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Introduction

The Grant County Solid Waste Management Plan Update (Plan) is a tool for managing solid waste systems within the planning area for the next 20 years, from 2005 to 2025. The Plan:

- Establishes goals to guide decision makers who oversee and monitor solid waste systems.
- Documents current solid waste activities, programs, and facilities.
- Identifies and evaluates practical opportunities for improving existing systems.
- Recommends programs that will help the County achieve its goals.
- Outlines implementation strategies for recommended programs, including a 6-year implementation and funding plan.

Planning Area

The above discussions are framed within the context of State and Federal regulatory compliance, using current state and federal regulations as a foundation for updating the Plan. These regulations emphasize environmentally sound approaches that effectively reduce disposed waste through waste reduction and diversion (reuse and recycling). In an ideal world, landfills would be unnecessary.

The County has a total land area of approximately 2,680 square miles, with a population density of approximately 29 people per square mile and 15 incorporated cities and towns.

Coulee City	Grand Coulee	Quincy
Coulee Dam	Hartline	Royal City
Electric City	Marlin (Krupp)	Soap Lake
Ephrata	Mattawa	Warden
George	Moses Lake	Wilson Creek

Goals Of The Plan

Through the SWAC, Grant County and the incorporated cities established the following goals and objectives to guide plan development. These goals have equal priority, and emphasize three principles: 1) responsible management of solid waste, 2) utilization of existing resources where possible, and 3) involvement of all sectors of the community in the planning process and program implementation.

- *Encourage waste reduction and recycling in Grant County.*
  - Provide easily available and convenient recycling opportunities for residents and businesses.
  - Promote and provide incentives including rate structures to separate, reduce, reuse, and recycle.
  - Provide incentives to reduce or eliminate problem wastes.
  - Encourage source separation, especially of commercial and industrial waste.
  - Target wastes: problem wastes, marketable materials, and major waste stream components.

- *Provide cost effective and environmentally sound collection and disposal of solid waste.*
  - Utilize to the fullest extent possible existing facilities and systems.
  - Promote collection services that balance administrative efficiency, cost effectiveness and aesthetics.
  - Take advantage of non-disposal alternatives for the large volumes of yard and wood waste and inert materials that do not require disposal in a permitted solid waste landfill.
  - Assure the financial solvency of all disposal operations.

- *Educate and involve Grant County citizens in waste reduction and recycling efforts and in responsible waste management.*
  - Educate citizens about the benefits of waste reduction and recycling.
  - Utilize and involve local media and school system in waste reduction and recycling education efforts.

Waste Composition and Generation Projections

According to County data, a total of 75,451 tons of waste was disposed by Grant County residents, businesses and institutions in 2004. In addition, about 1,739 tons of industrial sludge and one ton of asbestos were disposed. Substantial quantities of agricultural waste are disposed or beneficially used on site or at private facilities. Approximately 81% of the County's waste was disposed, and the remaining 19% was recycled. All waste was disposed in county except for about 2,000 tons of waste from Crescent Bar, which WMI collects and transports to the Greater Wenatchee Landfill for disposal.

The daily per capita disposal rate is more than four times [5.53 pounds per day (lbs/day)] the per capita recycling rate (1.27 lbs/day). Commercial/industrial and residential substreams contribute the largest amount of disposed waste (31,564 and 26,434 tons, respectively), with an additional 17,453 self-haul tons. Hazardous and special wastes, CDL wastes, and metal categories show the highest recycling rates at 78%, 52% and 30% respectively. In 2004, the only waste exported from the County came from Crescent Bar.

Potentially compostable materials, such as food waste and compostable paper make up over 24% of Grant County's disposed waste. When combined, the recyclable (24%) and potentially recyclable materials (21%), such as mixed paper, ferrous metals, and cardboard comprise about 45% of the County's disposed waste stream.

Using the per capita and per employee generation and disposal rates, projections of future solid waste stream generation and disposal needs are summarized on the following page.

Year	Population[1]	Estimated Total Waste Generation (tons/yr)	Estimated Disposal Needs (tons/yr)	Estimated Recycled Waste (tons/yr)
2010	88,331	104,620	85,117	19,503
2025	98,395	116,540	94,815	21,725

[1] Intermediate County Population Projections developed for Growth Management Act, Washington State Office of Financial Management, Forecasting Division, January 2002

Plan Recommendations

Designated Recyclables

The list of designated recyclables should be updated when new market opportunities develop as technology changes, virgin commodity prices fluctuate, and/or new environmental concerns arise. Examples are: biodiesel production or burning tires for energy production. County staff would propose modifying the list, develop recommendations for SWAC review, and then update the list as appropriate. These modifications would not require a Plan amendment.

Waste Reduction and Recycling

Based on the evaluation and input from the SWAC and staff, the County should implement the following recommendations. The recommendations are grouped into three tiers of priority, with the highest priority to be implemented first.

FIRST TIER – includes programs with low cost per ton that are relatively easier to implement within the first one to two years.

Programs:

- Develop a more extensive education and promotion campaign.
- Improve and expand collection at recycling drop-off sites.
- Expand paper collection to more commercial customers.
- Provide on-site technical assistance to commercial customers.

Diversion: These programs will divert an estimated 5,700 tons annually and increase the current recycling rate by 6%.

SECOND TIER – includes programs with a medium to high cost per ton and require more time to develop and implement. The County should implement these programs in two to three years.

Programs:

- Expand drop-off sites to accept wood and organic waste.
- Develop a C&D and glass drop-off facility at the landfill.
- Implement a pay-as-you throw rate structure.

Diversion: These programs would divert an estimated 9,900 tons annually and increase the current recycling rate by 11%.

THIRD TIER – includes programs with a medium to high cost per ton and that require more time to develop and implement. The County should implement these programs in three to five years.

Program: Support efforts to increase organics recycling in Grant County by expanding compost facilities and developing a residential curbside compost program.

Diversion: These programs would divert approximately 4,700 tons annually and increase the current recycling rate by 5%.

If Grant County implements recommendations from all three tiers in the next five years, the current recycling rate is expected to nearly double, increasing from the current 19% to about 40% in Year 5.

Collection

The current solid waste collection system in Grant County provides adequate service. The incorporated cities provide service, contract with private companies or allow individuals to arrange for service with private companies. WUTC-certified collection companies offer service in unincorporated areas. Solid waste collection service providers should continue to expand and adapt as needed in response to population growth and other changes. If, in the future, the County designates areas as "urban", this Plan should be amended as necessary to address impacts affecting solid waste collection. The amendment should include a description of alternatives, recommendations, and implementation schedule.

Energy Recovery and Incineration

Grant County's Ephrata Landfill has disposal capacity for at least 20 more years and can meet the County's present and future needs during this planning period. The County should consider energy recovery and incineration as part of an overall disposal options review, if operating the Ephrata Landfill becomes relatively costly or for other reasons no longer possible.

Transfer Facilities

Grant County currently operates 12 drop box sites. Since these drop box sites were built in the 1970s, solid waste collection services became readily available in the entire County. Over the past several years, the number of residents subscribing to services offered by solid waste collection companies appears to be increasing at a higher rate than the population growth. This shift is reducing the need for the County's drop box sites. Grant County monitors usage of each site to assess the need to revise operations, including reducing or expanding hours, the number of drop boxes per site or the frequency of emptying the drop boxes. In addition, Consolidated Disposal Company has a private transfer station in Moses Lake that could be potentially permitted to accept self-haul public waste and allow the County to eliminate at least one drop box site.

The current drop box site network adequately meets current and future needs throughout the 20-year planning period. Grant County should:

- Continue to monitor customer activity.
- Periodically evaluate the need for drop boxes, considering:
  - Reduce potential duplication of services with private service providers.
  - Maintain a reasonable level of service.
  - Consider impacts to users of proposed changes in level of service.

Fees should be adjusted as necessary to continue covering the costs of drop box site operations and maintenance.

Waste Import And Export

RBOM members outside Grant County may find the option to send waste to Grant County's Ephrata landfill more feasible than elsewhere once the Delano landfill closes. The Grant County Board of Commissioners (BOCC) has tentatively agreed to allow current out-of-county RBOM customers to dispose waste at the Ephrata Landfill. The BOCC will require written approval from each of the

other counties before accepting waste for disposal.

The RBOM needs a long-term waste disposal option to replace the Delano Landfill, which will close the next year. The RBOM should consider evaluating long-term disposal alternatives, including waste export to an out-of-county regional disposal site.

The 1998 disposal alternatives study completed by Parametrix concluded in-county disposal at the Ephrata Landfill was the preferred option based on economics and non-cost factors, including risk management and local employment impacts. The County should update this study and consider waste export again if operating the Ephrata Landfill does not appear feasible.

The County should continue to ban out-of-County waste from the Ephrata Landfill, except for out-of-county RBOM customers, in order to conserve disposal capacity.

A private firm may want to site, construct, and/or operate a private landfill in Grant County. If a firm expresses interest, the County, in conjunction with Ecology and the Health District, should develop a process to evaluate acceptability of out-of-County wastes for disposal at a privately-owned landfill. The acceptance requirements should be included in the Conditional Use Permit for the privately-owned landfill.

Landfills

Within its currently permitted area, the Ephrata Landfill is projected to have disposal capacity for the entire County beyond the current 20-year planning period. If the landfill becomes too costly or infeasible to operate, the County should update its 1998 disposal options review to identify a more cost-effective option. As a backup measure, the County should also negotiate an agreement with another landfill in the event of an emergency.

The Delano Landfill is projected to close within the next year. The RBOM is currently evaluating disposal options to replace the Delano Landfill. The BOCC tentatively agreed to accept waste from out-of-county RBOM customers provided the counties with these customers reside in provide written approval. The RBOM is in the process of obtaining this permission.

The RBOM should complete its disposal options review in order to compare the costs of having a transfer station on the old landfill, exporting waste out-of-county or sending waste to the Ephrata Landfill The review process should include input from the Health District, Ecology and other resources to define regulatory requirements, costs and other relevant factors.

Special Wastes

Biosolids, biomedical, industrial sludges, and asbestos wastes do not generally represent a disposal problem in Grant County. The existing system is adequate to handle these materials at the present time and can expand to meet future needs.

Agricultural, food processing, and demolition wastes, tires, large appliances and livestock carcasses are common items found illegally disposed throughout the County. The primary needs in dealing with illegally disposed materials are to: (1) develop region-wide effective education and enforcement programs, and (2) provide more convenient opportunities for proper disposal of some materials.

Tires represent an operational problem for the County when attempting to dispose of them in the landfill. The County no longer has a shredder to ease disposal of tires, and would prefer to recycle them. However, recyclers are several hours drive from the County. The County should conduct its proposed study for recycling tires in order to reduce operational problems and divert tires from the landfill.

Inert and demolition wastes can be voluminous and consume valuable disposal capacity at the Ephrata Landfill. Preferably, these inert and demolition wastes would be recycled or reused, but few opportunities exist currently in Grant County. The County should consider conducting a feasibility study with respect to diverting inert and demolition wastes from the Ephrata Landfill. The study would focus on evaluating options discussed above and others that may develop as the study proceeds.

The County may be asked to accept diseased animal waste and associated by-products for disposal at the Ephrata Landfill. Accepting these wastes could reduce landfill capacity and site life, and expose workers to potential health and safety issues they do not normally encounter. The Plan recommends banning these wastes from the landfill and directing disposers to regional facilities with more capacity and familiar with handling such wastes

Administration and Enforcement

Administration

The administration and enforcement burdens on local agencies increase with the increasing complexity of environmental regulations, facility operating requirements, and emphasis on waste diversion reduction programs. Each agency must take the time and effort to fully understand and address the requirements of new laws as they are enacted. Inter-jurisdictional coordination becomes increasingly important because the majority of solid waste issues have a county-wide or regional impact. Grant County, the cities within Grant County, the Health District, the SWAC, and other parties responsible for solid waste management have established an effective network of communication and coordination. This network continues to improve and expand as needed.

For long-term program development and commitment, the County should identify more dependable long-term sources of funding to maintain and expand the solid waste coordinator position. Future grant funds may decrease or disappear, depending on state-wide economy and legislative funding priorities. Adding staff time will help the County effectively implement proposed programs.

Enforcement

The Grant County Health District focuses mostly on enforcement rather than education because of limited available staff and funds, spending most of its efforts resolving the most problematic sites. The Health District is evaluating funding options to expedite cleanup efforts and coordinate cleanup work with the Public Works Department Solid Waste Division. Lack of communication with other agencies and training in investigative procedures challenge the Health District's ability to enforce unlawful disposal restrictions. The following recommendations support the agency's current efforts.

The Board of County Commissioners should recommend to the Board of Health that it create an independent Task Force under the jurisdiction of the Grant County Health District. The Task Force should focus on coordinating enforcement activities and developing programs to:

- Assist property owners with cleaning up waste illegally dumped by others.
- Improve enforcement procedures and effectiveness.
- Educate the public about the problems caused by unlawful disposal.
- Provide incentives to encourage proper disposal of wastes.
- Involve citizens and businesses in cleanup activities.
- Continue to evaluate funding options, such as collection districts, to pay for enforcement, cleanup and education activities.

The current half-time staff position appears to be adequate for responding to complaints. The Health District estimates a one-quarter-time staff position will be needed to implement education activities and coordinate efforts with the Public Works Department.

Potential Funding Sources

Potential funding sources and mechanisms that the County can consider using for implementing Plan recommendations include:

Potential Fee or Tax-Based Funding Sources

- Fees on solid waste collection services
- Solid Waste Disposal District
- Charges for collection services

Potential Grant Funding Sources

- Coordinated Prevention Grant (CPG)
- Remedial Action Grants
- Public Participation Grants
- Environmental Research and Education Foundation grants

Bonds

- General Obligation Bonds
- Revenue Bonds

1 Introduction

1.1 Purpose

The Grant County Solid Waste Management Plan Update (Plan) is a tool for managing solid waste systems within the planning area for the next 20 years, from 2005 to 2025. The Plan:

- Establishes goals to guide decision makers who oversee and monitor solid waste systems.
- Documents current solid waste activities, programs, and facilities.
- Identifies and evaluates practical opportunities for improving existing systems.
- Recommends programs that will help the County achieve its goals.
- Outlines implementation strategies for recommended programs, including a 6-year implementation and funding plan.

The above discussions are framed within the context of State and Federal regulatory compliance, using current state and federal regulations as a foundation for updating the Plan. These regulations emphasize environmentally sound approaches that effectively reduce disposed waste through waste reduction and diversion (reuse and recycling). In an ideal world, landfills would be unnecessary.

In 1989, the Washington State legislation amended the Solid Waste Management - Recovery and Recycling Act (Chapter 70.95 Revised Code of Washington [RCW]), requiring local governments to include a comprehensive waste reduction and recycling element in solid waste management plans. The 1989 legislature also required local governments to review and revise, as appropriate, their solid waste management plans at least every 5 years.

Since then, State and Federal solid waste regulations continue to change, emphasizing better environmental monitoring and design of solid waste facilities, management of special wastes, and other activities, including Chapters 173.350 and 173.351 of the Washington Administrative Code (WAC). Those responsible for implementing these requirements include the County, municipalities, and private solid waste service providers.

Washington State provides grant funding to local governments to help implement recommendations in solid waste management plans. In order for counties to receive grant funding, programs and projects must be identified in the adopted solid waste management plan.

In response to new legislation, the Washington State Department of Ecology (Ecology) updated its *Guidelines for the Development of Local Solid Waste Management Plans and Plan Revisions* in 1999. The Plan reflects these guidelines in addressing the following fundamental priorities:

- Waste Reduction
- Recycling
- Solid Waste Collection Services
- Energy Recovery
- Transfer Facilities
- Waste Import and Export
- Landfills
- Special Wastes
- Enforcement and Administration

Recommendations to modify existing or create new policies may be within each Plan element. Policy recommendations considered the need to serve all solid waste system users and distribute fairly services and costs amongst users. The Plan emphasizes adoption of policies providing long-term, reliable and economical solid waste services appropriate for the low population density and economic characteristics of Grant County.

1.2 Planning Area

Grant County is in the central portion of Washington State (Figure 1-1) between foothills of the Cascade Mountains and the Rocky Mountains. The Columbia River forms the south and southern portion of the west boundaries of the County (Figure 1-2). The County has a total land area of approximately 2,680 square miles, with a population density of approximately 29 people per square mile, according to Washington State Office of Management and Finance data (OFM). The County contains 15 incorporated cities and towns:

Coulee City	Grand Coulee	Quincy
Coulee Dam	Hartline	Royal City
Electric City	Marlin (Krupp)	Soap Lake
Ephrata	Mattawa	Warden
George	Moses Lake	Wilson Creek

1.3 Local Governments Involved In The Plan

State law (Chapter 70.95.080 RCW) requires each County to prepare a solid waste management plan in cooperation with local, incorporated cities and towns. A city may:

- Prepare its own plan for integration into the County's plan.
- Enter into an agreement with the County to do a joint city-county plan.
- Authorize the County to prepare a plan that includes the city.

Any city preparing an independent plan must provide for disposal sites wholly within its jurisdiction.

The 1995 Plan, as adopted, contains resolutions from incorporated cities within Grant County. With the exception of Moses Lake, the cities within Grant County adopted resolutions authorizing the County to include them in preparing the Plan. The City of Moses Lake adopted a resolution authorizing the City to enter into an agreement with the County to prepare a joint city-county Plan. Moses Lake participated in preparing this Plan. Each city amends these resolutions when necessary, approving amendments and updates to the Plan. Resolutions adopting this current Plan are contained in Appendix A.

1.4 Solid Waste Advisory Committee

Plan development begins with the Solid Waste Advisory Committee (SWAC), whose members represent local governments, business, interest groups, the public, and solid waste industry (Chapter 70.95.165 RCW). The SWAC shall have at least 9 members, which the County Board of

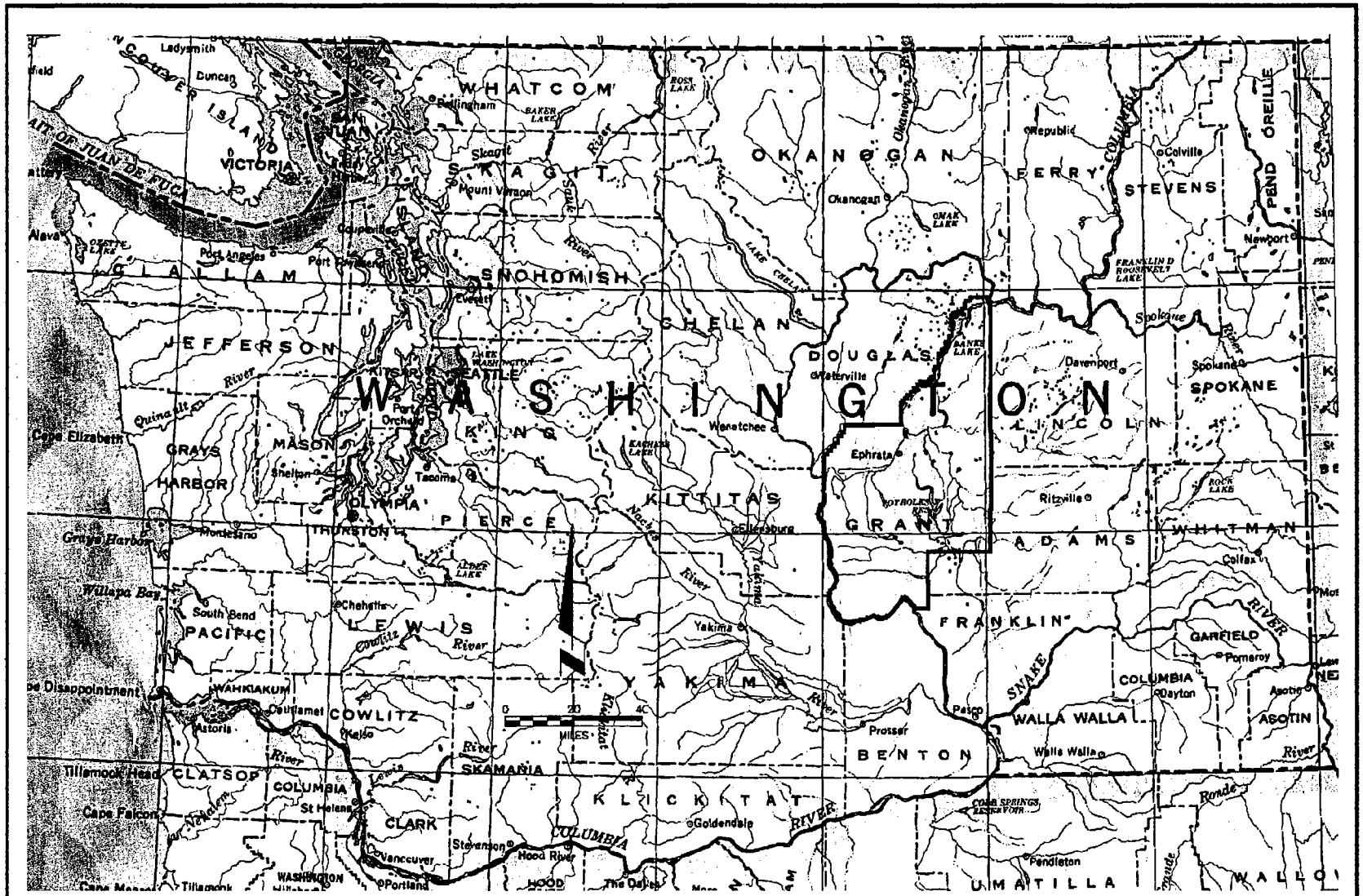


FIGURE 1-1
Location Map

Grant County

Source: U.S. Geological Survey, 1972 limited update 1990, original scale 1:2,500,000

FIGURE 1

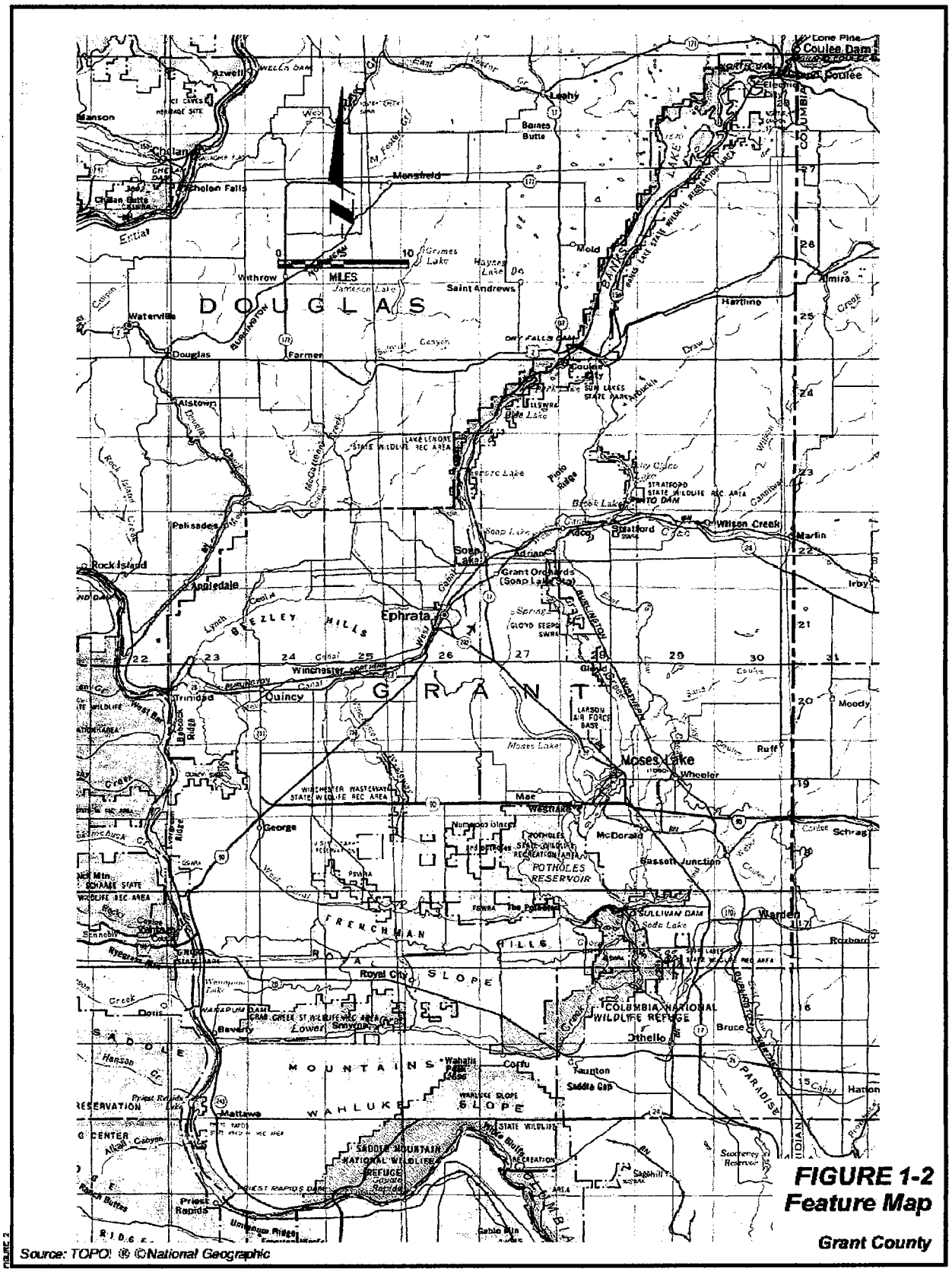


FIGURE 1-2
Feature Map
Grant County

Source: TOPO! ® ©National Geographic

Commissioners appoints. The County cannot receive State funds to prepare, update or amend the Plan without the active participation of the SWAC.

The SWAC responsibilities include:

1. Comment and advise on issues addressed during plan development.
2. Act as a liaison to their communities.
3. Review and comment on drafts of the Plan.
4. Assist with public involvement.
5. Recommend the Plan for adoption.

Table 1 lists the members of the 2005-2006 Grant County SWAC.

Table 1-1
Solid Waste Advisory Committee

Member	Affiliation	Area
Bob Bernd	Citizen (retired from disposal business)	Moses Lake
Ray Halsey	Mayor	Electric City
Pat Dunston	Citizen	Ephrata
Dennis Francis	Citizen	Electric City
Bill Lamphere	Citizen	Quincy
Mark Wash	Citizen/Disposal Business	Ephrata
Dick Zimbelman	Mayor	Quincy
M. G. McLanahan	Citizen/Consultant	Moses Lake
Gerald Campbell	Grant County Health District	Grant County
(open – to be filled)		

1.5 Goals Of The Plan

Through the SWAC, Grant County and the incorporated cities established the following goals and objectives to guide plan development. These goals have equal priority, and emphasize three principles: (1) responsible management of solid waste, (2) utilization of existing resources where possible, and (3) involvement of all sectors of the community in the planning process and program implementation.

- *Encourage waste reduction and recycling in Grant County.*
  - Provide easily available and convenient recycling opportunities for residents and businesses.
  - Promote and provide incentives including rate structures to separate, reduce, reuse, and recycle.
  - Provide incentives to reduce or eliminate problem wastes.
  - Encourage source separation, especially of commercial and industrial waste.
  - Target wastes: problem wastes, marketable materials, and major waste stream components.

- *Provide cost effective and environmentally sound collection and disposal of solid waste.*
  - Utilize to the fullest extent possible existing facilities and systems.

- Promote collection services that balance administrative efficiency, cost effectiveness and aesthetics.
- Take advantage of non-disposal alternatives for the large volumes of yard and wood waste and inert materials that do not require disposal in a permitted solid waste landfill.
- Assure the financial solvency of all disposal operations.

- *Educate and involve Grant County citizens in waste reduction and recycling efforts and in responsible waste management.*
  - Educate citizens about the benefits of waste reduction and recycling.
  - Utilize and involve local media and school system in waste reduction and recycling education efforts.

1.6 Summary of Solid Waste Regulations

1.6.1 Federal Regulations

The Federal Resource Conservation and Recovery Act of 1976 (RCRA) and subsequent amendments form the foundation of Federal and State solid waste management regulations. The objectives of RCRA are ensuring protection of human health and the environment, and conserving valuable natural resources. The enactment of RCRA recognizes resource management and waste generation are national issues while solid waste management is primarily the function of each state, regional and local government. Relevant RCRA sections include:

- Subtitle C, which addresses management of hazardous waste materials in quantities greater than small quantity generator (SQG) levels.
- Subtitle D, which establishes criteria for managing solid waste.
- Subtitle U, which addresses practices and facilities for solid waste management.

The Superfund Amendments and Reauthorization Act of 1986 (SARA) created national policy and procedures for managing sites contaminated by releases of hazardous substances and financing remedial activities. SARA also specifies emergency planning, community right-to-know, and toxic release reporting requirements.

1.6.2 State Regulations

The Solid Waste Management-Waste Reduction and Recycling Act, Chapter 70.95 RCW, assigns primary responsibility for solid waste management to local jurisdictions. The State's duties include:

- Establishing a statewide comprehensive plan for solid waste handling, recycling and waste reduction to preserve lands, prevent pollution and conserve resources.
- Adopting and enforcing minimum standards for solid waste handling.
- Providing technical and financial assistance to local governments to plan, develop and implement solid waste handling programs.

Local governments are required to develop and adopt a 20-year comprehensive solid waste management plan that guides solid waste facility development, and update it at least every 5 years.

The act also included Minimal Functional Standards (MFS) for solid waste handling facilities (Chapter 173.304 WAC). The MFS stipulated performance and operational criteria for storing and disposing of solid waste.

In response to stricter Federal standards enacted under Subtitle D in the early 1990s, Washington State updated the MFS with Chapter 173.351 WAC, Criteria for Municipal Solid Waste Landfills. The standards set new performance criteria for siting, designing, and monitoring of solid waste landfills, restricting their locations near airports, geologically unstable areas, wetlands, above sensitive aquifers, and similar areas of concern. In addition, new design criteria were added for bottom liners, final covers, and landfill gas management. Landfill permitees are required to monitor and maintain a landfill for at least 30-years after closure, and establish a financial assurance mechanism to finance closure and post closure care.

The State later enacted Solid Waste Handling Standards, Chapter 173.350 WAC, which clarifies waste management issues and facilities not fully addressed by Chapter 173.351 and other regulations. The wastes addressed in Chapter 173.350 WAC include contaminated soils, moderate risk waste, wood waste and sludge and composting facilities.

Related State legislation includes:

- Waste Not Washington Act of 1989, Chapter 431 RCW
- Hazardous Waste Management Act, Chapter 70.105 RCW
- Dangerous waste regulations in Chapter 173.303 WAC
- Hazardous Waste Planning Area Facility Siting Act of 1985, Chapter 70.105 RCW
- Solid Waste Disposal regulations, Chapter 36.58 RCW
- Model Litter Control and Recycling Act, Chapter 70.93 RCW

The WUTC has certain responsibilities to regulate solid waste collection rates and services (Chapter 81.77 RCW) in unincorporated County areas or where cities choose to have the WUTC regulate these services.

Ecology developed *Guidelines for the Development of Local Solid Waste Management Plans and Plan Revisions* to help local governments prepare solid waste management plans and comply with solid waste regulations. Ecology updated these guidelines most recently in 1999. Solid waste management plans are intended to help local governments implement coordinated, comprehensive solid waste programs based on established goals and policies.

1.7 Other Plans Related To The Solid Waste Management Plan

Solid waste management programs and policies can affect, or are affected by, elements of other plans adopted by Grant County and the incorporated cities and towns. Recommendations for programs and polices in the solid waste management plan should be viewed as elements within of the overall planning process for all jurisdictions in Grant County. The following paragraphs identify key plans affecting the Plan.

1.7.1 Hazardous Waste Management Plan

The Washington State Hazardous Waste Management Act required local governments to prepare a plan to manage moderate risk wastes in their jurisdiction. Moderate risk wastes are hazardous wastes

produced by households and by businesses and institutions in small quantities. Grant County participated in developing a tri-county regional Hazardous Waste Management Plan (HWMP) that was completed in December 1991. The local governments that participated in the HWMP included Grant, Adams and Lincoln counties and their incorporated cities.

The goals in the HWMP that relate to the solid waste management system include:

- Protecting the environment and public health from the adverse effects of improper handling and disposal of moderate risk wastes (MRW).
- Increasing public awareness about proper management and disposal of MRW.
- Managing MRW to be consistent with, in order of priority, waste reduction, recycling and reuse, treatment, and residuals disposal; and elimination of improper MRW disposal.

The HWMP recommended a baseline approach with programs addressing household collection, public education for household hazardous waste (HHW) and small quantity generator waste (SQG), development of an ordinance for hazardous waste disposal, regional coordination, and development of vehicle battery and used oil collection facilities. A more extensive approach was also recommended that included the baseline programs plus a labeling law, regional mobile collection, permanent HHW and SQG facilities, and on-site hazardous waste assistance for SQGs.

1.7.2 Comprehensive Plans

The Growth Management Act (GMA) of 1990 requires Grant County and its incorporated cities to develop comprehensive plans. Section 15 of the GMA requires that local governments identify land useful for public purposes, such as landfills.

Moses Lake, Ephrata, and Quincy prepared their own comprehensive plans. The Grant County Comprehensive Plan was first adopted on August 23, 1977, and most recently updated in 1998. Grant County works with the smaller communities in preparing its own land use plan.

The current County Comprehensive Plan addresses solid waste management in four primary areas: capital facilities, utilities elements, essential public facilities, and natural setting. The comprehensive plan sets level of service goals for collection, drop off, and disposal based on the 1995 Plan. The County's Ephrata Landfill is classified as a Type II essential public facility, which is one that serves residents or property in more than one jurisdiction.

1.7.3 Water Quality Plans

Grant County does not have a surface water quality plan. The County is within the Columbia Basin Project, which is managed by the Bureau of Reclamation of the U.S. Department of Interior. The U.S. Geological Survey is conducting long-term watershed studies for the Columbia Basin Project area to help characterize potential water quality impacts of irrigation and other agricultural activities.

Grant County is part of the Columbia Basin Ground Water Management Area (GWMA), which also includes Adams and Franklin counties. GWMA is implementing water quality monitoring, public education, and other programs and implementation strategies developed by a series of committees and approved by the Boards of Commissioners in each county.

1.8 Planning History

Comprehensive solid waste management planning began in the State of Washington in 1969 with the passage of the Solid Waste Management Act (Chapter 70.95 RCW). The first Grant County Comprehensive Solid Waste Management Plan was prepared in 1973. The Solid Waste Management Plan was updated in 1987 and 1995. The County and incorporated cities and towns amended the 1995 Plan in 1999 to include a disposal options study completed in 1998. The disposal options study fulfilled one of the recommendations of the 1995 Plan. Appendix B contains a summary of the status of this and other recommendations.

1.9 Plan Review Processes

The Plan must be reviewed and revised, as appropriate, at least every 5 years. Between updates, the Plan can be amended to include minor changes.

1.9.1 Current Plan Update Process

Participating municipalities, the County and Ecology must approve the Plan. The WUTC must review the plan's cost assessment and make comment during the preliminary draft phase, but does not have the authority to approve or disapprove the plan. The SWAC must actively participate in the Plan in order for the County to be eligible for State grant funding.

Between June 2005 and April 2006, the SWAC met to discuss existing conditions, review alternatives, develop program recommendations, establish an implementation schedule for the recommended programs, and review the draft Preliminary Draft Solid Waste Management Plan Update (see Appendix C).

The Preliminary Draft Plan was released for public comment on May 15, 2006. The public comment period closed 20 days later, on June 13, 2006. Two public meetings were held at 2 p.m. and 6 p.m., May 22, 2006, to obtain input from the public and cities on the Preliminary Draft Plan. By the end of the comment period, the County did not receive comments that affected the Preliminary Draft Plan.

The Preliminary Draft Plan was sent to Ecology for agency review on August 16, 2006. Comments received from Ecology and the public were incorporated in a final draft of the Plan. A public hearing for County adoption of the Final Draft Plan was held _____, 2006. Adoption of the Plan by the incorporated cities occurred between ____ and ____, 2006. The Final Draft Plan, as adopted, was submitted to Ecology on ___, 2006. The Final Solid Waste Management Plan Update was completed on _____, 2006.

1.9.2 Plan Amendments

Requests for plan amendments will be received by the Grant County Public Works Department and forwarded to the SWAC and affected jurisdiction(s). After review, if the SWAC recommends approval, the plan amendment will then need approval from the affected jurisdiction(s) and the Grant County Board of Commissioners. Once the affected jurisdiction(s) adopt a plan amendment, it will be submitted to Ecology for approval. After approval is received from Ecology, the amendments will be incorporated in the Plan.

1.9.3 Future Plan Updates

A complete update with formal review periods, such as being completed for this current Plan, is required when changes are made in:

- Goals or policies
- Final disposal option (unless accounted for in existing plan)
- Financing methods and funding levels
- Recycling program implementation

The chart on the following page illustrates the update process.

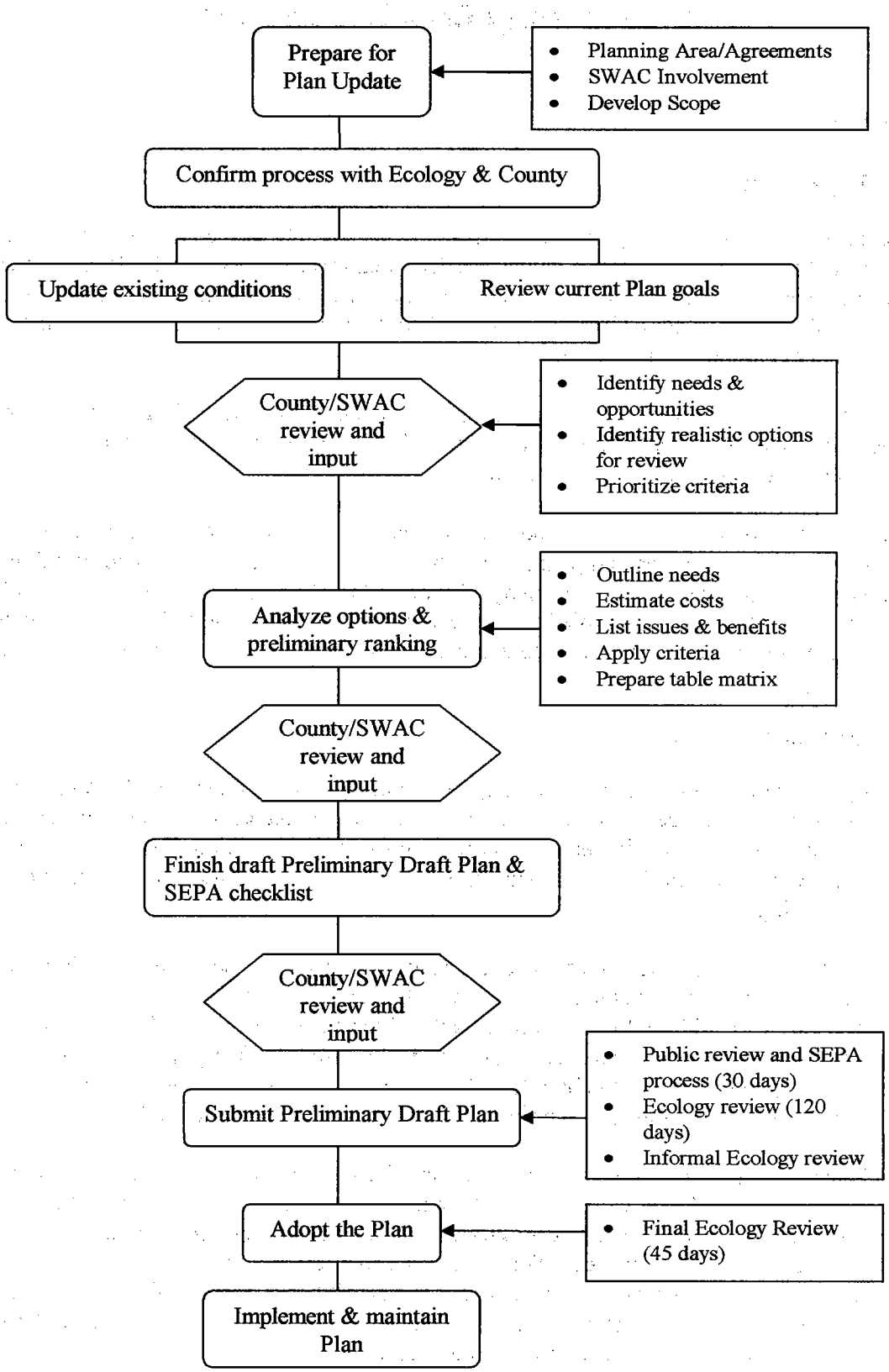
Review and revision of the Plan by public officials, representatives, the SWAC and the public, occurs throughout the process. After the SWAC and participating local governments have reviewed and accepted the revised preliminary draft plan, it is sent to Ecology and the WUTC for review. Ecology has 120 days to comment on revisions necessary for plan approval. After revision, the plan is resubmitted to Ecology for a second review, during which Ecology is allowed to comment on the revisions. After this step, plan is ready for adoption by each local jurisdiction participating in the plan. After adoption, the County sends the plan to Ecology for final approval. The plan is considered approved if Ecology takes no action within 45 days or responds with a letter of approval to the responsible Grant County official.

1.9.4 State Environmental Policy Act (SEPA)

The State Environmental Policy Act (SEPA) requires an evaluation of potential environmental impacts that may result from programmatic or non-project actions that involve decisions on policies, plans or programs (Chapter 197.11.310 WAC). This requirement includes solid waste management plans and plan updates. A SEPA checklist (Appendix D) is used for an initial determination of adverse impact. If a review by the lead agency finds actions identified as having potential adverse impacts, applicants must complete the more extensive, detailed environmental impact statement (EIS).

Once Ecology has completed its initial review and the plan is revised, the SEPA process can begin. The SEPA checklist involves a 30-day public comment period and formal public hearings. In general solid waste management plans do not go beyond the SEPA checklist.

Chart 1 - Plan Update Process



2 Planning Area Description

2.1 Earth

2.1.1 Topography

Grant County has variable topography, ranging from low rolling hills in the north to smooth, south-sloping plains in the south. The plains and hills are dissected by channeled scablands and coulees. Ground surface elevation ranges from about 380 feet Mean Sea Level at the south end of the County along the Columbia River to about 2,880 feet MSL at Monument Hill. Figure 1-2 shows the major topographic features found in Grant County.

The Grand Coulee, which contains Banks Lake, Park Lake, Blue Lake, Lake Lenore and Soap Lake, dissects the hills along the northwestern County line. The Columbia River flows along the southwestern and south boundaries of the County.

Beezley Hills, which are west of Ephrata and north of Quincy, trend generally east-west along the transition between the rolling hills and plains. Frenchman Hills separate the plains south of Quincy and Royal Slope. Crab Creek lies between Royal Slope and the Saddle Mountains to the south. Wahluke Slope is bounded by the Saddle Mountains and the Columbia River. Evergreen Ridge, Babcock Bench and Babcock Ridge trend generally north-south along the east side of the Columbia River.

2.1.2 Geology and Soils

Grant County lies within the Columbia Basin physiographic province. The bedrock geology of Grant County is dominated by a sequence of volcanic lava flows and sedimentary interbeds of the Columbia River Basalt Group. The basalts flowed from large fissures or rifts in the ground surface and spread in all directions. With time, the Columbia Basin area subsided, warping the basalt flows to create the east-west trending hills.

As the area subsided, the Columbia River eroded through the basalts to develop the Columbia Gorge. This down-cutting action and shifts in the river channel created terraces along the river valley. The Columbia River also formed broad floodplain deposits of coarse- to fine-grained soil when it periodically overflowed its banks. The action of wind transported the fine-grained soil (i.e., silt and clay) from the floodplains to cover the basalts. These wind-blown deposits are called loess. Normal stream activity created similar terraces and floodplains along tributary stream valleys.

During the Pleistocene the movement of continental ice sheets periodically dammed the Columbia River near the north end of Grant County. The damming created large glacial lakes that extended east beyond Washington State. The lakes broke through the ice dams periodically, catastrophically releasing great quantities of floodwaters. The rapid passage of the floodwaters stripped the loess mantle in many areas, creating scablands, and eroded the basalt flows, forming Grand Coulee, Dry Falls, Moses Coulee, potholes and similar features. The retreating floodwaters left behind large flood deposits containing boulders, as well as other earthen materials.

The U.S. Soil Conservation Service has generally characterized the surficial soils in Grant County as very shallow to very deep and well-drained to excessively drained. The soils are typically classified as sandy, silty or stony loam. These soils are formed in glacial outwash, loess, lake deposits, and alluvial and colluvial deposits from rivers, streams and surface water runoff. In some areas, the surficial soils are overlain by a thin mantle of fine-grained silt and clay.

2.1.3 Geologic Hazards

According to the Washington Department of Natural Resources, Division of Geology and Earth Resources, there is a low incidence of landslides or earthquakes in Grant County. The Washington State Earthquake Hazards (Information Circular 85) shows that the majority of Grant County is within Seismic Risk Zone 2. The 1991 Edition of the NEHRP Recommended Provisions for the Development of Seismic Regulations for New Buildings suggests that Grant County is in an area that has a 10% or greater probability of experiencing a maximum horizontal acceleration of 0.1g or greater at a recurrence interval of 250 years.

The U.S. Geological Survey Water-Resources Investigation Report 87-4238 shows thrust-faults along the Saddle Mountains and at the east end of Frenchman Hills. Circular 85 does not show these faults as being active within the last 10,000 years.

2.1.4 Vegetation and Wildlife

Primary migratory routes for bald eagles, sandhill crane, waterfowl and other birds cross Grant County. The native vegetation in Grant County is comprised mainly of grasses, forbs and shrubs. Stands of Ponderosa pine are scattered throughout northern Grant County.

The floodplains, terraces, and hills are used primarily as rangeland. These areas also support irrigated crops, non-irrigated crops and orchards. The channel scablands, with very shallow soils, are the least productive areas of the County.

Potholes, lakes, wet meadows and other wet areas provide suitable habitat for beaver, muskrat, waterfowl and wading birds. These areas are also sources of food, drinking water and cover for upland wildlife. The drier areas support sage grouse, coyote, sage thrasher, sage sparrow, blacktailed jackrabbit, burrowing owl and prairie falcon. Croplands interspersed with rangelands or wetlands provide habitat to support California quail, gray partridge, pheasant and other nonnative game birds.

2.2 Air

2.2.1 Climate

In Grant County, the climate is generally mild and dry. In winter, the maritime influence is strong because of the prevailing westerly winds off the Pacific Ocean. The Rocky Mountains shield the area from most of the arctic air masses that move down from Canada into the Great Plains and eastern United States. During the summer, thermals block temperate westerly winds, so summer days are typically hot and dry. According to U.S. National Oceanic and Atmospheric Administration records, the dry air results in a rapid temperature fall in the evening, particularly noticeable in the early fall and late spring. Table 2-1 summarizes the long term averages for temperature, precipitation, and snowfall averages recorded at the Ephrata Airport.

The long-term average monthly precipitation in Grant County ranged from 0.25 inch in August to slightly more than an inch in December. The long-term average annual precipitation is approximately 8 inches.

Table 2-1
Average Temperatures, Precipitation, and Snowfall
December 1, 1949 to March 31, 2005

Month	Temperature (F)		Average Total Precipitation (inches)	Average Total Snowfall (inches)
	Average Maximum	Average Minimum		
January	33.7	21.3	0.94	5.9
February	42	26.5	0.7	2.7
March	53.1	32.5	0.69	1
April	63	39.1	0.51	0
May	72.6	47.6	0.56	0
June	80.6	55.2	0.57	0
July	88.7	61.5	0.34	0
August	87.2	60.1	0.25	0
September	78.1	51.5	0.33	0
October	63	40.1	0.52	0
November	45.1	30.2	0.99	2.2
December	35.2	23.5	1.17	6.8
Annual	61.8	40.8	7.57	18.6

Source: Western Region Climate Center Website, August 23, 2005
[1] Data are from Ephrata Airport.

2.2.2 Air Quality

The Federal Clean Air Act and subsequent amendments place most of the responsibilities on states to achieve compliance with the air quality standards. In Grant County, the eastern regional office of Ecology implements Federal and State legislation and monitors air quality state-wide. Ecology and the U.S. Environmental Protection Agency (EPA) have designated Grant County as an area currently in attainment for air quality standards.

Grant County does not have permanent or mobile monitoring stations. Ecology is not currently monitoring air quality in Grant County.

The Clean Air Act affects municipal solid waste landfills because of landfill gas emissions, which contain particulates, methane, and other gases of concern. The Federal Code of Regulations 40 CFR Part 60 Subpart WWW establish a landfill gas emission limit of 50 megagrams per year of nonmethane organic compounds for municipal solid waste landfills. If this limit is exceeded, owners of municipal solid waste landfills must to install a landfill gas collection system and then burn or utilize the captured landfill gases.

2.3 Water Quality

2.3.1 Surface Water

Grant County is within the Columbia River Basin. The Washington State Department of Natural

Resources (DNR) reports that this watershed area is classified as agricultural and is not subdivided into drainage basins.

Portions of Grant County are part of the Columbia Basin Project managed by the Bureau of Reclamation of the U.S. Department of Interior. The area is divided into four irrigation districts: Quincy Columbia Basin, Moses Lake, South Columbia Basin and East Columbia. Wasteways collect and convey water from irrigated lands within the irrigation districts.

The Potholes Reservoir and Banks Lake are storage reservoirs in Grant County. The Columbia River is dammed at several locations to create flood storage and/or for power generation. These reservoirs are used to augment summer flows for irrigation, control flows for instream habitat, and reduce flooding during winter storms and spring snowmelt.

Ecology categorizes streams as Class AA (extraordinary), Class A (excellent), or Class B (good) using the Washington State stream classification system. In Grant County, one stream, Crab Creek, is classified as Class B on the basis of elevated temperature and pH measurements. Class B streams should not be used as a source of domestic water supply nor for primary contact recreation, such as swimming or water skiing. Crab Creek is on Ecology's proposed list of water quality limited streams.

2.3.2 Ground Water

The major aquifer systems underlying Grant County are the Overburden, Saddle Mountain, Wanapum and Grand Ronde hydrologic units. The Overburden unit is in recent unconsolidated deposits. The Saddle Mountain, Wanapum, and Grand Ronde units are in the Columbia River Basalts. Ground water quality in these systems is good and considered suitable for most uses. Ground water is the major source of drinking water in Grant County.

Agricultural activities have affected the ground water system in the Columbia Basin Project area. In irrigated areas, near surface water levels have increased, whereas water levels have declined in adjacent areas. Elevated levels of dissolved oxygen, calcium, magnesium, sulfate, chloride, sodium bicarbonate and/or nitrogen have been measured in shallow areas of the Saddle Mountains and Wanapum units beneath irrigated areas.

In 1998, Ecology signed an order creating the Columbia Basin Ground Water Management Area (GWMA) at the request of Adams, Franklin, and Grant counties. Several committees were formed to develop recommendations for water quality monitoring, public education, and other programs and implementation strategies. These were presented to an executive committee and then to the Boards of Commissioner for each participating county. Recommendations included:

- GWMA should help develop nutrient management guidelines to reduce soluble nitrate from fertilizer application and animal waste.
- The livestock industry should voluntarily adopt best management practices to reduce nitrate contribution.
- GWMA should help facilitate implementation of nutrient management strategies.
- Dairy, feedlot and cattlemen industries should form an advocacy group to facilitate communications with regulatory agencies, assure representation and work with the agencies to implement fair regulatory practices.
- GWMA should sponsor projects evaluating livestock management practices with respect to preventing deep migration of nitrate.

- GWMA should implement a public information and education program on concerns, issues, and strategies related to livestock management.

