Mason County

Solid Waste Management Plan 2006

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CHAPTER 1: INTRODUCTION

1.1 ROLE AND PURPOSE

The Mason County Solid Waste Management Plan (SWMP) provides a guide for solid waste activities in Mason County. This document was prepared in response to the Solid Waste Management, Reduction, and Recycling Act, Chapter 70.95 of the Revised Code of Washington (RCW) that 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 Solid Waste Management Act also specifies that these plans must "be maintained in a current and applicable condition" through periodic review and revisions (RCW 70.95.110). This plan is a complete revision of the 1998 SWMP.

1.2 PARTICIPATING JURISDICTIONS

As indicated above, RCW 70.95 delegates the authority and responsibility for the development of solid waste management plans to counties. Other governing bodies (cities, tribes, and Federal agencies) may participate in the County's planning process or conduct their own plans. State law allows cities to fulfill their solid waste management planning responsibilities in one of three ways:

- By preparing their own plan for integration into the County's plan,
- By participating with the county in preparing a joint plan, or
- By authorizing the county to prepare a plan that includes the city.

The City of Shelton is the only incorporated municipality in Mason County. As in years past, they have agreed to participate in the plan that the County prepares. In addition, because this SWMP may impact their current and future solid waste management options, careful review of this plan is recommended for the Skokomish Indian Tribe and the Squaxin Island Tribe.

1.3 RELATIONSHIP TO OTHER PLANS

This *Solid Waste Management Plan* must function within a framework created by other plans and programs, including policy documents and studies that deal with related matters. The most important of these local documents is the *Mason County Comprehensive Plan* (adopted in April 1996 and updated in 2005) and the *Mason*

County Moderate Risk Waste Management Plan (adopted in April 1991 and updated in October 2003).

An important State document that provides guidance and direction in the development of the SWMP is the *Beyond Waste Plan*, the State's solid and hazardous waste management plan (adopted in November 2004). The Beyond Waste Plan (BWP) shifts the direction of solid waste planning away from a focus on management and towards a vision of waste prevention. Counties are not mandated to follow the initiatives outlined in the BWP, but are strongly encouraged to pursue initiatives and recommendations that are feasible in their jurisdictions. The BWP identifies five initiatives, or areas of focus:

1. Moving Toward Beyond Waste with Industries
2. Reducing Small-Volume Hazardous Materials and Waste
3. Increasing Recycling for Organic Materials
4. Making Green Building Practices Mainstream
5. Measuring Progress Towards Beyond Waste

In addition to the above initiatives, the BWP identifies a number of issues that affect the current system of solid and hazardous waste management. Implementing the *Beyond Waste Plan* will take several years. Thus, the BWP outlines the following issues affecting current waste handling to focus on in the meantime to move its vision forward:

<u>Current Hazardous Waste System Issues</u>

1. Pollution Prevention
2. Compliance with *Dangerous Waste Regulations*
3. Permitting/Corrective Action

<u>Current Solid Waste System Issues</u>

1. Solid Waste Authorities and Local Planning Issues
2. Recycling and the Technical Nutrient Cycle
3. Disposal—Yesterday, Today and Tomorrow

A complete list of the BWP recommendations for both the initiatives and the system issues is contained in Appendix A. Recognizing that the initiatives and system issues contained in the BWP are not designed to be achieved either in their entirety or in the time span of this plan, an concerted effort was made to include recommendations that are viable in Mason County in the creation of this SWMP.

1.4 PREVIOUS SOLID WASTE PLANS

Washington State enacted RCW 70.95.080 (requiring counties to develop solid waste plans) in 1969, and Mason County adopted their first plan in 1971. A revision to the original plan was adopted in 1992, with an additional update in 1998. Table 1.1 shows the recommendations from the most recent plan (1998) and the status of these recommendations.

TABLE 1.1 STATUS OF RECOMMENDATIONS FROM THE PREVIOUS PLAN (1998)		
CH. 3	**Waste Reduction**	**Current Status**
3.1	Public education should be a high priority in both Mason County and the City of Shelton. County and City should continue to support and enhance the existing school program. Adult education program should continue to focus on waste reduction practices and to supplement each new waste reduction and recycling program implemented. On-site composting programs should continue to be expanded and included as a topic for public education.	Ongoing
3.2	The County and City should continue to support waste reduction by adopting resolutions of support for waste reduction practices and forward these to State and Federal senators and representatives. This resolution could address: future legislation, changes to existing legislation, packaging or labeling requirements, material deposits, market development or other topics.	Not implemented: Staff are providing issue based support to the Commission for consideration.
3.3	In addition to the bi-weekly waste pick-up service that was implemented in conjunction with the City curbside recycling program, additional incentives and alternative rate structures supporting waste reduction could be considered.	Implemented
3.4	Mason County should continue to seek waste collection rate structure programs that support waste reduction in the County.	Ongoing
3.5	The County and City need to take the steps necessary to expand in-house waste reduction programs. Providing assistance to County and City businesses to implement such programs should also be considered.	Implemented for City offices, not implemented for County. Ongoing (but not actively)
3.6	Consideration should be given to other waste reduction programs and implemented as necessary and feasible.	Ongoing

3.7	Current interlocal agreement between the City and County should be maintained to control program costs and continue program coordination.	Ongoing
3.8	Public education should continue to be a primary element of program maintenance in the City and the County. Education associated with recycling programs should be focused on improving and expanding participation as well as generating feedback from the public.	Ongoing
3.9	Grant funding for recycling programs should be sought to supplement County funding and support new staff and programs. Additional funding options should be explored.	Ongoing

TABLE 1.1 STATUS OF RECOMMENDATIONS FROM THE PREVIOUS PLAN (1998)		
CH. 3	**Waste Reduction**	**Current Status**
3.10	Additional [recycling] drop box stations should be established as needed. Other locations for future consideration should include: shopping areas, fire and police stations, and Skokomish Tribal lands. The County should encourage program participation from the private sector.	Considered but not implemented
3.11	The City of Shelton should evaluate its curbside program to establish effectiveness for future expansion. The City should encourage program participation from the private sector.	Ongoing
3.12	The County should encourage market development for designated and potentially designated recyclable materials.	Not implemented
3.13	The County and City should continue to perform an annual tabulation of the source and quantities of nonresidential waste generated in Mason County.	Not implemented. (Not currently feasible)
3.14	The County and City should continue to support and encourage private efforts to collect recyclables from nonresidential sources. A list of nonresidential recycling services should be compiled, updated and made available to County and City businesses and industry.	Not implemented
3.15	A yard waste compost program should be evaluated. If a program is feasible, collection of yard waste should be through drop boxes. If unfeasible, an educational program promoting small-scale on-site composting should be implemented. Additional opportunities and methods for collection and transfer should be evaluated.	Backyard composting implemented. Drop box collection evaluation considered
3.16	Continued public information and education programs should be devised to target a broad spectrum of the City and County population.	Ongoing

	Specific attention should continue to be devoted to school programs.	
3.17	Evaluation of the waste reduction, recycling and education programs should continue to be a routine part of the public information and education program. Evaluation should include public feedback, a tally of the performance of the individual [recycling] drop box stations, and a record of the waste stream.	Ongoing
3.18	The County should consider implementation of a limited dump and pick operation at the solid waste facility.	Implemented
CH. 4	**Energy Recovery/Incineration**	**Current Status**
4.1	Interest in developing an energy recovery facility in Mason County is negligible.	No recommendations were made.

TABLE 1.1 STATUS OF RECOMMENDATIONS FROM THE PREVIOUS PLAN (1998)		
CH. 5	**Refuse Collection**	**Current Status**
5.1	Voluntary collection of refuse should be continued in Mason County. Evaluation of mandatory collection should be included as part of the next SWMP update as a possible method for controlling illegal dumping.	Ongoing
5.2	The County, rather than the WUTC, should manage the collection of recyclables. The County should evaluate whether to provide these services through contract or through County staff.	Not implemented
5.3	The County should adopt the rate structure guidelines included in Table 5.4A for implementation within the unincorporated County. The County should support and coordinate with private haulers to implement a new rate structure in conformance with these guidelines. The County and haulers should agree on a general rate program, with input from the WUTC, prior to final review and approval by WUTC. Rate structure changes implemented by the haulers should also be reflected in landfill and transfer station rate structures. A public information and education program should be executed with the change in rate structure.	Not implemented: WUTC providing rate regulation of private haulers in Mason County
CH. 6	**Transfer and Import/Export**	
6.1	[Recycling] drop box bins have been placed at drop box stations and at other sites in Mason County to facilitate recycling. Mason County should continue to provide public information regarding the [recycling] drop box program. If the need arises for locating additional [recycling] drop boxes, the County should pursue grant funding to pay for a portion of the costs.	Ongoing
6.2	Mason County has participated in numerous meetings regarding solid waste disposal in the	Ongoing

	past and should continue to do so.	
6.3	Mason County recognizes the fact that significant population increases play an important role in the amount of solid waste generated. Staff should evaluate this to determine if there is a need for additional drop box sites or transfer stations. This would be completed before the next revision of this document.	Study incorporated in SWMP 2005 revision
CH. 8	**Enforcement and Administration**	
8.1	The County should maintain its existing Community Development structure.	Community Development is now Utilities and Waste Management
8.2	The County should continue to examine and adjust tipping fees in light of future solid waste programs.	Ongoing examination

TABLE 1.1 STATUS OF RECOMMENDATIONS FROM THE PREVIOUS PLAN (1998)		
CH. 8	**Enforcement and Administration**	**Current Status**
8.3	The County should evaluate and develop additional funding sources for future major capital expenditures.	Study incorporated in SWMP 2005 revision
8.4	The County should investigate the establishment of a civil penalty ordinance allowing the ticketing of violators.	Implemented
8.5	The County should continue employing a permanent enforcement staff member for illegal dump site identification.	Implemented: 2 FTE's now employed
CH. 9	**Special Waste Streams**	
9.1	Mason County should proceed with a public awareness and education program for biosolids utilization in land application. The County should continue to investigate alternative methods for biosolids handling, including possible regional solutions.	Public awareness: Not implemented Regional solutions: Implemented
9.2	The County government should support land application of biosolids. The County should develop clear policies and guidelines for biosolid land application. These should include EPA requirements as well as guidelines for site selection.	Not implemented
9.3	The County should continue to utilize the private sector while evaluating alternative methods of septage handling.	Ongoing
9.4	The County should continue to investigate the feasibility of utilizing certain recyclable demolition wastes and divert those materials to the appropriate facilities.	Considered but not implemented
9.5	County policy should limit wood waste quantities that are disposed of with solid waste.	Not implemented
9.6	Mason County should support development of tire recycling methods in Washington State and monitor new programs for possible implementation within the County.	Not implemented

9.7	The County should continue to require stringent compliance with all State and Federal regulations to reduce exposure to solid waste utility workers and prevent any possible environmental damage.	Ongoing
9.8	County policy should support the current program for breakdown and recycling of white goods and appliances.	Ongoing
9.9	Continue the existing handling program for proper storage, handling, and disposal of the fluorocarbons.	Ongoing
9.10	The County should continue the transportation and disposal practices for asbestos.	Ongoing

1.5 SOLID WASTE ADVISORY COMMITTEE

This revised SWMP was prepared with the assistance of the County's Solid Waste Advisory Committee (SWAC), County and City staff, and other interested parties. The formation, membership makeup, and role of the SWAC are specified by State law (RCW 70.95.165 (3)):

> "Each county shall establish a local solid waste advisory 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. Such committees shall consist of a minimum of nine members and 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 members shall be appointed by the county legislative authority."

As required by State law, this committee functions in a review and advisory capacity throughout the planning process, facilitating subsequent adoption by the municipalities and acceptance by the public. The Mason County SWAC has representation from a tribe, private industry, and citizens who represent the public's interest. The current membership (as of January 2006) and affiliations of the SWAC members are shown below in Table 1.2.

TABLE 1.2 MEMBERSHIP OF THE MASON COUNTY SWAC

Voting Member	Representing
Rik Fredrickson	Haulers/Recyclers
Janet O' Conner	District 2
Mary Jean Hrbacek	District 3
Jeff Heinis	Skokomish Tribe
Jan Ward	District 2
Donald Stacy	District 3
Elrey Simon	District 3
Jeff Roberge	District 1
Wendy Ervin	District 1
Staff	
Emmett Dobey	Director of Utilities/Waste, County
Tom Moore	Project Manager, County
David Baker	Recycling Coordinator, County
Rose Swier	Department of Health, County
Christine Clark	Department of Health, County
Shannon McClelland	Public Works - City of Shelton

1.6 PROCESS FOR REVISING AND AMENDING THE PLAN

The process for revising the 1998 SWMP to align it with current standards and goals involves the following major steps:

1. Review current plan to determine accomplishments from the previous plan, and to determine current and future needs to include in the new plan.
2. Develop a scope of work.
3. Involve the local SWAC in policy decisions relative to proposed changes in the new SWMP.
4. Develop a draft plan.
5. Review by SWAC.
6. Complete SEPA documentation and review.
7. Review by City and County government.
8. Public hearing and review.
9. Incorporate public comments into draft plan.
10. Submit draft plan to Department of Ecology (Ecology).
11. Address Ecology comments and resubmit.
12. Obtain resolutions of adoption from City and County.
13. Submit final plan to Ecology.

Ecology's Planning Guidelines require that solid waste management plans be reviewed at least every five years, with the five-year period beginning when the current plan has received final approval from Ecology. If moderate changes are required after the five-year period, an update may be sufficient to revise the plan. If significant changes have occurred in the planning area, a new plan will be required. Before the five-year period has expired, it may be necessary to amend this SWMP to reflect changes in regulatory standards or operational requirements.

If the SWMP needs to be amended after it has been granted final approval by the City, County, and Ecology, the following steps should be taken:

1. A proposed amendment to the SWMP should be prepared by the local government agency (or other party in special cases) initiating the change. This should generally be preceded by discussions at the SWAC. The proposed amendment must be presented to the SWAC for review and comment. Submittal to the SWAC should be accompanied by a report providing an analysis of the impacts of the proposed change.

2. The SWAC should provide recommendations to the proposed amendment.

3. The proposed amendment can then be revised as necessary and presented for consideration by the appropriate elected officials of Shelton and Mason County, and adoption by Mason County.

4. Prior to adoption, the proposed amendment will also be subject to Ecology and public review and comment. At a minimum, one public hearing will be held to allow citizens and other interested parties the opportunity to present their views. If deemed acceptable, the amendment must be adopted by all signatories to the SWMP in order for it to be considered effective.

5. Once the amendment has been adopted, it will be submitted to Ecology for final approval.

Amendments could be required as the result of changes in disposal facilities or methods, new information about existing programs or facilities, and regulatory or other changes. Changes that the County determines to be minor and consistent with the approved SWMP will not require a plan amendment. If a change is considered minor but not consistent with the approved SWMP, the staff implementing the SWMP will consult with the Commissioners of Mason County, the SWAC, Ecology, and other affected parties as appropriate to determine the appropriate level of review and consideration. The same process would be used if any questions arise concerning the significance of a change to the SWMP, and if a determination is made that the amendment is insignificant, and then the amendment will be drafted by the SWAC and offered to the commissioners as a recommendation. After the recommendation is adopted the amendment will be submitted to Ecology for final approval, to be incorporated into the plan as an addendum.

1.7 PLAN ORGANIZATION

This SWMP is organized in accordance with Ecology's *Guidelines for the Development of Local Solid Waste Management Plans and Plan Revisions* (December 1999). Chapters 1 and 2 describe the history and function of the SWMP, and the planning area that the solid waste management system operates under in Mason County. Chapters 3 through 6 address specific areas of solid waste management. Each area of focus is described using the following parameters:

Existing Practices: The current service level provided.
Needs and Opportunities: Addresses known deficiencies and external variables (growth, regulations, energy costs, market influences, etc.) that affect the existing conditions. Also highlights challenges or discusses how variables translate into challenges, which can act to change the direction in the solid waste handling system.
Alternatives and Evaluation: Based on the needs and opportunities that affect the existing conditions, alternatives and their evaluations are presented to resolve deficiencies and address goals.
Recommendations: The suggested course of action given the evaluation of alternatives.

1.8 STANDARD NOMENCLATURE USED IN THE PLAN

This SWMP attempts to provide a standardized approach for the use of capital letters when referring to government agencies, including:

- City: When capitalized, refers to the City of Shelton.
- County: When capitalized, refers specifically to Mason County. The term may apply to the County government, to the unincorporated area outside of the City, or to the entire County (including Shelton).
- Ecology: When capitalized, refers to the Washington State Department of Ecology.
- State, Federal, and Tribes: These words are almost always capitalized because they typically refer to the state government, national government, or specific tribe.

This SWMP also uses a standardized vocabulary to distinguish between different types of solid waste and recycling containers. The term *drop box* is used for solid waste, *blue boxes* (compartmentalized drop box used to facilitate source separated collection) is used for the containers at self-haul recycling locations, and *recycling bin* refers to the smaller boxes used by households for curbside recycling.

1.9 PLAN GOALS AND OBJECTIVES

A statement of goals was prepared by and for the SWAC as a first step in identifying the solid waste management issues to be addressed in the Plan. In addition, the SWAC identified specific goals and objectives for the Plan for managing solid wastes in Mason County. This overview helped to focus the Plan on the specific needs of Mason County, and led the development and the final conclusions reached by this Plan.

The issues identified by the SWAC to be addressed in the planning process are as follows:

- Roadside litter and illegal dumping
- Solid waste legislation
- Public education and outreach
- Partnerships with private sector
- Evaluate existing recycling goals and methods
- Diversion of yard waste

The specific goals and objectives for solid waste management in Mason County that were developed in collaborative fashion by the SWAC are as follows:

Goal: Meet State priorities for solid waste management.
Objectives:

- ❑ Continue public outreach and education efforts
- ❑ Provide for efficient handling of organics
- ❑ Measure progress in achieving goals and objectives

Goal: Promote and maintain public health and safety; protect natural and human environment.
Objectives:

- ❑ Maintain consistency with existing resource management plans

Goal: Continue to enforce existing solid waste regulations.
Objective:

- ❑ Support solid waste policies and legislation

Goal: Promote use of private industry expertise.
Objectives:

- ❑ Promote input and ensure representation of public in planning process
- ❑ Identify opportunities for public/private partnerships

Goal: Develop economically responsible solid waste management system.

CHAPTER 2: BACKGROUND OF THE PLANNING AREA

The purpose of this chapter is to provide information on the environment in which solid waste management, handling, and planning occur in Mason County. The chapter is divided into the following sections:

2.1 NATURAL ENVIRONMENT, LAND USE AND DEMOGRAPHICS

An understanding of the environmental, land use, and demographic conditions of Mason County is important because it provides a frame of reference for discussions of existing solid waste practices and future solid waste handling needs. To address these conditions in Mason County, this section is divided into two parts: the natural environment and the human environment. The description of the natural environment includes a review of geology, hydrology/hydrogeology, climate, and air quality. The description of the human environment includes demographic and land use characteristics of the County.

Natural Environment

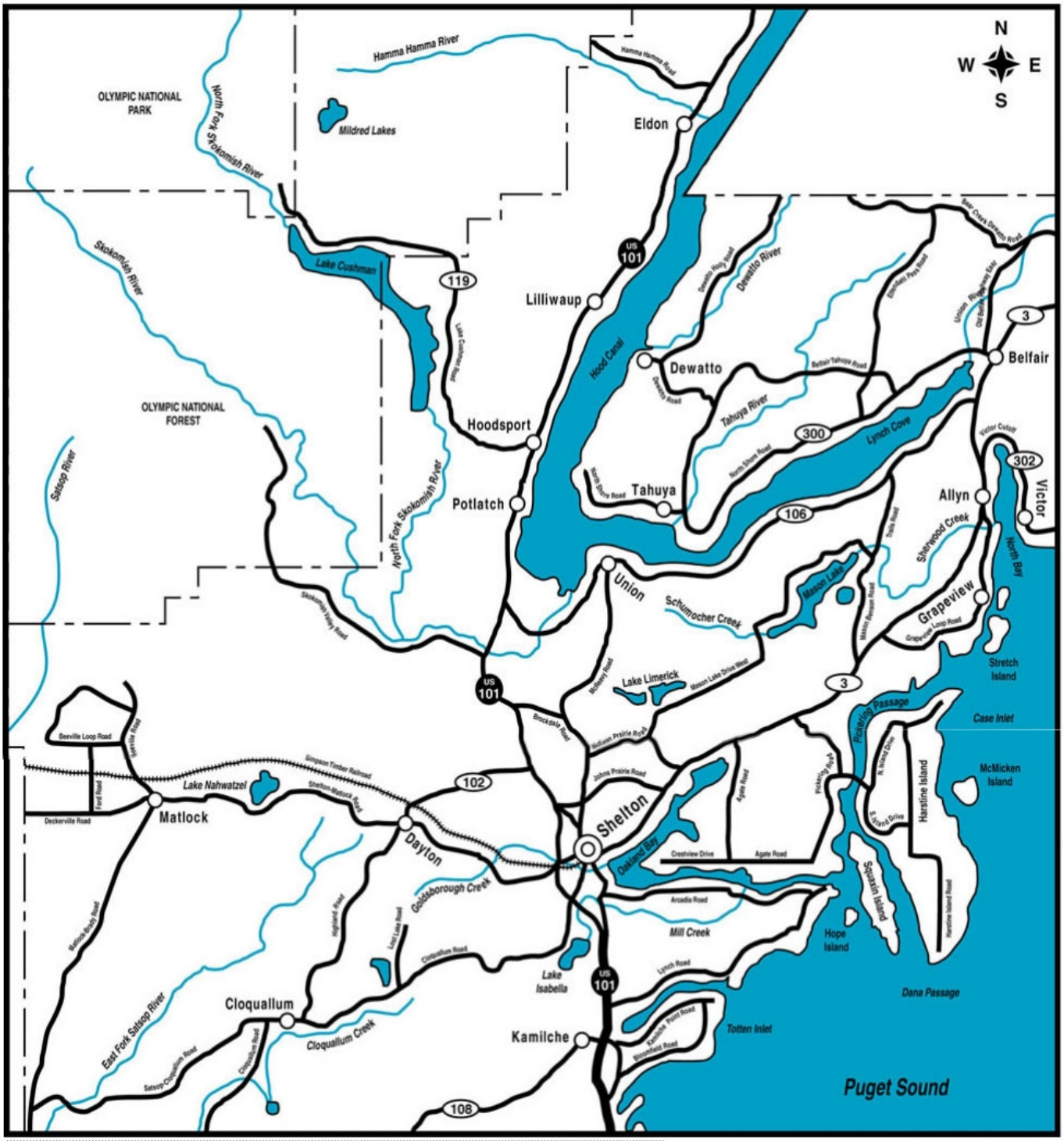
The main sources of information for this section are the Soil Survey for Mason County (U.S. Dept. of Agriculture, 1960), the U.S. Geological Survey Water Supply Bulletin #18 (Garling and Noble, 1965) and the Water Supply Bulletin #29 (Molenaar and Noble, 1970).

Geology

Mason County occupies about 970 square miles of land area (See Exhibit 2.1). The northwestern part of the County lies in the Olympic Mountains and the remainder lies in the Puget Sound Lowland. Elevations within the County range from sea level to 6,612 feet (Mt. Stone).

Rocks exposed within the County consist of both volcanic rocks, with some consolidated sedimentary rocks, and a thick sequence of unconsolidated glacial and nonglacial deposits. The volcanic and consolidated sedimentary rocks are exposed within the Olympic Mountains and the Black Hills. Most of the County is underlain by the unconsolidated deposits.

EXHIBIT 2.1 MASON COUNTY



MASON COUNTY, WASHINGTON

The unconsolidated deposits were derived from at least three continental glaciations, one or more alpine glaciations, and two nonglacial intervals. These include, from oldest to youngest, the Salmon Springs Drift and older undifferentiated sediments, the Kitsap Formation, the Skokomish Gravel, and the Vashon Drift. The Vashon Drift is further divided into recessional outwash, till, advance outwash, and the related Colvos Sand deposit. Characteristics of the principal stratigraphic units are summarized below from youngest to oldest:

Alluvium (Qal): Fine grained silt and sand with some clay and peat; found in lowland valleys, floodplains and depressions in drift plains. Maximum thickness is over 100 feet. May yield moderate quantities of water.

Vashon Recessional Outwash (Qvr): Poorly sorted, discontinuously bedded loose gravel with some sand, silt and clay. Overlies till in depressions on drift plains. Maximum thickness is 150 feet. May yield small to moderate quantities of water.

Vashon Till (Qvt): Coarse cobbles in silt-clay matrix; extensively mantles most of upland areas. Maximum thickness is 80 feet. Essentially impervious but may yield small quantities of perched groundwater; also serves as aquiclude to confined groundwater at some localities near sea level.

Vashon Advance Outwash (Qva): Discontinuous strata of unconsolidated gravel, sand and silt. Underlies till in most areas. Maximum thickness is over 200 feet. May yield small to large quantities of water.

Colvos Sand (Qc): Principally stratified sand. Occurs in some areas particularly in the eastern part of the County. Contains irregular lenses of fine gravel, and thin strata of clay and silt. Maximum thickness of 300 feet. May yield small to large quantities of water.

Skokomish Gravel (Qs): Coarse gravel with sand, silt, clay and some peat strata. Maximum thickness is over 300 feet. May yield small to large quantities of water.

Kitsap Formation (Qk): Well stratified, horizontally bedded silt and fine sand with some clay and peat. Maximum thickness is over 200 feet. Poor permeability except for few gravel lenses; serves as aquiclude to underlying confined groundwater. Except for gravel lenses, yields little or no groundwater.

