studies, have been used to estimate types and quantities of moderate risk waste generated in Klickitat County. The surveys were designed to be

used by telephone interviewers who were trained and provided with background information on hazardous wastes and materials. As with any survey, there is a potential for inaccuracies in results due to errors and misrepresentations by the respondents. The reason for such discrepancies are numerous, and include lack of knowledge of hazardous waste management issues, general skepticism toward regulatory agencies, and incorrect recollection of past disposal practices. However, because this was a random telephone survey, responses were less biased by self selection. Additionally, compared to a mail survey, respondents were more apt to give accurate answers as the interviewer was able to assist in explaining the technical aspects of the questions, and could prompt responses with clarifying statements and additional information as needed.

In the commercial sector, the objective was to interview all or close to all of the nonregulated businesses that potentially generate hazardous waste (SQGs). A 73 percent response rate from nonregulated business was achieved. From these local surveys, it was possible to calculate average "generation factors" for most waste types and businesses. Where there were gaps in the survey, generation factors found in a national EPA SQG survey were used. These generation factors were then multiplied by the total number of known SQGs in the County to get a complete estimated inventory of SQG hazardous waste.

In the residential sector (see Section 12.4.9), a random sample of households were contacted. The main purpose of the survey was to ascertain disposal methods and rates, as well as attitudes toward hazardous waste. Household hazardous waste quantities were estimated primarily using generation factors adapted from waste characterization (waste sorting) studies in various parts of the country. Waste characterization studies provide more accurate data than surveys because households can rarely provide accurate estimates of the quantities of hazardous material per container, or often even the number of containers they throw out. Data from the household survey was also used to provide information on disposal methods used in Klickitat County because waste sorting studies do not account for alternate disposal methods, such as burning.

(b) Klickitat County SQG Survey

The Klickitat County SQG survey was developed to obtain reliable estimates of the number and type of small quantity hazardous waste generators and their waste generation and management practices (see Appendix E-1).

Interviewers worked from a list of businesses in the County that were identified as potential SQGs. The list was compiled by going through the telephone directory yellow pages and identifying those nonregulated businesses that appeared to fit under the Standard Industrial Classification (SIC) codes uses by the EPA in their national SQG survey. (The EPA study provides lists of SIC codes that tend to be small quantity generators of hazardous waste.) Large quantity generators (those regulated by Ecology) were excluded from the list. Interviewers contacted a few additional businesses in the County that were missed on the list but identified by the SWAC.

Initially, the SICs were grouped into 13 main business categories (see Appendix E-2). After the survey, it was necessary to add a new category for analysis. The new category for fire and police departments, and for post offices were moved from vehicle maintenance to their own category because so few of these facilities maintain vehicles (see Table E3-9.)

(c) EPA National SQG Survey

In 1985, Abt Associates of Cambridge, Massachusetts, under contract with the U.S. EPA, conducted a Small Quantity Generator (SQG) survey of approximately 54,000 businesses nationwide. The findings of the study were produced in a report titled National Small Quantity Hazardous Waste Generator Survey, (EPA, February 1985). Nineteen thousand businesses responded, resulting in a large, statistically reliable database on generators of small hazardous waste quantities.

In the EPA survey, businesses (SQGs) were categorized according to the types of services they provide or products they make. Types of businesses included under each of the 23 categories are identified by their SIC codes. The EPA survey also grouped hazardous wastes into 28 major waste types. The waste types span the range of hazardous waste disposed of by SQGs. Farms were not included in this survey.

An outcome of the EPA survey was an estimate of average "generation factors" for 28 waste types across 23 industrial groups' SIC Codes. A SQG generation factor is a quantity of a particular waste generated annually per business.

While particular business types identified through the Abt Associates study may in fact not generate any hazardous waste, it is believed that this effect is smoothed by generators which generate for larger than average quantities. The Abt Associates study estimated that SQGs produced approximately 235,833,400 pounds per year of hazardous waste, or 890 pounds per business per year.

The results of the EPA survey have been used in two ways. First, the average generation factors found in the EPA survey are presented alongside the results from the Klickitat survey (presented in Appendix E-3) for comparison. Second, the national generation factors are used where the Klickitat survey result were incomplete (see Appendix E-3).

12.4.5 Small Quantity Generator Survey Methodology and Analysis

The Klickitat survey (included in appendix E-1) asked businesses for both quantitative and qualitative information regarding hazardous wastes. Of 112 SQGs telephoned, 84 surveys were completed. The raw data obtained from the survey were converted to useful results through the following steps:

(1) Each establishment was either assigned to 1 of 14 categories based on its description of its business, or determined not to be a hazardous waste generator. Of the total surveys completed, 10 percent reported generating over the 220 lbs/mo. regulatory threshold for hazardous wastes. These businesses are included because they are unregulated.

(2) The survey response rate (Table 12.3) for each business category was determined by comparing the number of responses in each category with the number of businesses identified as SQGs.

(3) Hazardous wastes as reported on the survey were assigned to standard categories which roughly correspond to those hazardous waste categories used by the EPA in its national survey. For example, a glue or adhesive waste is categorized as an ignitable waste, and "WD-40" as a waste solvent.

(4) Waste quantities were converted into standard units, i.e., pounds (lb.) per year. The assumptions used in making these conversions are provided in Appendix E-4. Some respondents did not provide quantities for some wastes. If possible, an estimate was derived based on quantities of hazardous waste materials that were reported. For example, if a service station bought two car batteries per month, it would be assumed that two used batteries were disposed of per month.

(5) Total and average quantities of hazardous waste generated were calculated for each business category and waste type. Some businesses indicated that they generate waste, but could not estimate how much. Where this occurred, that survey response was excluded from the calculation of the average. The information on storage and disposal methods, however, was used even for those businesses that could not estimate their waste quantities.

12.4.6 Estimated Waste Quantities from Small Quantity Generators

(a) Current (1988) Quantities: Results by Business Type

With the results from the survey, it was possible to estimate hazardous waste generation for all SQGs in the County. The averages (lb./yr./business) derived from the local survey (or the national EPA survey in some cases) have been multiplied by the estimated number of conditionally exempt business establishments in each business category. Tables 12.4 and 12.5 and Figure 12.1 summarize the results. In total, an estimated 116 tons of hazardous waste are generated annually. Wood manufacturing (lumber mills) and vehicle maintenance industries are by far the dominant producers of hazardous wastes, and the majority of that waste is in the form of waste oil.

Lumber mills reported generating waste oil related to maintaining their trucks. One mill reported a very large quantity of waste oil, which accounts for the majority of the MRW in that business category.

As described previously, Ecology makes a distinction between major and minor commercial generators. Ecology has provided a list of SIC codes generally thought to be minor commercial generators, which includes retail establishments, finance, insurance and real estate businesses. In order to identify minor generators in the survey, businesses were asked to indicate if they generated hazardous wastes only occasionally, through clean-up of occasional accidental spills, or disposal of off-spec or outdated materials that contain hazardous substances. Only one retail establishment answered affirmatively; the remainder indicated that hazardous waste was produced as an ongoing part of the business. Because of the apparent lack of minor generators, further analysis was not needed.

Businesses also provided information on the storage and eventual disposal of these wastes. From this information, it was possible to estimate the proportions of hazardous waste disposed by various means. For the purposes of this MRHWMP, disposal options were grouped into two categories: proper and improper disposal. Proper disposal includes pick-up by a hazardous waste treatment firm, self-haul to a hazardous waste treatment or recycling facility, and recycling or reusing of the waste on-site. Improper disposal includes disposal in the community trash, in a street or storm sewer, down the drain, or through dumping, burial, or open burning. Estimates of (1988) improper disposal are includes in Tables 12.4 and 12.5.

Following is a discussion of the findings on waste generation and waste management for the four largest generators of MRW by business categories. More detailed summaries of survey results for all generator business categories are provided in tables in Appendix E-3.

(1) Vehicle Maintenance

1988 Number of Businesses: 27

Number Interviewed: 25 (93%)

SIC Codes: 5511 (Auto Dealers)
5541 (Gasoline Stations)
7538 (Automotive Body/Paint Shop)
4210 (Trucking)

Vehicle maintenance, by virtue of the volume of services provided, accounts for a large portion of all the small quantity waste generated in the County. In 1988, an estimated 27 vehicle maintenance establishments in Klickitat County were identified, each generating a variety of hazardous waste ranging from waste oil to used car batteries. Businesses engaged in vehicle maintenance include service stations, automotive repair shops, paint and body shops, company-operated vehicle centers for privately owned buses, trucks, and automobiles. Some schools, city agencies and the County also maintain vehicle maintenance facilities.

The most significant hazardous waste reported was waste oil, identified by 21 of the shops interviewed. The quantity reported varied greatly among specific businesses ranging from quantities of 11 pounds to 13,500 pounds (1.5 to 1,800 gallons) per year. Wastes containing oil — used oil filters and oily rags — were also identified by most shops.

Used automobile batteries was the next largest reported waste, identified by 16 businesses, which reported between 20 and 2,000 pounds per year, or an average of 370 pounds annually (about 13 batteries). Antifreeze and solvents were also significant waste products, reported by 8 and 9 businesses, respectively.

There was considerable variation in storage and disposal practices among waste types and companies. About 85 percent of the generators indicated that waste oil was picked up by a hazardous waste treatment firm or recycled. One generator indicated burning the waste oil in an incinerator and the remainder did not give a response. The majority of used oil filters, however, were disposed of in the community trash. Half of the generators arrange for used batteries to be picked up by a hazardous waste treatment firm; 12 percent trade in their batteries; 6 percent use the community trash; 6 percent self-haul them to a landfill; and 25 percent did not specify their disposal method.

(2) Construction

1988 Number of Businesses: 26

Number Interviewed: 20 (77%)

SIC Codes: 1711 (Plumbing, Heating and Air Conditioning)
1761 (Roofing and Sheet Metal)
1500 (Building Construction in General)

Construction businesses produce a variety of hazardous waste resulting from vehicle operation, painting, soldering, and the use of adhesives, glues and sealants. Waste oil was the hazardous waste

common to most construction-related businesses in Klickitat County (reported by seven businesses). An average of 250 pounds (33 gallons) is generated per year. Another vehicle-related waste, used automobile batteries, was the next largest waste quantity. The average generation factor calculated from the surveys for Klickitat County was less than half the national average.

Generators reported that waste oil is disposed of in a wide variety of ways, including collection by waste treatment firms, disposal in community trash or in drains, and burying it on the property. All waste paints and solvents were reportedly disposed of in the sewer system.

(3) Dry Cleaners

1988 Number of Businesses: 6

Number of Interviewed: 3 (50%)

SIC Codes: 7212, 7215, 7216

Dry cleaning establishments include general dry cleaners, coin-operated dry cleaners, and carpet/upholstery cleaning. Perchloroethylene, or "perc," is used in the majority of dry cleaning operations, and Stoddard solvent, a petroleum distillate, is used in most other operations. Solvents are generally recycled in the cleaning process by evaporation and condensation. However, solvents not recycled are largely accepted for recycling by commercial recycling companies.

In Klickitat County, one responding dry cleaner, one laundromat, and one carpet cleaner reported generating some form of hazardous waste. Perc residues from the cleaners were reported at 2,040 pounds per year total. Other cleaning solvents accounted for the next largest amount of potentially hazardous waste. The perc wastes were reportedly disposed of in the trash, whereas the other liquid wastes were primarily poured down the drain.

(4) Printing

1988 Number of Businesses: 3

Number Interviewed: 2 (66%)

SIC Codes: 2700 (Printing, Publishing, Newspapers)

In the process of producing printed materials and graphics, the printing industry generates hazardous wastes including photographic chemicals, ink, and press-cleaning wastes.

In the Klickitat survey, photographic wastes (developer, fixer) comprised the largest quantity. One firm reported 306 pounds per year, which are primarily poured down the drain. Because survey respondents did not provide estimates of ink waste quantities, an average of 50 pounds per year was assumed (based on the proportion of ink reported in the EPA survey) to calculate quantities in that category.

(b) Projected Quantities

The data shown in Tables 12.4 and 12.5 are estimates of current generation rates, based on a survey conducted in late 1988. For planning purposes, a projection of future hazardous waste quantities is needed. This first generation plan is scoped to a five-year time frame. Second generation plans should encompass a 20-year time frame.

In order to project future hazardous waste generation, it is necessary to estimate changes in the number and type of business and in the average generation rates per business. One approach is to use estimates of economic growth or employment growth as a rough indicator of overall increases in business activity, and to assume that hazardous waste production parallels business activity. For Klickitat County, no recent estimates of economic growth are available. Because the County does not expect any major new "magnet" industries to locate in the area in the next five years, it can be assumed that the economic growth rate will track the population growth rate.

Because Klickitat County does not prepare economic growth projections, it was assumed that business growth is proportional to population growth. The growth of MRW generation is also estimated to be proportional to business growth. Therefore, it is projected that 120 tons of hazardous waste will be generated in 2005 in approximately the same waste-type proportions as they are now.

12.4.7 Agricultural Hazardous Wastes

Agricultural wastes are regulated under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) and the Washington Pesticide Control Act under the State Department of Agriculture. Because the planning guidelines do not provide guidance with

regard to agricultural waste, farms were not targeted in the SQG survey.

To provide an overview of the data that was collected on agricultural waste the following summary and quantity estimates were compiled. About 10 family farms were encountered and surveyed in the course of conducting the household hazardous waste survey. However, these farms could not provide estimates of how much waste pesticide they generate. Unused pesticides and automotive waste are typically the major types of hazardous waste produced by farms. Farms also generate empty pesticide containers, but these are generally triple-rinsed before disposal, as required by law and according to label instructions.

Data from a draft report by the Washington State Department of Agriculture have been used to obtain a rough estimate of the quantities of pesticide that may be present in Klickitat County. The report is a summary of the results from the State's Waste Pesticide Identification and Disposal Program in three counties: Yakima, Whatcom, and Pacific Counties. Of those counties, Yakima County is most similar in terms of climate and type of agriculture to Klickitat County. In Yakima County, 101 farmers brought waste pesticides (which include any pesticide formulation that cannot be used due to cancellation or suspension of its registration, deterioration of the product, or lack of identification) to a collection site on August 26, 1988. A total of 43,637 pounds were collected, or an average of 432 pounds per farmer.

According to the 1992 census, there are 508 farms in Klickitat County, of which approximately 240 are considered larger farms. Assuming the larger farms are each storing 432 pounds of unusable pesticide waste, it could be estimated that as much as 52 tons of waste pesticide are being stored by farmers in Klickitat County, based on the findings in Yakima County.

12.4.8 SQG Attitudes and Perceptions

To better develop management strategies for SQGs, businesses were questioned about their perceptions and opinions on regulations, education, and waste management needs.

(a) Difficulties with Compliance

Generators were asked what factors made compliance with hazardous waste laws difficult. Most (80 percent) gave no answer, or said they had no problem with compliance. Of those who gave responses, cost was the most commonly cited problem, followed by lack of information, lack of personnel, and lack of a place to take hazardous waste. SQGs were also asked to name specific laws or regulations for which compliance is difficult. Most (93 percent) said "None". A few generators mentioned laws regarding waste oil, storage tanks, and antifreeze, and one generator named State Initiative 97.

(b) Sources of Information

Most SQGs who responded (42 percent) said that they relied on literature from manufacturers and other sources for information on hazardous waste regulation. Fourteen percent of SQGs received information from business associations and a few rely on attorneys and local agencies.

(c) Needed Services

The survey asked SQGs which services would best fit their needs with respect to managing moderate risk waste. Of those who responded, 34 percent said collection services; 24 percent recycling services; 12 percent newsletters; 10 percent a collection facility; and the remainder mentioned hotlines, consulting services and collection days. A large majority (80 percent) said they would be willing to pay for these services.

(d) Treatment and Disposal Costs

Although 80 percent of SQGs said they would be willing to pay for MRW services, only about 5 percent of survey respondents reported that they are currently paying for treatment or disposal of hazardous wastes. Half are paying less than $200 per year, the remainder pay between $200 and $600. However, 30 percent of the overall respondents indicated that they would be willing to pay for hazardous waste management services. Most said they would pay between zero and $50 per year. Three SQGs said they would pay between $150 and $300 per year.

(e) Targeted SQGs

In order to focus the MRHWMP recommendation in the most appropriate and effective way, managing MRWs needs to be specifically targeted at the most significant waste generators among the SQGs. The SQGs business categories were evaluated for designation as targeted SQG categories based on the following criteria:

(1) Comparatively large amounts of MRW generated per year;

(2) Comparatively large amounts of MRW improperly disposed of per year; and

(3) Significant quantities of acutely hazardous waste that is improperly disposed.

Based on the survey results, the SQG waste categories that contained large amounts of MRW or significant quantities of acutely hazardous waste are listed in Table 12.6. The SQG generator and disposal survey data combined with the criteria for targeted SQGs led to the selection of the following SQGs:

(1) Vehicle Maintenance

(2) Construction

12.4.9 Household Hazardous Waste Survey

(a) Introduction

Understanding household hazardous waste generation and disposal is a key element in developing an effective moderate risk waste management program. This MRHWMP examines generation and disposal of household hazardous waste through a survey of Klickitat County residents in combination with information developed by researchers working in several parts of the U.S. on household hazardous waste management.

(b) Survey Methodology

Survey forms used by other jurisdictions were reviewed in order to develop the questionnaire, presented in Appendix E-5. The survey was designed to:

- Document the types and quantities of hazardous wastes generated by households;
- Determine how these wastes are stored and disposed;
- Identify opportunities and constraints to improving management and disposal of household hazardous waste;
- Evaluate the current level of public concern bout hazardous wastes; and
- Assess citizen interest in alternative disposal methods.

Because a mail-out survey would likely result in a skewed response, over-representing people with above-average environmental awareness, the survey was conducted by phone. Residents' phone numbers were selected from the Klickitat County phone directory through a randomization process. The distribution of selected numbers, shown in Table 12.7, was designed to reflect both major population centers in the County, as well as smaller communities.

Data analysis included frequency distributions (e.g., how often households reported disposal of paint or pesticides) and averaging (such as the number of paint cans or other containers thrown out by the average household) as appropriate for waste quantity information, questions regarding attitudes about hazardous wastes, and other information. Average quantities were calculated for the number of hazardous waste products thrown away, including the number of "empty" containers, many of which retain a small residue or hazardous material. Although generation rates for household hazardous wastes may be derived through surveys, it is difficult for most householders to accurately remember the quantity of wastes they dispose of each year. For this reason, additional generation information derived from solid waste sorting studies conducted in various parts of the U.S. was combined with the survey data to derive a planning estimate for household hazardous wastes disposed of in Klickitat County. This estimate and the estimation methodology are presented in Section 12.4.10.

Respondents who were more interested or educated about hazardous materials issues may have provided more accurate information about their generation and disposal practices than those less aware of these issues. Beyond simply answering survey questions, a number of respondents volunteered information and concerns. These comments depict some of the particular or personal concerns of County residents.

(c) Profile of Survey Respondents

Most of the survey respondents (94 percent) live in single-family homes, including mobile homes (15 percent). Fifty percent of respondents reported living in two-person households. The next largest percentage of respondents live in one-person households (14 percent) see Appendix E-7). Survey respondents varied in age from 21 to 94, with an average age of 49. There was a higher response rate from women (71 percent) than men. Both the age and gender distributions may reflect the high

percentages of retirees at home and women working at home among the survey population; these persons would be more likely to be home to answer the telephone during daytime hours. Few respondents reported having a home business, and in general these businesses did not generate hazardous waste. If a home business was identified that would typically be classified as a minor or major generator, a SQG survey was also completed.

(d) Types and Quantities of Wastes

All survey respondents indicated that they use some type of potentially hazardous product in their homes or on their properties (See Table 12.8). All households reported using household cleaners; most reported antifreeze, motor oil, and polishes or waxes. Drain openers or other caustics, paint, pesticides, and herbicides were each reported by approximately 40 percent or more of the households. Other materials reported include fuels, thinners and related materials, fungicides such as wood preservatives, and pool chemicals.

For wastes and waste containers, the most popular disposal method reported was discarding the waste as trash (see Table 12.9). Other important disposal methods included burning (particularly for herbicide containers); burial; at-home reuse; and storage, especially where some material remained in the container.

Unlike the other wastes presented in Table 12.8, motor oil, antifreeze, and radiator flush are not consumed through use, so substantial amounts of hazardous material, as well as containers, must be discarded. For these materials, the most common disposal method was pouring the waste on the ground (see Table 12.10). Respondents reported a variety of at-home uses for waste motor oil, including lubricating chain saws, treating fences, spreading it on roads and driveways for dust suppression, and burning it as fuel.

A number of respondents reported other materials, often related to hobbies. In these cases, amounts disposed per year have been included in Tables 12.8 and 12.9 in instances where the respondent was able to provide adequate information. Hobbies involving hazardous materials were reported by 14 respondents (see Appendix E-7). Several respondents reported long-term storage of potentially hazardous materials not specifically addressed in the survey questions, or omitted from Tables 12.8 and 12.9 for analytical reasons (see Appendix E-7).

(e) Attitudes About Hazardous Waste and Disposal Options

Respondents rated their attitudes about hazardous wastes from 1 (not concerned) to 5 (very concerned). A substantial majority of respondents (76 percent) were moderately concerned (3) to very concerned (5) about hazardous wastes. Several described their level of concern as "5+" (see Table 12.11).

Respondents were also asked which of several disposal options they would or would not use (see table 12.12). A few respondents volunteered suggestions on how such disposal programs should be run: that the "dump day" should be run twice a year and should not be free; that a permanent collection site should be shared with neighboring counties; or that the collection site should be built outside of their community or as far away as possible.

When respondents were asked how far they would drive to a collection site, responses varied from five miles to "as far away as the site is." The average distance respondents were willing to travel to a disposal site was 21 miles. Over half of the responses, however, fell into the 5 to 20 mile range, and the figure of 21 miles reflects the responses of a number of more strongly concerned individuals.

12.4.10 Estimated Waste Quantities from Households

(a) Methodology for Estimating Generation of Household Hazardous Waste in Klickitat County

This MRHWMP uses waste-sorting data collected by researchers in various parts in the United States to form a basic estimate of household hazardous waste disposal as trash, then uses survey information from the County to adjust this estimate to reflect the possible range of disposal methods, such as sewerage, burning, or long-term storage. The methodology is explained in detail in Appendix E-6. This approach allows approximate results to be obtained until further local research is conducted. An approximate estimate can be an adequate basis for program recommendations, because qualitative factors such as attitude about hazardous wastes and willingness to use better disposal options have an impact on program design that may be greater than the effect of amounts generated.

(b) Klickitat County Estimates

An estimate (by category) for household hazardous waste generation in Klickitat County is obtained by multiplying the per household generation figure in pounds (as developed in Appendix E-6) by the number of households (see Table 12.13). Thus, if the average generation rate for waste oil is 10.5 pounds, County households as a group generate 38 tons of waste oil. In total, it is estimated that 99 tons of household moderate risk waste were generated annually in 1988(see Figure 12.2).

Household hazardous waste projections to the year 2000 are based in part on an increase of 12 percent in households and populations by 2000 in the County. It is also assumed that business growth is proportional to population growth. Solid waste generation seems to grow faster than population, however, and it is prudent to assume that household hazardous waste generation also grows faster than population. For this reason, projection figures also assume a 1 percent per-capita growth in household hazardous waste disposal. Socioeconomic influences such as income, population density, household size, etc. may affect household hazardous waste generation, but not enough is known about these factors to adjust the estimates. It is estimated that MRW generated by households will rise to 111 tons in 2000.

Although none of the waste sorting data was collected in Klickitat County, the New Orleans, Marin County, and the Puget Sound results, as well as similar results derived by other researchers in this field indicate that household hazardous waste generation does not vary a great deal among communities in the United States. Rural areas have not been as closely studied as cities, but preliminary information has shown similar patterns of generation and disposal. (Other waste-sorting data, e.g., studies performed by Stanford Research Institute, are not used in this report for methodological reasons.)

12.4.11 Summary and Conclusions

(a) Small Quantity Generators

There are an estimated 112 nonregulated businesses in Klickitat County that generate some form of hazardous waste, but are unregulated by the state dangerous waste regulation. Based on the local survey, supplemented with national data from an EPA survey, it is estimated that about 116 tons of hazardous waste are generated annually.

One lumber mill accounted for almost half that quantity, and its waste was primarily waste oil. The vehicle maintenance industry is the next most predominant hazardous waste generator, producing an estimated 53 tons annually, the majority (75 percent) of which is waste oil. Most vehicle maintenance establishments (85 percent) have their waste picked up by a hazardous waste treatment firm or recycle their waste oil. Used oil filters, however, are generally disposed of in the community trash. Antifreeze, another vehicle-related waste, is the second largest waste type (5.45 tons per year). About 50 percent of generators pour the antifreeze waste down the drain or into the sewer, and the remainder is either picked up by a hazardous waste hauler or dumped on the property (see Tables in Appendix E-3).

The construction industry is the second largest generator, and most of its waste is also vehicle related. These businesses are more likely than the vehicle-maintenance industry to rely on community trash or the sewer for disposal. Those SQGs that produce the smallest quantities of hazardous waste do not generally use hazardous waste management services. Instead, the wastes are disposed of in the solid waste stream, the sewer, or the owner's property.