2.4 Socio-Economic

2.4.1 Population

The 1993 population (the year used for the 1995 Plan) for Grant County was estimated at 60,300, and increased to an estimated 78,300 in 2004 (Tables 2-2 and 2-3). Fourteen incorporated cities are wholly within the County. A small portion of Coulee Dam lies within Grant County, but is estimated to have zero population in 2004.

Approximately 48% of the County's population lives in incorporated areas. Grant County has three urban areas: the cities of Moses Lake, Ephrata, and Quincy. The largest city in Grant County is Moses Lake, which has approximately 21% of the population. The second largest city is Ephrata with approximately 9% of the population. Approximately 7% of the County's population lives in Quincy.

Between 1992 and 2004 the County's population grew by approximately 30%. Figure 2-1 shows the population distribution by census division using 2000 U.S. Bureau of Census data.

2.4.2 Land Use Patterns

Grant County comprises approximately 1.7 million acres. The U.S. Energy and Development Administration's Hanford Works occupies about 70,000 acres of southern Grant County. The Columbia National Wildlife Refuge comprises about 29,000 acres south and east of the Potholes Reservoir. High density unincorporated and incorporated areas comprise less than 1% of Grant County. The remaining land is used for agriculture; used as State and County parks, recreation areas and wildlife refuges; managed by the U.S. Bureau of Land Management; or is undeveloped.

In Grant County, the dominant land use is agriculture. The 2002 Census of Agriculture (U.S. Department of Agriculture) lists approximately 1.1 million acres, or about 65% of the area of the County, as being used for rangeland and crops. Approximately 804,800 acres is used for crop production, including about 485,460 acres of irrigated land. Orchards occupy approximately 50,260 acres. The major crops produced include hay, potatoes, corn, wheat, barley, and vegetables.

2.4.3 Transportation

Figure 1-2 shows the major transportation network serving Grant County. The transportation system provides access by highway, rail, and air.

The County is crossed north-south and east-west by two major Federal highways and several state routes. These routes interconnect, providing excellent access from other areas of the State and within the County to incorporated cities and recreational sites. The principal Federal highway is Interstate 90, which links George and the City of Moses Lake with Spokane to the east and Ellensburg and Seattle to the west. U.S. 2, which links Hartline and Coulee City, continues west to Everett and east beyond Spokane. State Highways 17, 24, 26, 28, 155, 170, 243, 262, 281, 282, 283, and 284 cross Grant County north-south and east-west. Additionally, the County maintains nearly 2,600 miles of roads connecting rural areas with cities and highways.

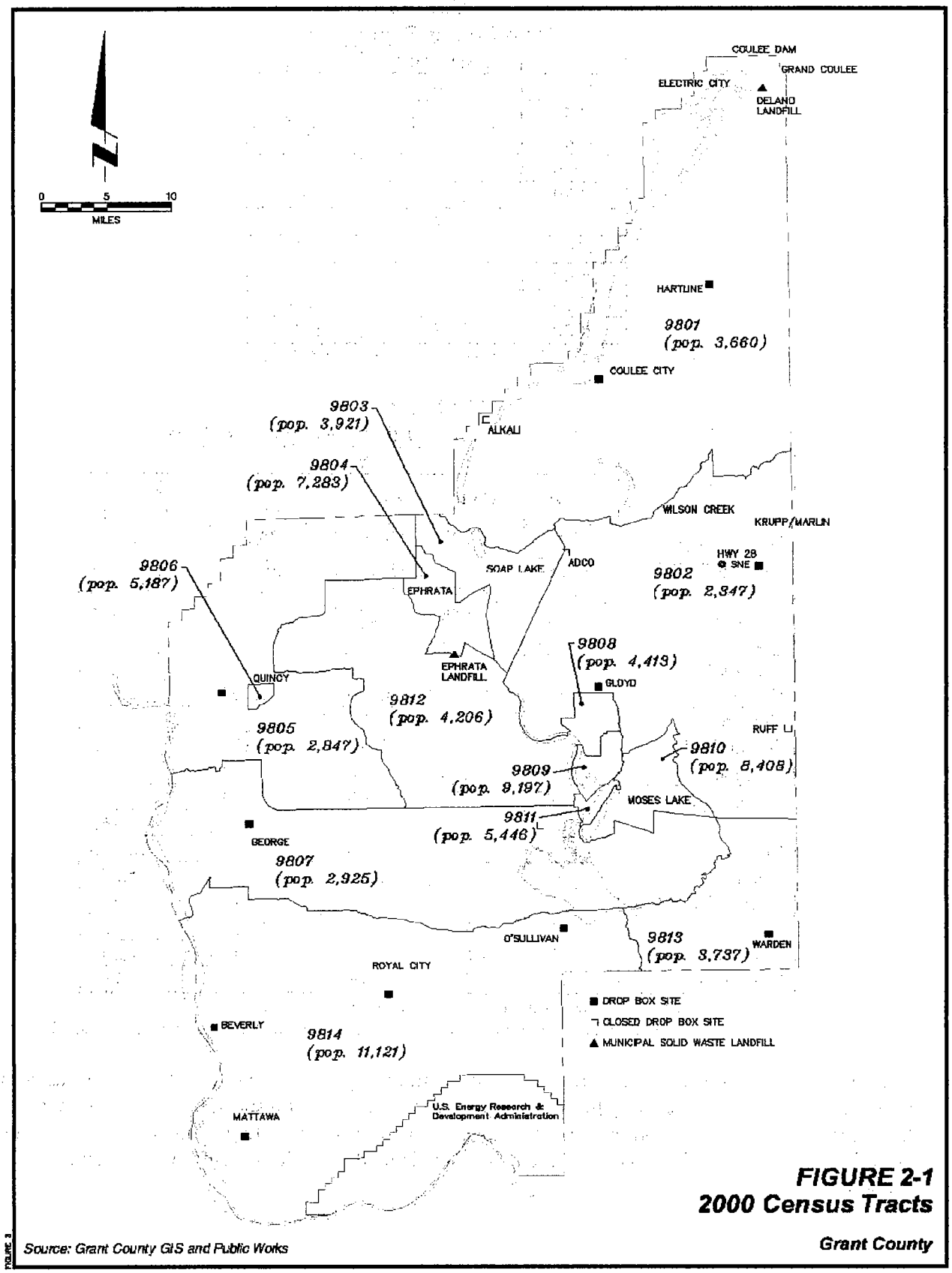


FIGURE 2-1
2000 Census Tracts

Source: Grant County GIS and Public Works

Grant County

Table 2-2
Grant County Population

Year	Population	Change
1940	14,668	
1950	24,346	66%
1960	46,477	91%
1970	41,881	-10%
1980	48,522	16%
1990	54,758	13%
1993	60,300	10%
2000	74,698	24%
2010	88,331	18%
2020	98,715	12%

Sources: U.S. Bureau of the Census and OFM.

Table 2-3
Population By Incorporated And Unincorporated Areas

Area	Year				
	1980	1990	1993	2000 Census	2004 (estimated)
Grant County	48,522	54,798	60,300	74,698	78,300
Unincorporated	22,005	26,406	30,456	35,797	37,240
Incorporated	26,517	28,392	29,844	38,901	41,060
Coulee City	510	568	622	600	605
Coulee Dam[1]	2	3	2	4	0
Electric City	927	910	915	922	950
Ephrata	5,359	5,349	5,550	6,808	6,890
George	261	324	336	528	525
Grand Coulee	1,180	984	1018	897	925
Hartline	165	176	180	134	135
Krupp (Marlin)	87	63	60	60	65
Mattawa	299	941	1310	2,609	3,265
Moses Lake	10,629	11,235	11,700	14,953	16,110
Quincy	3,525	3,734	3,810	5,044	5,255
Royal City	676	1,104	1,145	1,823	1,815
Soap Lake	1,196	1,203	1,260	1,733	1,735
Warden	1,479	1,609	1,710	2,544	2,540
Wilson Creek	222	189	226	242	245

Sources: Office of Financial Management and Grant County.
[1] Population is reported only for the portion of Coulee Dam that is within Grant County.

The County has seasonal load restrictions on roads and bridges. For roads, these restrictions comply with requirements established by the Washington Department of Transportation. The seasonal load limits are generally lowered in the winter to reduce road damage resulting from heavy loads during periods of freezing weather. Table 2-4 lists seasonable load limits for County-maintained road bridges.

The majority of commercial, freight, passenger and private air traffic is routed through the Grant County Airport near the City of Moses Lake. Smaller airports, which are used typically by private planes, exist at Electric City, Ephrata and other municipalities.

A Burlington Northern Sante Fe Railroad (BNSF) line crosses Grant County through Quincy, Ephrata, Soap Lake, Wilson Creek and Marlin. The BNSF also provides rail access to the City of Moses Lake, Wheeler and Warden. This line continues south from Grant County towards Connell in Franklin County. In 1995, the Royal Slope Railroad operated a line from Royal City to the BNSF line at Othello. This line no longer operates, is owned by the Washington State Department of Transportation, and needs repair. The Port of Royal Slope and WSDOT are discussing possibly reopening the line to help service a new industrial park owned by the Port.

Table 2-4
Load Limitations For County Bridges

Bridge		Maximum Allowed Gross Load (Tons)
Name	Number	
'F' NE	118	13
'O' NE	126	19
'S' NE	131	16
'F' NE	139	13
'15.5' NE	155	24
'4' SE	228	30
'2.8' SE	251	32
Red Rock Coulee Road	303	18
'E' SE	313	20
'I' SW	317	22
Division.1 NW	322	24
Baird Springs	354	27
'V' SW	375	27
'J' NW	384	34
'E.2' SW	419	28
Crescent Bar	425	31

2.4.4 Economic Trends

Grant County's economic base is in the agricultural, manufacturing, retail and service sectors. From 1992 (the year used for the 1995 Plan) through third quarter 2004, employment increased approximately 18% in the agricultural, forestry and fishing sectors and 38% in nonagricultural sectors. The nonagricultural industries with the largest increase in number of employees were finance, insurance and real estate; manufacturing, and government. Employment in the wholesale and retail trades decreased approximately 7%. Unemployment decreased from 11% to 8.2% of the total civilian labor force. Table 2-5 lists the employment distribution by industry in 1992 and average of the first three quarters of 2004.

Table 2-5
Employment Distribution

Category	Employment Distribution		Change
	1992	2004	
Agriculture, Forestry and Fishing	8,320	9,854	18%
Manufacturing	3,200	4,101	28%
Construction & Mining	1,030	946	-8%
Transportation, Warehousing, 7 Utilities	790	791	0%
Wholesale Trade	1,350	993	-26%
Retail Trade	3,630	3,003	-17%
Information		185	
Finance, Insurance, Real Estate, & Miscellaneous	500	821	64%
Services	2,610	3,164	21%
Health Care & Social Assistance		2,344	
Arts & Entertainment		372	
Accommodations & Food Service		1,846	
Government	5,390	6,930	29%
Total Civilian Labor Force	30,140	38,650	17%
Unemployment	3,320 (11%)[1]	3,300 (8.2%)[1]	

Source: Washington State Employment Security Department
[1] Percent of the total civilian labor force.

3 Waste Composition

Ecology guidelines require the analysis of waste stream composition, sources, quantities and projections. This information helps identify the County's specific waste reduction and recycling needs, facilitating program development.

According to County data, a total of 75,451 tons of waste was disposed by Grant County residents, businesses and institutions in 2004. In addition, about 1,739 tons of industrial sludge and one ton of asbestos were disposed. These tonnages represent municipal solid waste (MSW) that is disposed within Grant County landfills. Substantial quantities of agricultural waste are disposed or beneficially used on site or at private facilities. Recycled tonnages are based on responses to Department of Ecology statewide survey. Local collectors who did not respond to the survey were contacted to verify that their quantities were included in Ecology totals. Total waste quantities are listed in Table 3-1. Approximately 81% of the County's waste was disposed, and the remaining 19% was recycled. The daily per capita disposal rate is more than four times the per capita recycling rate.

Table 3-1
Waste Quantities

	Tons	% of Total	Per Capita (lbs/day)
Disposed[1]	75,451	81%	5.53
Recycled	17,288	19%	1.27
Total	92,739		

[1] Excludes about 1,739 tons of industrial sludge and one ton of asbestos

3.1 Waste Substreams

A substream is determined by the particular generation, collection, or composition characteristics that make it a unique portion of the total waste stream. Three waste substreams were defined for this Grant County Solid Waste Plan Update: 1) commercial/industrial, 2) residential, and 3) self-haul. Each substream is described below.

- **Commercial/Industrial** – waste generated by businesses, institutions, and industrial entities and collected by a municipal or private garbage hauler.
- **Residential** – waste generated by single- and multi-family residences and collected by a municipal or private garbage hauler.
- **Self-haul** – waste transported to a landfill or garbage drop box site by someone other than a municipal or private garbage hauler.

Table 3-2 presents the total disposed 2004 tonnages for each of the three primary disposal facilities: Ephrata Landfill, Delano Landfill, and the drop box sites. These data were derived primarily from a survey conducted by Grant County staff during August of 2005 at the Ephrata Landfill. As shown, the commercial/industrial and residential substreams contribute the largest amount of disposed waste (31,564 and 26,434 tons, respectively), with an additional 17,453 self-haul tons. In addition, 1,739 tons of sludge and one ton of asbestos were disposed.

Table 3-2 Disposed Tonnages, by Substream and Disposal Site

Substream	Ephrata Landfill	Drop Box Sites	Delano Landfill	Total
Commercial/Industrial	29,484		1,397	**30,881**
Residential	26,018		1,099	**27,117**
Self-haul	13,023	3,843	587	**17,453**
Total	**68,525**	**3,843**	**3,083**	**75,451**

3.2 Waste Stream Composition

3.2.1 Introduction

The figures and tables in this section summarize the composition of waste disposed in Grant County in 2004, including the total waste stream and the three substreams (defined in Chapter 3.1). A pie chart and a top ten table are presented for each waste stream. The pie chart presents an overview of waste composition for five material categories, based on recycling and composting potential. The five material categories are defined below.

1. **Recyclable** – materials that are currently recycled in Grant County. These materials are shown in dark blue in tables and charts in this report.
2. **Potentially recyclable** – materials that are currently recycled in Washington State, but not in Grant County. These materials are shown in light blue in tables and charts in this report.
3. **Compostable** - materials that are currently composted in Grant County. These materials are shown in dark green in tables and charts in this report.
4. **Potentially compostable** - materials that are currently composted in Washington State, but not in Grant County. These materials are shown in light green in tables and charts in this report.
5. **Other** – materials that are not currently recycled or composted in Grant County or Washington State. These materials are shown in black in tables and charts in this report.

Table 3-3 lists the individual materials in each of the recycling and composting categories described above.

Table 3-3
Individual Materials, by Recycling and Composting Category

RECYCLABLE	POTENTIALLY RECYCLABLE	OTHER MATERIALS
Newspaper	Other Groundwood Paper	Remainder/Composite Paper
Cardboard	Mixed/Low-grade Paper	Process Sludge/Other Industrial
High-grade Paper	PET Bottles	Other Rigid Plastic Packaging
Magazines	Plastic Bottles Types 3 - 7	Other Plastic Products
HDPE Bottles, Clear	Expanded Polystyrene	Remainder/Composite Plastic
HDPE Bottles, Colored	Green Glass Beverage	Plate Glass
Plastic Film and Bags	Green Glass Container	Remainder/Composite Glass
Clear Glass Beverage	Natural Wood	Non-glass Ceramics
Brown Glass Beverage	Treated Wood	Aluminum Foil/Containers
Clear Glass Container	Dimensional Lumber	Remainder/Composite Metals
Brown Glass Container	Engineered Wood	Septage
Aluminum Cans	Wood Packaging	Remainder/Composite Organics
Other Aluminum	Other Untreated Wood	Painted Wood
Copper	Drywall	Wood Byproducts
Other Non-ferrous Metals	Soil, Rocks and Sand	Remainder/Composite Wood
Tin Cans	Ceramics	Shoes
White Goods	Household Batteries	Furniture and Mattresses
Other Ferrous Metals	Latex Paint	Carpet
Carcasses, Offal	**COMPOSTABLE**	Carpet Padding
Computers	Yard Garden and Prunings	Rejected Products
Other Electronics	POTENTIALLY COMPOSTABLE	Returned Products
Tires and Other Rubber	Compostable Paper	Other Composite Consumer Products
Asphalt	Food Waste	Insulation
Concrete	Manures	Roofing Waste
Used Oil	Crop Residues	Remainder/Composite CDL
Oil Filters		Pesticides and Herbicides
Antifreeze		Oil Paint
Auto Batteries		Medical Waste
Fluorescent Tubes		Asbestos
		Other Hazardous Waste
		Other Non-hazardous Waste
		Ash
		Dust
		Fines/Sorting Residues
		Sludge and Other Industrial

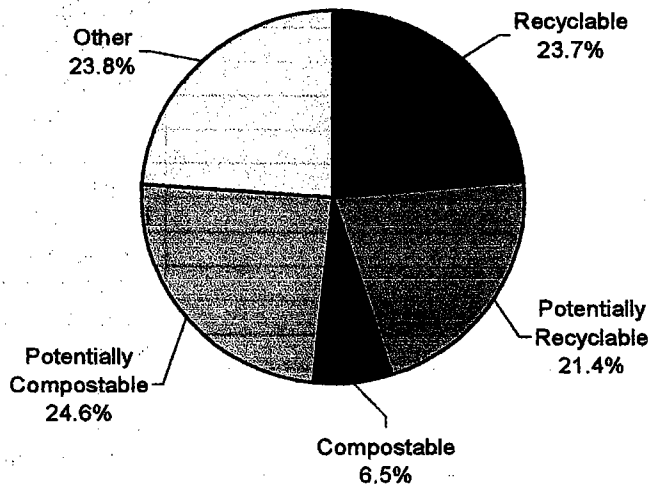
The table that follows each pie chart below lists the ten most predominant individual materials in the waste stream, by weight. Please refer to Appendix E for definitions of all individual materials.

The composition estimates were derived using data from the 2003 Washington State Department of Ecology Rural Waste Characterization Study. Appendix F presents the detailed composition results for the County's overall waste stream and the three substreams. Appendix G describes the calculation methodology used to create composition profiles for each substream.

3.2.2 Waste Composition, Overall County

Figure 3-1 provides an overview of all waste disposed in Grant County in 2004, including residential, commercial and self-haul wastes. Potentially compostable materials, such as food waste and compostable paper make up almost one quarter of Grant County's disposed waste. When combined, the recyclable and potentially recyclable materials, such as mixed paper, ferrous metals, and cardboard comprise about 45% of the County's disposed waste stream.

Figure 3-1. Overview of Grant County Waste Composition



As shown in Table 3-4, food waste, yard garden and prunings, and remainder/composite metals were the three largest individual materials by weight in Grant County's disposed waste in 2004. When combined, these three materials make up about one third of the County's waste. Food waste is a potentially compostable material, while yard, garden and prunings are currently compostable through the City of Quincy's compost facility. Remainder/composite metals includes items made of a mixture of ferrous and non-ferrous or a mixture of metal and non-metallic materials, and include items such as small appliances, motors and insulated wire. Please refer to Appendix E for definitions of all individual materials.

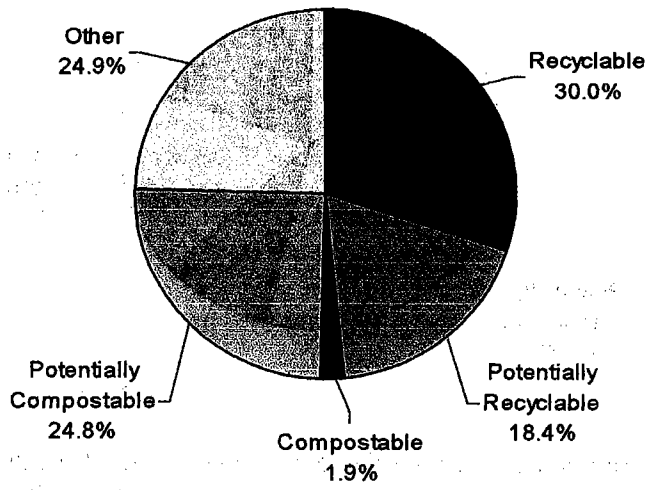
Table 3-4
Top Ten Materials in Grant County Waste

Material	Percent	Tons	Cumulative Percent
Food Waste	19.9%	14,994.5	19.9%
Yard Garden and Prunings	6.5%	4,869.6	26.3%
Remainder/Composite Metals	6.1%	4,639.0	32.5%
Plastic Film and Bags	4.8%	3,632.2	37.3%
Other Ferrous Metals	4.7%	3,520.5	42.0%
Dimensional Lumber	4.3%	3,245.0	46.3%
Mixed/Low-grade Paper	4.1%	3,117.6	50.4%
Compostable Paper	4.0%	3,021.2	54.4%
Cardboard	3.9%	2,970.6	58.3%
Remainder/Composite Plastic	3.0%	2,236.1	61.3%
Totals	**61.3%**	**46,246.2**	

3.2.3 Waste Composition, Commercial/Industrial Substream

Figure 3-2 provides an overview of the commercial/industrial waste disposed in Grant County in 2004. The recyclable portion made up about 30% of all disposed waste, and included individual materials such as plastic film and bags and cardboard. Potentially compostable materials also comprised a relatively large portion of commercial/industrial waste in the County at approximately 25% of the total. Food waste and compostable paper made up much of the potentially compostable material.

Figure 3-2. Overview of Commercial/Industrial Waste Composition



As shown in Table 3-5, food waste, plastic film and bags, and cardboard were the three largest individual materials by weight in Grant County's commercial/industrial disposed waste in 2004. When combined, these three materials make up about 32% of the waste. Food waste, which is a potentially compostable material, makes up approximately 19% of the County's commercial/industrial disposed waste stream.

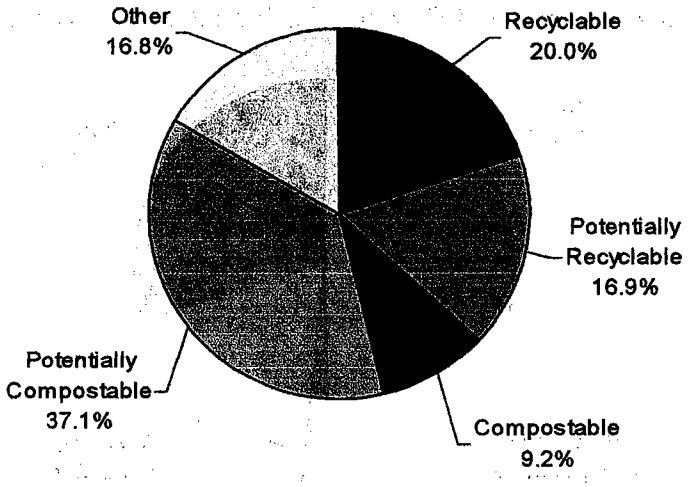
Table 3-5
Top Ten Materials in Commercial/Industrial Waste

Material	Percent	Tons	Cumulative Percent
Food Waste	18.7%	5,788.2	18.7%
Plastic Film and Bags	7.2%	2,235.5	26.0%
Cardboard	6.1%	1,885.7	32.1%
Remainder/Composite Metals	6.0%	1,865.6	38.1%
Compostable Paper	5.1%	1,582.1	43.3%
Remainder/Composite Plastic	4.7%	1,451.1	48.0%
Other Ferrous Metals	4.4%	1,368.2	52.4%
Tires and Other Rubber	3.8%	1,183.6	56.2%
Mixed/Low-grade Paper	3.7%	1,154.1	60.0%
Drywall	3.5%	1,085.3	63.5%
Totals	**63.5%**	**19,599.3**	

3.2.4 Waste Composition, Residential Substream

Figure 3-3 provides an overview of the residential waste disposed in Grant County in 2004. Potentially compostable waste made up the largest portion of residential waste at about two-thirds of the total, with materials such as food waste and compostable paper making up the largest percentages. Recyclable materials are the second largest portion of the residential substream (20.0%), with relatively large amounts of plastic film and bags, cardboard, and newspaper.

Figure 3-3. Overview of Residential Waste Composition



As shown in Table 3-6, food waste, yard garden and prunings, and disposable diapers were the three largest individual materials in Grant County's residential substream in 2004. When combined, these three materials make up nearly 47% of the waste. Food waste alone, a potentially compostable material, comprises about 31% of the County's residential waste.

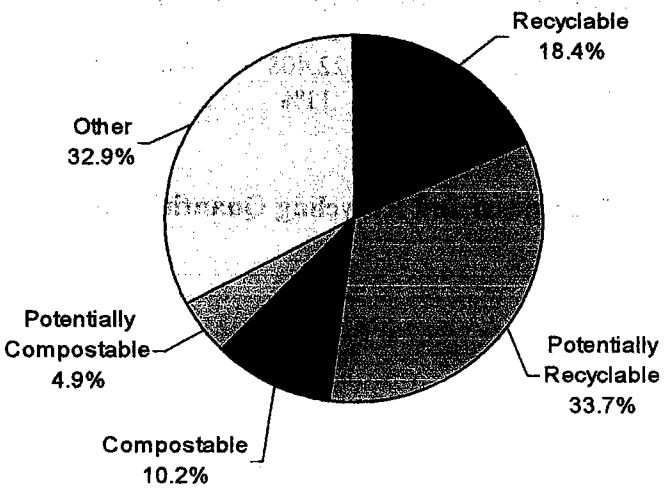
Table 3-6
Top Ten Materials in Residential Waste

Material	Percent	Tons	Cumulative Percent
Food Waste	30.9%	8,372.3	30.9%
Yard Garden and Prunings	9.2%	2,491.8	40.1%
Disposable Diapers	6.4%	1,732.0	46.5%
Mixed/Low-grade Paper	6.0%	1,632.5	52.5%
Compostable Paper	5.2%	1,420.2	57.7%
Plastic Film and Bags	4.7%	1,274.4	62.4%
Cardboard	3.3%	888.6	65.7%
Soil, Rocks and Sand	2.9%	796.6	68.6%
Newspaper	2.2%	599.3	70.8%
Other Groundwood Paper	1.9%	506.6	72.7%
Totals	**72.7%**	**19,714.3**	

3.2.5 Waste Composition, Self-haul Substream

Figure 3-4 provides an overview of the self-haul waste disposed in Grant County in 2004. Potentially recyclable materials, such as dimensional lumber, drywall, and engineered wood make up nearly 34% of all self-haul waste disposed. Other materials comprise about 33% of the total self-haul waste, with materials such as remainder/composite metals, furniture and mattresses, and other plastic products. Remainder/composite metals includes items made of a mixture of ferrous and non-ferrous or a mixture of metal and non-metallic materials, and include items such as small appliances, motors and insulated wire.

Figure 3-4. Overview of Self-haul Waste



As shown in Table 3-7, remainder/composite metals, dimensional lumber, and yard garden and prunings were the three largest individual materials by weight in Grant County's residential disposed waste in 2004. Remainder/composite metals includes items made of a mixture of ferrous and non-ferrous or a mixture of metal and non-metallic materials, and include items such as small appliances, motors and insulated wire. When combined, these three materials made up about 36% of the waste stream. Dimensional lumber is potentially recyclable and yard garden and prunings are compostable.

Table 3-7
Top Ten Materials in Self-haul Waste

Material	Percent	Tons	Cumulative Percent
Remainder/Composite Metals	13.3%	2,315.7	13.3%
Dimensional Lumber	12.5%	2,178.2	25.7%
Yard Garden and Prunings	10.2%	1,776.1	35.9%
Other Ferrous Metals	9.9%	1,727.9	45.8%
Drywall	6.4%	1,123.9	52.3%
Engineered Wood	6.2%	1,075.9	58.4%
Furniture and Mattresses	4.9%	856.6	63.3%
Food Waste	4.8%	834.0	68.1%
Other Plastic Products	4.1%	721.3	72.3%
Wood Packaging	3.8%	666.3	76.1%
Totals	**76.1%**	**13,275.9**	

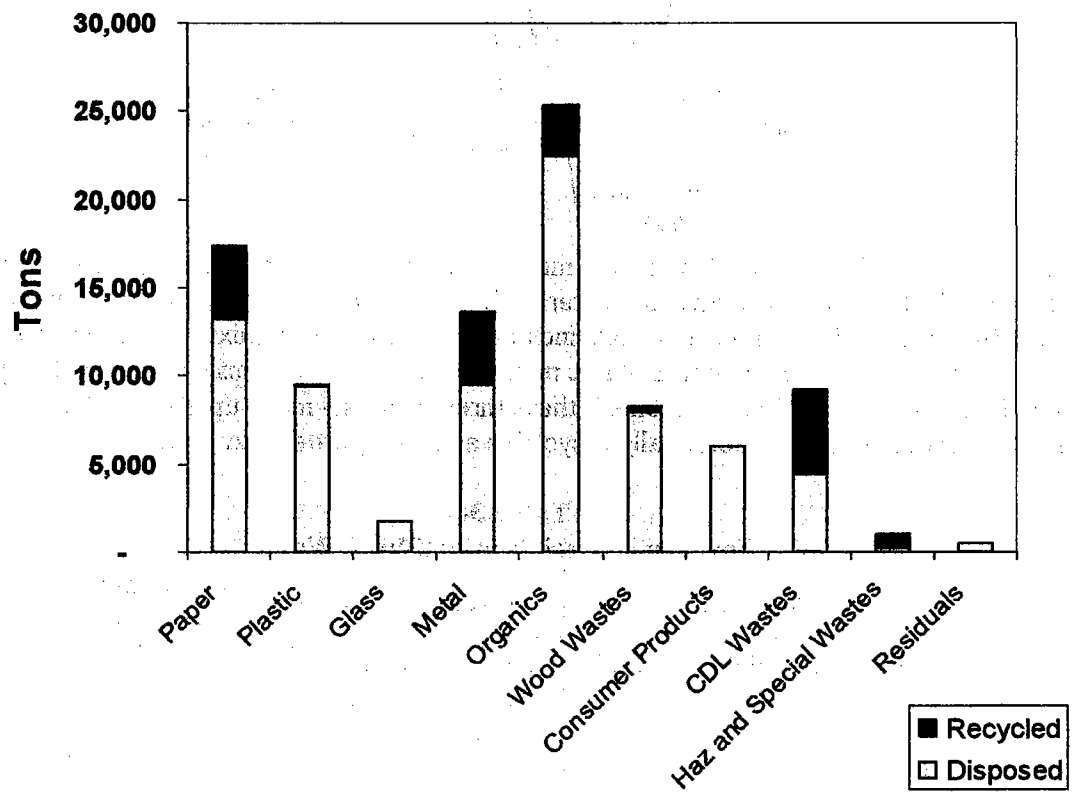
3.2.6 Recycling Rates

To better understand the recycling potential for those wastes currently disposed, Figure 3-5 and Table 3-8 compare quantities of recyclable materials currently recycled versus the amount disposed for each of the nine major material classes: paper, plastic, glass, metal, organics, wood wastes, consumer products, CDL wastes, and hazardous and special wastes. Hazardous and special wastes, CDL wastes, and metal classes show the highest recycling rates at 78%, 52% and 30% respectively. The individual materials included in each of the nine material classes are listed in Appendix E.

Table 3-8
Disposal and Recycling Quantities, by Material Class

Category	Paper	Plastic	Glass	Metal	Organics	Wood	Consumer	CDL	Haz/Spec	Residuals
Tons Recycled	4,125	76	25	4,156	2,905	381	67	4,725	828	0
Tons Disposed	13,292	9,413	1,735	9,524	22,408	7,940	5,976	4,437	235	489
Recycling Rate	24%	1%	1%	30%	11%	5%	1%	52%	78%	0%

Figure 3-5. Disposal and Recycling Quantities, by Material Class



3.2.7 Waste Stream Projections

The methodology used to project solid waste generation rates for the next 6 and 20 years utilized current per capita and per employee waste generation rates and population projections (provided by the Office of Financial Management).

Waste and recycling quantities for 2004 were provided to the consultant team by County staff, solid waste collectors, and recycling and disposal site staff. According to this information, a total of 92,739 tons of waste were generated in the County in 2004. This number excludes 1,739 tons of sludge and one ton of asbestos. The residential waste generation projections for 2011 and 2025 are based on a per capita disposal rate of 0.96 tons, or 1,340 pounds, per person per year, a per capita recycling rate of 0.22 tons, or 442 pounds, per person per year and a 2004 population base of 78,300.

Using the per capita generation and disposal rates, Table 3-9 projects future solid waste stream generation and disposal needs. Disposal needs assume there will be no change in the rate above present levels for recycling or waste reduction, which is a very conservative assumption. Improvement in recycling and waste reduction rates pursuant to the goals established in Chapter 4 of this plan will reduce both the total generation quantities and the disposal needs in the future.

Table 3-9
Waste Generation Projections, 2010 and 2025

Year	Population[1]	Estimated Total Waste Generation (tons/yr)	Estimated Disposal Needs (tons/yr)	Estimated Recycled Waste (tons/yr)
2010	88,331	104,620	85,117	19,503
2025	98,395	116,540	94,815	21,725

[1] Intermediate County Population Projections developed for Growth Management Act, Washington State Office of Financial Management, Forecasting Division, January 2002: divisionhttp://www.ofm.wa.gov/pop/gma/index.htm

3.2.8 Inter-county Waste Transfer

Not all waste generated by Grant County residents, industries, and institutions is disposed within the County. In 2004, only waste from Crescent Bar was exported from the County. WMI transported about 1,400 tons of waste from this area to the Greater Wenatchee Landfill for disposal.

Waste is also imported from outside the County. In 2004, out-of-County waste came from the Bureau of Land Management and the Parks Department. Additionally, waste from Elmer City and Coulee Dam, members of the Regional Board of Mayors (RBOM), is delivered to Delano Landfill. Quantities are not available at the current time.

4 Waste Reduction And Recycling

4.1 Goals for Waste Reduction and Recycling

Beginning in 1989 with the adoption of Chapter 70.95 RCW (the *Waste Not Washington Act*), County governments were required to include waste reduction and recycling (WR&R) elements in their solid waste management plans. This chapter provides the current WR&R strategies as well as recommended strategies developed through the process of updating the Plan.

To comply with state law, conserve resources, and protect its quality of life, Grant County has established the following WR&R goals:

- Divert material from the Ephrata Landfill to prolong disposal capacity.
- In support of the State's goal to achieve a 50% recycling rate, implement WR&R programs to increase the current recycling rate above 19%
- Encourage WR&R in Grant County by providing opportunities and incentives, encouraging source separation, and targeting problem wastes, marketable materials, and major waste stream components.
- Educate and involve Grant County citizens in WR&R efforts and in responsible waste management.

4.2 Regulatory Framework

The Waste Not Washington Act established WR&R as the top two strategies for handling solid waste. A goal of 50% recycling by 1995 was set for the State. However, the target year was changed to 2007 since the original target was not met. While the amount of material recycled in Grant County has increased from about 10,500 tons in 1995 to almost 17,300 tons in 2004, the recycling rate has remained at 19% because waste generation has increased at the same rate as recycling.

4.3 Waste Reduction

Waste reduction is the State's preferred method for managing solid waste. Ecology defines it as reducing the amount or toxicity of waste generated, or reusing materials.

Waste reduction focuses on using resources more efficiently, such as eliminating excess packaging and buying durable products instead of disposable items. It can be the most effective, economical and environmentally sound way to manage waste. Waste reduction avoids the need to develop and finance systems to collect, process, market, manufacture, recycle, and/or dispose of recyclables and garbage.

4.3.1 Current Programs

The two County programs that are intended to increase waste reduction in Grant County are described below.

WR&R Education & Outreach/Collection

In order to maintain and increase awareness of waste reduction opportunities, the County conducts the following activities as part of the WR&R Education & Outreach/Collection program.

- Establishing a presence at community events, such as farmers markets, the Grant County Fair,

and festivals, to provide information on waste reduction.

- Offering education for backyard composting, in part by continuing to conduct an annual backyard composting workshop.
- Evaluating implementation of tire recycling at the landfill
- Mailing letters to teachers twice per year regarding waste reduction tips, Household Hazardous Waste (HHW) collection events, and available classroom presentations.
- Visiting classrooms to conduct presentations on recycling and waste reduction.
- Publishing and distributing brochures listing recycling sites.
- If funding allows, increasing publicity about current programs.

COMMERCIAL WR&R EDUCATION & OUTREACH/COLLECTION

Through the Commercial WR&R Education/Outreach program, the County plans to work with schools to decrease their waste generation. Additionally, the County mails newsletters to medium- and large-sized businesses to raise awareness about WR&R. This program provides the funding to respond to WR&R questions if businesses contact the County.

4.3.2 Key Issues

As discussed in Chapter 3.2.7, the County's waste generation is projected to increase by about 26% over the next 20 years unless additional progress is made toward waste reduction. Currently, the Delano Landfill is near capacity and predicted to close in 2006. Ephrata Landfill expanded recently and has an estimated site life that exceeds this 20-year planning period. Waste reduction can help to slow the growth of waste generation and allow the County to extend the life of Ephrata Landfill.

Additionally, waste reduction decreases the quantities that recycling programs must handle. This is advantageous, because Grant County is distant from most recyclables markets which, in conjunction with current low market prices for many commodities, reduces or eliminates revenues from the sale of recyclables. These factors limit the number of economically viable recyclable commodities. Waste reduction avoids the need to develop and finance systems to collect, process, market, manufacture and/or dispose of recyclables and garbage. Because waste reduction is such an efficient and economical tool, the County would benefit from implementing broad-based waste reduction programs and encourage city governments to plan complementary programs.

When developing the program, the County should be aware that waste reduction is generally not as well documented or understood as recycling and will require extensive educational components. Additionally, some waste reduction tactics, especially those involving product and packaging waste, are controlled by economic, political and educational forces beyond the County's control.

4.3.3 Options

Several possible programs to achieve further waste reduction are presented below.

EDUCATION AND PROMOTION PROGRAMS

Description: Provide general education brochures, utility bill inserts, newspaper articles, media ads, new program kick-off events, website, etc. to promote reuse and recycling in Grant County. Adding $1.00 in expenditures per household can add 3% to recycling rates (*Resource Recycling*, July 2002). Educational materials could give a general overview of reuse and recycling opportunities for traditional recyclables and household hazardous waste (electronics, motor oil), by listing a brief description of available services and where to call

for further information. Brochures could be inserted in County tax bill or utility bills once a year, distributed at public facilities, libraries, grocery stores, etc. Ads could be purchased once a quarter for general education. Press releases and flyers would be used to announce special events.

Targeted Waste Stream: Residential, commercial, and self-haul
Materials Recovered: All materials that can be reduced or reused
Estimated Diversion: 2,750 tons per year (3% of current recycling rate)
Estimated per Ton Costs: $6 per ton (assumes expenditure of $1 per household per year)

REUSE DEPOT

Description: Create a local facility or design a user-friendly web page that lists free available items and items wanted by residents, businesses, contractors and organizations. The web page could be organized by material type and expected user to facilitate browsing.
Targeted Waste Stream: Residential, commercial, self-haul
Materials Recovered: All reusable materials (clothes, household goods, electronics, bikes, appliances, etc.)
Estimated Diversion: Low
Estimated per Ton Costs: Low to high. For a web-based exchange program: $5,000-$7,000 for initial design and set up and $2,500 for annual maintenance. Stores to sell reusable items, such as the Trash-to-Treasures program of the Re-store, could cost up to $500,000 per site.

BACKYARD COMPOSTING

Description: Conduct annual events to distribute free or subsidized bins and provide training to encourage composting of food waste, yard trimmings, and compostable paper, which together account for 45% of residential waste. The County should conduct at least 2 annual events to distribute between 100-200 free compost bins per event and provide training. Program option includes developing utility bill and/or newspaper inserts to promote the events, plus use of volunteers or consultants for education at the events.
Targeted Waste Stream: All Grant County households
Materials Recovered: Yard waste, food, and compostable paper
Estimated Diversion: 750 tons per year
Estimated per Ton Costs: $24 per ton

4.4 Recycling

RCW 70.95 defines recycling as transforming or remanufacturing waste materials into usable or marketable materials for use other than landfill disposal or incineration. Recycling, then, can be any technique that turns waste materials into useful products. It includes manufacturing processes as well as composting.

4.4.1 Designated Recyclable Materials and Markets

According to RCW 70.95.010(7)(c), a list of designated recyclable materials must be included in the Solid Waste Management Plan. Criteria used to determine recyclables included potential for significant waste stream diversion, state and local recycling goals, local market conditions, and continuity in materials collected. The materials designated on the following page are those that are currently recycled or targeted by program alternatives presented in this chapter.

- Tin Cans
- PET Bottles
- HDPE Bottles
- Yard Waste
- Food Waste
- Compostable Paper
- Plastic Film and Bags
- High-grade Paper
- Mixed/Low-grade Paper, including Groundwood Paper (e.g., newspaper)
- Aluminum Cans
- Cardboard
- Newspaper
- Clear and Brown Glass Bottles and Containers
- Clean Wood
- Other Non-ferrous Metals
- Other Ferrous Metals
- Electronic Waste
- Household Hazardous Waste
- Construction and demolition (C&D) materials, including concrete, drywall, sand/soil/rock, and ceramics

New market opportunities may be created as new technologies develop, virgin commodity prices fluctuate, and/or new environmental concerns arise. For example, converting organic materials for biodiesel production or burning tires for energy production may become economically feasible recycling opportunities. As such, this list should be considered dynamic and open to modification during the term of the Plan. As opportunities arise, county staff would propose modifying the list, develop recommendations for SWAC review, and then update the list as appropriate. These modifications would not require a Plan amendment.

The strength and availability of markets determines the success of recycling programs. Table 4-1 presents the strength of market conditions and current market price for common recyclable materials as of second half of 2005. Highlighted materials (plastics, mixed/low-grade paper, and asphalt and concrete) are not currently collected for recycling in Grant County. Strong markets indicate a robust and stable market in Grant County. Materials with weak markets frequently have a value near or below $0 in the County. Markets are strongest for metal, paper, some plastics, and concrete/asphalt, but many of these materials are not currently recyclable in Grant County. Plastic film and bags is the only material category listed in the table that is considered to have a weak market condition.

Table 4-1
Recyclables Markets Assessment

Recyclable Material	Market Conditions in Grant County			Northwest Market Price (Prices Paid by Recyclers)	Grant County Market Price (Prices Paid by Recyclers)	Notes
	Weak	Moderate	Strong			
Tin Cans			X	$60-$80 Loose (Los Angeles Market)[2]	$16	Bargain Town receives $16/ton from a Seattle recycler
PET, clear			X	$340-$380 Baled[1]	$100	Spokane Recycling Products pays customers $.05/lb clear PET and HDPE
HDPE				$760-$800 clear HDPE Baled; $640-$680, colored HDPE, Baled[1]		Spokane Recycling Products accepts material
Yard Waste		X			$0	City of Quincy offers free service for hay bales, yard waste, clean dimensional lumber, pallets, and sells compost at $10/cy, and over 51cy at $8/cy
Plastic Film and Bags	X				$0	Free service at local grocery stores
High-grade Paper			X	$125 Hi-Grade $200-$205 White ledger Baled[3]	$0	Lakeside Disposal provides free service
Mixed/Low-grade Paper			X	$100-$105 Office pack Baled[1]	$0	
Aluminum Cans			X	$1,380-$1,420 Baled $1,000-$1,080 Loose[1]	$500 - $700	Lakeside Disposal pays customers $0.25/lb-$0.27/lb, Moses Lake Iron & Metals pays customers $0.35/lb, Consolidated Disposal Services, Inc. (CDSI) pays customers at $.25/lb
Cardboard			X	$65-75 Baled[2]	$0 - $10	Lakeside Disposal pays customers $10/ton, CDSI pays customers $0
Newspaper			X	$75-$85 Baled[2]	$0 - $10	Lakeside Disposal and CDSI provide free service to customers, CDSI pays $10/ton to large generators
Glass Containers		X		$30-$40 Clear $15-$20 Amber[2]	$0	Lakeside Disposal provides free service for clear glass
Clean Wood		X			$0	Free at Quincy compost facility
Non-ferrous Metals			X		$700 - $1,800	Moses Lake Iron & Metals pays customers $0.35-$0.90/lb
Asphalt & Concrete			X		$0	
Ferrous Metals			X		$30 - $60	Moses Lake Iron & Metals pays customers $30-$60/ton

[1] Secondary Materials Pricing and Secondary Fibers Pricing. *Waste News,* January 2006. http://www.wastenews.com/smp/

[2] American Metal Market, January 2006. http://www.amm.com

4.4.2 Urban vs. Rural Designation

The Waste Not Washington Act (ESHB 1671) requires Counties to develop criteria for designating areas as urban or rural. In urban areas, recyclables must be collected from single and multi-family residences. Rural areas should have drop-off recycling or buy-back centers. The Act recommends considering several criteria including anticipated population growth, the presence of other urban services, density of commercial and industrial properties, and geographic boundaries and transportation corridors. Grant County used the following three criteria to designate urban areas.

- 5,000 or more single-family housing units,[1]
- A population of 25,000 or more,[2] and
- Greater than 1,000 persons per square mile.

For the three largest cities, Table 4-2 lists the respective population, number of households, density, and area. The cities in Grant County do not qualify as urban according to the above criteria and, therefore, the entire County is considered a rural area.

Table 4-2
Comparison of Potential Urban Areas

	Population	Percent of County Population	Number of Households	Percent of County Households	Density (person/sq mile)	Area (Sq Miles)	Percent of County Land
City of Moses Lake (city limits only)	14,953	20.0%	4,148	16.5%	1,469	10	0.4%
City of Ephrata (city limits only)	6,808	9.1%	1,996	7.9%	683	10	0.4%
City of Quincy (city limits only)	5,044	6.8%	989	3.9%	2,253	2	0.1%

*Note: Figures in table based on 2000 Census data, http://www.census.gov/.

4.4.3 Current Programs

Residential recycling in Grant County occurs primarily through a network of County and private drop-off sites and privately-operated buy-back sites.

County Programs

Grant County accepts newsprint and aluminum cans at 11 of its 12 drop box sites and the Ephrata Landfill, corrugated cardboard at two drop-box sites and the landfill, and scrap metal at the drop box sites and the landfill. Other materials have not proved cost-effective to collect because of distance to markets and lack of markets. For a list of County drop-box sites, please refer to Chapter 7 and Figure 4-1.

The Delano Landfill accepts newspaper and cardboard only. The County and the Regional Board of

[1] Matrix Management Group, et al for the Washington State Department of Ecology. *Best Management Practices Analysis for Solid Waste*, 1988.
[2] Washington State Department of Ecology. *Washington State Solid Waste Management Plan: Issue Paper No. 5 Phase I,* 1990.

Mayors contract with salvage companies to collect metals and large appliances from the Ephrata and Delano landfills.

In addition to offering drop-off recycling opportunities, the County supports recycling through a number of programs, described below.

HOUSEHOLD HAZARDOUS WASTE COLLECTION EVENTS AND PUBLICITY

The County advertises household hazardous waste collection events through newspaper display ads. Two to three collection events are held each year. Funding from this program provides for auto battery and waste oil collection at most drop-box sites and antifreeze collection at the landfill.

WR&R EDUCATION & OUTREACH/COLLECTION

In order to maintain and increase awareness of waste reduction opportunities, the County conducts the following activities as part of the WR&R Education & Outreach/Collection program.

- Establishing a presence at community events, such as farmers markets, the Grant County Fair, and festivals, to provide information on waste reduction.
- Offering education for backyard composting, in part by continuing to conduct an annual backyard composting workshop.
- Evaluating implementation of tire recycling at the landfill
- Mailing letters to teachers twice per year regarding waste reduction tips, Household Hazardous Waste (HHW) collection events, and available classroom presentations.
- Visiting classrooms to conduct presentations on recycling and waste reduction.
- Publishing and distributing brochures listing recycling sites.
- If funding allows, increasing publicity about current programs.

SMALL QUANTITY GENERATOR (SQG) EDUCATION

For this Small Quantity Generator (SQG) Education program, County staff conduct the following tasks.

- Mail out SQG brochures to identified SQGs.
- Conduct annual workshop on handling and proper disposal of dangerous wastes.
- Promote SQG disposal events.
- Provide opportunity for SQGs to visit HHW events on a special day before the event is open to the public to dispose of waste for a fee.

MERCURY REDUCTION AND COLLECTION

Grant County participates in the statewide mercury switch replacement program for auto recyclers. In 2006, Grant County will pay $3 to auto recyclers for recovered switches containing mercury to encourage participation. Additionally, the County has formed a partnership with the Grant County Health District to distribute non-mercury thermometers in exchange for mercury thermometers.

TIRE RECYCLING

The County budgeted resources in 2006 to evaluate and create a recycling program for tires that are currently being landfilled.

ELECTRONICS PUBLIC EDUCATION

Electronics Public Education is aimed at increasing awareness of electronics recycling opportunities. In 2006, the County plans to create a brochure to distribute in conjunction with other information

regarding commercial recycling opportunities. The County might also distribute a mailing to residents regarding electronic recycling opportunities.

COMMERCIAL WR&R EDUCATION & OUTREACH/COLLECTION

For the commercial WR&R education and outreach program, the County plans to work with schools to decrease their waste generation. Additionally, County staff mail newsletters to medium- and large-sized businesses throughout County to raise awareness about WR&R. If businesses contact the County with questions, this program provides the funding to address business questions and concerns.

Municipal and Private Recycling Opportunities

Cities and private businesses provide many recycling opportunities to Grant County residents. Please see Appendix H for a list of these opportunities. Thirty-four private and city recycling opportunities are available in the County, 22 of which are located in Moses Lake or Ephrata. Although most recyclers are businesses that accept one or two materials, eight of the opportunities are city or private drop-box locations that accept a range of common recyclable materials. Newspaper, corrugated cardboard, aluminum cans, and used motor oil are the most commonly accepted materials.

4.4.4 Key Issues

Currently, the Delano Landfill is near capacity and predicted to close in 2006. Ephrata Landfill expanded recently and has an estimated site life that exceeds this 20-year planning period. Construction of future landfills or long-haul options will be more expensive than current landfill costs. Expanding recycling will help to meet the County's goal of diverting waste from the landfill, thereby increasing landfill life.

As noted in Chapter 3.2.2, the most prevalent materials in Grant County's waste stream that are either recyclable or potentially recyclable are paper and compostable materials. Fortunately, several local recycling centers already accept a range of paper grades. Similarly, yard and garden waste and untreated wood can be composted at the Quincy facility and food wastes and compostable paper could be composted if facilities were available. Future programs should be designed to address waste paper and organics, as well as other materials that comprise a large portion of Grant County's waste stream. Other materials could include agricultural wastes that are currently land-applied, unlawfully disposed, or may be recycled to create feed for livestock.

In January 2006, the Grant Conservation District issued a report, *Feasibility Study for an Organic Waste Recycling Program in Grant County.* In the report, the Grant Conservation District concluded it was feasible for the county to establish an organics recycling program. The study found that diverting compostable organics from disposal would increase the life of the landfill enough to be cost-effective. Principal recommendations include:

- Implementing a landfill ban on compostable organics
- Providing curbside collection in larger communities and drop boxes in smaller communities to collect organic material, considering food waste as well as yard waste
- Promoting use of compost by agriculture industry.

The following recycling options are included in the Plan because they represent the best alternatives considering the County's four criteria of cost, diversion potential, availability of existing infrastructure, and presence of existing markets. Chapter 4.5 ranks these options according to these four criteria.