Salmon Springs Drift and Pre-Vashon Deposits, Undifferentiated (Qss, Qpv): Coarse sand, gravel and some till. Maximum thickness may be over 600 feet. May yield from small to large quantities of water.

Marine Sedimentary Rocks (Ts): Fine grained marine sedimentary rock. Unimportant as a groundwater source.

Volcanic Rock (Tv): Basalt. Thickness unknown. Generally dense and impermeable and of little importance as an aquifer. Groundwater movement is primarily through fractures.

The most widely exposed soils in Mason County are largely those deposited from the latest glaciation. They include the advance outwash, till, and recessional outwash sediments (collectively referred to as Vashon Drift). Pre-Vashon deposits are generally confined to exposures along cliffs or steep slopes adjacent to rivers, streams, or Puget Sound. Of the Vashon Drift deposits, the recessional outwash and till are the two most widely exposed. Alluvial deposits (generally confined to active stream channels and flood plains) are also widely exposed throughout the County.

Hydrology and Hydrogeology

The major source of groundwater recharge in Mason County is precipitation. Part of this precipitation percolates downward into the soil, part drains off as surface runoff, and part returns to the atmosphere by evaporation and transpiration from plants. Near the foothills of the Olympic Mountains, precipitation averages about 100 inches per year and decreases to about 50 inches annually near the eastern border of the County. The extent to which precipitation infiltrates the surface varies from place to place, depending on the character of the subsurface materials. Essentially, all groundwater tapped in Mason County is from aquifers within the more permeable materials of the various glacial drift deposits. Most groundwater discharge is to streams, lakes and surrounding marine waters. The movement of groundwater toward discharge points is typically in the direction of the land surface slope.

Groundwater within the unconsolidated glacial drift deposits migrates toward either Puget Sound or the Pacific Ocean. A groundwater divide runs in a general south-north line from the southern border of the County to a point a few miles west of Shelton, and then turns northwest toward the Olympic Mountains. Groundwater west of this divide moves toward the Pacific Ocean and groundwater east of the divide moves toward Puget Sound.

In most places, the main water table (where present) is within 50 feet of the land surface. In general, the water table rises away from marine waterways and major stream valleys, and has a configuration similar to the rising land surface. Deeper aquifers also occur within the coarser phases of the various glacial deposits. Where groundwater occurs under perched or semi-perched conditions, one or more higher water tables may exist locally above the main water table.

Climate

Mason County has a mid-latitude west coast marine climatic regime typical of the Puget Sound lowlands. The climate is influenced by the Pacific Ocean and Puget Sound water bodies as well as the Olympic and Cascade mountain ranges. Generally, moderate temperatures are experienced year round and the climate is mild with wet winters and dry summers.

Precipitation is delivered by storms driven by the prevailing southwesterly winds. The amount of precipitation varies throughout the County because of the effect of topography on air movement.

The greatest topological effect is from the Olympic Mountains whose eastern slopes are in the northwestern portion of the County. The Olympics rise to an elevation of 6,000 feet, and that portion of the County experiences an average annual rainfall of 200 inches. On the other hand, at its eastern most edge, along the Puget Sound, the County receives an average annual precipitation of 50 inches. The rainfall is typically gentle precipitation with overcast and foggy winter days. Except for higher mountain elevations, winter snowfall is intermittent and melts quickly.

Air Quality

According to the Olympic Air Pollution Control Authority, there are no air quality non-attainment areas in Mason County. There are occasional seasonal problems from slash burning that occurs in the summer months. Slash burning is used to clear debris following clear cutting of timber areas. The slash burns produce a large amount of particulates in the form of smoke and ash. In 1988, a slash burn escaped confinement and produced smoke that adversely impacted areas as far away as the Seattle metropolitan area.

Human Environment

Demographics

Mason County has an estimated 2005 population of 51,900. Historic population growth from 1970 to 1990 was 83%. From 1990 to 2005, the population grew an additional 35%. Estimates prepared by the Washington State Office of Financial Management (Medium Series) project the population to be 75,088 by the year 2025. This is an increase of 23,188 people or almost a 45% increase over the 20-year period (see Table 2.1).

TABLE 2.1 POPULATION GROWTH AND PROJECTIONS

1960	1970	1980	1990	2000	2005	2010 *	2015 *	2020 *	2025*
16,251	20,918	31,184	38,341	49,405	51,900	58,604	64,007	69,635	75,088

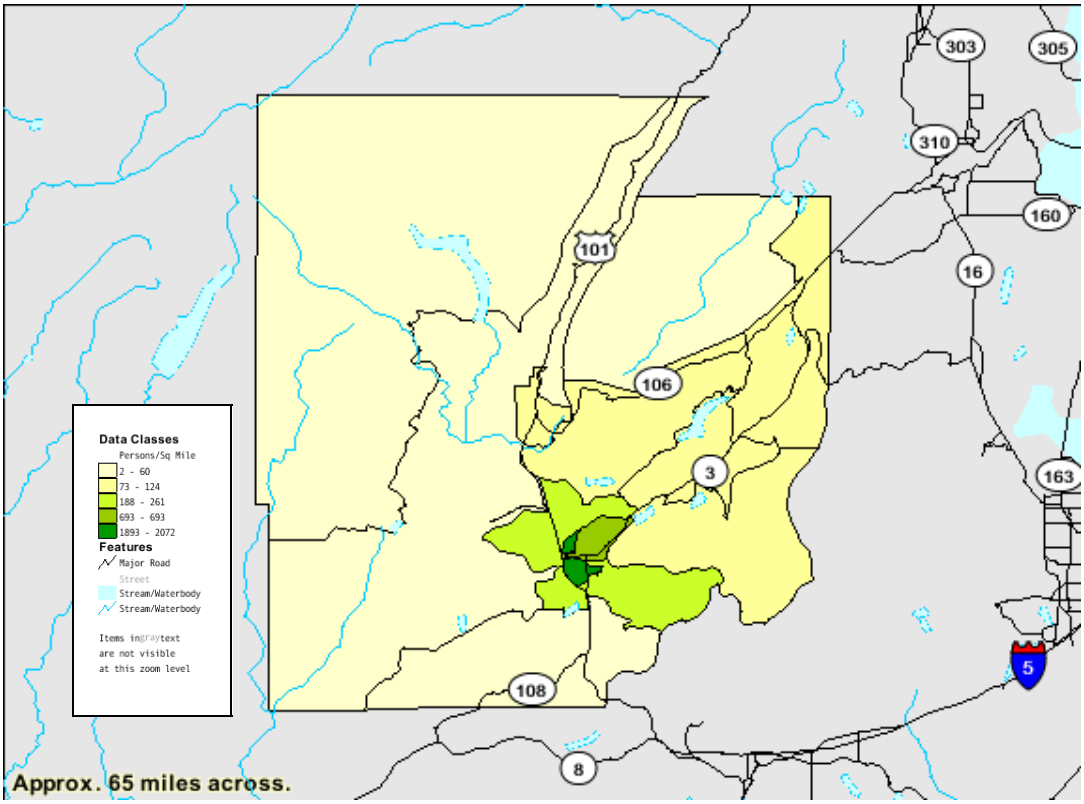
Source: State of Washington Office of Financial Management
***Medium Growth Management Projection.**

Mason County is sparsely populated except for the areas near Shelton, Allyn, and Belfair, the lower part of the Hood Canal, the waterfront areas of Puget Sound, and some of the lakes in the County. The population distribution is an important factor in its influence on solid waste generation. The majority of the population, and therefore solid waste generation, is in the eastern half of the County, as shown in Exhibit 2.2. Future population growth is not expected to change the relative distribution of the population significantly and is currently expected to occur as follows:

- Belfair area in the northeast corner of north Mason County,
- Allyn area along the upper, western shoreline of the Case inlet in eastern Mason County, and
- The City of Shelton.

Mason County experiences seasonal fluctuations in population. Although they are not considered in population statistics, visitors and seasonal residents account for seasonal variations in waste generation. The County estimates that in 2004, the population increased by approximately 15,240 people during the height of the season (Mason County Comprehensive Plan Update, 2005).

EXHIBIT 2.2 POPULATION PER SQUARE MILE, 2000



Source: U.S. Census Bureau, Census 2000 Summary File 1, Matrix P1

Economic Trends

The County's commercial and industrial base also is expanding, providing a 1.92% increase in employment between 2001 and 2002 as shown in Table 2.2. Current trends show increases in wholesale and retail trade and service sectors, which provide a variety of goods and services to the growing population. Wholesale and retail trade increased 4.82% between 2001 and 2002; and professional services increased by 5.73%. Employment in the manufacturing sector decreased by 3.1% during this period.

TABLE 2.2 EMPLOYMENT WITHIN MASON COUNTY

Sector	2002	2001
Construction, Natural Resources, and Mining	960	930
Manufacturing	1,570	1,620
Subtotal: Goods Producing	**2,530**	**2,550**
Transportation, Warehousing, and Utilities	220	240
Wholesale and Retail Trade	1,740	1,660
Information and Financial Activities	520	560
Professional and Business Services	2,770	2,620
Government	4,450	4,380
Subtotal: Services Producing	**9,700**	**9,460**
Total	**12,230**	**12,010**

Source: Mason County Economic Development Council

Land Use

The planning instrument that controls land use in Mason County is the Comprehensive Plan. The County, as part of the Comprehensive Plan Update adopted a new zoning ordinance in 2005. The Comprehensive Plan affects solid waste management by establishing policies for the management of solid waste. Among those policies is the prevention of land, air, and water pollution, as well as the conservation of the natural and economic resources of the County. In the context of the 1982 Comprehensive Plan, the County has established the policy to encourage recycling and to set aside land to ensure the future availability of land for solid waste management facilities (Mason County Planning Commission, 1982).

The County's Comprehensive Plan was updated in December 2005. Table 2.3 illustrates the total acreage estimated in the update for several land use categories. Residential land use is concentrated in the City of Shelton, the only incorporated city in the County. Outside of Shelton, the residential density is quite low, about two persons per acre of residential land. The low density is reflected in the typically widely scattered permanent and seasonal homes on large lots. In addition, there are a large proportion of single-family dwellings to multiple family dwellings, such as apartments.

The primary land uses in Mason County are: Long Term Commercial Forest lands and Forestry products, which encompass 336,146 acres. The Olympic National Forest accounts for an additional 154,086 acres. Combined, forests represent nearly 80% of Mason County's land area.

TABLE 2.3 MASON COUNTY LAND USE DISTRIBUTION BY ACREAGE AND PERCENTAGE

LAND USE CATEGORY	ACRES	PERCENT OF TOTAL
Residential	33,134	5.34%
Vacant	52,656	8.49%
Commercial	3,538	0.57%
Industrial	544	0.09%
Agri/Aquaculture	9,845	1.59%
Forestry	139,556	22.51%
Long Term Commercial Forests	199,590	32.19%
Mineral Extraction	152	0.02%
Transportation	2,368	0.38%
Utilities	2,079	0.33%
Tax Exempt	10,429	1.68%
Olympic National Forest	154,086	24.85%
City of Shelton	3,900	0.63%
Tribal Lands	8,187	1.32%
Total	**620,067**	

Source: Mason County Comprehensive Plan Update, November 2005.

2.2 EVALUATION OF POTENTIAL LANDFILL SITES

The SWMP is required (Chapter 70.95.165 RCW) to include specific information to provide guidance for siting new solid waste disposal facilities. This section is organized into a discussion of the soil conditions, groundwater, and naturally occurring hazards (such as floods and geologic hazards) of Mason County that determine its suitability for potential landfill sites.

Soil Conditions

Under State law, leachate generated at a landfill must be contained within the landfill and prevented from entering underlying aquifers. To meet this requirement, state regulations require all landfills to be lined regardless of the site characteristics (except in arid conditions); however, specific soil types may provide additional aquifer protection. For example, sites on fine-grained soils (silts and clays), which have low permeability, provide additional protection to an underlying aquifer, while coarse-grained soils and substrata (sands and gravels) do not provide such protection. The types of soil present on the landfill site are one of many indicators of site desirability.

Cation exchange capacity (CEC) is a soil related consideration. CEC refers to the ability of a material to chemically bind or absorb some contaminants, i.e. metals. CEC is a function of grain size. In general, the finer the material the higher the CEC value. Finer materials have a greater ratio of surface area available for ion exchange to the total volume. Therefore, fine grained soils such as clays exhibit relatively high CEC values, followed by silt and to a much lesser extent sands and gravels.

However, another consideration when working with clays is the ability of some solutions to move through clay at a high rate. This is due to the chemical nature of some compounds that allow them to "slide through" low permeability clays at a higher rate than that indicated by permeability testing. Therefore, the existence of clay under a landfill does not necessarily mean that all compounds will be contained.

Soil types that will be required in construction and operation of a landfill should also be a consideration in site selection. For example, cost reductions may be realized by avoiding the need to import coarse cover material. In addition, fine-grained materials may be used for landfill liner construction in addition to providing additional protection to the aquifer. Therefore, sites that have coarse and fine-grained materials are cost effective.

Because of their wide distribution and exposure throughout the County, the recessional outwash and till units of the Vashon Drift deposits are likely the two most important soils that would be encountered during any landfill siting effort. In Mason County, the water-bearing properties of the Vashon recessional outwash and till deposits are very important to the characterization of a potential landfill site. Generally, the coarse-grained outwash deposits exhibit relatively high permeable properties and the fine-grained till has relatively low permeable characteristics.

From a hydrogeologic perspective, the most desirable location for a landfill would be in a fine-grained deposit to protect groundwater and limit leachate migration. From an economic perspective, a desirable site would also have deposits of coarse-grained materials for road construction and daily cover operations. Alternatively, a site with a shallow excavatable layer of coarse-grained material, with no perched groundwater, overlying fine-grained material, would also be desirable. In this second scenario, the coarse-grained material could be excavated and the landfill bottom, and potentially a portion of the side slopes, placed in fine-grained material. In both scenarios the fine-grained layer could provide groundwater protection in addition to the landfill liner. The coarse-grained materials would be available for use on site.

From one perspective, the hydrogeologic conditions at sites with shallow fine-grained material are preferable to other sites. However these types of sites are generally found near Shelton in southeast Mason County. Although from a hydrogeologic standpoint they represent the most desirable sites, from a population density standpoint they are less desirable. Landfills may be difficult to site and permit in the more densely populated areas of the County.

Considering the population density perspective, sites in rural Mason County would be more desirable. However these sites would be typically less hydrogeologically desirable. Sites in the

rural County generally contain a shallow perched aquifer unprotected by any overlying layers of silt or clay. A landfill constructed in such a location would rely on the bottom liner system to contain leachate and prevent contaminant migration. However these sites would be located more remotely from the general population and would allow for easier siting of a landfill.

Regardless of the underlying soil characteristics, State landfill liner regulations can be met at both types of sites with proper design and construction. However, landfills should not be sited in areas containing exposed or shallow volcanic rock, or in alluvial river valleys and flood plains.

Because of their general lack of permeability, the volcanic rocks exposed in the northwest portion of the County contain no aquifers of significance. Significant water movement in the basalts occurs only along fractures. Characterization of groundwater movement through a complex fracture system would make a water quality monitoring program both expensive and extremely complex. Therefore, location of a landfill on exposed basalt is not favorable.

The alluvial river valleys and flood plains should also be avoided for consideration of a landfill site. The main hydrogeologic reasons include: most are groundwater discharge regions which cause shallow groundwater conditions; no underlying protective till layer that is above the water table; potential impacts from floods; and short travel distances and low travel time of groundwater movement to the adjacent river.

Groundwater

Groundwater is the major source of drinking water in the County. Since waste disposal facilities may potentially contaminate groundwater supplies, the process of siting such a facility must evaluate the complex hydrogeological factors affecting the groundwater regime.

Naturally Occurring Hazards

This section discusses naturally occurring hazards as they pertain to the Minimum Functional Standards (MFS), locational standards (WAC 173-304-130). Under the MFS, the existence of any of these hazards at a specific site would constitute a fatal flaw and eliminate the site from further consideration for landfill development.

Geologic Faults

Three faults, and a fourth probable fault, have been identified within Mason County that shows evidence of movement during recent or Holocene time (approximately 12,000 years to present) (Wilson, Bartholomew, and Carson, 1979). These faults are located within the Olympic Mountains, northeast of Lake Cushman, and include the Saddle Mountain East, the Saddle Mountain West, the Dow Mountain fault, and the probable Cushman Valley fault. Holocene faults may exist within the lowland glacial drift plains, but none have been identified. Potential Holocene faults within any potential landfill site would have to be investigated.

Unstable Slopes

There are several areas within Mason County that have been identified as having unstable slopes. These areas are typically steep and/or comprised of materials that erode relatively easily or consist of unconsolidated sediments. These unstable areas would most likely be susceptible to landslides induced by seismic activity, sustained precipitation, or high precipitation during a short duration. Stream channels with steep slopes are most susceptible. This includes most channels that empty into Hood Canal from the west. In particular, the areas adjacent to the Tahuya River and the Skokomish River both have a high risk of slope failure. Any potential landfill site would have to be investigated for the presence of unstable slopes.

Flooding

Most of the streams and rivers on the Kitsap Peninsula are prone to flooding, as is the Skokomish River west of Hood Canal. Several streams south of Shelton, including Goldsborough and Skookum Creeks, and the tributaries to the Satsop River, are also flood-prone. Potential landfill sites near these streams and rivers should be avoided.

Other

In addition to the naturally occurring hazards within Mason County, there are other large areas that are not suitable as a landfill site. These areas should also be eliminated from consideration. They include the Olympic Mountains in the northwestern part of the County (steep slopes, shallow depths to bedrock, and National Forest land) and the Black Hills along the south border of the County (steep slopes and shallow depths to a possibly fractured bedrock).

2.3 SOLID WASTE QUANTITY AND COMPOSITION

An estimate of the composition and future quantities of solid waste in Mason County is necessary to provide the basis for determining solid waste handling needs for the next several years. This SWMP focuses primarily on municipal solid waste (MSW), which are those wastes generated by residents and businesses and that are handled through the solid waste disposal system.

Past and Present Solid Waste Quantities

Mason County's waste stream has varied in quantity over the past ten years. Table 2.4 shows the annual quantities of waste generated every year since 1999, and the concurring population trends. Table 2.5 shows the number of customers and tonnage of waste collected at each disposal station in Mason County during 2004 and 2005. Finally, Table 2.6 shows the type of waste generator (residential or commercial), its associated annual tonnage, and the percentage of the total waste stream for 2005.

TABLE 2.6 SOLID WASTE QUANTITIES BY GENERATOR IN MASON COUNTY (2005)		
Source of Waste	Tons	Percentage
Residential	31,317	65%
Commercial	16,863	35%
Total	**48,180**	**100%**

Solid Waste Composition and Generation

Waste stream composition is needed to assist in designing solid waste handling and disposal programs. A detailed waste composition study has never been performed for Mason County. In 2003, the State conducted a waste composition study for two rural counties. The results of this study have been used to develop an estimated waste composition for Mason County. The results obtained for Okanogan County for consumer waste and commercial waste were used based on the estimated ratio of 65% residential and 35% commercial waste developed for Mason County. An industrial waste composition estimate was developed for Mason County using the statewide waste composition and generation estimates developed for rural-based industries presented in the report. The estimated waste composition is presented in Table 2.7.

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

Solid Waste Generation Forecast

The per-person, or per-capita, waste disposal rate is equivalent to the average quantity of solid waste generated per day by each member of the population. In 2005, Mason County disposed of an estimated 48,180 tons of waste, which comes to 5.09 pounds of waste per person per day. Future solid waste disposal can be estimated by combining an estimated per-capita disposal with the medium growth management projections developed by the State of Washington Office of Financial Management. A forecast of solid waste disposal for Mason County is shown in Table 2.8. As shown, annual disposal is forecast to increase from 48,180 tons in 2005 to 69,751 tons in 2025. The forecast assumes a constant per-capita rate of disposal for all materials. The generation of solid waste will continue to follow demographic patterns, with most generation occurring in developing areas, which is currently the eastern portions of the County.

	Industrial		Commercial		Residential		Overall Waste Stream	
Composition	**%**	**Tons**	**%**	**Tons**	**%**	**Tons**	**%**	**Tons**
Paper	**4.8**	**225.8**	**32.9**	**4016.1**	**26.6**	**8330.3**	**26.1**	**12572.2**
Newspaper	0.0	0.0	2.0	244.1	2.6	814.2	2.2	1058.4
Cardboard	2.4	110.2	10.0	1220.7	4.1	1284.0	5.4	2614.9
Other Groundwood Paper	0.0	0.0	0.5	61.0	0.7	219.2	0.6	280.3
High-grade paper	0.0	0.4	1.2	146.5	1.1	344.5	1.0	491.4
Magazines	0.0	0.2	1.3	158.7	3.3	1,033.5	2.5	1,192.4
Mixed/Low-grade Paper	0.3	15.0	5.7	695.8	7.0	2,192.2	6.0	2903.0
Compostable Paper	0.1	3.9	8.0	976.6	6.4	2004.3	6.2	2,984.7
Remainder/Composite Paper	2.1	99.7	4.1	500.5	1.5	469.8	2.2	1,069.9
Process Sludge/Other Industrial	0.0	0.0	0.1	12.2	0.0	0.0	0.0	12.2
Plastic	**4.7**	**220.7**	**11.3**	**1,379.4**	**14.0**	**4,384.4**	**12.4**	**5,984.4**
PET Bottles	0.1	3.7	0.7	85.4	1.0	313.2	0.8	402.3
HDPE Bottles, Clear	0.0	0.0	0.3	36.6	0.4	125.3	0.3	161.9
HDPE Bottles, Colored	0.0	0.0	0.4	48.8	1.2	375.8	0.9	424.6
Plastic Film and Bags	1.4	63.2	6.3	769.0	4.0	1,252.7	4.3	2,084.9
Plastic Bottles Types 3-7	0.0	0.0	0.1	12.2	0.4	125.3	0.3	137.5
Expanded Polystyrene	0.1	3.7	0.7	85.4	0.8	250.5	0.7	339.6
Other Rigid Plastic Packaging	0.3	14.6	1.0	122.1	2.5	782.9	1.9	919.6
Other Plastic Products	2.8	131.5	0.9	109.9	1.9	595.0	1.7	836.4
Remainder/Composite Plastic	0.1	3.9	0.9	109.9	1.9	595.0	1.5	708.7
Organics	**5.7**	**267.3**	**28.6**	**3,491.2**	**18.8**	**5,887.6**	**20.0**	**9,646.1**
Yard, Garden and Prunings	0.0	0.3	7.7	939.9	3.0	939.5	3.9	1879.8
Food Waste	4.8	221.9	18.1	2,209.5	13.3	4,165.2	13.7	6,596.6
Manures	0.3	14.9	0.2	24.4	0.3	94.0	0.3	133.2
Disposable Diapers	0.0	0.0	2.3	280.8	1.8	563.7	1.8	844.5
Carcasses, Offal	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1

	Industrial		Comm
Composition	**%**	**Tons**	**%**
Glass	**0.1**	**3.9**	**3.4**
Clear Glass Beverage	0.0	0.0	1.1
Green Glass Beverage	0.1	3.7	0.1
Brown Glass Beverage	0.0	0.0	1.5
Clear Glass Container	0.0	0.0	0.5
Green Glass Container	0.0	0.0	0.0
Brown Glass Container	0.0	0.0	0.2
Plate Glass	0.0	0.0	0.0
Remainder/Composite Glass	0.0	0.0	0.0
Non-glass ceramics	0.0	0.0	0.0
Metal	**2.8**	**128.5**	**5.9**
Aluminum Cans	0.0	0.0	0.6
Aluminum Foil/Containers	0.0	0.0	0.1
Other Aluminum	0.0	0.0	0.2
Copper	0.0	0.0	0.0
Other Non-ferrous Metals	0.0	0.0	0.0
Tin Cans	0.1	3.7	1.5
White Goods	1.2	54.8	0.0
Other Ferrous Metal	1.3	62.5	2.2
Remainder/Composite Metals	0.1	3.7	1.3
Consumer Products	**4.0**	**186.7**	**3.8**
Computers	0.0	0.0	0.3
Other Electronics	0.0	0.0	0.1
Textiles, Synthetic	0.0	0.0	0.1
Textiles, Organic	0.1	3.7	0.3
Textiles, Mixed/Unknown	0.0	0.2	1.3

TABLE 2.7 MASON COUNTY WASTE COMPOSITION - DISPOSED WASTES (continued)