Most SQGs reported that they had no difficulty complying with hazardous waste regulations. The survey asked businesses which services would best fit their needs. Of those who responded, 34 percent said hazardous waste collection services and 24 percent said recycling services. A large majority said they would be willing to pay for those services.

(b) Households

Virtually all Klickitat County residents use potentially hazardous materials and generate moderate risk wastes. The most commonly disposed of waste containers included cleaning and home-care products, antifreeze containers, herbicides, and pesticides. In terms of hazardous materials discarded (as opposed to empty or nearly-empty containers), waste oil and paint are the most important categories.

As in most communities where household hazardous waste surveys have been conducted, the major disposal mode in Klickitat County is to dispose of moderate risk wastes as trash. Although disposal as trash is far from ideal, it does allow a measure of control over the fate of these wastes. A small number of County residents use unsafe or even illegal disposal methods for certain wastes. Several

residents report that they burn all combustible wastes, including used motor oil, and various containers that may retain toxic residues or even dioxin precursors, such as certain herbicides. Other residents bury moderate risk wastes, or reuse potentially contaminated containers. These survey results point to a need for better disposal options, combined with intensive educational efforts. Although most County residents are clearly concerned about hazardous materials in the home, their disposal practices and comments made during the survey indicate some lack of understanding about the risks associated with common household materials. Roughly one-fourth of survey respondents indicated little concern about hazardous wastes — a clear indication of the potential role of public education.

The majority of survey respondents indicated they would use or might use alternative disposal options, in particular a reasonably close permanent collection site. A community "dump day," (which may be less expensive but also less effective than a permanent site) and free at-home collection (the most costly option for the County) were somewhat less popular. Less than half the respondents indicated that they would use an oil collection site, perhaps because only about 60 percent of the County residents generate waste oil. Such a facility may be viewed by residents as too specialized; many residents that do generate waste oil have found alternate (often unsafe) disposal options.

(c) Total MRW Stream, Targeted Generators and Targeted Wastes

All wastes that are defined as dangerous or acutely hazardous, regardless of their origin, pose some threat to public health or the environment when managed improperly. The total estimated quantities of MRW generated by households and SQGs are summarized in Table 12.14, along with the estimated quantities of waste improperly disposed of in Klickitat County. In addition to the targeted SQGs identified earlier in this section, similar criteria were applied to the summarized MRW quantities to develop target MRWs. The targeted MRW criteria were:

(1) comparatively large amounts of the MRW are generated per year;

(2) comparatively large amounts of the MRW are improperly disposed of per year; and

(3) significant quantities of acutely hazardous waste is improperly disposed.

The following statement was valid at the time of the 1988 survey and is valid for this 2000 Plan Update. The application of these criteria to the compiled data resulted in the selection of waste oil, paint/dye wastes, solvents, used batteries, antifreeze, and pesticide waste as target MRW in the County, as indicated in Table 12.14. The first five waste groups were selected because they are the hazardous wastes generated most frequently by SQGs, households or both. The last waste group (pesticide wastes) was added to the list because these wastes can be extremely hazardous. For all six waste types, a significant portion of the waste is improperly disposed of. For Klickitat County, these six hazardous waste groups should be targeted by future programs.

12.5 CURRENT CONTEXT AND NEEDS OF MODERATE RISK WASTE MANAGEMENT

Section 12.4 provided estimates of the magnitude of MRW generation and disposal practices in Klickitat County at the time of the survey. MRW generation quantities developed from the 1988 surveys are valid for this 2000 Plan Update. The disposal practices have been modified due to efforts of Allied and the County. Changes are reflected by the increased MRW collected. Quantities collected at the transfer stations are reflected in Table 12.24. This section looks at regulations and programs that define current hazardous waste management practices and at future local management needs. Particular attention is given to programs affecting MRW. This assessment of the existing structure and future needs for MRW management serves as a basis for evaluating various program alternatives and management options in Section 12.6 as well as the recommendations in Section 12.7.

12.5.1 Roles, Responsibilities, and Management Priorities

Broad planning goals (established in Section 12.1) and objectives for MRW management in Klickitat County provide the groundwork for specific programs. Future programs tailored to achieve these objectives grow out of an understanding of Klickitat County's MRW quantities and current problems gained in the data collection and analysis of Section 12.4.

The management of MRW in Klickitat County occurs within the context of a complex interaction of federal, state and local legal requirements on hazardous waste developed principally over the past 20 years. Most of the resulting programs have developed in the past ten years, and few of these are yet fully implemented on any of the levels of government.

While the overall framework of regulation may appear to be somewhat haphazard, some generalizations can be made about planning responsibilities. Historically, local governments have taken the lead for the management of hazardous materials and for emergency response programs, state governments have overseen the "cradle-to-grave" management of hazardous wastes, and the federal government has taken the lead role in the cleanup of contamination.

At the same time, however, these simplified divisions of responsibility are changing as programs move from early implementation towards maturity. In general, local governments are accepting a greater share of the responsibilities traditionally assumed by state and federal governments.

(a) Federal Roles and Responsibilities

The use of chemicals by businesses to manufacture various goods, pharmaceuticals, fertilizers, pesticides, coatings, adhesives, and many other items has resulted in production of more than 100 million tons of synthetic chemicals in the United States every year. As a consequence of the production and use of these chemicals, millions of tons of wastes are also produced nationally on an annual basis by as many as a million businesses. Prior to enactment of the RCRA (Resource Conservation and Recovery Act) in 1976, there was little control over the disposal of hazardous wastes. As a result, a number of environmental disasters occurred (Love Canal, Valley of the Drums, and Times Beach) that raised public, governmental, and business concern over how hazardous wastes were being managed. In response to this concern, new laws regulating hazardous waste have been enacted and promulgated.

RCRA was enacted in 1976 as the first step in regulating the potential health and environmental problems associated with solid, hazardous and non hazardous waste disposal. RCRA and the regulations developed by the U.S. Environmental Protection Agency (EPA) to implement its provisions provide the general framework of the national hazardous waste management system, including: the determination of whether wastes being generated are hazardous, techniques for tracking wastes from point of origin to eventual disposal (the manifest process), and the design and permitting of hazardous waste management facilities.

Subsequent laws have extended federal oversight of hazardous waste. The Hazardous and Solid Waste Act (HSWA) amended RCRA in 1984 to address some regulatory gaps in RCRA. HSWA developed criteria for highly toxic waste and lowered the limit for regulatory exemption for small generators from 2,200 pounds (generated per month) to 220 pounds for hazardous waste and to 2.2 pounds per month for acutely hazardous waste as of December 1986. CERCLA, also implemented by the EPA, established Superfund for the cleanup of contaminated sites. The Superfund Amendments and Reauthorization Act (SARA) increased the Superfund budget and provided for a new emergency planning and community right-to-know program.

On October 17, 1986, the Superfund Amendments and Reauthorization Act of 1986 (SARA) was enacted by Congress. SARA included new local requirements for hazardous waste planning and response. Title III of SARA contained the Emergency Planning and Community Right-to-Know Act of 1986 which impacts local governments, businesses and citizens. The four major sections of Title III are emergency planning, emergency notification, community right-to-know reporting requirements, and toxic chemical release reporting - emissions inventory. This legislation is aimed at helping businesses, governments, emergency services organizations, and communities to meet their responsibilities in regard to potential chemical emergencies as well as to increase the public's knowledge and access to information on the presence of hazardous chemicals in their community and releases of these chemicals into the environment.

The emergency planning sections of SARA Title III are designed to develop State and local governments' emergency response and preparedness capabilities through better coordination and planning. The local emergency planning committees were to have prepared their emergency plans by October 17, 1988. Klickitat County Emergency Services developed the local emergency plan as required under the SARA legislation and the plan was adopted by the Board of County Commissioners on April 15, 1996. The emergency notification provisions of the law require facilities to immediately notify the local emergency planning committee and the State emergency response commission if there is a release of more

than a proscribed amount of listed hazardous substances.

Under the emergency planning sections of the law, local facilities which use, produce, or store any EPA listed extremely hazardous substances in a quantity greater than that substance's threshold planning quantity must submit "material safety data sheets" and an emergency and hazardous chemicals inventory form to the local emergency planning committee, the State emergency response commission, and the local fire department. Citizens may request this information from the local emergency planning committee or State emergency response commission. The last major section of SARA Title III is toxic chemical release reporting requirements. This part of the law mandates that facilities which use EPA listed toxic chemicals in quantities over 10,000 pounds in a calendar year must submit a toxic chemical release form for the year. As of 1996, any facility with 10 or more employees, in SIC Code 20-39, manufacturing or processing more than 25,000 pounds of these chemicals per year must submit a toxic chemical release form annually.

Other federal laws of importance to hazardous waste management include the Toxic Substances Control Act (TSCA); the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA); the Federal Hazardous Materials Transportation Act; and the Clean Water and Clean Air Acts.

In 1990, the land disposal of untreated hazardous waste was prohibited. Section 3004 of RCRA, as amended by HSWA, prohibits the continued disposal of untreated hazardous wastes, except for underground injection, in or on the land. The landfill ban was phased in with specific dates for specific hazardous wastes. The ban on the first-third of RCRA-listed wastes went into effect at the end of 1988, the second-third were prohibited after June 8, 1989, and the last third after May 8, 1990 (See Table 12.15).

These disposal bans are for wastes that are regulated as hazardous wastes. MRW by definition falls outside of the regulations including these disposal bans. Nonetheless, most landfills, including Roosevelt Regional Landfill, refuse wastes that are clearly hazardous even if the source is a small quantity commercial generator or household.

The EPA is required to set "…levels or methods of treatment, if any, which substantially diminish the toxicity of the waste…so that short - and long-term threats to human health and the environment are minimized." After the effective date of a prohibition, wastes may be land-disposed in permitted hazardous waste facilities if they comply with treatment standards developed by the EPA, or if the EPA has approved a site-specific petition demonstrating, to a reasonable degree of certainty, that there will be no migration from the disposal unit for as long as the waste remains hazardous.

Federal hazardous waste laws seek to ensure uniform nationwide requirements. Federal statutes such as RCRA typically allow development of state or local requirements of equal or greater stringency. Other statutes, such as the federal Superfund, require development of state laws to enable the state to obtain full access to federal funding. For most statutes, implementation and enforcement may be principally delegated to the states.

The EPA finalized the “Universal Waste Rule” in May of 1995. This rule simplifies management requirements for recycling batteries, mercury thermometers, pesticides, and, in the future, other wastes adopted into the universal waste list through a petition process. It is thought that these waste streams are relatively safe to handle and are more likely to be improperly disposed than other regulated wastes.

(b) Washington State Roles and Responsibilities

Ecology has the authority to implement most of the RCRA regulations, with the notable exception of the Superfund cleanup programs. Consequently, Ecology regulates handling, storage, treatment, transportation, and disposal of hazardous wastes in Washington for generators that exceed the regulatory thresholds in accordance with the Hazardous Waste Management Act (RCW 70.105) and the Model Toxics Control Act. There is also a rule change to WAC 173-303(070) that requires disposal of SQG waste in accordance with the adopted local hazardous waste management plan. The federal and state regulatory threshold is generating 220 pounds or more of hazardous waste per month or batch or 2.2 pounds or more per month or batch of acutely hazardous waste. Below these threshold quantities, commercial and industrial hazardous waste generators in Washington are "conditionally exempt" under WAC 173-303-070. As mentioned before, these exempt generators of hazardous waste are called SQGs. They are required to designate their wastes (i.e. determine whether they exceed threshold quantities), and must meet safe storage requirements. They are required to dispose of their wastes in one of four ways: reuse them; give them to a recycler;

dispose of them at a treatment, storage, or disposal (TSD) facility; or dispose of them at a permitted landfill. This last disposal option is being discouraged in favor of the first three options. SQGs may also be inspected (although infrequently) on a random basis by Ecology.

Local governments have been given primary responsibility for management and regulation of MRW.

(c) Local Waste Management Roles and Responsibilities

Because a significant portion of MRW is disposed as solid waste or sewage, MRW has become an issue for local authorities that regulate solid waste management and/or wastewater treatment. These agencies are currently faced with the problems of household hazardous wastes and small quantity generator wastes in the municipal waste streams. Both solid waste utilities and sewer utilities have the authority to prohibit discharge of hazardous chemicals into their systems.

In Klickitat County, several agencies, including solid waste and waste treatment agencies, play roles related to MRW:

24) County Department of Emergency Management (DEM)

DEM maintains a list of contractors for hazardous waste management and cleanup, and provides agency referrals in hazardous materials /wastes situations. In cooperation with the Washington State Patrol, under the County's Unusual Occurrence Program, DEM has been implementing SARA Title III at the local level. Pursuant to this law, hazardous materials inventories and emergency response plans are being prepared by and collected from businesses in the County.

25) Emergency Response

While DEM is responsible for emergency planning, the Washington State Patrol, the Department of Ecology, County Sheriff, and County Fire Districts respond to emergencies as they occur. The County has a "hold harmless" agreement with the State Patrol, which in turn has a "hold harmless" agreement with Ecology regarding emergencies involving hazardous wastes.

26) County Health Department

The regulatory authority of this Department encompasses a variety of solid waste storage, collection, transfer, and disposal activities. The Health Department regulates the location, design, construction, and operation of all solid waste facilities in the County, and serves as the lead public agency for monitoring and regulating materials which are disposed of in area landfills. The Health Department also regulates sewer utilities and septic tank installations. The Health Department has two employees working on issues related to hazardous waste. These individuals have attended hazardous waste and materials training sessions. In addition, Health District staff attends an annual training conference held by the Washington State Environmental Health Association, and occasionally attend similar types of sessions held by the Environmental Protection Agency (EPA). The Department does not currently offer any specific programs to assist MRW generators in Klickitat County.

A Health Department employee was directly involved in the development of this MRHWMP through attendance at SWAC meetings and plans to assist in its implementation.

27) Solid Waste Advisory Committee (SWAC)

The SWAC is primarily responsible for developing and recommending to the Board of Commissioners solid and moderate risk hazardous waste plans in Klickitat County.

28) County Solid Waste Department

The County Solid Waste Department administers solid waste disposal in the County. Most county solid waste is delivered to the transfer stations owned by Allied and are located in BZ Corners, Dallesport, Goldendale and Roosevelt. The transfer stations are the disposal site for much of the improperly handled MRW generated in the County. All transfer stations have facilities for diverting MRW from the waste stream. Consequently, the operations at these key facilities are an important part of this planning process. See Section 12.5.5 for a discussion of employee training for landfill and transfer station operators.

The County Solid Waste Deparyment has taken the lead in providing educational materials and outreach to both household and SQG's concerning MRW. The County has attended public events with an information booth, attended service club meetings as a guest speaker, been on various radio stations and

provided printed information through county-wide mailings, some of which were done in cooperation with Allied.

29) Publicly-Owned Treatment Works (POTWs)

Wastewater disposal is controlled by POTWs in Klickitat County. The POTWs are discussed in more detail in Sections 12.5.5 and 12.5.7.

A listing of key legislation of importance to hazardous waste generators and the corresponding federal, state, and local agencies responsible for implementation is presented in Table 12.16.

(d) Existing Washington State Hazardous Waste Programs

Several statewide programs encourage proper management of hazardous wastes, including MRW. Under Initiative 97 of 1989, Ecology is authorized to provide planning, management, education, and technical and financial assistance for hazardous waste programs. Initiative 97 also provides funding for local solid and hazardous waste plans and programs.

Under the Washington Waste Reduction Act (1989), the State has made funds available for technical assistance, including workshops and seminars to help generators reduce the amount of hazardous wastes they produce, and a data base on proven reduction techniques. The Department of Ecology sponsors the statewide "Hazardous Substance Information Hotline," that answers questions about hazardous substances in general. Ecology also sponsors a "Recycle Hotline" that provides information on local recycling options, including those for waste oil and batteries.

Public and private agencies have prepared general and targeted waste educational materials such as brochures, newsletters, mailings and media spots on household hazardous waste. Ecology's Hazardous Substances Information and Education Office acts as a clearinghouse for many educational materials. The Educational Subcommittee of the Hazardous Waste Interagency Coordinating Committee has completed a bibliography of various audio/visual and printed information on household hazardous waste.

Both private and public agencies have educational materials specifically targeting SQGs. Several trade associations have made efforts to inform their members of regulations concerning proper waste disposal.

(e) WSU Agricultural Cooperative Extension Office Program

The local WSU Agricultural Cooperative Extension Office supplements the effort of the Solid Waste Division in educating homeowners on household hazardous waste. The local Cooperative Extension Office has provided information and education to county residents on solid waste recycling and household hazardous wastes as an integrated part of its public education programs including 4-H.

(f) Private-Sector Roles and Responsibilities

Allied provides drop off collection and storage of household MRW at the transfer stations and at the landfill. The County has implemented home pickup of MRW from elderly and disabled households. MRW collected from these pick up events was delivered to the transfer stations.

Private facilities that handle regulated hazardous wastes are also available to commercial generators of MRW. These private companies include waste brokers, recyclers, reclaimers, and clean-up contractors, in addition to treatment, storage and disposal facilities.

Hazardous waste firms offer collection service to SQGs, which may include consultation about regulations, identification of hazardous wastes, and transport of hazardous wastes to treatment, storage and disposal (TSD) facilities. However, these firms often require hazardous waste profiles (laboratory tests to classify the wastes) before accepting wastes for treatment or disposal. These tests are often very expensive for the small volumes of wastes brought in by the SQGs. For this reason, many SQGs that may be aware of these services choose not to use these services. An alternative for SQG's is to piggyback their MRW disposal with the cooperative County/Allied Household Hazardous Waste program implemented through the transfer stations.

Significant savings for SQG's can be realized for most wastes. Under this program SQG waste is not mixed with County Waste, but the private generator must arrange to meet the TSD field chemists contracted to service the County/Allied household hazardous waste storage containers at the transfer stations. If the SQG does this then the TSD will wave the requirement for most waste profiles by using either the County profile or the TSD profile. The TSD will also waive the transportation part of the cost since they are already at the location to service the County's household hazardous waste.

Finally, the TSD will charge HHW prices for the items brought in under this arrangement. The program was implemented in 1995 and has served the disposal needs of at least two private SQG's and several government agency SQG's.

All TSD facilities handling hazardous waste in Washington must be permitted by Ecology and must use the uniform hazardous waste manifest form to ship hazardous wastes off-site. These firms must also comply with state and federal regulations. There are no Commercial hazardous waste firms located in Klickitat County.

Collection services provided by recyclers or reclaimers often provide reasonable priced waste management for SQGs. These firms typically specialize in collecting and processing specific wastes such as solvents and used oil and, therefore, do not require hazardous waste profiles. There are a few private companies from the Portland and Tri-Cities areas that collect used oil and solvents from SQGs in Klickitat County. These services are provided for SQGs who are interested in proper waste disposal that is provided through these collection and treatment, reclamation, disposal firms. In the Klickitat survey of SQGs, several firms indicated that they use these services (see Section 12.4). These services are further discussed in Section 12.5.7.

Pesticide containers are generated by many small agricultural operations and also by government agencies such as the U.S. Forrest Service and the County Road Department. The Roosevelt Regional Landfill can accept triple rinsed pesticide containers.

(g) Management Priorities

At the state and federal level, a waste management hierarchy guides hazardous and MRW management decision making, and provides the framework for this MRHWMP. "Management priorities" consist of a set of preferred waste management options in descending order of priority. The descending hierarchy of management methods is shown in Table 12.17 along with some of each method's advantages and disadvantages. As with other environmental management choices and preferred management hierarchies, the options at the top of the hierarchy, like waste reduction, have few if any negative environmental impacts but require the changing of habits and a commitment of resources over time. Similarly, the bottom of the hierarchy, in this case landfilling, is in large part a "do nothing" scenario that involves negative environmental impact potential but a negligible cost compared to the higher management options. This hierarchy is for the State of Washington and reflects the role of the federal land disposal restrictions (see Section 12.5.1.a) in driving the need for alternative means of managing, or preferably, by preventing the generation of hazardous waste.

The hierarchy's highest priority is waste reduction, activities that are conducted at the point of generation to avoid generating hazardous wastes, such as using non hazardous input materials instead of toxic chemicals. The primacy of waste reduction as a waste management method can be viewed from several perspectives:

30) From a physical perspective, the generation of hazardous waste represents a waste of resources.

31) From an economic perspective, the generation of hazardous waste represents an inefficiency, the performance of an activity at an unnecessarily high material cost. Conversely, waste management is a cost that does not necessarily contribute directly to the well-being of a household or the value of a product.

32) From a health perspective, the use of hazardous materials and the generation of hazardous wastes represent an increased risk of exposure to workers, householders, and to the public, with the risk of acute and/or chronic health effects.

33) From an environmental perspective, regardless of the degree of caution that is exercised, the greater the use of hazardous materials and the generation of hazardous wastes, the greater the probability that more of these substances will find their way into the environment. Some of these substances remain hazardous or toxic indefinitely.

Physical laws dictate that some waste will always be associated with the use of hazardous materials to produce products and services, but this waste should be reduced as far as possible. In general, the greater the use of waste reduction techniques, the smaller and less toxic the quantity of wastes that must be managed off-site, and the lower the probability of hazardous waste transportation spills, releases to the air, the soil and to surface and groundwaters. The lower risk of releases translates into a lower overall risk of exposure for the general public. These are

some of the reasons why waste reduction is the first management priority.

Recycling of hazardous wastes, on-site or off-site, is second to waste reduction in the hierarchy of preferred waste management methods. Recycling reduces the quantity of waste requiring treatment or destruction while conserving materials, energy and often money. Unlike waste reduction, recycling does not reduce worker exposure to hazardous materials, and often leaves residues that must be managed as hazardous wastes. Off-site recycling may entail risks to the general public during transportation and handling. Recycling must be carefully managed and regulated; a number of state and federal Superfund sites formerly hosted recycling operations.

Two forms of recycling are possible: (1) re-use of the hazardous waste in its existing form, and (2) recovery of valuable materials from hazardous wastes by removal of contaminants (such as heavy metals or halogenated organics). The first form of recycling can take place on-site or through waste exchange among companies. The second form of recycling requires the use of processes such as distillation, chemical precipitation of metals, filtration, sedimentation, or centrifuge. Waste oil is recycled through a combination of these processes. Sedimentation and distillation are the major methods used for solvent recovery. Metals from spent batteries are recovered by crushing the batteries and separating the compounds.

Treatment of hazardous waste is third in the hierarchy of preferred waste management methods. Through treatment, toxic or hazardous properties are reduced or eliminated. There remains, however, the problem of disposal of the residues, and the treatment process may result in emission of pollutants to the air or water.

Aqueous treatment, a common type of treatment, removes or detoxifies organic and inorganic contaminants in waste waters by means of physical, chemical and biological processes. Treated waste waters are usually discharged to municipal sewage treatment plants. Aqueous treatment methods can be used for on-site treatment of contaminated soils: contaminants are in effect rinsed from soil and the contaminated rinse water is treated. The selection of treatment methods depends on the characteristics of the incoming waste stream and on the quality of the desired effluent. Major processes include mixing and storage, batch reactions, steam stripping, solvent extraction, dewatering, biological treatment, carbon adsorption and monitoring for discharge.

Incineration or thermal destruction is fourth in the waste management hierarchy. Incineration methods can destroy a broad range of organic wastes by exposing them to high temperatures in the presence of air. Thermal destruction mostly entails incineration, but also includes flameless methods such as wet air oxidation and pyrolytic destruction using infrared radiation. Some inorganic wastes can be treated by heat destruction. For some highly hazardous organic wastes, such as PCBs and dioxins, incineration may prove to be the only practical treatment method.

The major advantage of incineration is that it can be applied to a wide range of waste streams and thus in theory requires siting of a limited number of off-site facilities, although most wastes now incinerated are burned on-site. The major disadvantages are the potential conversion of wastes into air and water pollutants and the consumption of resources, including potentially recyclable wastes, and the energy needed to burn wastes. Incinerating high BTU wastes can generate net energy; burning chlorinated hydrocarbons to produce industrial- grade acids is another resource-recovery method.

Waste stabilization falls below incineration in the hierarchy. Waste stabilization techniques are designed to reduce the mobility of contaminants and their potential for release into the environment. Stabilization employs both physical and chemical techniques to:

34) reduce the solubility of wastes

35) detoxify contaminants

36) decrease the surface area of the wastes

37) improve handling and physical characteristics

No form of stabilization can eliminate hazardous waste; indeed the quantity of waste is increased often by 100 percent or more, adding to transportation costs and the consumption of landfill volume. Although all stabilized materials should pass standardized leachate tests before placement in landfills, it remains unknown whether wastes so treated will remain forever immobilized, or whether the stabilizing media can eventually deteriorate to the point where significant amounts of contaminants are released into the environment.