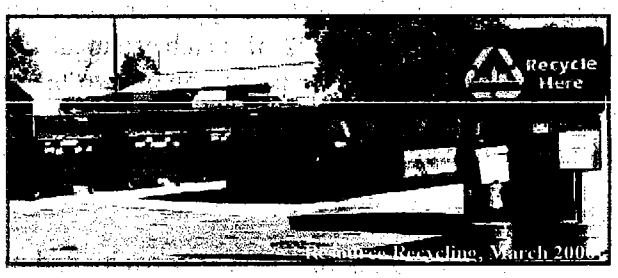
4.4.5 Options

Recycling options are organized into four sections: 1) collection & drop-off, 2) processing & markets, 3) education, and 4) regulatory and financial incentives. Each option is presented with a description, the targeted waste stream, materials recovered, estimated diversion, and estimated per ton cost. Please refer to Appendix I for the methodology for calculating diversion and cost.

Collection & Drop Off

The following options would expand recycling collection and drop-off opportunities available in Grant County.

DESIGNATE TARGETED RECYCLING DROP-OFF AND LANDFILL SITES, EXPAND MATERIALS COLLECTED, PROMOTE SITES, AND IMPROVE SIGNS AND INSTRUCTIONS



Description: Offer expanded recycling opportunities for a wider range of materials, including mixed paper, plastics, and metals at targeted recycling drop-box and landfill sites that serve areas of dense population in the county. An additional roll-off and dumpster would be added to each drop-off site (Coulee City, Ephrata, Quincy, Moses Lake (2), Warden, Royal City, and Mattawa) and each landfill site (Ephrata and Delano). A commercial hauler, who also would be responsible for marketing the recovered materials, would sort, bale, and transport the materials to appropriate recycling facilities in Grant or adjacent counties. Additionally, better promotion at these recycling drop-off facilities would likely increase participation rates. Improvements would be made to the current signs explaining where to put recyclable materials, and signs would direct customers to the drop-off sites. This option would also include promotion in public venues, newspapers, utility bills, or other media outlets.

Targeted Waste Stream: Residential, commercial, and self-haul

Materials Recovered: Mixed paper, plastics #1 & #2, ferrous metal, non-ferrous metal

Estimated Diversion: 1,710 tons per year

Averaged 10-year Costs: $6 per ton

ORGANICS AND WOOD DROP-OFF

Description: Provide free drop-off collection of organic materials at eight targeted County and City drop-off sites and the two County landfills. A contractor would be responsible for hauling the materials in 15 or 20 yard roll-off containers to a compost facility. The composting facility would process, compost, and market the materials.

Targeted Waste Stream: Residential, commercial, and self-haul

Materials Recovered: Food, yard waste, compostable paper, and clean wood (dimensional, natural, untreated, & wood packaging)

Estimated Diversion: 2,760 tons per year

Averaged 10-year Costs: $68/ton

SPECIAL COLLECTION EVENTS

Description: Organize special collection events to collect special waste materials such as bulky household waste, electronics, tires, and household hazardous waste. Collection events can be planned to accept one or multiple materials through regularly scheduled or periodic

staffed drop-off events. The materials collected in special events are often those that are not accepted at disposal or recycling facilities, transfer stations or drop-off sites, but also include options for residents to drop-off regularly collected materials. Grant County could hold 2 special collection events annually at central locations throughout the County.

Targeted Waste Stream: Residential, commercial, self-haul

Materials Recovered: Items not normally collected at drop-off centers: bulky items, C&D, hazardous waste, electronics.

Estimated Diversion: 320 tons per year (0.2 tons per vehicle and 800 vehicles for 2 annual events. Based on King County program results)

Estimated per Ton Costs: $190 per ton ($37-39 per vehicle. Based on King County program results)

RESIDENTIAL ORGANICS COLLECTION– 3 CITIES

Description: Initiate curbside collection of organics from residences in the County's largest cities: Moses Lake, Ephrata, and Quincy. Weekly automated collection of combined organic wastes (yard debris, food waste, and compostable paper) using wheeled containers would be offered to all residents currently eligible for curbside collection of garbage. A contracted hauler would be responsible for collecting and transporting the materials to a compost facility. A flyer describing acceptable materials would be designed, printed, and mailed to participants and included with delivery of new containers. Indoor collection containers would also be provided to residents.

Targeted Waste Stream: Residential, in Moses Lake, Ephrata, & Quincy

Materials Recovered: yard waste, food, compostable paper

Estimated Diversion: 1,790 tons per year

Averaged 10-year Costs: $103 per ton

RESIDENTIAL ORGANICS COLLECTION – ENTIRE COUNTY

Description: Initiate curbside collection of organics from residences in all of Grant County. Weekly automated collection of combined organic wastes (yard debris, food waste, and compostable paper) using wheeled containers would be offered to all residents currently eligible for curbside collection of garbage. A contracted and franchised hauler would be responsible for collecting and transporting the materials to a compost facility. A flyer describing acceptable materials would be designed, printed, and mailed to participants and included with delivery of new containers. Indoor collection containers would also be provided to residents.

Targeted Waste Stream: Entire residential waste stream

Materials Recovered: yard waste, food, compostable paper

Estimated Diversion: 4,890 tons per year

Averaged 10-year Costs: $115 per ton

CURBSIDE RECYCLING COLLECTION

Description: Initiate commingled (one container) curbside collection of selected recyclables from residences in urban areas, Moses Lake, Ephrata, and Quincy. Also, design, print, and mail initial description of program and include introductory materials with delivery of new containers. The contracted hauler would be responsible for collecting, processing, and marketing the recovered materials.

Targeted Waste Stream: Residential, in Moses Lake, Ephrata, & Quincy

Materials Recovered: Paper, plastic #1 & #2, aluminum cans, tin cans, other ferrous metal, and

other non-ferrous metal.

Estimated Diversion: 2,330 tons per year

Averaged 10-year Costs: $126 per ton

COMMERCIAL ORGANICS COLLECTION

Description: Offer bi-weekly curbside collection of organics from large businesses in targeted commercial industries that generate a significant portion of the County's food waste. These industries include restaurants, grocery stores, schools, hospitals, and food processing operations. This program would be phased in after local composting facility capacity has been increased to accommodate food waste processing. Commercial haulers would be responsible for collecting the organic materials and transporting them to the compost facility. The county could provide generators with technical assistance and staff training, or subsidize the cost of having collection bins on-site. (Technical assistance could be provided by the half time FTE included in the commercial paper collection option, described below.)

Targeted Waste Stream: Commercial, large businesses of targeted industries

Materials Recovered: yard waste, food, compostable paper

Estimated Diversion: 950 tons per year

Averaged 10-year Costs: $95 per ton

COMMERCIAL PAPER COLLECTION

Description: Expand the current cardboard collection program and offer curbside collection of all recyclable paper grades to large businesses in Grant County. The commercial hauler would collect, haul, sort, and process the materials free of charge, and the County would identify, recruit, and provide technical assistance to the large generators. An additional half-time employee would be required to provide this assistance to businesses.

Targeted Waste Stream: Commercial, large businesses

Materials Recovered: Mixed waste paper, newspaper, high grade paper, groundwood paper

Estimated Diversion: 870 tons per year

Averaged 10-year Costs: $29 per ton

COMMINGLED C&D AND GLASS DROP-OFF SITES AT EPHRATA LANDFILL

Description: Provide free drop off for commingled C&D materials and glass at the Ephrata landfill and sort and recover wood, metals, other salvageable materials, and glass. Highly recyclable loads would be identified at the landfill and tipped in a designated area at the landfill for processing. A contractor, who also would be responsible for marketing the recovered C&D materials, would sort and transport the materials to appropriate processing and recovery facilities in Grant or adjacent counties. Sorting operations probably would be relatively "low-tech" and would rely on heavy equipment and manual labor. A glass crusher would be used to process the glass into road base and pervious and non-select backfill material.

Targeted Waste Stream: Commercial and self-haul

Materials Recovered: metals (other ferrous & non-ferrous, and other aluminum), clean wood (dimensional, natural, untreated, & wood packaging), other C&D (concrete, drywall, sand/soil/rock, and ceramics), and glass

Estimated Diversion: 6,230 tons per year

Averaged 10-year Costs: $97 per ton

Processing & Markets

The option below would increase the available processing of recyclable materials, which transforms raw materials into feedstocks or end products.

ORGANICS COMPOSTING FACILITY

Description: Support development of a commercial organics composting facility that would handle food waste, yard waste, compostable paper, and agriculture waste. If a large scale commercial composting facility is not developed in the near future expand, Quincy composting facility and obtain a permit to accept type 3 feed stocks to allow for composting of food and compostable paper. The facility or expansion should be designed so it could eventually accommodate agricultural waste that is currently land-applied or unlawfully disposed.

Targeted Waste Stream: Residential, commercial, and self-haul

Materials Recovered: Food, yard waste, compostable paper, and clean wood (dimensional, natural, untreated, & wood packaging)

Estimated Diversion: 1,000-5,000 tons per year

Estimated per Ton Costs: Projected tip fee of $13.50 per ton

Education

The option below is as an option to provide more recycling education, the key to successful recycling programs.

ON-SITE AUDITS AND TECHNICAL ASSISTANCE

Description: Recruit and provide technical assistance and education to large businesses in Grant County. The purpose of the program is to set up new recycling programs in larger businesses and work with the haulers or recyclers to efficiently implement these new programs. After a business is recruited, it would receive at least one on-site visit. During the on-site visit, the program staff person would develop waste reduction recommendations, estimate the reduced disposal costs that would result from the recommendations, and develop strategies for reaching waste reduction goals. Technical assistance would continue to be available to participating businesses as they set up and maintain their program.

Targeted Waste Stream: Large commercial businesses

Materials Recovered: All materials that can be reduced or recycled

Estimated Diversion: Medium, varies by businesses targeted

Estimated per Ton Costs: $300-$600 per audit or less than $10 per ton over 10 years, based on Cascadia experience

Regulatory & Financial Incentives

The following options provide incentives to increase recycling and/or reduce the amount of waste discarded. These options are consistent with the Chapter 70.95 RCW goal of making recycling at least as affordable as waste disposal.

FINANCIAL INCENTIVES

Description: Implement financial incentives to encourage recycling, such as surcharges on disposed recyclable materials, or free/reduced tipping for recyclables such as clean green and wood wastes. For example, in Orange County, Cascadia Consulting Group found that increasing tipping fees for garbage at county landfills by 23%-30% would divert most self-haul waste to recycling facilities

Targeted Waste Stream: Residential, commercial, and self-haul
Materials Recovered: All materials that can be reduced or recycled
Estimated Diversion: variable
Estimated per Ton Costs: Low

PAY-AS-YOU-THROW

Description: Implement aggressive variable rates structure for garbage collection based on size of the can to provide financial incentive for increased WR&R. Recent research has demonstrated that pay-as-you throw can decrease overall residential waste tonnage by 16%-17%. Of this, 5-6% is due to recycling, 4-6% is due to yard waste diversion, and 6% is due to source reduction (Resource Recycling, July 2002). This option would apply only to cities that contract for waste collection and would require that the cities offer multiple sizes of garbage containers at different rates to all residential and commercial customers. Additional fees would be assessed for customers leaving extra bags of garbage out for collection.
Targeted Waste Stream: Residential and commercial
Materials Recovered: All materials that can be reduced or recycled
Estimated Diversion: 2,680 tons – 10.5% of waste generation for urban areas (1,500 tons from increased recycling and 1,180 tons from increased yard waste diversion)
Estimated per Ton Costs: Low

4.5 Evaluation of Options

To evaluate the 16 WR&R program options, a set of four criteria were applied to each program to determine which would be the most efficient programs to implement. These criteria are:

1. **Cost** – the estimated cost per ton of material diverted through the program.
2. **Diversion** – the estimated annual tonnage of material diverted through the program.
3. **Existing Infrastructure** – the availability of existing collection and material processing facilities and capabilities.
4. **Markets** – the strength of local and regional markets for the targeted materials.

These four criteria were ranked using a 3-point scale, where *3* indicated a program that best satisfied the criteria, and a *1* indicated a program that poorly met the criteria.

The cost and diversion criteria were applied using the cost per ton and annual tonnage output from the recycling program models. The programs were grouped and ranked based on natural divisions in the tonnage and costs per ton. If the cost per ton was over $150 the program received a *1*. If it was under $50 it received a *3*. All others were ranked as *2*s. For diversion, if the annual tonnage was over 3,000 tons the program received a *3*, and if it was less than 1,000 tons it received a *1*. All others were ranked as *2*s.

For the final two criteria, existing infrastructure and markets, a more qualitative ranking was applied using knowledge of the infrastructure and current markets gained through experience and interviews.

Table 4-3 on the following page lists the evaluated programs and their scores.

Table 4-3
WR&R Option Ranking matrix

Program Option	Cost ($/ton)	Cost Score	Diversion (annual tons)	Diversion Score	Existing Infrastructure Score	Markets Score	Total Score
Education and promotion programs	$6	3	2,750	2	3	2	10
Reuse Depot	low to high	2	low	1	1	1	5
Backyard composting	$24	3	750	1	2	1	7
Designate targeted recycling drop-off & landfill sites, expand materials collected, promote sites, & improve signage	$6	3	1,710	2	2	3	10
Organics & wood drop-off	$68	2	2,760	2	2	1	7
Special collection events	$190	1	320	1	2	2	6
Residential organics collection - 3 cities	$103	2	1,790	2	1	1	6
Residential organics collection - entire county	$115	2	4,890	3	1	1	7
Curbside recycling collection	$126	2	2,330	2	1	2	7
Commercial organics collection	$95	2	950	1	1	1	5
Commercial paper collection	$29	3	870	1	3	3	10
Commingled C&D and glass at Ephrata Landfill	$97	2	6,230	3	2	2	9
Organics composting facility	$13.50	3	1,000-5,000	2	2	1	8
On-site audits & technical assistance	$300-600/audit	3	medium	2	2	2	9
Financial incentives	low	3	variable	1	2	2	8
Pay-as-you throw	low	3	0-3,000	2	2	2	9

Key

Highest Ranked Options Second Ranked Options Third Ranked Options

The evaluation resulted in three programs that ranked highest in meeting the criteria for an efficient program option. The three programs that tied at 10 points were:

- Education and promotion programs;
- Designate targeted recycling drop-off & landfill sites, expand materials collected, promote sites, & improve signs and instructions; and
- Commercial paper collection.

These three programs all scored a *3* on at least two of the four criteria. All of them attained the highest score for having a low cost per ton. While all three programs ranked a *2* or less for diversion, they were evaluated highly for either having substantial existing infrastructure, making implementation quick and easy, or for diverting materials that have strong markets and would receive the greatest payback.

Five programs came in second place, with overall scores of *8* or *9*. As with the highest ranked options most of these five programs (all but one) scored a *3* for cost, indicating a low cost per ton. All of the second place programs were evaluated as having an average existing infrastructure (score of *2*) and had an average or below average score for markets. These programs ranged from *1* to *3* in their diversion scores.

The third ranked options scored mostly *1*s and *2*s, with a few *3*s with total scores of seven points each. Three of these were organics recycling programs, which currently have low markets and low to average existing infrastructure, and are generally more costly to implement.

4.6 Recommendations

Based on the evaluation and input from the SWAC and staff, the County should implement the following recommendations. The programmatic recommendations are grouped into three tiers of priority, with the highest priority to be implemented first. These three tiers are explained below:

FIRST TIER – includes programs with low cost per ton that are relatively easier to implement within the first one to two years.

Programs:

- Develop a more extensive education and promotion campaign.
- Improve and expand collection at recycling drop-off sites.
- Expand paper collection to more commercial customers.
- Provide on-site technical assistance to commercial customers.

Diversion: These programs will divert an estimated 5,700 tons annually and increase the current recycling rate by 6%.

SECOND TIER – includes programs with a medium to high cost per ton and require more time to develop and implement. The County should implement these programs in two to three years.

Programs:

- Expand drop-off sites to accept wood and organic waste.
- Develop a C&D and glass drop-off facility at the landfill.
- Implement a pay-as-you throw rate structure.

Diversion: These programs would divert an estimated 9,900 tons annually and increase the current recycling rate by 11%.

THIRD TIER – includes programs with a medium to high cost per ton and that require more time to develop and implement. The County should implement these programs in three to five years.

Program: Support efforts to increase organics recycling in Grant County by expanding compost facilities and developing a residential curbside compost program.

Diversion: These programs would divert approximately 4,700 tons annually and increase the current recycling rate by 5%.

If Grant County implements recommendations from all three tiers in the next five years, it is estimated that the current recycling rate would nearly double, increasing from the current 19% to about 40% in Year 5.

4.6.1 First Tier Recommendations

- **Develop a more extensive education and promotion campaign**.
  - **Description:** Use utility bill inserts, direct mail, newspaper or media ads, and brochures to increase promotion of existing County and city recycling programs and facilities.
  - **Planning Level Costs:** Operating costs of $16,500 in Year 1, increasing to $18,200 in Year 6.
  - **Expected Outcomes:** County residents and businesses would more frequently choose reuse and reduction over disposal and purchasing, leading to a reduction in waste generation of approximately 2,750 tons per year.
  - **Outputs:** Annual advertising or brochure distribution of available services and contact information for existing County and city recycling programs and facilities.
  - **Performance Measures:** Monitor per capita waste generation rates. Expect a decrease in waste generation rates if waste reduction increases.

- **Upgrade and promote recycling at targeted drop-off and landfill sites and expand the types of recyclables collected at these locations**.
  - **Description:** Collect plastics, metals, and mixed paper at eight targeted recycling drop-off sites, as circled in FIGURE 4-1, and two landfill sites and improve signage and promotion at these sites.
  - **Planning Level Costs:** Capital costs of $95,000 in Year 1; no additional costs anticipated.
  - **Expected Outcomes:** Increased recycling of approximately 1,710 tons per year at targeted recycling and landfill sites.
  - **Outputs:** Expanded range of materials accepted at targeted recycling drop-box and landfill sites. Additional roll-off and dumpsters at each drop-off site. Improved on-site signs and instructions at targeted recycling drop-off locations and landfills, and promotion through public venues, newspapers, utility bills, or other media outlets.
  - **Performance Measures:** Measure the number of tons recycled on a per capita basis at targeted sites and landfills periodically over the first year following implementation of this option.

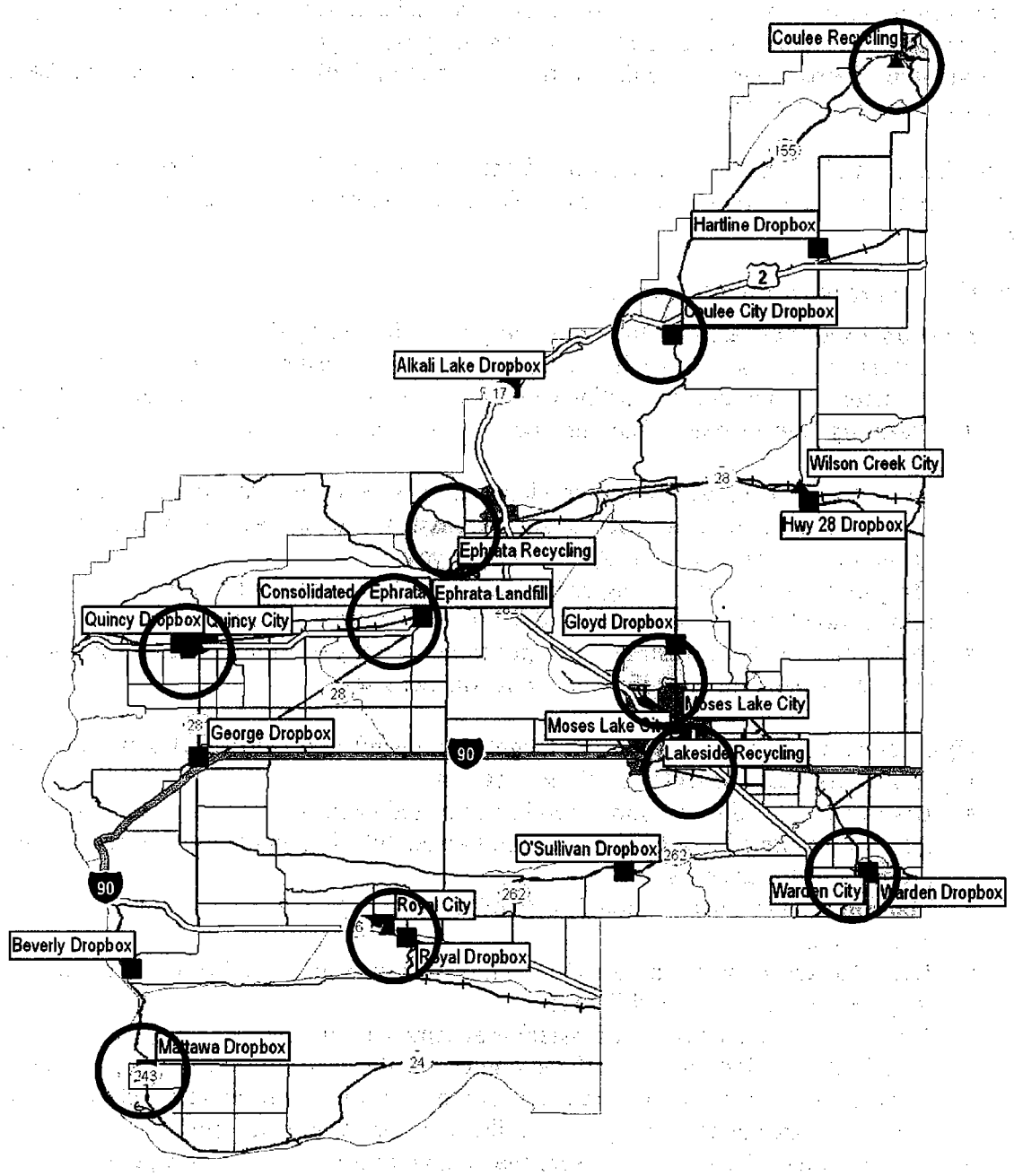


FIGURE 4-1

Designated Drop Box Sites for Upgrades and Expansion

Grant County

- **Expand commercial paper collection.**
  - **Description:** Add high grades, mixed waste paper, and newspaper to the current cardboard collection programs that commercial haulers operate. Also, direct County staff to assist in recruiting new customers and setting up effective programs at large businesses and institutions.
  - **Planning Level Costs:** No costs anticipated for the County.
  - **Expected Outcomes:** Increased recycling of about 870 tons per year of mixed waste paper, newspaper, high grade paper, and groundwood paper.
  - **Outputs:** Add mixed waste paper, newspaper, high grade paper, and groundwood paper to list of acceptable materials in commercial collection offered to large businesses in Grant County.
  - **Performance Measures:** Monitor the types and amounts of paper recycling collected per participating business.

- **Provide on-site audits and technical assistance.**
  - **Description:** Increase County staff capabilities to provide on-site technical assistance for developing new WR&R programs at large businesses. This recommendation is intended to provide support for the expanded commercial paper collection program.
  - **Planning Level Costs:** Operating costs of $23,000 in Year 1; increasing to $25,400 in Year 6.
  - **Expected Outcomes:** Increased recycling and waste reduction at large businesses.
  - **Outputs:** Recruit new businesses to receive on-site audits and technical assistance.
  - **Performance Measures:** Survey new participants about their waste reduction activities. Re-survey participants one year after first contact with the program. To monitor increased recycling, follow number of businesses participating in paper collection and other recycling collection programs. Also, monitor tonnage collected per participating business.

4.6.2 Second Tier Recommendations

- **Develop organics and wood waste drop-off sites.**
  - **Description:** Add free clean wood and yard waste drop-off opportunities at 8 targeted recycling drop-off locations and at the landfills.
  - **Planning Level Costs:** Capital costs of $50,000 in Year 3; Operating costs of $156,800 in Year 4, increasing to $162,400 in Year 6.
  - **Expected Outcomes:** Composting of approximately 2,760 tons per year of food, yard waste, compostable paper, and clean wood at 8 targeted recycling drop-off locations and at the landfills.
  - **Outputs:** Roll-off containers for organics and wood collection at selected drop-off sites and landfills.
  - **Performance Measures:** Monitor tonnage collected in new containers. Measure changes in participation by measuring per capita tonnage collected through drop-off sites.

- **Provide for commingled C&D and glass drop-off at Ephrata Landfill.**
  - **Description:** Offer discounted tip fees for highly recyclable C&D loads at the Ephrata landfill. Contract for transporting, processing, and recycling of these materials.
  - **Planning Level Costs:** Capital costs of $32,500 in Year 3; Operating costs of $609,100 in Year 4, increasing to $648,900 in Year 6.

- **Expected Outcomes:** Increased recycling of approximately 6,230 tons per year of C&D materials and glass.
- **Outputs:** Designated area at Ephrata landfill to receive commingled C&D materials and glass, and contractor selected to sort and transport material.
- **Performance Measures:** Monitor tons collected and contamination rates of material received in C&D and glass collection area. Measure changes in participation by measuring tonnage collected at this drop-off against population change or some other factor, such as number of or cost associated with building permits issued.

- **Implement Pay-As-You-Throw rate structures whenever possible.**
  - **Description:** Implement aggressive variable disposal rates in incorporated areas for both residential and commercial waste.
  - **Planning Level Costs:** No anticipated costs for the County.
  - **Expected Outcomes:** Decrease residential and commercial disposal by approximately 2,676 tons, while not increasing illegal dumping.
  - **Outputs:** Multiple-sized garbage containers made available to residents and businesses at different rates.
  - **Performance Measures:** Monitor waste generation rates for residential and commercial sectors. Also, compare size of garbage containers used by residential and commercial customers before implementation of the pay-as-you-throw system and at some period, such as one year, after implementation.

4.6.3 Third Tier Recommendations

- **Support development of a commercial organics composting facility.**
  - **Description:** Help develop a commercial organics composting facility that would handle food waste, yard waste, compostable paper, and agriculture waste. If a large scale commercial composting facility is not developed, expand Quincy composting facility and obtain a permit to handle Type 3 feedstock for composting of food and compostable paper. The facility or expansion should be designed so it could eventually accommodate agricultural waste that is currently land-applied or unlawfully disposed.
  - **Planning Level Costs:** Capital costs of $30,000 in Year 4; Operating costs of $20,000 in Year 5 and Year 6.
  - **Expected Outcomes:** Composting of 1,000-5,000 tons per year of food waste, yard waste, compostable paper, and agriculture waste.
  - **Outputs:** Help develop a new commercial compost facility or expand the materials accepted through a new permit at the Quincy compost facility.
  - **Performance Measures:** Food waste, yard waste, compostable paper, and agricultural waste would be accepted for processing at a fully operative commercial composting facility or through expanded permitting at the Quincy facility. Monitor tonnage per capita collected at new facility.

- **Initiate a county-wide residential curbside organics collection program.**
  - **Description:** Collect yard waste, food waste, and compostable paper from all county residential customers. This program will require amendments to municipal solid waste contracts and adoption of a County service level ordinance.

- **Planning Level Costs:** Capital costs of $74,000 in Year 4; Operating costs of $489,500 in Year 5 and $498,900 in Year 6.
- **Expected Outcomes:** Composting of an estimated 4,890 tons per year of yard waste, food waste, and compostable paper from residential customers.
- **Outputs:** Offer collection of organics to residential customers.
- **Performance Measures:** Monitor amount of organics collected from residential customers on a per capita basis.

4.6.4 Additional Program Recommendation

- **Consider organizing special collection events.**
  - **Description:** Organize events to collect special waste materials such as bulky household waste, electronics, tires, and household hazardous waste.
  - **Planning Level Costs:** Will depend on type and size of event.
  - **Expected Outcomes:** Reduce illegal dumping by increasing proper disposal of bulky or hazardous materials and increase recycling of problem wastes, such as tires and electronic waste, for an estimated 320 tons per year collected.
  - **Outputs:** Organize special recycling events.
  - **Performance Measures:** Track number of visitors and tons collected at events to obtain participation rates by County population.

4.6.5 Designated Recyclables

The list of designated recyclables should be updated when new market opportunities develop as technology changes, virgin commodity prices fluctuate, and/or new environmental concerns arise. County staff would propose modifying the list, develop recommendations for SWAC review, and then update the list as appropriate. These modifications would not require a Plan amendment.

4.7 Implementation

An implementation schedule and 6-year cost projection for recommended WR&R programs are presented in this section.

4.7.1 Schedule

Based on cost and anticipated time needed for planning and implementation, the following schedule is recommended (Table 4-4).

4.7.2 Costs

Table 4-5 presents six-year projections for operations and capital costs for the recommended options.

Table 4-4
Six-Year Implementation Schedule

Program	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Education and promotion programs	■	■	■	■	■	■
Designate targeted recycling drop-off & landfill sites, expand materials collected, promote sites, & improve signs and instructions	■	■	■	■	■	■
Commercial paper collection	■	■	■	■	■	■
On-site audits & technical assistance	■	■	■	■	■	■
Organics & wood drop-off			■	■	■	■
Commingled C&D and glass at Ephrata Landfill			■	■	■	■
Pay-as-you throw				■	■	■
Organics composting facility				■	■	■
Residential organics collection - entire county				■	■	■

Table 4-5
Six-Year Cost Projections for Recommended Programs

Program	Year 1		Year 2		Year 3		Year 4		Year 5		Year 6	
	Operation Costs	Capital Costs	Operation Costs	Capital Costs	Operation Costs	Capital Costs	Operation Costs	Capital Costs	Operation Costs	Capital Costs	Operation Costs	Capital Costs
Education and promotion programs	$16,500	$0	$16,800	$0	$17,200	$0	$17,500	$0	$17,900	$0	$18,200	$0
Designate targeted recycling drop-off & landfill sites, expand materials collected, promote sites, & improve signs and instructions	$0	$95,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Commercial paper collection	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
On-site audits & technical assistance	$23,000	$0	$23,500	$0	$23,900	$0	$24,400	$0	$24,900	$0	$25,400	$0
Organics & wood drop-off					$0	$50,000	$156,800	$0	$159,600	$0	$162,400	$0
Commingled C&D and glass at Ephrata Landfill					$0	$32,500	$609,100	$0	$628,700	$0	$648,900	$0
Pay-as-you throw							$0	$0	$0	$0	$0	$0
Organics composting facility							$0	$30,000	$20,000	$0	$20,000	$0
Residential organics collection - entire county							$0	$74,000	$489,500	$0	$498,900	$0
TOTAL	**$39,500**	**$95,000**	**$40,300**	**$0**	**$41,100**	**$82,500**	**$807,800**	**$104,000**	**$1,340,500**	**$0**	**$1,373,800**	**$0**

5 Collection

5.1 Goals for Solid Waste Collection

Within Grant County, solid waste collection services consist of city- or town-contracted, city- or town-operated, and individually contracted services. Goals related to current and future solid waste collection services and needs are:

- Collection services shall be available to all residents of Grant County.
- Collection services are compatible with other elements of the solid waste system described in this Plan.
- The level of available solid waste collection services complies with regulatory requirements.

This chapter focuses on solid waste collection services. Chapter 4 of the Plan discusses recycling collection services and opportunities.

5.2 Regulatory Framework

The Washington Utilities and Transportation Commission (WUTC) regulates solid waste collection companies offering services in unincorporated areas of Grant County. Chapter 81.77 RCW and Chapter 480.70 WAC establish the extent and limits of the WUTC's authority. The WUTC does not have the authority to regulate city- or town-operated or -contracted collection services; i.e., those by municipalities. Additionally, WUTC authority does not extend to recyclable collection by private companies under contract to a county. Chapter 81.80 RCW authorizes regulation of commercial recyclable collection.

A private solid waste collection company must obtain a WUTC certificate of public convenience and necessity allowing it to operate in unincorporated county areas or in incorporated areas that choose not to regulate solid waste collection. The WUTC grants a company a designated service area (district) based on:

- Cost data
- Documented need for service
- The ability or inability of an existing certificate holder to provide service that satisfies the WUTC, if the district is already served by a certificate holder

The WUTC requires collection companies to report their annual gross operating revenues. Certificates may have terms and conditions attached, and may be revoked or amended after a hearing held by the WUTC.

State regulations allow municipalities several options for managing solid waste collection, which are

- Contract for collection services for all or part of the municipality.
- Operate its own collection system for all or part of the municipality.
- May require mandatory collection within its jurisdiction; i.e., residents and businesses must subscribe to designated refuse collection services.
- Require a WUTC-certified collector to secure a license from the municipality.

- Choose to not regulate collection within its jurisdiction, with collection provided on a voluntary basis by WUTC certified collectors.

The above options do not eliminate the right of waste generator to haul their own waste. The WUTC has jurisdiction over the last two options.

Counties have the right to establish solid waste collection districts for mandatory collection (Chapter 36.58A RCW) and control the waste stream in unincorporated areas (Chapter 36.58 RCW). Solid waste collection districts cannot include municipalities without their consent. A county must determine mandatory collection is in the public interest and hold public hearings before creating a solid waste collection district. Under mandatory collection, a collection company may request the county collect fees from delinquent customers.

A county can provide collection services only if the WUTC determines qualified private collection services are not available for a district.

5.3 Current Services

Solid waste collection services are available in unincorporated and incorporated Grant County. The following sections summarize the types of services available in each area.

5.3.1 Municipalities

Table 5-1 lists collection services and 2005 residential collection rates for municipalities. The municipalities providing collection services directly or through a contract with a WUTC-certified company have mandatory service. George is considering contracting with a private collection company for solid waste collection services instead of having individually-arranged service.

5.3.2 Operations in Unincorporated Areas

Figure 5-1 shows the WUTC established service areas as of June 2005. Table 5-2 lists the WUTC-certified collection service providers and their rates.

Sunrise Disposal, Inc. serves the northern portion of the County, including the incorporated areas of Grand Coulee and Electric City. Waste Management of Ellensburg has the franchise for a small area east and north of George and the southwest portion of Grant County, excluding the incorporated city of Mattawa. Waste Management of Greater Wenatchee has the franchise for the Crescent Bar island in the Columbia River in western Grant County. Consolidated Disposal Service, Inc., serves the balance of the unincorporated Grant County.

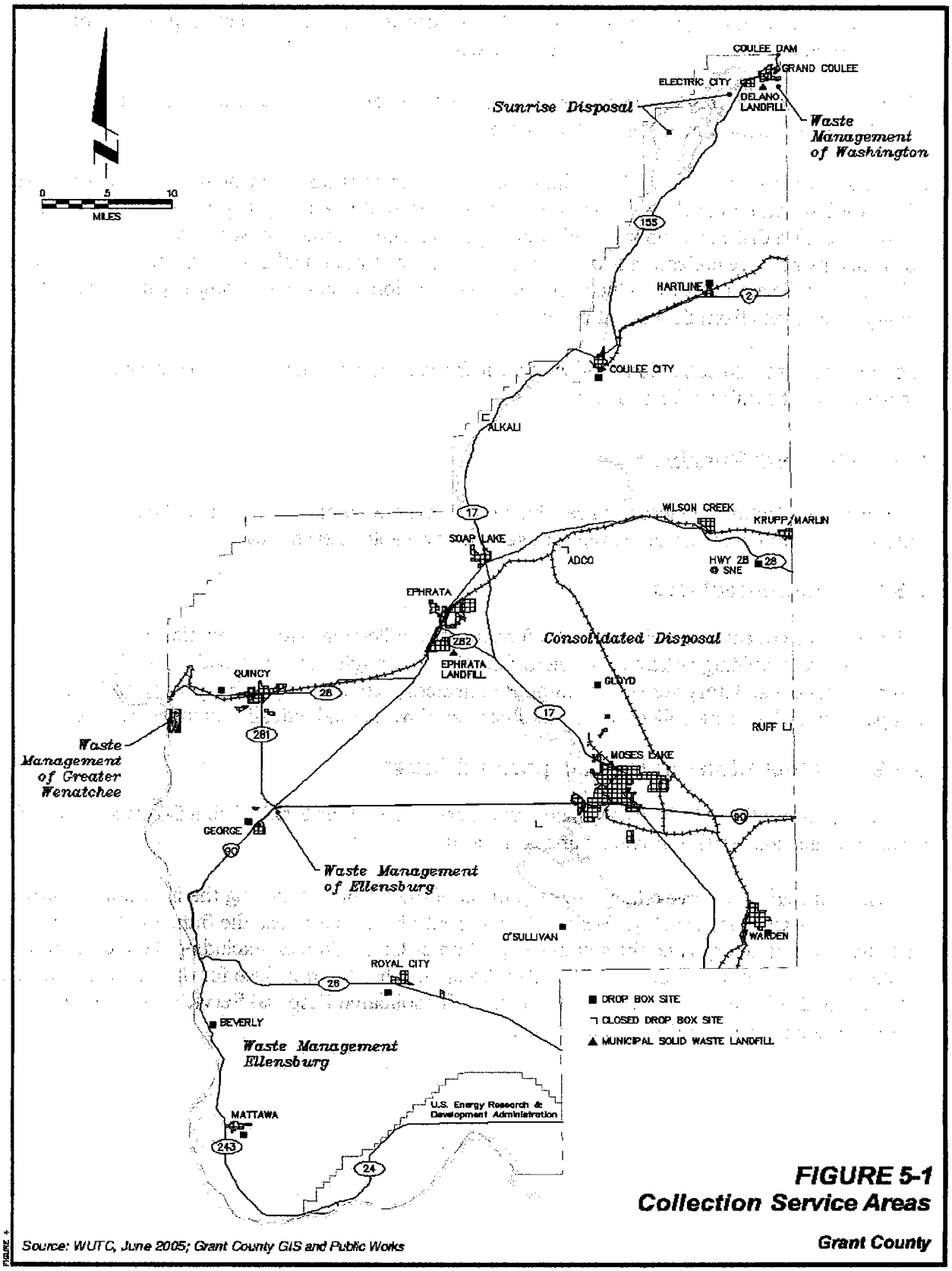


FIGURE 5-1
Collection Service Areas
Grant County

Table 5-1
Collection Services

Municipality	Population (est. 2005)	Collection Arrangement	Collection Company	Disposal Site	Collection Rates[1]
Coulee City[2]	600	Individual	Consolidated Disposal Service, Inc.	Ephrata	$ 7.00 for 60 gallon cart[3] $ 8.60 for 60 gallon cart[4] $13.80 for 60 gallon cart $15.90 for 90 gallon cart
Electric City	950	Contract	Sunrise Disposal, Inc.	Delano	$14.42 for 2 cans $16.05 for 65 gallon cart $20.35 for 95 gallon cart
Ephrata[2]	6,930	Contract	Consolidated Disposal Service, Inc.	Ephrata	$ 7.70 for 35 gallon cart[4] $ 9.75 for 35 gallon cart $13.85 for 65 gallon cart $17.95 for 95 gallon cart
George	525	Individual	Waste Management of Ellensburg	Ephrata	$ 6.30 for mini-can $ 8.00 for 1 can $12.20 for 2 cans $16.40 for 3 cans
Grand Coulee	925	Contract	Sunrise Disposal, Inc.	Delano	$15.24 for 2 cans $14.90 for 65 gallon cart $19.53 for 95 gallon cart
Hartline[2]	135	Individual	Consolidated Disposal Service, Inc.	Ephrata	$ 7.00 for 60 gallon cart[3] $ 8.60 for 60 gallon cart[4] $13.80 for 60 gallon cart $15.90 for 90 gallon cart
Marlin[2]	60	Individual	Consolidated Disposal Service, Inc.	Ephrata	$ 7.00 for 60 gallon cart[4] $ 8.60 for 60 gallon cart[5] $13.80 for 60 gallon cart $15.90 for 90 gallon cart
Mattawa[2]	3,290	Contract	Consolidated Disposal Service, Inc.	Ephrata	$15.30 for 90 gallon cart
Moses Lake	16,340	Contract	Lakeside Disposal & Recycling, Inc.	Ephrata	$10.00 for 96 gallon cart
Quincy[2]	5,265	Contract	Consolidated Disposal Service, Inc.	Ephrata	$ 7.75 for 60 gallon cart $12.45 for 100 gallon cart $11.70 for 100 gallon cart for yard waste
Royal City[2]	1,870	Contract	Consolidated Disposal Service, Inc.	Ephrata	$16.30 for a 90 gallon cart
Soap Lake	1,735	Self	City	Ephrata	$ 8.00 for 1 can $13.50 for 2 cans $17.50 for 3 cans
Warden[2]	2,575	Contract	Consolidated Disposal Service, Inc.	Ephrata	$16.89 for 90 gallon cart
Wilson Creek[2]	240	Individual	Consolidated Disposal Service, Inc.	Ephrata	$ 7.00 for 60 gallon cart[3] $ 8.60 for 60 gallon cart[4] $13.80 for 60 gallon cart $15.90 for 90 gallon cart

[1] Rate is for once a week collection unless otherwise noted.
[2] Consolidated Disposal Service, Inc., provides cans to customers.
[3] Rate is for once a month collection.
[4] Rate is for twice a month collection.

Table 5-2
WUTC Regulated Collection Services in Unincorporated Grant County

WUTC1 Certificate Holder	WUTC certificate Number	Population Density	Monthly Residential Collection Rate[1]
Consolidated Disposal Service, Inc. P.O. Box 1154 Ephrata, WA 98823	G-190	22	$ 7.00 for 60 gallon cart[3] $ 8.60 for 60 gallon cart[4] $13.80 for 60 gallon cart $15.90 for 90 gallon cart
Sunrise Disposal P.O. Box 1267 Okanogan, WA 98840	G-201	38	$ 8.02 for 1 can $10.02 for 2 cans $12.68 for 3 cans
Waste Management of Ellensburg P.O. Box 940 Ellensburg, WA 98926	G-140	29	$ 6.30 for mini-can $ 8.00 for 1 can $12.20 for 2 cans $16.40 for 3 cans
Waste Management of Greater Wenatchee P.O. Box 1440 Wenatchee, WA 98807	G-237	105	$ 7.90 for 1 can $11.50 for 2 cans $15.00 for 3 cans

[1] Rate is for once per week collection.

5.4 Solid Waste Collection Services Issues

The current solid waste collection system in Grant County provides adequate service. The incorporated cities provide service, contract with private companies or allow individuals to arrange for service with private companies. WUTC-certified collection companies offer service in unincorporated areas.

Residents can also take waste directly to one of the 12 drop box sites and two disposal sites within the County. However, the RBOM expects to close the Delano Landfill within the next year, and Grant County may eliminate some or all drop box sites, as discussed in Chapter 7. WUTC-regulated collection services report up to a 10% increase in the number of subscribers over the past year. If this continues, the County has less need of drop box sites. If this occurs, residents can subscribe to available private solid waste collection services, which would expand as needed.

The Washington State Office of Financial Management estimates the population of Grant County at 95,715 by 2025. This growth represents a 59% increase from 1993 and a 28% increase from the 2000 Census. Municipalities providing service and private collection companies within the County should be able to adequately expand to meet this growth. The current solid waste collection system can meet the County's present and future needs for solid waste collection.

5.5 Options

No alternatives were developed because solid waste collection services are available in all of Grant County, and can expand or adapt to accommodate growth or other changes. Consequently, the

County does not see value in considering a solid waste collection district or other improvements at this time.

Alternatives for curbside recycling collection and curbside yard debris collection are not discussed because these programs are not proposed in Chapter 4. Promotion of commercial waste reduction and recycling are also discussed in Chapter 4.

5.6 Evaluation of Options

The need to expand or adapt solid waste collection services will be driven by economics, availability of drop box sites in areas without mandatory service, customer service, and similar factors. Currently all Grant County has access to solid waste collection services. No other options appear necessary at this time.

5.7 Recommendations

Solid waste collection service providers should continue to expand and adapt as needed in response to population growth and other changes. If, in the future, the County designates areas as "urban", this Plan should be amended as necessary to address impacts affecting solid waste collection. The amendment should include a description of alternatives, recommendations, and implementation schedule. The Plan amendment process is described in Chapter 1.

5.8 Implementation

Changes in solid waste collection services should be implemented as needed and in accordance with preferred alternatives selected through an evaluation process. Depending on the nature of the changes, a formal evaluation and Plan amendment process may or may not be necessary.

6 Energy Recovery and Incineration

6.1 Goals for Energy Recovery and Incineration

Grant County does not currently have energy recovery (waste-to-energy [WTE]) or incineration facilities using municipal solid waste as fuel. These types of facilities are located primarily in areas with limited landfill capacity, because the process can reduce disposed solid waste volumes as much as 70 to 90%. However, sparsely populated areas, such as Grant County, typically do not generate enough solid waste to make energy recovery or incineration facilities practical. Nonetheless, Washington State ranks energy recovery equal in priority with landfills.

Goals related to energy recovery and incineration facilities are:

- These disposal alternatives should be considered in more detail if landfill capacity becomes an issue in Grant County.
- These facilities should only be built if cost-effective.
- Facilities, if built, should be located on a major transportation route but away from local airports to reduce potential bird strike issues with air traffic.
- Facilities should be compatible with other elements of the solid waste system described in this Plan.
- Facilities shall comply with regulatory requirements.

6.2 Regulatory Framework

173-350-240 WAC and 173-350-040 WAC establish permitting, design, and operating standards for energy recovery and incineration facilities. Chapter 173-434 WAC regulates air quality emissions from incinerators. Disposal facilities that receive ash are regulated under 173-306 WAC. For energy recovery and incinerator facilities, these standards include:

- Operate the facility in a manner that does not threaten human health or the environment.
- Comply with water quality standards.
- Conform to the local solid waste management plan.
- Do not violate air quality standards.
- Comply with all applicable local, State and Federal laws and regulations.
- Provide for recyclables collection.
- Ensure dangerous wastes are not disposed, treated, stored, or otherwise handled at the facility unless permitted to do so.
- Dispose ash in a lined monofill constructed in accordance with 173-306 WAC.

Facility operators must inspect and properly maintain the sites, confine solid waste before and after processing, prepare an operating plan, keep daily records of solid wastes received and ash disposed, report significant operational changes, and submit an annual report to the local health district and Ecology. Facilities must also have appropriate systems and permits in place to manage process wastewater. Before closing the site, operators must notify the local health district, submit and implement a closure plan, and remove waste.

6.3 Current Services

Grant County does not have energy recovery or incineration facilities for disposing municipal solid waste. The 1995 Plan evaluated the feasibility of incineration, with and without energy recovery, and estimated costs from $60 to $100 per ton of solid waste, included ash disposal. These costs were more than twice the cost of disposal using the Ephrata Landfill. As a result, the 1995 Plan did not recommend these facilities. The 1998 disposal alternatives study by Parametrix did not include energy recovery or incineration options.

6.4 Disposal Issues

As discussed in Chapter 9, the Delano Landfill will close in approximately one year and the RBOM is planning a transfer station and long-term disposal solution, which could potentially include energy recovery or incineration.

Grant County's Ephrata Landfill has disposal capacity for at least 20 more years and can meet the County's present and future needs during this planning period. This disposal capacity would not be reduced to less than 20 years if the Ephrata Landfill received the relatively small amount of solid waste generated by RBOM members.

If the County chooses to close the Ephrata Landfill during this planning period, the County may consider energy recovery or incineration as a replacement disposal option. The following section summarizes options for energy recovery and incineration facilities.

6.5 Options

Before selecting energy recovery or incineration, the County should consider the types of solid waste the facility should process. For instance, incinerating batteries, transformers, certain industrial wastes, household hazardous wastes and infectious wastes could adversely affect air and ash quality and are unacceptable materials. Automobiles, non-combustible demolition waste, liquid sludges, machinery and non-burnable commercial and industrial wastes are also unacceptable for incineration. Organic, wood, and paper wastes are generally acceptable.

Incineration can be used to reduce special waste streams that otherwise would require special processing prior to disposal or perhaps not be acceptable at a landfill. Wastes with this potential include tires and certain agricultural wastes, sludges, and some industrial and institutional wastes. The following subsections discuss three types of energy recovery and incineration technologies: mass burn incineration, refuse derived fuel (RDF), and pyrolysis.

6.5.1 Mass Burn Incineration

Mass burn incineration involves burning mixed municipal solid waste at a very high temperature, yielding a waste by-product of ash. Preprocessing typically involves removing large items, recyclables, and/or toxic-producing metals. Mass burn plants used one of two basic types of furnaces: refractory lined excess air incinerators or water well incinerators. A boiler installed at an incineration facility is used to remove heat or generate electricity to produce energy.

Incineration of municipal solid waste generates fly ash and bottom ash. Fly ash and bottom ash can be combined for disposal, but must be tested either combined or separately to check concentrations of heavy metals or other constituents that can make it a hazardous waste. Ash must be disposed in a monofill, such as at the Roosevelt Landfill in Klickitat County, or utilized in accordance with approvals obtained from Ecology.

6.5.2 Refuse Derived Fuel

Refuse derived fuel (RDF) technologies are similar to mass burn incineration, but involve removing more materials from mixed solid waste to create a fuel (i.e., feedstock) compatible with conventional boiler systems. In addition to removing recyclables, oversized debris, inert material, and toxic-producing metals, processing also removes other materials not suitable for the specific type of RDF. Hog fuel boilers, such as used in the wood processing industry, are a type of incinerator designed for a specific feedstock (e.g., chipped, clean wood and sawdust) that can be obtained from solid waste. End products of an RDF system include bypass materials (wastes not suitable for RDF), recyclable materials, RDF fuel, and ash.

6.5.3 Pyrolysis

Pyrolysis uses heat in an oxygen deficient atmosphere to decompose organic materials and produce gaseous or liquid fuel. The end product of pyrolysis is compatible with more types of conventional incinerators than RDF. Pyrolysis reduces air pollutants during the process because it achieves more complete combustion than mass incineration.

In a pyrolitic gasification facility, waste is preprocessed to remove metals and other materials that will not decompose. Applying heat reduces the remaining waste into gases (e.g., methane, ethane, hydrogen, and carbon monoxide), liquids (e.g., tar), and solids (e.g., char and carbon black). Hot gases are processed into a fuel or blown into an incinerator where combustion takes place. Solid residues are disposed at a landfill.

Pyrolysis is still in the development stages. To date, this process has not proven commercially viable.

6.6 Evaluation of Options

6.6.1 Capital Cost

Since the 1995 Plan, the capital cost of incineration has increased primarily as a result of more stringent siting and air emissions regulations. A 200 ton per day facility, built in 1992 in Auburn, Maine, had a capital cost of $26 million, or about $130,000 per ton of design capacity. The City of Spokane, Washington, facility, built in 1991, cost approximately $110 million, or about $137,000 per ton of design capacity. Ecology grants contributed 50% of the funds to construct the facility.

The volume of disposed solid waste in Grant County is projected to increase from approximately 75,500 tons in 2004 to more than 94,000 tons by 2013. For Grant County, an energy recovery or incineration facility should have a nominal design capacity between 230 to 300 tons per day. Capital construction costs, in today's dollars, could range from about $30 million to $50 million, or about $130,000 to $160,000 per ton of design capacity.

6.6.2 Energy Recovery

The average heating value of municipal solid waste is approximately 5,300 British Thermal Units per pound (BTU/lb).

A facility for Grant County could be designed to generate electricity as a revenue source to help offset operating costs. Steam generation is not attractive as a revenue source because high demand customers are not available all year long.

6.6.3 Waste Flow

Grant County and the municipalities do not have interlocal flow control agreements directing solid waste to a disposal facility. Without such agreements, an energy recovery or incineration facility may not have, or be able to maintain, an adequate supply of waste to operate economically if cheaper disposal sites are available.

6.6.4 Ash Disposal

In 1990, Washington State's Special Incinerator Ash Management Standards (WAC 173-306) were enacted to address ash residues from municipal solid waste incinerators processing more than 12 tons per day. These regulations allow fly ash and bottom ash to be commingled for disposal in a lined monofill waste cell.

The Regional Disposal Company has an ash monofill at its Roosevelt Landfill in Klickitat County, Washington. In 1993, the City of Spokane paid an ash disposal fee of $36 per ton. The disposal cost has increased over the years to approximately $44 per ton in 2005. One ton of solid waste produces approximately 0.3 ton of ash. As a result, the tipping fee ($98 per ton in 2005) charged at the incinerator includes about $13 per ton to cover the cost of ash disposal. For a smaller producer of ash, such as Grant County, the disposal cost component of the tipping fee may likely be about $16 to $17 per ton of unprocessed solid waste.