	Industrial		Commercial		Residential		Overall Waste Stream			Industrial		Commercial	
Composition	**%**	**Tons**	**%**	**Tons**	**%**	**Tons**	**%**	**Tons**	**Composition**	**%**	**Tons**	**%**	**Tons**
Crop Residues	0.6	27.0	0.0	0.0	0.0	0.0	0.1	27.0	Shoes	0.0	0.0	0.1	12.2
Septage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Tires and Other Rubber	0.0	0.0	1.3	158.7
Remainder/Composite Organics	0.1	3.1	0.4	48.8	0.5	156.6	0.4	208.5	Furniture and Mattresses	0.0	0.0	0.0	0.0
Wood Wastes	**46.3**	**2154.9**	**2.1**	**256.3**	**1.2**	**375.8**	**5.8**	**2787.1**	Carpet	1.8	84.0	0.0	0.0
Natural Wood	0.1	3.0	0.0	0.0	0.1	31.3	0.1	34.3	Carpet Padding	2.1	98.6	0.0	0.0
Treated Wood	6.3	292.3	0.1	12.2	0.0	0.0	0.6	304.5	Rejected Products	0.0	0.1	0.0	0.0
Painted Wood	4.6	211.9	0.4	48.8	0.1	31.3	0.6	292.0	Returned Products	0.0	0.0	0.0	0.0
Dimensional Lumber	12.1	562.6	0.3	36.6	0.1	31.3	1.3	630.6	Other Composite Consumer Products	0.0	0.0	0.2	24.4
Engineered Wood	7.0	325.2	0.3	36.6	0.1	31.3	0.8	393.1	**Residuals**	**0.9**	**43.3**	**4.1**	**500.5**
Wood Packaging	0.0	1.1	0.9	109.9	0.7	219.2	0.7	330.2	Ash	0.0	0.0	1.2	146.5
Other Untreated Wood	0.2	11.0	0.0	0.0	0.0	0.0	0.0	11.0	Dust	0.0	0.0	0.1	12.2
Wood byproducts	16.1	751.6	0.0	0.0	0.0	0.0	1.6	751.6	Fines/Sorting Residues	0.9	40.2	2.8	341.8
Remainder/Composite Wood	0.0	0.0	0.0	0.0	0.1	31.3	0.1	31.3	Sludge and Other Industrial	0.1	3.1	0.0	0.0
CDL Wastes	**30.6**	**1424.8**	**4.4**	**537.1**	**1.6**	**501.1**	**5.1**	**2463.0**	**Haz and Special Wastes**	**0.0**	**0.0**	**3.4**	**415.0**
Insulation	1.1	51.1	0.0	0.0	0.2	62.6	0.2	113.8	Used Oil	0.0	0.0	0.0	0.0
Asphalt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Oil Filters	0.0	0.0	0.0	0.0
Concrete	0.6	29.2	0.0	0.0	0.0	0.0	0.1	29.2	Antifreeze	0.0	0.0	0.0	0.0
Drywall	8.4	390.9	0.1	12.2	0.0	0.0	0.8	403.1	Auto Batteries	0.0	0.0	0.0	0.0
Soil, Rocks and sand	0.7	33.7	0.6	73.2	1.1	344.5	0.9	451.4	Household Batteries	0.0	0.0	0.0	0.0
Roofing Waste	20.2	938.9	0.0	0.0	0.1	31.3	2.0	970.2	Pesticides and Herbicides	0.0	0.0	0.0	0.0
Ceramics	0.0	0.0	2.9	354.0	0.0	0.0	0.7	354.0	Latex Paint	0.0	0.0	0.0	0.0
Remainder/Composite CDL	0.2	11.0	0.8	97.7	0.2	62.6	0.4	171.3	Oil Paint	0.0	0.0	0.0	0.0
									Medical Waste	0.0	0.0	3.3	402.8
									Fluorescent Tubes	0.0	0.0	0.0	0.0
									Asbestos	0.0	0.0	0.0	0.0
									Other Hazardous Waste	0.0	0.0	0.0	0.0
									Other Non-Hazardous Waste	0.0	0.0	0.0	0.0
									Total Tons		**4,656**		**12,207**

TABLE 2.8 SOLID WASTE DISPOSAL FORECASTS (2005-2025)

	Tons Disposed				
Composition	**2005***	**2010**	**2015**	**2020**	**2025**
Paper	**12,572**	**14,218**	**15,529**	**16,895**	**18,218**
Newspaper	1,058	1,197	1,307	1,422	1,534
Cardboard	2,615	2,957	3,230	3,514	3,789
Other Groundwood Paper	280	317	346	377	406
High-grade paper	491	556	607	660	712
Magazines	1,192	1,348	1,473	1,602	1,728
Mixed/Low-grade Paper	2,903	3,283	3,586	3,901	4,207
Compostable Paper	2,985	3,375	3,687	4,011	4,325
Remainder/Composite Paper	1,070	1,210	1,322	1,438	1,550
Process Sludge/Other Industrial	12	14	15	16	18
Plastic	**5,984**	**6,768**	**7,392**	**8,042**	**8,672**
PET Bottles	402	455	497	541	583
HDPE Bottles, Clear	162	183	200	218	235
HDPE Bottles, Colored	425	480	525	571	615
Plastic Film and Bags	2,085	2,358	2,575	2,802	3,021
Plastic Bottles Types 3-7	137	155	170	185	199
Expanded Polystryene	340	384	420	456	492
Other Rigid Plastic Packaging	920	1,040	1,136	1,236	1,333
Other Plastic Products	836	946	1,033	1,124	1,212
Remainder/Composite Plastic	709	802	875	952	1,027
Organics	**9,646**	**10,909**	**11,915**	**12,962**	**13,977**
Yard, Garden and Prunings	1,880	2,126	2,322	2,526	2,724
Food Waste	6,597	7,460	8,148	8,864	9,559
Manures	133	151	165	179	193
Disposable Diapers	844	955	1,043	1,135	1,224
Carcasses, Offal	0	0	0	0	0
Crop Residues	27	30	33	36	39
Septage	0	0	0	0	0
Remainder/Composite Organics	209	236	258	280	302
Wood Wastes	**2,787**	**3,152**	**3,443**	**3,745**	**4,039**
Natural Wood	34	39	42	46	50
Treated Wood	304	344	376	409	441
Painted Wood	292	330	361	392	423
Dimensional Lumber	631	713	779	847	914
Engineered Wood	393	445	486	528	570
Wood Packaging	330	373	408	444	478
Other Untreated Wood	11	12	14	15	16
Wood byproducts	752	850	928	1,010	1,089
Remainder/Composite Wood	31	35	39	42	45

TABLE 2.8 SOLID WASTE DISPOSAL FORECASTS (2005-2025) (continued)

	Tons Disposed				
Composition	**2005***	**2010**	**2015**	**2020**	**2025**
CDL Wastes	**2,463**	**2,785**	**3,042**	**3,310**	**3,569**
Insulation	114	129	141	153	165
Asphalt	0	0	0	0	0
Concrete	29	33	36	39	42
Drywall	403	456	498	542	584
Soil, Rocks and sand	451	511	558	607	654
Roofing Waste	970	1,097	1,198	1,304	1,406
Ceramics	354	400	437	476	513
Remainder/Composite CDL	171	194	212	230	248
Glass	**3,582**	**4,051**	**4,424**	**4,813**	**5,190**
Clear Glass Beverage	541	612	669	728	785
Green Glass Beverage	172	195	213	232	250
Brown Glass Beverage	997	1,128	1,232	1,340	1,445
Clear Glass Container	1,721	1,946	2,126	2,312	2,494
Green Glass Container	0	0	0	0	0
Brown Glass Container	24	28	30	33	35
Plate Glass	0	0	0	0	0
Remainder/Composite Glass	63	71	77	84	91
Non-glass ceramics	63	71	77	84	91
Metal	**5,859**	**6,627**	**7,238**	**7,874**	**8,490**
Aluminum Cans	261	295	323	351	378
Aluminum Foil/Containers	75	85	92	101	108
Other Aluminum	87	98	108	117	126
Copper	0	0	0	0	0
Other Non-ferrous Metals	31	35	39	42	45
Tin Cans	844	955	1,043	1,135	1,224
White Goods	55	62	68	74	79
Other Ferrous Metal	1,427	1,614	1,763	1,918	2,068
Remainder/Composite Metals	3,044	3,442	3,759	4,090	4,410
Consumer Products	**3,031**	**3,427**	**3,743**	**4,073**	**4,392**
Residuals	**1,515**	**1,713**	**1,871**	**2,035**	**2,195**
Haz and Special Wastes	**697**	**788**	**861**	**936**	**1,010**
Total Tons**	**48,180**	**54,439**	**59,458**	**64,686**	**69,751**

* Estimated

** May not add due to rounding

Population rate Tons

CHAPTER 3: WASTE REDUCTION AND RECYCLING

This chapter describes existing programs and future plans for activities that reduce the amount of solid waste being generated or disposed of in Mason County. Each section will discuss existing conditions, needs and opportunities for improvement, and includes recommendations based on an evaluation of alternatives. The chapter is divided into the following sections:

3.1 Waste Reduction
3.2 Recycling
3.3 Composting
3.4 Public Education & Outreach

The section on waste reduction focuses on reducing the amount of waste being generated, while the sections on recycling and composting discuss methods that reduce the amount of solid waste being disposed. Collectively, these approaches (waste reduction, recycling, and composting) are known as "waste diversion" and play a vital role in solid waste management.

This chapter provides an update of the County's waste diversion methods as well as fulfills State requirements regarding waste reduction and recycling programs. The State requirements are based in the "Waste Not Washington" Act (ESHB 1671), which are reflected in various sections of the Revised Codes of Washington (RCW) and Washington Administrative Codes (WAC). RCW 70.95 requires that county and city governments assume the primary responsibility for solid waste management and implement effective waste reduction and recycling strategies. In addition, RCW 70.95 requires that local solid waste management plans demonstrate how the following goals will be met:

- Washington State's goal is to achieve a statewide recycling and composting rate of 50% by 2007.

- There is a statewide goal to eliminate yard debris from landfills by 2012 in those areas where alternatives exist.

- Source separation of waste (at a minimum, separation into recyclable and non-recyclable fractions) must be a fundamental strategy of solid waste management.

- Steps should be taken to make recycling at least as affordable and convenient to the ratepayer as mixed waste disposal.

The recycling coordinators for both the City of Shelton and Mason County administer all programs and activities listed in this chapter.

3.1 WASTE REDUCTION

The solid waste planning goals developed for Mason County in the area of waste reduction are:

- To advance waste reduction efforts through support of State and Federal programs.
- To promote waste reduction in Mason County through public information and education programs and other available, appropriate methods.

Activities and practices that reduce the amount of wastes that are created are classified as "waste reduction." Waste reduction differs from the other two waste diversion techniques (recycling and composting) because the other methods deal with wastes after the wastes have been generated.

Waste reduction is the highest priority for solid waste management according to RCW 70.95, and is preferred over recycling and composting because the social, environmental and economic costs are typically lower for waste reduction. All three methods avoid the cost of disposing the diverted materials as garbage, but recycling and composting frequently require significant additional expenses for collecting and processing the materials.

Existing Practices

Several waste reduction activities and programs are currently conducted in Mason County.

ReUse Shop: There is a limited "dump and pick" operation at the Solid Waste Facility that opened during the winter of 2003. After passing through the scales, the customer voluntarily sets items that are deemed in usable condition in a designated area. Other residents can pick up the item at no charge after signing a hold harmless waiver. In 2005, approximately 13,000 pounds of reusable items, ranging from bicycles to wheelbarrows, were diverted through this site.

Swap Shop: Reusable materials, including paints, garden chemicals, auto products, and other materials brought to the Household Hazardous Waste Collection Center are

also set aside for residents to take. In 2005, approximately 1,350 gallons of paint and other products were reused through this program.

2Good2Toss.com: Mason County and the City of Shelton are participants in the statewide, online materials exchange www.2good2toss.com. This website began in October 2003 and provides a free, online bulletin board for residents to sell or give away used but useable items, instead of sending them to the landfill. As of October 2005, the Shelton/Mason County portion of the site has 638 registered members, and has facilitated 593 exchanges—diverting 35 tons from the landfill.

Packaging Materials: Most of the shipping services in Mason County accept Styrofoam "peanuts", bubble wrap, air cushions, and other packaging materials for reuse.

Waste Audits: Free technical assistance is available to schools and businesses that are looking to reduce the amount of waste they generate through their daily operations.

Needs and Opportunities

A significant need in this area is the ability to measure the results of waste reduction activities. Residential and commercial efforts in waste reduction cover a broad range and are not well documented. Waste reduction could be shown to be handling significantly more waste if the residential and commercial efforts could be measured more completely.

Reuse of building materials could be practiced more widely.

Alternatives and Evaluation

1. Measuring Waste Reduction Results

Waste reduction is the top solid waste management priority, but it is inherently difficult to measure something that has not been produced. In 1996, the Department of Ecology undertook a literature review to determine the various types of waste reduction measurement methodologies that were being used around the state and country. At the same time, other entities, such as the U.S. Environmental Protection Agency (EPA), UCLA, and Cornell, were working on a similar project. In 1997, EPA finalized a document titled "Source Reduction Program Potential Manual" that Ecology staff believed summarized the work of all parties together in a comprehensive format. In light of multiple financial and project priorities in Ecology at that time, staff recommended that it would be more efficient to use the information the EPA had developed and discontinued the project at the state level.

The work developed by EPA is based on "program potential" and whether a specific waste reduction program has the potential to reduce a significant portion of the waste

stream in a cost-effective manner. The manual provides guidance for calculating program potential for the following programs: grasscycling, home composting, clothing and footwear reuse, office paper reduction, converting to multi-use pallets, and paper towel reduction. Using "grasscycling" as an example, the manual calculates program potential by:

- Identifying a general waste category (e.g., yard trimmings) and relying on national or local data for baseline composition of the waste stream,
- Multiplying by an "applicability factor" (e.g., amount of grass in yard trimmings waste category),
- Multiplying by a "feasibility factor" (e.g., portion of grass that could be reduced through grasscycling programs), and
- Multiplying by a "technology factor" (e.g., technical or physical limitations to grasscycling).

The solid waste manager is then left to design and document a program for addressing that portion of the waste stream. Numeric measurement would likely rely on a waste audit or waste composition study after implementing the program to determine if the amount of targeted waste decreased between the two time intervals. If necessary, numeric waste reduction goals could then be re-examined and changed.

Waste reduction successes can also be measured qualitatively, through observed changes in industrial processes, purchasing patterns, shifts in public perception as identified through surveys, business policies, and city initiatives and ordinances.

Advantages: Provides a more accurate picture of the diversion efforts and results of Mason County. Given measurable results, programs are more likely to receive attention and continued funding.

Disadvantages: Can be time consuming and difficult to get a starting baseline.

2. Promote Commercial Waste Focus

This alternative makes commercial waste reduction a priority. A systematic approach would involve developing a clear picture of the types of businesses and their related wastes that are currently produced in the County. For example, the North American Industrial Classification System (NAICS) Codes are used throughout North America to group establishments into broad and specific industries. Industries within the same NAICS code are likely to exhibit similarities in the composition of their disposed waste streams. If one industry is particularly prevalent in a region, for example, it might be cost-effective to target businesses in that particular industry. Table 3.1 provides two-

digit, NAICS codes and their definitions, as well as the number of establishments in Mason County. Given the information provided by the U.S. Census Bureau, initial efforts could target retail establishments and food services establishments. Outreach to the businesses would offer free technical assistance and waste audits.

Advantages: Commercial sources produce a significant portion of solid waste in Washington. Focusing waste reduction efforts towards the business sector can have a large impact on the waste stream as a whole. Measurable data would be much easier to obtain from businesses rather than residents. This alternative complements the State's Beyond Waste Plan (Initiative 1).

Disadvantages: Interest in waste reduction practices would be voluntary and, therefore, would vary from business to business.

TABLE 3.1 MASON COUNTY NAICS CODES

NAICS Code	***Description***	***Establishments in Mason County***
21	Mining	Not published for counties
22	Utilities	Not published for counties
23	Construction	Not published for counties
31-33	Manufacturing	50
42	Wholesale Trade	33
44-45	Retail Trade	136
48-49	Transportation and Warehousing	Not published for counties
51	Information	10
52	Finance & Insurance	Not published for counties
53	Real Estate, Rental and Leasing	54
54	Professional, Scientific and Technical Services	53
55	Management of Companies and Enterprises	Not published for counties
56	Administrative, Support, Waste Management, and Remediation Service	44
61	Educational Services	3
62	Health Care and Social Assistance	99
71	Arts, Entertainment, and Recreation	14
72	Accommodation and Food Services	100
81	Other Services (except public administration)	82

Source: U.S. Census Bureau, 2002 Economic Census

3. Recognition for Waste Reduction Successes

The County could provide recognition to groups or businesses that successfully prevent waste. Many communities publicly recognize and reward local businesses and organizations for their environmental achievements. For example, the County could host special events, publish case studies, and help businesses and organizations attract positive press.

Advantages: As mentioned above, commercial sources produce a significant portion of solid waste. Waste reduction efforts in the business sector can have a large impact on the waste stream as a whole.

Disadvantages: Again, waste reduction practices are voluntary and it may take time for businesses to come forward with documented waste reduction.

Rate Structure Changes

Although volume-based rates are already used in the City of Shelton and throughout the unincorporated County, the use of a linear rate structure, with the cost of each additional can of garbage set at the same amount as the first can, has been shown to provide more incentive for waste reduction and recycling.

Advantages: Greater application of variable solid waste rates can encourage businesses and residents to reduce waste. A linear rate structure shows a direct relationship to the amount of solid waste generated and its corresponding cost of collection and disposal.

Disadvantages: The Washington Utilities and Transportation Commission (WUTC) control the rates in the unincorporated areas of Mason County. State law and the WUTC rules require that rates be based on cost of service calculations that prevent the use of a linear rate structure. However, this is still a viable alternative for the City of Shelton.

4. Product Stewardship

Economic prosperity has increased per capita spending over the past several years and increased the need for local governments to provide expanded recycling and disposal programs. Product stewardship is a concept designed to alleviate the burden on local governments of end-of-life product management. Product stewardship is a product-centered approach that emphasizes a shared responsibility for reducing the environmental impacts of products. This approach calls on:

- Manufacturers: To reduce use of toxic substances, to design for durability, reuse, and recyclability, and to take increasing responsibility for the end-of-life management of products they produce.

- Retailers: To use product providers who offer greater environmental performance, to educate consumers on environmentally preferable products, and to enable consumers to return products for recycling.

- Consumers: To make responsible buying choices that consider environmental impacts, to purchase and use products efficiently, and to recycle the products they no longer need.

- Government: To launch cooperative efforts with industry, to use market leverage through purchasing programs for development of products with stronger environmental attributes, and to develop product stewardship legislation for selected products.

The principles of product stewardship recommend that a role of government is to provide leadership in promoting the practices of product stewardship through procurement and market development. Environmentally Preferable Purchasing (EPP) is a practice that can be used to fulfill this role. EPP involves purchasing products or services that have reduced negative effects on human health and the environment when compared with competing products or services that serve the same purpose. They include products that have recycled content, reduce waste, use less energy, are less toxic, and are more durable. For example, federal agencies are now encouraged to consider a broad range of environmental factors in purchasing decisions.

Mason County could develop purchasing policies that encourage environmentally sound products and restrict contracts to these products. This strategy represents a way Mason County can share responsibility for the environmental impacts of products and promote:

- Reduced product toxicity.
- Increased resource conservation.
- Reduced cost to the county for waste management programs.

This alternative also supports the State's Beyond Waste Plan, Initiative 2: Reducing Small Volume Hazardous Materials and Wastes.

Given the number of products that local governments typically purchase, it can be challenging to determine which products to substitute for safer ones. Computer products can be a good candidate for Mason County to consider for EPP because of the potential environmental impacts associated with the manufacture, use, and end-of-life management of computers. Local governments often identify electronic waste as the

most significant waste problem with respect to management costs and potential environmental impacts. Furthermore, electronic waste has become a primary concern as a result of the increase of new electronic products combined with their rapid obsolescence, low recycling rate and their potential to contain hazardous materials.

Mason County could develop environmentally preferable purchasing criteria for computers and electronics (such as CPUs, monitors, keyboards, printers, fax machines, and copiers) that could include:

- Compliance with federal Energy Star Guidelines
- Reduced toxic constituents
- Reduced toxic materials used in manufacturing process
- Recycled content plastic housing
- Pre-installed software and on-line manuals
- Designed for recycling/reuse
- Upgradeable/long life
- Reduced packaging
- Manufacturer provides product take-back service
- Manufacturer demonstrates corporate environmental responsibility

Advantages: Adoption of EPP practices allows government agencies to reduce the harmful environmental impacts of their activities as well as promote the development of products that have improved environmental performance. Specifically, implementing an EPP program for computers can result in the purchase of computers with lower operating costs, extended useful lives and reduced disposal costs.

Disadvantages: Requires staff to review products they are currently purchasing. Staff may be comfortable with the products they are using and familiar with application procedures and performance expectations.

5. Procurement of Recycled Products

Local, state, and federal government agencies can and do use their tremendous purchasing power to influence the products that manufacturers bring to the marketplace. In the last decade or so, most efforts have focused on encouraging procurement of products made from recycled content. The goal of these procurement programs is to create viable, long-term markets for recovered materials. The U.S. Environmental Protection Agency (EPA) has developed a list of designated products and associated recycled content recommendations for federal agencies to use when making purchases. These are known as Comprehensive Procurement Guidelines. To date, EPA has developed more than 60 guidelines that fall into the general categories of construction products, landscaping products, nonpaper office products, paper and paper products, park and recreation products, transportation products, vehicular products, and miscellaneous products. For example, federal agencies are instructed to

buy printing or writing paper that contains at least 30% post-consumer recycled content.

Mason County could draw upon the extensive work completed by EPA and include its guidelines in purchasing policies.

Advantages: Without consumer support, markets for recyclables, and products made from them, will not reach their full potential. Procurement programs create viable, long-term markets for recovered materials and provide more efficient use of valuable resources. Research is necessary to determine the types of recycled content products that are available, their specifications, performance, and cost. Much of this research is available, however, through the King County, Washington, website (www.metrokc.gov/procure/green/index.htm).

Disadvantages: Government purchasing agents often have concerns about the quality and price of recycled-content products. Careful testing and selection of recycled content products can minimize concerns about product quality. Certain recycled-content products may have a higher initial purchase cost, but may require less maintenance or long-term costs over the life of the product. Cost concerns can be addressed by considering short-term and long-term costs (life cycle costs) in comparing product alternatives.

6. Internal County Waste Reduction Policies

In addition to educating consumers and businesses, it is important for local governments to "practice what they preach." Through the numerous small choices employees make each day, large amounts of waste can be prevented. Employees should be encouraged to learn more about waste reduction practices and work toward implementing and promoting such practices.

Such practices by city and county employees should be implemented whenever practicable and cost-effective. Examples include:

- Electronic communication instead of printed, double-sided photocopying and printing.
- Using copiers and printers capable of duplexing.
- Allowing residents to submit electronic rather than paper forms and applications.
- Washable and reusable dishes and utensils.
- Rechargeable batteries.
- Streamlining and computerizing forms.
- "On-demand" printing of documents and reports, as they are needed.
- Leasing long-life products when service agreements support maintenance and repair rather than new purchases, such as carpets.
- Sharing equipment and occasional use items.

- Choosing durable products rather than disposable.
- Reducing product weight or thickness when effectiveness is not jeopardized in products, such as, but not limited to, paper and plastic liner bags.
- Buying in bulk, when storage and operations exist to support it.
- Reusing products such as, but not limited to, file folders, storage boxes, office supplies, and furnishings.
- Mulching pruned material from parks and using on site.

The County's employees are most knowledgeable about ways that waste can be reduced or even eliminated and their ideas are essential. Adopted policies should be reinforced through employee incentives for outstanding performance.

Advantages: Certain workplace practices can help prevent waste before it is created. Many practices can reduce local government costs through avoided disposal fees and can also save natural resources. By implementing waste reduction programs in their offices and facilities, local governments not only reduce their own waste but also show their commitment to such programs. They can use their waste reduction experiences to illustrate the benefits of source reduction when developing similar programs in the commercial and residential sectors of their communities.

Disadvantages: Other factors to consider in changing workplace practices are energy, water, disposal and labor costs as well as toxicity, safety and training changes. For example:

- Energy requirements of different products can result in measurable cost changes for the organization. Energy for lighting, heating water and running appliances can vary between products.
- Water usage may also change with different procedures or products.
- Labor costs may also change with product or procedure changes.
- Safety and training are two other factors that come into play with product or procedure changes. The alternative product must be at least as safe as the old one. Sometimes, additional staff training is required to implement the reduction action.

3.2 RECYCLING

The solid waste planning goals developed for Mason County in the area of recycling are:

- To support private efforts in waste recycling in Mason County.

- To achieve an increase in waste recycling throughout Mason County.

- To provide recycling opportunities at drop box, transfer station facilities, and other approved sites in Mason County.

Existing Practices

City of Shelton

The City of Shelton has operated a residential single-family curbside recycling program within the City limits since September 1994. The cost of recycling for residents is $4.00 per month (as of 2005) and is a mandatory charge for all households in the City of Shelton, whether they use the service or not. The participation rate for 2004 averaged 33% of households (approximately 858 households) and increased to 35% in 2005. Beginning in 2004, residents who live just outside of City limits but receive a City utility (water or sewer) were given the option of receiving curbside recycling collection for the same rate as residents. To accompany and support the curbside program, the City established an optional biweekly garbage collection service at a reduced rate from the weekly service. The participation rate in biweekly service for 2004 averaged 24% (629 households).

The curbside program uses three stacking bins for collection: Bin 1—mixed paper, Bin 2—newspaper and magazines, and Bin 3—commingled containers (glass bottles and jars, plastic bottles, aluminum and steel cans, milk jugs and cartons, and drink boxes). Corrugated cardboard is placed next to the bins for collection. In 2005, the City collected 474 tons of recyclables.

Figures 3.1 and 3.2 illustrate the history of the curbside program in the City of Shelton, detailing the annual participation rates and collection tonnage totals, respectively.