Landfilling is the least desirable legal disposal option and since 1990, disposal of untreated regulated hazardous wastes in a landfill has been prohibited by federal law. Currently, it is legal for some untreated regulated hazardous wastes to be taken to landfills, but there are a number of restrictions as to how the materials may be placed in the landfill. For example, disposal of ignitable or reactive wastes is strictly limited to disposal in non leaking containers and must be protected from any material or conditions that may cause them to ignite (WAC 173-303-665). Disposal of regulated quantities of extremely hazardous waste in Washington is prohibited except at the Hanford facility. These landfill disposal bans apply to regulated hazardous wastes but not to wastes from small quantity generators below the regulatory threshold nor to HHW which are categorically exempt.

The main concerns with landfill disposal of hazardous waste are migration of hazardous substances into the environment (soil, water, air) and exposure of landfill workers to risks associated with hazardous wastes, such as fire, explosion, poisonous gas, and chronic health effects from continual exposure. Many landfills in the country have become Superfund cleanup sites because of the presence of hazardous contaminants. It is not certain to what extent MRW contributed to many of these sites becoming Superfund sites.

Wastes regulated as hazardous wastes have to be treated, i.e., converted to safer forms, before landfill disposal. The type of wastes collected from MRW generators is unregulated but hazardous, and needs to be handled and managed as a hazardous waste.

12.5.2 Financing

The financing or funding of this MRHWMP's recommendations may be accomplished through various methods. The funding of programs typically are generated from state or local sources. Although the State through Ecology may fund grant programs for MRHWMP implementation, these funds should not be considered the primary source of funds for MRHWMP implementation.

Initiative 97 was the original legislative source for funds to the Local Toxics Control Account. The LTCA has been the largest source of funding for Coordinated Prevention Grant projects. It provides funds for local MRW programs and to clean up contaminated sites in Washington. With the passage of Initiative 97, 53% of the state funds collected are put into the Local Toxics Control Account. These funds are to be used, in descending priority order, for: remedial action, hazardous waste plans and programs, and solid waste plans and programs.

The State did allocate funds to encourage counties to develop solid waste management plans and to implement programs. Klickitat County has received three separate two year, coordinated prevention grants for approximately $100 thousand per year. These are 75% State & 25% local matching fund grant programs. Funds available from the State have been declining. The ‘96-97 grant cycle, was about 20% less than the ‘94-95 grant cycle. A grant for years 2000 thru 2001 has been approved for $121,301.

Local sources of funds for MRW planning and programs will come from the County general fund and/or Allied contractual obligations. Other possible, but not very likely, sources may include wastewater utility fees, and waste generator use fees. Seattle Metro research from prior to 1991 indicated that approximately 85 percent of MRW improperly disposed goes into the local solid waste stream with the remaining 15 percent being deposited as liquids into local wastewater treatment systems in King County.

Increasing wastewater rates would broaden the revenue base for funding local programs although the administration of such an increase would require the cooperation of all the publicly owned wastewater treatment facilities. A drawback to using this revenue base is that private septic and other treatment systems would not share in the cost of the funding.

It has been demonstrated in collection programs in Minnesota that fees on SQG's and household generators to defray the cost of MRW collection programs actually discourage participation. Households and small businesses will typically need encouragement to dispose of wastes properly, for instance through education and "free" MRW collection. With a fee based system, there would probably be lower particiaption in safe MRW disposal programs.

As mentioned above, an additional resource for the implementation of MRW collection and education programs in Klickitat County is from contract provisions for the regional solid waste facility. In conjunction with the development of the regional solid waste landfill, Allied, provides various MRW management programs for the County. Allied pays for the costs of collection of household MRW at drop box/recycling stations or other convenient locations.

Allied also provides appropriate transportation for the collected MRW to a permitted hazardous waste treatment storage or disposal facility. The County pays for the disposal costs after the MRW has been transported to the permitted facility.

An on-going public education program has been implemented by the County and Allied in support of the MRW collection program. It focuses on the proper handling and disposal of MRW and promotes participation in the MRW collection program.

The County's cost to dispose of MRW collected in the County has leveled off at about $20,000 per year.

12.5.3 Remedial Action Sites

Ecology maintains a list of contaminated sites requiring remedial action. The most recent list is dated February 16, 1999. The list includes the following sites located in the County:

38) K lickitat Valley Sawmills Inc.	Klickitat
39) N W Pipeline St Hood River	Bingen
40) N W Pipeline St White Salmon	Bingen
41) T own Pump Gas Station	White Salmon
42) C olumbia Aluminum Corporation	Goldendale

12.5.4 Local Regualations

Klickitat County currently has limited regulatory programs for dealing with MRWs. The Department of Emergency Management, in cooperation with the Washington State Patrol, has formulated emergency response plans and collected hazardous materials inventories from local MRW generators.

The County originally staged collection programs for household hazardous wastes on two weekends each year. The collection events were promoted as Hazardous Waste Roundups. The events were moderately successful but costly and not very convenient for most people. Educational efforts for householders began with the PUD mailings, the survey performed for preparation of the 1992 MRW Plan, and by the WSU extension office, as previously mentioned. The large majority of hazardous waste generated in the County is considered MRW (although the survey found that some non regulated businesses generate at levels slightly above the regulatory threshold).

12.5.5 Employee Training and Reporting

Roosevelt Regional Landfill operators visually screen loads as they arrive at the facility to determine if there are hazardous wastes that should be refused. The operators are aware of the hazards associated with dangerous wastes that may be mixed in with the solid waste.

The wastewater treatment staff at the local publicly owned treatment plants have had minimal training in identification and handling of hazardous wastes effluents which may enter their various systems. The customers of these systems are predominantly residential and light commercial firms that do not typically place large quantities of MRW in the system. The only education has been in response to events that have occurred in the past. This has occurred through contact with Ecology personnel and local fire departments.

As mentioned above, the Health Department employees have ongoing training in hazardous waste. This could assist local agencies in locating training resources. Because dumping of MRW into wastewater systems has been a problem for system operations in the past, and poses a threat to workers exposed to MRW in manholes or at treatment facilities, a level of basic training should be assured for these workers.

Any new or additional landfill workers should be educated about the hazards associated with MRW to prevent personal, equipment, and environmental damage.

The reporting of accidents or injuries is typically reported to Ecology or Department of Labor and Industries. To more closely monitor these events on the local level, agencies could consider coordinating reporting of these incidents through a centralized agency such as the County Department of Emergency Management. This would assist in identifying areas of need for public and agency education and training.

12.5.6 State Regulated Dangerous Waste Generators

Ecology's Dangerous Waste Regulations (Chapter 173-303 WAC) are the state-equivalent of the RCRA hazardous waste regulations. Only one business in the County is a regulated dangerous waste generator, the Goldendale Aluminum Corporation in Goldendale, and Ecology has enforcement responsibility for that firm.

12.5.7 Waste Facilities and Transportation System

There are a few private firms that have MRW collection routes in Klickitat County. Safety Kleen services SQGs that generate solvent wastes primarily used in machine parts cleaning operations. Safety Kleen comes from Clackamas, Oregon or Pasco, depending on the location in Klickitat County, to retrieve spent solvent and provide new solvent on either six or 12 week intervals. SQGs must pay for these services.

Used oil is collected on an irregular basis by a few used oil reprocessors from the Portland or Tri-Cities areas. Used oil is taken without charge if sufficient quantities of oil are picked up, and it is not contaminated with gasoline or solvents. This price structure varies with the price of virgin crude oil. Waste oil pickup services may require payment for collection or may pay for the oil collected as the prices of crude oil fluctuate.

This waste collection and transportation program serves many local SQGs. It could be enhanced with the existing service providers if more SQGs used the program. Some of the SQGs clearly are using inappropriate disposal methods for disposal, as identified in the survey.

Used oil still seems to be the largest problem waste stream for commercial generators. Both logging operations and farm operations generate large quantities of used motor oil but the quantities are not quite enough to be serviced by one of the oil marketer services. There is a need to have some local means of bulking the SQG used oil. Once bulked it would be attractive for oil marketer services to collect it. Another option might be to stage collection days for SQG oil.

In 1995 the County arranged for a reduced rate for treatment, storage and disposal of a broad spectrum of SQG hazardous wastes. The program is implemented through a cooperative agreement with Allied and the private treatment, storage and disposal (TSD) contractor servicing the household hazardous waste storage containers at the transfer stations. Under this arrangement small local businesses can schedule disposal of their hazardous wastes with the dates when the contractor is servicing the HHW sites. Transportation fees are paid by Allied, and SQGs can dispose of their waste under the contractor's waste profile. A waste profile can cost as much as $100 per waste. SQG's are charged the same rates as the County's household hazardous waste program. SQGs must make prior arrangements directly with the TSD contractor and must meet the contractor's vehicle at one of the transfer stations. Commercial waste generators pay for the service when the waste is transferred to the contractor.

Use of the SQG disposal arrangement has been primarily from local government agencies. The SQG service has been promoted along with the household hazardous waste program in printed and radio promotions. Low participation rates are attributed to 1) cost of commercial disposal, 2) low public awareness of SQG program, and 3) constructive efforts by generators to avoid waste generating activities.

The wastewater treatment facilities in the County have had some experience with MRW entering and impacting their systems. The Bingen/White Salmon Wastewater System was shut down a few years ago because of the toxic waste entering the system. It was suspected that formaldehyde from a recreational vehicle wastewater holding tank might have been the source of the problem.

In Goldendale an underground gasoline storage tank spill nearly entered the wastewater system. This may have upset the treatment facility and may have been a hazard to the workers exposed to the contaminated effluent. Some of the cleanup materials were placed in the Goldendale lagoon. The cleanup was coordinated with Ecology.

The wastewater treatment facilities may not require any modification if effective prevention and reduction of MRW is achieved in Klickitat County.

12.5.8 Klickitat County Local Needs

Based on the findings presented in this section and the preceding sections, the following local needs have been listed below. They are organized into programmatic and administrative needs.

(a) Program Needs

The following needs point to the possibility of enhancing programs in the County.

(1) Generators of MRW in the County need to be encouraged to use waste reduction and recycling methods. Few of the survey respondents indicated using these methods currently.

(2) Businesses, households, and the general public need to have a general awareness regarding the problems associated with MRW.

(3) There is a need for more technical expertise or knowledge regarding the appropriate disposal methods for MRW among the SQGs.

(4) The County needs additional services for appropriate collection and disposal of commercially generated MRW oil.

(5) The County needs to reduce the amount of MRW, especially targeted MRW, from entering the solid waste stream and wastewater systems.

(b) Administrative Needs

The remaining needs are primarily administrative in nature:

(1) There is a need to obtain funding for implementing MRW programs through accessing state, local, regional and other sources when and where appropriate from both public and private entities.

(2) There appears to be a need for closer enforcement of dangerous waste generators that should be fully regulated by Ecology.

(3) There needs to be clearly assigned authority for MRW management to coordinate and implement this MRHWMP.

(4) A local agency in the County should be assigned the responsibility to initially identify needed cleanup efforts of contaminated sites. Coordination and communication between the County and Ecology is essential to ensure proper management and expedient site cleanups.

(5) Coordination of reporting accidents involving MRW needs to be centralized, perhaps with the Department of Emergency Management.

(6) The programs implemented under this MRHWMP need to be reviewed periodically to evaluate their desirability and effectiveness as experience in MRW management in the County is accumulated.

(7) New or additional landfill and wastewater treatment workers need to be trained about the hazard of MRW to prevent personal, equipment and environmental damage.

12.6 GOALS AND OBJECTIVES TO MEET NEEDS

12.6.1 Introduction

The ultimate long-term goal of this MRHWMP, and future updates, is to eliminate disposal of targeted MRW in landfills or wastewater systems or by other improper disposal methods. The purpose of this section is to translate general planning goals, as defined in Section 12.1 and needs identified in Section 12.5 into specific objectives and to evaluate alternatives for achieving those objectives.

The "menu" of alternatives presented here will be used to choose the best programs for the County. The alternative programs are listed in Section 12.6.1 and described and evaluated in Section 12.6.2. Some alternative programs reappear under several objectives. For example, a household hazardous waste education program can be used both to increase public awareness and discourage illegal disposal.

The evaluation of alternatives in Section 12.6.2 includes various factors which can influence whether an alternative is or is not a good choice for Klickitat County. Each factor is discussed for each alternative. These factors are the alternative's:

43) relationship to the hazardous waste management priorities,

44) typical advantages and disadvantages,

45) feasibility and likelihood of success in the County

46) cost

12.6.2 Identified Need, Objectives and Alternatives

To address the goals, and needs discussed in previous sections the following objectives have been developed. These objectives range from increasing awareness about MRW and providing collection services to enactment and enforcement of new ordinances. Each objective is associated with needs previously identified. Each objective is stated and followed immediately by the associated needs. Following each objective and need is a list of alternatives which can be considered for implementation in the context of Klickitat County. The evaluation of these alternatives are performed later in this section.

(a) Program Objectives

(1) Promote waste reduction and recycling by households and SQGs.

Identified Need: Households and businesses need to undertake waste reduction and waste recycling efforts.

Alternatives:

(1a) Establish an on-site SQG hazardous waste audit service.

(1b) Establish an SQG education program.

(1c) Educate the public and encourage the use of school curricula that includes promotion of waste reduction and recycling of MRW.

(2) Increase awareness among businesses and households regarding MRW problems and solutions.

Identified Need: Businesses and households lack a general awareness regarding the problems associated with MRW.

Alternatives:

(2a) Establish a household hazardous waste education program.

(2b) Establish a SQG education program.

(3) Provide SQGs with technical information and assistance on moderate risk waste management.

Identified Need: SQG's need more technical expertise or knowledge regarding the appropriate management of MRW.

Alternatives:

(3a) Establish an SQG education program.

(3b) Establish an on-site hazardous waste consultation (audit) service.

(4) Provide means for appropriate collection, transport, treatment and disposal of MRWs.

Identified Need: Most households and some SQGs interviewed indicated the need for an MRW collection service.

Alternatives:

(4a) Maintain permanent collection facilities for all types of household hazardous waste in conjunction with the solid waste transfer stations.

(4b) Maintain a waste oil (drop-off) collection/recycling program for household used Motor oil.

(4c) Establish a waste oil (drop-off) collection/recycling program for SQG used Motor oil.

(4d) Develop regional solutions in conjunction with other counties. This can include coordination with other counties in the region to promote establishment of regional facilities and programs as appropriate such as coordinated waste collection days or mobile collection vehicles.

(4e) Establish a permanent SQG collection facility.

(4f) Provide MRW home pickup service for elderly and disabled.

(4g) Continue to keep an up-to-date listing of MRW handling facilities and services available to household and commercial

generators located in Klickitat County. (The county Department of Emergency Management currently maintains such a list.)

(5) Discourage disposal of MRW in landfills and wastewater systems where there are better alternative methods available and increase compliance with existing solid waste laws and ordinances.

Identified Need: There is a need to reduce the amount of MRW from entering the solid or wastewater waste systems or other improper disposal methods. This is especially true of the targeted MRWs.

Alternatives:

(5a) Develop and implement county and city ordinances and Health Department regulations prohibiting disposal of MRW at the landfill or in the wastewater treatment systems, provided there are alternative methods available which are higher on the waste management hierarchy.

(5b) Improve the waste acceptance control program at the landfill and transfer stations.

(5c) Use education program to promote alternatives to disposal in landfill and POTWs.

(5d) Offer collection programs for households and SQG's as alternatives to improper disposal.

(5e) Establish an SQG enforcement/ Inspection program.

(5f) Use education programs to increase awareness of solid waste laws.

(5g) Increase enforcement of existing solid waste laws for both households and business.

(b) Administrative Objectives

(1) Develop sources of funds, program and administrative support, or contractual agreements to adequately implement the MRHWMP recommendations.

Identified Need: There is a need to obtain ongoing funding or other mechanisms to implement the selected program and administrative alternatives.

Alternatives:

(1a) Allied provides funds for implementing elements of the MRHWMP.

(1b) Use locally-generated funds.

(1c) Seek State funds for MRHWMP implementation.

(2) Ensure appropriate waste management and compliance by all commercial generators of dangerous waste.

Identified Need: There is a need for more Ecology technical assistance visits to help ensure commercial generators comply with MRW storage and disposal rules.

Alternatives:

(2a) Write to Ecology identifying this need.

(2b) Encourage commercial generators to take advantage of Ecology technical assistance program.

(3) Establish responsibility for coordination and implementation of this MRHWMP at the local level.

Identified Need: There needs to be clearly assigned responsibility for MRW management in Klickitat County to implement and coordinate this MRHWMP.

Alternatives:

(3a) Klickitat County Solid Waste Department coordinates and implements most elements of this MRHWMP, except enforcement which is coordinated and implemented by the Health Department and Ecology.

(3b) Ecology, Health Department, Solid Waste Department, and incorporated cities coordinate and implement the a. MRHWMP with recommendations

given through the SWAC while the Health Department coordinates and implements enforcement.

(3c) Other combinations of assigned responsibility for coordination and/or implementation between the agencies mentioned above as well as the regional landfill developer, private industry and other local agencies such as the Planning Department, WSU Extension Office, Department of Emergency Management and PUD.

(4) Expedite cleanup of any present or future MRW contaminated sites.

Identified Need: The local agency assigned responsibility for managing the identity of potential cleanup efforts of contaminated sites needs to be more widely understood because most people do not know who to contact.

Alternatives:

(4a) Formally assign responsibility for identification of contaminated sites to the Health Department and communicate this to all affected agencies in the County.

(4b) Educate the public about this Health Department responsibility.

(5) Expedite emergency response efforts involving MRW when required and maintain centralized records of events for future use in preventing accidents of a similar nature.

Identified Need: The reporting of accidents involving MRW needs to be coordinated.

Alternatives:

(5a) Coordination of accident reporting through Deptartment of Emergency Management.

(5b) Coordination of accident reporting through the Health Department.

(6) Refine and improve MRW management through periodic reevaluation.

Identified Need: There needs to be a periodic evaluation of the programs and MRHWMP recommendations to continually reduce improper disposal of MRW.

Alternatives:

(6a) Periodically administer further surveys of households and follow-up surveys of businesses.

(6b) Conduct solid waste sorting studies to determine MRW content of refuse.

(6c) Evaluate county programs on yearly basis.

(7) Train personnel in the identification and handling of MRW at the landfill and transfer stations to prevent environmental degradation, personal injury and equipment damage.

Identified Need: Landfill operations and wastewater treatment personnel need training at an appropriate level to identify and handle MRW to prevent personal, equipment and environmental damage.

Alternatives:

(7a) Provide required reading to the existing landfill and wastewater personnel regarding the appropriate identification, handling and potential hazards associated with MRW.

(7b) Request that Allied provide appropriate training to the operations staff at the regional landfill and transfer stations and to verify this to the county when each employee has been trained.

12.6.3 Description and Evaluation of Alternatives

In Section 12.6.2, a number of possible alternatives are mentioned. The purpose of this section is to provide a more detailed description and evaluation of these alternatives in order to rank and select the most appropriate alternatives for the MRHWMP. The alternatives are divided into these categories: education/technical assistance, collection, compliance tracking and enforcement, and financing and administration. For each alternative in each category the evaluation criteria includes:

- how the alternative relates to the hazardous waste priorities described in Section 12.5,

- a summary of the alternative's advantages and disadvantages

- an assessment of its feasibility and likelihood of success

- and cost factors.

The financing and administrative alternatives may not involve significant costs or affect the use of a particular waste management priority method. Consequently, all of the financing and administrative alternatives are not evaluated by every criteria listed above.

(a) Education and Technical Assistance

(a1) Alternative: Public Education

Description:

Public education or outreach, as discussed in Section 12.5, is a form of source reduction and thus works hand-in-hand with collection alternatives. A comprehensive public outreach alternative involves use of a wide range of media to educate households about hazardous materials they may use in their homes, safer substitutes for these hazardous materials, and improper versus proper disposal methods. Media formats can include utility bill inserts, flyers distributed to households (particularly to advertise a collection alternative) or distributed at retail stores selling hazardous products, stickers applied to trash cans, newspaper articles, radio and television shows and/or, public service announcements, a county moderate risk hazardous waste "hotline," school curriculum, educational speakers at community groups, and pubic library materials. To give the public a realistic perspective on the risks of MRW, comparisons to other common public risks should be used.

Relationship to Management Priorities:

In Klickitat County, MRW generation by households is more important than generation by businesses based on the quantities of MRW improperly disposed. Households and business generate similar quantities of MRWs but unlike SQGs, most households in Klickitat County currently use disposal methods that pose risks to human health and the environment, or even illegal disposal methods such as burning. Education is a form of waste reduction, because it leads to reduced generation of hazardous wastes (through careful purchases and safe substitutes), which is the highest waste management priority. Education can also direct households to the use of recycling options for MRW like batteries and used oil. Recycling is the second waste management priority. An effective alternative must be particularly directed at those least likely to be informed about hazardous materials and wastes.

Advantages:

Reduces health risks through better home management of hazardous materials which will reduce generation of MRW. Reduces risks to sanitation workers through improved disposal practices. May reduce MRW collection costs through reduced disposal alternative (e.g., allowing latex paint to dry out, then disposing as solid waste; purchasing smaller amounts and using them completely.) May also reduce risks and improve MRW management in the work place and elsewhere through greater awareness.

Disadvantages:

Few disadvantages. The educational alternative must teach without causing over reaction or confusion. Too many people already believe that "everything causes cancer".

Feasibility/Likelihood of Success:

Successful educational alternatives have been carried out by many communities throughout the United States. Klickitat County can take advantage of a wealth of education materials, flyers, and school curricula already prepared by other communities, industry, and governmental agencies.

Household hazardous materials education alternatives have been in great demand throughout the nation, as evidenced by numerous calls to local officials by households asking how to manage these materials. The impact of an organized alternative in Klickitat County will depend in large part on long-term continuity of effort, as the goal is a permanent change in how householders recognize and manage hazardous materials they use in their homes. Educational alternatives must be linked to disposal options for greatest effectiveness.

Costs:

Costs depend on how much effort the County decides to put into education. Development of a comprehensive educational alternative for Klickitat county could cost roughly $5,000-$10,000, with annual costs thereafter considerably less. Utility bill inserts can be mailed at no postage cost to the County. This alternative could also be integrated with outreach alternatives for SQGs and farmers.

The direct cost to the County and City governments for an effective education program can be reduced because of existing plans to provide these services by other agencies. Ecology personnel will perform technical and educational services for SQGs.

The conditional use permit for Roosevelt Regional Landfill calls for assistance in education of the public in "Unacceptable Waste". The Agreement between Allied and Klickitat County stipulates that the County will develop and administer an HHW education program and that Allied will implement the program. No dollar value is placed upon this contractual obligation, however, it is implied that most of the cost for HHW education will be incurred by Allied as it implements the MRHWMP. The contract also calls for Allied to provide an outreach program for safe agricultural chemical container waste disposal.

The above mentioned programs are budgeted and do not represent significant costs to the County for implementation of education programs. They do represent an allocation of existing resources and costs absorbed by other agencies.. The County Solid Waste Department, on the other hand, has one full time employee dedicated to waste reduction and recycling program education and administration. 50% of the time for this position is allocated to MRW activities at a cost of approximately $18,000 per year. With the current 75/25 Ecology grant funding the cost to the County is approximately $4,500 per year.

(a2) Alternative: SQG Education

Description:

Develop a comprehensive program to inform SQGs about proper handling, storage and disposal of hazardous waste, current regulations, waste reduction, and waste recycling. Gather and develop written materials on hazardous waste management that can be shared with SQGs through a variety of methods: direct mail, a telephone hotline, a resource library (possibly a local library), trade associations, retailers, the media, or waste handling companies. This alternative could be coordinated with state programs and materials described in Section 12.5. In addition, seminars or workshops could be offered. Attention would be focused initially on the targeted wastes.

Relationship to Management Priorities:

An outreach alternative on the local level would promote increased compliance with regulations and with the management priorities. Educational material would emphasize the highest priority alternatives: waste reduction and recycling.

Advantages:

Literature and training materials on hazardous waste are readily available from a number of sources including Ecology, the EPA, nonprofit organizations, and trade associations. This alternative can reach a major portion of SQGs.

Disadvantages:

Not as effective as on-site visits or waste reduction audits. Future funding of state alternatives described in Section 12.5 is uncertain.

Feasibility/Likelihood of Success:

A modest level of effort in this area is likely to be most successful and feasible for the County. Feasibility would depend on how ambitious the alternative is. A basic alternative involving distribution of literature to generators through direct mail or retailers would be easier to implement than a comprehensive alternative involving hotlines, seminars and workshops during the first year or two. Many cities and counties have some version of this alternative. The Seattle/King County Department of Public Heath, for example, has prepared and distributed a booklet entitled Hazardous Waste Disposal: A Guide for Business. A limited scale alternative would be feasible for a rural county. After a basic program is implemented further outreach programs can be developed, as funds allow.

Cost:

The County Solid Waste Department staff have plans to perform outreach to SQGs. Some limited progress has been made in this area. Long term plans are for 25% of this staff positions time would go to SQG education and technical support. This would cost the County approximately $10,000 per year.

Other expenses may include the following.

- Distribution of educational literature to SQGs.

- Seminars/workshops at approximately $1000 - $2,500/seminar for business groups, e.g., automotive maintenance.

- Telephone Hotline information for local businesses to obtain local MRW handling, recycling treatment and disposal techniques or services.