6.6.5 State Grants and Other Funding Sources

In 1987, grant money to cover 50% of the capital cost of incineration was available through Ecology. The City of Spokane funded the balance of their facility cost through revenue bonds. Today, state grant programs exist primarily for recycling and management of moderate risk waste, but not for incineration facilities. Federal tax credit or loan programs currently exist to support production of "green power", such as WTE, but most options most options are available only to companies. The County would most likely need to contract with a private operator or encourage a company to site, build, and operate a facility in Grant County. For example, the City of Spokane contracts with Wheelabrator to operate their WTE plant.

6.6.6 Incineration Versus Conventional Disposal

The disposal fee at the Ephrata Landfill was approximately $20 per ton in the 1995 Plan. The County raised the fee to $26 per ton in 2005 to cover the cost of upgrading the landfill to meet current regulatory requirements, including lining the new cell. In 2006, the County will increase the fee to approximately $28 per ton to include funds for landfill gas collection systems at the landfill.

The RBOM would need to complete similar upgrades as the Ephrata Landfill and also increase fees to cover the higher costs if the Delano Landfill were expanded beyond the existing Cell 1. Future increases in cost and changes in technology may eventually make incineration a feasible option.

The average cost of incineration would likely be approximately $100 per ton of solid waste. This cost is more than the cost of conventional disposal at the Ephrata Landfill or an out-of-county regional site.

Public opposition to incineration facilities has historically been very strong in Grant County. A review of the incineration disposal option must consider this factor.

6.7 Recommendations

In-county conventional landfill disposal remains more cost-effective and has less public opposition than energy recovery and incineration facilities. The Ephrata Landfill has more than 20 years of disposal capacity, and is able to receive the County's waste and waste generated by out-of-county RBOM customers. The County should consider energy recovery and incineration options if operating the Ephrata Landfill becomes relatively costly or for other reasons no longer possible.

6.8 Implementation

The County should implement a disposal options review if the Ephrata Landfill is no longer reasonable to operate. This review should include energy recovery and incineration options, and implement these only if needed.

7 Transfer Facilities

7.1 Goals for Solid Waste Transfer

Grant County has solid waste transfer facilities at several locations to service primarily rural areas and accommodate the increased solid waste disposal needs during tourist season. Goals related to current and future solid waste transfer facilities are:

- Enough should be located in rural areas to encourage responsible solid waste disposal practices by rural residents.
- They should be located on major transportation routes for ease of transport.
- Transfer facilities should be compatible with other elements of the solid waste system described in this Plan.
- They should accept recyclable materials whenever practical.
- Transfer facility operations shall comply with regulatory requirements.

7.2 Regulatory Framework

Chapter 36-58-030 RCW defines transfer stations to include drop box facilities in counties with a population less than 70,000 and, for counties east of the Cascade Mountains, also between 125,000 and 210,000. Title 36 RCW also allows counties to construct, own, operate and set fees for solid waste facilities, including drop box sites.

Chapter 173-350-310 WAC, *Intermediate Solid Waste Handling Facilities,* sets general performance standards for transfer facilities, including drop box sites. These standards include:

- Operate the facility in a manner that does not threaten human health or the environment.
- Comply with water quality standards.
- Conform to the local solid waste management plan.
- Do not violate air quality standards.
- Comply with all applicable local, State and Federal laws and regulations.

Chapter 173-350-310 WAC does not define location standards, but establishes minimum design, operation, and closure standards. Drop boxes must be watertight with a lid or screen to control litter and reduce access by rats and other vectors. Drop box sites must be securely fenced, kept clean, attended during operating hours, have an information sign, and charge tipping fees that cover the cost of operations. Drop box operators must inspect and properly maintain the sites, prepare an operating plan, keep daily records of solid wastes received and significant operation changes, and submit an annual report to the local health district. Before closing the site, operators must notify the local health district, submit and implement a closure plan, and remove waste.

7.3 Current Services

Within Grant County, solid waste transfer facilities consist of county-owned and -operated drop boxes in rural areas and a privately-operated transfer station in Moses Lake.

7.3.1 County Sites

The current population in Grant County is between 70,000 and 125,000 residents. The County operates drop box sites, charges tipping fees to pay for operations, and operates the sites in conjunction with the Ephrata Landfill. The Grant County Health District considers the drop box sites transfer stations, but permits them as drop box sites. Permit application fees for drop box sites are less than for transfer stations, reflecting the smaller size of the facility and lower solid waste volumes.

Grant County currently operates 12 drop box sites at the locations shown in Figure 7-1. Since the 1995 Plan, the County closed three drop box sites because they had relatively little use: Adco, Ruff, and the I-90 site near Moses Lake.

The current drop box sites are fenced and paved with space for four 40-cubic yard drop box containers. The tipping areas for waste disposal have a concrete retaining wall separating the upper level used by customers and the lower level where the County parks the drop boxes. This arrangement allows for convenient disposal access by customers. The sites accept municipal solid wastes, except for large livestock carcasses, industrial sludge, asbestos and other special wastes. The County transfers full drop boxes to the Ephrata Landfill, where they are emptied and then reused at the drop box sites. The drop boxes are emptied on an as-needed basis.

Table 7-1 lists the 2005 drop box tipping fees. Fees reported in the 1995 Plan for 1994 are included for comparison.

Table 7-1
Drop Box Site Tipping Fees

Category	Tipping Fees	
	1994[1]	2005[2]
Minimum Charge for ½ cubic yard or less	$4.00	$5.25
Non-compacted (per cubic yard)	6.50	8.25
Compacted Yardage (cubic yards)	13.00	15.75
Refrigeration Units (with or without Freon extracted)[3]	3.00	7.25
Household Appliances	3.00	2.00 each
Small Animals[3]	1.25	2.25
Passenger Car Tires[3]	2.75	4.50
Truck Tires[3]	6.00	8.00
Tractor/Implement Tires[3]	6.25	11.75
Heavy Equipment Tires[3]	12.50	17.00

[1]Includes 4.6% tax.
[2]Includes 3.6% State Refuse Collection Tax.
[3]Each

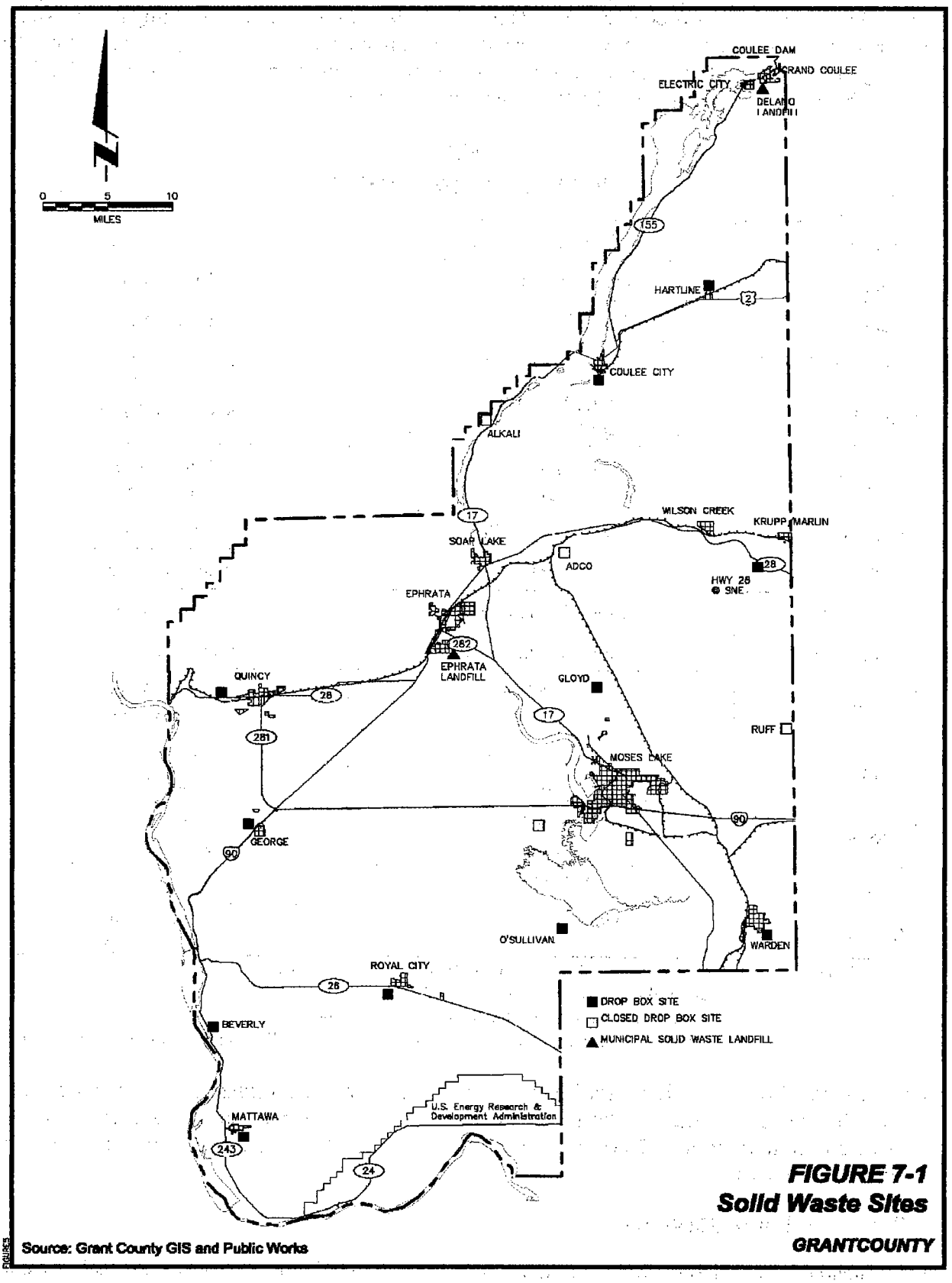

COULEE DAM
GRAND COULEE
ELECTRIC CITY
DELANO LANDFILL
0 5 10
MILES
155
HARTLINE
2
COULEE CITY
ALKALI
17
WILSON CREEK
KRUPP/MARLIN
SOAP LAKE
ADCO
28
HWY 28 @ SNE.
EPHRATA
282
EPHRATA LANDFILL
QUINCY
28
281
GLOYD
17
RUFF
MOSES LAKE
90
GEORGE
90
O'SULLIVAN
WARDEN
ROYAL CITY
28
DROP BOX SITE
CLOSED DROP BOX SITE
MUNICIPAL SOLID WASTE LANDFILL
BEVERLY
U.S. Energy Research & Development Administration
MATTAWA
243
24
FIGURE 7-1
Solid Waste Sites
Source: Grant County GIS and Public Works
GRANTCOUNTY

Table 7-2 lists the 2005 operating hours for the drop box sites. Most sites are open 2 to 3 days each week for at least 4 hours each day. The Alkali site is open during late spring through early fall to help accommodate the additional waste generated by tourists in the area during these months. The County changed operating hours at several sites to improve operations and convenience. Table 7-2 shows the changes in hours since the 1995 Plan for comparison.

Table 7-2
Drop Box Site Operating Hours

Site	1994	2005
Hartline	Tues., Sat. ~~& Sun.~~	9 am - 12:30 pm
Coulee City	Tues., Fri., Sat. ~~& Sun.~~	1 pm - 5 pm
~~Adco~~	~~Tues., Thurs. & Sat.~~	~~1 pm - 5 pm~~
Hwy. 28 @ S NE	Mon., Sat. ~~& Sun.~~	9 am - 12:30 pm
Alkali	Mon., Wed., & Sat. ~~Nov. 1~~ – April 1 - Sept. 30 ~~Sat. only~~	9 am - 12:30 pm
~~Moses Lake~~	~~Mon., & Fri.~~ ~~Sat.~~	~~1 pm - 5 pm~~ ~~9 am - 5 pm~~
Warden	Wed., Sat. ~~& Sun.~~	1 pm - 5 pm
~~Ruff~~	~~Sat.~~	~~9 am - 12:30 pm~~
Royal City	Mon., Wed., & Sat.	1 pm - 5 pm
O'Sullivan	Mon., Wed., & Sat.	9 am - 12:15 pm
Gloyd	Tues. & Thurs. ~~Sun.~~ Sat.	1 pm - 5 pm 9 am - ~~5~~ 6 pm
Quincy	Mon. & Thurs. Sat.	1 pm - 5 pm 9 am - 5 pm
George	Fri. & Sat. ~~Sun.~~	1 pm - 5 pm ~~9 am - 5 pm~~
Beverly	Fri. & ~~Sun.~~ Sat.	1 pm - 5 pm
Mattawa	Mon., Wed. ~~& Sat.~~ Sat.	9 am - 1 pm 9 am – 12:30 pm

Notes: All sites are closed Thanksgiving, Christmas and New Year's Day.
Shaded days and times are new since the 1995 Plan.
Dates that are struck out were dropped since the 1995 Plan.
From November 1 through March 31, all drop box sites normally open past 4 p.m., close at 4 p.m.

One part-time County employee staffs each drop box site during operating hours. The attendants are responsible for keeping the site clean, screening disposed wastes for unacceptable materials and providing customer service. The attendants also salvage recyclable materials, such as aluminum or scrap ferrous metals.

7.3.2 Private Services

Consolidated Disposal Service, Inc., (CDSI) built a transfer station in Moses Lake, which currently

serves as a reload facility. The company consolidates solid waste loads from commercial collection trucks into larger trucks, increasing efficiency of transport to the Ephrata Landfill. This transfer facility is used by CDSI vehicles and other commercial and industrial customers in the area, with the County's permission. The transfer facility has the potential to convert to a public transfer station.

7.4 Transfer Facility Issues

The County's network of existing drop box sites provides convenient access for self-haul customers to dispose of solid waste and is a factor in controlling potential illegal dumping in rural areas. Since the 1995 Plan, Grant County:

- Eliminated three drop box sites because their use and location did not justify the cost of operation.
- Changed one to seasonal because the majority of use was during the tourist season.
- Changed hours at others to better balance user and operating needs.

Opportunities for recycling at the drop box sites are discussed in Chapter 4.

The sites are designed to expand, if needed, to meet future needs. Grant County monitors usage of each site to assess the need to revise operations, including reducing or expanding hours, the number of drop boxes per site or the frequency of emptying the drop boxes.

Grant County constructed the drop box sites in the 1970s because solid waste collection services were limited in the County. Since then, solid waste collection services became readily available in the entire County. Over the past several years, the number of residents subscribing to services offered by solid waste collection companies appears to be increasing at a higher rate than the population growth. This shift is reducing the need for the County's drop box sites. In addition, CDSI's private transfer station in Moses Lake could convert to a public transfer station and eliminate the need for nearby county drop sites, such as Gloyd. These changes are causing the County to evaluate the need for some or all the drop box sites.

7.5 Options

Grant County's drop box sites adequately meet current needs and can expand to provide more capacity. However, the trend has been to reduce the number of sites because collection services are available throughout the County, more residents are using them, and the need for the drop box sites is less. The County implements a periodic evaluation of drop box sites, considering:

- Operate the existing system as is (status quo). The County maintains the same number of drop box sites and operating hours even if use decreases. Operating costs and, thus, fees could increase over time, if usage decreases.
- Reduce drop box site availability to match level of service needs. The County periodically reviews drop box site activity level, and reduces operating hours or closes drop box sites to keep operations cost-effective. Reasons would include closing drop box sites close to privately operated transfer stations to avoid duplication of services.
- Eliminate drop box sites completely. In this option, the drop box sites are not needed because solid waste collection services exist throughout the County. In addition, a privately

operated transfer station exists in the largest urban area in the County. The County built the drop box sites when county-wide solid waste collection services were not available.

The County is currently evaluating the need of some or all the drop box sites, including the options discussed above. The evaluation is considering several factors, including:

- Availability of private solid waste collection or drop off services
- Costs of operations and capital improvement needs
- Level of usage
- Impacts relative to level of service policies

7.6 Recommendations

The current drop box site network adequately meets current and future needs throughout the 20-year planning period. Grant County should complete the current evaluation and:

- Continue to monitor customer activity.
- Periodically evaluate the need for drop boxes, considering:
  - Reduce potential duplication of services with private service providers.
  - Maintain a reasonable level of service.
  - Consider impacts to users of proposed changes in level of service.

Fees should be adjusted as necessary to continue covering the costs of drop box site operations and maintenance.

7.7 Implementation

The County should continue to review usage and fees at least annually or more frequently, if appropriate.

7.7.1 Schedule

The County anticipates these evaluations will occur when usage continuously drops over time at one or more drop box sites, more residents and businesses use private collection companies rather than sefl-haul, and if new, privately-operated facilities open nearby. Consequently, periodic evaluations will be performed as usage trends change or new opportunities arise.

7.7.2 Costs

The County typically performs most or all of each evaluation using its own staff. Costs will be developed as needed in the annual budgeting process for the County, regardless if evaluations are performed in-house or with outside assistance.

7.7.3 Expected Outcomes

The expected outcomes for each evaluation process include:

- Improved efficiency of service.
- Reduced duplication of services, particularly between private companies and the County.

- Cost savings

7.7.4 Outputs

Specific outputs would consist of closing drop box sites where a private facility exists, reducing hours at drop box sites that receive little use, and reducing costs.

7.7.5 Performance Measures

The County will focus on performance measures that support meeting level of service goals, establish specific performance measures for each evaluation process.

8 Waste Import And Export

8.1 Goals For Import/Export

Grant County currently has solid waste disposal capacity beyond the 20-year planning period covered by this Plan. If Grant County closed the Ephrata Landfill, solid waste export may be a viable alternative. Solid waste import may also be a possibility at the Ephrata Landfill for RBOM members outside Grant County once the Delano Landfill closes.

Goals related to current and future waste import and export are:

- Waste export should be considered if Grant County finds it more economically and environmentally advantageous than in-county disposal.
- County-generated solid waste should only be exported to landfills that comply with current federal and state regulatory criteria and are without environmental issues.
- The County should maximize recycling and reuse to reduce exported solid waste quantities when practical.
- Waste import should be considered on a case-by-case basis with preference given to RBOM members outside Grant County.
- Waste export and import should be compatible with other elements of the solid waste system described in this Plan.

8.2 Regulatory Framework

As a result of a U.S. Supreme Court decision in the 1990s, the County cannot restrict the importation of solid waste to privately-owned facilities. The County is allowed to establish acceptance criteria for waste that is imported to County-owned and privately-owned facilities.

8.3 Current Services

8.3.1 Waste Import

The Grant County Health District receives and processes all requests to send out-of-county waste to landfills in Grant County. The Health District consults with the site operator and Ecology before approving such requests.

Grant County has a formal policy that does not allow the County to import waste from outside the County. Consequently the County does not accept out-of-county waste at its drop box sites or landfill. The Regional Board of Mayors (RBOM) accepts solid waste from select out-of-county, non-member customers for disposal at the Delano Landfill. These customers include the U.S. Bureau of Land Management and National Park Service.

8.3.2 Waste Export

Approximately 2,000 tons of solid waste is disposed out-of-county, primarily from the Crescent Bar community. Waste Management of Ellensburg, a WUTC-regulated hauler, collects the waste from Crescent Bar for disposal at the Greater Wenatchee Landfill in Douglas County.

8.4 Waste Import and Export Issues

8.4.1 Waste Import

RBOM members outside Grant County may find the option to send waste to Grant County's Ephrata landfill more feasible than elsewhere once the Delano Landfill closes. The Grant County Board of Commissioners (BOCC) has tentatively agreed to allow current out-of-county RBOM customers to dispose waste at the Ephrata Landfill. The BOCC will require written approval from each of the other counties before accepting waste for disposal.

8.4.2 Waste Export

The RBOM needs a long-term waste disposal option to replace the Delano Landfill, which will close the next year. The RBOM should consider evaluating long-term disposal alternatives, including waste export to an out-of-county regional disposal site.

The 1998 disposal alternatives study completed by Parametrix concluded in-county disposal at the Ephrata Landfill was the preferred option based on economics and non-cost factors, including risk management and local employment impacts. The County should update this study and consider waste export again if operating the Ephrata Landfill does not appear feasible.

8.5 Options

8.5.1 Waste Import

One alternative is for the County and RBOM to develop a policy that allows waste to be imported to the in-county facilities. The amount of waste that could be accepted for disposal would not be restricted. The County and RBOM would establish acceptance criteria for the imported waste. Examples of acceptance criteria are:

- Requiring generators to implement approved programs for waste reduction, recycling, moderate risk waste management and waste screening.
- Requiring information to track sources and types of imported waste and verify implementation of required programs.

A second alternative is for Grant County to continue to ban out-of-County waste to Grant County-owned facilities. The County could choose to ban all waste from outside the County or could ban a particular waste stream from outside the County to County-owned facilities. Banning specific waste streams would require a clear definition of each waste stream.

The County could also develop a policy allowing waste from selected adjacent counties or communities to be imported to the Ephrata Landfill. This is currently done at the Delano Landfill, and will likely be applied to out-of-county RBOM members. As in the first alternative, the County would establish acceptance criteria for the imported waste.

The County could impose a surcharge on out-of-County waste to County-owned facilities. This surcharge must be based on increased costs to the County for accepting the waste. An example of an allowable surcharge cost is additional screening costs to verify that the exporting jurisdiction is implementing the acceptance requirements. A surcharge cannot be arbitrarily imposed on out-of-County waste because of its point of origin. The surcharge must be reasonable and justifiable.

The County can establish acceptance criteria for out-of-County waste that is imported to a privately-owned municipal solid waste landfill in Grant County. If a private contractor wants to site, construct and/or operate a private in-county landfill, the County, in conjunction with Ecology and the Grant County Health District, should develop a process for reviewing information regarding the amount, character and source of out-of County waste. The intent of the process would verify that imported waste meets the same standards as waste generated in-County. The acceptance requirements could be included in the Conditional Use Permit for the private landfill.

8.5.2 Waste Export

The County and/or RBOM could export waste to a regional, out-of-county landfill if it becomes too costly to continue operating the Ephrata Landfills because of RCRA Subtitle D requirements. The closest out-of-county regional landfills include:

- Greater Wenatchee Landfill in Douglas County
- Roosevelt Landfill in Klickitat County
- Columbia Ridge Landfill near Arlington, Oregon
- Northern Wasco Landfill near The Dalles, Oregon
- Finley Buttes Landfill near Boardman, Oregon.

8.6 Recommendations

8.6.1 Waste Import

The County should continue to ban out-of-County waste from the Ephrata Landfill, except for out-of-county RBOM customers, in order to conserve disposal capacity.

A private firm may want to site, construct, and/or operate a private landfill in Grant County. If a firm expresses interest, the County, in conjunction with Ecology and the Health District, should develop a process to evaluate acceptability of out-of-County wastes for disposal at a privately-owned landfill. At a minimum, the process should address:

- A limitation on the amount of waste disposed at the privately-owned facility annually
- The roles, responsibilities and authorities of Grant County, the Grant County Health District, and Ecology
- Essential program elements of solid waste systems that generators must demonstrably have in place to be consistent with Washington State regulations and guidelines, including

County-approved programs for:
  - Waste reduction and recycling plans and programs
  - Moderate risk waste management
  - Waste screening.
- Verification procedures including, but not restricted to, audits and a check of pending actions against generators
- Verification of the source and the classification of the waste

The acceptance requirements should be included in the Conditional Use Permit for the privately-owned landfill.

8.6.2 Waste Export

The County should evaluate waste export if the Ephrata Landfill is too costly or otherwise not feasible to continue operating. Waste export could also be considered for emergency or overflow disposal needs to preserve the capacity of the Ephrata Landfill.

The RBOM should include waste export in the disposal options review described in Chapter 9.

8.7 Implementation

The County should develop acceptance criteria for waste import if a private company plans to site, construct, and/or operate an in-county regional landfill. This should be completed in a time frame consistent with siting studies and permitting processes for a private in-county landfill.

The County should update the 1998 disposal options study and reevaluate waste export if the Ephrata Landfill is no longer feasible to operate. The schedule for the update should be established when the County decides to pursue other options.

The RBOM should complete a disposal options review in Year 1, as described in Chapter 9.

9 Landfills

9.1 Goals for Landfills

Grant County contains two landfills for disposal of municipal solid waste generated within the county and from select customers outside the county. Goals related to current and future landfill needs are:

- In-county landfills will continue providing long term disposal capacity for county residents and business as long as landfills remain cost-effective and protective of the environment.
- Current landfills will operate in compliance with local, State and Federal regulations governing solid waste disposal.
- Landfill sites should have receptacles for recyclable material drop off to encourage customers to reduce disposed solid waste quantities whenever practical
- Any future landfill(s) will be sited and built in compliance with local, State and Federal regulations and located on major transportation routes for ease of transport.
- Before siting future landfills, an alternatives analysis should be performed to evaluate other, higher priority disposal options, such as incineration with energy recovery, provided they offer the same or greater environmental protection and are reasonable in cost.
- In-county disposal policies should remain flexible to allow for privately built landfills within county limits.
- Landfills should be compatible with other elements of the solid waste system described in this Plan.

9.2 Regulatory Framework

The adoption of 173-304 WAC *Minimum Functional Standards for Solid Waste Handling* (MFS) in 1985 established comprehensive siting, operation, closure and post closure criteria for solid waste landfills in Washington State. The MFS increased environmental protection standards in response to environmental issues created by older landfill practices. New measures included better final cover, gas migration control, vadose (unsaturated) zone monitoring, and groundwater monitoring. The MFS requirements increased for operation, monitoring, and post-closure maintenance of existing landfills.

In September 1991, the U.S. EPA issued *Solid Waste Disposal Facility Criteria, Final Rule* (40 CFR, Parts 257 and 258) under Subtitle D of the Resource Conservation and Recovery Act (RCRA) of 1976. Parts 257 and 258 set forth stringent location, facility design and operations, groundwater monitoring, corrective action, and landfill closure and post closure criteria. On October 26,1993, Washington State issued Chapter 173-351 WAC, *Criteria for Municipal Solid Waste Landfills*, which incorporated the new federal standards. These criteria apply to landfills built, expanded laterally, or continued after adoption of Subtitle D. Landfills that did not receive waste on or after the effective date of Chapter 173-351 WAC remained regulated under the MFS. The MFS also continues to apply to limited purpose landfills that receive inert demolition waste, wood waste, industrial solid waste, and other solid wastes excluding household waste.

The more stringent measures in Chapter 173-351 WAC caused many communities to close their local landfills because of the increased cost of compliance, and created a market for large regional landfills.

State, federal and local standards that apply to landfills include:

- Operate the facility in a manner that does not threaten human health or the environment.
- Comply with surface water, groundwater, and air quality standards.
- Comply with applicable local, state and federal laws and regulations.
- Have current site development, operations, closure and post closure plans.
- Have an environmental monitoring plan for surface water, groundwater, and landfill gas, as appropriate.
- Implement and report environmental monitoring results.
- Establish and maintain financial assurance to pay for landfill development, closure, and post closure plus environmental studies and related corrective actions for known issues.
- Maintain an Operating Record of permits, daily operating records, current plans, water and air quality monitoring results, relevant correspondence, daily waste records, and similar information.
- Conform to the local solid waste management plan.

The *New Source Performance Standards* (40 CFR 60, Subpart WWW) and *Emission Guidelines* (40 CFR 60, Subpart Cc) regulate air quality emissions from landfills. Landfills with disposal capacity equal to or more than 2.5 million metric tons or cubic meters must implement active landfill gas control systems. These systems may include landfill gas wells or horizontal collectors that extract landfill gas under vacuum to a flare or landfill gas utilization system. Landfills with less capacity need only submit an initial design report demonstrating emissions will be below regulatory limits. Washington State incorporated these requirements and emission limits in Chapter 173-460 WAC, *Controls for New Sources of Toxic Air Pollutants*.

The National Pollutant Discharge Elimination System (NPDES) program regulates discharges of stormwater runoff from point sources (e.g., ditches and culverts) at industrial facilities to surface water bodies. Ecology administers the program through a series of general Stormwater Discharge Permits, with one that includes landfills.

9.3 Current Services

Municipal solid waste is disposed primarily at two in-county landfills. Grant County operates the Ephrata Landfill, which receives about 96% of the disposed solid waste generated in the County. The Delano Landfill, which is near Electric City, is operated by the Regional Board of Mayors (RBOM). This site receives about 4% of disposed solid waste. Figure 9-1 shows the locations of the two in-county landfills.

9.3.1 Ephrata Landfill

Grant County owns the Ephrata Landfill, which the Solid Waste Division of the Public Works Department operates. The entire County-owned property is 120 acres with 60 acres permitted for the older, unlined landfill, which is currently inactive and closing. Approximately 40 acres is permitted for the new, lined landfill expansion. In 2004, the County acquired 147 acres of adjacent property, mostly to the east and south of the original 120 acres.

The quantity of waste disposed at the site was approximately 75,500 tons in 2004. Private and municipal collection services that use the Ephrata Landfill include the City of Soap Lake; Consolidated Disposal Service Inc.; Lakeside Disposal, Inc.; and Waste Management of Ellensburg. The Ephrata Landfill does not accept out-of-county waste. Solid waste from the County's drop box sites is disposed at the landfill. Some residents and businesses haul their wastes directly to the site.

In the 1995 Plan, the closure plan for the Ephrata Landfill estimated a remaining capacity of approximately 1,932,000 cubic yards from 1990, or about 981,600 tons. The landfill was projected to reach capacity by 2010. The County is closing the old landfill cell because several school remodels in the 1990s generated demolition waste that filled the old cell to capacity sooner than expected. In addition, the old landfill cell is unlined and appears to be impacting groundwater quality.

Parametrix, the County's landfill design consultant, estimates the new landfill expansion will have a total waste disposal capacity of approximately 2.6 million tons (or approximately 2.4 million megagrams). The total capacity of the old and new landfill cells exceed the 2.5 million megagran threshold in the New Source Performance Standards.

The study completed by Parametrix projected the new expansion will last until 2033, 2040, or 2046, depending on waste disposal rate per capita and population growth. This site life projection exceeds the 20-year planning period for this Plan, which ends in 2025.

In 2004, the County constructed the first 18-acre lined cell of the new landfill expansion, which is now receiving waste. The Ephrata Landfill does not discharge stormwater to surface water bodies and therefore does not have a NPDES Stormwater Discharge Permit. The County is working with the Health District and Ecology to implement the New Source Performance Standards affecting landfill gas emissions.

9.3.2 Delano Landfill

The RBOM operates the Delano Landfill for its member cities, the local hauler (Sunrise Disposal, Inc.) and select customers from neighboring out-of-county communities. Electric City, Elmer City, Coulee Dam and Grand Coulee comprise the RBOM. Out-of-county, non-member customers include the U.S. Bureau of Land Management and the National Park Service. The RBOM is working to convert the landfill permit to Chapter 173-351 WAC and achieve compliance with the new requirements.

The RBOM estimated that approximately 3,000 tons were disposed at the Delano Landfill in 2004. The closure plan projected landfill closure around 2030 with remaining capacity of 496,000 cubic yards from 1990. The permitted landfill property is 44.5 acres in plan area.

The total landfill capacity is below the 2.5 million megagram threshold for the *New Source Performance Standards*. The RBOM only needed to submit the initial design report demonstrating compliance with regulatory emissions criteria.

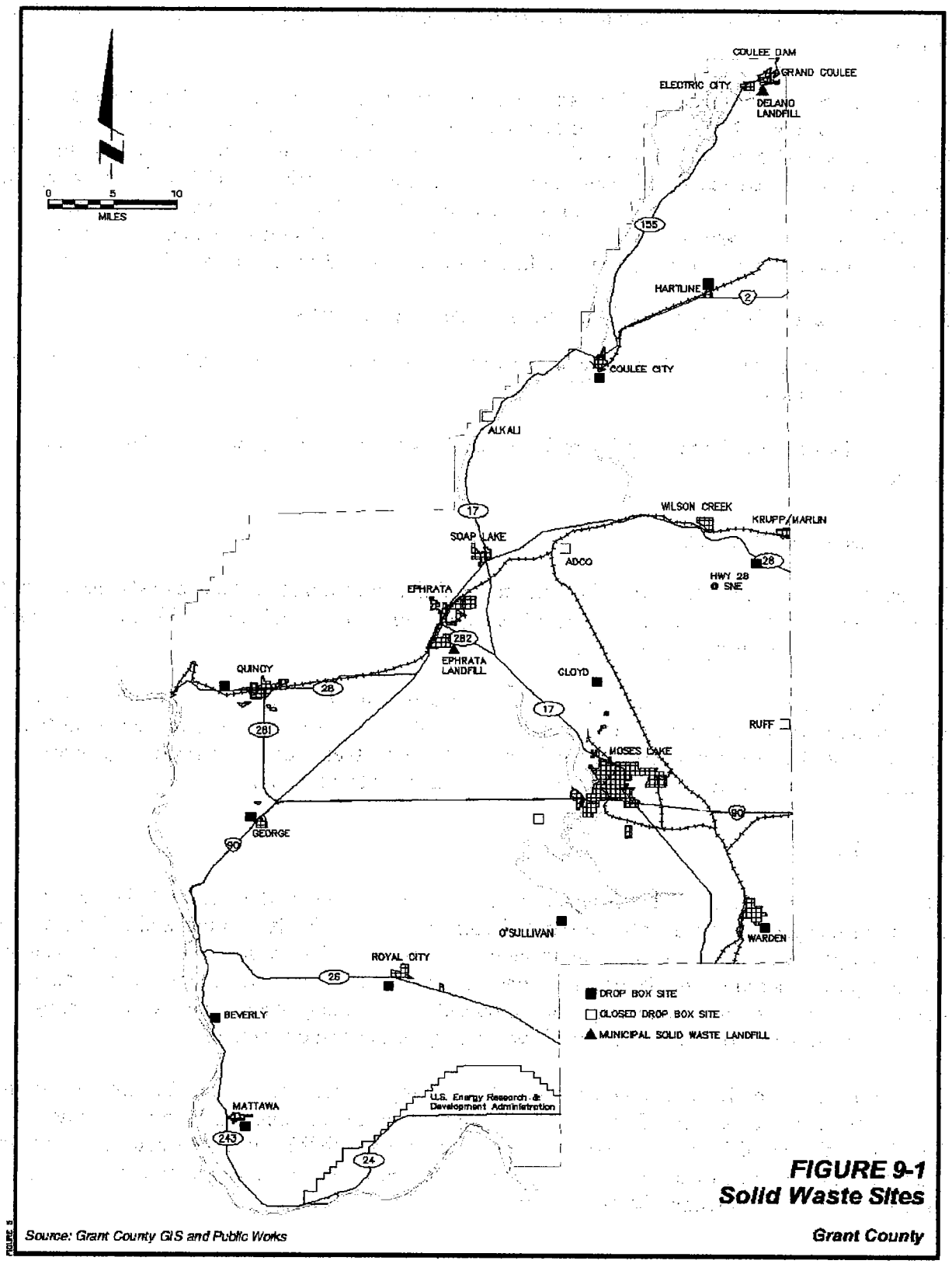


FIGURE 9-1
Solid Waste Sites

Source: Grant County GIS and Public Works

Grant County

Like the Ephrata Landfill, the Delano Landfill is in an arid region and does not discharge stormwater to surface water bodies. Consequently, the landfill does not have an NPDES Stormwater Discharge Permit.

The active waste disposal cell, Cell 1, was developed before Chapter 173-351 WAC took effect, and will reach capacity in 2006. In order to develop Cell 2, the RBOM will have to fully comply with all requirements of Chapter 173-351 WAC. The RBOM recently determined the Delano Landfill cannot be cost-effectively expanded and plans to close the landfill. Currently, the RBOM is evaluating other disposal options, including building a transfer station at the landfill and waste export. In the interim, the BOCC has tentatively agreed to accept waste from the RBOM's out-of-county customers, provided they have written approval from the other counties to dispose waste in Grant County.

9.3.3 Landfill Disposal Fees and Operating Hours

Table 9-1 lists the 2005 landfill disposal tipping fees. Fees reported in the 1995 Plan from 1994 are included for comparison.

Table 9-2 lists the 2005 operating hours for the landfills and the hours reported in the 1995 Plan for comparison.

9.4 Landfill Issues

Within its currently permitted area, the Ephrata Landfill is projected to have disposal capacity for the entire County beyond the current 20-year planning period. It is possible the landfill may close early or need temporary emergency overflow capacity.

The Delano Landfill is projected to close within the next year. The RBOM is currently evaluating disposal options to replace the Delano Landfill. The BOCC tentatively agreed to accept waste from out-of-county RBOM customers provided the counties with these customers reside in provide written approval. The RBOM is in the process of obtaining this permission.

9.5 Options

The County's Ephrata Landfill is designed to comply with current solid waste landfill regulations and has disposal capacity exceeding the 20-year planning period of this Plan. If the landfill becomes too costly to operate in the future, the County should update its 1998 disposal review study to include waste export, other in-county landfill sites, energy recovery and incineration facilities, and similar options. In addition, the County may want to consider negotiating an agreement with a nearby landfill for temporary or emergency overflow capacity as a back-up measure.

The RBOM is currently evaluating disposal options to replace the Delano Landfill. Options being considered include a new transfer station at the landfill site and directing waste to the Ephrata Landfill. If the RBOM can obtain permission from counties with RBOM out-of-county customers, the Ephrata Landfill may accept the waste. Otherwise, these customers may be required to dispose their waste at facilities within their own counties.

Table 9-1
Landfill Disposal Fees

Category	Disposal Charges			
	Ephrata[1]		Delano[2]	
	1995 Plan	2005	1995 Plan	2005
Loose Minimum Charge for ½ cubic yard or less	$2.75	-	$3.00[3]	-
Loose over ½ cubic yard	3.75	-	4.00[4]	-
Minimum Disposal Fee (per load)	-	2.00	-	$6.50
Non-compacted, 400 lbs or less (per cubic yard)	-	-	-	11.50
Compacted Yardage (per cubic yard)	7.50	-	4.00[4]	-
Non-compacted (per ton)	-	25.80	-	-
Compacted Yardage (per ton)	-	25.80	-	-
Compacted Yardage Inside City/Town Limits (per ton)	-	-	-	52.00
Compacted Yardage for Franchise Area (per ton)	-	-	-	57.20
Household Appliances (each)	3.00	2.07 each 25.80 per ton	7.00	0.00
Appliances (with Freon & Compressors) (each)	-	7.25	-	40.00
Dead Animals – Livestock (each)	24.00	25.80	-	25.00
Dead Animals – Pets (each)	1.25	2.25	-	6.25
Passenger Car Tires (each)	1.75	4.50	1.00	2.10
Truck Tires (each)	3.00	8.00	3.00	10.00
Tractor/Implement Tires (each)	6.25	11.75	-	400.00
Heavy Equipment Tires (each)	12.50	17.00	-	-
Burning Barrels[5] (each)	-	-	-	30.00
Industrial Sludge (per cubic yard)	4.70	25.80	-	-
Asbestos	35.00	45.75	-	-

[1]Rates include tax. Ephrata, Soap Lake, Quincy, Moses Lake, Consolidated Disposal, and Columbia River Disposal do not pay tax on city loose or compacted solid waste disposed at the Ephrata Landfill. Other customers pay a 4.6% tax (1995 Plan) and 3.6% tax (2005).
[2]Rates include a 15% trust fund contribution.
[3]Minimum charge applies to less than 1 cubic yard.
[4]Charge applies to loads of 1 cubic yard or more.
[5]Accepted at landfill attendant's discretion.

Table 9-2
Landfill Operating Hours

Site	1995 Plan		2005	
Ephrata	Monday- Friday Saturday& Sunday	9 am - 5 pm 1 pm – 5 pm	Monday- Friday Saturday	7:30 am - 3 pm 10 am – 3 pm
Delano	Tuesday, Thursday & Saturday	9 am - 5 pm	Tuesday &Thursday Saturday	Noon – 5 pm 8:30 am – 5 pm

Notes: Landfills are closed Thanksgiving, Christmas and New Year's days.

9.6 Recommendations

The County should continue using the Ephrata Landfill for in-county waste disposal. If the landfill becomes too costly or infeasible to operate, the County should update its 1998 disposal options review. The review would help the County identify a more cost-effective option. As a backup measure, the County may want to consider negotiating an agreement with another landfill in the event of an emergency.

The RBOM should complete its disposal options review in order to compare the costs of having a transfer station on the old landfill, exporting waste out-of-county or sending waste to the Ephrata Landfill The review process should include input from the Health District, Ecology and other resources to define regulatory requirements, costs and other relevant factors.

9.7 Implementation

Grant County should update the 1998 disposal options as needed and define a schedule, scope of services, and budget for the update before the review begins.

Grant County may want to consider negotiating an agreement for backup capacity at another landfill.

The RBOM should complete its disposal options review in Year 1 and implement the preferred option on the schedule defined in the review.

10 Special Wastes

10.1 Goals for Special Wastes

Grant County has several special waste streams that are not considered mixed municipal solid waste. Goals for special waste management in Grant County include:

- The County, in coordination with municipalities, will continue developing convenient opportunities for special waste recycling or disposal.
- Special wastes will be properly handled and disposed in a safe manner consistent with local, federal, and state regulations.
- The County will encourage reduction and recycling of special wastes, whenever practical, to reduce disposal volumes.
- Special waste management will be compatible with other elements of the solid waste system described in this Plan.

10.2 Regulatory Framework

The WAC addresses special wastes in several rules, depending on the waste type and concern. Chapter 173-303 WAC, *Dangerous Waste Regulations*, defines special waste as any dangerous waste that is:

- Solid only (i.e., nonliquid, nonaqueous, and nongaseous);
- Not a regulated hazardous waste under federal regulations; or
- Designated as only dangerous waste in Chapter 173-303 WAC.

Examples of dangerous waste include benzene, mercury, and lead.

For the purposes of this Plan, however, special wastes are those that do not fit the definition of mixed municipal solid waste because of their origin or special handling requirements. Using this definition, special wastes include moderate risk wastes, industrial sludge, large appliances (white goods), biomedical wastes, tires, demolition wastes, and similar wastes.

The following sections summarize regulations for managing these materials.

10.2.1 Biosolids

The 1995 Plan included municipal sewage sludge and septage because these were regulated as solid waste under Chapter 173-304 WAC. Subsequently, Washington State recognized biosolids have a beneficial use and are a valuable commodity. In 1998, the State adopted Chapter 173-308 WAC, *Biosolids Management*, which defines biosolids as municipal sewage sludge and septage treated to meet biosolids standards. Biosolids are no longer regulated as solid waste unless disposed at a municipal solid waste landfill or they do not meet biosolids standards.

Chapter 173-308-300 WAC defines the requirements for biosolids disposal at landfills. Incorporating biosolids into interim or final landfill cover is considered a beneficial use. Using

biosolids in daily cover is considered disposal. Chapter 173-308-300 WAC also requires:

- Biosolids not classified as exceptional quality must have an approved site specific land application plan.
- Landfills accepting biosolids for disposal must be in compliance with Chapter 173-351 WAC.
- Biosolids disposed in landfills must satisfy liquids restrictions for landfill disposal [Chapter 173-351-200(9) WAC] and not be a hazardous waste as defined in Chapter 173-303 WAC.
- Persons planning to dispose biosolids in landfills must have written determinations from the local health district that no other reasonable management option (e.g., land application) is available.

10.2.2 Biomedical Wastes

Biomedical wastes include:

- Infected animal waste
- Biohazardous microbiological cultures
- Highly communicable disease waste from certain viruses
- Pathological waste (i.e., human tissue)
- Sharps waste (e.g.., needles, syringes, blades, and lancets)
- Items such as soiled dressings, sponges, drapes, and surgical gloves

Examples of these wastes include untreated surgical wastes, specimen cultures, syringes, blades, and glassware from laboratories, hospitals, and medical clinics. When treated (e.g., incinerated or properly sterilized by autoclave or chemical methods), these wastes are not classified as biomedical waste.

Biomedical wastes require special handling practices to protect safety and health of medical and solid waste disposal personnel. In response to the exposure hazards, Washington State adopted Chapter 296-823 WAC, which incorporates federal Occupational Safety and Health Administration regulations, *Occupational Exposure to Bloodborne Pathogens*, 29 CFR Part 1910.1030. Washington State does not have specific regulations addressing disposal of treated biomedical waste. Local health districts administer disposal regulations and provide guidance for biomedical waste. Most facilities producing biomedical waste have biomedical waste management plans describing transport, treatment, and disposal.

State and federal regulatory biomedical waste management requirements include:

- Used needles and sharps in any place of employment must be in puncture-resistant containers.
- Infectious waste must be marked with the universal biohazard symbol on orange labels. Red bags or red containers may be substituted for labels. Treated infectious waste need not be labeled or color-coded.
- Waste from infectious disease research laboratories and production facilities must be incinerated or decontaminated before disposal.
- Hypodermic needles from infectious research laboratories and production facilities must be decontaminated and placed in puncture-resistant containers.

10.2.3 Asbestos

Asbestos waste is defined as materials containing more than 1% asbestos, and generated primarily through school and hospital abatement programs and demolition activities. Asbestos is considered non-hazardous when properly contained.

EPA regulates asbestos through the Asbestos Hazard Emergency Response Act (AHERA), which addresses asbestos in schools, and the National Emission Standards for Hazardous Air Pollutants (NESHAP), issued pursuant to the Clean Air Act. These acts focus primarily on reducing human exposure to asbestos. Disposal requirements for asbestos include:

- Asbestos must be wetted, placed in 6-mil polyethylene double bags and labeled.
- Once disposed, bags containing asbestos must be covered with soil and cannot be compacted.
- Once disposed, asbestos waste cannot be disturbed or moved without approval of the local health district.

Landfill owners must record on the deed that asbestos waste was disposed on the property. In addition, landfill owners must record location, depth, area, and volume of disposed asbestos waste and note on the deed that these records are available. Owners of inactive disposal sites must obtain written approval before they excavate or otherwise disturb disposed asbestos waste.

10.2.4 Moderate Risk Wastes

Washington State established toxicity reduction as a priority through the Model Toxics Control Act (MTCA), chapter 173-304 WAC, *Dangerous Wastes*, and Chapter 173-340 WAC, *Model Toxics Control Act (MTCA) Cleanup*. Diversion of moderate risk waste (MRW) from the solid waste steam helps achieve this goal. The *Washington State Hazardous Waste Management Act* requires every jurisdiction to have a local hazardous waste management plan that is integrated with the local solid waste management plan.

The hazardous waste management plan must have programs that address toxicity reduction through:

- Household and public education
- Household hazardous waste collection
- Business technical assistance
- Business collection assistance
- Enforcement

Ecology's guidance documents for developing and implementing hazardous waste management plans include:

- *Guidelines for Development of Local Hazardous Waste Plans* (publication 93-99)
- *Implementation Guidelines for Local Hazardous Waste Plans* (publication 92-14)

MRW includes household hazardous waste and hazardous waste from small quantity generators, which can pose environmental risks, particularly in concentrated quantities, such as can occur at landfills. Examples of MRW are small quantities of waste oil, paint, thinners, and solvents, household cleaners, antifreeze, automotive batteries, fluorescent bulbs, insecticides, herbicides, and electronics (e.g., cell phones and batteries, computer screens, etc.).

10.2.5 Inert and Demolition Wastes

Chapter 173-351 WAC classifies inert and demolition materials as solid waste, but allows disposal of these wastes in inert or limited purpose landfills that meet the criteria in Chapter 173-350-400 or Chapter 173-350-410 WAC, respectively. Inert and limited purpose landfills have less stringent design and monitoring requirements than municipal solid waste landfills and, thus, are typically less expensive to permit, build, operate, and close. Rather than disposal, Ecology encourages recycling these wastes whenever practical.

Inert and demolition wastes typically result from building and roadway demolition. These wastes are generally stable, non-odor producing, consisting of concrete, brick, asphalt concrete, composition roofing, rock and metals and similar materials.

Demolition debris includes wood waste such as timbers, tree stumps, and other wood fragments resulting from land clearing, construction, or unwanted shipping containers such as pallets. Wood waste is not inert because it decomposes and produces gases, but can be disposed in a limited purpose landfill. Ecology's *Beyond Waste* establishes recycling clean wood and land clearing debris as a preferred management approach to disposal.

10.2.6 Petroleum Contaminated Soils

Petroleum contaminated soil (PCS) can contain lead, solvents, PCBs or other hazardous contaminants. PCS is created when hydrocarbon petroleum products, (e.g., gasoline, diesel fuel, and oil) leak or spill from a storage tank, tanker truck, pipeline, or other container into the adjacent soil. Local hazardous waste management plans address management of PCS because PCS is considered a hazardous waste until treated or unless contaminants are below acceptable threshold concentration limits.

Ecology and the local health district approve PCS disposal options on a case-by-case basis. Options include:

- Treat PCS in situ or excavate and treat at the ground surface on site.
- Excavate and treat offsite at a permitted treatment facility.

Treatment typically consists of spreading and aerating PCS to volatilize hydrocarbon petroleum contaminants. Alternatively, PCS may be incinerated to volatize the contaminants.

10.2.7 Other Special Wastes

Other special wastes include:

- Agricultural Wastes (crop and manure)
- Food processing (bulk and rejects)
- Industrial Sludge (nonhazardous)
- Tires (passenger, tractor, and heavy equipment)
- Large Appliances (e.g., washers, dryers, refrigerators, and stoves)
- Large Livestock

State and federal regulations classify the above materials as solid waste and allow their disposal in landfills without preprocessing, except to remove excess liquid and large appliances with refrigerant or compressors. Once refrigerant or other hazardous components are removed, large appliances (i.e., white goods) can be landfilled or recycled. Ecology's *Beyond Waste* promotes recycling these wastes whenever practical rather than disposal.

10.3 Current Services

10.3.1 Biosolids

Opportunities for biosolids recycling are primarily related to land application on cropland. Co-composting with green waste and woodwaste is also an option but typically not as cost-effective as land application. Co-composting facilities can be relatively expensive to permit and operate.

In Grant County, biosolids are typically land applied. Ecology is the regulatory agency responsible for permitting biosolids facilities.

10.3.2 Biomedical Wastes

The Ephrata and Delano landfills do not accept biomedical waste from clinics or hospitals for disposal. The landfills receive small quantities of sharps from individuals in capped, hard plastic or metal container.

CDSI Medical Waste Systems, Inc., of Ephrata, Washington, offers on-call or regular biomedical waste collection services within its WUTC solid waste service area (Figure 5-1). CDSI's WUTC certificate includes a tariff for biomedical waste collection. The company's service area includes Soap Lake, Ephrata, Moses Lake, Mattawa, Warden, Wilson Creek, Coulee City, Hartline, Royal City, and Krupp. Trained personnel collect biomedical wastes for storage in an approved trailer untila sufficient quantity accumulates for transport for disposal. The current state biomedical waste contractor, Stericycle, transports the waste from Grant County for treatment and disposal. The hospitals and clinics within CDSI's service area are currently utilizing CDSI Medical Waste Systems collection services.

Stericycle reported it collects biomedical waste directly from the Coulee Community Hospital in Grand Coulee.

Stericycle transports waste from Grand Coulee and CDSI Medical Waste Systems for treatment at its autoclaving facility in Morton, Washington, or an incinerator in Salt Lake City, Utah.

10.3.3 Asbestos Waste

The Ephrata Landfill accepts asbestos waste for a fee (Table 9-1). The County requires a 48-hour advance notice before the asbestos waste is delivered to the landfill. Generators must fill out an asbestos shipment record that is filed in the operating record of the landfill.