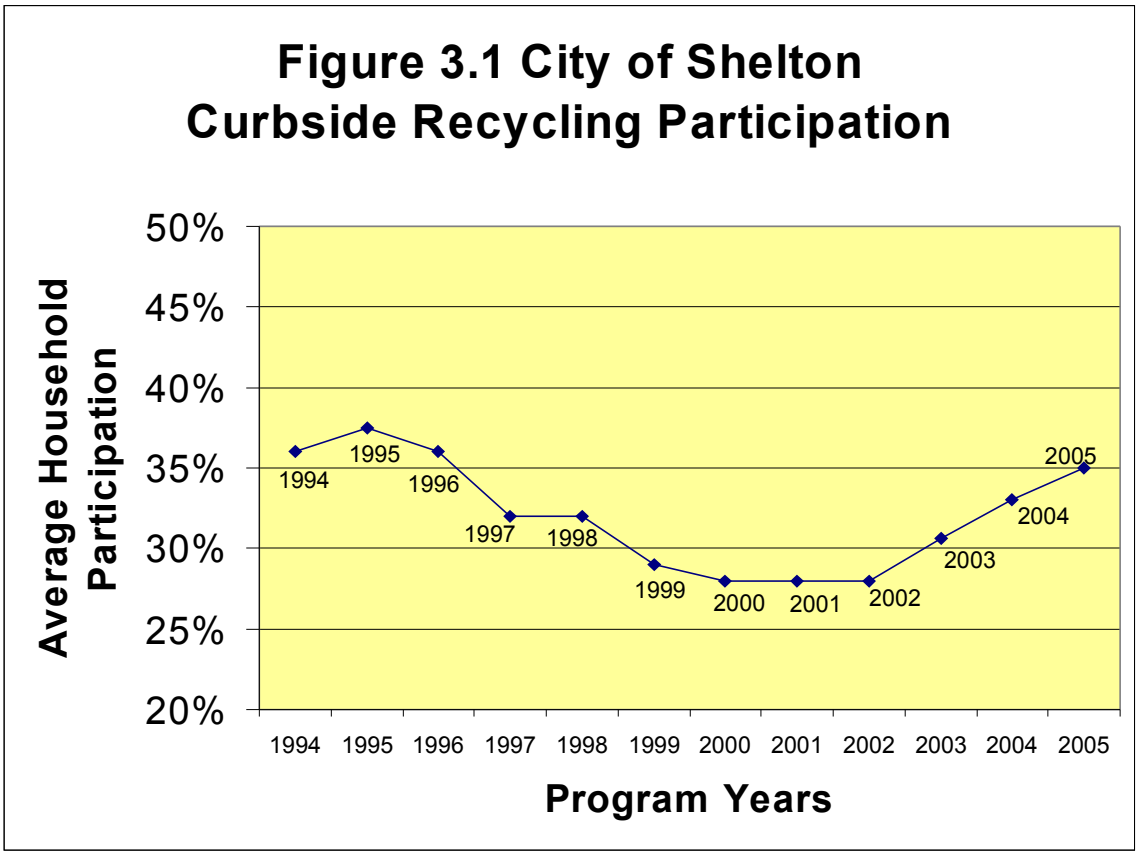
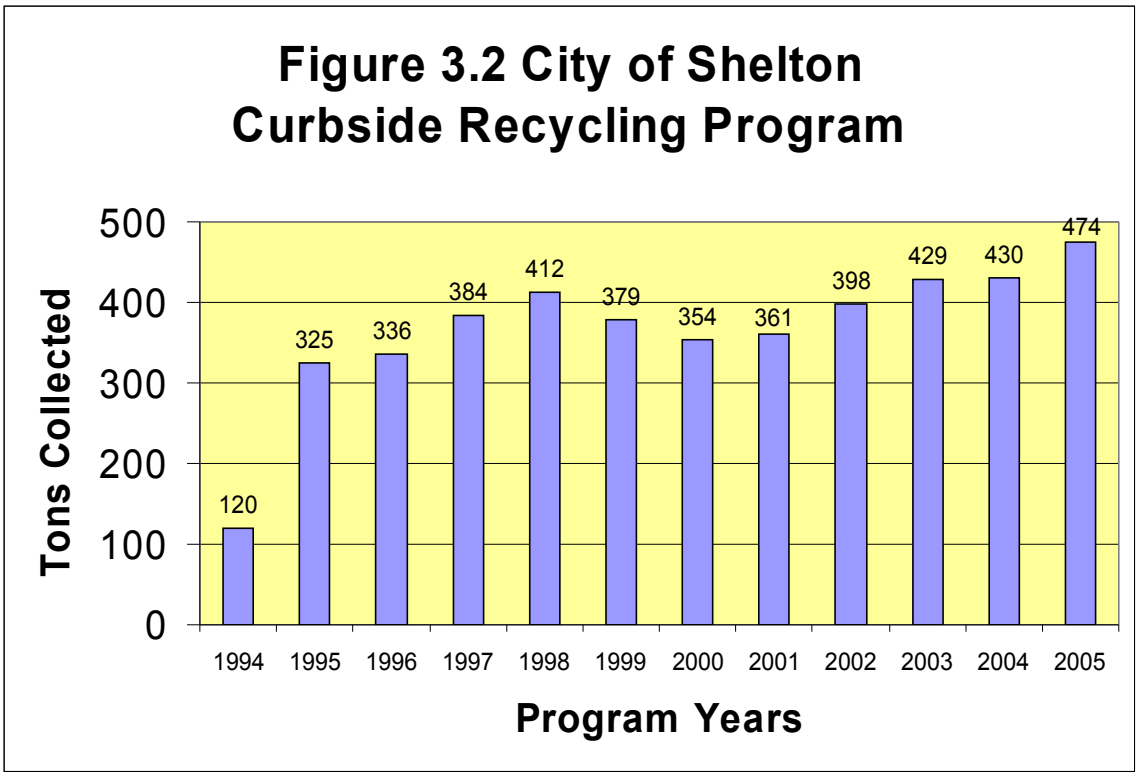


Figure 3.1 City of Shelton
Curbside Recycling Participation
Average Household Participation
50%
45%
40%
35%
30%
25%
20%
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
Program Years



Mason County

The County began its self-haul recycling program in 1993. Over the years the program has expanded and now includes eleven drop-off sites spread throughout the county, including all solid waste drop box stations. Each site has at least three "blue boxes" (compartmentalized drop boxes used to facilitate source separated collection) that collect corrugated cardboard, brown paper bags, glass bottles and jars (clear, green, and brown), plastic bottles and jugs, aluminum and steel cans, and newspapers and magazines. As of 2005, four of the sites also accept mixed paper.

Table 3.2 shows the locations and materials collected by site for the blue box program. Figure 3.3 illustrates the history of the blue box program in Mason County, detailing the annual collection tonnage totals. The program has experienced a steady increase in the quantity of materials collected. In 2004, approximately 2,082 tons of recyclables were collected; similar tonnages are expected for 2005.

Mason County Garbage has a pilot curbside program in four communities: Lake Limerick, Oak Park, Lakeland Village and Island Lake. The rate for the bi-monthly service was established by the WUTC. Presently, 233 customers are participating in the program.

TABLE 3.2 MASON COUNTY BLUE BOX COLLECTION

	Materials Collected (pounds)*							
Blue Box Location	**Mixed Paper**	**News-paper**	**Card-board**	**Glass**	**Aluminum**	**Plastic**	**Steel Cans**	**Total**
Shelton		32,158	38,970	35,005	3,086	5,685	17,472	132,376
Belfair	65,080	89,840	90,380	111,940	14,500	33,600	28,800	434,140
Hoodsport		76,157	30,500	26,825	2,246	5,950	5,634	147,311
Union		76,719	42,108	36,745	3,038	7,041	6,220	171,871
Grapeview	66,299		31,390	24,098	3,780	6,480	5,580	137,627
Taylor Town		64,275	31,535	22,480	1,986	5,262	4,282	129,820
Red Apple	427,963		162,600	109,450	10,406	32,933	27,620	770,971
Johns Prairie		214,552	177,550	107,875	10,501	34,470	32,045	576,992
Matlock		16,638	8,928	22,483	1,940	4,550	5,286	59,825
Allyn	134,380		85,280	99,900	12,420	19,800	22,500	374,280
Bucks Prairie		18,016	8,789	19,673	1,698	3,825	2,700	54,701
Total Pounds	693,722	588,355	708,030	616,473	65,599	159,596	158,138	2,989,913
Total Tons	346.9	294.2	354.0	308.2	32.8	79.8	79.1	1,495.0

* Collected through September 2005.

Needs and Opportunities

City of Shelton

The City's curbside recycling program has enjoyed an increase in participation beginning in 2003. The opportunity exists to maintain this momentum and build on the increasing popularity of recycling in the City. Currently, the three-bin sort system is serving residents well; however, to increase the convenience to residents and reduce worker injury, many communities around the nation are switching to a single-cart, commingled system of curbside recycling.

Mason County

The County's self-haul recycling program is facing several challenges. Retention of blue-box sites on private property has been very difficult over the last two years. The 24-hour access site at the Union BP had to be moved to the Union transfer station, which operates only 2.5 days a week.

In addition, the program operates eleven sites yet only four accept mixed paper. This is confusing for residents and also a drawback to the program as mixed paper makes up about 15%-20% of the overall waste stream.

Alternatives and Evaluation

1. Commingled Curbside Collection—City of Shelton

Communities around the state are moving from a multiple-sort, multiple bin system of curbside recycling to a one bin, single-stream method of collecting recycling at the curb. Although this may seem like a move in the right direction, it remains a complicated and highly debated issue.

Advantages: Several of the densely populated cities and counties in the state have switched to single-stream recycling citing higher collection efficiencies, reduction in worker injuries, and greater participation by residents. Residents typically love a single bin system because it does not require sorting, the bin has a large capacity and so overflowing of recyclables is not an issue, and the bin has a lid and wheels, keeping the materials dry and conveniently mobile.

Disadvantages: The disadvantages to a commingled collection of recycling primarily have to do with the marketability of the recycled materials. Paper mills that accept recycled paper from commingled streams report severe damage to their screens and other milling components due to the glass mixed in with the paper. The glass also becomes a safety hazard in the materials recovery facility, as workers hand-sort materials. Some communities have addressed this issue by not accepting glass in the commingled bin and either having a separate curbside bin for glass or providing drop off boxes for self-haul glass recycling. This latter option has greatly reduced the amount of glass collected for recycling—it is easier for people to throw it away than to haul it to a separate location. Contamination also becomes a larger problem when using a single bin method of recycling collection. The bin usually looks like a garbage can and people tend to treat it that way, since the materials they put in are not visible at the time of collection.

If the City decided to switch to a single bin, commingled collection system bins would have to be purchased, which can be quite expensive, and would likely raise the monthly residential recycling fee. An extensive outreach program would have to be implemented in order to educate the residents on the changes.

2. Commodity Credit—City of Shelton

In some communities, residents are given a monthly credit for the value of the recyclable commodities collected. It is often a minimal credit of less than $2.00 and this number is based on the contract between the jurisdiction and the hauler and the current market value of the various commodities.

Advantages: This alternative provides a direct incentive for residents who don't see the less explicit cost-savings involved in recycling. Although there is a mandatory

monthly recycling fee for all households within city limits, this would encourage more participation in the program, as residents would feel rewarded for their efforts.

Disadvantages: The City has historically been limited to one hauler for recycling collection services, so the competitive nature of securing the collection contract is not present. This can make it difficult to institute new incentives for residents if the hauler does not feel it is in their best financial interest. A system would need to be developed to track participating households in order to provide commodity credits to those households who recycle. This accounting technology can be expensive.

3. County-owned Property for Blue Box Sites—Mason County

Given the aforementioned difficulties in retaining blue-box sites, locating the boxes on County-owned property would provide some stability to the program.

Advantages: The boxes would have sites that were stable and not at risk of sudden changes due to private land ownership. Stable sites make the recycling program more convenient and consistent for the residents traveling to the sites.

Disadvantages: Locating County-owned properties that are large enough and are conveniently located to population centers or on main arterials is difficult. Of the few properties that meet the above requirements, in some cases the land would need to be cleared, grated and gravel laid to be effectively used as a blue-box site.

4. Incentives for Private Property Site Owners—Mason County

One method to increase the stability of blue-box sites on private property would be to provide some type of incentive to the property owner. Examples of applicable incentives are as follows: an on-site display acknowledging the site owner and publicly thanking them for their contribution, property tax rebate, a minimal "rent" payment, or free trash service.

Advantages: Would potentially provide more stability to the blue-box program by reducing turnover of privately owned sites. Could also make housing blue-box sites on private property an attractive, positive experience for the site owner rather then the negative stigma it now carries.

Disadvantages: Could involve some legal issues surrounding tax laws. Funding from tipping fees would be needed to provide "rent" if that option was desired.

5. Increased Plastics Collection—City of Shelton and Mason County

Currently, the only plastics accepted in both the City and County recycling programs are plastic bottles and jugs (PET 1 and HDPE 2). Thurston County is making some major changes in its curbside recycling program, one of which includes accepting

plastic dairy tubs in addition to the currently collected plastic bottles and jugs. If this proposed change is approved, it would open up the possibility for Mason County to also accept dairy tubs because the materials are taken to the same material recovery facility located in Tacoma.

Advantages: Adding a new material to the recycling stream is a positive change. Many product packaging manufacturers have moved away from using glass to using plastic for many products. Therefore, plastic tubs are becoming a larger part of the waste stream. This has been a popular residential request when asked for input on the current recycling program.

Disadvantages: There is a greater risk of contamination due to residual products left in plastic tubs than with plastic bottles. It will require a broad public outreach campaign to effectively broadcast the change and educate residents about the importance of rinsing containers prior to recycling. Mason County Garbage is limited by the types of plastics that will be accepted by the material recovery processors that accept their materials. Future expansion of type of materials is dependent on their acceptance.

6. Increased Mixed Paper Collection—Mason County

The County's recycling program operates eleven drop-off sites yet only four accept mixed paper. This is confusing for residents and also a drawback to the program as mixed paper makes up about 15%-20% of the overall waste stream.

Advantages: Adding mixed paper to the remaining seven sites makes sense for program consistency, residents' satisfaction, equitable service levels for all sites serving various regions in the County, and providing an additional recyclable material for many residents in the County. This has been a popular residential request when asked for public input on the current recycling program.

Disadvantages: In order to provide mixed paper collection at all blue-box sites, additional boxes will need to be purchased. Currently, boxes cost around $6,000 a piece.

7. Additional Materials

Mason County should periodically evaluate the range of recyclables managed by existing recycling programs and determine whether new materials should be added. Additional materials should be considered on a case-by-case basis, but could potentially include all plastic food containers, paint, electronics, household food waste, and pre-consumer business food waste. Evaluation criteria could include: the potential for waste diversion; collection efficiencies; processing requirements; market conditions; market volatility; local market availability; and continuity with existing programs.

Advantages: Adding a new material to the recycling stream is a positive change.

Disadvantages: The purchase of additional boxes may be required as new materials are included in the program. Currently, the cost of a blue box is approximately $6,000.

8. Business Recycling

For businesses, incentives to recycle wastes include: reduced disposal costs, increased material handling efficiencies, monitoring and awareness of manufacturing processes or operations waste, and opportunity for recognition within the community. Mason County could provide businesses with free technical assistance focusing on: (1) information on recycling technologies not currently being used by local businesses, (2) information on waste exchanges, and (3) information on services available from Mason County Garbage.

For recycling outreach, businesses could be targeted by the type of waste they generate. As discussed earlier in this chapter, industries within the same NAICS code exhibit similarities in the composition of their disposed waste streams. Mason County could use this system to assess local industries and use the information to provide insight as to the types of materials most likely to be recovered and the prevalence of particular industries in the region. By targeting business outreach efforts to just one or two NAICS codes, Mason County will be able to focus research on materials to just one or two waste streams and focus its education efforts.

Several private waste exchanges operate around the country. Waste exchanges operate much like "classified ads." Businesses, offices, schools, and individuals "advertise" their surplus/unwanted materials, or materials they want to get, by completing an electronic listing form. Once the form has been completed and submitted, the listing is posted in the waste exchange. Users can look for and find materials in a waste exchange by browsing or searching the materials categories. Users interested in trading posted materials then contact each other directly. Mason County could provide educational materials to businesses describing waste exchange opportunities.

Mason County Garbage presently provides commercial recycling services throughout the county, offering cardboard, mixed paper, office paper and commingled containers programs with weekly, bi-weekly and monthly pick ups. Businesses should be encouraged to participate in these programs as applicable.

Advantages: Commercial sources produce a significant portion of solid waste in Washington. This alternative supports the State's Beyond Waste Plan (Initiative 1) by promoting sustainable materials management.

Disadvantages: Interest in waste reduction practices would be voluntary and, therefore, would vary from business to business.

9. Recycling Services in Unincorporated Areas

Mason County Garbage has a pilot curbside program in four communities: Lake Limerick, Oak Park, Lakeland Village and Island Lake. In the remaining unincorporated areas of the County, residential recycling collection is not available. Residents may choose to self-haul their recyclables to a blue-box location. The collection and transportation of recyclable materials from single-family and multifamily residences is regulated under RCW 81.77 and RCW 36.58. Under these statutes, counties have the authority to directly regulate the collection of source-separated recyclable materials. There are two primary mechanisms available to Mason County to provide recyclables collection in unincorporated areas.

- Counties may contract with private vendors to provide recycling services to residences. Counties that choose this option assign service territory, establish and enforce service standards, and set rates.

- Counties may notify the WUTC to implement the provisions of a recycling element of a comprehensive solid waste management plan. If a county chooses this option, the WUTC-regulated haulers will provide the recycling services specified in the solid waste plan, but under the economic and service regulation of the WUTC. To pursue this option, the County is required to adopt a service-level ordinance establishing the types and levels of service to be provided. Additionally, the ordinance can encourage rate structures that promote waste reduction and recycling activity. Prior to adoption, a service-level ordinance option needs to be included as part of a county's solid waste management plan.

County staff could investigate further the possibility of providing collection for recyclables, particularly in areas that are increasing in population density and for those county residents currently receiving residential trash collection. Self-haul options could still be made available for residents not choosing collection services.

Advantages: Implementing curbside collection could decrease the need for self-haul locations. As population densities increase, more efficient route collections and cost-effectiveness will be experienced by haulers.

Disadvantages: Because the program is voluntary, overlap of recycling services will still occur.

3.3 COMPOSTING

Previous to this plan, there have been no solid waste planning goals for Mason County in the area of composting and yard waste diversion. One of the initiatives of the State's Beyond Waste Plan is to increase recycling of organic materials.

Existing Practices

City of Shelton

The City of Shelton has an annual curbside yard waste collection event for two weeks in April. There is no charge for this collection event. Previously, this debris was taken directly to the Mason County landfill. For the last two years, however, all the material collected has been taken to a local wood recycler and has either been composted or become hog fuel. The City also collects Christmas tress at curbside during the first week of January at no charge. The trees are mulched at the City shop and used in the facility's compost pile. For the last two years, an annual compost bin sale has been offered to City residents via the City's recycling newsletter. The bins were sold at half wholesale cost and 125 bins were sold. The City also helps to staff a compost education booth at a popular spring plant sale at a local elementary school, and helps run a vermicomposting station at an environmental education event held every-other-year for local schools.

Mason County

Mason County has two annual yard waste collection events—one in April and one in October. In addition to accepting yard waste from residents at no charge at the Shelton and Belfair solid waste facilities at these events, three of the local yard waste recycling companies also accept materials at no charge during these events. The County also accepts Christmas trees from residents at no charge during the first couple of weeks in January. Over the years, the County has offered reduced rate compost bins for sale on an irregular basis. The County has run an annual sale the last two years, selling 250 bins. The County also helps to staff a compost education booth at a popular spring plant sale at a local elementary school and at the annual Master Gardener's plant sale, and helps run a vermicomposting station at an environmental education event held every-other-year for local schools.

Needs and Opportunities

City of Shelton

Although the City has one yard waste collection event and promotes backyard composting, the opportunity exists to collect curbside yard waste on a seasonal basis. There is a yard waste recycling operation within five miles of City limits. This is both

an opportunity for City residents to self-haul their yard debris and offers proximity for City crews to transport Citywide collection of yard waste.

Mason County

Mason County has the opportunity to reach much higher diversion rates of yard wastes than previously attained. While it is recognized that the rural nature of the county lends itself to household onsite disposal, yard debris does arrive at the transfer station for disposal—both from landscape businesses and individual residents. Currently, if yard wastes reach the Solid Waste Facility they are not separated out from the MSW stream in the way that scrap metal and tires are diverted. Since long haul transportation is the means for disposing of MSW, there is no reason that yard debris—which can be recycled at the local level—should be making this trip. There are two wood recyclers within 10 miles of the solid waste facility.

Alternatives and Evaluation

1. County Operated Onsite Compost Facility

This alternative would result in the County Solid Waste Facility becoming permitted as a commercial composting facility. As yard debris was brought to the transfer station, it would be diverted to an area that was devoted to producing compost.

Advantages: The yard debris would be diverted from the landfill and become a resource that could be sold or given away to residents. Because yard waste would not be long-hauled, a reduced rate could be charged providing an incentive for residents to separate it from their garbage.

Disadvantages: Operating a compost facility would require significant capital and staffing costs. Given that there are two wood waste recyclers within 10 miles of the County facility, the County may be viewed as competing with private enterprise. It is doubtful that the County could operate its own compost facility for less than it would cost to contract with a local wood recycler to haul or receive the same yard debris, and would accomplish the same diversion goal.

2. County Facility Diversion

All yard wastes that arrive at the Solid Waste Facility would be separated in the same way that the metals and tires are handled.

Advantages: This alternative provides residents with the convenience of making one trip to dispose of all their waste. The yard waste would be diverted from the landfill to a recycling operation, or could be chipped/ground on site and made available to residents at no charge or for a small fee. The County could also invest in the purchase

of a mobile chipper/grinder, which could be periodically transported to select drop-off sites for chipping and grinding of materials brought to these sites. This alternative would result in the capacity of the landfill preserved for wastes that cannot be disposed of elsewhere. This alternative is in keeping with the State's Beyond Waste Plan, which encourages viewing wastes as a resource. If the cost of diverting this resource was less than the cost of transporting it to the regional landfill, the public would, potentially, pay less than the MSW per ton fee to dispose of yard waste.

Disadvantages: Special handling of this waste would require space for pile storage or a facility for customer drop box depositing and storage. A firm would also need to be hired to haul and/or accept the yard wastes collected. It would, potentially, also require a rate change to account for the new, segregated material.

3. Curbside Yard Waste Collection—City of Shelton

The City of Shelton could provide a seasonal (May through October) biweekly, curbside yard waste collection service.

Advantages: This alternative would provide City residents who do not wish to compost with a convenient, less costly alternative to disposing of their grass clippings, leaves, and brush trimmings than in the garbage. The City could contract out for collection services, reducing the initial start-up costs (cans and truck).

Disadvantages: The cost of providing seasonal collection of curbside yard debris could potentially exceed the rate customers would be willing to pay for this service. The City would need to dedicate a driver and a truck for collection, and would need to purchase the cans, which could be costly.

4. Public Education—City of Shelton and Mason County

Continue to inform residents and businesses of the local, private yard waste recycling operations in Mason County.

Advantages: This is already happening on a seasonal basis for the residents of the City of Shelton in the form of a utility bill newsletter.

Disadvantages: This method relies on residents and businesses to be both aware of yard waste recyclers in the area and willing to transport their wastes to those sites. It does not provide customers the convenience of making a trip to one location to dispose of their wastes. There is currently little outreach to the residents of unincorporated Mason County about the yard waste recycling opportunities.

5. Disposal Ban

Because of the number of private yard waste collection facilities in operation in Mason County, a total ban of yard wastes could be put in place at the transfer station and outlying drop box stations.

Advantages: This would provide a clearer policy in regard to this waste than is currently in place.

Disadvantages: Any type of ban can elicit a negative reaction from the public. Depending on the political climate, a ban may not be feasible or sustainable. A yard waste disposal ban at the County facility may lead to increased illegal dumping of these materials.

3.4 PUBLIC EDUCATION AND OUTREACH

The solid waste planning goals in the area of public education and outreach are as follows:

- To educate and inform the public regarding waste reduction techniques.
- To educate and inform the public regarding existing and planned methods for recycling.
- To develop a sense of environmental responsibility in the public.
- To inform the public regarding community progress and to gain feedback on agency progress or needs.

Existing Practices

City of Shelton

The central outreach method for the recycling program is utilizing stuffers in the City's utility billing envelopes. These reach every household and business within the City limits and postage costs are already covered. Beginning in 2004, a recycling newsletter entitled *Recycle This!* has been distributed quarterly in conjunction with the seasons. A special holiday edition is also distributed with the November billing. In addition to the quarterly newsletter, which has information on recycling, waste reduction and hazardous waste disposal, City residents receive a yearly curbside recycling pick up schedule and magnetic information card on what they can recycle through the curbside program.

Mason County

Mason County's outreach efforts primarily rely on the local newspaper and radio stations, both in paid advertising and press releases and public service announcements. The recycling coordinator has historically been present at county events such as the fair, Oysterfest, and Summerfest. The recycling program has a brochure that is available at various sites throughout the County and at all events. Transit ads ran on Mason County Transit from 2003-2004, specifically addressing the county's participation in www.2good2toss.com, the cost benefits to recycling, and the fluorescent bulb recycling program. There is also limited information about the recycling program on the County's website.

Each spring, Mason County Garbage sends recycling information in their residential statements. In addition, all new customer starts are mailed the same information when they sign up for service.

Needs and Opportunities

City of Shelton

The City of Shelton needs to address the communication needs of the increasing bilingual population. To date, none of the recycling and solid waste information materials are available in Spanish. The curbside-recycling brochure is mostly pictorial; however, a Spanish translation is needed to effectively reach the Spanish-speaking segment of the community. A larger presence in schools is also needed with regard to recycling technical assistance and education.