- Resource Library - staff - (none needed if kept at local library or by program coordinator) materials acquisition (books, magazines, etc.) - $1,000-$5,000.

Once the program is established the costs may be in the range of $10,000 to $15,000 per year. Ecology grant funds would pick up 75% of that expense, leaving $3,750 to the county for an SQG staff person and related expenses. Grant funding is uncertain after 1999.

(a3) Alternative: SQG On-Site Hazardous Waste Consultation (Audit) Service

Description:

Ecology hazardous waste staff would visit the SQG's facility, walk through the business, provide appropriate brochures, and help establish the best waste management practices specific to that business. An emphasis would be placed on waste reduction and recycling.

Relationship to Management Priorities:

The audit would be used to help businesses implement waste reduction and recycling, the two highest management priorities.

Advantages:

Assistance is tailored to each individual business. Face-to-face contact with a technical assistance specialist is more personal and persuasive than reading a brochure. Ecology staff visiting a site can identify problems and/or opportunities businesses may not have considered.

Disadvantages:

If linked to inspection and enforcement alternative, businesses may withhold incriminating information about how they handle wastes. On-site audits require more time and manpower than using mail-outs or fliers. A specially trained auditor would be needed.

Feasibility/Likelihood of Success:

If one business were visited per week, all the SQGs could be audited over a two-year period. Yakima County, has implemented a successful SQG hazardous waste reduction program that includes on-site waste audits. In that program, the County pays for the cost of disposal at County sponsored collection events for SQGs that have participated in the audit program. Audit programs have typically encountered problems in gaining acceptance by some businesses, but the incentive of free disposal seems to overcome this obstacle. Participants are required to maintain accurate records and comply with state handling guidelines. Since the auditor works closely with these SQGs, they are able to offer suggestions for ways to reduce and recycle hazardous waste generation.

The significant cost of a program like Yakima County is a disincentive for Klickitat County to implement this alternative. This alternative would probably be highly successful but would represent a major expense for the County.

A variation on the idea of onsite audits could be achieved by using both County and Ecology staff to offer and perform onsite inspections for SQGs. Ecology offers technical assistance services through their regional office in Yakima. Auditors do not issue citations for non-compliance on the initial visit. Instead they offer suggestions on how to bring an operation into compliance. Audited businesses with non-compliant waste handling procedures are given a time table for implementing changes and follow up visits are scheduled.

The County could facilitate Ecology audits and could provide less comprehensive technical assistance to SQGs as well.

Costs

Ecology does not charge the County or businesses for the technical support services they provide. Efforts of the County qualify as grant fundable.

(b) Collection

Collection alternatives should build on or expand existing collection services. The services currently available include County/Allied drop-off sites for collection of household generated hazardous wastes and commercially provided services for SQG used oil, automotive batteries, and solvents.

(b1) Alternative: Household Hazardous Waste Drop-Off Collection Sites

Description:

In 1994 fixed site collection centers were established at the transfer station/drop box facilities in BZ Corners, Dallesport and Goldendale and Roosevelt Regional Landfill. Residents are encouraged to bring their HHW to the centers during normal business hours Tuesday thru Saturday, where trained attendants collect, sort, and segregate wastes, by hazard class, in temporary storage containers. A permitted hauler later packs and transports the HHW to a permitted TSD facility for recycling, treatment, or disposal. The facilities accept all types of HHW except explosives.

Relationship to Management Priorities:

Household hazardous waste collection sites give residents an opportunity to take these wastes to an appropriate facility. Once collected, many hazardous wastes can be recycled or treated, which is preferable to disposal at a hazardous waste landfill.

Advantages:

This alternative is less expensive than one day collection events on a per pound basis. The convenience of collection sites accessible on a daily basis results in greater participation and larger quantities of material diverted from the landfill. There are obvious safety benefits to households from the removal of stored HHW. Allied provides a large part of the resources to implement this alternative.

Disadvantages:

The HHW drop off site program is less visible to the public. One day collection events required a concentrated promotion campaign which raised public awareness of the need for proper handling of HHW.

The greater volumes of material collected at the permanent sites result in higher total disposal costs for the County. These costs currently qualify for State CPG grant funding.

By designating the transfer stations as collection sites the community of Bingen/White Salmon is left ten or more miles from the nearest collection site.This is not convenient and acts as a deterant to proper disposal of HHW. Siting and equiping an attended collection site within this community could be difficult and costly.

Feasibility/Likelihood of Success:

The program has been highly successful in terms of diverting hazardous waste from the landfill because HHW can be pulled from the waste stream as it comes into the transfer stations. With some promotion of the program through radio, newspapers, direct mail and public presentations, the public is becoming more aware of this opportunity.

Costs:

Greatest cost factor is drum disposal. The costs to the County include disposal cost at the disposal facility and administrative costs. The County has also invested in education and public awareness efforts above and beyond those required of Allied under the Agreement with the County. The cost of transportation and collection site management are paid for by Allied. Cost reductions can be obtained through reuse and recycling of some MRW, donated publicity from newspapers, cable TV, and radio, and technical assistance from other counties.

The most significant area where cost savings can be realized is from solidification and landfill disposal of latex paint. Another area would be in bulking oil based paints prior to shipment to the TSD. These two elements could reduce the County's disposal cost from $20 thousand per year to less than $15 thousand per year.

In addition to simple "out of pocket" expenses there is also the issue of potential liability for the MRWs that are disposed at a landfill. prior to the development of special hazardous waste landfills little environmental protection was provided compared with current practices. These practices resulted in many of the current Superfund cleanup sites. Although this is now much less likely, the potential for future liability does exist. Whether the HHW is disposed of in a solid waste landfill or hazardous waste landfill, there is no apparent way to avoid the potential future liability associated with future cleanup or environmental damage. To reduce

the magnitude of the liability, disposal by an environmentally and legally acceptable means should be sought. In many instances this may be disposal via a permitted hazardous waste landfill. Disposal in a permitted facility provides a higher level of environmental protection.

The potential for financial liability for future cleanups at a landfill are now apparently based largely on the proportion of waste sent to the facility that may have escaped into the environment. Any potential cost in the future cannot be known at this time but is assumed to be relatively small due to the relatively small quantities of waste generated in the county.

(b2) Alternative: Household Used Oil Drop-Off Center (A Targeted Waste Program)

Description:

Used oil drop-off centers are permanent facilities at transfer stations, where residents can conveniently bring used oil. The facility would need to be attended to ensure that the incoming oil is not contaminated with solvents, water, antifreeze, or other hazardous waste contaminants. Contaminated oil cannot usually be recycled and so, would be stored separately and managed appropriately as a non-recyclable hazardous waste.

Relationship to Hazardous Waste Priorities:

While most SQG waste oil is handled by pick-up services, households generally use inappropriate or unsafe methods to dispose of waste oil, including pouring it down the sewer or on the ground, reusing it to coat fence posts, or burning it. A drop-off center would increase the recycling of waste oil, the second highest priority in the waste management hierarchy.

Advantages:

A collection service is available for used oil quantities of 250 gallons or more at low or no cost. Allied has implement this service through the transfer stations at their cost. The County maintains one site at Bingen Garbage Service at a minimal cost. Most of the oil collected can be used beneficially through forms of recycling.

Disadvantages:

A potential disadvantage of this alternative is the likelihood of spills at the collection facility. Also, it may be expensive to dispose of contaminated oil through a hazardous waste management firm.

Feasibility/Likelihood of Success:

This is a feasible alternative for Klickitat County, given the quantities of waste oil generated. A used oil drop-off center can be implemented on a scale suitable for a small county and could retrieve a significant portion of waste oil generated if widely publicized and the facility or facilities are conveniently located. Similar alternatives have been implemented throughout the Country. This is an effective technique for rural areas.

Costs:

The used oil drop-off facilities share some costs in conjunction with attended transfer stations.

Fixed costs for the County sponsored collection facility operated in cooperation with a privately owned business.

Storage container: (year one only)	$3,000 to $4,000
Site maintenance	$0.00 to $400.00

Variable costs:

Assuming 40 to 50% of the annually generated 10,000 gallons household used oil is collected and 5% requires disposal as a hazardous waste.

	Disposal rate
Oil recycling $/gal	$0.15
annual estimate 40%:	$600.00
annual estimate 50%:	$750.00
Disposal as hazardous waste --	
Oil Testing	$250.00
Disposal @0.35/gal	$105.00
Disposal @1.50/gal	$450.00
Total	$355.00 to $700.00
Education/publicity	$2,000/year

Total Program Cost Estimate:

Low	High
$4,355	$8,450

(b3) SQG Used Motor Oil Collection (a targeted waste stream)

Description:

Most automotive businesses have facilities to collect used oil from vehicles serviced and the oil is recycled through one of the permitted marketers with routes in this area. Some agricultural and logging operations may be generating significant quantities but not in large enough volumes to be attractive to the commercial recyclers. The County may be able to capture an additional 10-20% of the waste oil generated in the county by establishing collection sites for these SQGs. Since the quantities are larger than households, 25-100 gallons per year, this would require larger storage tanks. Possible sites would include the landfill, transfer stations, and/or industrial parks in Bingen, Dallesport and Goldendale. Bulked SQG oil would then be attractive to recyclers.

Relationship to Management Priorities:

Used oil recycling is one of the highest priorities for Klickitat County.

Advantages:

Used oil collection centers for SQG's would remove the risk of soil and groundwater contamination which can result from accidents related to storing oil in 55 gallon drums. Under normal operation the service could be provided at a minimal cost to the County. Oil recyclers would be willing to service the sites at their lowest available rates due to quantities collected. SQG's would be inclined to use the sites because they would be conveniently located and cost less than paying for this service through a hazardous waste TSD.

Disadvantages:

Initial cost of storage tanks with secondary containment could approach $5,000 per site. If an SQG used one of the sites to dispose of severely contaminated oil it could contaminate an additional 5,000 gallons and cost from $1,500 to $7,500 for treatment and disposal. To avoid this possible liability the sites would have to be manned, at a minimum, and may also require testing individual loads for common contaminants. Site monitoring at any level would represent a significant cost.

Feasibility/Likelihood of Success:

Given the input from local agricultural operations there is a need for some kind of SQG collection for commercial sites generating between 25 and 250 gallons of used oil products per year.

Costs:

Initial set up (4 sites):	$20,000
Site Maintenance:	$2,000
Administration:	$1,500
Contingency Fund:	$1,000
Tank Depreciation (10 yr.)	$2,000
Total Annual Cost	$6,500

Factors which could reduce the cost of implementation include: Ecology grants to offset initial capital costs; Allied assistance in obtaining new or used storage tanks; and, Allied assistance in providing manned host sites.

Factors which could reduce County liability for contaminated oil include: 1) restricting access to the SQG tanks to commercial generators that have shown competence and knowledge of sound used oil management practices; 2) The County could equip and train site operators in the use of electronic sniffing devices capable of detecting chlorinated hydrocarbons which would indicate the presence of solvents and brake fluid in the oil.

(b4) Household Biohazardous Waste Sharps Collection and Disposal

Description:

Many residents of Klickitat County generate used hypodermic needles, or other "sharps", in their homes as a result of personally administered medical treatments such as diabetes. Other households generate sharps from home care of animals. A very minor, though not insignificant, element is related to illegal drug use. There is a need to reduce exposure of employees in the garbage services and waste water treatment plants to blood borne pathogens. This can be most directly achieved by lowering the number of used sharps entering these waste streams. The County can facilitate this by providing sharps disposal containers to household generators of sharps and by providing a safe means to dispose of used sharps separate from household trash or through the waste water treatment system.

The County can distribute approved sharps containers at no charge to the public through transfer stations, pharmacies, and veterinary clinics throughout the county. Distribution can be supplemented with public awareness and proper handling education via radio, newspapers, newsletters, and other available media. Disposal of full sharps containers can be achieved through the transfer stations. All persons handling the full containers will have Labor and Industries certified "Blood Borne Pathogen Training". Full containers will be temporarily stored in clearly marked containers in the HHW storage buildings at the transfer stations. The County Landfill Inspector will periodically transport the used sharps to Roosevelt Regional Landfill where they will be buried in containers clearly marked "Biohazardous Waste" along with the Asbestos, which is also clearly marked as hazardous.

Relationship to Management Priorities:

As a landfilling alternative for used sharps this is low on the hierarchy but has great potential for reducing the risk of exposure to blood borne pathogens for solid waste and waste water treatment system workers.

Advantages:

Takes advantage of existing infrastructure and volunteer mechanisms to create an alternative to direct disposal of sharps into municipal solid waste and waste water treatment systems. The program has low costs and specifically assists household generators of biohazardous sharps. The program has already proven to be effective.

Disadvantages:

The communities of Bingen and White Salmon are ten or more miles from the nearest transfer station and so disposal of containers is not as convenient as for the other major population center, Goldendale. This may discourage participation.

Feasibility/Likelihood of Success:

The program has been implemented and already proven to achiever a high rate of participation. Comments from waste water treatment workers indicate a significant reduction in exposure to sharps during maintenance activity.

Costs:

Direct Annual Cost to County:

Public Awareness	$1,000	
Sharps Containers:		$1,200
Distribution/Disposal		$1,000
Total Annual Expense:		$3,200

The high level of volunteer support from both private business and government agencies for this program is what makes it cost effective.

(b5) SQG Waste Collection

Description

Most SQG hazardous waste is in the form of used oil and spent solvents. There are commercial services which target these waste streams for a reasonable fee. There are other wastes such as sludge from automotive oil/water separator systems, remnants of discontinued chemicals, unused paints and other hazardous materials which are not handled by the above mentioned services. There are companies in Washougal and Portland that will travel to a generators site to collect these types of materials. If the treatment and disposal company has to make a special trip to Klickitat County it can cost several thousand dollars. Most of this charge is for transportation. The County has an on going relationship with one such TSD to service the household hazardous waste collection sites three or four times per year. SQGs can not use the storage buildings at the transfer stations but they can arrange to meet the TSD contractor at these sites when the contractor is collecting the household wastes. The contractor has agreed to wave the transportation fee and allow the generator to use the TSD's waste profile. Both of these represent significant savings for an SQG.

Relationship to Management Priorities

While disposal is not the highest priority, the wastes targeted by this program tend to pose a greater threat to the environment if not handled properly. This program provides a means for small business to properly dispose of unwanted hazardous materials while minimizing the cost.

Allied has agreed to accept and store unused pesticide chemicals at the landfill on a fee basis, providing that offering this service does not require them to get a hazardous waste handling permit and

that it does not violate any other permits they operate under. They have not yet implemented this program.

Advantages

Implementation of this alternative reduces the cost of properly handling hazardous wastes for rural businesses without requiring investment in new capital or a major annual expense by the County.

Disadvantages

Small business may not take advantage of this opportunity because the dates when the TSD contractor is on location are not fixed. The TSD contractor services the HHW collection sites "as needed". This is determined by the volume of material brought in by home owners and by the quantity of material that is recycled/reused. When the storage buildings approach capacity the contractor is called. This usually leaves a two to three week window for notifying SQG's. Servicing of the HHW storage buildings occurs three to four times per year.

As for pesticide chemical storage at the landfill there are problems with convenience of location. An orchardist in Trout Lake facing a five hour round trip drive to the landfill may prefer to keep unused chemicals in the back of the barn.

Feasibility/Likelihood of Success

The program has been implemented with limited success. Coupled with an effort to promote participation there may be a higher level of participation.

Costs

The primary cost of implementation would be in promoting the program. Contacting generators directly through the mail and indirectly through handouts and public service announcements on TV/radio. a minimal effort could be implemented for $500 or less and an aggressive program could cost one to two thousand dollars per year.

(c) Compliance Tracking and Enforcement

(c1) Alternative: Moderate Risk Hazardous Waste Disposal Ordinances

Description:

To implement this alternative the cities and the County would enact ordinances prohibiting land disposal or discharge to waste water treatment and other systems of MRW. An ordinance would enable the sheriff or city police to enforce civil penalties throughout the planning area. The ordinance could also require SQGs to keep records verifying their compliance with the ordinance. These records could include:

- written documentation of the procedure used to determine if they generate targeted hazardous waste

- contracts with commercial hazardous waste services dealing with spent solvents and used oil or other hazardous waste haulers

- copies of manifests or receipts for hazardous waste shipments or hazardous wastes self-hauled to treatment, storage and disposal facilities.

Relationship to Management Priorities:

Prohibitions against disposal of household and SQG hazardous wastes will help remove undesirable wastes from these waste streams. Publicizing and enforcing bans would promote higher waste management priorities and reduce promiscuous dumping.

Advantages:

Such an ordinance could send a clear message to households and SQGs to manage MRW responsibility and gives local authority to take legal action against violators. Implementing an MRW ordinance would be most effective after an education campaign in order to foster compliance in more hesitant parties.

Disadvantages:

Some businesses would probably oppose the ordinance and the goal of the ordinance would not be reached with those SQGs without active participation of local law enforcement. Establishing local responsibility for enforcement would place a demand on city and county law enforcement resources. Local ordinances may require additional personnel or a re-evaluation of enforcement priorities in general.

Feasibility/Likelihood of Success:

Local governments have authority to regulate MRW under Chapter 70.105. Legality of a specific ordinance would have to be reviewed by County/City Attorney and by Ecology. Success would depend on availability and cost of alternative disposal methods and on the strength of the education and enforcement alternatives.

Costs:

This alternative represents minimal costs to the County or cities for the passing of ordinances. Enforcement, however, would have significant costs associated with it; perhaps as much as several thousand dollars per year if aggressively implemented.

Existing Health Department staff may be redirected to perform enforcement of the State's dangerous waste regulations and Ecology staff can be called upon if a local ordinance is not implemented.

(c2) Alternative: Waste Acceptance Control Program

Description:

A Waste Acceptance Control Program (WACP) is designed to identify and remove hazardous waste from the solid waste stream by developing procedures and inspection provisions at the points of collection and at the landfill. The following describes steps establishing a waste control alternative:

- Customers need to be made aware of new procedures to screen for MRW prior to acceptance for disposal.

- Garbage collectors are trained to recognize which wastes are not acceptable. Notification procedures have been developed.

- A waste inspector at the landfill inspects incoming loads for unacceptable waste. Other employees handling waste are also trained to identify unpermitted waste. Loads are randomly inspected each day as the contents of containers are unloaded at the regional landfill.

- When unacceptable waste is detected, the inspector identifies the material, the hauler, and the generator. Hazardous waste is then handled according to RCRA regulations.

- After unacceptable waste has been excluded, the generator, the hauler, and the appropriate enforcement agency are notified in writing. The notification identifies reasons why the waste was not accepted at a solid waste landfill. The generator is supplied with information regarding any SQG information exchange, if available, and other available disposal or recycling alternatives. For self-hauled household hazardous waste, educational materials are provided and alternatives for disposal identified.

Relationship to Management Priorities:

The alternative would serve as a mechanism to educate and alert the generators of the implications associated with improper disposal. The SQG and household hazardous waste education alternative would provide information to reinforce waste reduction and recycling.

Advantages:

The advantages of promoting proper hazardous waste management through MRW exclusion and education will result in a reduction of hazardous waste disposal into the solid waste stream. A WACP reduces the potential environmental hazards to the environment, solid waste personnel and equipment. This alternative is required by contract for the Roosevelt Regional Landfill.

Disadvantages:

The alternative may discourage haulers from bringing potential hazardous wastes to the landfill for disposal for fear of being discovered and may instead dispose of the wastes by other, even less desirable, means.

Feasibility Likelihood of Success:

Inspection of incoming loads catches significant amounts of hazardous waste at the transfer stations thus reducing improper disposal into the solid waste stream. Self haul generators are singled out and provided with first-hand education efforts. Operators at the Roosevelt Regional Landfill and at the transfer stations already visually screen loads as they arrive for disposal to determine if large amounts of hazardous wastes are included. The WACP would involve taking the visual inspections a step further by assigning additional resources to this task and formalizing procedures for rejecting household hazardous waste. Thus, the likelihood of success appears good. Because Allied is already performing

these services at Roosevelt Regional Landfill the feasibility of implementation is assured.

Costs:

Allied has estimated that their costs for a WACP will be approximately $24,000 per year. These cost estimates include an inspector, with appropriate training, a hazardous waste storage facility, and safety supplies. Allied provides this service at no cost to the County as called for in their contract for landfill development with the County.

(c3) Alternative: SQG Inspection /Enforcement

Description:

This alternative would involve periodic inspection of all known SQGs by the Health Department, and/or Ecology technical staff. It would be carried out in conjunction with city/county and Health Department ordinances prohibiting improper disposal. Enforcement would occur through a phased-in approach. The purpose of the first visit would be to identify problems, provide information, and issue a warning to the business if needed. In follow-up inspections, the inspector would check for and assist the firm in reaching compliance. Citations for violations could be issued if required to encourage compliance. Inspectors would check for conformity between materials in use, purchase records, and records of hazardous waste disposal.

Relationship to Management Priorities:

The program would be used to encourage compliance with and potentially enforce ordinances that prohibit disposal of targeted waste in landfills or in waste water. Increased use of waste reduction and recycling techniques would be encouraged and the use of the last management priority, landfilling, would be discouraged.

Advantages:

This alternative can provide SQGs with the information or legal incentive they need to comply with the law. It also provides enforcement of the ordinances.

Disadvantages:

The program may be opposed by businesses. The alternative would require additional staffing or reprioritization of efforts by existing staff.

Feasibility/Likelihood of Success:

Similar inspections are conducted at large fully regulated hazardous waste generators, therefore it should be feasible to inspect SQGs. This alternative would only be successful if alternatives to improper disposal for MRW are available in the County.

Costs:

Costs would be similar to the SQG Audit alternative, approximately $15-30 thousand per year for 40 to 80 inspections per year.

(c4) Alternative: Solid Waste Sorting Studies to Determine MRW Content

Description:

This alternative in which representative samples of solid waste delivered to the landfill or transfer stations are sorted, and their hazardous contents recorded. Data collected would include the source, number, type, and weight of hazardous materials per ton of solid waste. Some samples could be sent to labs for chemical analysis. The program could be one-time or repeated (e.g., annual and/or seasonal) to help determine, in conjunction with surveys, the progress of Klickitat County in reducing improper disposal of MRW.

Relationship to Management Priorities:

Solid waste sorting studies would help focus county efforts to manage MRW over the long term based on actual amounts of waste disposed in the garbage. This would help to coordinate all efforts to maximize the use of the higher waste management priorities.

Advantages:

This study would provide less biased, more scientific information than surveys on the actual levels of MRW in the solid waste stream. Once performed, the results of the first study would provide baseline data to measure against to gauge changes in disposal of MRW.

Disadvantages:

A study of the solid waste does not measure other means of improper disposal, such as burning, burying, or sewerage of wastes. Sorting studies can be expensive, and may pose a minor health risk to MRW researchers, although no greater than everyday risks faced by sanitation workers. There has already

been a state-wide solid waste study that included MRW and this data is available from Ecology.

Feasibility/Likelihood of Success:

A major barrier to implementation is cost. The ease of performing the study depends in part on cooperation of the landfill/transfer station operators. Sorting studies have been carried out in a number of communities, usually by consultants experienced in this area. A comprehensive study examining over 30 tons of Puget Sound area solid waste was carried out in 1985 and yielded a wealth of information on MRW in addition to the State-wide study. The additional data would probably provide new and specifically useful information on MRW disposal patterns in Klickitat County.

Costs:

The cost depends on the number of waste samples sorted. A statistically valid survey would cost approximately $30,000. Allied has agreed to perform periodic assessments of the Klickitat County municipal waste stream in conjunction with evaluating the effectiveness of the waste reduction and recycling program.

(d) Financing and Administration

(1) Alternative: Allied Implements Selected Recommendations of this MRHWMP

Description:

The Allied has an Agreement with the County to implement certain programs, or parts of programs at their expense. The Agreement includes implementation of the following MRW programs.

- Operation of HHW collection sites at transfer stations and at the landfill. Trained staff to be provided to manage and coordinate collection.

- A MRW implementation plan submitted for County approval. It will provide planning for the receipt and disposal of MRW from the collection sites, and other operational details.

- Recycling of MRW from collection sites when reasonable to do so.

- Transport remaining MRW from collection events for final disposal, treatment or recycling.

- Pesticide container education, public outreach, and disposal.

- Public education, outreach, and awareness programs through media and participation in public events.

Evaluation:

This alternative is being implemented by Allied as a partial contractual compensation to the residents of the County without the addition of local funding. This is clearly an advantageous source of funds from the local perspective.

(2) Alternative: Elements of the MRHWMP are Funded Through Local Sources

Description:

Local funding to implement this MRHWMP can come from various sources. General city and County revenues could be reallocated for MRHWMP implementation. Solid waste tipping fees and/or wastewater treatment rates may be increased to pay for the MRHWMP implementation. Tipping fees for out of county waste disposed at the Roosevelt Regional Landfill generate funds which could be used to finance implementation of this MRHWMP.

Evaluations:

There should be a fraction of the “host fee” available for local MRHWMP implementation. This source of funds is appropriate because MRW is related to the solid waste stream quantity. It has been estimated that approximately 1% of solid waste streams are MRW.

(3) Alternative: Secure State Funding for Implementing Elements of the MRHWMP

Description:

Ecology has indicated that there will be some level of funding available to local jurisdictions for the implementation of local MRW programs.