10.3.4 Moderate Risk Waste

In 1991, Grant, Adams, and Lincoln counties and their municipalities jointly prepared the *Regional Local Hazardous Waste Management Plan* (HWMP), which identifies two MRW sources:

- Household hazardous wastes (HHW)
- Non-household, private or public, small quantity generators (SQG).

The goals in the HWMP that relate to the solid waste management system include:

- Protect the environment and public health from the adverse effects of improper handling and disposal of MRW.
- Increase public awareness about MRW proper management and disposal.
- Manage MRW consistent with, in order of priority, waste reduction, recycling and reuse, treatment, and residuals disposal; and elimination of improper disposal.

The HWMP recommended a baseline approach, focusing on programs addressing:

- Household collection
- Public education for HHW and SQG waste
- Passage of an ordinance for hazardous waste disposal
- Regional coordination
- Development of vehicle battery and used oil collection facilities.

The HWMP also recommended a more extensive approach including the baseline programs plus a labeling law, regional mobile collection, permanent HHW and SQG facilities, and on-site hazardous waste assistance for SQGs.

Grant County implements recommendations contained in the HWMP. The County holds two HHW collection events each year: one in Ephrata in the fall and one in Moses Lake in the spring. The County may hold a third event at a location and time that are announced, if scheduled.

The County accepts waste oil, antifreeze, automobile batteries, and white goods at the Ephrata Landfill. Coulee City, Gloyd, Hartline, Highway 28, Mattawa, O'Sullivan, Quincy, Royal, and Warden drop box sites accept waste oil, automobile batteries, and white goods. The George drop box site accepts automobile batteries and white goods. The County contracts with private companies to remove and transport waste oil, Freon, automobile batteries, and large appliances, and antifreeze to recyclers.

10.3.5 Inert and Demolition Wastes

Inert and demolition wastes are generated at a rate proportional to the level of construction activity in the County, which reflects the economic climate and population growth. Recent school construction activity generated enough inert and demolition wastes to reduce the life of the Ephrata Landfill by a few years.

The Ephrata and Delano landfills accept demolition wastes for a fee (Table 9-1). Generators unwilling to pay disposal and/or transportation costs illegally dispose demolition wastes where convenient.

10.3.6 Petroleum Contaminated Soils

In Grant County, PCS is typically associated with underground storage tank removals and spills, such as from ruptured fuel tanks in accidents. The Delano Landfill does not accept PCS. Treated PCS loads, when accompanied by proper documentation, are accepted at the Ephrata Landfill. Ecology records indicate PCS generated in Grant County is transported and disposed at out-of-county permitted facilities, such as the Graham Landfill in Spokane County.

10.3.7 Other Special Wastes

Agricultural Wastes
Agriculture wastes result primarily from grain, hay, seed crop, fruit and vegetable growers. Other agricultural wastes include manure from stockyards. Edible crop wastes are used as livestock feed. Non-edible crop wastes and manure are commonly burned and/or tilled into the soil to enhance fertility. These wastes do not represent disposal problems for the County. Field burning of crop wastes helps control insects and rodents, but is perceived as a significant contributor to air pollution. At some future time, burning may not always be an available disposal option.

The agricultural community also generates used insecticide and herbicide containers that must be empty and triple-rinsed after emptying before disposal. The Washington State Department of Agriculture, in conjunction with the Grant and Adams Counties Cooperative Extension contract with a private company to collect and recycle used containers at no charge. Northwest Ag Plastics, Inc., in Moxee, Washington, is the current contractor, and collects containers from half-pints to 55-gallon drums. Containers can be dropped off at special collection events. The contractor will pick up large quantities of containers on site.

Food Processing Wastes
Food processing wastes consist of rejected bulk and packaged products generated during processing of agricultural crops; e.g., potatoes or french fries. Potato waste, seed grain screenings and other bulk products are commonly used as livestock feed at stockyards. If stockyards are temporarily closed, the bulk wastes may be transported elsewhere for use or disposed at the landfills. Packaged rejects are typically disposed at the landfills because it is difficult to separate the packaging material.

Industrial Sludge
Industrial sludge represents the solid portion of processing waste produced by industry. EcoNobel and Solar Grade Silicon have plants in Grant County and produce sludge disposed at the Ephrata Landfill for a fee (Table 9-1).

Tires
Grant County and the RBOM accept tires for a fee (Table 9-1) at the drop-off sites and landfills. Tires are disposed in the landfill. In 1987, Grant County was stockpiling tires for recycling. Rising costs and lack of markets caused the County to discontinue this practice. In the early 1990s, the County used a tire shredder to reduce disposal problems typically associated with landfilling whole tires, but the shredder was later sold. Currently the County disposes whole tires in the landfill and has encountered problems of tires working up to the surface of the waste fill.

Tires are a common waste found illegally disposed throughout the County.

Large Appliances (white goods)
As discussed above, the Ephrata Landfill and drop box sites accept large appliances for a fee, and stockpile them for salvage by private contractors. The RBOM and County arranges for Freon removal from refrigerators before these appliances are salvaged. Generators unwilling to transport and pay disposal fees may illegally dump the appliances.

Livestock
Cattle and other large livestock carcasses can be disposed at the Ephrata Landfill, buried on the owner's property, or shipped to a rendering plant. The Ephrata Landfill accepts large livestock carcasses for a fee (Table 9-1). State law allows on-site burial provided the carcasses are at least 5 feet above the ground water table and covered by at least 3 feet of soil. Companies collect livestock carcasses on site from customers adjacent to or south of I-90 and transport them to rendering plants. Costs range from $4 per calf to $125 per horse plus a stop charge, which is typically $75 within the service area. Companies are willing to service customers north of I-90 for a stop charge. The companies do not accept sheep or goat carcasses because of health-related risks. Livestock carcasses are illegally disposed by owner's unwilling to pay disposal or rendering fees and/or unable to dispose on-site.

To date, diseased animal wastes and infected by-products have not been an issue in the County. However, the agricultural industry in Grant County may be faced in the future with the slaughter of large numbers of cattle, poultry and other farm animals in order to restrict spread of potential disease. This process could include disposal of large volumes of bone meal, and other by-products and waste products that may potentially be infected. Currently the County and Health District do not have detailed emergency plans in place to manage such wastes if they develop.

10.4 Special Waste Issues

Biosolids, biomedical, industrial sludges, and asbestos wastes do not generally represent a disposal problem in Grant County. The existing system is adequate to handle these materials at the present time and to expand to meet future needs.

Agricultural, food processing, and demolition wastes, tires, large appliances and livestock carcasses are common items found illegally disposed throughout the County. The primary reasons for illegal disposal are discussed in Chapter 11 and include:

- An unwillingness to pay the cost of transportation and disposal at the Ephrata Landfill or rendering plants
- A lack of conveniently located disposal sites or recycling opportunities
- Insufficient staff to enforce illegal dumping ordinances and clean up commonly used sites.
- Lack of knowledge of proper disposal practices, recycling opportunities, and permitting requirements.

The primary needs in dealing with illegally disposed materials are to: (1) develop region-wide effective education and enforcement programs, and (2) provide more convenient opportunities for proper disposal of some materials.

The occurrence of mad cow disease and the potential pandemic related to the avian flu could create a significant volume of livestock and poultry waste and associated, infected by-products requiring special handling and disposal procedures. The County has established the Ephrata Landfill as a receptor of primarily residential waste. Receiving such types of infected animal wastes and by-products could significantly reduce landfill capacity, and thus site life, requiring the county to seek alternative disposal solutions sooner than necessary. Handling such wastes also exposes workers to potential health and safety issues not normally encountered in operating a municipal solid waste landfill.

Tires represent an operational problem for the County when attempting to dispose of them in the landfill. The County no longer has a shredder to ease disposal of tires, and would prefer to recycle them. However, recyclers are several hours drive from the County.

Inert and demolition wastes can be voluminous and consume valuable disposal capacity at the Ephrata Landfill. These materials could be disposed in a less expensive inert or limited purpose landfill, if they existed, rather than a municipal solid waste landfill. Preferably, these inert and demolition wastes would be recycled or reused, but few opportunities exist currently in Grant County.

10.5 Options

The primary problem associated with special wastes is improper or unlawful disposal. Mechanisms and processes are in place for managing special wastes, and opportunities exist for proper disposal, except for tires. Alternatives to minimize unlawful disposal of special wastes include implementation of education programs, increased enforcement, and developing a regional approach involving all communities and the private sector. Administrative options for reducing unlawful disposal are described in Chapter 11. Other options are discussed below.

10.5.1 Tires

Options for diverting tires or easing their disposal include:

1. Purchase a shredder or contract with a private company to shred tires for disposal in the Ephrata Landfill or other uses. This option could include an initial capital cost to the County plus ongoing maintenance costs, as well as staff time to operate the equipment. Alternatively, contracting with a company creates on ongoing operations cost but relieves the County of the need to purchase, operate, or maintain specialized equipment. A company may not exist within a reasonable distance for this to be economical.

2. Deliver tires to a recycler or contract with a private company to deliver them. This option diverts tires from the disposed waste stream, conserves disposal capacity at the landfill, and uses them in a beneficial manner. The County would need to purchase, rent or use a spare vehicle in the County's fleet plus dedicate staff time to deliver tires to a recycler. By contracting with a company to deliver tires, the County incurs an ongoing operational cost but does not need to manage the equipment and staff.

3. Build a co-generation facility to use tires to generate electricity. This process would be one of the costliest options to implement, require a multi-year permitting process, and generate considerable public controversy.

10.5.2 Inert and Demolition Waste

Options for diverting inert and demolition waste from the Ephrata Landfill include:

1. Set up a central site or sites, purchase or lease equipment, and separate and process materials or contracting with a company to provide these services. Concrete and asphalt can be crushed for reuse, clean wood can be chipped, some land clearing debris can be composted with other green waste, metal can be salvaged, etc.

2. Design and permit a new inert and/or limited purpose landfill to dispose of these materials.

10.5.3 Diseased Animal Wastes and By-products

Options for managing these potentially voluminous, problematic wastes include:

1. Restrict the Ephrata Landfill to receiving its normal waste stream and ban disposal of these special wastes at the landfill. Educate and encourage potential generators to identify an appropriate disposal site, such as a regional landfill, that has the capacity and procedures in place for properly receiving, handling, and disposing of these wastes.

2. Receiving these wastes at the Ephrata Landfill, when and if they occur; develop special handling and disposal protocols; and train staff in appropriate health and safety procedures and emergency response. The County should be prepared to have an alternative disposal option identified in the event the waste volume results in early closure of the landfill.

10.6 Recommendations

Recommendations related to administrative options for reducing unlawful disposal are discussed in Chapter 11.

The County should consider conducting a feasibility study with respect to diverting inert and demolition wastes from the Ephrata Landfill. The study would focus on evaluating options discussed above in Chapter 10.5.2 and others that may develop as the study proceeds. Private materials recovery facilities for these wastes exist in Washington State that could provide capital, operating, and maintenance cost information to help the County determine reasonable options.

The County should ban diseased animal wastes and associated by-products from the Ephrata Landfill, so these wastes are disposed at regional facilities with more capacity and familiar with handling such special wastes. The Health District should work with potential waste generators in identifying appropriate disposal facilities, should these situations develop.

10.7 Implementation

10.7.1 Schedule

The County plans to begin tire recycling 2006 (Year 1 of the Plan), if this is feasible.

If budget is available, the County could consider conducting a feasibility study for inert and demolitions wastes in Year 1, or budget this effort for Year 2 (2007).

10.7.2 Costs

The County's 2006 solid waste program budget includes $12,000 to recycle tires, if this is feasible. The budget assumes 75% of the cost will be from the coordinated Prevention Grant for Grant County and the County will provide the 25% match from tip fees or other revenues.

The cost to conduct a feasibility study for inert and demolition materials and processing is expected to range from approximately $12,000 to $15,000. The Coordinated Prevention Grant may be able to fund 75% of the study with the County providing the 25% match from tip fees and other revenues.

10.7.3 Expected Outcomes

The expected outcomes for each study include:

- Options for diverting tires and inert and demolition wastes
- Planning level capital and operations and maintenance costs associated with each option and potential revenue offsets
- Non-cost factors for consideration in evaluating each option, such as permitting requirements, timelines, public acceptance, potential users of processed materials, etc.
- Potential impact on the life of the Ephrata Landfill
- Cost-benefit analysis of each option
- Selection of a preferred option(s)
- Implementation steps for a preferred option(s)
- Schedule for implementation and funding of preferred option(s).

10.7.4 Outputs

Specific outputs would include:

- Reduced operational issues associated with whole tire disposal.
- Increased site life of the Ephrata Landfill by diverting inert and demolition wastes.

10.7.5 Performance Measures

The County will focus on performance measures such as:

- Fewer tires disposed in the landfill.
- A reduction in the quantity of inert and demolition wastes disposed in the landfill.

11 Administration and Enforcement

11.1 Goals for Administration and Enforcement

Within Grant County, solid waste collection services consist of city- or town-contracted, city- or town-operated, and individually contracted services. Goals related to current and future solid waste administration and enforcement programs in Grant County include:

- Administrative agencies should have adequate staff and funding.
- The Health District permitting, monitoring, and enforcement programs for solid waste should be adequately funded and staffed in order to be effective.
- Organizational structures should promote inter-jurisdictional cooperation for orderly, efficient, and environmentally sound management of the solid waste system.
- Proper monitoring and regulatory procedures are in place to adequately manage the various waste streams generated in the county.
- Funding sources are sufficient to support proper management of the solid waste management system.
- Administration structure and enforcement efforts should be consistent with solid waste system elements described in this Plan.

11.2 Regulatory Framework

11.2.1 Administration and Enforcement

The Washington State Solid Waste Management Act, Chapter 70.95 RCW, assigns local governments the primary responsibility for managing solid waste at the local level. The State is responsible for assuring effective programs are established throughout Washington State. Solid waste handling includes the "*management, storage, collection, transportation, treatment, utilization, processing, and final disposal of solid wastes, including the recovery and recycling of materials from solid wastes, the recovery of energy resources from solid wastes or the conversion of the energy in solid wastes to more useful forms*" (Chapter 70.95 RCW). Local health districts or departments are responsible for permitting solid waste facilities and enforcing solid waste regulations and local ordinances, including those related to illegal dumping.

As noted in Chapter 5, the WUTC regulates private solid waste collection companies offering services in unincorporated areas of a County (Chapter 81.77 RCW and Chapter 480.70 WAC). Cities may choose to have the WUTC regulate collection services within their boundaries. Additionally, WUTC regulates commercial recyclable collection (Chapter 81.80 RCW) but not recyclable collection by private companies under contract to a county. The WUTC has cost assessment guidelines local governments use for evaluating effects on collection service costs of programs proposed in solid waste management plans. The WUTC also reviews preliminary plan drafts.

Under Chapter 36.58A RCW, Counties can establish solid waste collection districts for mandatory collection and control the waste stream in unincorporated areas. A county can provide collection

services only if the WUTC determines qualified private collection services are not available for a district.

11.2.2 Unlawful Dumping and Littering

Chapters 70.93.060 and 70.95.240 RCW regulate unlawful solid waste dumping practices without a permit and littering, respectively (illegal dumping), and set penalties at the State level. These RCW requirements define litter as all solid wastes including, but not limited to, containers, packages, wrapping, printed matter or other material thrown or deposited as prohibited within the RCWs, but not including the wastes of the primary process of mining, logging, sawmilling, farming or manufacturing. Several WAC chapters incorporate these RCW requirements, tailoring them to fit specific facilities or activities, including those for managing biomedical waste, biosolids, and solid waste.

Litter less than or equal to 1 cubic foot is a Class 3 civil infraction, between 1 cubic foot and 1 cubic yard is a misdemeanor, and greater than 1 cubic yard is a Class 1 civil infraction and gross misdemeanor. It is also a Class 1 civil infraction for a person to improperly discard potentially dangerous litter in any amount. It is a gross misdemeanor for a person to abandon a junk vehicle.

For a misdemeanor violation, the violator must pay twice the cost of cleanup or $50 per cubic foot, whichever is greater. For a gross misdemeanor, the violator must also pay twice the cost of cleanup plus $100 per cubic foot of litter, whichever is greater. Alternatively, or in addition to, a court may order the violator to collect and remove litter. If the violation occurs in a state park, the court can order the person to perform 24 hours of community restitution in the state park where the violation occurred, if the park participates in the program. If a junk vehicle is abandoned, the vehicle's registered owner pays a fine equal to twice the costs incurred in removing the junk vehicle.

Grant County Code addresses litter regulations under Title 8, Health, Welfare, and Sanitation, particularly Section 8.28.030. In general, these regulations prohibit litter disposal on public places in the county or private property, or in any waters within the County's jurisdiction except at permitted disposal sites and litter receptacles, if on private property with the owner's permission and the material does not a create a public nuisance, or as part of an approved reclamation plan. Violators are guilty of a misdemeanor and subject to fines no less than $10 per offences and may be required to perform the clean up.

11.3 Current Arrangements

Several agencies and jurisdictions are responsible for solid waste administration and enforcement in Grant County. The following sections summarize the current roles and responsibilities for the agencies.

11.3.1 Administration

Figure 11-1 shows the general relationships and responsibilities of State and County agencies involved with solid waste administration and enforcement.

Ecology
In the local solid waste planning process, Ecology reviews, comments on, and approves Plan preliminary and final drafts, Plan revisions, and amendments. An Ecology staff member commonly

attends Grant County SWAC meetings to provide input. Ecology helps ensure the Plan will conform to applicable state and federal regulations.

Ecology also reviews solid waste handling and disposal permits issued by Health District to ensure proposed site or facility conforms to applicable regulations and current Plan. Solid waste facility environmental monitoring reports and Health District enforcement actions are also reviewed by Ecology. If permit or enforcement concerns arise, Ecology works with the Health District to resolve them. Ecology has not exercised its right to appeal decisions by the Health District.

Ecology is also responsible for biosolids management permitting and enforcement in Grant County.

Ecology distributes Coordinated Prevention Grants (CPGs) to assist local governments with solid waste planning and implementation of programs referenced in plans. Eligible activities include local hazardous and solid waste management planning, solid waste enforcement, waste reduction and recycling, and other hazardous and solid waste programs consistent with approved plans. Grants are awarded on a 2-year cycle. The current cycle is 2004-2005.

WUTC

Grant County does not have a solid waste district. The WUTC regulates private companies that collect solid waste in unincorporated Grant County and Coulee City, George, Hartline, Marlin, and Wilson Creek, which do not provide or contract for solid waste collection.

Grant County

Grant County is responsible for preparing solid waste management plans for the planning area. As noted in Chapter 1, incorporated cities within the County have adopted resolutions authorizing the County to include them in the Plan or to prepare a joint city-county Plan. The Grant County Public Works Department, Solid Waste Division, operates the Ephrata Landfill and 12 drop box sites. The Solid Waste Division is also responsible for the County's waste reduction and recycling programs. The Board of County Commissioners is the governing body of the Public Works Department.

Fees collected at the landfill and drop box sites fund the Solid Waste Division. The Board of County Commissioners sets the fees charged at the County's solid waste facilities. The County also receives annual Ecology CPG funds that help pay for:

- 75% of household hazardous waste collection events
- Oil collection at the Ephrata Landfill and drop box sites
- Antifreeze collection at the Ephrata Landfill
- Publicity and educational activities
- Compost feasibility study
- Solid waste management plan updates
- Recyclables collection at the drop box sites
- Sub-grants to cities supporting solid waste activities
- Capital purchases for recycling and moderate risk waste

The grant also funds 75% of the County's three-quarter time recycling coordinator position as long as the employee works on grant eligible items.

SWAC
The SWAC provides guidance and input to the Grant County Public Works Department and Board of County Commissioners on solid waste planning, programs, and fees. The Grant County SWAC has 10 positions, one which is currently vacant, and expected to be filled soon. SWAC members represent municipalities, private collection companies, businesses, and the public. Chapter 1 lists the current SWAC involved with preparing this Plan. Since the 1995 Plan, the SWAC added a representative from the Health District, improving coordination and communication between this agency, members of the SWAC, and the Public Works Department.

Grant County Health District
The Health District issues permits for solid waste facilities, land application of agricultural wastes, and septage haulers and enforces solid waste regulations and ordinances. Solid waste facility permits are required for landfill, transfer station, drop box, recycling, and composting facilities. The Health District reviews permit applications for compliance with applicable regulations, the approved Plan, and zoning requirements. The Health District also inspects permitted solid waste facilities and is responsible for illegal dumping enforcement and control. The Health District is governed by the Board of Health.

The Health District collects annual permit fees for solid waste disposal sites and charges $1,200 for landfills, $580 for transfer stations, $580 for agricultural land application sites, and $70 for drop box facilities. An Ecology grant funds 75% of a half-time employee for solid waste enforcement activities. The balance of funds for the position comes from fees collected for services such as permit issuance and consultations.

Regional Board of Mayors
The cities of Grand Coulee, Electric City, Elmer City and Coulee Dam comprise the Regional Board of Mayors (RBOM). RBOM members are in three counties, one of which is Grant County. The RBOM operates the Delano Landfill and contracts with a private solid waste collection company for service to its member cities. Each city member sets its own service requirements. The solid waste activities of the RBOM are primarily funded through disposal fees charged to customers.

Incorporated Cities
Grant County has 14 incorporated cities. As noted in Chapter 5, one city (Soap Lake) operates its own solid waste collection service. Five cities allow residents and businesses to arrange for individual service from a private company within city limits. The other cities contract with private companies for solid waste collection services. Customers are charged fees to cover the cost of providing solid waste collection services.

11.3.2 Enforcement

As noted above, the Health District enforces solid waste permit conditions and illegal dumping and nuisance abatement ordinances. The majority of enforcement activities focus on illegal dumping on one's own property or other property without the permission of the owner and the Grant County Health District. An owner can be either a public or private entity.

The Health District estimates it receives an average of 15 illegal dumping complaints per month. The number of complaints varies from 1 to 2 per week to daily, with more complaints received during spring, summer, and fall rather than winter months when construction, agricultural and tourist activities are less.

Illegal dumping of septage is more of a problem in winter than summer, because of issues related to land application when the ground is frozen. Ecology is responsible for enforcement actions related to septage.

The Health District reports numerous illegal dump sites exist in Grant County. Some illegal dumpers use the same site repeatedly. In 1995, well-established illegal dump sites included the old Warden dump and gravel pit, two privately owned gravel pits in Mattawa and a plant site in Royal City. These sites were cleaned up subsequent to the 1995 Plan, which references these sites. Currently, illegal dumping occurs randomly, sometimes in secluded areas and sometimes out in the open. Once illegal dumping starts in a given area, others contribute more illegally dumped waste there or close by, even after the area is cleaned up. Canal and power line access roads, farm land adjacent to rural roads and dry washes are examples of random dump sites.

Typical materials found in illegal dumps, are:

- Appliances
- Tires
- Industrial waste
- Agricultural waste
- Yard waste
- Furniture
- Pesticide containers
- Livestock carcasses
- Abandoned cars
- Demolition wastes
- Septage
- Household waste

When the Health District receives a complaint, its enforcement officer attempts to contact the property owner and investigates the site, looking for evidence identifying the illegal dumper, if other than the owner. If identified, the Health District requests the illegal dumper clean up and properly disposes or manages the materials and obtains a permit, if required. If this is unsuccessful, the Health District sends a certified letter to the illegal dumper that requires cleanup within 15 to 30 days. If the site is not cleaned up, the Health District may send a second certified letter or issue a citation. Illegal dumping is classified as a criminal non-traffic violation, with up to a $500 fine, time in jail and/or community service time. If the citation is appealed, the case goes to a non-jury trial in District Court.

If an illegal dumper is not identified, the property owner is responsible for cleaning up and disposing of the debris. Owners with illegally dumped debris are subject to the same legal process as the dumpers. The Health District can also file a lien to encourage property owners to clean up illegal dumps on their own property, but does not readily have funds to initiate cleanup. It can often take months to years to clean up some sites, because of limited financial resources.

11.3.3 Funding

The current solid waste system for Grant County is paid for through landfill and drop box tipping fees, grants, investment interest earned on cash balances and contributions from unreserved cash balances. In 2004, approximately 20% of the revenue was from drop boxes, 75% from the landfill, and 5% from investment interest and miscellaneous revenues. This excludes cash balance

contributions and grants. Landfill charges for cities comprised about 36% of the 2004 revenues.

Revenues are also required to cover contributions to cash reserves for equipment (depreciation reserve) and closure of the old and new landfills. The contributions for landfill closure are based on the specific landfill closure plan. Annual contributions were projected through 2005 for the old Ephrata Landfill, 2034 for the Ephrata Landfill and 2006 for the Delano Landfill. These contributions are funded by the surplus of current revenues over current expenditures and, if needed, a draw on the unreserved fund balances.

Ecology allocates CPG funds based on a fixed amount per county, plus an amount per capita. The 2004-2005 funding allocation for Grant County totals $224,687 for solid waste planning, moderate risk waste, and recycling projects. Like all recipients, Grant County has a matching requirement of 25% to 75% grant funding. In 2004, Grant County received approximately $77,000 in grants from Ecology. The County anticipates spending the balance of the grant funds in 2005.

11.4 Administration and Enforcement Issues

11.4.1 Administration

The administration and enforcement burdens on local agencies increase with the increasing complexity of environmental regulations, facility operating requirements, and emphasis on waste diversion reduction programs. Each agency must take the time and effort to fully understand and address the requirements of new laws as they are enacted. Inter-jurisdictional coordination becomes increasingly important because the majority of solid waste issues have a county-wide or regional impact.

Grant County, the cities within Grant County, the Health District, the SWAC, and other parties responsible for solid waste management have established an effective network of communication and coordination. This network continues to improve and expand as needed.

The Grant County Solid Waste Division will continue implementing public and commercial programs for recycling and waste reduction education, drop off, collection, and other activities. Chapter 4 describes new or expanded programs the County could implement with additional funding and/or staff. Currently, Grant County uses a grant from Ecology to fund 75% of a three-quarter time staff position to coordinate and implement waste reduction and recycling activities. For long-term program development and commitment, the County should identify more dependable long-term sources of funding to maintain and expand this position. Future grant funds may decrease or disappear, depending on state-wide economy and legislative funding priorities.

11.4.2 Enforcement

The Health District considers unlawful disposal a significant problem, primarily because of potential health hazards and environmental impacts. Common reasons for unlawful disposal include:

- Lack resources to pay for proper disposal.
- Lack of knowledge about appropriate practices, regulatory requirements, and permitting requirements.

- Unwillingness to pay fees for proper disposal, particularly in areas without mandatory collection services.

Unlawful disposal typically increases when disposal fees increase, which commonly occurs with the enactment of more stringent solid waste regulations. With more open spaces and lower density of population and business, unlawful disposal is generally more of a problem in rural areas then densely populated urban areas.

The Health District focuses mostly on enforcement rather than education because of limited available staff and funds. Current Health District staff are able to respond to all complaints, but a large backlog means the agency spends most of its efforts resolving the most problematic sites, i.e., the largest ones, sites near population centers and those with the most potential impact to human health. The Health District is evaluating funding options to expedite cleanup efforts and coordinate cleanup work with the Public Works Department Solid Waste Division.

When the Health District issues citations, local courts may not support the action for lack of properly prepared legal case, and local police are not always aware unpaid fines exist if stopping an illegal dumper for other reasons. Lack of communication and training in investigative procedures challenge the Health District's ability to enforce unlawful disposal restrictions.

11.5 Options

11.5.1 Administration

Maintaining the solid waste programs coordinator position (see Chapter 4) will be an important factor in successfully achieving the waste reduction and recycling goals of the County. Grant County could continue to rely on grants from Ecology to fund this staff position. As an alternative, the County could examine other funding options to identify viable, long-term options. A third choice is to discontinue the staff position if grants are not available. This third option could lead to increases in disposed waste and reduced landfill site life because the County will not have staff to promote and support waste reduction and recycling programs.

11.5.2 Enforcement

The SWAC reviewed options and status of recommendations from the 1996 Plan. The County was able to adopt some recommendations, such as adding a Health District representative to the SWAC and improving enforcement efforts, but not able to make progress on others. Options outlined in the 1996 Plan that still apply to the current Plan for reducing unlawful disposal include:.

1. The Board of Health could create a volunteer Task Force to develop and coordinate County-wide unlawful disposal programs. The Task Force could include representatives of the Health District, Public Works Department, and law enforcement; public officials; concerned citizens; and industry representatives.

2. The County could provide cost incentives to encourage proper disposal of wastes. Examples of cost incentive programs are:

    - Subsidize disposal costs and holding periodic collection events for problem wastes.
    - Allow free disposal or reduced rates periodically to the general public, or on a regular basis for low income residents.

3. The Health District and other County agencies could jointly implement a public education campaign about proper disposal methods and opportunities, regulatory requirements, permitting procedures, and problems caused by unlawful disposal. Possible strategies include:

    - Use the media to publicize enforcement actions.
    - Distribute information brochures at community events.
    - Make presentations to industry organizations, youth groups and community organizations.

4. The County could organize volunteers into ongoing litter crews and sponsor periodic community cleanup events.

5. The Health District could allocate more staff time to solid waste issues and enforcements. Alternatively, the Health District could contract with a private firm for unlawful disposal control and nuisance abatement.

6. The Board of Health could revise ordinances to increase penalties and publicize convictions to discourage unlawful disposal.

11.6 Recommendations

11.6.1 Administration

The County should consider expanding the current three-quarter solid waste coordinator position to full-time so that the County can more effectively implement the programs recommended in Chapter 4. Additional staff time could also be used to increase coordination of education activities with the Health District. Grant County should review long-term funding needs and options in order to maintain this position.

11.6.2 Enforcement

The Health District is addressing unlawful dumping in the County and improving the effectiveness of its enforcement efforts. The following recommendations support these efforts.

The Board of County Commissioners should recommend to the Board of Health that it create an independent Task Force under the jurisdiction of the Grant County Health District. The Task Force should focus on coordinating enforcement activities and developing programs to:

- Assist property owners with cleaning up waste illegally dumped by others.
- Improve enforcement procedures and effectiveness.
- Educate the public about the problems caused by unlawful disposal.
- Provide incentives to encourage proper disposal of wastes.

- Involve citizens and businesses in cleanup activities.
- Continue to evaluate funding options, such as collection districts, to pay for enforcement, cleanup and education activities.

The current half-time staff position appears to be adequate for responding to complaints. The Health District estimates a one-quarter-time staff position will be needed to implement education activities and coordinate efforts with the Public Works Department.

11.7 Implementation

11.7.1 Schedule

Administration
The County Public Works Department should consider increasing the solid waste coordinator position to full-time and identify long-term funding for the position in Year 1 (2006).

Enforcement
The Board of Health should create the Task Force in Year 1. During Year 1, the Task Force should familiarize itself with unlawful disposal issues, evaluate strategies to control and minimize unlawful disposal and present recommendations and an implementation schedule to the Board of Health by Year 2. The recommendations should describe programs, assign responsibilities, define staffing needs, and identify funding sources. Implementation of the recommendations should begin in Year 2.

The Health District should consider expanding the current half-time enforcement staff position to three-quarter time for education and coordination activities in Year 1.

11.7.2 Costs

Increasing the solid waste coordinator and enforcement staff position by one-quarter would cost approximately $12,000 in salary and benefits for each position. For unlawful disposal, promotional materials and other expenses may cost approximately $1,000 to 2,000 to develop and distribute in Year 1, and then approximately $1,000 thereafter, estimated in 2006 dollars.

11.7.3 Expected Outcomes

Administration
The expected outcomes for increasing the solid waste coordinator position and identifying a long-term funding source include:

- Staff time to implement recommendations presented in Chapter 4.
- Staff time to coordinate education activities with the Health District.
- Less disposed waste, thereby extending the life of the Ephrata Landfill.
- The ability to fund the solid waste coordinator position should grant funding decrease or stop altogether, and allow the County to use this portion of the CPG grant for implementing and planning programs.

Enforcement
The expected outcomes for creating a Task Force, expanding the current half-time position to three-

quarter time, and creating a fund for cleanup activities include:

- Staff time help educate the public on the issues of unlawful disposal.
- Staff time to coordinate education activities with the Public Works Department.
- Funds to expedite cleanup of problem sites thereby reducing potential health and environmental impacts.
- Better informed citizens and businesses.
- Reduction in unlawful disposal.
- Better communication with Public Works and law enforcement agencies.

11.7.4 Outputs

Administration
Specific outputs would include:

- Increased waste reduction and recycling
- Less disposed waste

Enforcement
Specific outputs would include:

- Less unlawful disposal
- Prompter cleanup of unlawfully disposed waste.

11.7.5 Performance Measures

Administration
The County could measure success of these efforts by tracking per capita waste generation rates, which would indicate increasing waste reduction and recycling by citizens ad businesses.

Enforcement
The Health District could track success of implementing Plan recommendations by:

- Reduced number of complaints.
- Fewer unlawful disposal problems and chronic sites.
- An increase in the number of permits and permit renewals from businesses that historically had unlawful disposal issues.
- More cited illegal dumpers being recognized by law enforcement officers when under scrutiny for other offenses.

11.8 Potential Funding Sources

Several funding sources exist that the County can consider using for implementing Plan recommendations contained in Chapter 4, 10 and 11. Potential funding sources include:

Potential Fee or Tax-Based Funding Sources
State law authorizes counties to collect other revenues for solid waste management programs, in addition to tipping fees for disposal and drop box sites. These other sources are:

Fees on solid waste collection services. RCW 36.58.045 authorizes counties to impose a fee on solid waste collection services provided by solid waste collection companies operating in unincorporated areas of the county. The revenues from this fee can be used to fund county compliance with the comprehensive planning requirements (RCW 70.95.090). The WUTC and the solid waste collection companies must be given 90 days advance notification of the imposition of the fee.

Solid Waste Disposal District. Consistent with RCW 36.58.100 - 36.58.150 counties with populations under 1 million may establish one or more solid waste disposal districts for the purpose of providing and funding solid waste disposal services. A solid waste disposal district is an independent taxing district governed by the county. A district cannot include any part of a city or town without the consent of the legislative authority of the city or town. Solid waste disposal districts cannot engage in the collection of garbage. A district may collect disposal fees and may levy an excise tax on residents and businesses in the district. The district does not have the power to enact an annual levy without voter approval.

Currently, Grant County is at the maximum taxing for all its districts. In order to use this approach, the County must reduce the revenues generated by other taxing districts. This option could also be implemented if the State legislature raises the limit for tax districts.

Charges for collection services. Under RCW 36.58.040, a county may award a contract to collect source-separated recyclable materials from residences in unincorporated areas. If this option is exercised, the county has complete authority to manage, regulate and fix the price of this collection service.

Under RCW 36.58A, a county can establish solid waste collection district for the purpose of mandatory collection of solid waste. WUTC regulated haulers providing garbage and refuse collection services, if able and willing to do so (as determined by the WUTC), would continue to provide collection services. If the WUTC haulers are not qualified, the County may provide garbage and refuse collection services in the solid waste collection district and collect fees for this service.

Potential Grant Funding Sources
Grant programs administered by Ecology are:

Coordinated Prevention Grant (CPG). These grants continue to be a source of funding for local governments with solid waste planning and plan implementation. In addition, some funding may also be available between cycle. When jurisdictions do not use their grant allocation, Ecology makes unused CPG funds available to local governments for special projects through a competitive process.

Remedial Action Grants. This program provides funds for local governments that must implement remedial action at public and private landfills and other cleanup actions, including methamphetamine lab cleanup. The applicant must be a local government and, except for site hazard assessment grants, must also be a potentially liable person (PLP). The local government must also be a party to an agreement with Ecology to perform remedial action (e.g. Consent Decree or Enforcement Order). Applicants should apply within 60 days after a new enforcement order or consent decree becomes effective. Grant are funded from the Local Toxics Control Account (from a tax on certain hazardous substances). Funds are allocated on a first come first serve basis. If demand exceeds available funds, projects are ranked by Ecology.

In economically disadvantaged jurisdictions, funding will be up to 50% of the public share of total project costs. Under certain conditions the grant can be increased by an additional 25%. These conditions include that: (1) potential revenues from landfill tipping fees are insufficient to cover cleanup and closure costs, (2) garbage collection fees and landfill tipping fees have been raised to pay for closure and cleanup costs, and (3) that financial contributions are being sought from other PLP's at the project.

Public Participation Grants. This grant program helps citizen groups and non-profit organizations involve and educate the public about cleaning up hazardous waste sites, and taking actions that support the state's solid and hazardous waste management priorities. Projects should motivate people to change their behavior in ways that will improve the environment, such as shop for products that reduce waste and use less hazardous substances in their businesses. Applicants must be either a group of three or more unrelated persons or a not-for-profit public interest organization based in Washington State. Local governments, Indian tribes, and universities are not eligible. Grants are awarded on a s2-year cycle. The current cycle is 2005-2007, with approximately $900,000 available. Awards range from $1,000 to $60,000 per year, or up to a maximum $120,000 per biennium. Grant applications are due typically by November 1 in the year before the two-year cycle begins.

Other grant programs include:

EREF Grants. The Environmental Research and Education Foundation (EREF) is an independent public grant-making entity whose mission is to develop environmental solutions for the future. Goals are to support:

- Technological innovations that promote the safety of waste service employees and the public, as well as waste service productivity and resource conservation.
- Educational initiatives to increase the public's understanding of waste services.
- Scientific discoveries and applied research that advance state-of-the-art waste services for the ages.

EREF awards grants each year for research or education in any aspect of solid waste management, including:

- Waste generation rates and composition
- Waste minimization
- Collection and transport
- Sorting, recycling, and remanufacture
- Disposal options (e.g. landfilling or incineration)
- Waste or energy recovery (e.g., composting, landfill gas to energy)
- Innovations in collection and transportation equipment development
- Employee health and safety
- Sustainability of resources
- Life-cycle assessment of waste management
- Educating corporate customers in purchasing environmentally preferable waste services
- Development of high school and college educational programs

Bonds

General Obligation Bonds. These bonds are a common financing mechanism municipalities use for funding construction of large-scale capital improvements. This method obligates the issuing jurisdiction to pay holders of the bonds. Repayment is typically through user fees or revenue from the general budget of the jurisdiction. The jurisdiction has its full taxing authority available in order to fulfill repayment of these debts.

Revenue Bonds. Revenue bonds are similar to general obligation bonds except repayment is guaranteed through funds collected as part of a revenue producing activity. User fees charged at the new solid waste facility are then used to repay revenue bond debts. In some cases, solid waste districts are formed in order to create an operating entity for issuance of solid waste revenue bonds. The use of revenue bonds may require the enactment of additional ordinances such as flow control ordinances, if ultimately legally allowed, to guarantee the presence of a solid waste stream for processing to guarantee a revenue stream for debt repayment.

Appendix A

Resolutions of Plan Preparation

RESOLUTION 166

WHEREAS, RCW 79.95.110 requires periodic updating of existing comprehensive county solid waste management plans, and

WHEREAS, RCW 79.95.110 further requires that Grant County and the cities therein shall submit a waste reduction and recycling element required in RCW 70.95.090 to the Washington State Department of Ecology by July 1, 1994, and

WHEREAS, the eligibility of the various jurisdictions within Grant County for continued receipt of State Solid Waste grant funds administered by the Washington State Department of Ecology may be contingent upon the completion of a comprehensive solid waste management plan which complies in its entirety with the provisions of RCW 70.95.

NOW THEREFORE BE IT RESOLVED that the Town of Coulee City shall cooperate with Grant County in the preparation of an updated comprehensive solid waste management plan by the method indicated below.

_____ Prepare and deliver to the County Auditor its own solid waste management plan for integration into Grant County's Comprehensive Solid Waste Management Plan.

_____ Enter into an agreement with Grant County to participate in preparing a joint city-county comprehensive solid waste management plan.

__X__ Authorizes Grant County to prepare a plan for the City's solid waste management for inclusion in the County's comprehensive plan subject to periodic review during the planning process and final adoption.

The method of concurrence indicated above is hereby adopted by the Town Council of the Town of Coulee City.

Dated this 3rd day of March, 1993

Signed: _____
F. Boyd Jenkin, Mayor

Attested:

_____
Carol Visker, City Clerk

RESOLUTION NO. 207
GRANT COUNTY SOLID WASTE MANAGEMENT PLAN

WHEREAS, RCW 70.95.110 requires periodic updating of existing comprehensive county solid waste management plans, and

WHEREAS, RCW 70.95.110 further requires that Grant County and the cities therein shall submit a waste reduction and recycling element required in RCW 70.95.090 to the Washington State Department of Ecology by July 1, 1994, and

WHEREAS, the eligibility of the various jurisdictions within Grant County for continued receipt of State Solid Waste grant funds administered by the Washington State Department of Ecology may be contingent upon the completion of a comprehensive solid waste management plan which complies in its entirety with the provisions of RCW 70.95.

NOW, THEREFORE BE IT RESOLVED that the town of Coulee Dam shall cooperate with Grant County in the preparation of an updated comprehensive solid waste management plan by the following method:

Authorizes Grant County to prepare a plan for the town's solid waste management for inclusion in the county's solid waste comprehensive plan subject to the periodic review during the planning process and final adoption.

The method of concurrence indicated above is hereby adopted by the town council of the town of Coulee Dam, this 10th day of March, 1993.

R. B. Hartman

R. B. Hartman, Mayor

TOWN OF ELECTRIC CITY
RESOLUTION #3-93

RESOLUTION OF CONCURRENCE
SOLID WASTE MANAGEMENT PLAN

WHEREAS, RCW 70.95.110 requires periodic updating of existing comprehensive county solid waste management plans, and

WHEREAS, RCW 70.95.110 further requires that Grant County and the cities therein shall submit a waste reduction and recycling element required in RCW 70.95.090 to the Washington State Department of Ecology by July 1, 1994, and

WHEREAS, the eligibility of the various jurisdictions within Grant County for continued receipt of State Solid Waste grant funds administered by the Washington State Department of Ecology may be contingent upon the completion of a comprehensive solid waste management plan which complies in its entirety with the provisions of RCW 70.95.

NOW THEREFORE BE IT RESOLVED that the Town of Electric City
Name of Agency
shall cooperate with Grant County in the preparation of an updated comprehensive solid waste management plan by the method indicated below:

_____ Prepare and deliver to the County Auditor its own solid waste management plan for integration into Grant County's Comprehensive Solid Waste Management Plan

_____ Enter into an agreement with Grant County to participate in preparing a joint city-county comprehensive solid waste management plan

XXX Authorizes Grant County to prepare a plan for the City's solid waste management for inclusion in the County's comprehensive plan subject to periodic review during the planning process and final adoption

The method of concurrence indicated above is hereby adopted by the Electric City Council this 9th day of March, 1993.

Raymond R. Halsey, Mayor

ATTEST:

Carol Downing, City Clerk

RESOLUTION OF CONCURRENCE
SOLID WASTE MANAGEMENT PLAN

Resolution #101

WHEREAS, RCW 70.95.110 requires periodic updating of existing comprehensive county solid waste management plans, and

WHEREAS, RCW 70.95.110 further requires that Grant County and the cities therein shall submit a waste reduction and recycling element required in RCW 70.95.090 to the Washington State Department of Ecology by July 1, 1994, and

WHEREAS, the eligibility of the various jurisdictions within Grant County for continued receipt of State Solid Waste grant funds administered by the Washington State Department of Ecology may be contingent upon the completion of a comprehensive solid waste management plan which complies in its entirety with the provisions of RCW 70.95.

NOW THEREFORE BE IT RESOLVED that the Town of George
Name of Agency
shall cooperate with Grant County in the preparation of an updated comprehensive solid waste management plan by the method indicated below:

_____ Prepare and deliver to the County Auditor its own solid waste management plan for integration into Grant County's Comprehensive Solid Waste Management Plan

_____ Enter into an agreement with Grant County to participate in preparing a joint city-county comprehensive solid waste management plan

✓ Authorizes Grant County to prepare a plan for the City's solid waste management for inclusion in the County's comprehensive plan subject to periodic review during the planning process and final adoption

The method of concurrence indicated above is hereby adopted by Town of George this 8th day of March, 1993.

Elliot Kong

_____

_____

RESOLUTION OF CONCURRENCE
SOLID WASTE MANAGEMENT PLAN

RESOLUTION 6-93

WHEREAS, RCW 70.95.110 requires periodic updating of existing comprehensive county solid waste management plans, and

WHEREAS, RCW 70.95.110 further requires that Grant County and the cities therein shall submit a waste reduction and recycling element required in RCW 70.95.090 to the Washington State Department of Ecology by July 1, 1994, and

WHEREAS, the eligibility of the various jurisdictions within Grant County for continued receipt of State Solid Waste grant funds administered by the Washington State Department of Ecology may be contingent upon the completion of a comprehensive solid waste management plan which complies in its entirety with the provisions of RCW 70.95.

NOW THEREFORE BE IT RESOLVED that the CITY OF GRAND COULE
Name of Agency
shall cooperate with Grant County in the preparation of an updated comprehensive solid waste management plan by the method indicated below:

_____ Prepare and deliver to the County Auditor its own solid waste management plan for integration into Grant County's Comprehensive Solid Waste Management Plan

_____ Enter into an agreement with Grant County to participate in preparing a joint city-county comprehensive solid waste management plan

XX Authorizes Grant County to prepare a plan for the City's solid waste management for inclusion in the County's comprehensive plan subject to periodic review during the planning process and final adoption

The method of concurrence indicated above is hereby adopted by GRAND COULEE this 16TH day of MARCH, 1993.

RAY GRAYBILL, MAYOR

Resolution No. 726

RESOLUTION OF CONCURRENCE for the City of Ephrata for a **SOLID WASTE MANAGEMENT PLAN**

WHEREAS, RCW 70.95.110 requires periodic updating of existing comprehensive county solid waste management plans, and

WHEREAS, RCW 70.95.110 further requires that Grant County and the Cities therein shall submit a waste reduction and recycling element required in RCW 70.95.090 to the Washington State Department of Ecology by July 1, 1994, and

WHEREAS, the eligibility of the various jurisdictions within Grant County for continued receipt of State Solid Waste grant funds administered by the Washington State Department of Ecology may be contingent upon the completion of a comprehensive solid waste management plan which complies in its entirety with the provisions of RCW 70.95.

NOW THEREFORE BE IT RESOLVED that the City of Ephrata

shall cooperate with Grant County in the preparation of an updated comprehensive solid waste management plan by the method indicated below:

_____ Prepare and deliver to the County Auditor its own solid waste management plan for integration into Grant County's Comprehensive Solid Waste Management Plan

_____ Enter into an agreement with Grant County to participate in preparing a joint city-county comprehensive solid waste management plan

X
_____ Authorizes Grant County to prepare a plan for the City's solid waste management for inclusion in the County's comprehensive plan subject to periodic review during the planning process and final adoption

The method of concurrence indicated above is hereby adopted by the City Council this 17th day of March, 1993.

Mayor

ATTEST:

City Administrator

RESOLUTION OF CONCURRENCE
SOLID WASTE MANAGEMENT PLAN

WHEREAS, RCW 70.95.110 requires periodic updating of existing comprehensive county solid waste management plans, and

WHEREAS, RCW 70.95.110 further requires that Grant County and the cities therein shall submit a waste reduction and recycling element required in RCW 70.95.090 to the Washington State Department of Ecology by July 1, 1994, and

WHEREAS, the eligibility of the various jurisdictions within Grant County for continued receipt of State Solid Waste grant funds administered by the Washington State Department of Ecology may be contingent upon the completion of a comprehensive solid waste management plan which complies in its entirety with the provisions of RCW 70.95.

NOW THEREFORE BE IT RESOLVED that the _____
Name of Agency
shall cooperate with Grant County in the preparation of an updated comprehensive solid waste management plan by the method indicated below:

_____ Prepare and deliver to the County Auditor its own solid waste management plan for integration into Grant County's Comprehensive Solid Waste Management Plan

_____ Enter into an agreement with Grant County to participate in preparing a joint city-county comprehensive solid waste management plan

X Authorizes Grant County to prepare a plan for the City's solid waste management for inclusion in the County's comprehensive plan subject to periodic review during the planning process and final adoption

The method of concurrence indicated above is hereby adopted by _____ this 15 day of _____, 1993.

RESOLUTION OF CONCURRENCE
SOLID WASTE MANAGEMENT PLAN

Mar. 8, 1993

WHEREAS, RCW 70.95.110 requires periodic updating of existing comprehensive county solid waste management plans, and

WHEREAS, RCW 70.95.110 further requires that Grant County and the cities therein shall submit a waste reduction and recycling element required in RCW 70.95.090 to the Washington State Department of Ecology by July 1, 1994, and

WHEREAS, the eligibility of the various jurisdictions within Grant County for continued receipt of State Solid Waste grant funds administered by the Washington State Department of Ecology may be contingent upon the completion of a comprehensive solid waste management plan which complies in its entirety with the provisions of RCW 70.95.

NOW THEREFORE BE IT RESOLVED that the Town of Krupp
Name of Agency
shall cooperate with Grant County in the preparation of an updated comprehensive solid waste management plan by the method indicated below:

____ Prepare and deliver to the County Auditor its own solid waste management plan for integration into Grant County's Comprehensive Solid Waste Management Plan

____ Enter into an agreement with Grant County to participate in preparing a joint city-county comprehensive solid waste management plan

✓ Authorizes Grant County to prepare a plan for the City's solid waste management for inclusion in the County's comprehensive plan subject to periodic review during the planning process and final adoption

The method of concurrence indicated above is hereby adopted by Town of Krupp's Council this 8th day of March, 1993.

Tracy L. Lesser
Mayor

March 8, 1993

RESOLUTION NO. 93-03-04

RESOLUTION OF CONCURRENCE
SOLID WASTE MANAGEMENT PLAN

WHEREAS, RCW 70.95.110 requires periodic updating of existing comprehensive county solid waste management plans, and

WHEREAS, RCW 70.95.110 further requires that Grant County and the cities therein shall submit a waste reduction and recycling element required in RCW 70.95.090 to the Washington State Department of Ecology by July 1, 1994, and

WHEREAS, the eligibility of the various jurisdictions within Grant County for continued receipt of State Solid Waste grant funds administered by the Washington State Department of Ecology may be contingent upon the completion of a comprehensive solid waste management plan which complies in its entirety with the provisions of RCW 70.95.

NOW THEREFORE BE IT RESOLVED that the Town of Mattawa
Name of Agency
shall cooperate with Grant County in the preparation of an updated comprehensive solid waste management plan by the method indicated below:

____ Prepare and deliver to the County Auditor its own solid waste management plan for integration into Grant County's Comprehensive Solid Waste Management Plan

____ Enter into an agreement with Grant County to participate in preparing a joint city-county comprehensive solid waste management plan

X Authorizes Grant County to prepare a plan for the City's solid waste management for inclusion in the County's comprehensive plan subject to periodic review during the planning process and final adoption

The method of concurrence indicated above is hereby adopted by the Town of Mattawa this 4th day of March, 1993.

THE TOWN OF MATTAWA

BY: Judy K Faires
MAYOR

ATTEST: Phyllis Kennamer
CLERK

RESOLUTION NO. 1744

A RESOLUTION STATING THE CITY'S AGREEMENT TO COOPERATE WITH GRANT COUNTY IN THE PREPARATION OF AN UPDATED COMPREHENSIVE SOLID WASTE MANAGEMENT PLAN FOR GRANT COUNTY

RECITALS:

1. RCW 70.95.110 requires periodic updating of existing comprehensive county solid waste management plans.

2. RCW 70.95.110 further requires that Grant County and the cities therein shall submit a waste reduction and recycling element required in RCW 70.95.090 to the Washington State Department of Ecology by July 1, 1994.

3. The eligibility of the various jurisdictions within Grant County for continued receipt of state solid waste grant funds administered by the Washington State Department of Ecology may be contingent upon the completion of a comprehensive solid waste management plan which complies in its entirety with the provisions of RCW 70.95.