Mason County

The success of the City of Shelton's recycling program over the last few years is directly attributable to the increased effort at direct public outreach. The results of a solid waste survey conducted at the 2005 Mason County Fair show that the majority of Mason County residents are unaware of the various services available to them through the recycling and solid waste programs. Although the recycling coordinator has been present at a few annual events, there is a need to reach a broader audience in communities outside of the greater Shelton area—Allyn, Belfair, and Hoodsport in particular—by participating in the various local community events (i.e. Allyn Days, Grapeview Day, Tahuya Day, and Celebrate Hoodsport). A larger presence in schools is also needed with regard to recycling technical assistance and education. The County also needs to address the communication needs of the increasing bilingual population, and produce outreach materials in English and Spanish.

Alternatives and Evaluation

1. PUD Billing Stuffers—Mason County

This alternative recognizes the barriers present in using the standard method of utilizing garbage utility bills for outreach dissemination. The use of in-house utility billing stuffers is unavailable because the department uses postcards to inform residents of payments due. Research into stuffing notices into the garbage hauler's bills proved to be cost prohibitive due to the restriction involved in the California-based billing firm that the garbage hauler utilizes.

Advantages: Information would reach every household in the County. It would be a cost effective alternative because the PUD already pays for the postage.

Disadvantages: Size of stuffer is limited. This alternative requires the permission of the PUD, which may not want to be seen as favoring any one County department.

2. Direct Mailing Newsletter—Mason County

This alternative would include the mailing of an annual or twice yearly newsletter mailed directly to each household in the county. Content of the newsletter would include information on recycling, waste reduction, solid and hazardous waste disposal, and littering and solid waste enforcement issues.

Advantages: Guaranteed information dissemination to every household in the county at least once a year. Changes in the program could be easily communicated. Would provide a mechanism for public feedback in the form of surveys.

Disadvantages: Postage is costly; however, a partnership with the County environmental health department, the recipient of the county litter funding, and the garbage hauler could help divide the costs while proving space for each contributor's message.

3. Phone Book Section Insert (i.e., "Dex Guide")

This alternative utilizes an existing medium—the phone book—to reach every household. A four to eight page section near the front of the local phone book describing rates, facilities, programs and laws related to solid waste and recycling.

Advantages: With the exception of North Mason, every household in Mason County receives a Shelton phone book. People generally rely on the phone book as a place to go for information and therefore keep it in their home year round.

Disadvantages: Can be expensive. This alternative would require additional outreach so people know to look to the phone book for solid and hazardous waste information.

North Mason communities use Kitsap's phone book, so they would not receive the Shelton phone book with Mason's program information. The phone book representatives have said that the solid waste section would have to be in black and white due to the printing constraints of the Shelton phone book.

4. Web Site

Little information currently is offered on Mason County's website concerning solid waste or recycling program activities. Mason County should update its website to be a successful component of a waste reduction and recycling education campaign. As with any promotional medium, the website must be user-friendly, accurate, and interesting. The website should be professionally designed, if possible.

Advantages: People generally are comfortable using the Internet as a place to go for information and most often have access to a computer.

Disadvantages: Would require additional outreach so people know to look to the web site for solid and hazardous waste information.

5. College Interns—City of Shelton and Mason County

Given the proximity to four colleges—Olympic College, The Evergreen State College, South Puget Sound Community College, and Saint Martin's College—this alternative would employ one to two student interns to work on special projects throughout the year. Examples of current available intern positions: education specialist, focusing on school outreach and presentations, and preparation of articles for publication in newspapers; business assistance recycling specialist, focusing on commercial outreach and waste audits; school composting program specialist, focusing on on-site composting at schools; and school recycling specialist, focusing on school outreach and waste audits. A web site design position could also be created.

Advantages: Unpaid interns may be available or those under a work-study program, creating little or no expense for the County. Interns could focus on special projects that staff currently has not had the time to work on.

Disadvantages: Unpaid interns are difficult to attract, especially those based in Olympia. Staff has been unsuccessful over the last two years at attracting any applicants. Time spent to manage interns, if recruited, is also a consideration.

6. Technical Assistance to Schools and Businesses—City of Shelton and Mason County

This alternative recognizes the need to reach schools and businesses regarding their handling of waste—making commercial waste a priority. Outreach to schools and

businesses would offer free technical assistance and waste audits, as well as distribution of newsletter at schools.

Advantages: Commercial sources produce a significant portion of solid waste in Washington. Focusing waste reduction efforts towards the business sector can have a large impact on the waste stream as a whole. Measurable data would be much easier to obtain from businesses rather than residents. This alternative is inline with the State's Beyond Waste Plan (Initiative 1). It is also important to provide waste audit assistance to schools. A functional waste reduction and recycling program in a school yields daily reminders to the students of their direct impacts on the environment.

Disadvantages: Staff intensive. Interest in waste reduction practices would be voluntary and, therefore, would vary from business to business, and school to school. Barriers to a school program include overworked custodial staff, and lack of support from either the principal and/or the district.

7. On-site Blue Box Signage—Mason County

This alternative involves improving and expanding from the current level and quality of signs and instructions present at each blue box recycling site. Improving the signs that appear on the front of the box which describe the overall rules of use of the recycling boxes, in-ground commodity instructional signs and residential "thank you" signs, and roadside signs indicating the presence of the recycling site are all examples included in this alternative. The signs should be provided in Spanish as well.

Advantages: Clearer and more attractive signs may result in cleaner commodities and less contamination of non-recyclable goods. Effort in this regard would show the County's commitment and dedication to the program, and would validate the sites as recycling locations rather than garbage dumps. Signs that thank the residents who use the sites reinforce their positive behavior and contribute to positive feelings about the program as a whole. Directional roadside signage may educate non-users that there is a recycling site nearby, potentially changing their behavior.

Disadvantages: Not everyone reads signs. The initial expense can be high to produce enough signs for all sites, although signs generally have a long lifespan.

Recommendations

The following actions related to waste reduction, recycling, public outreach and composting are recommended for this Plan:

1. Outreach improvements—Improve and regularly update the information available on Mason County's web site. Bilingual information to include signage at blue-box sites and web page information. Prepare for direct mailing to all County residents an annual summary of the County's solid waste and recycling programs.

2. Continue to evaluate the Blue-Box Recycling Program to improve opportunities and improve site access. Look to add sites on available public properties and develop an incentive for private site owners to continue to provide land for siting the boxes.

3. Increase mixed paper recycling opportunities by adding mixed paper to all the blue-box-recycling sites.

4. Local governments should develop and expand electronic billing options to reduce paper mailings.

5. Offer businesses and schools waste audits and education designed to reduce their waste stream and disposal costs.

6. Improve recycling options for employees at local government facilities.

7. Support the efforts of the private sector to implement and expand a voluntary curbside-recycling program in densely populated communities in Mason County.

8. Divert organics for composting at county owned solid waste facilities.

CHAPTER 4: SOLID WASTE COLLECTION, TRANSFER AND DISPOSAL

This chapter takes a comprehensive look at the solid waste collection, transfer, and disposal system in Mason County. Each section will discuss existing conditions, needs and opportunities, and will make recommendations based on an evaluation of alternatives. The chapter is divided into the following sections:

4.1 SOLID WASTE COLLECTION

The solid waste planning goals for waste collection in Mason County are as follows:

- Ensure that all residents of Mason County have access to waste collection services.
- Ensure that collection practices are compatible with other elements of the solid waste system established by the SWMP.

The Washington Utilities and Transportation Commission (WUTC) regulates garbage haulers outside of incorporated areas (RCW 81.77). These haulers must be franchised by the Commission to collect garbage in a given county. Within incorporated cities such as Shelton however, the WUTC has no jurisdiction. Cities have the option to provide City collection services, contract with a collection service or allow the WUTC to award a franchise in their area.

Existing Practices

Three types of waste collection systems operate in Mason County: municipal collection operated by and for the City of Shelton; waste collection services provided by private haulers for the rest of the County outside of City limits; and residents, businesses and other jurisdictions (i.e., Tribes and State facilities) who self-haul their waste to a drop box or transfer station operated by the County.

City of Shelton

Shelton is the only incorporated city in Mason County. It operates its own garbage collection system that serves approximately 3,300 residential and business customers within City limits. Waste collection in Shelton is mandatory. Residents are expected to place their cans at the curb or alley on their designated collection day, and retrieve the can after collection has occurred. Weekly and biweekly service is available, with extra

pickups incurring a fee. Table 4.1 details the garbage services and rates for the City of Shelton.

Table 4.1 City of Shelton Solid Waste Collection Service
(as of January 2005)

Residential Service		
Type of Service	*Rate per can**	*Customers*
60 gal can biweekly (120 gal/month)	$10.06	586
90 gal can biweekly (180 gal/month)	$15.08	37
60 gal can/week (240 gal/month)	$16.83	~1500
90 gal can/week (360 gal/month)	$25.24	~500

Commercial Service		
Type of Service	*Rate per can**	*Customers*
60 gal can/week	$16.83	350 total -- All service levels
90 gal can/week	$25.24	
300 gal can/week	$78.01	

* All rates are monthly charges

The City collects five days a week and employs three drivers. The City has four 20-yard compactor trucks. The oldest truck (1995) serves as a backup in case of breakdown. The three newer trucks (1998, 2000, and 2004) are run simultaneously to service the collection routes. The City plans to purchase a 2005 model truck, but will maintain a fleet of four trucks for solid waste collection. The City has an automated collection system. Each truck is fitted with a hydraulic arm to lift the cans into the compactor. This system is efficient and significantly reduces work-related injury associated with waste collection. As shown in Table 4.1, the City has 60, 90, and 300-gallon cans available. The 60-gallon cans are the smallest cans that the automatic arms can accommodate. The cans are owned by the City and provided to residents at no charge. All refuse collected in the City is hauled to the Mason County Solid Waste Facility for disposal.

National Forest Service

The U.S. Forest Service provides solid waste collection from National Forest Service land. Mason County Garbage, Inc. (private hauler) collects refuse from Forest Service offices. All refuse collected on National Forest Service land is transported to the Mason County Solid Waste Facility for disposal. The amount of waste generated is minimal, with a peak during the summer when tourism increases.

Squaxin Island and Skokomish Indian Tribes

The Squaxin Island and Skokomish Indian Tribes do not have their own garbage collection system. Mason County Garbage, Inc. provides garbage service to the Tribal lands. Garbage collection is voluntary for the Tribal lands, as it is in all areas in the County outside of Shelton city limits.

Washington State Parks and Facilities

The State of Washington operates several facilities within Mason County. These include several State parks, a State penitentiary, and a State patrol academy. Refuse from the State penitentiary is collected by the State and disposed of at the Mason County Solid Waste Facility. Waste generated at State parks and at the Washington State Patrol Academy is collected by Mason County Garbage, Inc. and transported to the Mason County Solid Waste Facility for disposal.

Franchise Holders

Garbage service in the unincorporated parts of Mason County is voluntary. Three disposal companies provide garbage service for Mason County, but only two are able to collect using dump trucks. Table 4.2 shows the certificates granted for solid waste collection for Mason County.

Mason County Garbage, Inc. provides residential and commercial garbage collection service for the majority of Mason County (outside of Shelton). They collect five days a week using fourteen trucks and drivers each day. The company also employs two full time mechanics and two customer service representatives in its Shelton office. The company uses manual collection for residential cans and uses specialized trucks for commercial containers. Table 4.3 details the garbage service and rates for Mason County Garbage.

Table 4.2 WUTC Solid Waste Certificates for Mason County		
Certificate #	*Certificate Holder*	*Service*
G327	Waste Management 13225 NE 126th Kirkland WA 98034	Refuse collection requiring use of dump trucks.
G98	Harold LeMay PO Box 44459 Tacoma WA 98444	Solid waste collection service.
G88	Mason County Garbage, PO Box 787 Shelton WA 98584	Solid waste collection leased from G98.

Table 4.3 Mason County Garbage, Inc.
Solid Waste Collection Service
(as of January 2005)

Residential Services				
# of Cans	*Size*	*Freq.*	*Monthly Rate**	*Customers*
1	32 gal	WK	$13.10	9,700
2	32 gal	WK	$19.40	
3	32 gal	WK	$25.65	
4	32 gal	WK	$32.70	
5	32 gal	WK	$38.80	
6	32 gal	WK	$44.65	
1	32 gal	EOW	$7.65	
2	32 gal	EOW	$12.25	
1	32 gal	MO	$4.30	
1	45 gal	WK	$17.20	
2	45 gal	WK	$25.65	
1	20 gal	WK	$11.35	

** Basic Rate - Does not include taxes, fuel surcharge, etc.*

Commercial Services		
Container Size	*Per Pickup Rate*	*Customers*
1 YD	$13.90	800
1 1/2 YD	$14.65	
2 YD	$19.15	

Needs and Opportunities

At this time, solid waste collection appears adequate for the residents of Mason County. Requirements for future collection services will depend on population growth rates. In 2004, the population of the City of Shelton was 8,695 and unincorporated Mason County was 42,105. According to the Washington State Office of Fiscal Management, the population of Shelton in 2015 will be 13,022 and unincorporated Mason County will reach 64,007. This level of growth will most likely require additional collection routes in the City and County. However, increased population will also aid collection by increasing the cost effectiveness of the routes through increased population density.

Ensuring that all residents have access to refuse collection appears adequate; however, new challenges arise in the need to provide a level and type of service compatible with recycling and other solid waste programs. Local governments can work with the WUTC and the hauler to determine how to adapt rates to the solid waste management priorities of waste reduction, diversion, and recycling. In addition, Counties have the authority under RCW 36.58.040 to contract for the collection of source-separated recyclables. This authority allows the County to manage, regulate and fix the price of source separated collection services. Counties may also impose a fee upon solid waste collection services to fund compliance with solid waste plans.

Alternatives and Evaluation

1. Mandatory Collection

As discussed, the level of solid waste collection service in the County is adequate; however, mandatory collection in unincorporated Mason County would be an alternative to the current system. Mandatory collection could be imposed to limit self-haul activity and/or illegal dumping and littering. Solid waste collection districts would need to be established based on population density, illegal dumping problem areas, and proximity to disposal facilities. Some areas with very low population densities may not be required to have garbage collection service.

Mandatory collection is one method of reducing the amount of illegal dumping that may occur when disposal rates increase. The advantages of mandatory collection should be weighed against the cost of implementing it and the possible negative reaction received by those who self-haul.

To implement mandatory collection, the County would need to form solid waste collection districts, obtain approval from the Board of County Commissioners, and hold public hearings. Prior to formation of districts, RCW 36.58A requires the County to request a commission review to determine whether certificated haulers are willing and able to extend service to all residents within each proposed district.

Advantages: Could result in a decrease in illegal dumping and littering, as well as self-hauling.

Disadvantages: Requires all residents to pay for waste collection service, although some areas with low population densities may not be required to participate.

2. Collection Rates

Three alternatives are available to implement a solid waste collection rate structure that would support recycling, waste reduction, and diversion:

2.1 Under RCW 36.58, the County has the authority to apply fees to refuse collection that will support waste reduction and recycling programs. Haulers would bill and collect these fees from residents on behalf of the County as part of their regular billings.

2.2 RCW 81.77 requires collection services, under the authority of the WUTC, to use rate structures that support waste reduction and recycling as solid waste management priorities. As an alternative, the County could draft and adopt its own rate structure or guidelines as part of the SWMP, which would then be implemented by the hauler. WUTC involvement in an advisory capacity at this level would assist in the development of an approvable program. A rate structure that supports these programs is one in which there are no financial benefits associated through pickup of multiple cans or at different frequencies (i.e., monthly vs. weekly), but one in which a flat rate is applied to each can collected. This system shows a direct relationship between amount of waste generated and cost.

2.3 The County and haulers would take no action to change the rate structure, but would allow the WUTC to develop new guidelines for rate structures that support waste reduction, which could then be implemented in the County.

Advantages: Fees would be available to fund solid waste reduction, recycling and other diversion programs.

Disadvantages: Implementation of new rate structures to support waste reduction, recycling and other diversion programs may increase average customer rates.

4.2 SOLID WASTE TRANSFER

The solid waste planning goals for Mason County in the area of transfer and export are:

- To use drop box station, transfer station facilities and export practices where and how appropriate for cost benefits and operational efficiency.

- Ensure the public safety at drop box and transfer station locations.
- Develop economically responsible solid waste management system.

Existing Practices

Drop box and transfer stations can serve any or all of the following functions:

- Provide disposal convenience for the public and reduce illegal dumping when landfills or larger transfer stations are located a great distance away.
- Provide economic benefits to a waste collection company.
- Provide a cost-effective means of transferring waste from collection vehicles to long haul transfer vehicles for disposal outside of the County.

Mason County has one transfer station—located at the Mason County Solid Waste Facility (the site of the old landfill), just north of Shelton—where solid waste is placed on a tipping floor and then loaded into open-top trailers for shipping to Klickitat County (detailed in the next section, **4.3 Solid Waste Disposal**). The transfer station is used by commercial haulers and for the general public. A small portion of commercial waste collected by Mason County Garbage, Inc. is hauled into Kitsap County for disposal. All other waste generated in Mason County is delivered to the Solid Waste Facility for out-of-county transfer and disposal. In 2005, 32,331 (Sept) tons of solid waste was deposited at the main facility.

Table 4.4 shows a snapshot of the Mason County Solid Waste Facility and all drop box stations for 2005. All facilities are owned and staffed by Mason County. The Solid Waste Facility and all drop box stations have recycling centers, detailed further in Chapter 3.

Table 4.4 Mason County Solid Waste Facilities 2005 Tonnages

Facility	Disposed	Recycled	Customers
Shelton	41,716.	85.5	55,342
Belfair	4,607	289.1	21,864
Hoodsport	419.3	96.9	5,139
Union	419.7	110.4	5,004

Mason County has four drop box stations for the disposal of refuse and recyclables. Each station contains two 40-cubic-yard drop boxes. Belfair, Union, and Hoodsport each have drop box stations, and the fourth is located within the Solid Waste Facility near Shelton. The three outlying drop box locations are near rural population centers to increase the convenience of disposal for residents in these areas. The drop box stations provide for public disposal only. Commercial compactor trucks are prohibited from using the facilities because of the drop box sizes and the lack of a tipping floor. None of the outlying drop box stations use scales to determine the weight and cost of a load. All costs are based on volume or on a per can basis. Table 4.5 shows the rates for the Solid Waste Facility and outlying drop box stations.

Table 4.5 Rates for Shelton Facility and Drop Box Stations (2005)

Load Type	Shelton Solid Waste Facility*	Drop Box Stations*
Minimum Rate	$2.65	$3.25
30-gallon can	$2.65	$3.25
55-gallon container	$4.85	$6.00
Loose yard	$63.00/ton	$13.80/cy
Appliances	$10.00	$11.00
Tires (off rim)	$2.65	$2.90
Tires (on rim)	$5.80	$6.05
Auto Batteries	$1.05	$1.05
Refrigerators	$15.00	$15.00
Demo Yards	$63.00/ton	N/A
Yard Debris	$63.00/ton	N/A
Propane Tanks	$2.65	N/A
Animals (small)	$5.25	N/A
Animals (large)	$10.50	N/A

* Basic Rate - Does not include taxes.

Needs and Opportunities

A general rule for evaluating the need for waste transfer is based on hauling distance. When considering a one-way haul distance of 15 to 30 miles, waste transfer should be evaluated. However, it is unlikely that transfer will be cost effective in this range

except in areas with large waste streams. When hauling distances exceed 30 miles, transfer will become more economical for moderate and small waste streams. Currently, there is no economic need for transfer of commercial or municipally collected waste within Mason County. Projected population and waste growth are addressed in this planning process.

Transfer Station/Drop Boxes

An analysis was conducted of the potential for the need for new transfer station or drop boxes to serve existing customers and future population growth. The Shelton Solid Waste Facility and Drop Box Stations at Belfair, Hoodsport and Union were visited on January 6, 2006, for the purpose of estimating waste and customer capacity, and ability to be expanded/upgraded. Following the visit, the transfer system was evaluated in light of population growth projections for the period 2005 through 2025. Waste and customer capacity was estimated based on the following assumptions:

- Average of 14 minutes for customers to dump their waste and exit the building
- Approximate customer arrival rates for a peak weekend day from data gathered for a similar predominately rural county
- Existing customer queue lengths at each of the stations
- Average space of 25 feet occupied by a customer vehicle in the queue
- Average ratio of non-commercial to commercial customers of 11:1
- Average non-commercial customer load of 0.2 tons
- Average commercial customer load of 5 tons

The capacity of the Mason County Solid Waste Facility is estimated to be 200 tons per day for 350 operating days per year, or about 70,000 tons per year with minimal changes to the facility. For a maximum 20 minute wait time in the queue, (a service goal,) the estimated maximum number of customers per day is 300, or 105,000 customers per year for 350 operating days per year. Both the waste tonnage and customers are limited by the length of available space for customers to queue on-site, the capacity of the scale facility to process the customers, and the number of customer tipping stalls in the two transfer buildings. Additional limitations include the number of containers in which waste is exported (the trucking and train components of the system) and the level of staffing needed to provide services.
During peak operations under the current system, 300 cars per day often results in waiting times greater than 20 minutes. Due to inherent inefficiencies in the system, this can occasionally result in delays upwards of one hour. To avoid excessive queuing, site and operational modifications should be pursued. The study cites capacity increases far greater than these numbers, but with wait times considered unacceptable by staff and the SWAC. For example, based on the queuing space available and number of hours per day, 435 cars are possible: the resulting average wait time is 1.8 hours.

If a second inbound and outbound scale (2 scales) , additional customer tipping stalls, and an additional tipping floor and processing equipment were available, the facility could potentially handle approximately 300 to 400 tons per day for 350 operating days per year, or 105,000 to 140,000 tons per year. Modifications such as these would also require increased staffing.

The Drop Box stations are all serviced via contract with the local hauler to transport 40 yard containers to the Shelton facility. None of the drop box sites have the ability to compact loads. These factors, combined with driving distances and site access limitations, result in a modest potential for increasing throughput without substantial investment

The Belfair Drop Box Station is estimated to be able to handle 36 tons per day for 350 operating days per year, or 10,850 tons per year. With no change to the facility or operating hours, the station is estimated to be able to handle a maximum of 120 customers per day. This equates to 6 tons per box (a very high average) and 6 boxes per day hauled to Shelton (three hauls per day with two boxes per haul). The average number of boxes hauled from Belfair in 2005 was six per week.

The station capacity is limited by the length of customer queuing on-site. If the customer traffic pattern were to be routed south past the existing gatehouse location to a traffic loop bringing them back to the drop box building from the south, the available customer queuing length would increase and potentially the station capacity. The next limitation to the station capacity is the number of customer tipping stalls. Expanding south to add two customer tipping stalls is estimated to increase the capacity of the station to 36 tons per day.

The Hoodsport and Union Drop Box Stations are similar in configuration. The primary difference is that the Hoodsport station has approximately 100 feet longer on-site customer queuing length. The capacity of the Hoodsport station is estimated to be 10 tons per day for 120 operating days per year, or 1,200 tons per year. With no change to the facility or operating hours, the station is estimated to be able to handle a maximum of 80 customers per day. For a maximum 20-minute wait time in the queue, the estimated maximum number of customers per day is 80, or 9,600 customers per year for 120 operating days per year.

The Union Drop Box Station is estimated to be able to handle 10 tons per day, for 120 operating days per year, or 1,200 tons per year. With no change to the facility or operating hours the station is estimated to be able to handle a maximum of 80 customers per day. For a maximum 20-minute wait time in the queue, the estimated maximum number of customers per day is 80, or 9,600 customers per year for 120 operating days per year.

For both the Hoodsport and Union stations, the limitations to capacity are the length of available on-site customer queuing, number of customer tipping stalls, and the ability to swap out garbage boxes. Increasing the length of available on-site queuing space and number of customer tipping stalls is estimated to increase the capacity of the stations.

The recently adopted County Comprehensive Plan (Chapter IV Land Use), estimates the population of Mason County to grow from 53,789 in 2005 to 85,088 in 2025, an increase of 58.2% or an average of 2.9% per year. Waste disposal is known to grow with population, but recent years have shown a steep increase in tons disposed. In some jurisdictions in Western Washington, garbage increases have doubled or tripled in relation to concurrent population increases. It is therefore reasonable to anticipate disposal increases beyond the population growth projections.

By applying a projected population growth rate to the waste disposal tonnage and transfer station/drop box station customer count, and anticipating the recent trends to continue for the next few years, we can predict the required capacity of the stations in the future. Table 4.6 presents the predicted waste tonnage and customer capacity required in 2010 for each station, and compares it to the estimated capacity of each station. Long range projections are included in the Appendix.

TABLE 4.6 STATION TONNAGE AND CUSTOMER CAPACITY 2005 ACTUAL AND 2010 ESTIMATES

Station	2005	2010	Estimated Capacity w/o Expansion
Shelton Solid Waste Facility			
Tons	41,716.56	67,500	60,000
Customers	55,342	90,000	70,000
Belfair Drop Box Station			
Tons	4,601.3	9,110	10,850
Customers	21,864	28,000	42,000
Hoodsport Drop Box Station			
Tons	419.33	449	1,200
Customers	5,139	5,506	9,600
Union Drop Box Station			
Tons	419.67	450	1,200
Customers	5,004	5,361	9,600

Alternatives and Evaluations

– *Develop New Transfer/Drop Box Stations*

From the data presented above, it is clear the existing transfer/drop box stations are insufficient to handle the predicted growth in Mason County for the period from 2005 to 2010 without expansion. For planning purposes, it is interesting to note that the population served by the Belfair Drop Box Station would have to increase annually at 5% from the 2005 served population before the capacity of the station would be met. For 2004, 2005 and 2006, this area of the County has grown an average of 10% annually. Growth outside of Mason County is also a consideration, as the influence of Kitsap County residents and services will impact the greater Belfair area.