Evaluation:

The implementation of MRW management programs is an expensive state requirement, especially for smaller counties. Because local sources of funds

permit limited program implementation, State funding for programs should be sought whenever feasible.

(e) Additional Administrative Alternatives/ Recommendations

- The County should communicate the need for closer enforcement of regulated hazardous waste generators within the county by providing Ecology with this MRHWMP and a letter outlining this concern.

- Because the Klickitat County Department of Emergency Management is already assigned responsibility for emergency responses, they should be assigned the responsibility for coordinating the initial response for incidents involving MRW. Affected local agencies should be reminded of this emergency response protocol.

- The Health Department should continue to identify the needs for contaminated site cleanups and all affected agencies operating in the County should be made aware of their role in this area.

- The SWAC should reevaluate the implementation of programs under this MRHWMP at least annually and recommend adjustments to the level of commitment and/or amendments to the MRHWMP to accommodate changing needs and conditions.

The SWAC should begin working on the MRHWMP update four years from the adoption date of this MRHWMP.

12.7 RECOMMENDED PROGRAMS AND ACTIONS

12.7.1 Introduction

The selection of the most appropriate alternatives is the primary object of this Section. The MRW programs and actions outlined in Section 12.6 are technically feasible and could be implemented if there were no budgetary constraints on these activities. To assess whether a particular option should be recommended, each alternative program can be compared to:

- the goals and objectives of this MRHWMP,

- the Ecology guidelines for MRHWMP development

- whether this MRHWMP addresses the targeted wastes

- the cost of implementation

These factors must be weighed and balanced in the selection of the most appropriate combination of programs. Based on these factors the alternatives which appear to be most likely to succeed in Klickitat County can be evaluated and recommendations made.

This final analysis and recommendation of alternatives will be performed in three parts. First, the alternatives which appear to be appropriate for Klickitat County will be summarized and selected based on Section 12.6 evaluations. Second, these selected alternatives will be evaluated against the Goals and Objectives of this MRHWMP. And third, the alternatives will be evaluated against a list of program and system needs that Ecology (in the planning guidelines) have identified as important when considering whether the needs of MRW management are being met. The third part of the analysis will also evaluate the alternative with regard to the targeted wastes identified in Section 12.4.

12.7.2 Selected Program Alternatives

In order to compare the program alternatives based on the individual program descriptions and evaluations in Section 12.6, a ranking matrix was developed. This ranking matrix is shown on Table 12.18a and uses the criteria used in the evaluation and description of each alternative program. In this table each alternative was ranked according to its description in the text of Section 12.6 and input from the SWAC. The ranking criteria was both positive and negative. For instance, there are both advantages (positive attributes) and usually significant disadvantages (negative attributes) associated with each alternative. Criteria with positive attributes were ranked on a scale of 1 to 5, with 1 representing somewhat positive and 5 representing very positive. On the other hand, criteria with negative attributes were ranked on a scale from 0 to -5, with 0 representing neutral or somewhat negative and -5 representing a very negative ranking.

The waste management priorities are not contained in the ranking matrix. This is because all of the program alternatives promote higher waste management practices if they were to be implemented. In this way they are all alike, by

encouraging the use of techniques higher on the waste management hierarchy.

Feasible:

In Table 12.18b the program alternatives are ordered based on the total ranking value received in Table 12.18a. Based on the ranking analysis in Tables 12.18a and 12.18b, the MRW program alternatives that appear to be the best alternatives for the County listed below. Many of these are in place and the remaining programs can be implemented within the 5 year time frame of this MRHWMP, and are technically and economically feasible in Klickitat County under current conditions.

- Household Biohazardous Waste "Sharps" containerized drop-off program
- MRW Education for Households
- One or more Used Oil Drop-Off Facilities for households.
- Waste Acceptance Control Program at the transfer stations and landfill
- SQG Education
- Household Hazardous Waste Collection Sites

Feasible with Outside Funding:

The following alternatives are desireable and can be implemented if funding is obtained from sources outside the County.

- Waste Stream Profile for Klickitat County MSW
- SQG Audit Program
- One or more Used Oil Drop Off Facilites for SGS's.

Difficult to Implement:

The following alternatives are desireable but would be difficult to fund and require allocation of resources that are unlikely to be available.

- SQG Inspspection and Enforcement
- County-wide MRW Disposal Ordinances

In the future, the program choices listed above will provide insight and experience in managing MRW in the County. This acquired knowledge base will point to areas where additional efforts are needed or redirection of efforts is appropriate. Some of the other alternative programs may need to be implemented if additional needs of the County require such action.

When implemented, each of these selected program alternatives will encourage or provide for the use of higher waste management priorities.

12.7.3 Program Alternatives versus Goals & Objectives

The alternatives to be implemented in Klickitat County need to be reconciled with the goals and objectives established in Sections 12.1 and 12.6 of this MRHWMP, respectively. To show that each alternative meets these goals and objectives Table 12.19 was prepared. All of the goals and all but two of the objectives are met by one, some or all of the selected alternatives. The two objectives that are not dealt with by these programs are the clean up responsiveness at contaminated sites in the future and the evaluation of the programs. These two objectives are largely administrative in nature as opposed to programmatic. These administrative issues are covered later in this Section.

12.7.4 Program Alternatives Versus Ecology Listing and Targeted Wastes

The Ecology planning guidelines require the consideration of some specific program alternatives. Also, the programs selected should establish efforts to address the proper management of the targeted wastes in the County. In Table 12.21, the chosen alternative programs are evaluated with respect to the specific program alternatives suggested in the guidelines as well as the targeted wastes from Section 12.4. This table shows that all but one of the program alternatives mentioned in the guidelines is addressed by the selected programs and that all the targeted wastes can be addressed through the selected programs. The one listed Ecology program that is not included is the SQG audit program. SQGs generate the largest quantities of MRW in the categories of waste oil and solvents but relatively little other MRWs. Most of the oil and solvent SQG waste is already disposed of properly by existing waste recyclers/disposers, according to the survey. Because of the potentially larger impact HHW programs have in reducing the MRW improperly disposed of in the County and limited funds available

for program implementation, the SQG audit program was not selected for implementation.

12.7.5 Administrative Implementation Actions

Administrative organization and the assignment of responsibility between local agencies is needed for the efficient implementation of any County-wide programs. More specifically, in order for the programs to be implemented efficiently, the administrative planning, leadership and responsibility for the recommended programs need to be clearly defined and understood. In addition to a general understanding between agencies, one of the objectives of the MRHWMP requires this type of understanding. The objective of cleanup site responsiveness relates directly to administrative planning; and so, is dealt with in this subsection.

Klickitat County is the lead agency developing this MRHWMP and has negotiated with Allied to implement many elements of the recommended programs. The elements that Allied is implementing include providing for the transportation, equipment, setup and personnel costs associated with the HHW collection sites. The County will pay for the disposal costs of the collected wastes. Allied pays for transportation of the collected waste. Allied is responsible for implementation of the MRHWMP. The WSU extension plans to continue its education programs for HHW in the County.

The MRW disposal ordinance, if implemented, would be addressed by the County. Allied and the County are jointly implementing a waste acceptance control program at the transfer stations and the landfill.

The incorporated cities are also in concurrence with this MRHWMP; so, the County is the primary coordinating agency for the MRHWMP. The County will work with Allied, incorporated cities, PUD, Department of Emergency Management, Health Department, law enforcement agencies, and the public to oversee the development of programs and future planning.

Allied and the County have implemented parts of the MRHWMP. The County can also consider the programs or elements that are not tied to the Allied Agreement as available funds permit. The programs or elements which the County could work on immediately include:

(1) Continue to support and implement existing MRW programs

(2) Develop public education programs for households and SQGs with assistance from Allied

The items listed above are primarily programmatic in nature and have already been discussed above.

12.7.6 Costs of Programs and Administration

The primary costs to the County of the recommended programs will be associated with the disposal of wastes from the HHW collection sites, the administrative costs of monitoring the Allied Agreement, and implementing the education program. These costs are described in the following paragraphs.

(a) HHW Collection Site Disposal Costs

The disposal costs for wastes brought into collection sites depends on the number of households participating and the kinds of waste collected. Some MRW have the potential to be directly recycled or reused, such as automotive batteries, latex paints, solvents, and used oil. Other MRW must be treated and/or disposed. The County's historical costs for this effort have been approximately $20 thousand per year and could be reduced from this amount even with higher rates of participation. Lower cost would be achieved through increased efforts to recycle and through consolidation of bulky containers such as paint and antifreeze. Unuseable latex paint could be solidified and landfilled. Another way to restrict these costs would be to limit the types of wastes accepted to the larger volume and targeted waste groups.

(b) Administrative and Education Costs

The Allied Agreement specifically excludes the contractor from accepting any regulated hazardous, radioactive or other unacceptable wastes at the regional landfill. Because wastes will be screened as they are delivered and the source of the waste may not be obvious there will be control over any significant quantities of MRW as well as regulated quantities of hazardous wastes at the landfill. The Agreement with Allied requires them to exclude all identifiable hazardous wastes regardless of the apparent source to protect the personnel, property, equipment, groundwater quality, and environmental resources. The administrative costs to the County for this effort in addition to what will already be required in monitoring the regional landfill development and operation should be insignificant. Nonetheless, the

monitoring of the regional landfill development and operation will provide for County staff oversight of the implementation of the recommended Waste Acceptance Control Program.

The cost of public education for households and SQGs will require some direct funding by the County in cooperation with Ecology grants, and Allied. It may also include assistance from the local WSU cooperative extension agent, Health Department, incorporated cities, PUD, and industry. As outlined in the education and technical assistance descriptions of Section 12.6, the costs for these programs are quite variable. The overall expense of a minimal HHW education program could run $7-10 thousand annually for staff and materials. The greatest share of the cost would be carried by Allied. An aggressive program with more efforts targeting SQG's would cost between $28-33 thousand more. Some of this cost reflects efforts by the Health Department. The share of the expense that will be borne by the county will depend on how much financial assistance is available from other funding and pro bono sources.

SQG education may require more directed efforts in order to address the specific wastes and issues of particular business types. Because the audience for this educational effort is easily identifiable, specific efforts can be more pointed. A reasonable level of effort to start such a program would be to make a part time assignment of one County staff member to identify, contact and distribute information to the targeted SQGs. The primary target SQGs are vehicle maintenance, logging, and construction businesses. The estimated costs for this and the other recommended programs are listed in Table 12.22.

(c) Used Oil Drop-Off Collection

Used oil collection for households is an existing program. The site(s) selected for collection are the transfer stations, Roosevelt Regional Landfill and Bingen Garbage Service in White Salmon. The cost of the program has little ongoing maintenance cost. These factors have been calculated in the alternative discussion and are reflected again in Table 12.22. If any of the expected sources of implementation funding are not available, that program will be curtailed to that extent.

12.7.7 Recommendations

It is recommended that the selected program alternatives outlined in this section be implemented. The coordinating agency for these recommendations should be the County with programmatic input, and financial and logistical support from the local jurisdictions, local agencies and regulators, Ecology, industry, volunteers, civic organizations, and the public. The estimated range of costs and timeframe for each of the recommended programs are contained in Table 12.22. Table 12.23 contains an estimated range of costs and timeframe in the event that the regional landfill developer does not provide the expected services which implement some elements of the plan as outlined above.

TABLE 12.1

Selected Programs and Approximate Costs

Recommended Program		Approximate Range of Costs Per Year *1				
		County and State Funds *2				
		1997	1998	1999	2000	2001
Public Education for HHW and SQGs	Low Est.	2,500	2,600	2,704	2,812	2,925
	High Est.	5,000	5,200	5,408	5,624	5,849
HHW Collection Days (Disposal Cost)	Low Est.	21,000	21,840	22,714	23,622	24,567
	High Est.	30,000	31,200	32,448	33,746	35,096
County-wide MRW Disposal Ordinance Waste Acceptance Control						
Used Oil drop-off Facility	Low Est.	300	312	324	337	351
Used Oil drop-off Facility	High Est.	1,000	1,040	1,082	1,125	1,170
In-County Subtotal =	Low Est.	23,800	24,752	25,742	26,772	27,843
	High Est.	36,000	37,440	38,938	40,495	42,115
				Allied		
Public Education for HHW and SQGs HHW Collection (Non-Disposal Cost)		20,000	20,800	21,632	22,497	23,397
County-wide MRW Disposal Ordinance Waste Acceptance Control Used Oil Drop-off Facility		24,000	24,960	25,958	26,997	28,077
Allied Subtotal =		44,000	45,760	47,590	49,494	51,474
Total Estimate Costs	Low Est.	67,800	70,512	73,332	76,266	79,316
	High Est.	80,000	83,200	86,528	89,989	93,589

*1 Costs reflect 4% annual inflation estimate.

*2 County cost includes Ecology grant funds which may or may not be available in future years.

TABLE 12.2

EXAMPLES OF HAZARDOUS HOUSEHOLD SUBSTANCES

Household Hazardous wastes include and discarded items from the following list

Repair and Remodeling

Adhesive, Glues, Cements
Roof Coatings, Sealants, Caulkings
Epoxy Resins
Paints
Solvents and Thinners
Paint Removers and Strippers

Hobby and Recreation

Paints, Thinners and Solvents
Chemicals (including Photo and Pool)
Glues and Cements
Inks and Dyes
Glazes
Chemistry Sets
Bottled Gas
White Gasoline
Charcoal Lighter Fluid
Household Batteries

Auto, Boat & Equipment Maintenance

Vehicle Batteries
Waxes and Cleaners
Paints, Solvents and Thinners
Additives
Gasoline
Flushes
Auto Repair Materials
Motor Oil
Diesel Oil

Gardening

Insecticides
Fungicides
Rodenticides
Molluscides
Wood Preservatives
Moss Retardants
Herbicides
Fertilizers

Cleaning Agents

Oven Cleaners
Degreasers and Spot Removers
Toilet, Drain and Septic Tank Cleaners
Polishes, Waxes, and Strippers
Deck, Patio, Chimney Cleaners
Solvent Cleaning Fluid

Planning Guidelines for Local Hazardous Waste Plans. Washington State Department of Ecology, July 1987.

TABLE 12.3

KLICKITAT COUNTY SQG RESPONSE RATES

Generator Category	Estimated no. of businesses in County	Number of survey responses	Response Rate
Ceramics	2	2	100%
Clinical/analytical labs	6	3	50%
Construction	26	20	77%
Educational/vocational labs	15	15	100%
Equipment repair	2	0	0%
Fire/police/post office	14	3	21%
Laundries/dry cleaners	6	3	50%
Metal Manufacturing	1	1	100%
Other Services	3	2	67%
Pesticide Application Service	4	4	100%
Photography	1	0	0%
Printing	3	2	67%
Retail/wholesale	4	3	75%
Vehicle Maintenance	27	25	93%
Furniture/wood manufacture/repair	4	4	100%
TOTALS	112	83	74%

Note: Excludes farms, which are covered in Subsection 12.4.7.

TABLE 12.4

ESTIMATED SQG GENERATION RATES BY GENERATOR TYPES

Generator Category	Tons/Year Generated	Tons/Year Improperly Disposed
Wood/Furniture manufacturing	53.50	0.00
Vehicle maintenance	53.01	8.45
Construction	4.34	1.90
Laundries	2.15	0.11
Educational/vocational shops	1.01	1.01
Printing	0.76	0.23
Clinical/analytical labs	0.42	0.42
Equipment repair	0.20	0.01
Fire/police/post office	0.27	0.06
Pesticide end-users	0.08	0.00
Metal manufacturing	0.06	0.00
Other services	0.01	0.00
Wholesale and retail sales	0.01	0.01
Photography	0.00	0.00
Ceramics	0.00	0.00
TOTALS	**115.83**	**12.25**

Note: Columns may not sum exactly to total due to internal rounding.

TABLE 12.5

ESTIMATED SQG GENERATION AND DISPOSAL BY WASTE TYPE

Waste Type	Tons/Year Generated	Improperly Disposed
Waste Oil	91.34	2.01
Solvents	7.95	2.35
Used auto batteries	5.92	2.59
Antifreeze	3.87	3.60
Dry cleaning solution	2.04	0.00
Strong acids/bases	1.73	0.01
Used oil filters	1.33	1.06
Other (cleaners, alcohol solutions)	0.48	0.41
Photographic wastes	0.46	N/A
Oily rags	0.21	0.10
Ignitable wastes	0.19	0.00
Empty paint cans	0.09	0.01
Ink wastes	0.08	0.00
Ignitable waste containers	0.04	0.04
Pesticide containers	0.03	0.00
Other plastic containers	0.03	0.03
Paint wastes	0.02	0.02
Solvent containers	0.02	0.02
Pesticide waste	0.01	0.00
Wastes w/formaldehyde	0.00	0.00
TOTALS	**115.83**	**12.25**

N/A: Information was not provided.
Note: Columns may not sum exactly to total due to internal rounding.

Figure 12.1

Results of Small Quantity Generator Study

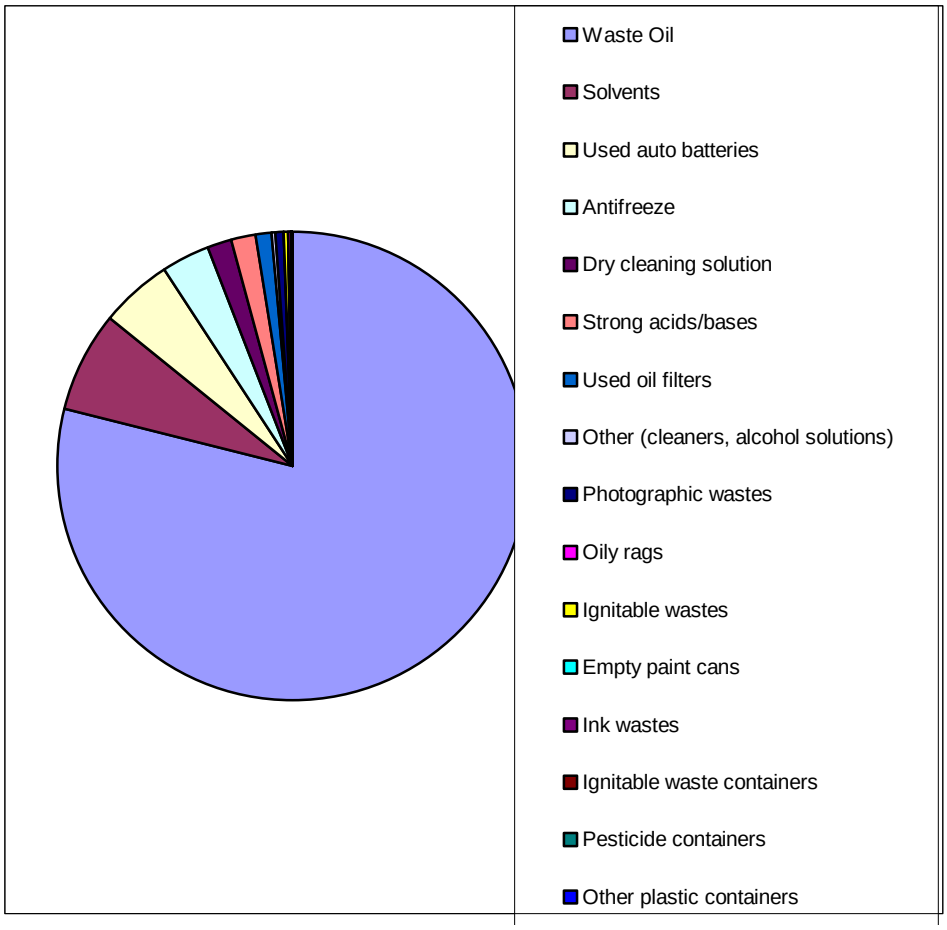


TABLE 12.6

TARGETED SQG MODERATE RISK WASTES

Target Waste	Type of Businesses	Estimated Tons/Year Generated[a]	Tons/year Improperly Disposed[b]
Waste Oil	Wood/furniture Manufacturers Vehicle Maintenance Construction	91.33	2.01
Paint/Dye Wastes	Vehicle Maintenance Rail Establishments Construction	0.07	0.07
Solvents	Vehicle Maintenance Wood/Furniture Manufacturers Educational/Vocational Shops Printing Laundry/Dry Cleaning	7.95	2.35
Used Batteries	Vehicle Maintenance Construction	5.92	2.59
Antifreeze	Vehicle Maintenance	3.87	3.60
Pesticide Wastes	Pesticide Application Services	0.01	0.00
TOTALS		109.15	10.62

[a] Estimates are based on the SQG surveys conducted in Klickitat County

[b] Improper disposal includes disposal in the trash, sewer, or storm drain, and disposal through dumping or burning. Estimates are based on business surveys conducted in Klickitat County.

TABLE 12.7

DISTRIBUTION OF HOUSEHOLD SURVEY RESPONSES AMONG KLICKITAT COUNTY COMMUNITIES

Community	Number of Respondents
Goldendale	20
Dallesport	17
White Salmon	12
Lyle	11
Klickitat	8
Glenwood	8
Wishram	7
Bickleton	6
Bingen, Centerville, Husum, Murdock, Roosevelt	11
TOTAL	100

TABLE 12.8

WASTE TYPES AND DISPOSAL AVERAGES IN KLICKITAT COUNTY HOUSEHOLDS

Waste Type	Number of households using material	Average annual containers discarded, per house	Range of containers discarded, per house, per year	Percent reporting containers empty when discarding
Household cleaners: bleach, disinfectant, detergent, window cleaners	100	19.6	1 - 133	100%
Chemical drain opener, oven cleaner	42	0.9	1 - 14	100%
Auto, furniture, metal, floor polish	67	2.5	0.5 - 45	99%
Gasoline, engine cleaner	11	0.2	1 - 3	100%
Antifreeze, radiator flush	73	2.5	1 - 40	99%
Paint	45	3.7	1 - 20	91%
Thinners, stain, varnish	26	1.3	0.5 - 23	92%
Pesticides	39	1	0.5 - 10	97%
Fungicides	6	0.1	0.2 - 2	100%
Herbicides and fertilizers containing weed killer	44	0.8	0.25 - 8	98%
Pool Chemicals	6	0.1	1 - 4	100%

Averaged over the whole survey population, including households not using the product.
Figures reflect extrapolations where households reported using and discarding products, but were unsure of amounts.

TABLE 12.9

DISPOSAL METHODS USED BY HOUSEHOLD HAZARDOUS WASTE SURVEY RESPONDENTS

	Disposal Methods (percent of households reporting waste)							
Waste Type	Drain	Trash	Ground	Recycle	Store	Burn	Reuse	Other
Cleaners		95	1	3		1		
Drain openers, oven cleaners		98		2				
Polishes		97	1					1
Gasoline, engine cleaner		100						
Antifreeze, radiator flush	1	81		3	5		7	7
Paint		78	2		18		2	
Thinner, stain, varnish		70	4	4	15			8
Pesticides		81	3		5	11		
Fungicides		80			20			
Herbicide products		61	2		5	30		
Pool Chemicals		50				17	17	17

Figures reflect extrapolations for households unsure of disposal method used.
Some respondents reported multiple disposal methods.
Rows may not total 100% due to internal rounding.

TABLE 12.10

MOTOR OIL AND RADIATOR FLUSH FROM HOUSEHOLDS

		Disposal Methods (percent of households reporting waste)					
Waste Type	Amount Disposed/year	Trash	Ground	Recycle	Store	Burn	Other
Motor Oil	14.5 quarts (24.2 lbs.)	13	36	9	6	23	14
Radiator Flush	0.1 bottles (0.02 lbs)	17	83				

Averaged over one hundred households, with extrapolations for respondents unsure of quantities or disposal methods. Fifty-eight households reported motor oil, and six reported radiator flush.
Figures reflect independent rounding. These figures do not include one householder who reported storage of roughly 200 gallons of oil.
Radiator flush disposed weight of 0.2 lbs/bottle assumed.