RESOLVED:

1. That the City of Moses Lake shall cooperate with Grant County in the preparation of an updated comprehensive solid waste management plan.

2. In cooperating with Grant County, that the city will enter into an agreement with Grant County to participate in preparing a joint city-county comprehensive solid waste management plan.

3. That the City Manager be authorized to sign any necessary documents on behalf of the City of Moses Lake which provides for the city's participation and cooperation in the updating process.

Adopted by the City Council on March 9, 1993.

s/ F. Wayne Kiemple
Mayor

ATTEST:

s/ Walter Fry
Finance Director

RESOLUTION NO. 93-11

A RESOLUTION AUTHORIZING PREPARATION
OF A SOLID WASTE MANAGEMENT PLAN

RECITALS:

1. RCW 70.95.110 requires periodic updating of existing comprehensive county solid waste management plans.

2. RCW 70.95.110 further requires that Grant County and the Cities therein shall submit a waste reduction and recycling elements required in RCW 70.95.090 to the Washington State Department of Ecology by July 1, 1994.

3. The eligibility of the various jurisdictions within Grant County for continued receipt of State Solid Waste grant funds administered by the Washington State Department of Ecology may be contingent upon the completion of a comprehensive solid waste management plan which complies in its entirety with the provisions of RCW 70.95.

RESOLVED:

1. The City of Quincy agrees to assist Grant County in the preparation of an updated comprehensive solid waste management plan and hereby authorizes Grant County to prepare a plan for the City's solid waste management for inclusion in the County's comprehensive plan subject to periodic review during the planning process and final adoption.

ADOPTED by the City Council of the City of Quincy, Washington, this 6th day of April, 1993.

CITY OF QUINCY

Mayor

ATTEST:

City Clerk

APPROVED AS TO FORM:

Asst. City Attorney

RESOLUTION NO. 445

RESOLUTION OF THE CITY OF SOAP LAKE, WASHINGTON, AUTHORIZING A SOLID WASTE MANAGEMENT PLAN

BE IT RESOLVED BY THE CITY OF SOAP LAKE, WASHINGTON, as follows:

WHEREAS, RCW 70.95.110 requires periodic updating of existing comprehensive county solid waste management plans, and

WHEREAS, RCW 70.95.110 further requires that Grant County and the cities therein shall submit a waste reduction and recycling element required in RCW 70.95.090 to the Washington State Department of Ecology by July 1, 1994, and

WHEREAS, the eligibility of the various jurisdictions within Grant County for continued receipt of State Solid Waste grant funds administered by the Washington State Department of Ecology may be contingent upon the completion of a comprehensive solid waste management plan which complies in its entirety with the provisions of RCW 70.95.

NOW, THEREFORE, BE IT RESOLVED by the City of Soap Lake that the City shall cooperate with Grant County in the preparation of an updated comprehensive solid waste management plan by the method indicated below:

_____ Prepare and deliver to the County Auditor its own solid waste management plan for integration into Grant county's Comprehensive Solid Waste Management Plan

_____ Enter into an agreement with Grant County to participate in preparing a joint city-county comprehensive solid waste management plan

__X__ Authorizes Grant County to prepare a plan for the City's solid waste management for inclusion in the County's comprehensive plan subject to periodic review during the planning process and final adoption

PASSED by the City Council of the City of Soap Lake, Washington, this 5th day of May, 1993.

THE CITY OF SOAP LAKE, WASHINGTON

By _____
MAYOR

Attest:

_____
City Clerk

Approved as to form:

_____
City Attorney

RESOLUTION OF CONCURRENCE
SOLID WASTE MANAGEMENT PLAN

RESOLUTION 3-93

WHEREAS, RCW 70.95.110 requires periodic updating of existing comprehensive county solid waste management plans, and

WHEREAS, RCW 70.95.110 further requires that Grant County and the cities therein shall submit a waste reduction and recycling element required in RCW 70.95.090 to the Washington State Department of Ecology by July 1, 1994, and

WHEREAS, the eligibility of the various jurisdictions within Grant County for continued receipt of State Solid Waste grant funds administered by the Washington State Department of Ecology may be contingent upon the completion of a comprehensive solid waste management plan which complies in its entirety with the provisions of RCW 70.95.

NOW THEREFORE BE IT RESOLVED that the CITY OF WARDEN
Name of Agency
shall cooperate with Grant County in the preparation of an updated comprehensive solid waste management plan by the method indicated below:

_____ Prepare and deliver to the County Auditor its own solid waste management plan for integration into Grant County's Comprehensive Solid Waste Management Plan

_____ Enter into an agreement with Grant County to participate in preparing a joint city-county comprehensive solid waste management plan

X Authorizes Grant County to prepare a plan for the City's solid waste management for inclusion in the County's comprehensive plan subject to periodic review during the planning process and final adoption

The method of concurrence indicated above is hereby adopted by RESOLUTION this 9TH day of MARCH, 1993.

SIGNED:

R.E. KEENEY, MAYOR

ATTEST: KRISTINE SHULER, CLERK

RESOLUTION OF CONCURRENCE
SOLID WASTE MANAGEMENT PLAN

WHEREAS, RCW 70.95.110 requires periodic updating of existing comprehensive county solid waste management plans, and

WHEREAS, RCW 70.95.110 further requires that Grant County and the cities therein shall submit a waste reduction and recycling element required in RCW 70.95.090 to the Washington State Department of Ecology by July 1, 1994, and

WHEREAS, the eligibility of the various jurisdictions within Grant County for continued receipt of State Solid Waste grant funds administered by the Washington State Department of Ecology may be contingent upon the completion of a comprehensive solid waste management plan which complies in its entirety with the provisions of RCW 70.95.

NOW THEREFORE BE IT RESOLVED that the Town of Wilson Creek
Name of Agency
shall cooperate with Grant County in the preparation of an updated comprehensive solid waste management plan by the method indicated below:

___ Prepare and deliver to the County Auditor its own solid waste management plan for integration into Grant County's Comprehensive Solid Waste Management Plan

___ Enter into an agreement with Grant County to participate in preparing a joint city-county comprehensive solid waste management plan

X Authorizes Grant County to prepare a plan for the City's solid waste management for inclusion in the County's comprehensive plan subject to periodic review during the planning process and final adoption

The method of concurrence indicated above is hereby adopted by Town of Wilson Creek this 2 day of March, 1993.

Roy Wells Mayor

RESOLUTION 93-8

SOLID WASTE MANAGEMENT PLAN

WHEREAS RCW 70.95.110 requires periodic updating of existing comprehensive county solid waste management plans, and

WHEREAS, RCW 70.95.110 further requires that GRANT COUNTY and the Cities therein shall submit a waste reduction and recycling element required in RCW 70.95.090 to the Washington State Department of Ecology by July 1,1994, and

WHEREAS, the eligibility of the various jurisdictions within Grant County for continued receipt of State Solid Waste grant funds administered by the Washington State Department of Ecology may be contingent upon the completion of a comprehensive solid waste management plan which complies in its entirety with the provisions of RCW 70.95.

NOW THEREFORE BE IT RESOLVED that the CITY OF ROYAL CITY shall cooperate

with Grant County in the preparation of an updated comprehensive solid waste management plan by the method indicated below;

------- Prepare and deliver to the County Auditor its own solid waste management plan for integration into Grany County's Comprehensive Solid Waste Management Plan.

------- Enter into an agreement with Grant County to participate in perparing a joint city-county comprehensive solid waste management plan.

X--- Authorizes Grant County to prepare a plan for the City's solid waste management gor inclusion in the County's comprehensive plan subject to periodic review during the planning process and final adoption.

ADOPTED by the CITY COUNCIL of the City of Royal City,Washington

this 3 day of August, 1993.

George Buckhaus
MAYOR

ATTEST:

BOARD OF COUNTY COMMISSIONERS

Grant County, Washington

IN THE MATTER OF ADOPTION OF WASTE DISPOSAL OPTIONS STUDY PREPARED BY PARAMETRIX, INC. AND DATED JUNE, 1999 AS AN AMENDMENT TO THE GRANT COUNTY SOLID WASTE MANAGEMENT PLAN UPDATE, JANUARY 1995

Resolution No. 99-208-CC

WHEREAS, Grant County Public Works Department, acting through its Solid Waste Advisory Committee has prepared an amendment to the currently adopted Grant County Solid Waste Management Plan Update, January 1995 said amendment being entitled; Waste Disposal Options: Expansion of Ephrata Landfill vs. Long-Haul, June 1999, hereinafter referred to as the "Study", and

WHEREAS, the "Study" recommends based upon current information the least-cost option for the disposal of in-County Solid Wastes.

NOW, THEREFORE, BE IT RESOLVED that the Grant County Board of County Commissioners hereby adopt the "Study" as an amendment to the Grant County Solid Waste Management Plan Update, January 1995 as a planning guide for solid waste handling in Grant County.

DONE THIS 7th DAY OF December, 1999.

Tim Snead, Chairman

ATTEST: Peggy Trigg
Clerk of the Board

LeRoy Allison

Deborah Moore

RESOLUTION NO. 6-99

ADOPTION OF WASTE DISPOSAL OPTIONS STUDY PREPARED BY PARAMETRIX, INC. AND DATED JUNE 1999 AS AN AMENDMENT TO THE GRANT COUNTY SOLID WASTE MANAGEMENT PLAN UPDATE, JANUARY 1995

WHEREAS, Grant County, acting through its Solid Waste Avisory Committee has prepared an amendment to the currently adopted Grant County Solid Waste Management Plan Update, January 1995 said amendment being entitled; Waste Disposal Options: Expansion of Ephrata Landfill vs Long-Haul, June 1999, hereinafter referred to as the "Study", and

WHEREAS, the "Study" recommends based upon current information the least-cost option for the disposal of in-County Solid Wastes.

NOW THEREFORE BE IT RESOLVED that the Town of Electric City, Town Council **hereby adopts the "Study" as an amendment to the Grant County Solid Waste Management Plan Update, January 1995 as a planning guide for solid waste handling in Grant County.**

DATED this 27th **Day of** July **, 1999**

Raymond R. Halsey, Mayor

ATTEST:

Carol Downing, City Clerk

RESOLUTION NO. 99- 804

ADOPTION OF WASTE DISPOSAL OPTIONS STUDY PREPARED BY PARAMETRIX, INC. AND DATED JUNE 1999 AS AN AMENDMENT TO THE GRANT COUNTY SOLID WASTE MANAGEMENT PLAN UPDATED, JANUARY 1995

WHEREAS, Grant County, acting through its Solid Waste Advisory Committee has prepared an amendment to the currently adopted Grant County Solid Waste Management Plan Update, January 1995 said amendment being entitled; Waste Disposal Options: Expansion of Ephrata Landfill vs Long-Haul, June 1999, hereinafter referred to as the "Study", and

WHEREAS, the "Study" recommends based upon current information the least-cost option for the disposal of in-County Solid Wastes.

NOW THEREFORE BE IT RESOLVED that the City of Ephrata hereby adopts the "Study" as an amendment to the Grant County Solid Waste Management Plan Update, January 1995 as a planning guide for solid waste handling in Grant County.

ADOPTED by the City Council of the City of Ephrata, Washington, this 4th day of August, 1999.

Randy Boruff, Mayor

ATTEST:

Bev Gregoire, City Clerk

RESOLUTION NO. 235

ADOPTION OF WASTE DISPOSAL OPTIONS STUDY PREPARED BY PARAMETRIX, INC. AND DATED JUNE 1999 AS AN AMENDMENT TO THE GRANT COUNTY SOLID WASTE MANAGEMENT PLAN UPDATE, JANUARY 1995

WHEREAS, Grant County, acting through its Solid Waste Avisory Committee has prepared an amendment to the currently adopted Grant County Solid Waste Management Plan Update, January 1995 said amendment being entitled; Waste Disposal Options: Expansion of Ephrata Landfill vs Long-Haul, June 1999, hereinafter referred to as the "Study", and

WHEREAS, the "Study" recommends based upon current information the least-cost option for the disposal of in-County Solid Wastes.

NOW THEREFORE BE IT RESOLVED that the Town of Coulee City **hereby adopts the "Study" as an amendment to the Grant County Solid Waste Management Plan Update, January 1995 as a planning guide for solid waste handling in Grant County.**

DATED this 14th **Day of** July **, 1999**

Mayor

RESOLUTION NO. 99-14

ADOPTION OF WASTE DISPOSAL OPTIONS STUDY PREPARED BY PARAMETRIX, INC. AND DATED JUNE 1999 AS AN AMENDMENT TO THE GRANT COUNTY SOLID WASTE MANAGEMENT PLAN UPDATE, JANUARY 1995

WHEREAS, Grant County, acting through its Solid Waste Avisory Committee has prepared an amendment to the currently adopted Grant County Solid Waste Management Plan Update, January 1995 said amendment being entitled; Waste Disposal Options: Expansion of Ephrata Landfill vs Long-Haul, June 1999, hereinafter referred to as the "Study", and

WHEREAS, the "Study" recommends based upon current information the least-cost option for the disposal of in-County Solid Wastes.

NOW THEREFORE BE IT RESOLVED that the City of Coulee Dam hereby adopts the "Study" as an amendment to the Grant County Solid Waste Management Plan Update, January 1995 as a planning guide for solid waste handling in Grant County.

DATED this 22nd Day of September, 1999

Mayor

RESOLUTION NO. 99 - 156

A RESOLUTION ADOPTING THE WASTE DISPOSAL OPTIONS STUDY AS PREPARED BY PARAMETRIX, INC. AND DATED JUNE 1999 AS AN AMENDMENT TO THE GRANT COUNTY SOLID WASTE MANAGEMENT PLAN UPDATED, JANUARY 1995

RECITATIONS:

1. Grant County, acting through its Solid Waste Advisory Committee has prepared an amendment to the currently adopted Grant County Solid Waste Management Plan Update, January 1995 said amendment being entitled "Waste Disposal Options: Expansion of Ephrata Landfill vs. Long-Haul, June 1999", hereinafter referred to as the "Study", and.

2. The "Study" recommends based upon current information the least-cost option for the disposal of in-County Solid Wastes.

RESOLVED:

1. The City Council of the City of George adopts the "Study" as an amendment to the Grant County Solid Waste Management Plan Update, January 1995 as a planning guide for solid waste handling in Grant County.

ADOPTED by the City Council of the City of George, Washington, this 21st day of Sept, 1999

Elliot Koory
Mayor

ATTEST:

Cherie Isaure
City Clerk

RECEIVED

SEP 23 1999

RESOLUTION NO. 99-20

ADOPTION OF WASTE DISPOSAL OPTIONS STUDY PREPARED BY PARAMETRIX, INC. AND DATED JUNE 1999 AS AN AMENDMENT TO THE GRANT COUNTY SOLID WASTE MANAGEMENT PLAN UPDATE, JANUARY 1995

WHEREAS, Grant County, acting through its Solid Waste Avisory Committee has prepared an amendment to the currently adopted Grant County Solid Waste Management Plan Update, January 1995 said amendment being entitled; Waste Disposal Options: Expansion of Ephrata Landfill vs Long-Haul, June 1999, hereinafter referred to as the "Study", and

WHEREAS, the "Study" recommends based upon current information the least-cost option for the disposal of in-County Solid Wastes.

NOW THEREFORE BE IT RESOLVED that the Grand Coulee City Council **hereby adopts the "Study" as an amendment to the Grant County Solid Waste Management Plan Update, January 1995 as a planning guide for solid waste handling in Grant County.**

DATED this 21st **Day of** September, **1999**

Mayor

RECEIVED

SEP 29 1999

GRANT CO. PUBLIC WORKS

RESOLUTION NO. 1999-2

ADOPTION OF WASTE DISPOSAL OPTIONS STUDY PREPARED BY PARAMETRIX, INC. AND DATED JUNE 1999 AS AN AMENDMENT TO THE GRANT COUNTY SOLID WASTE MANAGEMENT PLAN UPDATE, JANUARY 1995

WHEREAS, Grant County, acting through its Solid Waste Avisory Committee has prepared an amendment to the currently adopted Grant County Solid Waste Management Plan Update, January 1995 said amendment being entitled; Waste Disposal Options: Expansion of Ephrata Landfill vs Long-Haul, June 1999, hereinafter referred to as the "Study", and

WHEREAS, the "Study" recommends based upon current information the least-cost option for the disposal of in-County Solid Wastes.

NOW THEREFORE BE IT RESOLVED that the Town of Harrah **hereby adopts the "Study" as an amendment to the Grant County Solid Waste Management Plan Update, January 1995 as a planning guide for solid waste handling in Grant County.**

DATED this 6th **Day of** September **1999**

George Kelley
Mayor

RESOLUTION NO. 9-99

ADOPTION OF WASTE DISPOSAL OPTIONS STUDY PREPARED BY PARAMETRIX, INC. AND DATED JUNE 1999 AS AN AMENDMENT TO THE GRANT COUNTY SOLID WASTE MANAGEMENT PLAN UPDATE, JANUARY 1995

WHEREAS, Grant County, acting through its Solid Waste Avisory Committee has prepared an amendment to the currently adopted Grant County Solid Waste Management Plan Update, January 1995 said amendment being entitled; Waste Disposal Options: Expansion of Ephrata Landfill vs Long-Haul, June 1999, hereinafter referred to as the "Study", and

WHEREAS, the "Study" recommends based upon current information the least-cost option for the disposal of in-County Solid Wastes.

NOW THEREFORE BE IT RESOLVED that the Town of Krupp **hereby adopts the "Study" as an amendment to the Grant County Solid Waste Management Plan Update, January 1995 as a planning guide for solid waste handling in Grant County.**

DATED this 13th **Day of** Sept **, 1999**

Tracy J. Jones

Mayor

RESOLUTION NO. 10.09.19

A RESOLUTION OF THE TOWN OF MATTAWA, WASHINGTON, ADOPTING THE WASTE DISPOSAL OPTIONS STUDY PREPARED BY PARAMETRIX, INC., DATED JUNE 1999 AS AN AMENDMENT TO THE GRANT COUNTY SOLID WASTE MANAGEMENT PLAN UPDATE, JANUARY 1995.

WHEREAS, Grant County, acting through its Solid Waste Advisory Committee has caused to be prepared an amendment to the currently adopted Grant County Solid Waste Management Plan Update, January 1995; said amendment being entitled; "Waste Disposal Options: Expansion of Ephrata Landfill vs Long-Haul, dated June 1999, hereinafter referred to as the "Study", and

WHEREAS, the "Study" recommends, based upon current information, the least-cost option for the disposal of in-County Solid Wastes; Now, Therefore,

BE IT RESOLVED BY THE COUNCIL OF THE TOWN OF MATTAWA, WASHINGTON, as follows:

Section 1. The Town of Mattawa hereby adopts and approves the "Study" as an amendment to the Grant County Solid Waste Management Plan Update, January 1995, as a planning guide for solid waste handling in Grant County.

ADOPTED at a regularly scheduled meeting of the Council of the Town of Mattawa, this 16th day of September, 1999

Judy Esser

Judy Esser, Mayor

ATTEST:

Rex Mather, Town Administrator-Clerk/Treasurer

Town Attorney

RESOLUTION NO. 2197

A RESOLUTION ADOPTING THE WASTE DISPOSAL OPTIONS STUDY PREPARED BY PARAMETRIX, INC. AND DATED JUNE 1999 AS AN AMENDMENT TO THE GRANT COUNTY SOLID WASTE MANAGEMENT PLAN UPDATE, JANUARY 1995

RECITALS:

1. Grant County, acting through its Solid Waste Advisory Committee has prepared an amendment to the currently adopted Grant County Solid Waste Management Plan Update, January 1995. Said amendment being entitled "Waste Disposal Options: Expansion of Ephrata Landfill vs Long-Haul, June 1999", hereinafter referred to as the "Study".

2. The "Study" recommends, based upon current information, the least-cost option for the disposal of in-county solid wastes.

RESOLVED:

1. The City Council of the City of Moses Lake hereby adopts the "Study" as an amendment to the Grant County Solid Waste Management Plan Update, January 1995 as a planning guide for solid waste handling in Grant County.

Adopted by the City Council on August 24, 1999.

Mayor

ATTEST:

Finance Director

RESOLUTION NO. 99-29

ADOPTION OF WASTE DISPOSAL OPTIONS STUDY PREPARED BY PARAMETRIX, INC. AND DATED JUNE 1999 AS AN AMENDMENT TO THE GRANT COUNTY SOLID WASTE MANAGEMENT PLAN UPDATE, JANUARY 1995

WHEREAS, Grant County, acting through its Solid Waste Avisory Committee has prepared an amendment to the currently adopted Grant County Solid Waste Management Plan Update, January 1995 said amendment being entitled; Waste Disposal Options: Expansion of Ephrata Landfill vs Long-Haul, June 1999, hereinafter referred to as the "Study", and

WHEREAS, the "Study" recommends based upon current information the least-cost option for the disposal of in-County Solid Wastes.

NOW THEREFORE BE IT RESOLVED that the City of Quincy **hereby adopts the "Study" as an amendment to the Grant County Solid Waste Management Plan Update, January 1995 as a planning guide for solid waste handling in Grant County.**

DATED this 07 **Day of** September **, 1999**

Mayor

RESOLUTION NO. 99-11

ADOPTION OF WASTE DISPOSAL OPTIONS STUDY PREPARED BY PARAMETRIX, INC. AND DATED JUNE 1999 AS AN AMENDMENT TO THE GRANT COUNTY SOLID WASTE MANAGEMENT PLAN UPDATE, JANUARY 1995

RECITALS:

1. WHEREAS, Grant County, acting through its Solid Waste Advisory Committee has prepared an amendment to the currently adopted Grant County Solid Waste Management Plan Update, January 1995 said amendment being entitled; Waste Disposal Options: Expansion of Ephrata Landfill vs Long-Haul, June 1999, hereinafter referred to as as the "Study", and

2. WHEREAS, the "Study" recommends based upon current information the least cost option for the disposal of in-County Solid Wastes.

RESOLVED:

1. The City Council of the City of Royal City hereby adopts the "Study" as an amendment to the Grant County Solid Waste Management Plan Update, January 1995 as a planning guide for solid waste handling in Grant County.

ADOPTED by the City Council of the City of Royal City, Washington, this 15th day of July, 1999.

MAYOR

ATTEST:

FINANCE DIRECTOR

RESOLUTION NO. 5-99

ADOPTION OF WASTE DISPOSAL OPTIONS STUDY PREPARED BY PARAMETRIX, INC. AND DATED JUNE 1999 AS AN AMENDMENT TO THE GRANT COUNTY SOLID WASTE MANAGEMENT PLAN UPDATED, JANUARY 1995

WHEREAS, Grant County, acting through its Solid Waste Advisory Committee has prepared an amendment to the currently adopted Grant County Solid Waste Management Plan Update, January 1995 said amendment being entitled; Waste Disposal Options: Expansion of Ephrata Landfill vs Long-Haul, June 1999, hereinafter referred to as the "study", and

WHEREAS, the "Study" recommends based upon current information the least-cost option for the disposal of in-County Solid Waste.

NOW THEREFORE BE IT RESOLVED that the CITY OF WARDEN hereby adopts the "Study" as an amendment to the Grant County Solid Waste Management Plan Update, January 1995 as a planning guide for solid waste handling in Grant County.

DATED this 27 Day of July , 1999

R. E. Keeney

Mayor

RESOLUTION NO. 99-6

ADOPTION OF WASTE DISPOSAL OPTIONS STUDY PREPARED BY PARAMETRIX, INC. AND DATED JUNE 1999 AS AN AMENDMENT TO THE GRANT COUNTY SOLID WASTE MANAGEMENT PLAN UPDATE, JANUARY 1995

WHEREAS, Grant County, acting through its Solid Waste Avisory Committee has prepared an amendment to the currently adopted Grant County Solid Waste Management Plan Update, January 1995 said amendment being entitled; Waste Disposal Options: Expansion of Ephrata Landfill vs Long-Haul, June 1999, hereinafter referred to as the "Study", and

WHEREAS, the "Study" recommends based upon current information the least-cost option for the disposal of in-County Solid Wastes.

NOW THEREFORE BE IT RESOLVED that the Town of Wilson Creek **hereby adopts the "Study" as an amendment to the Grant County Solid Waste Management Plan Update, January 1995 as a planning guide for solid waste handling in Grant County.**

DATED this 7 **Day of** Sept **, 1999**

Roy Wells

Mayor

Appendix B

Status of Recommendations

Appendix B

Status of the 1995 Plan Recommendations

Recommendation	Status
Waste Reduction & Recycling	
1. *Expanded Waste Reduction:* Develop and distribute an informative waste reduction brochure, billing inserts, multi-media promotions, and school presentations.	Grant County distributes *EARTH FEATURE*, a County-produced newsletter that includes waste reduction tips and ideas; an information circular about reducing junk mail, and brochures on home composting. The County also conducts school presentations on waste reduction and recycling.
2. *Expanded Recycling Drop-off Sites:* Three County drop box sites plus the Ephrata and Delano landfills would accept newsprint, high-grade paper, polycoated paperboard, corrugated cardboard, aluminum, tin, clear and brown glass, and ferrous and non-ferrous metal. One full-time employee would be hired for the Ephrata Landfill site, while existing personnel could staff the four other locations.	Grant County accepts newsprint and aluminum cans at 11 of the 12 drop box sites and the Ephrata Landfill, corrugated cardboard at two drop box sites and the landfill, and scrap metal at the landfill. The other materials have not proven cost-effective to collect because of distance to markets and lack of markets. Recycling efforts are coordinated by a three-quarter time employee, as discussed in Recommendation 6, below. The Delano Landfill accepts newspaper and cardboard only. A private drop-off site, Coulee Recycling, is located near the landfill and accepts more materials. Coulee Recycling also transports newspaper and cardboard from the Delano Landfill to recyclers.
3. *Commercial Promotional Program:* Provide information to business and industry, including a business-specific brochure, case studies of successful commercial programs, listings of recycling service providers, a "business to business" volunteer program, and recognition for exemplary waste reduction/recycling activities. All businesses in the County and all types of waste materials would be targeted.	Grant County has lacked opportunity to prepare a business-specific recycling or waste reduction program.
4. *Yard & Wood Waste Drop-off Sites:* Three County drop box sites plus the Ephrata and Delano landfills would accept yard and wood waste for composting, assuming a composting facility was available to process the materials.	A compost facility has not yet developed close enough for Grant County and/or the RBOM to implement this program. The City of Quincy operates a local composting facility and contracts for collection within city limits.
5. *Public Education:* Grant County would implement general and program-specific education campaigns, educating residents on managing recyclables and waste reduction/recycling concepts.	Grant County has developed and/or distributed a newsletter, several brochures, and other information circulars regarding waste reduction, recycling, and home composting.

Recommendation	Status
	The county is currently working on multi-lingual community outreach programs for non-English speaking residents.
6. *Solid Waste Coordinator:* Grant County would hire a part-time employee to work on waste reduction and recycling programs, with a particular focus on education, program promotion, data collection, and recordkeeping.	Grant County hired a part-time solid waste coordinator, who works 32 hours per week.
Landfills	
1. *Long-term Disposal Capacity/Disposal Options Review:* Grant County (Ephrata Landfill) and the Regional Board of Mayors (RBOM) (Delano landfill) should review disposal options if these sites do not appear to provide long term, practical, economical disposal capacity.	In 1998, Grant County completed a disposal options review, which recommended expanding the Ephrata Landfill. The County recently constructed a lined cell to receive solid waste, and has planned for disposal capacity beyond 20 years. The RBOM recently determined the Delano Landfill cannot be cost-effectively expanded and is considering other disposal options. The Delano Landfill is expected to reach capacity within a year.
2. *Landfill Compliance:* The RBOM and Grant County should work closely with the Grant County Health District to define and implement appropriate regulatory requirements to bring both sites into compliance with new solid waste regulations, in particular, Chapter 173-351 WAC.	Both jurisdictions have been working closely with the Health District and Ecology to achieve and maintain compliance.
3. *Waste Importation:* a. The RBOM should continue, and formalize, its current policy on waste importation and monitor incoming solid waste volumes to ensure that it maintains disposal capacity for the current 20-year planning period. b. Grant County should make a formal policy to ban imported waste to the Ephrata Landfill. The County should take advantage of the remaining life of the landfill to plan for replacement disposal capacity.	The RBOM only accepts waste from selected communities outside Grant County, such as Elmer City, which is a member of the RBOM. Grant County has a formal policy in place and does not accept out-of-county solid waste for disposal at the Ephrata Landfill. However, the Board of County Commissioners has tentatively agreed to accept waste from out-of-county members of the RBOM.
Waste Import and Export	
1. *Control Out-of-county wastes:* The County should continue to ban out-of-County waste from the Ephrata Landfill in order to conserve disposal capacity. The RBOM should continue to restrict importation to selected nearby communities and control imported waste to ensure adequate capacity for the next 20 years.	Grant County does not accept out-of-county waste at the Ephrata Landfill or drop box sites. The RBOM continues to restrict out-of-county waste to selected communities.
2. *Review Process For Private Disposal Facilities:* A private firm may want to site, construct, and/or	Grant County has not developed such a policy because of a lack of interest by private landfill

Recommendation	Status
operate a private landfill in Grant County. The County, in conjunction with Ecology and the Grant County Health District, should develop a process to evaluate the acceptability of out-of-County wastes for disposal at a privately-owned landfill.	firms.
3. *Disposal Options Review:* The County and/or RBOM should evaluate waste export if new State solid waste regulations make it too costly to continue operating the in-county landfills. This alternative should be included in the disposal options review	The 1998 Disposal Options Review included waste export as a disposal option. The RBOM is currently evaluating disposal options, including waste export, to replace the Delano Landfill.
Biosolids and Septage	
1. *Review Process:* The Grant County Health District should implement a review process to evaluate short-term and long-term additional treatment needs for biosolids and assess the feasibility of alternate disposal or reuse options.	Ecology, not the Health District, issues permits for treatment or disposal of biosolids.
2. *Increase Fees:* The Board of Health and Board of County Commissioners should increase fees to cover costs of permitting, monitoring/testing, and enforcement for biosolids and septage brought in from out-of-county and generated in-county. Consideration should be given to imposing a surcharge on out-of-county biosolids and septage in order to cover any added cost.	Ecology regulates biosolid land application.
Illegal Dumping	
• The Board of County Commissioners should recommend the Board of Health create a Task Force under the jurisdiction of the Grant County Health District. The Task Force should focus on coordinating enforcement activities and developing programs to: a. Assist property owners with handling waste illegally dumped by others. b. Improve enforcement procedures and effectiveness. c. Educate the public about the problems caused by illegal dumping. d. Provide incentives to encourage proper disposal of wastes. e. Involve citizens and businesses in clean-up activities. f. Evaluate funding options, such as collection districts, to pay for enforcement, clean-up and education activities.	The Health District completed an initial meeting with County department heads, including County Commissioners, to consider more effective methods of achieving compliance for solid waste disposal violations. Two Health District staff are now deputized and able to issue citations. A major goal is to develop a fund, perhaps from landfill revenues, that can be used for cleanup when property owners are unable or unwilling to do it themselves.
• The Health District should increase enforcement staff in order to implement programs effectively. The Health District should also consider	In 2004, the Health District hired a staff person to spend 50% of work time on all aspects of the solid waste program, nuisance

Recommendation	Status
coordinating education and public information activities with the Public Works Department, which will be implementing public programs related to solid waste management.	abatement, permitting, etc. The Health District invested in training the new staff to inspect landfills. The Health District is also using Solid Waste Enforcement Grants more completely and effectively than in past years. Two staff at the Health District are responsible for writing citations related to unlawful disposal. The Health District is considering using a portion of enforcement grant funds to educate the public about proper solid waste disposal.
• The Health District should review existing illegal dumping ordinances. The agency should recommend, to the Board of Health, revisions to increase penalties and improve effectiveness of enforcement.	The Health District solid waste ordinance has not changed. Until now the Health District relied on written orders to abate solid waste problems, which is effective in most cases. The Health District realizes an enforcement procedure is needed to effectively prosecute the most difficult cases, and is beginning to prepare a written procedure. In addition to nuisance dumping, disposal of agricultural products like onions and potatoes is also major part of solid waste enforcement activity. The Health District strives for voluntary compliance, but needs the ability to impose penalties.
Administration	
1. *Plan Amendment Process:* The SWAC, affected cities and Board of County Commissioners should review and approve amendments to the Plan rather than all local jurisdictions.	Grant County is implementing this process when an amendment is appropriate, such as the disposal options review completed in 1998.
2. S*WAC Participation:* The Solid Waste Advisory Committee should meet at least semi-annually to review and comment on proposed rules, policies and ordinances, and discuss progress with programs and issues. Additional meetings can be called, as needed, by the Board of County Commissioners or Chair of SWAC.	The SWAC meets at least semi-annually and more frequently as needed, such as during the Plan update.
3. *Solid Waste Program Coordination:* The County should maintain a full-time staff position for coordination and implementation of solid waste programs. Grant County should review long-term funding needs and options in order to maintain this position.	The County has a part-time solid waste coordinator as recommended above for daily management of waste reduction and recycling programs.
4. *Interagency Communication:* The Board of County Commissioners should appoint a representative of the Health District to the SWAC.	A Health District representative is a SWAC member.

Appendix C

SWAC Participation

Appendix C

SWAC Participation

Date	Topics/Activity
June 9, 2005	• Introduce Consultant. • Review solid waste management plan update process.
September 14, 2005	• Review and update goals for the Plan. • Review existing conditions. • Review waste composition analysis and projections.
October 12, 2005	• Continue reviewing existing conditions. • Review waste projections and identify target materials for new waste reduction and recycling programs. • Identify preferred program options and establish ranking criteria. • Discuss potential issues and options for collation services and energy recovery and incineration.
December 7, 2005	• Review proposed waste reduction and recycling program descriptions, estimated diversion potential, and possible costs. • Review rankings and proposed implementation schedules. • Finish reviewing existing conditions . • Discuss potential issues and options for transfer, landfills, waste import/export, special wastes, and administration and enforcement.
March 2006	• Review draft preliminary draft plan • Review SEPA environmental checklist. • Review WUTC Cost Assessment.
May 22, 2006	Two public meetings in Ephrata to obtain public input on the Preliminary Draft Plan.
July 17, 2006	Sent public comments received during the public comment period and proposed response to SWAC for review.
____, 2006	Review Ecology comments on Preliminary Draft.
____, 2006	Review Ecology comments on Final Draft.

Appendix D

Environmental Checklist

WAC 197-11-960 Environmental checklist.

ENVIRONMENTAL CHECKLIST

Purpose of checklist:

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Use of checklist for nonproject proposals:

Complete this checklist for nonproject proposals, even though questions may be answered "does not apply." IN ADDITION, complete the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D).

For nonproject actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer," and "affected geographic area," respectively.

A. BACKGROUND

1. Name of proposed project, if applicable:

Grant County Solid Waste Management Plan Update (the Plan)

2. Name of applicant:

Grant County Public Works Department

3. Address and phone number of applicant and contact person:

Derek Pohle, PE, Public Works Director/County Engineer
124 Enterprise Street SE
Ephrata, WA 98823

4. Date checklist prepared:

February 2006

5. Agency requesting checklist:

Grant County Public Works Department

6. Proposed timing or schedule (including phasing, if applicable):

Preliminary Draft completed May 2006; anticipated Final Draft completion date June 2006.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

The Plan recommends actions that may result in changes to the existing drop box system, expansion of waste reduction and recycling programs to improve waste diversion, expansion of existing or construction of new composting facilities for organic wastes, and increased enforcement and education activities to reduce unlawful disposal. Other actions may include improvements to manage and divert problem wastes, such as tires, from disposal. Each action, if implemented, will be subject to a project-level environmental review, as applicable.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

Grant County will conduct appropriate environmental reviews and assessments of each action before implementation in accordance with the State Environmental Policy Act. Grant County will coordinate with the Grant County Health District and the Washington State Department of Ecology (Ecology), as appropriate, in determining the need and extent of environmental reviews for proposed actions.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

The County is not aware of any applications pending that would affect the Plan.

10. List any government approvals or permits that will be needed for your proposal, if known.

Grant County and the incorporated cities in the planning area will need to adopt the Plan. The Plan must also receive Ecology's approval and a cost assessment review by the Washington Utilities and Trade Commission (WUTC). Other permits and approvals may be needed, depending on the specific action associated with implementation of the Plan.

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

Grant County prepared this Plan consistent with the requirements of Chapter 79.95 WAC. The Plan recommends activities that increase efficiency of solid waste management, diversion of materials to reduce waste disposal, and enforcement activities to reduce unlawful disposal. The recommended activities are intended to protect public health and the environment by improving solid waste management. The recommendations include improved opportunities for waste reduction, recycling, and composting; enforcement and education activities to control unlawful dumping; and completing long term planning for replacing the Delano Landfill, which will close soon. The Plan recommends education, technical assistance and other programs to improve waste reduction and recycling, including opportunities for recycling tires and construction and demolition wastes. In addition, the Plan recommends the County periodically review the existing drop box system, eliminating sites when other services, such as private transfer stations are available, or reducing hours if usage decreases.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

The planning area consists of Grant County and its incorporated cities and towns, as shown by Figure 2-1 in the Plan.

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

B. ENVIRONMENTAL ELEMENTS

1. **Earth**

a. General description of the site (circle one): Flat, rolling, hilly, steep slopes, mountainous,
other .

Grant County has rolling hills dissected by coulees in the northern area and gentle, south-sloping plains dissected by generally east-west trending hills.

b. What is the steepest slope on the site (approximate percent slope)?

Slopes vary from nearly level in the plains, terraces and valley bottoms, to greater than 15% to 20% on the steeper hillsides, to near vertical in bluff sections of the coulees.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime
farmland.

In Grant County, soils are generally well-drained to excessively drained silty, sandy and stony loams sometimes mantled by silt and clay. Farming is the poorest in the channeled scablands, which have a thin soil mantle over bedrock.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

Localized areas of unstable soil are found typically on slopes steeper than 15%. Neither in-county landfill is over or adjacent to Holocene faults, localized subsidence areas, or geologic features that would compromise the integrity of the facilities.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed.
Indicate source of fill.

Over the next 20 years, the Ephrata Landfill will receive approximately 1.7 to 2.5 million tons of solid waste, depending on the rate of recycling and population growth. The County Public Works Department will close the old, unlined cell at the Ephrata Landfill within the next year. The Delano Landfill will receive waste until it closes sometime next year.

Closure activities at both landfills will include grading the final surfaces and constructing a final cover of soil and geosynthetics. Material sources will be identified at the time of construction, based on availability and cost. Specifics will be addressed in a project specific environmental review, as appropriate.

The County and other entities may implement recommendation that could result in construction of new or expansion of existing facilities. These activities could involve filling and grading, depending on the specific facility design.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

If facilities built or expanded, wind and surface water could erode soil exposed during construction. Erosion control measures will be implemented in accordance with project specific temporary and permanent erosion and sediment control requirements, as applicable.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Implementation of some recommendations in the Plan may add impervious surfaces related to access roads and structures. The amount and type of impervious surface will depend on the project specific design details and will be identified during design.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Facility construction, design, and operation will incorporate best management practices defined in state and local regulations to control erosion and sediment mobilization. Operation plans for existing facilities include drainage plans to control surface water runoff and prevent contact with potential contaminants.

a. **Air**

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

The existing landfills emit landfill gas generated by decomposing waste and can create dust when placing soil cover and conducting other earthwork activities. If implemented, some recommendations in the Plan could generate dust, vehicle emissions, and odors during facility modification or construction and operation, depending on the design and purpose of the facility.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

Offsite sources of emissions should not affect the recommendations in the Plan.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

Measures will be implemented, as appropriate, to reduce or control emissions or other air quality impacts ir order to meet federal, state, and local regulatory requirements.

3. **Water**

a. Surface:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

The Delano Landfill is near Banks Lake. Neva Lake is north of the Ephrata Landfill. Several lakes exist in the coulees in Grant County, such as Potholes Reservoir, Soap Lake, Lake Lenore, etc. Crab Creek is a major drainage and flows into the Columbia River. Canals and wasteways serve irrigated croplands of the Columbia Basin Project.

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

Implementation of Plan recommendations is not expected to involve work over or in surface water bodies. Specific actions may possibly occur within 200 feet of surface water bodies. Such activities will be subject to a project-level environmental review to evaluate potential impacts before implementation.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

Implementation of Plan recommendations is not expected to include placement or removal of fill in surface water bodies or wetlands.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

Implementation of Plan recommendations is not expected to involve surface water withdrawals or diversions

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

Implementation of Plan recommendations is not expected to involve activities within a 100-year floodplain.

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

Implementation of Plan recommendations is not expected to discharge waste materials to surface waters.

b. Ground:

1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

Minor amounts of groundwater are withdrawn periodically from groundwater monitoring wells for environmental testing purposes at the landfills. Because of the arid climate, the landfills produce minor amounts of leachate that can potentially discharge to groundwater. New facilities or facility expansions will be designed to minimize discharges to groundwater and comply with federal, state, and local regulatory requirements.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals... ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

Implementation of Plan recommendations could result in new or expanded facilities. New or expanded facilities, if constructed, may have septic systems, depending on the purpose of the facility. If septic systems are needed, these will be designed to meet regulatory requirements, and will be addressed in a project-level environmental review.

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

The operation plans for the existing landfills contain surface water control measures that comply with current regulatory standards. Construction of new facilities may create impervious surfaces that could increase discharges of surface water runoff. If appropriate, stormwater detention , treatment or mitigation will be proposed consistent with stormwater management regulations.

2) Could waste materials enter ground or surface waters? If so, generally describe.

Leachate from the landfills can potentially enter groundwater or surface water bodies. The landfills have monitoring systems in place to detect leachate impacts in groundwater, and will comply with assessment and remediation regulations to appropriately mitigate impacts, if these occur. Leachate migration from the old cell at the Ephrata Landfill has been detected. The County is evaluating the extent and need for corrective action.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

Existing and new facilities will implement appropriate measures that comply with federal, state and local regulations for reducing or controlling surface water, groundwater, and runoff water impacts. Specific measures will be addressed for each proposed action, as appropriate.

4. **Plants**

a. Check or circle types of vegetation found on the site:

——— deciduous tree: alder, maple, aspen, other

——— evergreen tree: fir, cedar, pine, other

——— shrubs

——— grass

——— pasture

——— crop or grain

——— wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other

——— water plants: water lily, eelgrass, milfoil, other

——— other types of vegetation

Grasses are present at the landfills. If constructed, new facilities will be located using project-specific site selection processes. The type of vegetation depends on specific site conditions, and will be identified during the site selection process and environmental review, as appropriate.

b. What kind and amount of vegetation will be removed or altered?

Vegetation will be removed or altered if facilities are expanded or new ones built as a result of Plan recommendations. The type and amount of vegetation removed or altered will be assessed during environmental reviews for new facilities or facility expansions.

c. List threatened or endangered species known to be on or near the site.

Threatened or endangered species are not known to exist at the landfill or drop box sites. The potential presence of threatened or endangered species will be assessed during environmental reviews for new facilities or facility expansions that may be built as a result of Plan recommendations.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

At the existing landfills, final covers placed over completed waste cells will be seeded with native vegetation. The County has also planted poplars to help create windbreaks around the landfill. Plans for new or expanded facilities will incorporate appropriate landscaping or other measures to preserve or enhance vegetation on site.

5. **Animals**

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

birds: hawk, heron, eagle, songbirds, other: _____
mammals: deer, bear, elk, beaver, other: _____
fish: bass, salmon, trout, herring, shellfish, other: _____

Facilities may be constructed or expanded at sites not selected yet as a result of implementing Plan recommendations. Site-specific information on animals will be addressed in project-specific environmental reviews, as appropriate.

b. List any threatened or endangered species known to be on or near the site.

Threatened or endangered species are not known to exist at the landfill or drop box sites. The potential presence of threatened or endangered species will be assessed during environmental reviews for new facilities or facility expansions that may be built as a result of Plan recommendations.

c. Is the site part of a migration route? If so, explain.

Wildlife migration routes exist across the County. The specific location of facilities constructed or expanded as a result of implementing Plan recommendations will be assessed relative to migratory routes during project-specific reviews.

d. Proposed measures to preserve or enhance wildlife, if any:

If facilities are expanded or built as a result of Plan recommendations, appropriate measures will be implemented on a project and site specific basis to preserve or enhance wildlife.

6. **Energy and natural resources**

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Petroleum fuels will be used in transporting and placing solid waste, implementing earthwork activities at the landfill, and transporting recyclable materials. If facilities are built or expanded as a result of Plan recommendations, they may require electricity for power and lighting, petroleum fuels for operation, and natural gas, electricity or oil for heating. Specific energy needs will be assessed during facility design and as part of the environmental review, as appropriate.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

Implementation of Plan recommendations is not expected to affect the use of solar energy in Grant County.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

The Plan recommends waste reduction and recycling programs to divert materials from the solid waste stream and reduce waste generation. These programs may also reduce energy used for manufacturing items that are recyclable, transportation of waste to landfills, and equipment operation at the landfill. These energy savings will be at least partially offset by energy used to transport and remanufacture recyclable items.

7. **Environmental Health**

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

Plan recommendations include improvements to the solid waste management system that will decrease potential environmental health risks related to handling and disposing solid waste. New or expanded facilities will be designed to comply with applicable regulatory requirements and minimize potential exposure to toxic chemicals, risk of fire or explosion, spills or exposure to hazardous waste.

1) Describe special emergency services that might be required.

Fire protection and ambulance services may be needed.

2) Proposed measures to reduce or control environmental health hazards, if any:

The risks described above can be minimized by careful control of the types of wastes disposed at the landfills and careful management of on-site materials used in site operations. Hazardous or explosive materials will not knowingly be accepted for disposal at the landfills or drop box sites. Site operators have waste screening programs and emergency

response procedures in place that are designed to reduce or control environmental health hazards at these facilities.

b. **Noise**

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

Areas in Grant County do not have types of noises expected to affect implementation of Plan recommendations.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Equipment operations create noise at the landfills and drop box sites during operating hours. Current operating hours are listed in Chapters 7 and 9 of the Plan.

Construction of new or expanded facilities may result in temporary increases in noise from operating equipment during construction and long-term noise related to traffic and site operations. These noise impacts are expected to be generally confined to daylight hours during construction and operations, and will be assessed on a project-specific basis.

3) Proposed measures to reduce or control noise impacts, if any:
Existing facilities are primarily in rural or low-density population areas. New or expanded facilities will likely be situated in similar areas. As a result, potential increases in noise from new or expanded facilities are expected to have little impact on surrounding areas.

8. **Land and shoreline use**

a. What is the current use of the site and adjacent properties?

Grant County has two active landfills and 12 drop box sites for solid waste which are generally adjacent to rural rangeland or undeveloped property. Some sites are near incorporated cities. In the County, dominant land uses include agricultural, rangeland, and recreational. Other land uses include institutional, commercial and industrial.

b. Has the site been used for agriculture? If so, describe.

New facilities or facility expansions could potentially occur in or near rangeland and croplands. The potential impacts of these activities on adjacent properties will be assessed during environmental review and the site selection process, as appropriate.

c. Describe any structures on the site.

The landfills have gatehouses, equipment sheds and similar small structures. The drop box sites have small gatehouses. Structures for future facilities are not known at this time and will be identified on a project specific basis during site selection and design.

d. Will any structures be demolished? If so, what?

No structures are planned for demolition at this time. New facilities or facility expansions, if built, could potentially involve demolition of existing structure. Demolition needs will be identified on a project specific basis during site selection and design.

e. What is the current zoning classification of the site?

The landfills and drop box sites are zoned agricultural but have conditional use permits. Zoning for future facilities will be identified during site selection.

f. What is the current comprehensive plan designation of the site?

The current comprehensive plan identifies the landfills and drop box sites for these uses. Other site-specific designations are not identified because the Plan does not specifically recommend locations or types of new facilities.

g. If applicable, what is the current shoreline master program designation of the site?

Not applicable.

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

The landfills and drop boxes are not in classified environmentally sensitive areas. Land classification for future facilities, if built, will be identified during site selection.

i. Approximately how many people would reside or work in the completed project?

People do not, and will not reside, in facilities associated with solid waste management. The existing facilities employ workers to operate the landfills, drop box sites, and programs.

j. Approximately how many people would the completed project displace?

Implementation of Plan recommendations is not expected to displace people.

k. Proposed measures to avoid or reduce displacement impacts, if any:

Does not apply.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

Jurisdictional agencies will review project proposals for new facilities or facility expansions that may be built as a result of Plan recommendation. These reviews will include assessing the compatibility of proposed projects with existing and projected land uses and plans, if any.

9. **Housing**

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

Does not apply.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

Does not apply.

c. Proposed measures to reduce or control housing impacts, if any:

Does not apply.

10. **Aesthetics**

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

Design details will be established when facilities are actually proposed as part of Plan implementation.

b. What views in the immediate vicinity would be altered or obstructed?

Potential impacts to views will be evaluated when new facilities are proposed or existing ones expanded as a result o Plan implementation.

c. Proposed measures to reduce or control aesthetic impacts, if any:

Designs for new or expanded facilities will incorporate appropriate measures to reduce or control aesthetic impacts.

11. **Light and glare**

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

Outdoor lights, if used at the existing facilities or as part of proposed facilities, could produce light at night.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

Light or glare from a finished project would be controlled to avoid a safety hazard or unreasonable interference with views. These considerations would be incorporated into designs for new or expanded facilities that may be built as part of Plan implementation.

c. What existing off-site sources of light or glare may affect your proposal?

Offsite sources of light or glare will not affect this proposal.

d. Proposed measures to reduce or control light and glare impacts, if any:

Measures will be proposed, if appropriate, on a project-specific basis to reduce or control light and glare impacts, if any.

12. **Recreation**

a. What designated and informal recreational opportunities are in the immediate vicinity?

This proposal will not affect designated and informal recreational opportunities within the planning area.

b. Would the proposed project displace any existing recreational uses? If so, describe.

Does not apply.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

Does not apply.

13. **Historic and cultural preservation**

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

Places or objects listed on, or proposed for, national, state, or local preservation registers are not known to be on or next to existing facilities. If new facilities are proposed, national, state and local preservation registers will be checked for proposed or listed places or objects during site selection and environmental review.

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

Landmarks or evidence of historic, archaeological, scientific, or cultural importance are not known to be on or next existing facilities, but do exist in Grant County. If new facilities are proposed, information on landmarks or evidence of historic, archaeological, scientific, or cultural importance will be reviewed during site selection and environmental review.

c. Proposed measures to reduce or control impacts, if any:
Measures will be proposed, as appropriate, if new facilities are planned as a result of plan implementation.

14. **Transportation**

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

Figure 2-1 on the Plan shows the major transportation network serving Grant county. Major state highways and county roads provide access to the existing landfills and drop box sites. Any proposed facilities will be located considering transportation access needs.

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

Public transit does not currently serve the landfills, drop box sites, or areas near these facilities.

c. How many parking spaces would the completed project have? How many would the project eliminate?

The Plan recommendations do not change the available parking at the existing facilities. Any new or expanded facilities will be designed to provide adequate parking and comply with zoning requirements.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

The Plan recommendations will not affect road access to the existing facilities. Any new or expanded facilities will be designed with road improvements as necessary in compliance with permitting requirements.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

The Plan recommendations include consideration of waste export if in-county landfills no longer meet the needs of Grant County. If waste export is implemented, this option could involve the use of rail to transport solid waste to an out-of-county landfill.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

If built, new or expanded facilities could potentially affect the number of vehicle trips per day. Peak volumes and vehicle trip estimates will be generated on a project specific-basis during the permitting process.

g. Proposed measures to reduce or control transportation impacts, if any:

If built, new or expanded facilities could potentially require improvements to road. The need for measures to reduce or control transportation impacts will be evaluated and proposed, as appropriate, on a project-specific basis during the permitting process.