In an effort to evaluate the need for adding transfer/drop box stations to the existing solid waste system, a computer model of Mason County was used. The model calculated the cost of waste movement between the 14 census tracts in Mason County and the Shelton Solid Waste Facility. It also calculated the cost of transferring waste from the drop box stations to the Shelton Solid Waste Facility. By running the model for different solid waste system scenarios, a comparison of costs between the scenarios was made. The results of the computer modeling (Table 4.7) compares the existing solid waste system with scenarios where the Belfair Drop Box Station is replaced by a transfer station, a drop box station is built on Hartstene Island, and a drop box station is built in the southwest portion of the County.

TABLE 4.7 COMPARISON OF SOLID WASTE SCENARIOS

SCENARIO	Commercial Customers to Shelton ($/yr)	Drop Boxes to Shelton ($/yr)	Additional Station Cost (own, operate, and maintain) ($/yr)	Total ($/yr)
Existing System	$533,000	$84,000	Baseline	$617,000
Replace Belfair Drop Box with Transfer Station	$353,000	$54,000	$500,000	$907,000
Build Hartstene Island Drop Box Station	$501,000	$103,000	$300,000	$904,000
Build SW County Drop Box Station	$503,000	$102,000	$300,000	$905,000

The information presented above suggests that it is not cost effective to replace the Belfair Drop Box Station with a transfer station. Given this conclusion, the justification to replace other drop box stations with transfer stations would also not be adequate. In addition, from the above information, there is no economic justification to add drop box stations on Hartstene Island or in the southwest portion of the County. This conclusion can likely be extrapolated to say that it is not economically feasible to add drop box stations in other portions of the County.

Advantages: Development of new transfer/drop box stations would provide more convenient locations for residents to dispose of their solid waste and to recycle. In addition, new stations may eliminate illegal dumping in areas where there are presently no stations.

Disadvantages: The costs to develop, operate and maintain new transfer/drop box stations are estimated between $300,000 and $500,000 per year. The current funding for these types of systemic improvements is inadequate, and would require a significant rate increase or bond.

– *Separate Handling of Yard Waste/CDL*

At each of the transfer/drop box stations, there is an opportunity to provide for separate handling of yard waste and construction, demolition and land clearing debris (CDL). At the Shelton Solid Waste Facility, construction of an uncovered tipping area where yard waste and CDL could each be loaded into transfer trailers or drop boxes would provide this opportunity. Another consideration would be to process materials on site for composting and sell finished product. The tipping area could be located adjacent to the existing recycling area or between the drop box and transfer buildings. At the Belfair Drop Box Station, expanding south to add customer tipping stalls could provide for yard waste and CDL tipping. An alternate location for yard waste and CDL tipping at Belfair would be adjacent to the recycling bins west of the drop box building. At the Union Drop Box Station, an area for tipping yard waste and CDL could be located by clearing some trees east of the drop box building and recycling area. A yard waste and CDL tipping area could be added to the Hoodsport Drop Box Station in the area north of the drop box building adjacent to the recycling area.

Advantages: Separate handling of yard waste and CDL would reduce the amount of wastes that are disposed, and therefore would result in a greater overall diversion rate for the County and City. Although some costs would be incurred from the development of separate areas at the transfer station for collection and handling of this material, savings would be realized from reduced transfer and disposal costs. Reduced tipping fees could be charged to customers for clean yard waste and CDL brought to the station(s). Outreach materials, including radio, Internet, and newspaper advertising, could be developed that would help effect behavior change towards the State's Beyond Waste vision. On site processing would further promote the State plan goals.

Disadvantages: This alternative would incur costs for the development of separate areas for yard waste and CDL tipping at the facilities, and for handling of the materials.

- Import/Export

Currently, Mason County is not accepting solid waste from outside of its county borders. It is in the County's best interest to transport solid waste out of the County because of the regulations and costs associated with the construction of a new landfill.

Advantages: Maintains the existing solid waste system, and reduces liability associated with the construction, operation, and maintenance of a landfill.

Disadvantages: Under this system, the County relies on private sector operators to transport and dispose of waste. Contracts with these entities help to eliminate any uncertainty associated with costs and capacity, however the County does not have as much control as they would operating their own landfill.

4.3 SOLID WASTE DISPOSAL

In 1993, Mason County closed its landfill located on Eells Hill Road, north of Shelton. Construction of the Solid Waste Facility, a transfer station, was completed in 1993 on the same site.

Existing Practices

In 1993, a competitive bidding process was conducted by Lewis County and Grays Harbor County on behalf of those counties and additional counties, including Mason County. Regional Disposal Company was selected to own, provide, and operate facilities to transport and dispose of waste for the County. In 1994 the contract was modified to include the use of rail transportation for disposal of the waste. A further addendum to the contract in 1997 extended the life of the contract through the year 2013. Under the contract, solid waste is transported from the Solid Waste Facility by trailer by LeMay Inc., a subcontractor for Regional Disposal Company (RDC), to Lewis County. It is then transferred to rail car and taken to the Roosevelt Regional Landfill (owned and operated by the Rabanco Company of Seattle) in Klickitat County, Washington.

Needs and Opportunities

The existing system of contracting with a private hauler to transport waste from the solid waste facility by trailer, and then transferring the trailer to a railcar for transport to the Roosevelt Regional Landfill in Klickitat County is a costly operation for the

County. A more cost effective method may be to develop an intermodal transfer station in Mason County, thereby eliminating the trailer transport phase of the system. There is a need to compare the costs of the current transport method with different transport scenarios, to determine if there is a more cost effective method for the County. Several variables could influence the need to pursue such a strategy, such as: factors effecting costs; availability of a viable site; limited expansion at current facilities; systemic or procedural changes inside or outside of Mason County; significant or unanticipated growth; and also continued or escalated growth in per capita disposal.

Alternatives

- *Develop Intermodal Transfer Station*

In an effort to compare the current transport method for waste enroute to the Roosevelt Regional Landfill, a computer model was used. The model calculated the cost of waste movement between Mason County and the landfill. By running the model for different transport scenarios, a comparison of costs between the scenarios was made. The results of computer modeling are presented in Table 4.8, comparing the existing transport system with scenarios where waste is rail hauled from a new intermodal transfer station in Mason County to Roosevelt, and where waste is trucked all the way to Roosevelt.

TABLE 4.8 COMPARISON OF WASTE TRANSPORT OPTIONS

	Truck Transport ($/yr)	Rail Transport ($/yr)	Additional Cost (own, operate, and maintain) ($/yr)	Total ($/yr) 2005: 1,571,425
Existing System	$361,000	$718,000	Baseline	$1,079,000
Rail Haul - New Station to Roosevelt	$0	$890,000	$850,000	$1,740,000
Truck Haul - Shelton to Roosevelt	$1,880,000	$0	$0	$1,880,000

Advantages: Would reduce existing costs associated with truck transport. In addition, under the existing operating scenario, if the rail system fails to deliver rail cars or a waste container, RDC is obligated to truck haul the waste to Roosevelt at no additional cost to Mason County. Furthermore, under the current operating scenario, RDC is responsible for coordinating and managing the railroad portion of the system.

Disadvantages: Based on the information developed in the computer model at this time, it is not cost effective to build a new intermodal transfer station to rail haul, or to truck haul waste to Roosevelt Regional Landfill.

4.4 SOLID WASTE INCINERATION / ENERGY RECOVERY

Incineration involves burning solid waste to reduce both its weight and volume. The resulting ash requires significantly less landfill volume than the original waste. When used with an energy recovery system, incineration can also produce steam and/or electricity for sale. Increasingly stringent environmental regulations and adverse public sentiment, however, has made the siting and operation of incinerators more difficult and expensive.

Existing Conditions

To date, no consideration has been given to energy recovery as a tool in solid waste management in Mason County. There are no existing plans, programs or facilities for utilizing municipal solid waste for energy recovery in the County.

Needs and Opportunities

There will continue to be a need for disposal of solid waste in the future, although the existing waste export system currently meets this need in a satisfactory manner. Incineration is a technically viable method of reducing waste volumes, and reducing the production of methane (a greenhouse gas) from landfills. It can also use an underutilized renewable resource (solid waste) to produce electricity, for which there is an ever-increasing demand. However, Mason County currently has a low disposal rate in relation to neighboring counties. While cost of disposal will rise in the future, it is unlikely that cost increases associated with the transporting of solid waste will make energy recovery cost efficient on a large scale. In addition, there is considerable technical controversy about the extent and severity of health risks associated with incineration.

Alternatives and Evaluation

1. Incineration/Energy Recovery

There are several options and variations possible with incineration. These options include a choice of different burning technologies, waste streams, and energy recovery systems. Incineration is generally considered where there are environmental concerns with other disposal options, where a market exists for energy recovered from waste combustion, where it is a financially feasible and more desirable option, and/or other factors.

Advantages: At the present time, there appear to be no factors that would favor incineration in Mason County over other disposal methods.

Disadvantages: The quantities of waste generated in Mason County would not support the costs to design, construct, operate and maintain a waste-to-energy or other type of incineration facility.

Recommendations

The following actions related to solid waste collection, transfer, disposal, and incineration/energy recovery are recommended for this Plan:

1. Develop separate organic waste and construction and demolition waste tipping areas at the Shelton Transfer Station Facility where materials collected could either be processed onsite or transferred to an existing private composting operation in Mason County.

2. Continue to review and evaluate operational procedures at all of the solid waste collection facilities to reduce waiting times during peak-use periods.

3. Explore new opportunities for public/private partnerships dealing with improving solid and special waste collection, processing, transport, and disposal.

CHAPTER 5: SOLID WASTE ADMINISTRATION AND ENFORCEMENT

This chapter provides a comprehensive look at the enforcement and administration of the solid waste system for the City of Shelton and Mason County. Each section will discuss existing conditions, needs and opportunities, and will make recommendations based on an evaluation of alternatives. The chapter is divided into the following sections:

5.1 Solid Waste Administration
5.2 Solid Waste Enforcement

5.1 SOLID WASTE ADMINISTRATION

The solid waste planning goal for administration is to ensure that Mason County's Utilities and Waste Management and the City of Shelton's Public Works departments are adequately staffed, trained, and managed for coordination of solid waste activities.

Existing Practices

Mason County

The County's solid waste utility is housed under the Department of Utilities and Waste Management. The director of Utilities and Waste Management is responsible for managing the solid waste and sewer systems for the County. The solid waste services for the County are funded through fees collected at the solid waste facility, drop box stations, and a solid waste grant funded by Ecology. The Department of Utilities and Waste Management consists of a director, Deputy Director, Solid Waste manager/recycling coordinator, six transfer station attendants, four (including a lead) employees who work on the transfer station tipping floor, secretary, and two accountants.

City of Shelton

The City's solid waste utility is included with other functions of the City's Public Works Department. The director of Public Works is responsible for garbage service, roads, water, sewer, and storm utilities for the City. The solid waste programs for the City of Shelton are funded through garbage collection fees and a grant funded by Ecology. The Department of Public Works consists of a director, engineer, part-time projects engineer, CAD technician, engineering technician, superintendent of crews, recycling coordinator, secretary, and 25 employees who work on the division crews (water, sewer, garbage, and roads).

Needs and Opportunities

Staffing is currently inadequate to handle the existing solid waste administration and operations in the County. Recent changes in the City should increase their capacity to manage waste.

Alternatives and Evaluation

1. Additional Staff

If the County intends to continue its role as solid waste managers, then increased staffing may be required as the system matures and grows, becoming more demanding on existing staff.

As more homes are built within City limits, Shelton may need to increase staffing for its collection routes.

Advantages: Additional staff would provide for adequate administration of County and City solid waste programs, for both existing and future activities.

Disadvantages: Additional staff will require funding for those positions.

2. Privatization

To reduce the strain on local government, particularly if a decision is made not to increase staffing, privatization of some elements of the solid waste system may be desirable. The two system functions that may have the potential for privatization include:

- County transfer station operations
- City collection services

Several communities have collection systems and transfer stations operated by private enterprise, either leased or contracted. The County could continue to derive funding for its solid waste programs through a surcharge on tipping fees, but all other responsibility for transfer station construction, operation, and maintenance could be provided by a private company.

The City of Shelton considered privatizing its garbage collection service during 2003. Ultimately, the decision was made to keep the garbage service in-house. The two determining factors were quality of service and financial feasibility.

Advantages: By pursuing privatization, the County may be able to keep staff levels at or below their existing levels and decrease their requirements for administration. The

advantages to the City of Shelton would be reduced costs associated with the administration and operation of the collection system.

Disadvantages: The County would loose the revenue source associated with tipping fees at the transfer station. The quality of service presently enjoyed by City residents may decrease from privatization, and the City would lose the revenues associated with the collection fees paid by residents.

3. Additional Funding

As stated above, revenue required to fund solid waste programs has been generated through tipping fees for the County and collection fees for the City. Other alternatives exist for generating revenue for solid waste programs.

Internal Financing. Internal financing involves collecting funds from a preferred revenue source and paying for programs directly from this revenue or from a capital improvements fund established expressly for this purpose. In this alternative, the County would place a surcharge on the tipping fee at the transfer station or a surcharge on the collection bill and any funds generated that are surplus to the current needs of the system are placed in a capital improvements fund. As the fund grows, the opportunity for additional capital improvements to the system grows.

Advantages: The capital improvements fund can be used to finance small-scale projects, studies, and pilot programs.

Disadvantages: This method is not well suited for financing large capital expenditures because of the long period of time required for the fund to reach the required size.

General Obligation Bonds. General obligation bonds are the typical method of financing large scale capital improvements to a solid waste system. Under this method, the County is obligated to the bondholders for repayment. Repayment of the bonds would be made through whatever means of generating operating revenue for the solid waste system is used. The amount of General Obligation Debt a County may have is regulated by the State.

Advantages: Provides funding for large-scale capital improvements for the system.

Disadvantages: The County is obligated to the bondholders for repayment, and there is some risk if the operating revenue for the solid waste system is not adequate to repay the bonds.

Revenue Bonds. Revenue bonds are similar to general obligation bonds except that repayment is guaranteed through funds collected as part of a revenue producing activity (for example a landfill tipping fee). Revenue bonds may incur additional

obligations such as flow control ordinances and higher tipping fees than a general obligation bond because repayment of the bonds is not tied to the County as a whole, but rather to the revenue stream generated by solid waste activities.

Advantages: Provides a source of funding for large-scale capital improvements for the solid waste system.

Disadvantages: Revenue bonds may incur additional obligations such as flow control ordinances and higher tipping fees than a general obligation bond because repayment of the bonds is not tied to the County as a whole, but rather to the revenue stream generated by solid waste activities.

Industrial Development Bonds. For joint ventures between private enterprise and the County, Industrial Development Bonds (IDB's) may be used for funding capital improvements. IDB's are particularly common in financing waste-to-energy projects; however, other joint ventures may be amenable to this form of joint cooperation.

Advantages: Provides a source of funding for large scale capital improvements for the solid waste system.

Disadvantages: There is a statewide cap for such bonds, so any project would have to compete with other projects throughout the State.

Grant Funding. The County and City of Shelton receive grant monies from Ecology under the Coordinated Prevention Grant. These funds are only to be used for programs relating to waste reduction and recycling, and the management and prevention of hazardous waste. Additional grant funding could be sought as these programs expand.

Advantages: Funding is available from the State on a bi-annual basis, and can provide necessary funding for solid waste programs for the County and City.

Disadvantages: Funding is not guaranteed, and can be drastically reduced by the Legislature during any given year, as seen in the 2005 Legislative session.

Private Financing. Private solid waste projects can be financed through private sources. This method of funding capital improvements and programs is more expensive than the previously mentioned programs. For private projects, however, private financing is preferred. The cost of privately financed projects is recovered through charges to customers using the facility. For example, if the County pursued privatization of its transfer station operations and the private contractor wanted to upgrade the facilities to handle collection vehicles, these improvements could be financed through private sources and the funds recovered through charging the collection company for the service rendered.

Advantages: Would provide financing for facility upgrades, and the funds would be recovered through charges to customers using the facility, or charging the private company for services rendered.

Disadvantages: This method of funding capital improvements and programs is generally more expensive the other alternatives.

Enterprise Fund. The enterprise fund is established under provisions of the Governmental Accounting Standards Board's 1987 Codification of Governmental Accounting and Financial Reporting Standards, Section 1300.104. In this method, a special fund is established and revenues collected are deposited in the fund. As funds accumulate, they may be used to provide for internal financing of less capital intensive projects. The enterprise fund monies can also be obligated to repaying revenue bonds for large capital projects.

Advantages: Is the current method used to fund daily solid waste activities by the County. Could be used by the City to fund daily operations. Can provide for internal financing of less capital intensive projects, and can be used to repay revenue bonds for large capital projects.

Disadvantages: If revenues do not meet expected levels, the enterprise fund will not be adequate for funding daily solid waste activities of the County or City.

General Fund. General fund financing of solid waste activities is an additional option although it has significant drawbacks. In this alternative a solid waste budget would be developed and approved through normal County methods. The solid waste activities would compete with other projects for available funds. All revenues collected from tipping fees or from enforcement actions would be directed to the County's general fund.

Advantages: General fund financing of some activities related to solid waste could be considered. These activities would be in areas where responsibilities are shared with other departments, such as enforcement by the Sheriff's Department or Health Department. General Fund financing may be the best alternative for these programs because it is consistent with the existing funding mechanism for those agencies. In addition, it would be difficult to define exactly how much of the cost of such a program is directly related to solid waste.

Disadvantages: To provide the required funds to establish solid waste programs under this alternative may require a general tax increase. In general a tax increase is difficult to implement even for the most needy programs, and no guarantee can be made as to its ability to be implemented. Without a tax increase, other County programs would suffer to pay for solid waste activities. This alternative allocates the cost of the solid waste system to all citizens of the County whether they have garbage service or not.

General fund financing of solid waste programs would make it difficult to establish a rate incentive for recycling and would make it more difficult to add future programs because of the process that must be followed to establish a budget and fund it. General fund financing is limited, and programs may not have sufficient priority in relation to other programs to receive adequate funding.

To accommodate the long-term financial obligations related to managing the County's solid waste system, a rate review and adjustment might be required. The rate review should reflect the cost of new programs, development of new facilities, and ongoing maintenance and monitoring during the post closure period. In general, all costs associated with construction, operation, post closure costs, and management of the solid waste system in the County could be paid for with funds collected at the transfer station. However, it is likely to require a rate increase. With a rate increase, the risk of increased illegal dumping is possible. Mandatory collection could help minimize this risk. The new tipping fee should be equitable and reflect the actual cost of the solid waste handling system.

Collection Company/Private Operator Fees. Another option for funding solid waste programs is to collect funds through the collection companies. Any collection company operating within the County could be required to charge a County administration fee. This revenue would be turned over directly to the County. If privatization of the transfer station were pursued, a similar method could be used to place a surcharge on the tipping fee that would fund County programs.
Advantages: Provides funding for daily operations and some capital improvement projects.

Disadvantages: Fees are typically based on tonnage collected or gross revenues. If anticipated tonnages or revenues are lower than anticipated, funds would not be available for planned programs or facilities improvements.

5.2 SOLID WASTE ENFORCEMENT

The planning goal for solid waste enforcement is to ensure that the Mason County Department of Health Services' permitting, monitoring and compliance programs for solid waste are adequately funded, staffed, managed, and enforced.

At the Federal and State levels, the primary regulatory authorities for solid waste management are the U.S. Environmental Protection Agency (EPA) and the Washington State Department of Ecology, respectively. Mason County is in the jurisdiction of the southwest regional office of Ecology, located in Olympia, Washington. The following is a description of the laws that relate to solid waste enforcement:

- Resource Conservation and Recovery Act of 1976 (RCRA)—Federal:

Amended by Solid Waste Disposal Act Amendments of 1980. Primary body of legislation dealing with solid waste. Subtitle D of RCRA deals with non-hazardous solid waste disposal and requires that the state solid waste management program provide measures that all solid waste is disposed of in an environmentally sound manner.

- Washington State Solid Waste Management Act (70.95 RCW)—State:
  Assigns primary responsibility for solid waste handling to local governments, with waste reduction and recycling as a priority. Enforcement and regulatory responsibilities are assigned to cities, counties, or jurisdictional health departments, depending on activity and local preferences.

- Minimal Functional Standards for Solid Waste Handling (Chapter 173-304 WAC) —State:
  Developed by Ecology under the authority granted under Chapter 70.95 RCW. This chapter was superceded by Criteria for Municipal Solid Waste Landfills (173-351 WAC), which contains current standards for landfills, and Solid Waste Handling Standards (173-350 WAC) that addresses recycling and composting facilities, in addition to inert and special purpose landfills.

- Washington's Model Litter Control and Recycling Act (70.93 RCW)—State:
  Prohibits the deposit of garbage on any property not properly designated as a disposal site. Recent revisions (70.93.060 RCW) provide stiffer penalties for littering and illegal dumping in rural areas.

- The Washington Utilities and Transportation Commission (WUTC)—State:
  The WUTC is the ratemaking authority that determines the rates that hauling companies can charge. The WUTC also determines many of the rules under which the company must operate.

- City of Shelton Municipal Code—Local: Title 8 Health and Sanitation
  Provides authority for the solid waste utility, and directs enforcement and administration to the supervision of the city administrator with delegation authority to the public works director. Defines requirements of compulsory refuse and recyclables collection.

- Title 18 Building and Housing Maintenance—Local
  Establishes general rules and regulations for building, construction and manufactured home placement, and flood damage within the City and to promote public health, safety and general welfare of the residents and property owners in accordance with the standards established by the City, State and Federal laws, codes and regulations.

- Title 11 Vehicle Abatement Code—Local
  Establishes authority and guidelines for abatement and removal of unauthorized and derelict motor vehicles and parts.

- Mason County Local Code—Title 6 Sanitary Code, Solid Waste Handling
  Title 6, Sanitary Code
  Chapter 6.72 defines standards for solid waste and biosolids handling and facilities including storage, transportation, illegal dumping, financial assurance, permitting and handling special wastes.

  Title 15, Development Code
  The purpose of this title is to define parameters for application, review, enforcement, and approval processes for land development in Mason County. Chapter 15.13 provides inspection procedures to ensure property owners' rights aren't violated.

Existing Practices

Mason County

Mason County Environmental Health has been placed under the management of the Department of Health. Environmental Health is responsible for solid waste enforcement, permitting new solid waste facilities, monitoring and inspecting existing facilities, and responding to environmental health related complaints from the public. Environmental Health is currently staffed by two full-time employees. The focuses for compliance enforcement are illegal dumping, unapproved storage of hulk and inoperable vehicles, and solid waste violations on private property. The rural nature of the County provides many opportunities for illegal dumping, and makes it difficult for these sites to be identified other than by citizen complaints. Both the Sheriff's Department and the Department of Environmental Health typically receive the complaints. Once a complaint is received, the landowner is contacted for the cleanup of the site. Identified sites are then required to become compliant by permitting, proper closure, or abatement and blocking access where appropriate. In the event of non-cooperation, which is frequently the case for solid waste violations, compliance is enforced through the Mason County Title 6 Sanitary Code and Title 15 Development Code, and other proper legal processes.

City of Shelton

The code enforcement officer, in the Department of Community Development, handles solid waste enforcement for the City. Illegal dumping, litter control, solid waste nuisance abatement, and hulk vehicle removal are areas of solid waste enforcement in the City limits.

Needs and Opportunities

Illegal dumping, litter and abandoned vehicles and other bulky items are an ongoing problem in the County. Enforcement is ongoing, and staff at the Department of Environmental Health strives to maintain compliance. Additional education and

outreach is necessary to inform citizens of the need to clean up abandoned vehicles and other problems on their property. More effort is needed to encourage citizens to report illegal dumping sites. Additional litter abatement measures are needed to reduce the ongoing litter problems on County roads.

There is an increasing emphasis on utilization of sewage solids as a resource in land application. This has already impacted Environmental Health and has the potential for additional staff involvement.

There are several businesses, households and other facilities that generate exempt amounts of hazardous waste. These are not currently being addressed in the City or in Mason County. An additional employee may be necessary to implement an appropriate program including education, tracking, and monitoring with emphasis on education and follow-up.

There are several non-permitted landfills operating in Mason County. These non-permitted landfills are typically wood waste and demolition fills. Environmental Health is working to identify these locations and enforce permit requirements.

Alternatives and Evaluation

Several alternatives for increasing the monitoring and enforcement activity of the County in the area of solid waste will be discussed in this section, in addition to the benefits of a solid waste system evaluation. Of concern specifically is enforcement of special waste regulations, littering and illegal dumping, and new solid waste facility permits.

1. System Evaluation

In addition to classic methods of increasing authority (staff and funding for enforcement), consideration could also be given to the solid waste system itself. Large increases in illegal dumping could be viewed as public dissatisfaction with the system. Conversely, if the public supports recycling programs and environmental protection measures at the closed landfill, they could be more likely to support the programs by using the solid waste system.

A lack of public information and education could also contribute to poor understanding of County actions and an increase in enforcement requirements. However, some level of illegal dumping should be expected regardless of the level of public support, and enforcement methods would be required on some level.
Several Washington communities have addressed illegal dumping concerns by convening a task force to evaluate the roles of the county, city, and other relevant public agencies responsible for illegal dumping cleanup, education and prevention

programs. The evaluation should also include gathering data on quantities, composition and location of wastes being illegally disposed.

Advantages: Evaluation of the solid waste system structure and development of methods to make the system more acceptable could be one method of removing the need for extensive enforcement. A review of existing enforcement authority may result in restructuring the roles of existing staff and their enforcement approach. A better understanding of the system and subsequent actions to improve efficiencies will result in a more effective use of staff resources.