TABLE 12.11

LEVELS OF CONCERN ABOUT HOUSEHOLD HAZARDOUS WASTE EXPRESSED BY SURVEY RESPONDENTS

Level of Concern		Number of Respondents
(not concerned)	1	16
	2	8
	3	17
	4	18
(very concerned)	5	41

TABLE 12.12

DISPOSAL OPTIONS PREFERRED BY HOUSEHOLD SURVEY RESPONDENTS

	Number of respondents		
Disposal Option	Would Use	Might Use	Would Not Use
Community "dump day"	70	16	14
Oil collection site	47	16	37
Permanent household hazardous waste collection site	80	10	10
Free at-home collection	63	9	28

TABLE 12.13
Estimated Household Generation of MRW
(see Appendix E-6)

Waste Group	Description	Estimated Generation Rate (lb/yr per household)	Estimated Annual Generation (1989) (tons/yr)	Estimated Projected Annual Generation (2000) (tons/yr)
Waste Oil	Motor oil, other oil, and grease	10.46	38.37	43.70
Paint and dye Waste	Paint products, ink, dye	8.14	29.86	34.00
Solvents	Solvent, fuel, varnish	0.81	2.99	3.38
	Adhesive	0.40	1.47	1.67
	Subtotal	1.21	4.46	5.05
Pesticides	All	0.59	2.15	2.46
Nonmetallic Inorganic Liquids	Cleaners	1.65	6.04	6.89
	Drain opener, caustics, acids	0.05	0.19	0.21
	Subtotal	1.70	6.23	7.10
Inorganic Solid Waste	Batteries, electronic parts	1.84	6.76	7.69
Organic Liquids	Aerosols	0.14	0.52	0.58
	Antifreeze	0.10	0.38	0.42
	Auto, furniture, and other polish	0.39	1.42	1.63
	Subtotal	0.63	2.34	2.63
Organic Sludges and Solids	Cosmetics	0.75	2.76	3.13
	Medicine	0.26	0.96	1.09
	Subtotal	1.01	3.72	4.22
Other	Various	1.40	5.12	5.85
Total		26.98	99.01	112.70

Estimate 8355 homes in 1998

TABLE 12.14
Targeted Moderate Risk Wastes in Klickitat County

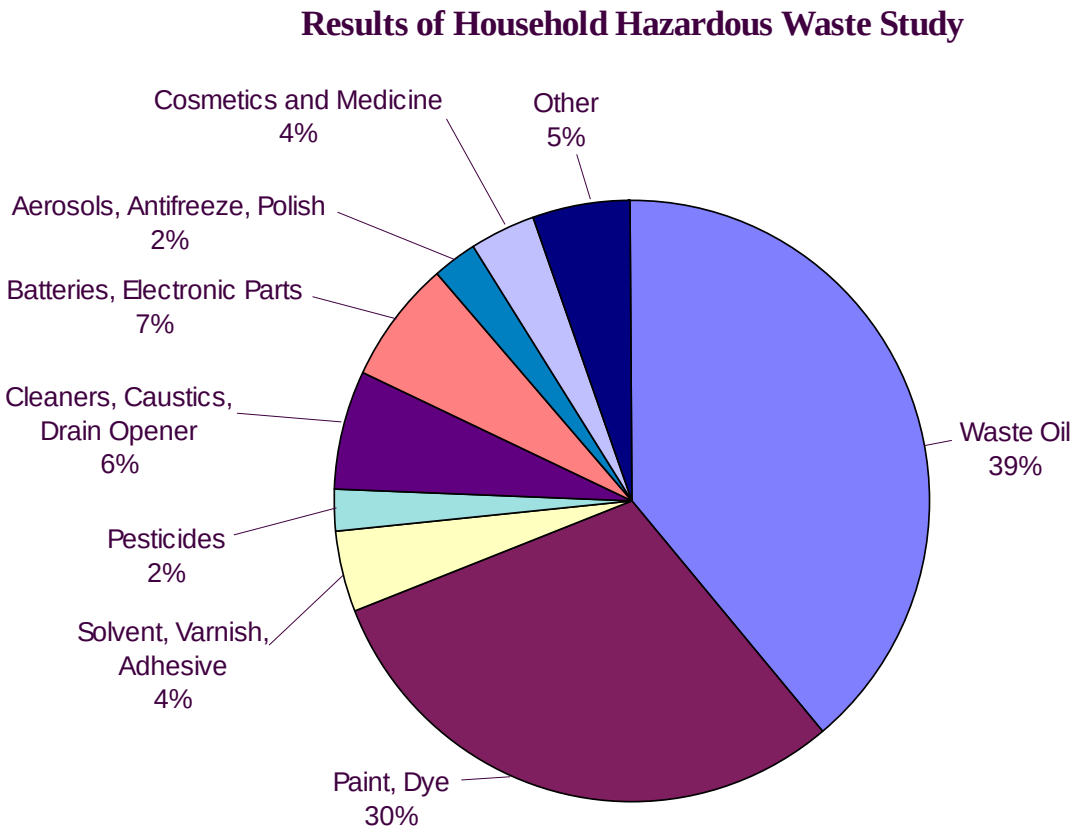
	Business			Household	Total	
Target Waste	Type of Business	Estimated Tons/Yr Generated (a)	Estimated Tons/Yr Improperly Disposed (b)	Estimated Tons/Yr Generated (c)	Estimated Tons/Yr Generated 1998	Recycled Tons 1998
Waste Oil	Lumber Mills Vehicle Maintenance Construction	91.33	2.01	43.70	135.03	107.9
Paint/dye Waste	Vehicle Maintenance Retail Establishments Construction	0.07	0.07	34.00	34.07	?
Solvents	Vehicle Maintenance Lumber Mills Educational/Vocational Printing Laundry/dry cleaning	7.95	2.35	5.05	13.00	?
Used Batteries	Vehicle Maintenance Construction	5.92	2.59	7.69	13.61	?
Antifreeze	Vehicle Maintenance	3.87	3.60	0.42	4.29	?
Pesticide waste	Pesticide application services	0.01	0.00	2.46	2.47	?
Total		109.15	10.62	93.32	202.47	107.9

(a) Estimates are based on the business survey conducted in Klickitat County for earlier plans and no change in the number of businesses.

(b) Improper disposal includes disposal in the trash, sewer or storm drain and disposal through dumping or burning. Estimates are based on business surveys conducted in Klickitat County for earlier plans.

(c) Household estimated tons/year generated quantities have been increased to reflect the increase to an estimated 8355 households.

Figure 12.2



Total Hazardous Waste: 99 Tons/Year
(1988 Survey)

TABLE 12.15

FEDERAL LAND DISPOSAL RESTRICTION PROGRAMS
(Restrictions do not include MRW landfill disposal)

Disposal Restriction Date	Federal Land Disposal Restriction Schedule Restricted Waste Category
May 8, 1985	Bulk liquids in landfills; even if absorbents have been added.
November 8, 1986	Solvent Waste -- Twenty-seven commonly used organic solvents and solvent mixtures which result from use of solvents with 10 percent or more of solvent material. The solvents include both spent halogenated, nonhalogenated solvents, and still bottoms from the recovery of these solvents. Lab packs containing these solvents are also subject to the prohibition.
July 8, 1987	"The California List" -- Effective July 8, 1987, categories included in the January 1, 1984 California Land Disposal Restrictions, as well as liquids with halogenated organic compounds in total concentrations greater than 1 percent. All other wastes identified as "California wastes" postponed to July 8, 1989.
August 8, 1988	First third of all RCRA-listed waste. EPA decision to continue underground injection of hazardous wastes. Superfund and other hazardous waste cleanup wastes subject to restrictions.
November 8, 1988	Specified dioxin-containing wastes. All solvent wastes which received categorical extensions from November 8, 1986 date.
June 8, 1989	Second third of all RCRA-listed waste.
July 8, 1989	All "California wastes" not restricted on July 8, 1987.
May 8, 1990	Last third of all RCRA-listed waste.
August 18, 1992	EPA debris rule set alternative treatment standards for hazardous debris. Set treatment standards for 20 newly lists wastes. Changes to promulgated treatment standards.
May 24, 1993	New treatment standards for certain ignitable and corrosive wastes. All hazardous constituents of certain wastes must be addressed during land disposal.
September 19, 1994	Phase II LDR rule establishing “universal treatment standards” for almost all characteristic and listed wastes that have concentration-based limits for various hazardous constituents.

TABLE 12.16
HAZARDOUS WASTE REGULATIONS

Regulatory Area	Federal Law	State Law	Lead Federal Agency (ies)	Lead State Agency (ies)	Local Agency (ies)/ Ordinances
Hazardous (Dangerous) Waste (definitions, manifest procedures, TSD permits)	RCRA HSWA TSCA	Haz. Waste Mgmt. Act; Waste Reduction Act; Initiative 97	EPA	Ecology	None
Moderate Risk Waste		Haz. Waste Mgmt. Act Init. 97, Solid Waste Mgmt. Act		Ecology	Health Dept., Bingen and Goldendale Wastewater
Emergency Response and "Right-to-Know" (hazardous materials)	SARA Title III	State is implementing SARA Title III	EPA	Ecology, Emergency Response Commission; Washington State Patrol	County Dept. of Emergency Mgmt.; Fire Districts; Sheriff's Office
Cleanup of Contaminated Sites	CERCLA SARA RCRA	Initiative 97, Emergency Management Act	EPA	Ecology (investigations and cleanup); Washington State Patrol	Health Dept., Ecology
Pesticides	FIFRA (use and disposal) RCRA (disposal)	Dangerous Waste Regs, Pesticide Control Act, General Pesticide Use Regulations	EPA	Dept. of Ag. (use, container disposal, collection); Ecology, (waste management)	Ag. Dept. Extension (use); Washington State Univ. Extension (education)
Transportation (transport of Haz. materials, roadside spills, licenses for haulers)	Fed. Haz. Mat. Transport. Act RCRA	State is implementing most RCRA provisions	U.S. Dept. of Transportation	Utilities and Transportation Commission; Washington State Patrol	None

TABLE 12-17
HAZARDOUS WASTE MANAGEMENT HIERARCHY
ORDER OF PRIORITIES

Management Method	Advantages	Disadvantages
Waste Reduction	Shifts emphasis from end-of- pipe to prevention	Requires long-term commitment to education in order to modify ways of thinking and establish new habits.
	Supported by whole community	Difficult to measure the level of waste reduction increases
	Chemical resource conservation	
	Avoided waste management costs	
	Reduce or eliminate risk of human exposure	
	Reduce or eliminate risk of environmental release	
	Reduce or eliminate liability	
Waste Recycling	Broad spectrum support	Residue disposal
	Chemical resource conservation	Potential air emissions
	Reduced costs for new materials	Facility siting difficulty
	Reduces extent of liability	
Physical, Chemical, and Biological Treatment	Reduces/eliminates toxic or hazardous properties	Residue disposal
	Reduces extent of liability	Potential air emissions
		Facility siting difficulties
Incineration, Thermal Destruction	Handles broad range of wastes	High expense
	Potential energy recovery	Ash disposal
	Reduces extent of liability	Air emissions
		Large economies of scale
		Lack of flexibility
		High energy input
		Need to avoid incineration of wastes that could be recycled or treated
		On-site incineration not viable for small generators
		Facility siting difficulties
Solidification/Stabilization Treatment	Intended to isolate residues from environment	Unproven long term isolation capacity
		Uncertain effect on long-term liability
Landfill	Low cost (historically, although costs increase with increasing regulation)	Land disposal on untreated wastes banned in May 1990
	Convenient	Potential for releases to air, water, soil
	Intended to contain residues in a restricted area	Potential for human exposure
		Very high long-term cost
		High long-term liability
		Facility siting difficulties

TABLE 12.18a
Klickitat County MRW Plan
Program Alternative Ranking Matrix

Chapter Location	Alternative Description		Ranking Criteria & Scale				
		Criteria:	Advantage	Disadvantage	Feasible	Costs	Total
		Scale:	(1 to 5)	(0 to -5)	(1 to 5)	(0 to -5)	Ranking
12.6.3(a1)	HHW Education		5	-1	5	-1	8
12.6.3(a2)	SQG Education		5	-1	5	-2	7
12.6.3(a3)	SQG Audits		4	-3	3	-3	1
12.6.3(b1)	HHW Collection Sites		5	-1	5	-2	7
12.6.3(b2)	Used Oil Drop-off (HHW)		5	-1	5	-1	8
12.6.3(b3)	Used Oil Drop-off (SQG)		5	-3	3	-3	2
12.6.3(b4)	HHW Biohazardous Sharps		5	-1	5	0	9
12.6.3(b5)	SQG Collection		4	-1	4	-1	6
12.6.3(c1)	MRW Disposal Ordinances		2	-2	1	-3	-2
12.6.3(c2)	Waste Acceptance Control		5	-1	5	-1	8
12.6.3(c3)	SQG Inspect./Enforcement		3	-3	2	-2	0
12.6.3(c4)	Waste Sorting Study		2	-2	3	2	5

(1)Ranking shown was generated by Klickitat County Solid Waste staff without input from SWAC. Values are for demonstration only.

TABLE 12.18b
Klickitat County MRW Plan
Program Alternative Ranking Matrix

Chapter Location	Alternative Description		Ranking Criteria & Scale				
		Criteria:	Advantage	Disadvantage	Feasible	Costs	Total
		Scale:	(1 to 5)	(0 to -5)	(1 to 5)	(0 to -5)	Ranking
12.6.3(b4)	HHW Biohazardous Sharps		5	-1	5	0	9
12.6.3(a1)	HHW Education		5	-1	5	-1	8
12.6.3(b2)	Used Oil Drop-off (HHW)		5	-1	5	-1	8
12.6.3(c2)	Waste Acceptance Control		5	-1	5	-1	8
12.6.3(a2)	SQG Education		5	-1	5	-2	7
12.6.3(b1)	HHW Collection Sites		5	-1	5	-2	7
12.6.3(b5)	SQG Collection		4	-1	4	-1	6
12.6.3(c4)	Waste Sorting Study		2	-2	3	2	5
12.6.3(b3)	Used Oil Drop-off (SQG)		5	-3	3	-3	2
12.6.3(a3)	SQG Audits		4	-3	3	-3	1
12.6.3(c3)	SQG Inspect./Enforcement		3	-3	2	-2	0
12.6.3(c1)	MRW Disposal Ordinances		2	-2	1	-3	-2

TABLE 12.19
2000 Update
Summary of
Programs That Address
The MRHWMP's Goals and Objectives

MRHWMP Goals and Objectives	Programs That Meet or Address the Goal or Objective				
Goals	Public Education	Collection Days	MRW Disposal Ordinances	Waste Accpt Control Prgm.	Used Oil Collect.
Protect public safety, health, property and environment		X	X	X	X
Develop public awareness, responsibility and proper disposal of MRW	X	X	X	X	X
Manage MRW consistent with MRW management priorities	X	X	X	X	X
Can be reasonably implemented in Klickitat County	X	X	X	X	X
Program Objectives					
Promote waste reduction & recycling by households and SQGs	X			X	
Increase awareness of problems of MRW among SQGs and households	X	X	X	X	
Provide SQGs with information about MRW management	X		X	X	
Provide for the collection and management of MRW		X		X	X
Discourage disposal of MRW in landfills or waste water systems	X	X	X	X	X

Note: Non program objectives which are primarily administrative in nature include the following:
Develop funding to implement the selected alternatives
Ensure compliance with dangerous waste regulations by existing hazardous waste generators
Coordination of plan implementation and compliance in the County
Expedite the cleanup of future contaminated sites
Expedite emergency response and recording of MRW incidents
Refine and improve MRW programs through periodic reevaluation
Prevent damage to solid waste workers, equipment and environment

TABLE 12.20
1990
Summary of
Backup Programs That Address
The MRHWMP's Goals and Objectives

MRHWMP Goals and Objectives	Programs That Meet or Address the Goal or Objective				
	Public Education	Permanent Facility	MRW Disposal Ordinances	Waste Accpt Control Prgm.	Used Oil Collect.
Goals					
Protect public safety, health, property and environment		X	X	X	X
Develop public awareness, responsibility and proper disposal of MRW	X	X	X	X	X
Manage MRW consistent with MRW management priorities	X	X	X	X	X
Can be reasonably implemented in Klickitat County	X	X	X	X	X
Program Objectives					
Promote waste reduction & recycling by households and SQGs	X			X	
Increase awareness of problems of MRW among SQGs and households	X	X	X	X	
Provide SQGs with information about MRW management	X		X	X	
Provide for the collection and management of MRW		X		X	X
Discourage disposal of MRW in landfills or waste water systems	X	X	X	X	X

Note: Non program objectives which are primarily administrative in nature include the following:
Develop funding to implement the selected alternatives
Ensure compliance with dangerous waste regulations by existing hazardous waste generators
Coordination of plan implementation and compliance in the County
Expedite the cleanup of future contaminated sites
Expedite emergency response and recording of MRW incidents
Refine and improve MRW programs through periodic reevaluation
Prevent damage to solid waste workers, equipment and environment

TABLE 12.21
Summary of
Programs That Address Ecology Alternatives List or
Identified Targeted Wastes

Ecology Listed Programs and Targeted Waste Programs or Systems Identified by WDOE	Public Education	Collection Sites	MRW Disposal Ordinances	Waste Accpt Control Prgm.	Used Oil Collect.
HHW and SQG info. and tech. assist.	X			X	
Local ordinances or incentives			X		
MRW diversion from improper disposal	X	X		X	X
System/network to manage diverted MRW		X			X
SQG audit program					
SQG monitor., surveil., and enforcement			X	X	
Collection of HHW		X			X
Collection of targeted MRW		X			X
Targeted Wastes					
Waste Oil	X	X	X	X	X
Paint and Dye Wastes	X	X	X	X	
Spent Solvents	X	X	X	X	
Used Batteries	X	X	X	X	
Antifreeze	X	X	X	X	
Pesticide/Herbicide Wastes	X	X	X	X	
HHW Biohazardous Waste "Sharps"	X	X	X	X	

Table 12.22
Estimated Range of Costs to Implement the Recommended
Alternative Programs for MRW Management in Klickitat County

Recommended Program	Approximate Range of Costs Per Year County and State Funds (1)									
	First Year		Year 2		Year 3		Year 4		Year 5	
	Low	High	Low	High	Low	High	Low	High	Low	High
Public Education for HHW and SQG's	28,000	33,000	28,700	33,825	29,418	34,671	30,153	35,537	30,907	36,426
HHW Collection Sites (Disposal Costs)	15,000	20,000	15,375	20,500	15,759	21,013	16,153	21,538	16,557	22.076
County-wide MRW Disposal Ordin.	-	20,000	-	20,500	-	21,013	-	21,538	-	22,076
Waste Acceptance Control	-	-	-	-	-	-	-	-	-	-
HHW Biohazardous "Sharps"	1,000	1,500	1,025	1,538	1,051	1,576	1,077	1,615	1,104	1,656
HHW Used Oil Drop-Off Facility	400	1,400	410	1,435	420	1,471	431	1,508	442	1,545
SQG Collection Program	500	1,000	513	1,025	525	1,051	538	1,077	552	1,104
SQG Used Oil Drop-Off Facility	26,500	26,500	6,663	6,663	6,829	6,829	7,000	7,000	7,175	7,175
In-County Subtotal	$71,400	$103,400	$52,686	$85,486	$54,002	$87,624	$55,352	$89,813	$56,737	$92,058
	Allied (2)									
HHW Collection Non-Disposal Costs	7,000	10,000	7,175	10,250	7,354	10,506	7,538	10,769	7,727	11,038
County-Wide MRW Disposal Ordin.	-	-	-	-	-	-	-	-	-	-
Waste Acceptance Control	24,000	24,000	24,600	24,600	25,215	25,215	25,845	25,845	26,492	26,492
Used Oil Drop-Off Facility	-	1,000	-	1,025	-	1,051	-	1,077	-	1,104
Public Education for HHW and SQGs	10,000	20,000	10,250	20,500	10,506	21,013	10,769	21,538	11,038	22,076
ALLIED Subtotal	$41,000	$55,000	$42,025	$56,375	$43,075	$57,785	$48,152	$59,229	$45,257	$60,710
Total Estimated Cost	$112,400	$158,400	$94,711	$141,861	$97,077	$145,409	$99,504	$149,042	$101,994	$152,768

(1) Includes funds from Klickitat County, Cities and local agencies as well a State funds from Ecology grants or other funding programs, such as WSU cooperative extension agent.
(2) Estimate prepared by Solid Waste Department from current expenses and ALLIED obligations under terms of Agreement with County, CUP, and Health Department Facility Permit
Note: Yearly program cost increases are estimated as flat, except for cost of living, which is calculated at 2.5% annually.

TABLE 12.23

Estimated Range of Costs to Implement the Backup Alternative Programs for MRW Management in Klickitat County

Recommended Program	Approximate Range of Costs Per Year County and State Funds (1)									
	Year 1		Year 2		Year 3		Year 4		Year 5	
	Low	High	Low	High	Low	High	Low	High	Low	High
Public Education for HHW and SQG's	14,000	16,500	14,350	16,913	14,709	17,335	15,076	17,769	15,453	18,213
HHW Collection Sites	20,000	30,000	20,500	30,750	21,013	31,519	21,538	32,307	22,076	33,114
County-wide MRW Disposal Ordin.	-	-	-	-	-	-	-	-	-	-
Waste Acceptance Control	250	500	256	513	263	525	269	538	276	552
HHW Biohazardous "Sharps"	1,000	1,500	1,025	1,538	1,051	1,576	1,077	1,615	1,104	1,656
HHW Used Oil Drop-Off Facility	400	1,400	410	1,435	420	1,471	431	1,508	442	1,545
SQG Collection Program	250	500	256	513	263	525	269	538	276	552
SQG Used Oil Drop-Off Facility	26,500	26,500	6,663	6,663	6,829	6,829	7,000	7,000	7,175	7,175
In-County Subtotal	$62,400	$76,900	$43,460	$58,323	$44,547	$59,781	$45,660	$61,275	$46,802	$62,807

(1) Includes funds from Klickitat County, Cities and local agencies as well as program contributions from State offices, such as WSU cooperative extension agent.

Note: Yearly program cost increases are estimated as flat, except for cost of living, which is calculated at 2.5% annually.

Table 12.24
Household Hazardous Waste

Year collected	Disposal Cost	Weight in Pounds	Cost per pound
1990	$11,945.05	13,039	$0.92
1991	$9,651.50	13,136	$0.73
1992	$12,090.01	9,092	$1.33
1993	$11,510.00	38,009	$0.30
1994	$22,015.00	71,018	$0.31
1995	$19,930.00	88,341	$0.23
1996	$19,015.00	95,889	$0.20
1997	$21,439.30	106,307	$0.20
1998	$13,399.00	104,408	$0.13
Partial 1999	$15,351.00	109,318	$0.14

APPENDIX C

SWAC BYLAWS

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KLICKITAT COUNTY
SOLID WASTE ADVISORY COMMITTEE
BYLAWS AND POLICY PROCEDURE

I. STATEMENT OF PURPOSE

The Klickitat County solid Waste Advisory Committee (SWAC) has been appointed by the Board of County Commissioners in accordance with Chapter 70.95 R.C.W. The statute requires the SWAC to "assist in the development of solid waste handling programs and policies concerning solid waste handling and disposal, and review and comment on proposed rules, policies or ordinances prior to their adoption..." These bylaws will become a part of the county Solid Waste Plan by reference and will define the SWAC function and rules.

The committee has been appointed to review solid waste program issues and arrive at a cooperative point of consensus to recommend appropriate public policy to the legislative authority of the county in an advisory capacity.

II. CONDUCT OF MEETINGS

1. Roberts Rules of Order, Newly Revised. The parliamentary rules known as the current edition of Roberts Rules of Order, Newly Revised shall apply to and govern the procedures of all meetings of the committee.

2. Table Motions in Order to Precedence. The listing of motions entitled Table of Motions in Order of Precedence, which is excerpted from the most current edition of Roberts Rules of Order, Newly Revised shall be a guide to procedure at all meetings of the Committee, but in case of dispute, the current edition of Roberts Rules of Order, Newly Revised, shall prevail.

3. Speakers addressing the Chair. Any person wishing to address the Chair (e.g. a member of the committee, or the audience) shall first address the Chair and state name and representation, if any, and enter such information into the minutes.

4. Conflict of Interest and Appearance of Fairness. Any member of the Solid Waste Advisory Committee who in his/her opinion has a personal interest in any matter(s) before the committee that would tend to prejudice his/her recommendations to the Board of County Commissioners shall indicate such interest. In the event of a conflict, he/she shall remove himself/herself from the proceedings until a vote is taken or consensus reached on the item.

III. MEETINGS

1. Official Action. The Committee shall adopt no recommendation, except in a meeting open to the public and then only at a meeting, the date of which public notice has been given by notifying press and radio in the County, and by such other reasonable means as may now or hereafter be provided.

2. Regular Meeting.
   Regular meeting schedules shall be established by majority vote of the committee.

3. Special Meetings. The chairman, or in his/her absence the acting chairman, may call a Special Meeting for one of more specific purposes, provided that proper notice is given describing such purpose or purposes to the committee members and the media. The chairman, acting chairman, or staff secretary, shall notify each committee member and the media in the county at least twenty-four hours prior to the time scheduled for the Special Meeting.

4. Public Hearings. Public Hearings of the SWAC may be called by the Board of Commissioners for the purpose of public input on policy and planning decisions.

5. Public Access. All meetings shall be open to the public. Provision shall be made for public comment at each meeting. Approved meeting minutes shall be available to the public on request. Meeting minutes shall be approved by a majority vote of committee members present.

6. Quorum. A regular or special meeting, or a public hearing, shall be called to order only when 40% of the appointed committee members are in attendance by the announced time for such meeting. Should a quorum not be in attendance within a period of twenty minutes after the announced time for the meeting or public hearing, no meeting shall commence. The agenda published for the cancelled meeting shall be placed at the head of the agenda for the next regular meeting, special meeting or public hearing. If a meeting is opened with a quorum, action can be taken even if a quorum is lacking as a result of members excusing themselves under the Appearance of Fairness Doctrine. This allows action to be taken and prevents a minority vote group's control by excusing themselves so that a vote cannot be taken.

IV. CHAIRMAN AND ACTING CHAIRMAN

1. Chairman: Selection and Term of Office. The committee, by majority vote at the beginning of the first official meeting of each calendar year, shall select from its members one to act as chairman for the calendar year.