15. **Public services**

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

The Plan recommends increasing enforcement staff to adequately address unlawful solid waste disposal, which would increase public service.

b. Proposed measures to reduce or control direct impacts on public services, if any.

Implementation of Plan recommendations are not expected to adversely affect public services. Therefore, measures are not proposed to reduce or control direct impacts on public services.

16. **Utilities**

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.

Electricity, water, telephone, and septic system are not available at most of drop box sites. Instead site staff at most sites have access to portable chemical toilets and use cell phones for communications. Refuse service is available at the drop box sites and landfill. Electricity, water, telephone and septic systems are available at the landfill.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

If built, new or expanded facilities may require utilities. Utility requirements and associated purveyors will be defined on a project-specific basis during the permitting process.

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: .....

Date Submitted: .....

D. SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS

(do not use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

Plan recommendations should decrease discharges to water; emissions to air; production, storage, or release of toxic or hazardous substances by promoting proper management of solid waste. If built, new or expanded facilities will be designed to meet regulatory requirements for waste quality, air emissions, and hazardous waste management. Construction and operation of new or expanded facilities may increase noise and air emissions from equipment operations, but these impacts are expected to be within regulatory criteria.

Proposed measures to avoid or reduce such increases are:

If built, new or expanded facility designs will incorporate site- and project-specific mitigation measures, as appropriate.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

Implementation of Plan recommendations should yield benefits to plants, animals, fish and marine life by improving solid waste handling and disposal practice and reducing unlawful disposal.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

The plan does not propose recommendations that will require measures to protect or conserve plants, fish, animals or marine life.

3. How would the proposal be likely to deplete energy or natural resources?

If implemented, some Plan recommendations could require energy for power, heating, and transportation and materials for construction, but will not deplete energy or natural resources.

Proposed measures to protect or conserve energy and natural resources are:

If built, new or expanded facilities will incorporate cost-effective sustainable features in their design to help reduce the need for energy or natural resources. Specific features will be evaluated and selected on a project basis during design.

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

The Plan does not propose recommendations likely to use or affect environmentally sensitive areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmland.

Proposed measures to protect such resources or to avoid or reduce impacts are:

If built, the permitting process will ensure new or expanded facilities avoid or reduce impact.,

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

The Plan recommendations should not affect land and shoreline use, including allowing or encouraging land or shoreline uses incompatible with existing plans

Proposed measures to avoid or reduce shoreline and land use impacts are:

If proposed, new or expanded facilities will comply with applicable regulatory requirements and the County's comprehensive plan regarding shoreline and land use.

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

If built, new or expanded facilities may increase demands on utilities and public services, such as fire protection. Changes to the County's drop box system or implementing waste export could alter vehicle trips and increase rail traffic and reduce demands on public services and utilities.

Proposed measures to reduce or respond to such demand(s) are:

The requirements for transportation, utilities and public services will be defined on a project-specific basis during the permitting process.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

Plan recommendations, if implemented, will comply with federal, state and local requirements for the protecting the environment.

Appendix E

Waste Sorting Categories

Appendix E

Waste Sorting Categories

PAPER

Newspaper: printed groundwood newsprint, including glossy ads and Sunday edition magazines that are delivered with the newspaper (unless these are found separately during sorting).

Cardboard: unwaxed kraft paper corrugated containers and boxes, unless poly- or foil-laminated. Note that this category includes brown kraft paper bags.

Other Groundwood: other products made from groundwood paper, including phone books, paperback books, and egg cartons.

High-Grade Paper: high-grade white or light-colored bond and copy machine papers and envelopes, and continuous-feed computer printouts and forms of all types, except multiple-copy carbonless paper.

Magazines: magazines, catalogs and similar products with glossy paper.

Mixed / Low-Grade Paper: low-grade recyclable papers, including colored papers, notebook or other lined paper, envelopes with plastic windows, non-corrugated paperboard, carbonless copy paper, polycoated paperboard packaging, and junk mail.

Compostable: Paper cups, pizza boxes and papers that can be composted such as paper towels, tissues, paper plates, and waxed cardboard. This category includes all paper that is contaminated or soiled with food or liquid in its normal use.

Residual / Composite Paper: non-recyclable and non-compostable types of papers such as carbon paper and hardcover books, and composite materials such as paper packaging with metal or plastic parts.

Processing Sludges, Other Industrial: paper-based materials from industrial sources that do not easily fit into the above categories, such as sludges.

PLASTIC

PET Bottles: polyethylene terephthalate (PET) bottles, including soda, oil, liquor and other types of bottles. No attempt will be made to remove base cups, caps, or wrappers, although these materials will be categorized separately if received separately. The SPI code for PET is 1.

HDPE Bottles, Clear: high density polyethylene (HDPE) milk and other bottles that are not colored. The SPI code for HDPE is 2.

HDPE Bottles, Pigmented: high density polyethylene (HDPE) juice, detergent, and other bottles that are colored. The SPI code for HDPE is 2.

Film and Bags: all plastic packaging films and bags. To be counted in this category, the material must be flexible (i.e., can be bent without making a noise).

Bottles Types 3 - 7: all bottles that are not PET or HDPE, where the neck of the container is narrower than the body. Includes SPI codes 3 - 7.

Expanded Polystyrene: packaging and finished products made of expanded polystyrene. The SPI code for polystyrene (PS) is 6.

Other Rigid Plastic Packaging: all plastic packaging that is not a bottle and is not film or bag.

Other Plastic Products: finished plastic products such as toys, toothbrushes, vinyl hose and shower curtains. In cases where there is a large amount of a single type of product, the name of the product should be noted on the data collection form.

Residual / Composite Plastic: other types of plastic that do not fit into the above categories and items that are composites of plastic and other materials.

METAL

Aluminum Cans: aluminum beverage cans.

Aluminum Foil / Containers: aluminum foil, food trays and similar items.

Other Aluminum: aluminum scrap and products that do not fit into the above two categories.

Copper: copper scrap and products, excluding composites such as electrical wire.

Other Non-Ferrous Metals: metallic products and pieces that are not aluminum or copper and not derived from iron (see "other ferrous") and which are not significantly contaminated with other metals or materials (see "residual/composite").

Tin Cans: tin-coated steel food containers. This category will include bi-metal beverage cans, but not paint cans or other types of cans.

White Goods: large household appliances or parts thereof. Special note should be taken if any of these are found still containing refrigerant.

Other Ferrous: products and pieces made from metal to which a magnet will adhere (but including stainless steel), and which are not significantly contaminated with other metals or materials (in the latter case, the item will instead be included under "residual/composite"). This category will include paint and other non-food "tin cans", as well as aerosol cans.

Residual / Composite Metal: items made of a mixture of ferrous and non-ferrous or a mixture of metal and non-metallic materials (as long as these are primarily metal). Examples include small appliances, motors, and insulated wire.

GLASS

Clear, Green and Brown Beverage Glass: these are three separate categories for bottles and jars that are clear, green or brown in color. Note that blue glass will be included with brown glass.

Other Glass Containers; Clear, Green and Brown: these are three separate categories for bottles and jars that are clear, green or brown in color. Note that blue glass will be included with brown glass.

Plate Glass: flat glass products such as windows, mirrors, and flat products.

Residual / Composite Glass: other types of glass products and scrap that do not fit into the above categories, including light bulbs, glassware and non-C&D fiberglass. Note that ceramics (plates and knickknacks) will not be included here but will be placed in "Non-Glass Ceramics" below.

Non-glass Ceramics: Ceramics not composed of true glass and not typically used as building materials. Examples include Pyrex, dishes, etc.

ORGANICS

Yard, Garden and Prunings: grass clippings, leaves and weeds, and prunings six inches or less in diameter.

Food Waste: food waste and scraps, including bones, rinds, etc., and including the food container when the container weight is not appreciable compared to the food inside.

Manures: animal manures and human feces, including kitty litter and any materials contaminated with manures and feces.

Disposable Diapers: disposable baby diapers and protective undergarments for adults (including feminine hygiene products).

Carcasses, Offal: carcasses and pieces of small and large animal, unless the item is the result of food preparation in a household or commercial setting. For instance, fish or chicken entrails from food preparation and raw, plucked chickens will typically be classified as food, not as an animal carcass, unless the material is from an agricultural or industrial source.

Crop Residues: vegetative materials that are left over from growing crops, and that are treated as a waste.

Septage: the liquid or semi-liquid material removed from septic tanks.

Residual / Composite: other organics that do not easily fit into the above categories, must note identity of whatever material is placed in this category.

WOOD WASTES

Natural Wood: wood that is not been processed, including stumps of trees and shrubs, with the adhering soil (if any), and other natural woods, such as logs and branches in excess of six inches in diameter.

Treated Wood: wood treated with preservatives such as creosote, CCA and ACQ. This includes dimensional lumber and posts if treated, but does not include painted or varnished wood. This category may also include some plywood (especially "marine plywood"), strandboard, and other wood.

Painted Wood: wood that has been painted, varnished or coated in similar ways.

Dimensional Lumber: wood commonly used in construction for framing and related uses, including 2 x 4's, 2 x 6's and posts/headers (4x8's, etc.).

Engineered: building materials that have been manufactured and that generally include adhesive as one or more layers. Examples include plywood (sheets of wood built up of two or more veneer sheets glued or cemented together under pressure), particle board (wood chips pressed together to form large sheets or boards), fiberboard (like particle board but with fibers), "glu-lam" beams and boards (built up from dimensional or smaller lumber), and similar products.

Packaging: partial or whole pallets, crates and similar shipping containers.

Other Untreated Wood: other types of wood products and materials that do not fit into the above categories, excluding composite materials (See Residual / Composites, below).

Wood Byproducts: sawdust and shavings, not otherwise identifiable.

Residuals/ Composites: items that consist primarily of wood but that do not fit into the above categories, including composite materials that consist primarily (over 50%) of wood. Examples of composites include wood with sheetrock nailed to it or with tiles glued to it (such that the materials cannot be easily separated)

CONSTRUCTION, DEMOLITION AND LAND CLEARING (CDL) WASTES

Insulation: Include all *pad, roll,* or *blown-in* types of insulation. Do not include expanded polystyrene.

Asphalt: asphalt paving material.

Concrete: cement (mixed or unmixed), concrete blocks, and similar wastes.

Drywall: used or new gypsum wallboard, sheetrock or drywall present in recoverable amounts or pieces (generally any piece larger than two inches square will be recovered from the sample).

Soil, Rocks and Sand: rock, gravel, soil, sand and similar naturally-occurring materials.

Roofing Waste: asphalt and fiberglass shingles, tar paper, and similar wastes from demolition or installation of roofs. Does not include wooden shingle or shakes.

Ceramics: includes clay, porcelain bricks and tiles, such as used toilets, sinks and bricks of various types and sizes.

Residual / Composites: other construction and demolition materials that do not fit easily into the above categories or that are composites made up of two or more different materials.

HAZARDOUS AND SPECIAL WASTES

Used Oil: used or new lubricating oils and related products, primarily those used in cars but possibly also including other materials with similar characteristics.

Oil Filters: used oil filters, primarily those used in cars but possibly including similar filters from other types of vehicles and other applications.

Antifreeze: automobile and other antifreeze mixtures based on ethylene or propylene glycol, also brake and other fluids if based on these compounds.

Auto Batteries: car, motorcycle, and other lead-acid batteries used for motorized vehicles.

Household Batteries: batteries of various sizes and types, as commonly used in households.

Pesticides and Herbicides: includes a variety of poisons whose purpose is to discourage or kill pests, weeds or microorganisms. Fungicides and wood preservatives, such as pentachlorophenol, are also included in this category.

Latex Paint: water-based paints.

Oil Paint: solvent-based paints.

Medical Waste: wastes related to medical activities, including syringes, IV tubing, bandages, medications, and other wastes, and not restricted to just those wastes typically classified as pathogenic or infectious.

Fluorescent Tubes: in addition to the typical fluorescent tubes (including fluorescent light bulbs and other forms), this category includes mercury vapor and other lamps listed as universal wastes.

Asbestos: pure asbestos, and asbestos-containing products where the asbestos present is the most distinguishing characteristic of the material.

Other Hazardous Waste: problem wastes that do not fall into one of the above categories, such as gasoline, solvents, gunpowder, other unspent ammunition, fertilizers, and radioactive materials.

Other Non-Hazardous Waste: problem wastes that do not fall into one of the above categories, but that are not hazardous, such as adhesives, weak acids and bases (cleaners), automotive products (car wax, etc.)

CONSUMER PRODUCTS

Computers: computers and parts of computers, including monitors, base units, keyboards, other accessories and laptops.

Other Electronics: other appliances and products that contain circuit boards and other electronic components (as a significant portion of the product), such as televisions, microwave ovens and similar products.

Textiles, Synthetic: cloth, clothing, and rope made of synthetic materials.

Textiles, Organic: cloth, clothing, and rope made of 100% cotton, leather, wool or other naturally-occurring fibers. Composites of several different naturally-occurring fibers (such as a wool jacket with a cotton liner) can be included in this category, but not if the item has zippers or buttons made from a different material. The working guideline for this category should whether the item could be composted without leaving an identifiable residue or part.

Textiles, Mixed or Unknown: cloth, clothing, and rope made of unknown fibers or made from a mixture of synthetic and natural materials, or containing non-textile parts such as metal zippers or plastic buttons.

Shoes: all shoes and boots, whether made of leather, rubber, other materials, or a combination thereof.

Tires and Other Rubber: vehicle tires of all types, including bicycle tires and including the rims if present, and finished products and scrap materials made of rubber, such as bath mats, inner tubes, rubber hose and foam rubber (except carpet padding, see below).

Furniture and Mattresses: furniture and mattresses made of various materials and in any condition.

Carpet: pieces of carpet and rugs made of similar material.

Carpet Padding: foam rubber and other materials used as padding under carpets.

Rejected Products: for industrial samples only, various products that failed internal QA/QC tests.

Returned Products: for industrial samples only, various products that were returned by the consumer who purchased the item.

Other Composite: This is a catch-all category for objects consisting of more than one material.

RESIDUALS

Ash: fireplace, burn barrel or firepit ash, as well as boiler and ash from industrial sources.

Dust: baghouse and other dusts from industrial sources, as well as bags of vacuum cleaner dust.

Fines / Sorting Residues: mixed waste that remains on the sorting table after all the materials that can practicably be removed have been sorted out. This material will consist primarily of small pieces of various types of paper and plastic, but will also contain small pieces of broken glass and other materials. May also include material less than one-half inch in diameter that falls through a bottom screen during sorting, for those using sorting boxes with screens, and if the material cannot otherwise be identified.

Sludges and Other Special Industrial Wastes: sludges and other wastes from industrial sources that cannot easily be fit into any of the above categories. Can include liquids and semi-solids but only if these materials are treated as a solid waste.

Appendix F

Detailed Waste Data

Appendix F

Detailed Waste Data

The following tables contain the detailed waste composition estimates for Grant County's overall waste stream and its three waste substreams: residential, commercial/industrial and self-haul. Tonnages, mean percentages and error ranges are provided for all 91 waste categories.

Table F-1
Detailed Waste Composition, Overall

Calculated at a 90% confidence interval

	Tons	Mean	Low	High
Paper	**13,288**	**17.6%**		
Newspaper	1,076	1.4%	1.0%	1.8%
Cardboard	2,971	3.9%	3.1%	4.8%
Other Groundwood Paper	698	0.9%	0.3%	1.6%
High-grade Paper	774	1.0%	0.6%	1.4%
Magazines	435	0.6%	0.3%	0.9%
Mixed/Low-grade Paper	3,118	4.1%	3.3%	4.9%
Compostable Paper	3,021	4.0%	3.3%	4.7%
Remainder/Composite Paper	1,089	1.4%	0.8%	2.1%
Process Sludge/Other Industrial	107	0.1%	0.0%	0.2%
Plastic	**9,375**	**12.4%**		
PET Bottles	527	0.7%	0.6%	0.8%
HDPE Bottles, Clear	383	0.5%	0.3%	0.8%
HDPE Bottles, Colored	246	0.3%	0.1%	0.5%
Plastic Film and Bags	3,632	4.8%	3.9%	5.7%
Plastic Bottles Types 3 - 7	31	0.0%	0.0%	0.1%
Expanded Polystyrene	208	0.3%	0.2%	0.3%
Other Rigid Plastic Packaging	550	0.7%	0.6%	0.9%
Other Plastic Products	1,561	2.1%	1.2%	3.0%
Remainder/Composite Plastic	2,236	3.0%	1.4%	4.6%
Glass	**1,740**	**2.3%**		
Clear Glass Beverage	355	0.5%	0.3%	0.6%
Green Glass Beverage	70	0.1%	0.0%	0.1%
Brown Glass Beverage	533	0.7%	0.5%	0.9%
Clear Glass Container	243	0.3%	0.2%	0.5%
Green Glass Container	3	0.0%	0.0%	0.0%
Brown Glass Container	3	0.0%	0.0%	0.0%
Plate Glass	233	0.3%	0.0%	0.7%
Remainder/Composite Glass	292	0.4%	0.0%	0.8%
Non-glass Ceramics	10	0.0%	0.0%	0.0%
Metal	**9,485**	**12.6%**		
Aluminum Cans	387	0.5%	0.4%	0.6%
Aluminum Foil/Containers	62	0.1%	0.1%	0.1%
Other Aluminum	224	0.3%	0.0%	0.6%
Copper	1	0.0%	0.0%	0.0%
Other Non-ferrous Metals	84	0.1%	0.0%	0.2%
Tin Cans	567	0.8%	0.6%	0.9%
White Goods	0	0.0%	0.0%	0.0%
Other Ferrous Metals	3,521	4.7%	2.1%	7.3%
Remainder/Composite Metals	4,639	6.1%	2.5%	9.8%
Organics	**22,582**	**29.9%**		
Yard Garden and Prunings	4,870	6.5%	3.2%	9.7%
Food Waste	14,994	19.9%	16.7%	23.0%
Manures	304	0.4%	0.0%	0.9%
Disposable Diapers	1,999	2.6%	1.9%	3.4%
Carcasses, Offal	0	0.0%	0.0%	0.0%
Crop Residues	262	0.3%	0.0%	0.9%
Septage	0	0.0%	0.0%	0.0%
Remainder/Composite Organics	152	0.2%	0.1%	0.3%
Total Tons	**75,451**			
Sample Count	**62**			

	Tons	Mean	Low	High
Wood Wastes	**7,897**	**10.5%**		
Natural Wood	179	0.2%	0.0%	0.6%
Treated Wood	357	0.5%	0.0%	1.0%
Painted Wood	802	1.1%	0.3%	1.8%
Dimensional Lumber	3,245	4.3%	1.8%	6.8%
Engineered Wood	1,171	1.6%	0.1%	3.0%
Wood Packaging	1,515	2.0%	0.4%	3.7%
Other Untreated Wood	90	0.1%	0.0%	0.3%
Wood Byproducts	0	0.0%	0.0%	0.0%
Remainder/Composite Wood	537	0.7%	0.1%	1.3%
Consumer Products	**5,946**	**7.9%**		
Computers	271	0.4%	0.0%	0.8%
Other Electronics	119	0.2%	0.0%	0.3%
Textiles, Synthetic	231	0.3%	0.1%	0.5%
Textiles, Organic	645	0.9%	0.6%	1.1%
Textiles, Mixed/Unknown	449	0.6%	0.3%	0.8%
Shoes	172	0.2%	0.1%	0.3%
Tires and Other Rubber	1,634	2.2%	0.6%	3.8%
Furniture and Mattresses	1,227	1.6%	0.3%	3.0%
Carpet	1,165	1.5%	0.6%	2.5%
Carpet Padding	0	0.0%	0.0%	0.0%
Rejected Products	0	0.0%	0.0%	0.0%
Returned Products	0	0.0%	0.0%	0.0%
Other Composite Consumer Products	32	0.0%	0.0%	0.1%
CDL Wastes	**4,416**	**5.9%**		
Insulation	17	0.0%	0.0%	0.1%
Asphalt	0	0.0%	0.0%	0.0%
Concrete	327	0.4%	0.0%	1.0%
Drywall	2,209	2.9%	0.2%	5.7%
Soil, Rocks and Sand	1,257	1.7%	0.7%	2.7%
Roofing Waste	4	0.0%	0.0%	0.0%
Ceramics	43	0.1%	0.0%	0.1%
Remainder/Composite CDL	559	0.7%	0.0%	1.6%
Haz and Special Wastes	**232**	**0.3%**		
Used Oil	31	0.0%	0.0%	0.1%
Oil Filters	22	0.0%	0.0%	0.1%
Antifreeze	0	0.0%	0.0%	0.0%
Auto Batteries	53	0.1%	0.0%	0.2%
Household Batteries	10	0.0%	0.0%	0.0%
Pesticides and Herbicides	11	0.0%	0.0%	0.0%
Latex Paint	79	0.1%	0.0%	0.3%
Oil Paint	5	0.0%	0.0%	0.0%
Medical Waste	14	0.0%	0.0%	0.0%
Fluorescent Tubes	0	0.0%	0.0%	0.0%
Asbestos	0	0.0%	0.0%	0.0%
Other Hazardous Waste	0	0.0%	0.0%	0.0%
Other Non-hazardous Waste	6	0.0%	0.0%	0.0%
Residuals	**491**	**0.7%**		
Ash	0	0.0%	0.0%	0.0%
Dust	21	0.0%	0.0%	0.1%
Fines/Sorting Residues	470	0.6%	0.3%	0.9%
Sludge and Other Industrial	0	0.0%	0.0%	0.0%

Table F-2
Detailed Waste Composition, Commercial/Industrial

Calculated at a 90% confidence interval

	Tons	Mean	Low	High
Paper	**6,818**	**22.1%**		
Newspaper	472	1.5%	1.1%	2.0%
Cardboard	1,886	6.1%	4.3%	7.9%
Other Groundwood Paper	188	0.6%	0.4%	0.8%
High-grade Paper	474	1.5%	0.7%	2.4%
Magazines	202	0.7%	0.1%	1.2%
Mixed/Low-grade Paper	1,154	3.7%	2.3%	5.1%
Compostable Paper	1,582	5.1%	3.6%	6.7%
Remainder/Composite Paper	803	2.6%	1.1%	4.1%
Process Sludge/Other Industrial	57	0.2%	0.0%	0.4%
Plastic	**5,116**	**16.6%**		
PET Bottles	172	0.6%	0.4%	0.7%
HDPE Bottles, Clear	191	0.6%	0.0%	1.2%
HDPE Bottles, Colored	42	0.1%	0.1%	0.2%
Plastic Film and Bags	2,235	7.2%	5.3%	9.2%
Plastic Bottles Types 3 - 7	8	0.0%	0.0%	0.0%
Expanded Polystyrene	96	0.3%	0.2%	0.4%
Other Rigid Plastic Packaging	249	0.8%	0.5%	1.2%
Other Plastic Products	672	2.2%	1.3%	3.1%
Remainder/Composite Plastic	1,451	4.7%	1.0%	8.4%
Glass	**801**	**2.6%**		
Clear Glass Beverage	182	0.6%	0.3%	0.9%
Green Glass Beverage	17	0.1%	0.0%	0.1%
Brown Glass Beverage	225	0.7%	0.3%	1.1%
Clear Glass Container	79	0.3%	0.1%	0.4%
Green Glass Container	0	0.0%	0.0%	0.0%
Brown Glass Container	0	0.0%	0.0%	0.0%
Plate Glass	228	0.7%	0.0%	1.8%
Remainder/Composite Glass	60	0.2%	0.0%	0.4%
Non-glass Ceramics	9	0.0%	0.0%	0.1%
Metal	**3,581**	**11.6%**		
Aluminum Cans	113	0.4%	0.2%	0.5%
Aluminum Foil/Containers	33	0.1%	0.1%	0.2%
Other Aluminum	39	0.1%	0.0%	0.3%
Copper	1	0.0%	0.0%	0.0%
Other Non-ferrous Metals	27	0.1%	0.0%	0.2%
Tin Cans	135	0.4%	0.3%	0.6%
White Goods	0	0.0%	0.0%	0.0%
Other Ferrous Metals	1,368	4.4%	1.6%	7.3%
Remainder/Composite Metals	1,866	6.0%	2.2%	9.9%
Organics	**6,938**	**22.5%**		
Yard Garden and Prunings	602	1.9%	0.8%	3.1%
Food Waste	5,788	18.7%	12.4%	25.1%
Manures	35	0.1%	0.0%	0.2%
Disposable Diapers	230	0.7%	0.3%	1.2%
Carcasses, Offal	0	0.0%	0.0%	0.0%
Crop Residues	262	0.8%	0.0%	2.2%
Septage	0	0.0%	0.0%	0.0%
Remainder/Composite Organics	22	0.1%	0.0%	0.1%
Total Tons	**30,881**			
Sample Count	**36**			

	Tons	Mean	Low	High
Wood Wastes	**2,503**	**8.1%**		
Natural Wood	0	0.0%	0.0%	0.0%
Treated Wood	276	0.9%	0.0%	2.1%
Painted Wood	306	1.0%	0.0%	2.2%
Dimensional Lumber	671	2.2%	0.5%	3.8%
Engineered Wood	91	0.3%	0.0%	0.6%
Wood Packaging	849	2.7%	0.9%	4.6%
Other Untreated Wood	83	0.3%	0.0%	0.7%
Wood Byproducts	0	0.0%	0.0%	0.0%
Remainder/Composite Wood	227	0.7%	0.0%	1.5%
Consumer Products	**2,877**	**9.3%**		
Computers	185	0.6%	0.0%	1.6%
Other Electronics	90	0.3%	0.0%	0.7%
Textiles, Synthetic	49	0.2%	0.1%	0.2%
Textiles, Organic	248	0.8%	0.5%	1.1%
Textiles, Mixed/Unknown	237	0.8%	0.3%	1.3%
Shoes	58	0.2%	0.0%	0.3%
Tires and Other Rubber	1,184	3.8%	0.1%	7.6%
Furniture and Mattresses	368	1.2%	0.5%	1.9%
Carpet	426	1.4%	0.0%	2.8%
Carpet Padding	0	0.0%	0.0%	0.0%
Rejected Products	0	0.0%	0.0%	0.0%
Returned Products	0	0.0%	0.0%	0.0%
Other Composite Consumer Products	32	0.1%	0.0%	0.3%
CDL Wastes	**1,854**	**6.0%**		
Insulation	16	0.1%	0.0%	0.1%
Asphalt	0	0.0%	0.0%	0.0%
Concrete	56	0.2%	0.0%	0.4%
Drywall	1,085	3.5%	0.0%	7.2%
Soil, Rocks and Sand	321	1.0%	0.0%	2.1%
Roofing Waste	0	0.0%	0.0%	0.0%
Ceramics	37	0.1%	0.0%	0.3%
Remainder/Composite CDL	338	1.1%	0.0%	2.9%
Haz and Special Wastes	**188**	**0.6%**		
Used Oil	6	0.0%	0.0%	0.0%
Oil Filters	22	0.1%	0.0%	0.2%
Antifreeze	0	0.0%	0.0%	0.0%
Auto Batteries	53	0.2%	0.0%	0.5%
Household Batteries	7	0.0%	0.0%	0.0%
Pesticides and Herbicides	0	0.0%	0.0%	0.0%
Latex Paint	79	0.3%	0.0%	0.7%
Oil Paint	5	0.0%	0.0%	0.0%
Medical Waste	11	0.0%	0.0%	0.1%
Fluorescent Tubes	0	0.0%	0.0%	0.0%
Asbestos	0	0.0%	0.0%	0.0%
Other Hazardous Waste	0	0.0%	0.0%	0.0%
Other Non-hazardous Waste	5	0.0%	0.0%	0.0%
Residuals	**205**	**0.7%**		
Ash	0	0.0%	0.0%	0.0%
Dust	0	0.0%	0.0%	0.0%
Fines/Sorting Residues	205	0.7%	0.3%	1.0%
Sludge and Other Industrial	0	0.0%	0.0%	0.0%

Table F-3
Detailed Waste Composition, Residential

Calculated at a 90% confidence interval

	Tons	Mean	Low	High
Paper	**5,822**	**21.5%**		
Newspaper	599	2.2%	1.2%	3.2%
Cardboard	889	3.3%	2.3%	4.2%
Other Groundwood Paper	507	1.9%	0.1%	3.6%
High-grade Paper	282	1.0%	0.4%	1.6%
Magazines	229	0.8%	0.3%	1.4%
Mixed/Low-grade Paper	1,633	6.0%	4.9%	7.2%
Compostable Paper	1,420	5.2%	4.4%	6.1%
Remainder/Composite Paper	215	0.8%	0.4%	1.2%
Process Sludge/Other Industrial	49	0.2%	0.0%	0.4%
Plastic	**2,953**	**10.9%**		
PET Bottles	344	1.3%	1.1%	1.4%
HDPE Bottles, Clear	190	0.7%	0.6%	0.8%
HDPE Bottles, Colored	197	0.7%	0.2%	1.3%
Plastic Film and Bags	1,274	4.7%	3.6%	5.8%
Plastic Bottles Types 3 - 7	23	0.1%	0.0%	0.1%
Expanded Polystyrene	105	0.4%	0.3%	0.5%
Other Rigid Plastic Packaging	293	1.1%	0.8%	1.3%
Other Plastic Products	168	0.6%	0.5%	0.8%
Remainder/Composite Plastic	359	1.3%	0.7%	2.0%
Glass	**880**	**3.2%**		
Clear Glass Beverage	173	0.6%	0.4%	0.9%
Green Glass Beverage	53	0.2%	0.1%	0.3%
Brown Glass Beverage	308	1.1%	0.7%	1.6%
Clear Glass Container	126	0.5%	0.1%	0.8%
Green Glass Container	0	0.0%	0.0%	0.0%
Brown Glass Container	3	0.0%	0.0%	0.0%
Plate Glass	0	0.0%	0.0%	0.0%
Remainder/Composite Glass	218	0.8%	0.0%	2.0%
Non-glass Ceramics	1	0.0%	0.0%	0.0%
Metal	**1,586**	**5.8%**		
Aluminum Cans	259	1.0%	0.8%	1.1%
Aluminum Foil/Containers	29	0.1%	0.1%	0.2%
Other Aluminum	0	0.0%	0.0%	0.0%
Copper	0	0.0%	0.0%	0.0%
Other Non-ferrous Metals	4	0.0%	0.0%	0.0%
Tin Cans	412	1.5%	1.1%	1.9%
White Goods	0	0.0%	0.0%	0.0%
Other Ferrous Metals	424	1.6%	0.5%	2.6%
Remainder/Composite Metals	458	1.7%	0.0%	3.5%
Organics	**12,976**	**47.9%**		
Yard Garden and Prunings	2,492	9.2%	4.7%	13.7%
Food Waste	8,372	30.9%	26.8%	35.0%
Manures	269	1.0%	0.0%	2.4%
Disposable Diapers	1,732	6.4%	4.5%	8.3%
Carcasses, Offal	0	0.0%	0.0%	0.0%
Crop Residues	0	0.0%	0.0%	0.0%
Septage	0	0.0%	0.0%	0.0%
Remainder/Composite Organics	111	0.4%	0.2%	0.6%
Total Tons	**27,117**			
Sample Count	**14**			

	Tons	Mean	Low	High
Wood Wastes	**502**	**1.8%**		
Natural Wood	3	0.0%	0.0%	0.0%
Treated Wood	0	0.0%	0.0%	0.0%
Painted Wood	53	0.2%	0.0%	0.4%
Dimensional Lumber	396	1.5%	0.0%	3.3%
Engineered Wood	4	0.0%	0.0%	0.0%
Wood Packaging	0	0.0%	0.0%	0.0%
Other Untreated Wood	7	0.0%	0.0%	0.1%
Wood Byproducts	0	0.0%	0.0%	0.0%
Remainder/Composite Wood	38	0.1%	0.0%	0.3%
Consumer Products	**1,319**	**4.9%**		
Computers	0	0.0%	0.0%	0.0%
Other Electronics	29	0.1%	0.0%	0.2%
Textiles, Synthetic	158	0.6%	0.1%	1.0%
Textiles, Organic	352	1.3%	0.8%	1.8%
Textiles, Mixed/Unknown	206	0.8%	0.3%	1.2%
Shoes	115	0.4%	0.2%	0.7%
Tires and Other Rubber	24	0.1%	0.0%	0.2%
Furniture and Mattresses	3	0.0%	0.0%	0.0%
Carpet	433	1.6%	0.4%	2.8%
Carpet Padding	0	0.0%	0.0%	0.0%
Rejected Products	0	0.0%	0.0%	0.0%
Returned Products	0	0.0%	0.0%	0.0%
Other Composite Consumer Products	0	0.0%	0.0%	0.0%
CDL Wastes	**797**	**2.9%**		
Insulation	0	0.0%	0.0%	0.0%
Asphalt	0	0.0%	0.0%	0.0%
Concrete	0	0.0%	0.0%	0.0%
Drywall	0	0.0%	0.0%	0.0%
Soil, Rocks and Sand	797	2.9%	0.6%	5.3%
Roofing Waste	0	0.0%	0.0%	0.0%
Ceramics	0	0.0%	0.0%	0.0%
Remainder/Composite CDL	0	0.0%	0.0%	0.0%
Haz and Special Wastes	**18**	**0.1%**		
Used Oil	0	0.0%	0.0%	0.0%
Oil Filters	0	0.0%	0.0%	0.0%
Antifreeze	0	0.0%	0.0%	0.0%
Auto Batteries	0	0.0%	0.0%	0.0%
Household Batteries	4	0.0%	0.0%	0.0%
Pesticides and Herbicides	11	0.0%	0.0%	0.1%
Latex Paint	0	0.0%	0.0%	0.0%
Oil Paint	0	0.0%	0.0%	0.0%
Medical Waste	3	0.0%	0.0%	0.0%
Fluorescent Tubes	0	0.0%	0.0%	0.0%
Asbestos	0	0.0%	0.0%	0.0%
Other Hazardous Waste	0	0.0%	0.0%	0.0%
Other Non-hazardous Waste	0	0.0%	0.0%	0.0%
Residuals	**266**	**1.0%**		
Ash	0	0.0%	0.0%	0.0%
Dust	21	0.1%	0.0%	0.2%
Fines/Sorting Residues	245	0.9%	0.2%	1.6%
Sludge and Other Industrial	0	0.0%	0.0%	0.0%

Table F-4
Detailed Waste Composition, Self-haul

Calculated at a 90% confidence interval

	Tons	Mean	Low	High
Paper	**648**	**3.7%**		
Newspaper	**4**	**0.0%**	**0.0%**	**0.0%**
Cardboard	**196**	**1.1%**	**0.4%**	**1.9%**
Other Groundwood Paper	4	0.0%	0.0%	0.0%
High-grade Paper	**18**	**0.1%**	**0.0%**	**0.2%**
Magazines	**4**	**0.0%**	**0.0%**	**0.1%**
Mixed/Low-grade Paper	331	1.9%	0.3%	3.5%
Compostable Paper	19	0.1%	0.0%	0.2%
Remainder/Composite Paper	**71**	**0.4%**	**0.0%**	**1.0%**
Process Sludge/Other Industrial	**0**	**0.0%**	**0.0%**	**0.0%**
Plastic	**1,306**	**7.5%**		
PET Bottles	11	0.1%	0.0%	0.1%
HDPE Bottles, Clear	**2**	**0.0%**	**0.0%**	**0.0%**
HDPE Bottles, Colored	**7**	**0.0%**	**0.0%**	**0.1%**
Plastic Film and Bags	**122**	**0.7%**	**0.3%**	**1.1%**
Plastic Bottles Types 3 - 7	1	0.0%	0.0%	0.0%
Expanded Polystyrene	7	0.0%	0.0%	0.1%
Other Rigid Plastic Packaging	**8**	**0.0%**	**0.0%**	**0.1%**
Other Plastic Products	**721**	**4.1%**	**0.6%**	**7.7%**
Remainder/Composite Plastic	**426**	**2.4%**	**0.5%**	**4.4%**
Glass	**58**	**0.3%**		
Clear Glass Beverage	**0**	**0.0%**	**0.0%**	**0.0%**
Green Glass Beverage	0	0.0%	0.0%	0.0%
Brown Glass Beverage	**0**	**0.0%**	**0.0%**	**0.0%**
Clear Glass Container	**38**	**0.2%**	**0.0%**	**0.6%**
Green Glass Container	3	0.0%	0.0%	0.0%
Brown Glass Container	**0**	**0.0%**	**0.0%**	**0.0%**
Plate Glass	**4**	**0.0%**	**0.0%**	**0.1%**
Remainder/Composite Glass	**14**	**0.1%**	**0.0%**	**0.2%**
Non-glass Ceramics	**0**	**0.0%**	**0.0%**	**0.0%**
Metal	**4,318**	**24.7%**		
Aluminum Cans	**15**	**0.1%**	**0.0%**	**0.2%**
Aluminum Foil/Containers	**0**	**0.0%**	**0.0%**	**0.0%**
Other Aluminum	**185**	**1.1%**	**0.0%**	**2.3%**
Copper	**0**	**0.0%**	**0.0%**	**0.0%**
Other Non-ferrous Metals	**53**	**0.3%**	**0.0%**	**0.7%**
Tin Cans	**21**	**0.1%**	**0.0%**	**0.3%**
White Goods	**0**	**0.0%**	**0.0%**	**0.0%**
Other Ferrous Metals	**1,728**	**9.9%**	**0.0%**	**19.8%**
Remainder/Composite Metals	**2,316**	**13.3%**	**0.0%**	**27.2%**
Organics	**2,668**	**15.3%**		
Yard Garden and Prunings	1,776	10.2%	0.0%	22.2%
Food Waste	834	4.8%	0.4%	9.1%
Manures	0	0.0%	0.0%	0.0%
Disposable Diapers	**37**	**0.2%**	**0.0%**	**0.6%**
Carcasses, Offal	**0**	**0.0%**	**0.0%**	**0.0%**
Crop Residues	0	0.0%	0.0%	0.0%
Septage	**0**	**0.0%**	**0.0%**	**0.0%**
Remainder/Composite Organics	**20**	**0.1%**	**0.0%**	**0.3%**
Total Tons	**17,453**			
Sample Count	**12**			

	Tons	Mean	Low	High
Wood Wastes	**4,893**	**28.0%**		
Natural Wood	177	1.0%	0.0%	2.6%
Treated Wood	80	0.5%	0.0%	1.2%
Painted Wood	**443**	**2.5%**	**0.0%**	**5.1%**
Dimensional Lumber	2,178	12.5%	2.6%	22.4%
Engineered Wood	1,076	6.2%	0.0%	12.5%
Wood Packaging	666	3.8%	0.0%	10.1%
Other Untreated Wood	0	0.0%	0.0%	0.0%
Wood Byproducts	**0**	**0.0%**	**0.0%**	**0.0%**
Remainder/Composite Wood	**272**	**1.6%**	**0.0%**	**3.7%**
Consumer Products	**1,750**	**10.0%**		
Computers	**86**	**0.5%**	**0.0%**	**1.3%**
Other Electronics	**0**	**0.0%**	**0.0%**	**0.0%**
Textiles, Synthetic	24	0.1%	0.0%	0.4%
Textiles, Organic	45	0.3%	0.0%	0.6%
Textiles, Mixed/Unknown	6	0.0%	0.0%	0.1%
Shoes	**0**	**0.0%**	**0.0%**	**0.0%**
Tires and Other Rubber	**427**	**2.4%**	**0.6%**	**4.3%**
Furniture and Mattresses	**857**	**4.9%**	**0.0%**	**10.5%**
Carpet	**305**	**1.8%**	**0.0%**	**4.3%**
Carpet Padding	**0**	**0.0%**	**0.0%**	**0.0%**
Rejected Products	**0**	**0.0%**	**0.0%**	**0.0%**
Returned Products	**0**	**0.0%**	**0.0%**	**0.0%**
Other Composite Consumer Products	**0**	**0.0%**	**0.0%**	**0.0%**
CDL Wastes	**1,766**	**10.1%**		
Insulation	**1**	**0.0%**	**0.0%**	**0.0%**
Asphalt	**0**	**0.0%**	**0.0%**	**0.0%**
Concrete	**271**	**1.6%**	**0.0%**	**4.1%**
Drywall	1,124	6.4%	0.0%	16.5%
Soil, Rocks and Sand	139	0.8%	0.0%	2.1%
Roofing Waste	**4**	**0.0%**	**0.0%**	**0.1%**
Ceramics	6	0.0%	0.0%	0.1%
Remainder/Composite CDL	**222**	**1.3%**	**0.0%**	**3.4%**
Haz and Special Wastes	**26**	**0.1%**		
Used Oil	**25**	**0.1%**	**0.0%**	**0.4%**
Oil Filters	**0**	**0.0%**	**0.0%**	**0.0%**
Antifreeze	**0**	**0.0%**	**0.0%**	**0.0%**
Auto Batteries	**0**	**0.0%**	**0.0%**	**0.0%**
Household Batteries	0	0.0%	0.0%	0.0%
Pesticides and Herbicides	**0**	**0.0%**	**0.0%**	**0.0%**
Latex Paint	0	0.0%	0.0%	0.0%
Oil Paint	**0**	**0.0%**	**0.0%**	**0.0%**
Medical Waste	**0**	**0.0%**	**0.0%**	**0.0%**
Fluorescent Tubes	**0**	**0.0%**	**0.0%**	**0.0%**
Asbestos	**0**	**0.0%**	**0.0%**	**0.0%**
Other Hazardous Waste	**0**	**0.0%**	**0.0%**	**0.0%**
Other Non-hazardous Waste	**1**	**0.0%**	**0.0%**	**0.0%**
Residuals	**20**	**0.1%**		
Ash	**0**	**0.0%**	**0.0%**	**0.0%**
Dust	**0**	**0.0%**	**0.0%**	**0.0%**
Fines/Sorting Residues	**20**	**0.1%**	**0.0%**	**0.3%**
Sludge and Other Industrial	**0**	**0.0%**	**0.0%**	**0.0%**

Appendix G

Waste Composition Calculation Methodology

Appendix G

Waste Composition Calculation Methodology

Waste Tonnages

Annual disposal data was collected from Ephrata and Delano landfills.

- For Ephrata Landfill, total waste disposal tonnage for 2004 was available for commercially collected waste and self-haul waste. To further apportion the commercially-collected tonnage into residential and commercial tonnage, a vehicle survey was conducted by Grant County staff during August of 2005 at the Ephrata landfill. The vehicle survey form used to collect data at Ephrata Landfill is shown in Figure . Scalehouse records and data provided by Consolidated Disposal Services were also taken into account.
- The total volume disposed in 2004 for commercially-collected and self-haul waste was provided by Delano Landfill. This volume data was converted to tons using standard MSW density estimates from the 1995 Plan, as listed in the table below.[3] The commercially-collected disposal was further apportioned using population data and the population of cities using the Delano Landfill.

Table G-1
Conversion Factors from 1995 Plan

Substream	Pounds per cubic yard
Commercial/Industrial	600
Residential	600
Self-haul	240

Recycling Tonnages

Tonnage recycled in 2004 was provided by the Washington State Department of Ecology Annual Recycling Survey. Additionally, recycling businesses that did not report on the survey were contacted to verify that there recycling quantities were included in the Ecology estimate.

Waste Composition Profiles

Waste composition profiles for the commercial, residential and self-haul substreams were derived from sampling data collected for the 2003 Washington State Department of Ecology Rural Waste Characterization Study.

Composition Calculations

The composition estimates represent the **ratio of the components' weight to the total waste** for each noted substream. They were derived by summing each component's weight across all of the selected records and dividing by the sum of the total weight of waste, as shown in the following equation:

[3] According to the 1995 Plan, conversions were based on estimates by haulers, landfill operators, and county staff.

$$r_j = \frac{\sum_i c_{ij}}{\sum_i w_i}$$

where:

c = weight of particular component

w = sum of all component weights

for i = 1 to n

where n = number of selected samples

for j = 1 to m

where m = number of components

The confidence interval for this estimate was derived in two steps. First, the variance around the estimate was calculated, accounting for the fact that the ratio includes two random variables (the component and total sample weights). The **variance of the ratio estimator** equation follows:

$$\hat{V}_{r_j} = \left(\frac{1}{n}\right) \cdot \left(\frac{1}{\overline{w}^2}\right) \cdot \left(\frac{\sum_i \left(c_{ij} - r_j w_i\right)^2}{n-1}\right)$$

where:

$$\overline{w} = \frac{\sum_i w_i}{n}$$

Second, **precision levels** at the 90% confidence interval were calculated for a component's mean as follows:

$$r_j \pm \left(t \cdot \sqrt{\hat{V}_{r_j}}\right)$$

where:

t = the value of the t-statistic (1.645) corresponding to a 90% confidence level

For more detail, please refer to Chapter 6 "Ratio, Regression and Difference Estimation" of *Elementary Survey Sampling* by R.L. Scheaffer, W. Mendenhall and L. Ott (PWS Publishers, 1986).

Weighted Averages

The overall Grant County waste composition estimates were calculated by performing a weighted average across the three substreams: commercial, residential, and self-haul. The weighted average was based on the tonnage for each substream. For example, if during the study period 50,000 tons of residential waste were disposed, and a total of 100,000 tons were disposed, then residential composition estimates would be applied to 50% of the total.

The composition estimates for commercial, residential, and self-haul substreams were applied to the relevant tonnages, as discussed above, to estimate the amount of waste disposed for each material category.

The **weighted average for an overall composition estimate** was performed as follows:

$$O_j = (p_1 * r_{j1}) + (p_2 * r_{j2}) + (p_3 * r_{j3}) + \ldots$$

where:

p = the proportion of tonnage contributed by the noted substream

r = ratio of component weight to total waste weight in the noted substream

for j = 1 to m

where m = number of materials

The **variance of the weighted average** was calculated:

$$VarO_j = (p_1^2 * \hat{V}_{r_{j1}}) + (p_2^2 * \hat{V}_{r_{j2}}) + (p_3^2 * \hat{V}_{r_{j3}}) + \ldots$$

Waste Generation Projections

To project waste generation for 2010 and 2025, estimates for total disposal and recycling were divided by total county population. These per-person rates were then applied to population estimates for 2010 and 2025. [4]

Estimated total waste generation for 2010 and 2025 was calculated by adding projected disposal and recycling for the given year.

[4] Intermediate County Population Projections developed for Growth Management Act, Washington State Office of Financial Management, Forecasting Division, January 2002: division, http://www.ofm.wa.gov/pop/gma/index.htm

Figure G-5. Vehicle Survey Form

Date _____ **Surveyor:** _____ **Page** ____ **of** ____

Site _____

	Customer Type	Source	For Mixed Res and Biz loads		Net Weight or Volume of Load	Surveyor's Notes
	S = self-haul C = comm'l or public	R = residential B = business M = mixed R & B CD = const/demo I = industrial* TS = transfer trailer O = other	Ask driver to estimate % of load that is Res and Biz (Must total to 100%) % Res	% Biz	Select tons or cubic yards.	
1	S C	R B M CD I TS O			☐ tons ☐ cu. yds.	
2	S C	R B M CD I TS O			☐ tons ☐ cu. yds.	
3	S C	R B M CD I TS O			☐ tons ☐ cu. yds.	
4	S C	R B M CD I TS O			☐ tons ☐ cu. yds.	
5	S C	R B M CD I TS O			☐ tons ☐ cu. yds.	
6	S C	R B M CD I TS O			☐ tons ☐ cu. yds.	
7	S C	R B M CD I TS O			☐ tons ☐ cu. yds.	
8	S C	R B M CD I TS O			☐ tons ☐ cu. yds.	
9	S C	R B M CD I TS O			☐ tons ☐ cu. yds.	
10	S C	R B M CD I TS O			☐ tons ☐ cu. yds.	
11	S C	R B M CD I TS O			☐ tons ☐ cu. yds.	
12	S C	R B M CD I TS O			☐ tons ☐ cu. yds.	
13	S C	R B M CD I TS O			☐ tons ☐ cu. yds.	
14	S C	R B M CD I TS O			☐ tons ☐ cu. yds.	
15	S C	R B M CD I TS O			☐ tons ☐ cu. yds.	
16	S C	R B M CD I TS O			☐ tons ☐ cu. yds.	
17	S C	R B M CD I TS O			☐ tons ☐ cu. yds.	
18	S C	R B M CD I TS O			☐ tons ☐ cu. yds.	
19	S C	R B M CD I TS O			☐ tons ☐ cu. yds.	
20	S C	R B M CD I TS O			☐ tons ☐ cu. yds.	

1. Start a new survey sheet for each day of the week-long survey period.
2. Complete a survey entry for each vehicle that enters the facility.
3. Make entries neatly in pen.
4. Enter the information at the top of each page. Enter total # of pages on each page at the end of the day.
5. If you circle the mixed source ask the driver for the % of each.
6. If you make an error on an entry, draw a line through the entire entry and start over on a new line.

*7. Industrial includes: 1) loads from agriculture, livestock, mining and logging operations and 2) loads from manufacturing operations such as food processing, milling, pulp & paper etc. If uncertain, write the company name in "surveyor's notes."