Disadvantages: Additional staff time is required, and related administrative budget.

2. New Ordinances

The Health Department can work with the Mason County Community Development Department to propose new ordinances that provide for methods of enforcement and also provide the Health Department authority for enforcing solid waste regulations. Areas of concern that may have a need for additional ordinances are infectious wastes, tire piles, illegal dumping, enforcement authority, mandatory collection in unincorporated areas, and waste category definitions and disposal methods. The SWMP can be used in conjunction with WAC 173-304, Mason County Title 6 Sanitary Code, and other environmental regulations to develop a coordinated approach to ordinances regarding solid waste. Examples of ordinances from other counties can be used as a guideline for developing Mason County's ordinances.

Advantages: Increased authority to respond to illegal dumping complaints. Promotes health safety and environmental quality to reduce the cost of cleanup.

Disadvantages: Staff time required to research needs, draft and implement new ordinances.

3. Interagency Coordination

The large number of different law enforcement agencies having jurisdiction in the County makes interagency cooperation in the enforcement of solid waste regulations essential. The County Sheriff, City of Shelton Police, Mason County Health Department, Washington State Patrol, State and National Park Rangers, and Tribal Police all have areas of jurisdiction. Each agency could be made aware of the procedure for reporting illegal dumping, even if enforcement of illegal dumping laws is not a priority for that agency. Consideration should be given to the development of an improved inter-agency reporting system that would allow field inspectors to work together in an efficient manner. An intranet database could be developed which would allow all affected agencies to record actions taken and future needs.

Advantages: Minimizes the duplication of investigative and administrative efforts.

Disadvantages: Cost of implementing a reporting system.

4. Improve Staff Efficiencies

Field staff often lack comprehensive training on how to prepare and document cases to ensure that successful enforcement actions can be taken. Numerous opportunities exist from non-profit professional and government agencies that provide training. The U.S. Environmental Protection Agency offers several training programs, which can greatly enhance an inspector's ability to respond to incidents and gain compliance. Topics include basic procedures and issues surrounding all aspects of an enforcement program, including information research, interviewing techniques, report writing, case development, field work, teamwork and case resolutions.

Advantages: More efficient and effective field inspections. Increased resolution of cases.

Disadvantages: Staff time requirements and cost of training programs.

5. Health Department Staffing and Training

The Health Department is the agency responsible for monitoring and enforcing solid waste regulations as well as permitting solid waste facilities. The Health Department is also responsible for overseeing proper decontamination of clandestine drug labs to insure public safety and health standards are met. As laws change, this task becomes more and more demanding and may require the Health Department to increase its staffing level and provide additional specialized training to some staff. In addition, future state regulations may require certification of at least one Health Department specialist involved in permitting and monitoring solid waste disposal sites.

Advantages: Increased public and environmental health and safety.

Disadvantages: Additional funding will be necessary to address program costs related to additional staff, training and program administration.

6. Enforcement Authority

The Health Department has the authority to enforce solid waste regulations, and to investigate, enforce, and ensure the cleanup of illegal dumping. The Sheriff's department or the State Patrol enforces littering laws. This authority includes ticketing, and the Hearings Examiner process where fines can be assessed as liens against real property. Prosecution of solid waste regulations are carried out by the prosecutor's office.

Increased enforcement authority could be granted through new ordinances described previously in this section. Partial revenues generated through enforcement of solid waste regulations could be provided to the Health Department to supplement their enforcement budget. This would require a change in the litter control ordinance recently established. Consideration should be given to strengthening enforcement authority by adding criminal penalties.

Advantages: Increased authority to respond to illegal dumping complaints. Promotes health safety and environmental quality to reduce the cost of cleanup. Revenues could offset costs for program implementation.

Disadvantages: Staff time required to research needs, and draft and implement new ordinances.

7. Public Education and Outreach

Increase the community's awareness of the impact of illegal dumping on property values and the environment. This can be accomplished by providing easy to use information on actions to take by those whose property has been illegally dumped on. An illegal dumping "hotline" number can be advertised to encourage reporting of illegal dump sites. The agency accepting the calls should be familiar with existing regulations and able to refer each case to the appropriate agency for response. A tracking system should be developed to collect data on each case.

Inquiries should be made of large landowners to identify any problems they may have with illegal dumping and methods they have used to discourage incidents. Educating landowners on how to secure their land in a manner that will discourage illegal dumping may provide assistance.

Consideration should be given to the development of coordinated efforts with agencies such as the Department of Corrections, local businesses and non-profit organizations that may be able to contribute funding and/or labor to assist in site clean up activities.

Advantages: Increased awareness and understanding should lead to a reduction in incidents of illegal dumping and facilitate site identification and clean up.

Disadvantages: Expense of printing and disseminating literature. Staff resources required to provide education.

8. Incentive Programs

A system may be developed to encourage voluntary clean up. Nonprofit organizations may be available to assist with litter clean up. An inventory of agencies in the county should be made, along with an assessment of potential resources. This should also

include contact with local high schools, as many require community service hours. Incentives can include public acknowledgments and awards.

Advantages: Certain landowners who experience illegal dumping on their property may be more motivated to initiate clean up if they were offered incentives such as free or reduced tipping fees.

Disadvantages: Increased staff time requirement to gather information and implement program.

9. Mandatory Collection in Unincorporated Areas

Tipping fees and garbage collection rates will increase in the future. With rising rates will come the possibility of increased illegal dumping and the associated enforcement concerns. One alternative for handling this problem is to pass a mandatory collection law. Under a mandatory collection ordinance, all County residents would be charged for a minimum level of refuse service whether they use it or not.

Mandatory collection could take several forms. The two most common methods of billing include a flat user fee or the imposition of a property tax. Care must be taken in accurate cost accounting, including an evaluation of the effects a decrease in self-haul will have on system equipment needs, effects on staffing levels, hours of operation and administration.

Advantages: Provides a direct economic incentive for proper waste disposal. Increased participation rates results in increased system revenue. Decreases the likelihood of illegal dumping, thus the need for increased enforcement efforts.

Disadvantages: Mandatory collection could be strongly opposed by residents that self-haul refuse, burn refuse, or simply dislike mandatory programs. The benefits of mandatory collection must be weighed against the opposition of these individuals. In addition, some may feel the incentive to recycle is reduced.

10. Additional Funding

Similar funding options are available for enforcement practices as were described in Section 5.1. In particular, portions of the enterprise fund may be dedicated to funding specific enforcement programs in the Health Department and the Sheriff's Department. Investigate the potential of securing funds from the Department of Ecology for implementation of litter clean up and illegal dumping policies (CLCP grant).

Advantages: Increased funding for additional staff.

Disadvantages: None identified.

Recommendations

The following actions related to enforcement and administration are recommended for this Plan:

1. Explore additional abatement and public property cleanup funding alternatives.
2. Assist local regulatory and law enforcement agencies with the implementation and enforcement of new and existing laws and solid waste regulations.

CHAPTER 6: SPECIAL WASTE STREAMS

This chapter discusses those solid wastes that fall outside of the category of mixed municipal solid waste (MSW) because they require separate handling and/or disposal. This chapter is divided into the special wastes that are of particular interest to Mason County. Each section will discuss existing conditions, needs and opportunities, and recommendations based on an evaluation of alternatives. This chapter is divided into the following sections:

6.1 ANIMAL CARCASSES

The rural nature of Mason County and the presence of salmon-bearing waterways create the need for planning for disposal of animal carcasses. Various methods that currently exist include cremation at local veterinary clinics, use of a rendering service, or landfill disposal in accordance with general sanitation practices as stated in the Washington Administrative Code (WAC) 248-50-120.

Existing Practices

The primary generators of animal carcasses in Mason County include:

Animal Shelter: The City of Shelton animal shelter delivers animal mortalities to a local veterinary hospital where they are cremated.

Household Pets: As with farm animals (see below), pets are allowed to be buried on private property as long as there is room and if safe distances are maintained from surface waters. Deceased pets are also accepted at the transfer stations as long as they are triple bagged.

Farm Animals: The few animals that die on farms are allowed to be buried on-site as long as safe distances are maintained from surface waters or wells. Deceased farm animals are also accepted at the transfer stations as long as they are triple bagged.

Roadkill: Dead animals collected from the roadside are buried, picked up by a rendering service, or cremated through local veterinary offices, depending on where the animal is found (which determines whether the State, County, Tribe or City have jurisdiction) and the type of

animal (rendering companies are prohibited from accepting wild game). They also may be accepted at the transfer station as long as they are triple bagged.

Salmon: Fishing practices by the Skokomish Tribe previously included the disposal of salmon carcasses directly into the marine waters of the Hood Canal. This practice has ceased and alternative methods of disposal are being used and evaluated.

Needs and Opportunities

In the event of a contagious disease, such as BSE ('mad cow disease'), which results in the death of a large number of farm animals, Mason County does not have a course of action in place. It is important to recognize the need for a plan of disposal should the situation arise.

In 2004, studies showed that the practice of disposal of salmon carcasses into the Hood Canal was contributing to a "dead zone"—dissolved oxygen concentrations were reaching unacceptable levels. The Mason County Conservation District, in cooperation with Skokomish Valley Ag Producers, the Skokomish Indian Tribe and the Department of Corrections have launched a joint effort to develop alternatives for handling this waste stream. This has resulted in the solicitation of proposals for construction of an anaerobic digester, which could handle salmon, food, and cattle waste. By products of this operation would result in marketable products including liquid fertilizer, biogas (with the potential for use as alterative energy) and fiber by-products.

Alternatives and Evaluation

1. *Explore alternatives to the disposal of large animals infected with contagious diseases and provide education to farmers.*_

Risk mitigation measures implemented in 2005 have significantly reduced the probability of incidents of mad cow disease in the United States. However, if any incidents occur, it will be important for the protection of public health for a plan to be in place for safe and proper disposal of any infected animals.

Advantages: If an animal with mad cow disease is discovered in Mason County, a system will be in place to immediately and effectively manage the situation.

The County currently has organizations such as the Mason Conservation District, Farm Service Agency, and the Department of Natural Resources, in addition to the City and County news publications which may be utilized to alert farmers to the availability of information.

Disadvantages: Staff time will be required to conduct research and formulate a plan. Sensitivity will be required regarding communication to prevent any implication of an impending outbreak.

2. *Participate in discussions and provide assistance where necessary to assist with evaluations of proposed methods for handling salmon carcasses.*

Advantages: A forum has already been developed with staff that is actively evaluating the digester project.

A similar project exists in Whatcom County, which will provide baseline data for use in evaluating a similar project's success.
Disadvantages: As with any newly implemented technology, there may be unforeseen impacts that will require mitigation.

6.2 ASBESTOS

Asbestos is a fibrous mineral that was considered to be useful for many different applications, especially in fireproofing, until it was discovered that it causes lung cancer. The fibers are "friable", or crumble easily into very small particles, that become airborne and lodge into the lungs after being inhaled. Because pure asbestos was rarely used, the waste material of concern is any material that contains friable asbestos in quantities greater than one percent. There are some materials where the asbestos is not friable and so poses less of a health risk.

Existing Practices

Asbestos is currently not accepted at Mason County solid waste facilities, unless it is in amounts sufficient to fill an entire container so that it can remain segregated and shipped separately as a single load.

Needs and Opportunities

No planning needs exist for the current method of handling and disposing of asbestos in Mason County.

Alternatives and Evaluation

No alternatives were identified at this time.

6.3 BIOMEDICAL WASTE

Biomedical wastes are the potentially infectious and injurious wastes from medical, veterinary, or intermediate care facilities, as well as "sharps" (syringes) from residential sources.

Existing Practices

Medical facilities have the responsibility to determine which medical wastes are considered biomedical, and then arrange for the proper handling and disposal of these wastes. These

wastes should be placed in special bags or rigid plastic containers and then removed by licensed biomedical wastes collectors. All biomedical wastes generated by medical facilities are disposed of by private contractors.

Incidental medical wastes generated by households, businesses, and government agencies may be disposed of in the solid waste stream. These wastes should be properly prepared to prevent unintentional human contact by solid waste employees through the use of sharps containers and red bio-medical bags when appropriate.

"Residential sharps" should be disposed of in capped plastic beverage (PET) bottles and disposed of with MSW; however, sharps have been found improperly disposed of in several locations, including roadsides, recycling containers, and loose in garbage.

Needs and Opportunities

The disposal of residential sharps is an area where improvements are needed.

Alternatives and Evaluation

Public Education Campaign

Advantages: A public awareness campaign would educate the public on proper disposal of sharps, reducing exposure to solid waste workers. Printed information could be dispensed via hospitals, clinics, and pharmacies. Public service announcements could air on the local radio station.

Disadvantages: Requires funding to run an effective media campaign.

6.4 BIOSOLIDS

Biosolids are defined by WAC 173-308-080 as "municipal sewage sludge that is a primarily organic, semisolid product resulting from the wastewater treatment process that can be beneficially recycled and meets all applicable requirements under this chapter. Biosolids includes a material derived from sewage sludge, and septic tank sludge, also known as septage, that can be beneficially recycled and meets all applicable requirements." This type of material is specifically excluded from the definition of solid waste, although other wastes from the wastewater treatment process (such as grit, contaminated biosolids, screenings, sludge and ash) are still classified as solid waste.

Existing Practices

Treatment Plant

Mason County operates three sewage treatment plants. Biosolids from these plants are collected by a private hauler and transported to Bio-Recycling, located in Mason County on Webb Hill.

Biosolids from the City of Shelton sewage treatment plant (approximately 203 tons in 2005) is land applied to an 80-acre parcel of forested land owned by the Simpson Timber Company. The site is monitored by the City of Shelton and the Mason County Department of Health Services.

The Washington State Corrections Center also has its own small wastewater treatment plant on-site. Biosolids from this plant is land applied on grassland and timberlands within corrections center property.

All biosolid application within Mason County is subject to review by the Health Department and the requirements established by Ecology and the Environmental Protection Agency. Currently, a moratorium has been placed on all new biosolid land application permits in Mason County.

Septic Tank Sludge

Approximately 1,300,000 tons of septic sludge is generated in Mason County every year. Currently, septage wastes are disposed of at the Bio-Recycling facility.

Needs and Opportunities

Treatment Plant

The City is the lead agency for the multi-jurisdictional Shelton Area Regional Water and Wastewater Project. When implemented, the project will result in many significant environmental benefits including upgrading the City's biosolid treatment from Class B to Class A, which will be compostable.

Bio-Recycling is currently the only facility handling sewage sludge generated at the treatment plants. Should anything impair this operation, Mason County needs to have alternatives identified. Mason County has an existing biosolids de-watering capability, but has not received sufficient volumes to justify staffing requirements.

Septic Tank Sludge

The County needs to continue to support the Mason County Department of Health in their efforts to provide education and help homeowners to fix failing septic systems. In addition, the county should support efforts to field test new septic system technologies.

Alternatives and Evaluation

Septic sludge management alternatives include composting, land application, and co-treatment with wastewater. Landfill disposal of septage is not considered because Ecology has established through RCW 70.95.225 that landfill disposal of septage is the lowest priority method of utilization. Landfill disposal is to be considered only as a "last resort" alternative and only through utilization as a cover material.

1. Composting and Land Application

Advantages: The composted septage can be land applied to agricultural or forested lands to be used as a fertilizer, or may be used for land reclamation purposes in areas with poor soils. This alternative produces a marketable, useful product without incurring disposal expenses.

Disadvantages: Septage must be stabilized prior to utilization in the composting process. Stabilization involves mixing the septage with a chemical or treating it by other means to remove the pathogens and reduce or eliminate its odor. The addition of lime is a typical method of stabilization and is approved by Ecology. Once septage has been stabilized it then can be mixed with wood waste or processed yard debris. The mix is then stockpiled in windrows, turned occasionally and allowed to sit until the material is fully composted. This process requires labor and space.

2. Co-Treatment with Wastewater

Advantages: The infrastructure already exists to provide treatment of these wastes.

Disadvantages: This alternative assumes that adequate capacity is available at the wastewater treatment plants to handle the additional septage wastes. Currently, there are no wastewater facilities in Mason County willing to take septage sludge.

3. Land Application

Advantages: Current method of disposal and the standard method of sewage sludge management. This is a method that must still be managed properly but still has a number of beneficial impacts on the land. The current moratorium on new biosolid land application permits will prevent the use of any additional locations until the moratorium is lifted.

Disadvantages: Plant tolerance of metal concentrations present in sewage sludge that is land applied must be considered when choosing the type of preferred land application (agricultural lands, forest lands, and land reclamation sites).

4. Composting

Biosolids can be converted to a good quality compost material through mixing with yard debris or wood waste. The compost produced can be of a very high quality and can be utilized for landscaping or as a soil amendment at nurseries.

Advantages: Produces a marketable, useful product. No disposal expenses are incurred.

Disadvantages: Requires the production of Class A biosolids. Upgrades would be needed at existing treatment facilities to produce this class of biosolids. Requires strict monitoring to test for concentrations of metals, nitrogen, and phosphorous and the results provided to potential end-users.

6.5 CONSTRUCTION AND DEMOLITION (C&D) WASTES

Construction and demolition wastes are defined simply as the wastes that are generated from construction and demolition activities. These wastes consist of wood, concrete, gypsum, roofing, glass, carpet and pad, metals, asphalt, bricks, and porcelain. Land clearing wastes, including soil, stumps and brush, are also sometimes included in this category, but these materials are rarely treated as waste.

A category closely related to C&D is "inert wastes." Inert wastes (wastes that will not burn, or create harmful leachate or gases, etc.) are defined to include some types of C&D wastes, such as concrete and asphalt, but specifically excludes sheetrock, wood, roofing and demolition wastes. The State rules adopted in February 2003 (Ch. 173-350 WAC) provide a more lenient regulatory status for inert wastes than C&D wastes, with disposal requirements that are less strict.

Existing Practices

The production of C&D wastes peak during the spring and summer when most construction and remodeling activities occur. C&D wastes that are brought to the Solid Waste Facility are currently exported along with other MSW generated within the County. In 2005, 7,127.51 tons of C&D wastes were brought to this facility for disposal (an increase of 743 tons from the previous year).

There are a number of private facilities in the County that accept some types of C&D wastes for end-uses as compost or hog fuel: Mason County Wood Recyclers, North Mason Fiber, Spencer Lake Wood Recyclers, Peninsula Topsoil, Bill McTurnal Enterprises, and B-Line.

There are a number of non-permitted or illegal C&D dumps in Mason County. As the County Health Department becomes aware of these sites, they are brought into compliance. These sites contain C&D wastes, wood wastes, and other materials that may or may not include MSW.

Needs and Opportunities

With a high rate of growth occurring and predicted into the future in the City of Shelton and unincorporated Mason County, C&D wastes will continue to be a prominent special wastes issue. Mason County has the opportunity to reach much higher diversion rates of C&D wastes than previously attained. Currently, if C&D wastes reach the Solid Waste Facility they are not separated out of the from the MSW stream in the way that scrap metal and tires are diverted.

Alternatives and Evaluation

1. Facility Diversion

All C&D wastes that arrive at the Solid Waste Facility would be separated in the same way that the metals and tires are handled. The materials would then be transported to a facility for processing.

Advantages: The capacity of landfills should be reserved for wastes that cannot be disposed of elsewhere. This alternative would provide residents the convenience of making one trip to dispose of all the waste. The C&D waste would be diverted from the landfill to a recycling operation. This alternative is in keeping with the State's Beyond Waste Plan, which encourages viewing wastes as a resource. If the cost of diverting this resource is less than the cost of transporting it to the regional landfill, the public could, potentially, pay less than the MSW per ton fee to dispose of C&D waste.

Disadvantages: Special handling of this waste would require space for pile storage or a facility for customer drop box depositing and storage. A firm would also need to be hired to haul and/or accept the C&D wastes collected. It would, potentially, also require a rate change to account for the new, segregated material.

2. Public Education

Continue to inform residents and businesses of the local, private C&D recycling operations in Mason County.

Advantages: This is already happening on a seasonal basis for the residents of the City of Shelton. It does not require any added commitments from the County.

Disadvantages: This method relies on residents and businesses to be both aware of wood recyclers in the area and willing to transport their wastes to those sites. Does not provide customers the convenience of making a trip to one location to dispose of their wastes. There is currently little outreach to the residents of unincorporated Mason County about the C&D recycling opportunities.

3. Disposal Ban

Because of the number of C&D wastes collection facilities in operation in Mason County, a ban of C&D wastes could be put in place at the transfer station and outlying drop box stations.

Advantages: The County would not have to shoulder the burden of this growing waste stream.

Disadvantages: Any type of ban can elicit a negative reaction from the public. Depending on the political climate, a ban may not be feasible or sustainable. A ban of C&D disposal at the County facility may lead to increased illegal dumping of these materials.

6.6 DISASTER DEBRIS

Existing Practices

The contracted hauler, Rabanco, is contractually obligated to haul, without charge, three days of disaster debris.

Needs and Opportunities

No planning needs exist for the current method of handling and disposing of disaster debris in Mason County.

Alternatives and Evaluation

No alternatives were identified at this time.

6.7 ELECTRONIC WASTE

For the purposes of this Plan, electronic waste—or "e-waste" as it is known in the solid waste industry—refers to discarded computers, monitors, and televisions.

The past decade has seen swift growth in the manufacture and sale of consumer electronic products. Advances in technology have led to better, smaller, and cheaper products. Industry analysts give every indication that the trend toward rapid introduction of new electronic products will continue.

As the production and use of electronic products continues to grow, the challenge of recovery and disposal is becoming significant. The average life span of a personal computer is currently about 2-3 years. Ecology estimates that between 2003 and 2010, over 4.5 million computer processing units, 3.5 million cathode ray tube monitors, and 1.5 million flat panel monitors will become obsolete in Washington. Electronics that break are often are not repaired due to the relatively low price of replacement equipment. When the equipment breaks or becomes obsolete, it is commonly discarded.

Computer monitors and older TV picture tubes contain an average of four pounds of lead and require special handling at the end of their lives. In addition to lead, electronics can contain chromium, cadmium, mercury, beryllium, nickel, zinc, and brominated flame retardants. Many state and local government agencies are concerned about how to ensure proper management of older electronic equipment.

In response to this growing concern, Ecology was required by ESHB 2488 in the 2004 Legislative Session to conduct research and develop recommendations for implementing and financing an electronic product collection, recycling, and reuse program within the State. In

December 2005, Ecology published its report recommending a system. The report recommends that the Legislature adopt a recycling program that is financed by the manufacturers of those products. Under Ecology's recommendations, manufacturers would be required to provide recycling services throughout the State, or they would not be able to sell their products in Washington. Manufacturers could choose to either pay a product stewardship fee based on their sales to fund a State-run program or they may operate their own independent program. If a manufacturer chooses to operate its own independent program, it would be required to establish collection points (at least one site in every county) and provide recycling to consumers at no cost. The recycling program would apply to televisions, personal computers, laptop computers, and computer monitors.

Washington State's legislature passed a law (SB 6428) in 2006 requiring computer and television manufacturers to provide free recycling of their products throughout the state. This service will be available to households, small governments, small businesses and charities by January 1, 2009, and Ecology will oversee this program. Electronic products that are covered include cathode ray tube (CRT) or flat panel computer monitors having a viewable area greater than four inches when measured diagonally, desktop computers, laptops or portable computers, or CRT or flat panel televisions having a viewable area greater than four inches when measured diagonally. See SB 6428 (Section 2(6)) for those electronic products that are not covered under this new regulation. Also, an Ecology publication (Number 06-07-005) is a background document on "*Implementing and Financing An Electronic Product Collection, Recycling and Reuse Program for Washington State.*"

Existing Practices

Currently, e-waste products enter the solid waste stream in Mason County with other types of accepted wastes, all of which are destined for the Roosevelt Regional Landfill.

Needs and Opportunities

Given that the direction taken by the State will have a significant impact on the role local governments will have in the recovery of electronics in the future, it may be prudent to reevaluate the need for a local computer and television electronics recycling program in a amendment to this plan or during a future plan update. Ultimately, there may be a need for Mason County to provide recycling programs for other electronics, such as cell phones, and equipment such as CD players, VCR's, and audio equipment that may not be covered by pending legislation.

Alternatives and Evaluation

1. State Plan Support

Mason County and the City of Shelton could support the State system by providing outreach to its residents regarding the new system.

Advantages: By educating residents on where to take their e-waste in the new collection program, these materials will be kept out of the local waste stream and eventually out of the regional landfill.

Disadvantages: May require additional staff time and resources.

2. County-operated Collection Site

In the absence of a statewide collection system, Mason County may choose to operate a collection site for e-waste at the Solid Waste Facility.

Advantages: By offering an alternative to County residents to be able to divert their e-waste from the solid waste stream, these hazardous materials will be handled in an environmentally preferred manner.

Disadvantages: Given the momentum towards a producer responsibility program for the statewide collection of e-waste, Mason County may not want to become responsible for yet another waste stream. To do so on a semi-permanent or permanent basis would require a covered storage area for the collected electronics, additional staff time, a new e-waste rate to cover the cost of the recycling, and public outreach to notify residents of the change. A landfill ban may also be required to ensure that the electronic products do not enter the general waste stream.

3. Collection Events

Annual or seasonal e-waste collection events could be held by Mason County or the City of Shelton. These events are usually co-sponsored by a retailer or electronics recycling firm and typically accept e-waste from residents at a nominal fee for a one-day-only period.

Advantages: By offering a convenient alternative to residents to be able to divert their e-waste from the solid waste stream, these hazardous materials will be handled in an environmentally preferred manner. This alternative is also easily replaced if a statewide system is instituted.