2. Chairman: Duties. The chairman, or in his/her absence the acting chairman, shall preside at all meetings. The chairman shall have the authority to call for special

meetings and shall be considered the titular head of the committee. The chairman shall represent, or select from the committee or staff a designee, to represent the committee at meetings of the County Commissioners and at other official or unofficial functions.

3. Acting Chairman: Selection and Term of Office. The committee, by majority vote following election of a chairman, shall at the first official meeting of each calendar year, select by majority vote an acting chairman who shall assume the duties of chairman in the elected chairman's absence. when both the chairman and acting chairman are absent, the committee shall elect by majority vote a temporary acting chairman who shall assume the duties of chairman until the return of the chairman or acting chairman.

4. Removal of Chairman or Acting Chairman. The chairman or acting chairman may be removed at any time by the vote of the majority members of the committee, provided that such a vote shall be held at an official meeting and that within ten days of such meeting, the committee shall present to the County Commissioners the minutes stating the cause or causes for such removal. The committee shall elect a replacement by the end of the official meeting following the official meeting at which the removal vote was held.

V. SECRETARY

1. Selection. The Solid Waste Director or his/her designee shall act as secretary to the committee.

2. Duties.

   A. The secretary shall be responsible for notice to the press and radio of all meetings and public hearings.
   B. The secretary will mail to each member an agenda and copies of materials pertinent to the agenda, and materials requested by the chairman at least two weeks prior to each regular meeting.
   C. The secretary shall furnish each member a copy of the minutes of the preceding meeting at least two days prior to each regular meeting.
   D. When requested by the chairman, the secretary shall notify specific interested parties of meetings and public hearing, whose notice is not required by ordinance, statute, or other requirement.
   E. The secretary, or his/her appointee, shall be responsible for recording and keeping the minutes of all official action of the committee.
   F. The secretary shall be the representative of the County Solid Waste Department staff and shall be the staff advisor to the committee.
   G. The secretary shall prepare or cause to be prepared special reports, information surveys, study projects, or similar reports requested by the chairman.

VI. MEMBERSHIP AND TERMS

1. Membership. The Solid Waste Advisory Committee shall consist of a minimum of nine (9) members appointed by the Board of County Commissioners. If possible, the mix of the members shall represent a balance of interest among the following groups:

   School District
   Goldendale
   White Salmon
   Bingen
   Bickleton/Roosevelt Area
   Dallesport/Murdock Area
   Environmental Group
   Waste Management Industry
   Business
   General Public
   At-Large

   Members shall provide on-going public input, coordination, and information exchange between groups.

2. SWAC Member Alternates. Within 60 days of appointment each SWAC Member may submit the name of an alternate in the case of his/her absence. In order to appoint an alternate, each regular SWAC member shall send a letter to the Solid Waste Director stating name, address, and home or work telephone number of the alternate. The alternate will get all mailings and notices that the member receives. The alternate may vote in the member's place on all issues when the member is absent. When a regular member cannot attend, it is his/her responsibility to notify the alternate and the secretary.

3. Ex-Officio Members. The Klickitat County Board of County Commissioners may appoint non-voting ex-officio members to the SWAC, who will serve at the Board's discretion.

4. Attendance. Members of the committee are needed to advise on matters of public policy formulation and their regular attendance is essential. Therefore, the Board of County Commissioners may replace a member if three (3) consecutive meetings are missed.

5. Terms of Members. Members of the committee shall serve a term of three (3) years or until their successor is appointed

6. Vacancies. Vacancies shall be filled for the remainder of the term of the vacant position in the manner described in the initial appointment.

7. Compensation. Members of the committee shall serve without compensation. Meals, mileage, and lodging will be paid for meetings, workshops and other related activities subject to County Guidelines.

VII. TOPICS OF REVIEW

1. County Solid Waste Plan. Formulation of the plan, including recommendations, amendments, and addenda to the Plan.

2. Moderate Risk Waste Plan. Formulation of the Plan, including recommendations, amendments, and addenda to the Plan.

3. Legislative Proposals. Regulations proposed for adoption by the Board of Health and by the Board of County Commissioners affecting solid waste management and related issues may be assigned to the committee for review and comment prior to their adoption.

4. Recycling. Issues regarding recycling, collection, and disposal recommendations.

5. Other Issues. Additional questions pertaining to Klickitat County's waste management program may be addressed to the committee by the Board of Commissioners as deemed appropriate.

VIII. WAIVER OF THE RULES

Any of the rules or procedures may be waived or modified by the majority vote of the committee provided further that the reason therefore be included in each motion for waiver or modification.

The motion for the procedure to be waived or modified must be proposed at one meeting and voted on at the next regular session. The waiver or modification is subject to the applicable laws, resolutions, ordinances, and the County Commissioners.

APPENDIX D

MODEL RURAL RECYCLING PROGRAM PLAN

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ALLIED WASTE INDUSTRIES
KLICKITAT COUNTY
MODEL RURAL RECYCLING PROGRAM PLAN

INTRODUCTION

Program Objectives

This Model Rural Recycling Program (MRRP) Plan describes the specific facilities, programs and support services that Allied Waste Industries (Allied) will provide within Klickitat County. The Plan also describes the how these facilities, programs, and support services will be coordinated with the waste reduction and recycling efforts sponsored by the County.

The objectives of the MRPP are to:

- Meet the requirements of Allied's June 29, 1998 agreement with Klickitat County that are related to waste reduction and recycling.
- Help make substantial progress toward achieving a 50% waste reduction and recycling rate within Klickitat County (when considered together with activities sponsored by the County, private businesses, and other organizations) by:
    - Improving the current programs offered by Allied;
    - Adding programs and expanding outreach efforts;
    - Integrating MRRP and County activities to reinforce outreach efforts and public messages.
- Collect, evaluate, and report information regarding the amount of material recycled and the level of participation in Allied's programs.
- Provide a framework for coordinating MRRP activities with the County, for testing and evaluating possible changes and enhancements to the MRRP, and for discussing any proposed contract changes related to the MRPP.

MRRP Plan Organization and Approach

This MRRP Plan is organized into the following sections, reflecting the major programs and activities that will be sponsored and supported by Allied:

- Residential Curbside Recycling
- Transfer Station/Drop Off Recycling
- Government and Business Waste Reduction and Recycling
- Agricultural Waste Reduction and Recycling

- Waste Reduction
- Moderate Risk Waste
- Special Events, Support for County Programs, and Public Outreach

Each section briefly describes current practices, identifies areas for improvement where applicable, and describes the programs and activities that will be implemented or supported by Allied.

This MRRP Plan includes a substantial commitment to public awareness and outreach in order to increase participation in the coordinated programs offered by Allied and by the County. This Plan also includes a program evaluation element so that Allied, together with the County, can work to improve waste reduction and recycling services.

Overall, this Plan covers activities that will be implemented and evaluated over the next three to four-years. The Plan calls for a major evaluation at the beginning of the fourth year, and a subsequent revision to the Plan based on the results of the evaluation and the success of the various pilot programs described herein. Appendix A to this Plan includes a detailed implementation schedule. In general, the following types of activities will be evaluated in each Plan Year.

- *Immediate Action.* Continue existing programs, develop tracking and information collection systems, initiate public outreach efforts, initiate signage and capital improvements at transfer stations, post curbside program sign-up information at transfer stations, and develop performance expectations/customer relations training for staff.
- *First Plan Year.* Continue existing programs, design and conduct baseline survey for curbside program, conduct survey of transfer station users, arrange for and initiate pilot programs for business recyclables collection and business waste reduction/recycling audits, arrange for drop-off pilots, rampup extensive public outreach efforts, and systematically collect and report information related to participation and the amount of recyclables collected.
- Second and Third Plan Year. Continue existing programs, implement all pilot programs, continue extensive public awareness and outreach efforts, continue systematic collection and reporting of information related to participation and the amount of recyclables collected, and conduct customer surveys.
- Beginning of Fourth Plan Year. Conduct independent evaluation of MRRP Plan programs, work with the County to make any major changes, and revise the MRRP Plan.

Allied will prepare an annual summary report to the County and the SWAC on the progress it has made in implementing the MRRP in the previous year. In addition to ongoing meetings and coordination, Allied will also hold an annual planning session with the County to plan joint activities for the following year.

RESIDENTIAL CURBSIDE RECYCLING PROGRAM

Current Practice

Allied currently provides curbside residential recycling collection to all County citizens and backhauls collected materials to the Rabanco Recycle Center in Seattle. Recyclables are currently collected using a bag-based system and a van-type collection vehicle that has been recently painted with information advertising the residential curbside program. Participants receive curbside collection service every two weeks. Although collection service is currently provided at no charge to County residents, under its contract with the County, Allied could charge up to $1.00 per household per month for the service.

Overall, the results of this program have been less than expected, as reflected by the total amount of recyclables sent to the Rabanco Recycle Center in Seattle. Lack of ongoing public outreach likely contributes to low levels of participation. Some of the current program results may also be because participants either do not regularly participate or do not recycle as much as they could. The bag-based collection system may also contribute to the relatively low amount of material collected. Information is not currently available to systematically evaluate these issues. Based on the number of complaints received by the County, poor customer relations likely contributes to the problem. Allied recognizes that good customer relations will be important to this program's success in the future.

Proposed Activities

Allied will continue to pay the costs of implementing residential curbside recyclables collection service throughout the County. In addition, Allied will increase promotion of this program and encourage signups and participation by:

- Developing a simple postage-free postcard for signups that can be used at various locations and special events in the County (Immediate Action).
- Posting promotional information and having sign-up postcards available at all of the transfer/recycling stations in the County (Immediate Action).
- Working with the County, businesses, and other organizations to try to have promotional posters and sign-up cards available at the following locations and events:
    - County fair
    - Earth day
    - Composting demonstrations and other education efforts sponsored by the County
    - Special solid waste/recyclables collection events
    - County offices
    - Schools and school events
    - Church events
    - Grocery stores

- Developing billing inserts promoting sign/up and ongoing participation in the program. In the first Plan Year, Allied will have its collection contractor send these billing inserts out semi-annually to its customers. In the first Plan Year, Allied will also work to make arrangements with the other collection companies in the County to include these inserts in bills to their customers.
- Because many residents do not receive garbage collection service, Allied will also arrange for, at a minimum, an annual mailing to all County residents encouraging them to signup and/or continue participating in the program. This mailing may be included along with the annual "How are We Doing?"recycling report sent out by the County.
- Developing and sponsoring media outreach, including: 1) designing and placing ads in local newspapers; and 2) developing and placing radio ads. As discussed under *Public Awareness and Outreach,* below, the annual number of media outreach efforts focused on the residential curbside program will vary depending on input from the County. In the initial Plan years, media outreach efforts will likely occur at least semi-annually. The content of the messages for these ads will also be developed in coordination with the County, but will likely:
    - Encourage signing up for the program
    - Include tips to improve participation such as information on which materials to recycle, why it is important to avoid contamination; and where to call for advise or customer service
- Modifying the curbside collection program, as warranted, in response to the baseline survey.
- Conducting a baseline survey of participants and non-participants to determine, among other things, how well the bag-based collection system is working. (See Customer Surveys and Evaluation, for the curbside program, below.)
- Conducting a survey of transfer station users to determine their level of participation in the curbside program. (See Customer Surveys and Evaluation, below.)
- Establishing performance expectations regarding customer relations for all personnel or subcontractors who will have contact with customers while implementing the program, and developing systems to track customer complaints. Allied management will monitor the results, consult with the County on any complaints received by the County, and take corrective action as needed. Allied will also take other action to improve customer service, such as providing a second person in the collection van to handll direct customer issues and complaints. (Immediate Action).

Program Evaluation

Allied will evaluate the Residential Curbside Collection Program on an ongoing basis in order to determine improvements that could be made to the program, including whether or not better results could potentially be achieved by replacing curbside collection in some areas with a system of recyclables drop-off stations. Allied recognizes that such a change would require a contract amendment with the County. Allied also recognizes such a change should only be

considered after: 1) extensive efforts have been made to encourage and support curbside program participation; 2) the curbside program's effectiveness is then independently evaluated; and 3) other recycling options have been tested to determine their effectiveness.

Program evaluation activities will include:

- Collecting information on the level of participation in the program;
- Collecting information on the amount of material recycled through the program;
- Developing and implementing customer surveys;
- Evaluating the program's effectiveness;
- Making adjustments to the program to improve its effectiveness, recognizing that any major program changes will require approval by the County.

Data Collection and Tracking. Allied will direct its collection subcontractor to develop and implement systems to track participation in the residential curbside program. At a minimum, this information will include:

- Documenting information on current participants including their address, phone numbers, and whether or not they also receive garbage collection service (Immediate Action);
- Collecting this information from new customers when they sign up for recycling service (Immediate Action);
- Annually mapping this information, in a manner that is compatible with the County's mapping system, to help determine the level of participation in various geographic areas of the County; and
- Providing mailing and/or phone lists of program participants to those conducting surveys related to MRRP programs.

Allied will also develop estimates of the total amount of material (by weight) collected through the curbside program. This information will be developed by adjusting totals delivered to the Rabanco Recycling Center in Seattle as described in Appendix B. Allied will also conduct spot checks to help assess the relative proportions of the various materials that are being collected through the program. Information will be provided to the County on an annual basis.

Customer Surveys and Program Evaluation. Allied will arrange for customer surveys to support evaluation of the program. Survey questions will be developed in coordination with the County and with Allied. Surveys will include:

- In the first Plan Year, surveys of transfer/recycling station customers to, at a minimum, determine: 1) the extent to which transfer stations customers also bring in recyclables; 2) the extent to which transfer station customers participate in the curbside programs; 3) their interest in participating in the curbside program; and 4) their interest in use of drop-

box facilities. Surveys will be conducted at the transfer stations and may be conducted by interview or by filling out a simple survey form.

- Early in the first Plan Year, a baseline survey of program participants and non-participants to, at a minimum, determine: 1) awareness of the program; 2) barriers to participation, including collection method; 3) frequency of recycling by program participants; 4) types of materials that they most frequently recycle; 5) issues that are keeping them from participating more regularly; 6) suggestions for improvements. The survey will be conducted by an independent third party, selected in consultation with the County. Surveys will be conducted by mail or phone.
- Follow-up surveys in the second and third Plan years. If the number of households that have signed up by the third plan year is relatively high, the second follow-up survey may only focus on participants.

Survey results will be provided in a report to the County. Individual customer responses will be kept confidential.

At the end of the third Plan year of the program, as described in this MRRP Plan, Allied will arrange for an independent evaluation of its overall effectiveness. The scope of work for this evaluation and selection of the independent contractor will be developed in coordination with the County. The evaluation will consider:

- Information obtained through the surveys described above;
- Information on the number and location of participants;
- The amount of recyclables collected and any trends;
- The results of pilot programs (see below); and
- Information from similar programs conducted in other areas.

At a minimum, the evaluation will identify:

- The overall effectiveness of the program in various areas of the County and for various types of participants (Le. in remote areas of the County, for participants that do and do not have garbage collection service etc.);
- Ways to support ongoing customer participation;
- Customer service issues and recommendations to address them; and
- Modifications, such as adding to or changing the types of materials collected, that may help the County better achieve its recycling goals.

TRANSFER STATION/DROP OFF RECYCLING

Current Practice

Allied currently provides facilities for the collection of recyclables at transfer/recycling stations in Goldendale, BZ corners, Dallesport, and at the Roosevelt Regional Landfill. The stations

collect all materials collected through the curbside program. In addition, they collect glass, used oil, white goods, scrap metal, and household hazardous waste. The quality and convenience of recycling facilities varies among the stations. Allied does not currently provide for drop-off recycling at any locations besides the transfer stations.

Proposed Activities

Transfer/Recycling Stations. Allied will continue its existing programs at the transfer/recycling stations and will make the following improvements:

- Posting promotional materials and providing sign-up cards for the residential curbside program (Immediate Action);
- Improving current signage, especially at the BZ corners station, and
- modifying all signs to include the correct current County phone numbers (Immediate Action);
- Installing displays at each station showing the types of materials that are appropriate for the various recycling containers (such as the current display at Dallesport);
- Implementing other improvements at the BZ corners station, including: securing the white goods collection area, and consolidating recycling containers, and providing improved bins and signs.

Drop-Off Centers Pilot Program. In addition, Allied will test the effectiveness of drop off locations for recyclables. Materials that will be collected at the drop off sites will likely include one or more of the following materials: aluminum, tin, newspaper, cardboard, and glass.

Pilot tests will be likely conducted in the Bickleton/Cleveland area, in the Maryhill area, and at a grocery store or other convenient location in the White Salmon area. Allied will also investigate the possibility of developing a drop off facility in the Mercer Farms area if they proceed with developing a housing area. Prior to implementing the pilot tests, Allied will take the following actions:

- Identify potential locations, and make arrangements with property owners;
- Hold public meetings to increase awareness of the drop-off pilot test and to inform the public on those factors that will be considered in evaluating the effectiveness of the test (Le. amount of material collected by type, number of users and frequency of use, contamination, problems with vandalism);
- Select and install bins and signage. Signage will identify that the drop-off station is part of a pilot test and will provide numbers to call in the event containers are full or in the event of vandalism.

Allied will make all arrangements for picking up recyclables at no charge, and monitoring and reporting any problems with vandalism. During the initial months of operation, Allied will regularly monitor the drop-off collection bins in order to determine the appropriate frequency for

pickups. Pilot tests will be conducted in the second and third Plan years and will last a minimum of one year before they are evaluated.

Program Evaluation

During the pilot tests, Allied will periodically collect information about the number of users and frequency of use. The methods used to collect this information will vary depending on the location of the drop-off station. At more heavily frequented locations (Le. Maryhill and White Salmon) observers may count the number of users in a given day. At less frequently used locations (Le. Bickleton), users of the drop-off station may be asked to fill out a card (asking how frequently they use the drop off and the types of materials they bring) and to leave it in a box provided at the drop off site.

At the end of the pilot test period, Allied will prepare a report to the County that, at a minimum, addresses:

- The amount (by weight) of materials collected;
- An approximation of the relative amounts of the various materials collected;
- Frequency of collection required; and
- Contamination, vandalism, and other problems;
- Customer feedback; and
- Interest in adding drop-off centers in other County locations.

The results of this report will be considered in the overall program evaluation described under *Residential Curbside Collection,* above.

GOVERNMENT AND BUSINESS WASTE REDUCTION AND RECYCLING

Current Practice

Allied currently collects the same recyclables from schools that it collects under its residential curbside program. Allied pays the cost of this service. Allied does not now provide any other recycling service to government institutions or businesses.

Proposed Activities

Allied will continue to offer recycling service to schools and will expand its government and business recycling efforts by:

- Improving collection services to schools by providing collection bins and posters to encourage recycling and, depending on input from individual schools, by collecting a wider range of materials and/or collecting them more frequently.
- Offering similar recycling services to County and Goldendale City offices and making the necessary arrangements to implement such a program, including providing collection bins and arranging for the frequency of collection. Materials that will be collected include cardboard, white paper, and aluminum.
- Providing model procurement ordinances and procedures to the County regarding purchase of recycled materials.
- Testing the effectiveness of business recycling by offering a pilot program in Goldendale, White Salmon, and Bingen. Allied will recruit and arrange for participation in the pilot program. Recruitment efforts will likely include media ads and phone interviews or meetings with local business owners. Recruitment efforts will also address the frequency of collection. It is expected that the materials collected will include white paper, and possibly cardboard and aluminum. Allied will offer this pilot program at a rate that offers a clear incentive to business owners to recycle, taking their costs for garbage collection into account. The rate may be adjusted depending on the level of interest in participating. Allied expects the pilot program to be implemented over a minimum two-year period, beginning in the second half of the first Plan year.
- Providing for business and government waste reduction and recycling audits. Audits will be offered two times each year and will include initial audits and followup visits to interested businesses. Allied will recruit participants using a variety of methods including media outreach, coordination with local business organizations, and phone interviews. Allied will arrange for, schedule visits by, and pay for the expenses of qualified auditors. Audits will be offered beginning in the second half of the first Plan Year.

Program Evaluation

In the fourth Plan Year, Allied will prepare a report to the County evaluating the effectiveness of the business recycling and audit programs. Information that will be provided will, at a minimum, include:

- Number and types of businesses participating;
- Amount of material collected;
- Results of customer interviews regarding the programs. Interviews will be conducted by an independent third party selected in consultation with the County. Interview questions will be developed in coordination with the County.

AGRICULTURAL WASTE REDUCTION AND RECYCLING

Current Practice

Allied does not now offer services directly focused on the agricultural sector.

Proposed Activities

Allied will:

- Provide speakers at grange meetings and other events who can address waste reduction and recycling in the agricultural sector, including techniques for reducing the toxicity of waste such as proper rinsing and disposal of pesticide containers, and the proper disposal of unused pesticides.
- Develop technical information, in coordination with the County extension agent, on subjects such as on-site composting of livestock and plant wastes.
- Work with the County to investigate the feasibility of supporting the development of/and or participation in regional programs aimed at agricultural users. (For example, EPA and the Agricultural Container Research Council are working at plastic pesticide, herbicide, and rodenticide containers. Other states are using recycled phone books for animal bedding).

MODERATE RISK WASTE

Current Practice

Allied currently supports County MRW efforts by providing for the collection of household used oil and household hazardous waste at transfer stations and providing for its collection and transport by an appropriately licensed company. (Used oil is also collected at the regional landfill and by Bingen Garbage Service in White Salmon.) The County pays the actual costs of disposal. Allied also implements a waste acceptance and control program at the transfer stations and at the regional landfill.

Proposed Activities

Allied will expand its current efforts by:

- Developing information in coordination with the County and placing media ac to increase household awareness of proper HHW disposal.
- Developing and targeting informational materials to Small Quantity Generators (especially vehicle maintenance, construction, and logging) to increase their awareness of the importance of the appropriate disposal of this waste and to announce days when collection at reduced rates is available.
- Including methods for reducing or removing hazardous materials from the waste stream in business waste audits.

WASTE REDUCTION

Current Practice

Allied currently provides limited support to County waste reduction efforts by providing for MRW collection at transfer stations and by funding certain information mailings by the County.

Proposed Activities

Allied will expand its current efforts by:

- Providing support for radio spots to encourage participation in the County's on-site composting program and to provide other waste reduction "hints".
- Including waste reduction techniques in business audits.
- As requested, assisting the County's recycling coordinator with arranging for backyard composting demonstrations and distributing bins.
- Writing and printing "how to" informational brochures and posters on waste reduction techniques to be included in the County's annual mailing and distributed at County events to residents and businesses.
- Including speakers with expertise in waste reduction in the speakers list and speakers program described under *Special Events,* below.
- Providing for swap events as described under *Special Events,* below.
- Providing information on waste reduction to the Agricultural Sector, as described under *Agricultural Programs,* above.

SPECIAL EVENTS, SUPPORT FOR COUNTY PROGRAMS, AND PUBLIC OUTREACH

Current Practice

Allied currently provides support for County Programs by funding certain County mailings and attending certain special events with the County. The County currently takes the lead on programs with schools, on-site composting demonstrations, and the brush/wood chipping program.

Proposed Activities

Allied will expand its current efforts to support County programs and public outreach efforts by:

- Arranging for and staffing booths at Earth Day and the County Fair jointly with the County;
- Assisting the County with waste reduction and recycling awards programs for civic organizations, schools, and businesses, by arranging to have plaques or other awards made, providing financial assistance for awards as agreed to in the annual planning meeting with the County, and attending awards ceremonies.
- Providing a list of potential speakers for special presentations to schools and civic organizations and, at the request of the County, arranging for those speakers to make presentations, and paying for their expenses;
- Assisting the County with special collection events (ie. cleanup events) by providing recyclables bins and collection and staffing support including, if applicable, staffing for a "swap" (active salvage) area at these events.
- Planning for annual media outreach in coordination with the County. These outreach efforts will occur three to four times per year and will likely focus on: 1) the residential curbside program; 2) waste reduction, especially backyard composting; and 3) other topics to be developed with the County. Outreach activities will include radio and newspaper ads, press releases, and articles submitted to newspapers. All content will be reviewed and approved by or submitted directly by the County.
- Developing an information web site (non-interactive) that will be updated and managed on an ongoing basis by the County.
- Holding an annual planning session with the County to identify priorities for the upcoming year, develop the focus of annual media outreach, and discuss possible improvements to the overall program. To the extent that Allied, Rabanco, or Tri-County plans new vehicle or equipment purchases, Allied will discuss these purchases with the County in light of their possible implications for the recycling programs described in this MRRP Plan.
- Holding other meetings with the County on an ongoing basis to coordinate activities and discuss progress.

ADMINISTRATION

Reporting

In addition to the evaluation reports described above, Allied will provide semiannual reports to the County on the types and amount (by weight) of recyclables collected in Klickitat County. Reports will be based on the weights of materials received at the Rabanco Recycle Center in Seattle, plus an estimate of material collected at transfer stations that is not sent on to the Recycle Center (see Appendix B).

Staffing-Allied Recycling Coordinator

Allied will assign a recycling coordinator who will be responsible for planning and scheduling programs and events, ensuring that scheduled activities are being initiated and completed, and coordinating with the County's solid waste coordinator.