Appendix H

Local Recycling Opportunities

Local Recycling Opportunities

KEY ♦ - accepts material F - charges for material $ - pays for material	City	Hours	Phone	Glass	Aluminum Cans	Tinned Cans	Newspaper	High Grade Paper	Computer Bar Paper	Yard Waste	Corrugated Cardboard	Ferrous Metal	Non-ferrous Metal	Antifreeze	Used Motor Oil	Lead Acid Batteries	Packaging Peanuts	Plastic Grocery Bags	OTHER
Ace Hardware	Ephrata	M-Sa, 7-7	754-4638																Exchanges auto batteries only (new for old)
Consolidated Disposal Services Inc	Ephrata	n/a	(509) 754-2468								♦								Curbside collection of cardboard for commercial customers in some areas.
Ephrata Recycling Center	Ephrata	24 hours	754-2468		♦		♦				♦								
Inland Oil & Propane (merged with Gregoire Distributing)	Ephrata	M-F, 9-4	(509) 754-3551												F				
Laserlight	Ephrata	on call	509-765-5495																offers free pick up of old/delivery of new toner cartridges
Safeway Stores Inc	Ephrata	5am-1am	(509) 754-4441															♦	
Schuck's	Ephrata	8-7, M-Sa; 9-6, S	(509) 754-1332												♦	♦			
St. Rose Catholic Church	Ephrata	24 hours	765-3640				♦												2 metal bldgs, in back of church to deposit - please bundle newspaper
Wal Mart	Ephrata	7am-8pm for oil; 24 hours	(509) 754-8842												♦			♦	max. 5 gallons of oil per week
Coulee Recycling	Grand Coulee	W-F, Noon to 4; Sa 8-3	633-2175		♦		♦				♦	♦							
Safeway Stores Inc	Grand Coulee	7am-12am (til 10pm in winter)	(509) 633-2411															♦	

KEY ♦ - accepts material F - charges for material $ - pays for material	City	Hours	Phone	Glass	Aluminum Cans	Tinned Cans	Newspaper	High Grade Paper	Computer Bar Paper	Yard Waste	Corrugated Cardboard	Ferrous Metal	Non-ferrous Metal	Antifreeze	Used Motor Oil	Lead Acid Batteries	Packaging Peanuts	Plastic Grocery Bags	OTHER
Bargain Town	Moses Lake	10-6 in summer, 9-5 in winter	(509) 766-1289		♦	♦						♦	$						Reusable latex paint, appliances - fee for refrigerators
Cascade Diesel	Moses Lake	M-F, 8-5	(509) 765-5900												♦				Non-contaminated oil
Haley's Office Products	Moses Lake	8:30 - 5, M-F	765-5651																Accepts printer cartridges
Lakeside Disposal & Recycling, Inc.	Moses Lake	M-Sat, 9am-4pm	(509) 765-4263	♦	♦		♦	♦	♦		♦								Accepts no green glass. Will pick up large quantities of high-grade paper from commercial customers.
Moses Lake Recycling Drop-off	Moses Lake	24 hours	n/a	♦	♦		♦				♦								Accepts sorted brown and clear glass bottles
Moses Lake Iron And Metals	Moses Lake	M-F, 8-4:30 (closed 12-12:30), Sat 8-12pm	(509) 765-6342		$							$	$						Per ton, pay $0.35 for alum, $0.35 for brass, $0.25-0.35/stainless steel, $0.90/copper, $30-40 for scrap iron, $20 for scrap tin mix, $50-60 for cast iron; and $0.35/lb for radiators. Drained engines, car parts. No tin or appliances
Moses Lake Senior center Newspaper Recycling Drop-off	Moses Lake	24 hours (cans only 8-4, M-F)			♦		♦				♦								
Safeway Stores Inc	Moses Lake	5am-1am	(509) 765-3961															♦	
Schuck's	Moses Lake	8-8pm, M-Sa; Sun 9-7	(509) 765-0601												♦				Max 5 gallons of oil per week

KEY ♦ - accepts material F - charges for material $ - pays for material	City	Hours	Phone	Glass	Aluminum Cans	Tinned Cans	Newspaper	High Grade Paper	Computer Bar Paper	Yard Waste	Corrugated Cardboard	Ferrous Metal	Non-ferrous Metal	Antifreeze	Used Motor Oil	Lead Acid Batteries	Packaging Peanuts	Plastic Grocery Bags	OTHER
Staples	Moses Lake	8-7 all week	(509) 765-4600																Rechargeable batteries, cell phones, pagers, printer and toner cartridges
UPS Store	Moses Lake	M-F; 9-7; Sa 10-6	766-1410														♦		
Wal Mart	Moses Lake	8am-8pm for oil; 24 hours	(509) 765-8979												♦			♦	max. 5 quarts
City of Quincy Compost Collection/ Consolidated Disposal	Quincy	n/a								♦									Curbside collection of yard waste.
City of Quincy Compost Facility	Quincy	Tu-Sa, 10:15-6:45	(509) 787-4131							♦									Pallets also accepted.
City of Quincy Recycling Drop-off/Consolidated Disposal	Quincy	24 hours			♦		♦				♦								
Central Chevron	Quincy	M-F, 8-5	787-4114												F				5 gallons max per day - $0.50 a gallon
Royal City Recycling Drop-off/Consolidated Disposal	Royal City	24 hours	(509) 346-2263		♦		♦				♦								
Oil Re-refining & FPI	Through-out County	Call for appt.	(800) 367-8894											F	F				Pick-up charge of $55 for less than 300 gallons. Accepts antifreeze, petroleum-based products, and oil filters. Oil filters are $50/55 gallon barrel.
Safety-Kleen Systems, Inc.	Through-out County	Call for appt.	(509) 928-8353											F	F				Fee depends on quantity.
Thermo Fluids Inc.	Through-	Call for appt.	(503) 788-											F	♦				Antifreeze is

KEY ♦ - accepts material F - charges for material $ - pays for material	City	Hours	Phone	Glass	Aluminum Cans	Tinned Cans	Newspaper	High Grade Paper	Computer Bar Paper	Yard Waste	Corrugated Cardboard	Ferrous Metal	Non-ferrous Metal	Antifreeze	Used Motor Oil	Lead Acid Batteries	Packaging Peanuts	Plastic Grocery Bags	OTHER
(formerly Spencer Environmental)	out County		4612																$0.70/gallon; oil is free if over 200 gallons, otherwise $102.95
Warden Recycling Drop-off/Consolidated Disposal	Warden	24 hours			♦		♦				♦								
Wilson Creek Recycling Drop-off	Wilson Creek	24 hours	(509) 345-2541	♦	♦		♦				♦	♦				♦			Accepts only clear and brown glass bottles. Steel is only ferrous metal accepted. Also accepts magazines and catalogs.
Wilson Creek Recycling at Wilson Creek School	Wilson Creek	M-F, 8-3 during school year; call for appt during summer	345-2541	♦	♦		♦				♦	♦				♦			Clear and brown glass only. Catalogs, magazines also.

Appendix I

Program Options

Appendix I

Program Options

This appendix describes the process used to evaluate the 16 program options presented in Chapter 4 Waste Reduction and Recycling. Two different methods were used based on the type of program and information available. The first method, used for seven of the 16 programs, used best estimates and assumptions from other sources. The second method was based on a cost model calculator and was used to evaluate the other nine programs.

Best Estimate Methodology for Evaluating Programs

We did not have sufficient information to construct cost model calculators for the following programs. Therefore, our evaluation of these options was based mainly on literature searches and interviews with people implementing similar programs in other locations. For each of the seven programs listed below, the process of evaluating and gathering data is described.

1. **Reuse depot**:
   Program estimates were based on research done for San Juan County and actual costs incurred in Whatcom County for setting up a reuse depot center.
2. **Education and promotion programs**:
   Resource Recycling (July 2002) reported that increasing expenditures by $1.00 per household can add 3% to current recycling rates.
3. **Organics composting facility**:
   The projected tip fee was based on estimate from Royal Organic Products.
4. **On-site audits and technical assistance**:
   Estimates were based on a combination of research for San Juan County and current experience with Seattle businesses.
5. **Financial incentives**:
   Multiple sources reported that increasing tip fees can increase diversion. In Orange County, California, research found that increasing the tip fees at county landfills by 23%-30% would divert all waste to other facilities. *Resource Recycling* (July 2002) reported that higher disposal tip fees increase recycling significantly, but by varying amounts depending on the specifics of the situation.
6. **Pay-as-you-throw**:
   Several studies reported in *Resource Recycling* found that increasing disposal fees increased recycling.
   - Embedding recycling fees in garbage rates can increase diversion by 3.5% to 4.5%. (*Resource Recycling,* July 2002)
   - Pay-as-you-through can increase diverted materials by 4% to 6% for curbside recycling programs, although similar increases were not seen for drop-off programs. (*Resource Recycling*, July 2002)
   - Pay-as-you-throw can decrease residential waste tonnage by 16% to 17%. (*Resource Recycling*, July 2002)
     - 5% to 6% is due to recycling.
     - 4% to 6% is due to yard waste diversion.

- 6% is due to source reduction.

7. **Special collection events**:
   The King County Recycling Collection Events coordinator provided program results for 2004. In 2004, King County offered five 5 events and diverted nearly 500 tons of waste brought to the events in almost 2,600 vehicles.

Cost Model Methodology

The program options with significant and quantifiable costs were evaluated with a detailed cost evaluation model. The final outputs of the cost evaluation model used to evaluate these selected programs are shown in Figures I-1 through I-9. The nine programs are as follows:

1. Backyard Composting
2. Organics and Wood Drop-Off
3. Designate Targeted Recycling Drop-Off and Landfill Sites, Expand Materials Collected, Promote and Improve Signs and Instructions
4. Residential Organics Collection – 3 Cities
5. Residential Organics Collection – Entire County
6. Curbside Recycling Collection
7. Commercial Organics Collection
8. Commercial Paper Collection
9. Commingled C&D Drop-Off Sites at Ephrata Landfill

Data Inputs

All nine programs were modeled over a 10-year period. Diversion estimates were based on disposal quantities reported in Chapter 3 and Appendix F of this Plan. Estimates of capture rates and participation rates were applied to the total material available for diversion in order to calculate an amount of material that realistically could be diverted through the program. Percents that were used to estimate the quantities that would be diverted were based on past analysis and expert knowledge. Specific sources are cited in the descriptions of the models.

After diversion quantities were calculated, the next step in the cost modeling was to determine the program design and necessary cost inputs. To establish capital, operation and management costs, revenues, contracted services costs, and other costs estimates, local companies and resources were contacted for cost figures and input on program design. The sources of all information are recorded in the descriptions of the models.

Certain standard inputs were used to calculate costs and increased in diversion for all the programs. A discount rate was not taken into account.

- Annual population growth: 1.2%
- Annual growth in the number of single-family homes: 1.9%
- Annual inflation: 2%

The input factors and resulting cost projections for the nine proposed programs listed above are shown on the following pages.

Figure I-1. Backyard Composting

Grant County Recycling Option Cost Model

Input Assumptions and Results for Residential Backyard Organics Composting

Economic Assumptions

Inflation:	2.0%
Nominal discount rate:	0.0%
Number of years to use in NPV analysis:	10

Program Participation and Waste Generation Assumptions

Eligible Waste Generators: 16,507 households

	Food Waste	Yard Waste	Compostable Paper	Source
Generation (lb/hh/week):	19.02	5.66	3.22	Grant County SWMP Update
Current recovery (lb/hh/week):	0.0	0.6	0.0	Grant County SWMP Update
Est. Recovery Efficiency, new program:	72%	70%	21%	Seattle RPA
Implied *new* annual recovery (tons):	89	26	4	*Assumes current recovery will continue being*
Implied total annual recovery (tons):	89	26	4	*recovered with the current program*
		Total:		**119 annual *new* tons**
				119 annual total tons

Ramp-up

Year:	1	2	3	4	5	Thereafter
% of expected material flow:	100%	100%	100%	100%	100%	100%

Assumed annual *increase* after ramp-up: 1.9% Could be due to population growth or increased effectiveness

Capital Costs

	Qty	Capital Asset	Cost per item (present year dollars)	Year Purchased	Lifetime	*Source*
1	250	Containers	$ 35	1	1	Earth Machine West (1)
2						
3						
		Total	**$ 8,750**			

O & M Costs

	Qty	Description	Annual Cost per item (present year dollars)	*Source*
1	2	Workshops	$ 1,000	*Cascadia Assumption*
2	2	Newspaper inserts	$ 1,000	Earth Machine West
3				
		Total	**$ 4,000**	

Contracted Services (hauling, processing)

	Description	Cost per Bin	*Source*
1			
2			
3			
	Total	**$ -**	

Results

Average annual tons recovered:	**750**
Net present value:	**$ (180,000)**
Annualized cost (2005 dollars):	**$ 18,000**
Levelized cost per ton (2005 dollars):	**$ 24**

(1) Assume 100-200 containers could be distributed at each workshop and 2 workshops per year would be held.

Figure I-2. Organics and Wood Drop-Off

Grant County Recycling Option Cost Model

Input Assumptions and Results for Organics and Wood Drop-off Collection

Economic Assumptions

Inflation:	2.0%
Nominal discount rate:	0.0%
Number of years to use in NPV analysis:	10

Program Participation and Waste Generation Assumptions

	Food Waste	Yard Waste	Compostable Paper	Clean Wood (1)	*Source*
Disposal (tons/week):	286.77	92.69	58.08	97.21	Grant County SWMP Update
Current recovery (tons/week):	11.43	36.05	0.00	7.32	Grant County SWMP Update
Participation in new program:	10%	20%	10%	20%	*Cascadia Assumption*
Est. Recovery Efficiency, new program:	50%	80%	25%	80%	*Cascadia Assumption*
Implied *new* annual recovery:	746	771	76	809	
Implied total annual recovery:	775	1,071	76	870	

Total: 2,401 annual *new* total tons
2,792 annual total tons

Ramp-up

Year:	1	2	3	4	5	Thereafter
% of expected material flow:	50%	75%	100%	100%	100%	100%

Assumed annual *increase* after ramp-up: 1.2% Could be due to population growth or increased effectiveness

Capital Costs

	Qty	Capital Asset	Cost per item (present year dollars)	Year Purchased	Lifetime	*Source*
1	10	Roll-Offs	$ 5,000	1	10	Consolidated Disposal Services, Inc. (2)
2						
3						
		Total	**$ 50,000**			

O & M Costs

	Qty	Description	Annual Cost per item (present year dollars)	*Source*
1	520	Hauling	$ 250	Consolidated Disposal Services, Inc. (3)
2				
3				
	Total		**$ 130,000**	

Contracted Services (hauling, processing)

	Description	Cost per ton	*Source*
1	Processing	$ 13.50	Royal Organic Products
2			
3			
	Total	**$ 13.50**	

Results

Average annual tons recovered:	**2,760**
Net present value:	**$ (1,890,000)**
Annualized cost (2005 dollars):	**$ 189,000**
Levelized cost per ton (2005 dollars):	**$ 68**

(1) Includes dimensional wood, untreated wood, natural wood, & wood packaging
(2) Includes one container for 10 targeted sites; 8 drop-off sites & 2 landfills.
(3) $250 per pull for each site. Assume 1 pulls per site per week equals a total of 520 pulls per year

Figure I-3. Designate Targeted Recycling Drop-Off and Landfill Sites, Expand Materials Collected, Promote and Improve Signage

Grant County Recycling Option Cost Model

Input Assumptions and Results for Expanding Acceptable Recyclable Materials Collected at Drop-off Locations

Economic Assumptions

Inflation:	2.0%
Nominal discount rate:	0.0%
Number of years to use in NPV analysis:	10

Program Participation and Waste Generation Assumptions

	Mixed Waste Paper (1)	Plastic #1 & #2	Non-ferrous & Ferrous Metal	*Source*
Disposed (tons/week):	96.19	22.06	69.71	Grant County SWMP Update
Current recovery (tons/week):	0.19	0.74	67.76	Grant County SWMP Update
Participation in new program	20%	20%	20%	*Cascadia Assumption*
Est. Recovery Efficiency, new program:	70%	70%	70%	*Cascadia Assumption*
Implied *new* annual recovery (tons):	700	161	508	
Implied total annual recovery (tons):	702	166	860	(2)
		Total:	**1,368**	**annual *new* tons**
			1,727	**annual total tons**

Ramp-up

Year:	1	2	3	4	5	Thereafter
% of expected material flow:	50%	75%	100%	100%	100%	100%

Assumed annual *increase* after ramp-up: 1.2% Could be due to population growth or increased effectiveness

Capital Costs

	Qty	Capital Asset	Cost per item (present year dollars)	Year Purchased	Lifetime	*Source*
1	10	Dumpsters	$ 500	1	10	Consolidated Disposal Services, Inc. (3)
2	10	Roll-offs	$ 7,000	1	10	GK Industrial Refuse Systems Estimate
3	10	Signs	$ 2,000	1	10	*Cascadia Estimate* (4)
4						
5						
		Total	**$ 95,000**			

O & M Costs

	Qty	Description	Annual Cost per item (present year dollars)	*Source*
1				
2				
3				
4				
		Total	**$ -**	

Contracted Services (hauling, processing)

	Description	Cost per ton	*Source*
1			
2			
3			
	Total	**$ -**	

Results

Average annual tons recovered:	**1,710**
Net present value:	**$ (100,000)**
Annualized cost (2005 dollars):	**$ 10,000**
Levelized cost per ton (2005 dollars):	**$ 6**

* Does not include any O&M costs, Revenues, or Contracted Services costs because disposal company will haul material for free.
(1) Includes groundwood, high grade, magazines, mixed/low-grade paper.
(2) Assumed program would only capture 10% of currently recovered metals.
(3) Includes one dumpster and one roll-off for 10 targeted sites; 8 drop-off sites & 2 landfills.
(4) Cost estimates for new signs and promotion for each of the 10 targeted sites.A82

Figure I-4. Residential Organics Collection – 3 Cities

Grant County Recycling Option Cost Model

Input Assumptions and Results for Residential Organics Collection in Moses Lake, Quincy, & Ephrata

Economic Assumptions

Inflation:	2.0%
Nominal discount rate:	0.0%
Number of years to use in NPV analysis:	10

Program Participation and Waste Generation Assumptions

Eligible Waste Generators: 7,133 **households (1)**

	Food Waste	Yard Waste	Compostable Paper	Source
Disposed (lb/hh/week):	19.02	16.72	3.22	Grant County SWMP Update, except yard waste - estimated Quincy generation
Current recovery (lb/hh/week):	0.00	9.33	0.00	Grant County SWMP Update (2)
Participation in new program:	30%	40%	30%	Actual Quincy rate for yard waste, all other materials from Seattle data
Est. Recovery Efficiency, new program:	50%	95%	18%	Actual King County & Seattle data and Seattle RPA estimates
Implied *new* annual recovery (tons):	529	1,178	32	
Implied total annual recovery (tons):	529	1,418	32	
		Total:		**1,740 annual *new* tons**
				1,980 annual total tons

Ramp-up

Year:	1	2	3	4	5	Thereafter
% of expected material flow:	25%	50%	75%	100%	100%	100%

Assumed annual *increase* after ramp-up: 1.2% Could be due to population growth or increased effectiveness

Capital Costs

	Qty	Capital Asset	Cost per item (present year dollars)	Year Purchased	Lifetime	Source
1	2,140	Containers	$ 13	1	5	Composters.com
2	1	Design promo materials	$ 5,750	1	20	*Cascadia Estimate*
3						
		Total	**$ 33,569**			

O & M Costs

	Qty	Description	Annual Cost per item (present year dollars)	Source
1	1	Ads & promotion	$ 9,600	*Cascadia Estimate*
2				
3				
		Total	**$ 9,600**	

Additional Operating Costs (3)

	Description	Price (per household per month)	Cost	Source
1	Hauling Cost	$ 3.75	$ 128,394	Consolidated Disposal Services, Inc - per household estimate (4)
2				
3				
	Total		**$ 128,394**	

Contracted Services (hauling, processing)

	Description	Cost per Ton	Source
1	Processing	$ 13.50	Royal Organic Products
2			
3			
	Total	**$ 13.50**	

Results

Average annual tons recovered:	**1,790**
Net present value:	**$ (1,840,000)**
Annualized cost (2005 dollars):	**$ 184,000**
Levelized cost per ton (2005 dollars):	**$ 103**

(1) Includes households in the city limits of Moses Lake, Ephrata, and Quincy.
(2) Current Recovery of yardwaste includes 240 tons attributed to Quincy curbside program (989 households). Source: Consolidated Disposal Services.
(3) A section section for Additional Operation Costs was included because these calculations are based off of monthly household estimates, not annual costs.
(4) Operating costs are based on the assumption collection services would be provided by contract haulers in incorporated areas.

Figure I-5. Residential Organics Collection – Entire County

Grant County Recycling Option Cost Model

Input Assumptions and Results for Residential Organics Collection for Entire County

Economic Assumptions

Inflation:	2.0%
Nominal discount rate:	0.0%
Number of years to use in NPV analysis:	10

Program Participation and Waste Generation Assumptions

Eligible Waste Generators: 16,507 households (1)

	Food Waste	Yard Waste (2)	Compostable Paper	Source
Disposed (lb/hh/week):	19.02	16.72	3.22	Grant County SWMP Update
Current recovery (lb/hh/week):	0.00	9.33	0.00	Grant County SWMP Update
Participation in new program:	30%	57%	30%	Actual Seattle data
Est. Recovery Efficiency, new program:	50%	95%	18%	Actual King County & Seattle data, and Seattle RPA
Implied *new* annual recovery (tons):	1,224	3,886	75	
Implied total recovery (tons):	1,224	4,126	75	
		Total:		5,185 annual *new* tons
				5,425 annual total tons

Ramp-up

Year:	1	2	3	4	5	Thereafter
% of expected material flow:	25%	50%	75%	100%	100%	100%

Assumed annual *increase* after ramp-up: 1.2% Could be due to population growth or increased effectiveness

Capital Costs

	Qty	Capital Asset	Cost per Item (present year dollars)	Year Purchased	Lifetime	Source
1	4,952	Containers	$ 13	1	5	Composters.com
2	1	Design promo materials	$ 5,750	1	20	*Cascadia Estimate*
3						
		Total	$ 70,127			

O & M Costs

	Qty	Description	Annual Cost per Item (present year dollars)	Source
1	1	Ads & promotion	$ 11,900	*Cascadia Estimate*
2				
3				
		Total	$ 11,900	

Operating Costs

	Description	Price (per household per month)	Cost	Source
1	Haulig Cost	$ 3.75	$ 423,405	Consolidated Disposal Services, Inc - per household estimate (3)
2				
3				
	Total		$ 423,405	

Contracted Services (hauling, processing)

	Description	Cost per Ton	Source
1	Processing	$ 13.50	Royal Organic Products
2			
3			
	Total	$ 13.50	

Results

Average annual tons recovered:	4,890
Net present value:	$ (5,640,000)
Annualized cost (2005 dollars):	$ 564,000
Levelized cost per ton (2005 dollars):	$ 115

(1) Includes households in the entire County.
(2) Current Recovery of yardwaste includes 240 tons attributed to Quincy curbside program (989 households). Source: Consolidated Disposal Services.
(3) Operating costs are based on the assumption that collection would be provided by the franchised hauler and contract haulers in incorporated areas.

Figure I-6. Curbside Recycling Collection

Grant County Recycling Option Cost Model

Input Assumptions and Results for Residential Curbside Recycling Collection

Economic Assumptions

Inflation:	2.0%
Nominal discount rate:	0.0%
Number of years to use in NPV analysis:	10

Program Participation and Waste Generation Assumptions

Eligible Waste Generators: 7,133 households (1)

	Paper (2)	#1 & #2 Plastic	Metal (3)	Source
Disposed (lb/hh/week):	13.22	1.66	3.60	Grant County SWMP Update
Current recovery (lb/hh/week):	3.36	0.06	3.39	Grant County SWMP Update
Participation in new program:	70%	70%	70%	*Cascadia Assumption*
Est. Recovery Efficiency, new program:	73%	70%	70%	Seattle RPA, except Plastics - Cascadia Assumption
Implied *new* annual recovery (tons):	1,246	151	327	
Implied total recovery (tons):	1,563	156	635	

Total: 1,724 annual *new* tons
2,355 annual total tons

Ramp-up

Year:	1	2	3	4	5	Thereafter
% of expected material flow:	50%	75%	100%	100%	100%	100%

Assumed annual *increase* after ramp-up: 1.2% Could be due to population growth or increased effectiveness

Capital Costs

	Qty	Capital Asset	Cost per item (present year dollars)	Year Purchased	Lifetime	Source
1	1	Design promo materials	$ 5,750	1	20	*Cascadia Estimate*
2						
3						
4						
5						
		Total	**$ 5,750**			

O & M Costs

	Qty	Description	Annual Cost per item (present year dollars)	Source
1	1	Ads & promotion	$ 11,900	*Cascadia Estimate*
2				
3				
4				
5				
		Total	**$ 11,900**	

Revenue from Sale of Material

	Material	Market Price (per ton)	Revenue
1			
2			
3			
4			
5			
	Total		**$ -**

Contracted Services (hauling, processing)

	Description	Cost per household per month	Source
1	Program Costs	$ 3.00	Sound Resource Management, *The Monthly UnEconomist*, June 2001
2			
3			
	Total	**$ 3.00**	

Results

Average annual tons recovered:	**2,330**
Net present value:	**$ (2,940,000)**
Annualized cost (2005 dollars):	**$ 294,000**
Levelized cost per ton (2005 dollars):	**$ 126**

* All Capital costs and O& M costs associated with collection and reveunes are incorporated in the Contracted Services section under program costs, promotion costs not included in Contracted Services.

(1) Includes households in the city limits of Moses Lake, Ephrata, and Quincy.

(2) Paper includes: Newspaper, mixed waste paper, high grade paper, magazines, cardboard, & other groundwood paper.

(3) Metal includes: Aluminum cans, tin cans, other non-ferrous, & other ferrous.

Figure I-7. Commercial Organics Collection

Grant County Recycling Option Cost Model

Input Assumptions and Results for Commercial Organics Collection

Economic Assumptions

Inflation:	2.0%
Nominal Discount rate:	0.0%
Number of years to use in NPV analysis:	10

Program Participation and Waste Generation Assumptions

Density of Waste:	400 pounds per cubic yard
Standard food waste dumpster sizes:	1.5 cubic yards
	2 cubic yards

	Restaurant	Groceries	Schools	Hospitals	Hotels/ Motels	Food Processing	Source
Eligible Waste Generators:	65	18	19	6	7	11	On-line directories (1)
Participation rate:	10%	20%	80%	80%	10%	40%	*Program Assumptions by Cascadia*
Participating locations:	7	4	15	5	1	4	***Multiply above two lines***
Disposal (lb/wk/site):	2,185	4,030	466	541	1,621	2,474	Cascadia Study for City of Los Angeles
Current recovery (lb/wk/site):	164	164	70	70	70	70	Grant County SWMP Update (2)
Estimated Recovery efficiency, new program:	55%	80%	75%	75%	45%	90%	Rest./Groceries--Seattle/KC Study; others assumed
Implied *new* annual recovered (tons):	203	302	138	51	13	255	
Implied total annual recovered (tons):	231	317	168	59	15	263	
				Totals:		**962 annual *new* tons**	
						1,050 annual *total* tons	

Ramp-up

Year:	1	2	3	4	5	Thereafter
% of expected material flow:	25%	50%	75%	100%	100%	100%

Assumed annual *increase* after ramp-up: 1.8% Could be due to population growth or increased effectiveness

Capital Costs

Average number of businesses servicable, per truck per day:	150	per Consolidated Disposal Services, Inc.
Number of collection days in a week:	2	*Assume 2 days needed for collection*
Average bin fullness:	100%	*Assumption by Cascadia*

	Restaurant	Groceries	Schools	Hospitals	Hotels/ Motels	Food Processing	Source
Avg. # of pick-ups required per business, per wk:	2	5	1	1	2	3	*Calculated based on above inputs* (3)
Avg # containers needed per site, per wk:	1	2.5	0.5	0.5	1	1.5	*Calculated based on assumption of 2 pick-ups per wk*
Avg. *total* # of pick-ups required, per wk:	13	8	31	10	2	9	*Calculated based on above inputs*
			Total pick-ups required per wk:	**73**			
			Total pick-ups required per day:	**37**			
			Implied number of trucks required:	**0.2**			

	Qty	Capital Asset	Cost per item (present year dollars)	Year Purchased	Lifetime	Source
1	1	Trucks	$ 220,000	1	10	Consolidated Disposal Services, Inc.
2	33	Containers	$ 325	1	10	Consolidated Disposal Services, Inc.
3						
		Total	**$ 230,660**			

O & M Costs

	Qty	Description	Annual Cost per item (present year dollars)	Source
1	0.2	Drivers	$ 33,000	Consolidated Disposal Services, Inc.
2	1.0	Annual Maint.	$ 40,000	Consolidated Disposal Services, Inc.
3				
		Total	**$ 48,030**	

Contracted Services (hauling, processing)

	Description	Cost per ton	Source
1	Processing	$ 13.50	Royal Organic Products
2			
3			
	Total	**$ 13.50**	

Results

Average annual tons recovered:	**980**
Net present value:	**$ (900,000)**
Annualized cost (2005 dollars):	**$ 90,000**
Levelized cost per ton (2005 dollars):	**$ 92**

(1) Includes businesses with more than 10 employees.
(2) 594.44 tons of Food attributed to Restaurants & Grocery Stores, 50% of recovered yard waste (1874.45 tons) attributed to all generator groups.
(3) Hospitals & Hotels/Motels using 1.5 cubic yard dumpster. All others using 2 cubic yard dumpster.

Figure I-8. Commercial Paper Collection

Grant County Recycling Option Cost Model

Input Assumptions and Results for Expanding Paper Collection to all Commecial Customers

Economic Assumptions

Inflation:	2.0%
Nominal discount rate:	0.0%
Number of years to use in NPV analysis:	10

Program Participation and Waste Generation Assumptions

Eligible Waste Generators: 43 large businesses (1)

	Cardboard	High Grade	Mixed Paper (2)	*Source*
Generation (lb/b/week):	793	199	848	Grant County SWMP Update
Current recovery (lb/b/week):	622	2	90	Grant County SWMP Update
Participation in new program:	50%	50%	50%	*Cascadia Assumption*
Est. Recovery Efficiency, new program:	86%	86%	84%	Seattle RPA
Implied *new* annual recovery (tons):	82	95	356	
Implied total annual recovery (tons):	381	96	398	
		Total:		**533 annual *new* tons**
				875 annual total tons

Ramp-up

Year:	1	2	3	4	5	Thereafter
% of expected material flow:	50%	75%	100%	100%	100%	100%

Assumed annual *increase* after ramp-up: 1.2% Could be due to population growth or increased effectiveness

Capital Costs

	Qty	Capital Asset	Cost per item (present year dollars)	Year Purchased	Lifetime	*Source*
1						
2						
3						
		Total	**$ -**			

O & M Costs

	Qty	Description	Annual Cost per item (present year dollars)	*Source*
1	0.5	Tech. Assist.	$ 46,000	*Cascadia Estimate*
2				
3				
		Total	**$ 23,000**	

Contracted Services (hauling, processing)

	Description	Cost per ton	*Source*
1			
2			
3			
	Total	**$ -**	

Results

Average annual tons recovered:	**870**
Net present value:	**$ (250,000)**
Annualized cost (2005 dollars):	**$ 25,000**
Levelized cost per ton (2005 dollars):	**$ 29**

* Assumes paper collection would be economical for a commercial hauler to provide the service, provided the County identifies, recruits, and provides technical assistance for businesses.
(1) Large businesses have over 100 employees.
(2) Includes mixed low-grade, newspaper, other groundwood paper, and magazines.

Figure I-9. Commingled C&D Drop-Off Sites at Ephrata Landfill

Grant County Recycling Option Cost Model

Input Assumptions and Results for Commingled Recyclable C&D at Ephrata Landfill

Economic Assumptions

Inflation:	2.0%
Nominal discount rate:	0.0%
Number of years to use in NPV analysis:	10

Program Participation and Waste Generation Assumptions

	Self-Haul	Commercial	*Source*
Current Disposal (tons) (1):	13,032	29,484	Grant County SWMP Update
Current Recovery (tons):	898	1,640	Grant County SWMP Update
% Processed:	50%	20%	*Cascadia Estimate*
Recovery efficiency:	50%	30%	*Cascadia Estimate*
Implied *new* annual recovery (tons):	3,258	1,769	
Implied total annual recovery (tons):	3,707	2,589	*Assume collecting 50% of current recovery*
	Total:	**5,027**	**annual *new* tons**
		6,296	**annual total tons**
		13,682	**annual tons of throughput**

Ramp-up Year:	1	2	3	4	5	Thereafter
% of expected material flow:	50%	75%	100%	100%	100%	100%

Assumed annual *increase* after ramp-up: 1.2% Could be due to population growth or increased effectiveness

Capital Costs

	Qty	Capital Asset	Cost per item (present year dollars)	Year Purchased	Lifetime	*Source*
1	5	Containers	$ 6,500	1	10	GK Industrial Refuse Systems
2						
3						
			$ 32,500			

O & M Costs

	Qty	Description	Annual Cost per item (present year dollars)	*Source*
1				
2				
3				
		Total	**$ -**	

Contracted Services (hauling, processing)

	Description	Cost per ton	*Source*
1	Processing	$ 40.00	Recovery 1 Tip Fee
2			
3			
	Total	**$ 40.00**	

Results

Average annual tons recovered:	**6,230**
Net present value:	**$ (6,010,000)**
Annualized cost (2003 dollars):	**$ 601,000**
Levelized cost per ton (2003 dollars):	**$ 97**

(1) Includes metals (other ferrous & non-ferrous, and other aluminum), clean wood (dimensional, natural, untreated, & wood packaging), and other C&D (concrete, drywall, sand/soil/rock, and ceramic).

Appendix J

WUTC Cost Assessment

GRANT COUNTY COST ASSESSMENT QUESTIONNAIRE

(Draft)

PREPARED FOR GRANT COUNTY

PREPARED BY: Jeffrey Morris, Sound Resource Management Group, Inc.

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DATE: February 20, 2006

DEFINITIONS

Throughout this document:

YR.1 shall refer to calendar year 2004.
YR.3 shall refer to calendar year 2006.
YR.6 shall refer to calendar year 2009.

1. DEMOGRAPHICS

1.1 Population

1.1.1 **Total** population of Grant County:

YR.1 78,300 YR.3 80,100 YR.6 82,900

1.1.2 **Planning level** population (Including the Town of Elmer City located in Okanogan County and that portion of the Town of Coulee Dam located in Okanogan County):

YR.1 79,415 YR.3 81,250 YR.6 84,100

1.2 References and Assumptions

Total Grant County population estimate for 2004 from *Official April 1 2005 Population Estimates, April 1 Population of Cities, Towns, and Counties, Used for Allocation of Selected State Revenues, State of Washington*, State of Washington Office of Financial Management (OFM), Forecasting Division, Olympia, WA, June 28, 2005 – available on the Internet at www.ofm.wa.gov/pop/april1/finalpop2005.xls. This OFM source also was the basis for the projections of Grant County total population for 2006 and 2009 based on the 1.15% estimated population growth rate for Grant County between 2000 and 2005 exhibited in this source.

Area covered by the CSWMP includes the Towns of Coulee Dam and Elmer City, located in Okanogan County. These towns are members of the Regional Board of Mayors, along with Electric City and Grand Coulee, which are located in Grant County. The RBOM towns use the Delano Landfill located in Grant County. The RBOM arranges for a collection company to serve its members, and each member has an individual contract with the collection company. These towns have elected to be part of the RBOM because they are in close proximity with the other members, are small communities, and benefit from sharing resources and services. Coulee Dam and Elmer City have relatively low populations, 850 for Coulee Dam's portion that lies in Okanogan County and 265 for Elmer City in 2005. There is also a seasonal influx of workers and tourists into Grant County that is reflected in waste generation forecasts used in the Grant County CSWMP.

2. WASTE STREAM GENERATION

2.1 Tonnage Recycled

2.1.1 YR.1 17,288 YR.3 20,500 YR.6 34,200

2.2 Tonnage Disposed

2.2.1 YR.1 75,451 YR.3 80,500 YR.6 83,800

2.3 References and Assumptions

Recycling and disposal tonnage for 2004 from draft CSWMP, Table 3-1. Projections for 2006 and 2009 based on draft CSWMP, Table 3-8.

3. SYSTEM COMPONENT COSTS:

3.1 Waste Reduction Programs

3.1.1 Solid waste prevention/reduction programs which have been implemented and those which are proposed are listed below:

IMPLEMENTED	PROPOSED
1. WR & R Education & Outreach	1. Electronics Public Education
2. SQG Education	
3. Mercury Reduction	

3.1.2 Costs, including capital costs and operating costs, for waste reduction/prevention programs implemented and proposed:

IMPLEMENTED

YR.1 $31,541 YR.3 $48,775 YR.6 $52,525

PROPOSED

YR.1 $0 YR.3 $18,507 YR.6 $19,661

Notes: Sources for waste reduction costs: County actual costs for 2004; County Budget and CSWMP Table 4-5 for 2006; and CSWMP Table 4-5 and assumed 2.5% annual inflation rate for 2006-09 for 2009.

3.1.3 Funding mechanism(s) that will pay the cost of the programs in 3.1.2. (Note: Tip = landfill and drop box tipping fees; CPG = Department of Ecology Coordinated Prevention Grants.)

IMPLEMENTED

YR.1 Tip & CPG YR.3 Tip & CPG YR.6 Tip & CPG

PROPOSED

YR.1 YR.3 Tip YR.6 Tip

3.2 Recycling Programs

3.2.1 Proposed or implemented recycling program(s), their costs, and proposed funding mechanisms are listed below. (Note: Tip = landfill and drop box tipping fees, CPG = Department of Ecology Coordinated Prevention Grants, Sales = revenue from selling recycled materials, User = user pay through collection company or drop-off fee.)

3.2.2 IMPLEMENTED

PROGRAM	COST	FUNDING
1. County Drop Box and Landfill Drop-Off Recycling	Included in landfill budget	Tip & Sales
2. HHW Collection	YR.1 $66,093	Tip & CPG
	YR.3 $79,100	Tip & CPG
	YR.6 $85,200	Tip & CPG

PROPOSED

PROGRAM	COST	FUNDING
1. Tire Recycling	YR.1 $0	
	YR.3 $12,000	Tip & CPG
	YR.6 $12,900	Tip & CPG
2. Mercury Collection	YR.1 $0	
	YR.3 $3,850	Tip & CPG
	YR.6 $4,100	Tip & CPG
3. Expand Drop-Off Recycling	YR.1 $0	
	YR.3 $95,000	Tip
	YR.6 $0	Tip
4. Commercial Paper Collection	YR.1 $0	
	YR.3 $NA	User
	YR.6 $NA	User
5. Technical Assistance	YR.1 $0	
	YR.3 $23,000	Tip
	YR.6 $24,408	Tip
6. Organics Drop-Off	YR.1 $0	
	YR.3 $0	
	YR.6 $156,801	Tip
7. Commingled C&D Drop-Off	YR.1 $0	
	YR.3 $0	
	YR.6 $609,070	Tip

8. Organics Composting Facility	YR.1	$0	
	YR.3	$ 0	Tip
	YR.6	$30,000	Tip
9. Residential Organics Collection	YR.1	$0	
	YR.3	$0	
	YR.6	$74,027	User

Notes: Sources for recycling costs: County actual costs for 2004, County Budget and CSWMP Table 4-5 for 2006, and CSWMP Table 4-5 and assumed 2.5% annual inflation rate for 2006-09 for 2009.

3.3 Solid Waste Collection Programs

3.3.1 Regulated Solid Waste Collection Programs

1. WUTC Regulated Hauler Name: Consolidated Disposal Service, Inc.
G-permit #G-190

	YR. 1	YR. 3	YR. 6
RESIDENTIAL			
- # of Customers	7,400	7,570	7,840
- Tonnage Collected	9,755	9,980	10,335
COMMERCIAL			
- # of Customers	650	654	660
- Tonnage Collected	12,575	12,650	12,770

2. WUTC Regulated Hauler Name: Waste Management, Inc.
G-permit #G-237

	YR. 1	YR. 3	YR. 6
RESIDENTIAL			
- # of Customers	535	550	565
- Tonnage Collected	417	430	440
COMMERCIAL			
- # of Customers	187	188	190
- Tonnage Collected	1,029	1,035	1,045

3. WUTC Regulated Hauler Name: Sunrise Disposal
G-permit #G-201

	YR. 1	YR. 3	YR. 6
RESIDENTIAL			
- # of Customers	75	77	79
- Tonnage Collected	97	100	102
COMMERCIAL			
- # of Customers	20	20	20
- Tonnage Collected	76	76	76

Notes: Residential customer growth rates based on planning area population growth rates. Commercial customer growth assumed at 25% of residential customer growth. Tonnage projections based on per customer collection tonnage for 2004.

Sunrise Disposal's residential garbage collection tonnage in unincorporated Grant County assumed to equal 1.3 tons collected per residential customer. See notes under non-regulated solid waste collection programs for basis for 1.3 tons estimate.

Sunrise Disposal's commercial garbage collection tonnage based on total regulated and non-regulated customers and 841 tons remaining from 2,496 tons disposed at Delano Landfill by Sunrise after deducting 1,655 tons for 1,273 regulated and non-regulated residential customers at 1.3 garbage collection tons per customer.

3.3.2 Other (non-regulated) Solid Waste Collection Programs

1. Hauler Name: City of Soap Lake

	YR. 1	YR. 3	YR. 6
RESIDENTIAL/COMMERCIAL			
- # of Customers	689	705	730
- Tonnage Collected	714	730	755

2. Hauler Name: Consolidated Disposal Service Inc. - CDSI (contracts for Ephrata, Mattawa, Quincy, Royal City, and Warden)

	YR. 1	YR. 3	YR. 6
RESIDENTIAL			
- # of Customers	5,400	5,525	5,720
- Tonnage Collected	7,075	7,240	7,495
COMMERCIAL			
- # of Customers	445	448	452
- Tonnage Collected	8,195	8,250	8,325

3. Hauler Name: Lakeside Disposal (contract for Moses Lake)

	YR. 1	YR. 3	YR. 6
RESIDENTIAL			
- # of Customers	4,461	4,565	4,725
- Tonnage Collected	5,799	5,935	6,140
COMMERCIAL			
- # of Customers	676	680	685
- Tonnage Collected	9,200	9,255	9,320

4. Hauler Name: Sunrise Disposal (contract with Regional Board of Mayors for Coulee Dam, Electric City, Elmer City, and Grand Coulee)

	YR. 1	YR. 3	YR. 6
RESIDENTIAL			
- # of Customers	1,198	1,225	1,270
- Tonnage Collected	1,558	1,595	1,650
COMMERCIAL			
- # of Customers	199	200	202
- Tonnage Collected	1,025	1,030	1,040

Notes: See notes for regulated haulers for customer and tonnage projection assumptions for 2006 and 2009.

Lakeside Disposal tonnage split for 2004 between residential and commercial based on 1.3 tons per residential customer, with remainder of 14,999 tons collected in Moses Lake and disposed at Grant County landfill allocated to commercial. The 1.3 tons per residential customer is the average garbage collection quantity reported CDSI for its regulated collection area in Grant County for 2005.

3.4 Energy Recovery & Incineration (ER&I) Programs

No ER&I facilities used or proposed in Grant County.

3.5 Land Disposal Program

3.5.1 **Landfill Name: Ephrata Landfill**
Owner: Grant County
Operator: Grant County

3.5.2 Approximate tonnage disposed at the landfill by WUTC regulated haulers.

Note: Estimates given here are based on hauler interview data and customer growth rates as laid out in 3.3.1 above.

YR.1 23,776 YR.3 24,095 YR.6 24,590

3.5.3 Approximate tonnage disposed at the landfill by other contributors.

Note: Estimates given here are derived from total tonnage projections given in 2.2.1, less regulated hauler disposal tonnage given in 3.5.2, and also less Delano Landfill tonnage in 2004 and 2006.

YR.1 48,592 YR.3 53,140 YR.6 59,210

3.5.4 Estimated cost of operating (including capital acquisitions) the Ephrata Landfill.

YR.1 $1,237,207 YR.3 $4,402,787 YR.3 $4,741,320

3.5.5 Funding mechanisms that will defray the cost of this component.

Drop box sites and landfill tip fees plus reserve fund investment interest fund landfill operations costs in 2004. Same plus landfill closure reserves fund landfill operations and old cell closure/post-closure costs in 2006 and 2009. 2009 costs based on 2006 costs inflated at 2.5% per year.

3.5.1 **Landfill Name: Delano Landfill**
Owner: Regional Board of Mayors
Operator: Regional Board of Mayors

3.5.2 Approximate tonnage disposed at the landfill by WUTC regulated haulers.

Note: Estimates given here are based on hauler interview data and customer growth rates as laid out in 3.3.1 above.

YR.1 173 YR.3 176 YR.6 0

3.5.3 Approximate tonnage disposed at the landfill by other contributors.

Note: Estimates given here are derived from tonnage actuals and projections given in 2.2.1 and 3.3.1, less regulated hauler disposal tonnage given in 3.5.2 and less Ehprata Landfill disposal tonnage.

YR.1 2,910 YR.3 3,124 YR.6 0

3.5.4 Estimated cost of operating (including capital acquisitions) the Delano Landfill.

YR.1 $440,375 YR.3 $322,995 YR.3 $0

3.5.6 Funding mechanisms that will defray the cost of this component.

Landfill tip fees and three reserve funds (Closure Fund, Post Closure Fund, and Landfill Fund) fund landfill operations and closure/post-closure costs in 2004 and 2006. Delano Landfill plans to close after 2006.

3.6 Administration Program

3.6.1 Budgeted cost for administering solid waste and recycling programs and major funding sources are given below.

Budgeted Cost

YR.1 $126,190 YR.3 $1,698,500 YrR.6 $1,829,100

Funding Sources

For 2004 funding is through Ecology CPG grant & Ephrata Landfill disposal fees. Same for 2006 and 2009 plus Ecology Remediation Planning Grant to cover remediation planning that year.

3.6.2 Administration cost components included in these estimates.

Wages, benefits, supplies, professional services, advertising, taxes, miscellaneous.

3.6.3 Specific proposed programs, costs and funding sources are:
No proposed new programs.

3.7 Other Programs: None

3.8 References and Assumptions: See notes provided in each section above or below.

4. FUNDING MECHANISMS:

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 Disposed	Total Revenue Generated (Tip Fee x Tons)
1. Drop Boxes	transfer	$56 esti-mate based on yardage charges		13 sites throughout the county	Ephrata Landfill	3,843	$215,086
2. Ephrata Landfill	disposal	$25.80				68,525	$1,738,203
3. Delano Landfill	disposal	$52.00/ $57.20				3,083	$175,000

Table 4.1.2 Tip Fee Components

Tip Fee by Facility	Surcharge	City Tax	County Tax	Debt/Capital Costs	Operational Cost	Administration Cost	Closure Costs
1. Drop Boxes $56				2.9%	75.7%	4.6%	16.8%
2. Ephrata $25.80				6.6	48.4	7.3	37.7
3. Delano $52.00	NA	NA	NA	NA	NA	NA	NA

Table 4.1.3 Funding Mechanism

Name of Program Funding Mechanism will defray costs	Bond Name	Total Bond Debt	Bond Rate	Bond Due Date	Grant Name	Grant Amount	Tip Fee	Taxes	Other	Surcharge
Administration							X		Interest	
Collection									Rates	
Disposal							X		Interest	
WRR					CPG	$76,911	X		Sales	

Table 4.1.4 Tip Fee Forecast

Tip Fee per Ton by Facility	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
Ephrata Landfill	$25.80	$25.80	$27.54	$28.23	$28.93	$43.00
Drop Boxes	$56.00	$56.00	$60.00	$61.25	$62.80	$93.50
Delano Landfill	$52.00	$52.00	$52.00	closed	closed	Closed

4.2 **Funding Mechanisms** summary by percentage:

Table 4.2.1 Funding Mechanism by Percentage

Year One

Component	Tip Fee %	Grant %	Bond %	Collection Tax Rates %	Other %	Total
Waste Reduction & Recycling	25%	75%				100%
Collection					100.0%	100%
Drop Sites	100.0%					100%
Land Disposal	100.0%					100%
Administration	100.0%					100%

Table 4.2.2 Funding Mechanism by Percentage

Year Three

Component	Tip Fee %	Grant %	Bond %	Collection Tax Rates %	Other %	Total
Waste Reduction & Recycling	72%	28%				100%
Collection					100.0%	100%
Drop Sites	100.0%					100%
Land Disposal	100.0%					100%
Administration	34%	66%				100%

Table 4.2.3 Funding Mechanism by Percentage

Year Six

Component	Tip Fee %	Grant %	Bond %	Collection Tax Rates %	Other %	Total
Waste Reduction & Recycling	93%	7%				100%
Collection					100.0%	100%
Drop Sites	100.0%					100%
Land Disposal	100.0%					100%
Administration	34%	66%				100%

4.3 References and Assumptions:

Grant County Public Works 401 – Solid Waste 2006 Budget Report provides 2004 actual and 2006 budgeted revenues and expenditures. 2006 budgeted expenditures increased for proposed waste reduction and recycling programs per CSWMP Table 4-5. Tip fee forecast for cost assessment Year 6 based on increases shown in Table 4-5 for Year 4. Year 1 in Table 4-5 is 2006; for the cost assessment Year 1 is 2004.

Appendix K

Public Comments

Preliminary Draft Solid Waste Management Plan Update
Public Comments
May 15 through June 13, 2006 Public Comment Period

Grant County received the following comments during the public comment period between May 15 and June 13, 2006 on the Preliminary Draft Plan. The comments are listed below, with a response following each comment.

Bill Lamphere, Quincy, verbal comments received at the 2 p.m. public hearing on May 22, 2006 (*Note: comment is summarized with Mr. Lamphere's approval*):

Grant County programs do not emphasize diversion of organic waste from the landfill enough and a wide range of large users exist that have use for compost, such as made by composting mint waste. If composted organics were available, then the County could educate people about the value of separating this material at the source and recycling it. If Grant County does not encourage composting of organics then eventually it goes to the landfill and shortens the landfill life.

Response: The Plan Update proposes collecting organic wastes at drop off sites as processing opportunities become available. Grant County continues to work with communities, groups, and businesses interested in developing processing sites to receive these materials. Grant County does not have the staff and expertise, nor does it believe it is in the best interest of its constituents, to operate a site itself. *No change to the Plan Update is proposed.*

Steve Shinn, written comments received June 13, 2006.

1. Pg viii Goals of the Plan: I believe the word *Encourage* shall be changed to *Required.* I do not believe that the County can continue to accept wastes that can be recycled. These wastes will only shorten the life of the landfill which will require the construction of new fill and/or shipping waste out of county at higher disposal costs. I believe the plan only looks at the next 20 years and should look at the next 50 years in its planning.

   Response: The Goals in the Solid Waste Plan Update deliberately use *Encourage* because this reflects a positive, collaborative approach and the fact these are goals the Grant County communities seek to achieve. Grant County has successfully implemented several recycling and education programs beyond those proposed in the 1995 Plan without requiring recycling and waste reduction. Grant County proposes to continue the steady progress where possible. *No change to the Plan Update is proposed.*

2. Pg ix: The county should take advantage of non-disposal alternatives. The county should develop sites which take these materials and use as waste composition and generation.

   Response: The City of Quincy has been operating a composting facility for their waste for several years. The Plan Update proposes creating drop-off sites for organic compostable wastes as processing opportunities expand. Grant County completed a composting study, and is discussing opportunities to develop processing facilities. Grant County will continue to look for alternatives to disposal for other materials, such as tires and construction and demolition waste, which the Goals of the Plan Update reflect. *No change to the Plan Update is proposed.*

3. Pg x: The designated recyclables should not be based only market opportunities but the fact that they are recyclable. There may be net loss in recycling, but these items do not fill the landfill up. Any costs incurred should be added to the landfill fee.

   Response: Page 33 of the Plan Update has an extensive list of designated materials and more detail on modifying the list, which is summarized on page x. The Plan Update recognizes other materials we do not think of as recyclable now may become so in the future. The language is intended to give the flexibility to add these materials quickly to the list for economic, environmental, or other reasons without needing a more costly, slower, and onerous amendment process. Grant County currently includes the costs of recycling programs in setting the disposal fee. *No change to the Plan Update is proposed.*

4. Pg x Waste and Recycling: I like the 5 year plan but hope that it is achieved. I'm sure it can be achieved without *requiring* recycling.

   Response: The 5-year plan is intended as a practical, achievable plan for Grant County. With your support, and the support of the businesses and other residents in Grant County, we believe it can be achieved. *No change to the Plan Update is proposed.*

5. I am concerned with the residents, municipals', and commercial business continuing to disposing of electronic equipment at the landfill. I bring this as I believe the county allows one computer and/or monitor from each resident. Also, I've been told that a city manager has directed staff to dispose of this equipment in the dumpster. Is this environmentally sound?

   Response: We agree disposal of electronics in the landfill is not environmentally sound. Page 83 of the Plan Update outlines the regulatory framework for Moderate Risk Waste, which includes cell phones and batteries and other electronics. Proper management and disposal of electronics is within in a separate planning process for the County's Moderate Risk Waste Plan (referenced on Page 7 of the Plan Update). *No change to the Plan Update is proposed.*

6. Pg xiii Enforcement: Why is the County Health Department responsible for enforcement? It seems that this should responsibility of the Solid Waste Department.

   Response: As noted on Page 93 in the Plan Update, Chapter 70.95 of the Revised Code of Washington assigns these responsibilities. *No change to the Plan Update is proposed.*

7. Pg xiv Funding: I believe that fees should be increased to reflect a recycling program cost. I know for fact that a 20% rate increase to the City of Moses Lake should not require a rate increase to its consumers (The City currently has a $ 4 million surplus in the sanitation fund and nets in excess of $ 200,000 yearly).

   Response: The current disposal fees at the Ephrata Landfill include the cost of recycling programs that Grant County implements, and will continue to do so. Grant County has no influence on the City of Moses Lake's (or other cities') budget process, fees, or dedicated funds. *No change to the Plan Update is proposed.*