Disadvantages: Staff time and resources would be required to set up and advertise a collection event. Some members of the public resent having to pay a fee to recycle their e-waste and would not participate, lessening to positive impact of the event on the areas waste stream.

4. Landfill Ban

To keep the hazardous materials associated with e-waste out of the waste stream, the County could ban their acceptance at all solid waste collection facilities.

Advantages: This alternative would only be effective if an e-waste collection system existed for County residents. If a collection system were in place, this alternative would ensure that all units are kept out of the general waste stream.

Disadvantages: If there is no collection system in place when the ban takes effect, e-waste would likely become an illegal dumping problem.

6.8 TIRES

In 2005, 1,887 tires were collected at the Mason County Solid Waste Facility and the Belfair site. Tires present a special problem for landfill operations in that they tend to "float" to the surface once buried. Because of their shape and tendency to hold air, tires will work their way to the surface of a landfill over time. Tires also cause problems for compaction equipment and can disrupt the final landfill cover. For these reasons, tires are usually not accepted at landfills and, therefore, require special handling.

Existing Practices

Currently, all tires accepted at the Solid Waste Facility are separated, stored in temporary piles, and collected by a private contractor and recycled. Tires that are contaminated (i.e., filled with dirt or Styrofoam) must be cut in half before being landfilled.

Needs and Opportunities

No planning needs exist for the current method of handling and disposing of tires in Mason County.

Alternatives and Evaluation

No alternatives were identified at this time.

6.9 WOOD WASTE

This section examines primarily wood waste from logging operations, which is discussed separately from wood waste that may be contained in the construction and demolition waste stream (see Section 6.5). Yard waste (organic waste debris that comes from residential yard maintenance) is not discussed here (see Chapter 3). Each of these wastes (wood waste, C&D

wastes, and yard debris) originates from varying sources and it is useful to look at them individually even though the State regulations handle their disposal under the same law.

Existing Practices

The majority of wood wastes are burned and/or disposed of in private landfills. Currently, wood wastes are not accepted at the transfer stations in large quantities, however small quantities may still be accepted for disposal.

There are a number of private facilities in the County that accept wood wastes for end-uses as compost or hog fuel: Bill McTurnal Enterprises, Mason County Wood Recyclers, North Mason Fiber, B-Line, Peninsula Top Soil and Spencer Lake Wood Recyclers.

Needs and Opportunities

The County should continue to investigate the feasibility of recycling wood wastes and diverting these materials to appropriate facilities.

Alternatives and Evaluation

1. Facility Diversion

All wood wastes that arrive at the Solid Waste Facility would be separated in the same way that the metals and tires are handled.

Advantages: The capacity of landfills should be reserved for wastes that cannot be disposed of elsewhere. This alternative would provide residents the convenience of making one trip to dispose of all the waste. The wood waste would be diverted from the landfill to a recycling operation. This alternative is in keeping with the State's Beyond Waste Plan, which encourages viewing wastes as a resource. If the cost of diverting this resource were less than the cost of transporting it to the regional landfill, the public would, potentially, pay less than the MSW per ton fee to dispose of wood waste.

Disadvantages: Special handling of this waste would require space for pile storage or a facility for customer drop box depositing and storage. A firm would also need to be hired to haul and/or accept the wood wastes collected. It would, potentially, also require a rate change to account for the new, segregated material.

2. Public Education

Continue to inform residents and businesses of the local, private wood waste recycling operations in Mason County.

Advantages: This is already happening on a seasonal basis for the residents of the City of Shelton. It does not require any added commitments from the County.

Disadvantages: This method relies on residents and businesses to be both aware of wood recyclers in the area and willing to transport their wastes to those sites. Does not provide customers the convenience of making a trip to one location to dispose of their wastes. There is currently little outreach to the residents of unincorporated Mason County about the wood waste recycling opportunities.

3. Disposal Ban

Because of the number of wood waste collection facilities in operation in Mason County, a total ban of wood wastes could be put in place at the transfer station and outlying drop box stations.

Advantages: This would provide a clearer policy in regard to this waste than is currently in place.

Disadvantages: Any type of ban can elicit a negative reaction from the public. Depending on the political climate, a ban may not be feasible or sustainable. A ban of wood waste disposal at the County facility may lead to increase illegal dumping of these materials.

APPENDIX A

Washington State's Beyond Waste Plan

Identified Priorities and System Issues

Beyond Waste Initiatives and System Issues		
Initiative:	**Moving Toward Beyond Waste with Industries (IND)**	
Recommendations:	**IND1.**	Focus on sector work
	IND2.	Specific sectors to focus on
	IND3.	Develop a standardized process for sector work
	IND4.	Develop specific tools for sector work
	IND5.	Modify the Pollution Prevention Planning Program to dovetail with the Beyond Waste vision
	IND6.	Expand information on Ecology's website
	IND7.	Form a work group on low-interest loans
	IND8.	Negotiate the state agreement with EPA
	IND9.	Collaborate with affected parties to explore changes to hazardous waste fees and taxes
	IND10.	Explore ways to implement Beyond Waste incentives
	IND11.	Encourage new businesses to adopt sustainability practices
	IND12.	Encourage waste handlers to become materials brokers
	IND13.	Support EPA's "Beyond Waste-type" efforts
	IND14.	Promote sustainability in product development
Initiative:	**Reducing Small-Volume Hazardous Materials & Wastes (MRW)**	
Recommendations:	**MRW1.**	Prioritize substances to pursue
	MRW2.	Reduce threats from mercury
	MRW3.	Reduce threats from PBDE's
	MRW4.	Develop an electronics product stewardship infrastructure
	MRW5.	Ensure proper use of pesticides, including effective alternatives
	MRW6.	Reduce and manage all architectural paint wastes
	MRW7.	Lead by example in state government
	MRW8.	Ensure MRW and hazardous substances are managed according to hazards, toxicity, and risk
	MRW9.	Fully implement local hazardous waste plans
	MRW10.	Ensure facilities handling mRW are in compliance with environmental laws and regulations
Initiative:	**Increasing Recycling for Organic Materials (ORG)**	
Recommendations:	**ORG1.**	Lead by example in state government
	ORG2.	Increase residential and commercial organics recovery programs
	ORG3.	Improve quality of recycled organic products
	ORG4.	Develop a strategy to increase industrial and agricultural organics recovery
	ORG5.	Propose solutions to statutory and regulatory barriers
	ORG6.	Develop new products and technologies for organic residuals

Beyond Waste Initiatives and System Issues *continued*		
Initiative:	**Making Green Building Practices Mainstream (GB)**	
Recommendations:	**GB1:**	Coordinate and facilitate partnerships to implement the green building action plan
	GB2:	Lead by example in state government
	GB3:	Provide incentives that encourage green design, construction, and deconstruction, and begin removing disincentives
	GB4:	Expand capacity and markets for reusing and recycling construction and demolition materials
	GB5:	Provide and promote statewide residential green building programs
	GB6:	Increase awareness, knowledge and access to green building resources
	GB7:	Encourage innovative product design
Initiative:	**Measuring Progress Toward Beyond Waste (DATA)**	
Recommendations:	**DATA1.**	Conduct a feasibility study to determine which major indicators to use
	DATA2.	Continue the work of Ecology's data team to produce a joint Beyond Waste progress report
	DATA3.	Discuss indicators for each initiative
Section:	**Current Hazardous Waste System Issues (HW)**	
Recommendations:	**HW1.**	Encourage P2 planners to address hazardous substance use including toxicity and risk in their P2 plans
	HW2.	Develop an EMS hybrid model and guidance
	HW3.	Improve P2 plan quality and relationships with P2 planners
	HW4.	Strive for better relationships with the regulated community
	HW5.	Work to ensure greater compliance with the regulations
	HW6.	Modify the *Dangerous Waste Regulations* to encourage more waste and toxics minimization, including upcycling
	HW7.	Ensure hazardous waste management facilities are operated in a safe manner
	HW8.	Develop accurate cost estimates for closure/corrective action
	HW9.	Reduce the administrative burden for corrective action facilities
	HW10.	Explore private /public partnerships
Section:	**Current Solid Waste System Issues (SW)**	
Recommendations:	**SW1.**	Encourage inclusion of Beyond Waste principles into local plans
	SW2.	Revise local planning guidelines
	SW3.	Expand assistance to local planning jurisdictions
	SW4.	Collaborate with local government
	SW5.	Ensure responsibilities are clear
	SW6.	Characterize Washington's solid waste streams
	SW7.	Plan for a stronger technical recycling system

Beyond Waste Initiatives and System Issues *continued*		
Section:	**Current Solid Waste System Issues (SW)**	
Recommendations:	**SW8.**	Identify closed and abandoned sites statewide
	SW9.	Evaluate and prioritize problems at closed sites
	SW10.	Develop feasible and responsible processes for addressing priority sites
	SW11.	Identify funding to address priority sites
	SW12.	Ensure that existing disposal facilities comply with requirements
	SW13.	Continually reduce disposal impacts on human health and the environment
	SW14.	Evaluate financing for the solid waste system, including moving toward Beyond Waste, in consultation with the SWAC and interested parties

APPENDIX B

Washington Utilities and Transportation Commission

COST ASSESSMENT QUESTIONNAIRE

Please provide the information requested below:

PLAN PREPARED FOR THE COUNTY OF: **MASON**

PLAN PREPARED FOR THE CITY OF: **N/A**

PREPARED BY: **SCS ENGINEERS**

CONTACT TELEPHONE: **562-426-9544** **DATE:** **JUNE 23, 2006**

DEFINITIONS

Please provide these definitions as used in the Solid Waste Management Plan and the Cost Assessment Questionnaire.

Throughout this document:

YR.1 shall refer to 2005.
YR.3 shall refer to 2007.
YR.6 shall refer to 2010.

Year refers to (circle one): **Calendar** (Jan 01 - Dec 31)
Fiscal (Jul 01 - Jun 30)

1. DEMOGRAPHICS: To assess the generation, recycling, and disposal rates of an area, it is necessary to have population data. This information is available from many sources (e.g. the State Data Book, County Business Patterns, or the State Office of Finance and Management).

1. **Population**

    1. What is the **total** population of your County/City?

        YR.1 51,900 YR.3 54,582 YR.6 58,604

    2. For counties, what is the population of the area **under your jurisdiction**? (Exclude cities choosing to develop their own solid waste management system)

        YR.1 51,900 YR.3 54,582 YR.6 58,604

2. **References and Assumptions**

2. WASTE STREAM GENERATION: The following questions ask for total tons recycled and total tons disposed. Total tons disposed are those tons disposed of at a landfill, incinerator, transfer station, or any other form of disposal you may be using. IF other, please identify.

1. **Tonnage Recycled**

    1. Please provide the total tonnage **recycled** in the base year, and projections for years three and six.

        YR.1 22,858 YR.3 24,025 YR.6 25,775

2. **Tonnage Disposed**

    1. Please provide the total tonnage **disposed** in the base year, and projections for years three and six.

        YR.1 48,180 YR.3 50,684 YR.6 54,439

3. **References and Assumptions**

3. SYSTEM COMPONENT COSTS: This section asks questions specifically related to the types of programs currently in use and those recommended to be started. For each component (i.e. waste reduction, landfill, composting, etc.) please describe the anticipated costs of the program(s), the assumptions used in estimating the costs, and the funding mechanisms to be used to pay for it. The heart of deriving a rated impact is to know what programs will be passed through to the collection rates, as opposed to being paid for through grants, bonds, taxes, and the like.

1. Waste Reduction Programs

1. Please list the solid waste programs which have been implemented and those programs which are proposed. If these programs are defined in the SWM plan, please provide the page number. Attach additional sheets as necessary.

IMPLEMENTED	PROPOSED
See Attached Table 1	See Attached Table 1

2. What are the costs, capital costs, and operating costs for waste reduction programs implemented and proposed? See attached Table 2.

IMPLEMENTED

YR.1	$130,000	YR.3	$150,000	YR.6	$160,000

PROPOSED

YR.1	$130,000	YR.3	$160,000	YR.6	$200,000

3. Please describe the funding mechanism(s) that will pay the cost of the programs in 3.1.2.

IMPLEMENTED

YR.1	Grants / Collection Fees / Tip Fees / Other	YR.3	Grants / Collection Fees / Tip Fees / Other	YR.6	Grants / Collection Fees / Tip Fees / Other

PROPOSED

YR.1	Grants / Collection Fees / Tip Fees / Other	YR.3	Grants / Collection Fees / Tip Fees / Other	YR.6	Grants / Collection Fees / Tip Fees / Other

2. Recycling Programs

1. Please list the proposed or implemented recycling program(s) and their costs and proposed funding mechanism or provide the page number in the draft plan on which it is discussed. Attach additional sheets as necessary.

IMPLEMENTED

PROGRAM	COST	FUNDING
See attached Tables 1 and 2 for program listing and cost estimates		

3. Solid Waste Collection Programs

1. Regulated Solid Waste Collection Programs

Fill in the table below for each WUTC regulated solid waste collection entity in your jurisdiction. Make additional copies of this section as necessary to record all such entities in your jurisdiction.

WUTC Regulated Hauler Name Mason County Garbage Company

G-permit # 88

	YR.3	YR.6
RESIDENTIAL		
# Customers	10,306	11,066
Tonnage Collected	9,785	10,506
COMMERCIAL		
# Customers	957	1,028
Tonnage Collected	10,401	11,168

WUTC Regulated Hauler Name Harold LeMay- this hauler leases its accounts to G-88

G-permit # 98

	YR.3	YR.6
RESIDENTIAL		
# Customers	N/A	N/A
Tonnage Collected	N/A	N/A
COMMERCIAL		
# Customers	N/A	N/A
Tonnage Collected	N/A	N/A

WUTC Regulated Hauler Name Waste Management - this hauler provides minimal service in the County

G-permit # 327

	YR.3	YR.6
RESIDENTIAL		
# Customers	N/A	N/A
Tonnage Collected	N/A	N/A
COMMERCIAL		
# Customers	N/A	N/A
Tonnage Collected	N/A	N/A

2. Other (Non-Regulated) Solid Waste Collection Programs

Fill in the table below for other solid waste collection entities in your jurisdiction. Make additional copies of this section as necessary to record all such entities in your jurisdiction.

Hauler Name City of Shelton

	YR.1	YR.3	YR.6
# Customers	3,096	3,256	3,496
Tonnage Collected	5,942	6,249	6,710

Hauler Name Mason County Garbage (National Forest Service)

	YR.1	YR.3	YR.6
# Customers	2	2	2
Tonnage Collected	53 (est.)	56 (est.)	60 (est.)

Hauler Name Mason County Garbage (Tribal lands)

	YR.1	YR.3	YR.6
# Customers	194	204	219
Tonnage Collected	180 (est.)	189 (est.)	203 (est.)

Hauler Name State of Washington (State Parks and Facilities)

	YR.1	YR.3	YR.6
# Customers	4	4	4
Tonnage Collected	217 (est.)	228 (est.)	245 (est.)

4. Energy Recovery and Incineration (ER&I) Programs

1. Complete the following for each facility:

Name: N/A

Location: _____

Owner: _____

Operator: _____

2. What is the permitted capacity (tons/day) for the facility?_____

3. If the facility is not operating at capacity, what is the average daily throughput?

   YR.1 _____ YR.3 _____ YR.6 _____

4. What quantity is estimated to be landfilled which is either ash or cannot be processed?

   YR.1 _____ YR.3 _____ YR.6 _____

5. What are the expected capital costs and operating costs for ER&I programs (not including ash disposal expense)?

   YR.1 _____ YR.3 _____ YR.6 _____

6. What are the expected costs of ash disposal?

   YR.1 _____ YR.3 _____ YR.6 _____

7. Is ash disposal to be: _____ on-site?
   _____ in-County?
   _____ long-haul?

8. Please explain the funding mechanism(s) that will fund the costs of this component.

Land Disposal Program

9. Provide the following information for each land disposal facility in your jurisdiction which received garbage or refuse generated in the county.

There are no active landfills located in Mason County. There are four drop-box locations that feed into the one transfer station that exports waste to Klickitat County for final disposal. This system is described in further detail in Chapter 4 of the SWM Plan.

10. Estimate the approximate tonnage disposed at the landfill by WUTC regulated haulers. If you do not have a scale and are unable to estimate tonnages, estimate using cubic yards, and indicate whether they are compacted or loose.[1]

19,194 tons

11. Using the same conversion factors applied in 3.5.2, please estimate the approximate tonnage disposed at the landfill by other contributors.

28,986 tons

12. Provide the costs of operating (including capital acquisitions) each landfill in your jurisdiction. For any facility that is privately owned and operated, skip these questions.

N/A

13. Please describe the funding mechanism(s) that will defray the cost of this component.

N/A

5. Administration Program

1. What is the budgeted cost for administering the solid waste and recycling programs and what are the major funding sources?

The projected 2005 Administration budget is $ 3.3 million. The funding sources include collection fees and grants.

2. Which cost components are included in these estimates?

Expenses included in the estimate are as follows: salaries and wages, personnel benefits, supplies, other services and charges, intergovernmental payments, and capital expenditures. See Chapter 5 in the SWM Plan for a description of administrative functions.

[1] Compacted cubic yards will be converted at a standard 600 pounds per yard. Loose cubic yards will be converted at a standard 300 pounds per cubic yard. Please specify an alternative conversion ratio if one is presently in use in your jurisdiction.

3. Please describe the funding mechanism(s) that will recover the costs of each component.

Funding mechanisms include collection fees and grants; these funding mechanisms are not targeted for specific components.

6. Other Programs

For each program in effect or planned which does not readily fall into one of the previously described categories, please answer the following questions. Make additional copies of this section as necessary.

1. Describe the program, or provide a page number reference to the plan.

Program | Page Number Reference

Not Applicable

2. Owner/Operator: Mason County Utilities/Waste Management Department

3. Is WUTC Regulation involved? If so, please explain the extent of involvement in Section 3.8.

Not Applicable

4. Please estimate the anticipated costs for this program, including the cost of this component.

See attached Table 2 for all program cost estimates.

5. Please describe the funding mechanism(s) that will recover the costs of this component.

Tip fees, collection fees, and grants are the funding mechanisms for all programs.

7. **References and Assumptions** (attach additional sheets as necessary)

4. **FUNDING MECHANISMS:** This section relates specifically to the funding mechanisms currently in use and the ones which will be implemented to incorporate the recommended program in the draft plan. Because the way a program is funded directly relates to the costs a resident or commercial customer will have to pay, this section is crucial to the cost assessment process. Please fill in each of the following tables as completely as possible.

Table 4.1.1 Facility Inventory

Facility Name	Type of Facility	Tip Fee per Ton	Transfer Cost	Transfer Station Location	Final Disposal Location	Total (tons)	Total Revenue Generated (Tip Fee x Tons)
Shelton Solid Waste Facility	Transfer	$63.00	$40.51	Shelton, WA	Roosevelt Regional Landfill; Klickitat Co.	57216.10	$
	Recycling	$0.00				85.50	$0.00
Belfair Drop Box Station	Drop Box	$13.80/	$8.87	Shelton, WA	Roosevelt Regional Landfill; Klickitat Co.	7138.80	$
	Recycling	$0.00				289.12	$0.00
Hoodsport Drop Box Station	Drop Box	$13.80/	$8.87	Shelton, WA	Roosevelt Regional Landfill; Klickitat Co.	419.33	$
	Recycling	$0.00				96.88	$0.00
Union Drop Box Station	Drop Box	$13.80/	$8.87	Shelton, WA	Roosevelt Regional Landfill; Klickitat Co.	419.67	$
	Recycling	$0.00				110.43	$0.00

Table 4.1.2 Tip Fee Components

Tip Fee by Facility	Surcharge	City Tax	County Tax	Transportation Cost	Operational Cost	Administrative Cost	Closure Costs
Shelton Solid Waste Facility	$0.00	$0.00	$2.04	$40.51	$18.70	$1.76	$0.00
Belfair Drop Box Station	$0.00	$0.00	$0.45	$8.87	$4.10	$0.39	$0.00
Hoodsport Drop Box Station	$0.00	$0.00	$0.45	$8.87	$4.10	$0.39	$0.00
Union Drop Box Station	$0.00	$0.00	$0.45	$8.87	$4.10	$0.39	$0.00

Table 4.1.3 Funding Mechanism

Name of Program Funding Mechanism that Will Defray Costs	Bond Name	Grant Name	Grant Amount*	Tip Fee	Leases	Interest	Surcharge (Alpenal garbage)
HHW Facility	N/A	Dept. of Ecology Coordinated Prevention Grant / HHW	$52,500				
Recycling	N/A	Dept. of Ecology Litter Grant / Coordinated Prevention Grant	$55,500	$104,000			
Refuse Collection & Transfer	N/A			$2,282,000		$5,000	
Tires, leachate, etc	N/A			$14,000			

* In the event that grant funding is reduced or eliminated, programs that are funded by these grants will need to be re-evaluated and either eliminated, curtailed, or if continued, funded using alternative methods, such as an increase in tipping fees or other revenue sources.

Table 4.1.4 Tip Fee Forecast

Tip Fee by Facility	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
Shelton Solid Waste Facility	$2,233,963.06	$2,301,651.92	$2,336,176.70	$2,371,219.35	$2,406,787.64	$2,442,889
Belfair Drop Box Station	$217,048.57	$223,625.12	$226,979.50	$230,384.19	$233,839.95	$237,347.55
Hoodsport Drop Box Station	$36,799.55	$37,914.57	$38,483.29	$39,060.54	$39,646.45	$40,241.15
Union Drop Box Station	$35,725.90	$36,808.39	$37,360.52	$37,920.92	$38,489.74	$39,067.08

4.2 Funding Mechanisms, Summary by Percentage

In the following tables, please summarize the way programs will be funded in the key years. For each component, provide the expected percentage of the total cost met by each funding mechanism. (e.g. Waste Reduction may rely on tip fees, grants, and collection rates for funding). You would provide the estimated responsibility in the table as follows:
Tip fees = 10%; Grants = 50%; Collection Rates = 40%. The mechanisms must total 100%. If components can be classified as "other," please note the programs and their appropriate mechanisms. Provide attachments as necessary.

Table 4.2.1 Funding Mechanism by Percentage
Year One

Component	Tip Fee %	Grant %	Bond %	Collection Tax Rates %	Other %	Total
Waste Reduction	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Recycling	60.0%	40.0%	0.0%	0.0%	0.0%	100.0%
Collection	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
ER&I	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Transfer	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Land Disposal	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Administration	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Other	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Table 4.2.2 Funding Mechanism by Percentage
Year Three

Component	Tip Fee %	Grant %	Bond %	Collection Tax Rates %	Other %	Total
Waste Reduction	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Recycling	60.0%	40.0%	0.0%	0.0%	0.0%	100.0%
Collection	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
ER&I	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Transfer	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Land Disposal	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Administration	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Other	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Table 4.2.3 Funding Mechanism by Percentage
Year Six

Component	Tip Fee %	Grant %	Bond %	Collection Tax Rates %	Other %	Total
Waste Reduction	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Recycling	60.0%	40.0%	0.0%	0.0%	0.0%	100.0%
Collection	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
ER&I	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Transfer	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Land Disposal	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Administration	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Other	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

4.3 References and Assumptions
Please provide any support for the information you have provided. An annual budget or similar document would be helpful.

4.4 Surplus Funds
Please provide information about any surplus or saved funds that may support your operations.

TABLE 1. LIST OF SOLID WASTE PROGRAMS

Selected Option	Existing Program	New Program	SWMP Page #
Chapter 3			
Outreach Improvements	X		3-23
Evaluate Blue Box Program	X		3-15
Increase Paper Recycling		X	3-16
Electronic Billing Options		X	3-8
Business and School Waste Audits		X	3-17
Improve Government Recycling	X		3-8
Support Expansion of Voluntary Curbside Program		X	3-14
Divert Organics for Composting		X	3-20
Chapter 4			
Develop Separate Compost and CDI Tipping Area		X	4-11
Evaluate Procedures to Reduce Wait Times	X		4-8
Explore New Partnerships for Special Waste Management		X	
Chapter 5			
Explore Additional Funding Alternatives	X		5-12
Assist with Implementation and Enforcement of Laws and Regulations	X		5-9
Chapter 6			
Review Plans for Handling Livestock Contagious Disease Outbreaks		X	6-2
Investigate Feasibility of C&D Program at MCTS		X	6-7
Develop Partnerships for Composting Operation		X	6-6
Educate Residents about New E-Waste Programs		X	6-10

TABLE 2. PROJECTED SOLID WASTE BUDGET FOR MASON COUNTY, 2005-2010

Component	2005 (Year 1) Total, $	2007 (Year 3) Total, $	2010 (Year 6) Total, $
Disposal			
Landfill Administration	72,000	74,095	77,480
Landfill Operations	723,860	754,117	788,563
Scrap Metal Disposal	28,000	29,435	30,780
Transportation	1,659,425	1,763,563	1,844,119
Tires, Leachate Disposal	14,000	15,225	15,920
	2,497,285	**2,636,434**	**2,756,862**
Diversion			
Recycling Operations	0	58,406	61,074
Scrap Metal Recycling	0	0	0
Drop Box Program	104,000	253,316	264,887
Litter Agreement	22,500	23,249	24,311
CPG Grant	45,500	66,578	69,619
	172,000	**401,548**	**419,890**
HHW Facility			
CPG - HHW	52,500	54,247	56,725
HHW Operations	0	39,940	41,765
HHW Improvements / Belfair	0	78,155	81,725
	52,500	**172,342**	**180,214**
Rollover Funding			
Fund Balance	491,739	4,601	4,811
Fund Transfer to 406-000-000	171,502	237,165	247,998
	663,241	**241,766**	**252,809**
Total	**3,385,026**	**3,452,090**	**3,609,776**