Schedule

Appendix A is a schedule of the activities identified in this Plan.

		2000				2001				2002				
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
ACTIVITY														
Curbside Collection Program														
Collect recyclables from curbside participants														
Outreach Activities:														
Develop postage free signup card and promotional posters														
Post promotional information at transfer stations														
Develop lists of organizations and schedules for posting promo materials														
Post promotional materials and signup cards at other locations														
Develop and mail billing inserts to Tri-County customers														
Contact other haulers re arranging for billing inserts														
Billing mailed by other haulers														
Mail promotional material with Annual Report														
Design radio and print ads for curbside program														
Place radio and print ads														
Baseline Surveys and Data Collection:														
Design database for tracking participation														
Confirm and enter information on current participants														
Enter information on new sign-ups														
Prepare maps of participant locations														
Design baseline survey questionnaire														
Develop baseline survey mailing/phone lists														
Field baseline survey														
Conduct transfer station surveys														
Report results on baseline survey/recommend program changes														
Implement program changes, as warranted														
Modify baseline survey questionnaire for follow-up surveys														

		2000				2001				2002				
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
ACTIVITY														
Curbside Collection Program (cont.)														
Baseline surveys and Data Collection (cont.)														
Develop updated mailing/phone lists														
Field follow-up surveys														
Follow-up survey reports														
Customer Relations:														
Develop performance expectations re customer service														
Identify customer relations training programs														
Develop customer complaint tracking forms														
Review customer complaints														
Modify staff assignments as warranted														
Overall curbside program evaluation														
Transfer Station/Drop-off Recycling														
Continue collection of curbside recyclables, glass, HHW, used household oil, white goods, and scrap metal at transfer stations *Transfer Station*														
Post curbside promotional material and sign up cards														
Improve signage														
Install displays														
Install other improvements at BZ corners station														
Drop-off Center Pilot Project:														
Develop information on pilot program for site owner/managers														
Interview owners/managers of potential sites in White Salmon Area														
Identify potential sites in Bickleton area														
Hold meetings with Maryhill museum to identify potential sites, bin requirements, etc.														
Confirm sites and make arrangements with property owners														
Order bins and signs														
Develop forms for tracking/estimating quantity and types of material														

		2000				2001				2002				
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
ACTIVITY														
Transfer Station/Drop-off Recycling (cont.)														
Drop-off Pilot Tests (cont.):														
Conduct public meetings along with County														
Install bins and signs, and monitor use to set collection frequency														
Conduct pilot test														
Collect information on # of users, frequency of use														
Interview site owner/managers and users														
Prepare Pilot Report														
Government and Business Waste Reduction and Recycling														
Continue collection of recyclables from schools														
Improvements to Government Programs:														
Conduct interviews with schools re recyclables collection service														
Modify programs to schools as warranted														
Develop information sheet to discuss government recycling with County and Goldendale City agencies														
Implement City/County Collection of recyclables														
Provide speakers list to schools (see outreach, below) and arrange for speakers for following year														
Business Programs:														
Recruit participants for recyclables collection														
Order bins/reschedule collection routes/add equipment, as required														
Develop forms for recording information on participants, amount collected														
Collect cardboard, white paper, and aluminum from businesses														
Identify WRR and MRW auditors and develop contracts														
Recruit participants in audit program														
Conduct audits														
Conduct business interviews re: business collection and audit programs														
Report on Business pilot programs														

		2000				2001				2002				
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
ACTIVITY														
Agricultural Programs														
Develop technical pamphlets regarding on-site composting of livestock and plant waste, proper handling of pesticides and containers etc.				■	■	■	■	■	■					
Provide speakers list to local granges and other organizations (see Outreach, below), schedule and arrange for speakers as requested					■	■			■	■			■	■
Investigate feasibility of regional agricultural programs				■	■	■	■							
Support implementation of regional programs, as warranted								■	■	■	■	■	■	■
Moderate Risk Waste														
Continue existing collection of HHW and used oil	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Outreach Efforts:														
Develop/Collect HHW Information Brochures		■	■	■	■	■	■	■	■					
Develop radio/newspaper ads on HHW collection and reduction (1)		■				■				■				■
Place media ads (1)					■				■				■	
Develop outreach materials for SQGs						■	■	■	■	■	■	■	■	■
Arrange for HW reduction techniques to be identified in business waste		■	■											
Include speakers with MRW management and reduction expertise in		■	■	■										
Waste Reduction														
Develop media spots for on-site composting and other waste reduction		■				■				■				■
Place ads (1)		■	■			■	■			■	■			■
Assist with distribution of compost bins, as requested		■	■	■	■	■	■	■	■	■	■	■	■	■
Identify topics and develop brochures on waste reduction topics				■	■	■	■	■	■	■	■			
Arrange for waste reduction techniques to be identified in business audits		■	■											
Include speakers with waste reduction expertise in speakers list		■	■	■										
Swap events (2)			■	■			■	■			■	■		
1)Included within 4 outreach campaigns per year														
2)As part of Special Collection Events														

		2000				2001				2002				
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
ACTIVITY														
Special Events and Outreach														
Plan for and staff Earth Day and County Fair booths along with County														
Assist with County awards program														
Develop speakers list														
Assist with special collection events														
Plan annual media outreach														
Develop web site														
Administration and Reporting														
Assign Allied recycling coordinator														
Review, check, and interpret data on recyclables collected														
Prepare annual reports to County and SWAC on amounts collected and progress in implmenting MRRP Plan														
Annual planning sessions														
Periodic meetings with County														
Overall Program Evaluation Report														

APPENDIX E

WUTC COST ASSESSMENT QUESTIONNAIRE

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APPENDIX E
WUTC COST ASSESSMENT QUESTIONNAIRE

INTRODUCTION

State law (RCW 70.95.090) requires solid waste management plans 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 (see http://www.wutc.wa.gov/ for more information). The purpose of this cost assessment is to allow an assessment of the impact of proposed activities on current garbage collection and disposal rates. The WUTC needs this information to review the plan's impacts to the waste haulers that it regulates. For those haulers, the WUTC is responsible for setting collection rates and approving proposed rate changes. Hence, the WUTC will review this cost assessment to determine if it provides adequate information for rate-setting purposes, and will advise Klickitat County as to the probable collection rate impacts of the proposed programs. Consistent with this purpose, this cost assessment focuses primarily on those programs (implemented or recommended) with potential rate impacts.

COST ASSESSMENT QUESTIONNAIRE

PLAN PREPARED FOR THE COUNTY OF: Klickitat

PREPARED BY: Rick Hlavka, Green Solutions

CONTACT TELEPHONE: 360-897-9533 DATE: March 19, 2012

DEFINITIONS

Throughout this document: Year (YR.) 1 refers to **2012.**
YR. 3 refers to **2014.**
YR. 6 refers to **2017.**

Each year refers to a **calendar year** (January 1 - December 31).

1. **DEMOGRAPHICS:** To assess the generation, recycling and disposal rates of an area, it is necessary to have population data.

1.1 Population

1.1.1 The **total** population of the County is:

YR.1 22,200 YR.3 22,776 YR.6 23,625

1.1.2 The population of the area of the county's jurisdiction is the same as above (in other words, no cities are choosing to develop their own solid waste management system).

1.2 References and Assumptions

Population estimates are from the OFM (the 2009 projections, medium series).

2. WASTE STREAM GENERATION

2.1 Tonnage Recycled

2.1.1 The total tonnage **recycled** in the base year (2012), and projections for years three and six are:

YR.1 1,947 YR.3 1,998 YR.6 2,072

2.2 Tonnage Disposed

2.2.1 The total tonnage **disposed** in the base year, and projections for years three and six are.

YR.1 23,418 YR.3 24,025 YR.6 25,921

2.3 References and Assumptions

The projected recycled and disposed figures shown above are based on population projections and the 2009 waste generation rate (6.26 pounds per person per day) and the 2009 recycling rate (7.68%).

3. SYSTEM COMPONENT COSTS: This section describes the anticipated costs of the program(s) for each component of the solid waste system (i.e., waste reduction, recycling, composting, disposal, etc.), the assumptions used in estimating the costs, and the funding mechanisms to be used to pay for it.

3.1 Waste Reduction Programs

3.1.1 The following lists the major waste reduction programs, current and proposed:

IMPLEMENTED

Existing education and outreach waste reduction programs implemented by Klickitat County and Republic Services, which are detailed in the Waste Prevention chapter (Chapter 3), include:

- Promoting reuse
- Promoting backyard composting
- Other public education
- Reducing the amount and toxicity of MRW

PROPOSED

An expansion of the existing activities is proposed, with additional funds being contributed by Republic Services and Klickitat County (see Table 3.1 for the combined costs of existing and expanded activities).

3.1.2 The costs, including capital costs and operating costs, for waste reduction programs that are implemented and proposed are:

YR.1 $63,000 YR.3 $63,000 YR.6 $63,000

3.1.3 The funding mechanism(s) that will pay the cost of waste reduction programs include contributions from Republic Services (per the terms of the landfill contract), CPG funds, and county funds.

3.2 Recycling and Composting Programs

3.2.1 The following lists the major recycling programs, current and proposed, and the costs and the proposed funding mechanism:

IMPLEMENTED AND PROPOSED

PROGRAM	COST	FUNDING
Residential curbside collection	$221,000	Republic Services, CPG, and County funds
Community recycling events	$5,000	Republic Services, CPG and County funds
Education, awareness	$59,000	Republic Services, CPG and County funds
Recycling program evaluation	$6,000	Republic Services, CPG and County funds
Encourage onsite composting	$33,000	Republic Services, CPG and County funds

See the Recycling Chapter (Chapter 4) and Organics Chapter (Chapter 5) for more details.

3.3 Solid Waste Collection Programs

The following table provides information about the customer base of the WUTC-regulated collection companies in Klickitat County as well as the non-regulated, municipal collection system.

Republic Services, Permit #G-12			
	2012	2014	2017
Single Family Customers	3,863	3,964	4,120
Residential MSW Tons	355	364	379
Multi-Family (MF) Accounts	NA		
Commercial Customers	651	668	695
MF and Comm. MSW Tons	673	691	718

Bingen Garbage Service, Permit G#51			
	2012	2014	2017
Single Family Customers	350	360	374
Commercial Customers	76	78	81
Other Accounts	6	6	6
Total Collected, cubic yards	1,283	1,316	1,368

Municipal Collections within Klickitat County			
	2012	2014	2017
City of White Salmon			
All Customers	877	900	936
Total MSW Collected, yards	2,364	2,426	2,522

3.4 Energy Recovery & Incineration (ER&I) Programs

NA, no such facilities.

3.5 Land Disposal Program

3.5.1 Provide the following information for each land disposal facility in Klickitat County which receives garbage generated in the county:

Landfill Name: Roosevelt Regional Landfill

Owner: Republic Services

Operator: Republic Services

3.5.2 Estimated tonnage disposed at landfill from Klickitat County sources:

YR.1 24,350 YR.3 25,000 YR.6 26,000

3.5.3 Estimated tonnage from other sources:

YR.1 2,124,303 YR.3 2,124,303 YR.6 2,124,303

3.6 Administration Program

3.6.1 What is the budgeted cost for administering the solid waste and recycling programs and what are the major funding sources.

Budgeted Cost

YR.1 $423,300 YR.3 $423,300 YR.6 $423,300

Funding Source

Hose fees paid by Republic Services and grant funds.

3.6.2 Which cost components are included in these estimates?

Program administration, education and outreach programs, and monitoring and enforcement activities.

3.6.3 Please describe the funding mechanism(s) that will recover the cost of each component.

Existing funding sources will continue to be used.

3.7 Other Programs

NA.

3.8 References and Assumptions

For Sections 3.1 and 3.6, the budgets for future years have not yet been established and so are assumed to remain the same as in 2012.

For Section 3.3, 2011 figures were provided by the three hauling operations, and these were increased at 1.3% (the average projected population increase for the period 2010 to 2020).

For Section 3.5.2, the estimated tonnage disposed at Roosevelt Regional Landfill is based on a 2010 figure as reported by them (23,725 tons from Klickitat County), no increase in the per capita waste generation rate, and a population increase of 1.3% per year (based on the average projected population increase for the period 2010 to 2020, see Table 2.2 of the plan).

For Section 3.5.3, the amounts for 2012 and future years is assumed to remain the same as in 2010 (2,148,028 tons minus the 23,725 tons from Klickitat County, see Table 8.1 of the plan).

For Section 3.6.1, administrative costs are assumed to remain the same as in 2011.

4. FUNDING MECHANISMS: This section shows the funding mechanisms currently in use and that will be implemented to incorporate the recommended programs in the Klickitat County Solid Waste Management Plan Update.

4.1 Funding Mechanisms (Summary by Facility)

The following tables provide information on funding sources for programs and activities.

Table 4.1.1: Facility Inventory

Facility Name	Facility Type	Location	Final Disposal	Tip Fee	MSW Tons (2010)	Annual Revenues
BZ Corners Dropbox	Drop Box	Husum	Roosevelt Regional Landfill	$3.11/yard	521	NA
Dallesport Transfer Station	Transfer Station	Dallesport	Roosevelt Regional Landfill	$3.11/yard	11,113	NA
Goldendale Transfer Station	Transfer Station	Goldendale	Roosevelt Regional Landfill	$3.11/yard	5,972	NA
Roosevelt Dropbox	Drop Box	Roosevelt	Roosevelt Regional Landfill	$0	NA	NA

NA = Not Available. Data on the amount of revenues at each facility is not available.

Table 4.1.2: Tip Fee Components

Tip Fee by Facility	Surcharge	Taxes	Trans. and Disposal Cost	Operational Cost	Admn. Cost	Closure Costs	All Other
Transfer Stations and Dropboxes			NA	NA			

NA = Not Available. All of the transfer station tipping fees are used for operations, including transportation of the waste to the landfill, and more detailed information is not available.

Table 4.1.3: Funding Mechanism										
Name of Program	**Bond Name**	**Total Bond Debt**	**Bond Rate**	**Bond Due Date**	**Grant Name**	**Grant Amount**	**Tip Fee**	**Taxes**	**Other***	**Surcharge/ LF Host Fees**
Waste Prevention					CPG	17,250			40,000	5,750
Recycling					CPG	17,250			268,000	5,750
Organics					CPG	19,000			10,000	4,000

* "Other" funds are the contributions from Republic Waste provided per the host agreement.

Table 4.1.4: Tip Fee Forecast						
Tip Fee per Ton	**Year One**	**Year Two**	**Year Three**	**Year Four**	**Year Five**	**Year Six**
Transfer Stations and Dropboxes, waste collection trucks	$3.11/yard	$3.11/yard	$3.11/yard	$3.11/yard	$3.11/yard	$3.11/yard
Transfer Stations and Dropboxes, public customers (self-haul)	$5/yard	$5/yard	$5/yard	$5/yard	$5/yard	$5/yard

Based on 2011 tipping fees, see also note in Section 4.3.

Note: The Agreement Concerning Solid Waste Handling ("Agreement") between Klickitat County and Republic Services, which was first executed on May 26, 1989 and most recently amended in 2011, commits both to continued operation of the Roosevelt Regional Landfill through 2032 with three, five-year extensions allowable. As part of the Agreement, waste from Klickitat County is accepted at no charge at this landfill (except that fees can be charged for construction and demolition wastes, special wastes, and wastes in excess of 1,000 tons per year from businesses established after August 7, 1995). Hence, the above tipping fees are based only on the costs for transporting wastes from the transfer stations to the landfill, and do not include disposal costs.

4.2 Funding Mechanisms summary by percentage: The following tables summarize the way programs will be funded in the key years.

Table 4.2.1: Funding Mechanism by Percentage – Year One

Component	Tip Fee %	Grant %	Bond %	Coll. Tax, %	Rates, Service Fees	Other %	Total
Waste Prevention	9%	27%				63%	100%
Recycling	2%	6%				92%	100%
Organics	12%	58%				30%	100%
Collection					100%		100%
Transfer	100%						100%
Disposal						100%	100%
MRW						100%	100%
Administration	100%						100%

Table 4.2.2: Funding Mechanism by Percentage – Year Three

Component	Tip Fee %	Grant %	Bond %	Coll. Tax, %	Rates, Service Fees	Other %	Total
Waste Prevention	9%	27%				63%	100%
Recycling	2%	6%				92%	100%
Organics	12%	58%				30%	100%
Collection					100%		100%
Transfer	100%						100%
Disposal						100%	100%
MRW						100%	100%
Administration	100%						100%

Table 4.2.3: Funding Mechanism by Percentage – Year Six

Component	Tip Fee %	Grant %	Bond %	Coll. Tax, %	Rates, Service Fees	Other %	Total
Waste Prevention	9%	27%				63%	100%
Recycling	2%	6%				92%	100%
Organics	12%	58%				30%	100%
Collection					100%		100%
Transfer	100%						100%
Disposal						100%	100%
MRW						100%	100%
Administration	100%						100%

4.3 References and Assumptions

For Table 4.1.1, the tonnage figures shown are from 2010.

For Tables 4.1.2 and 4.1.3, figures are based on 2012 costs and budget.

For Table 4.1.4, there are no plans currently to increase the tipping fee and so the 2011 amount is shown as continuing throughout the six-year period. In reality, the tipping fee will likely change during this period.

4.4 Surplus Funds

Only a small amount of fund balance is maintained from year to year. The typical amount of fund balance for the past few years has been approximately $150,000.

APPENDIX F

SEPA CHECKLIST

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APPENDIX F
SEPA CHECKLIST

INTRODUCTION

Ecology guidelines (Ecology 2010a) 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, many of the parameters of the checklist do not apply to this Plan.

ENVIRONMENTAL CHECKLIST

A. BACKGROUND INFORMATION

1. Name of proposed project, if applicable:

   Klickitat County Solid Waste Management Plan Update (the "SWMP Update," or the "2012 Plan Update").

2. Name of applicant:

   Klickitat County Solid Waste Department

3. Address and phone number of applicant and contact person:

   Kevin Barry, Klickitat County Solid Waste Department
   131 W. Court MS: CH-27, Goldendale, WA 98620
   509-773-2366

4. Date checklist prepared:

   November 10, 2011

5. Agency requesting checklist:

   Klickitat County Solid Waste Department

6. Proposed project timing or schedule *(including phasing, if applicable)*:

   This checklist is for a non-project proposal intended to update Klickitat County's long-range plans for solid wastes. The proposed 2012 Plan Update is required to undergo public review and comment, which is anticipated to begin in early 2012. A final copy of the Solid Waste Management Plan is expected to be adopted by mid-2012.

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 five 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. No environmental information has been or will be prepared which is directly related to this action.

9. Do you know of pending applications for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

   Does not apply. There are no applications pending which would affect adoption of the Klickitat County Solid Waste Management Plan.

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, February 2010) 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.

    Klickitat 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 2000, needs to be updated. The proposed new plan addresses changes that have occurred in the past twelve years.

    In addition to updating the discussion of current facilities and programs, the proposed 2010 Plan Update 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 the implementation plan in Chapter 11 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).

    The Solid Waste Management Plan addresses activities and programs that occur throughout Klickitat 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, the SWMP is a non-project action. No filling or grading is proposed.

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:

NA, the SWMP is a non-project action.

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, the SWMP is a non-project action.

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, the SWMP is a non-project action.

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. The SWMP Update is a non-project action. No emissions or impacts to the air are proposed.

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 area of the site that would be affected. Indicate the source of fill material.

NA. The SWMP is a non-project action. No fill or dredge material will be placed in or removed from surface water or wetlands as a result of this proposal.

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. While 100-year floodplains do lie within the planning boundaries of the county, the SWMP is a non-project action.

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" for types of vegetation found on the site:

__X__ **deciduous trees: alder, maple, aspen, other**
__X__ **evergreen trees: fir, cedar, pine, other**
__X__ **shrubs**
__X__ **grass**
__X__ **pasture**
__X__ **crop or grain**
__X__ **wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other**
__X__ **water plants: water lily, eelgrass, milfoil, other**
__X__ **other types of vegetation**

b. What kind and amount of vegetation will be removed or altered?

NA. The SWMP is a non-project action.

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. The SWMP is a non-project action.

5. Animals

a. Check "X" or circle "O" for birds and animals which have been observed on or known to be on or near the site:

__X__ **birds: hawk, heron, eagle, songbirds, other**
__X__ **mammals: deer, bear, elk, beaver, other**
__X__ **fish: bass, salmon, trout, herring, shellfish, other**

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:

NA. The SWMP is a non-project action.

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.

NA. No new energy will be needed. The SWMP is a non-project action.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

NA

c. What kinds of energy conservation features are included in the plans of this proposal?

NA. No energy conservation features or measures to mitigate energy impact are proposed for this non-project action.

d. What are the proposed measures to reduce or control energy impacts, if any?

NA

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.

NA

1) Describe special emergency services that might be required.

NA

2) What are the proposed measures to reduce or control environmental health hazards, if any?

NA

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

NA. Noise will not be generated nor will the non-project action be affected by existing noise.

2) 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)?

NA

3) What are the proposed measures to reduce or control noise impacts, if any?

NA. No noise will result from this non-project action.

8. Land and Shoreline Use

a. What is the current use of the site and adjacent properties?

NA. The SWMP Update is a non-project action.

b. Has the site been used for agricultural purposes? If so, describe.

NA

c. Describe any structures on the site.

NA

d. Will any structures be demolished? If so, what.

NA

e. What is the current zoning classification of the site?

NA

f. What is the current comprehensive plan designation of the site?

NA

g. If applicable, what is the current shoreline master program environment designation of the site?

NA

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

NA

i. Approximately how many people would reside or work in the completed project?

NA

j. Approximately how many people would the completed project displace?

NA

k. What are proposed measures to avoid or reduce displacement or other impacts, if any?

NA

l. What are proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

NA

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

NA

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

NA

c. What are proposed measures to reduce or control housing impacts, if any?

NA

10. Noise

a. What types of noise exist in the area which may affect your project *(for example: traffic, equipment, operation, other)*?

NA. Noise will not be generated nor will the non-project action be affected by existing noise.

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)*?

NA

c. What are the proposed measures to reduce or control noise impacts, if any?

NA. No noise will result from this non-project action.

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?

NA

b. What views in the immediate vicinity would be altered or obstructed?

NA

c. What are the proposed measures to reduce or control aesthetic impacts, if any?

NA

12. Light and Glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

NA

b. Could light or glare from the finished project be a safety hazard or interfere with views?

NA

c. What existing off-site sources of light or glare may affect your proposal?

NA

d. What are the proposed measures to reduce or control light and glare impacts, if any:

NA. The SWMP Update is a non-project action, and will not result in any light or glare impacts.

13. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

NA

b. Would the proposed project displace any existing recreational uses? If so, describe.

NA

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?

NA. The SWMP Update is a non-project action and will not result in the loss of any recreational opportunities.

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.

NA

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on the site.

NA

c. What are the proposed measures to reduce or control impacts, if any?

NA. The SWMP Update is a non-project action and will result in no impacts to historic or cultural preservation.

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.

NA

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

NA

c. How many parking spaces would the completed project have? How many would the project eliminate?

NA

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):*

NA

e. Will the project use or occur in the immediate vicinity of water, rail, or air transportation? If so, generally describe.

NA

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

NA

g. What are proposed measures to reduce or control transportation impacts, if any?

NA. The SWMP Update is a non-project action, and will not result in any new transportation impacts.

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.

NA

b. What are proposed measures to reduce or control direct impacts on public services, if any?

NA. The SWMP Update is a non-project action, and will not result in the need for increased public services.

17. Utilities

a. Circle "O" utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other *(describe)*.

NA

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.

NA. The SWMP Update is non-project action.

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: Kevin Bleu

Date Submitted: 7-25-12

D. SUPPLEMENT SHEET FOR NONPROJECT 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 affect 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.

Determination of Non-Significance

Environmental Checklist: SEP-2012-15

Description of proposal: The purpose of the project is to update the Klickitat County Solid Waste Management Plan as mandated by RCW 70.95.110

Proponent: Klickitat County Solid Waste Department
Kevin Barry, Representative
131 West Court St. MS-CH-27
Goldendale, WA 98620

Lead Agency: Klickitat County Planning Dept.
228 West Main St. MS-CH-17
Goldendale, WA 98620

Threshold Determination: The lead agency for this proposal has determined that this proposal does not have probable significant impact on the environment. An environment impact statement (EIS) is not required under RC 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public upon request.

Comment Period: Comments will be received until July 20, 2012.

Appeal period ends: August 24, 2000

Responsible Official: Curt Dreyer
Klickitat County Planning Director
228 West Main St. MS-CH-17
Goldendale, WA 98620

Phone: (509) 773-5703
Fax: (509) 773-6206

Signed this 28 day of July 2012.

Curt Dreyer
Planning Director and
SEPA Responsible Official

APPENDIX G

RESOLUTIONS OF ADOPTION

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Appendix G
Resolutions of Adoption

The following pages show the resolutions of adoption from the jurisdictions participating in this 2012 Update of the Klickitat County Solid Waste Management Plan, including:

- Bingen
- Goldendale
- White Salmon
- Klickitat County