

Clallam County Comprehensive Solid Waste Management Plan Update 2014

Prepared for

Clallam County
223 East 4th St
Port Angeles, WA 98362

Prepared by

Meggan Uecker
MegganU@gmail.com
360-809-3305

CITATION

Clallam County. 2014. Clallam County Comprehensive Solid Waste Management Plan Update 2014. Prepared by Meggan Uecker, Port Angeles, Washington. December 2014.



STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

P.O. Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

December 19, 2014

Mr. Bob Martin, P.E.
Administrative Director
Clallam County Public Works
223 East Fourth Street, Suite 6
Port Angeles, WA 98362

Dear Mr. Martin:

RE: Final Draft Submittal of the 2014 Clallam County Comprehensive Solid and Hazardous Waste Management Plan

The Washington State Department of Ecology (Ecology) is pleased to approve the 2014 Final Clallam County Comprehensive Solid and Hazardous Waste Management Plan (plan). Clallam County submitted the plan for final review on December 3, 2014. I appreciate the work this plan represents including the efforts of the Tribes, the solid waste staff, the Solid Waste Advisory Committee (SWAC), community businesses, solid waste industries, government officials, and the public.

I look forward to Clallam County's successful plan implementation and reaching your solid waste management goals. Solid waste planning serves as an important tool for public input, financing, grant eligibility, and implementation. Clallam County and the Solid Waste Advisory Committee (SWAC) should continue to review the plan and revise it as necessary to reflect the current county solid waste system.

Please send Ecology two copies of your finalized 2014 plan and I will forward one to the Washington Utilities and Transportation Commission. Contact Julie Robertson at (360) 407-6471 or julie.robertson@ecy.wa.gov for any questions or assistance.

Sincerely,

A handwritten signature in black ink, appearing to read "Peter Y. Lyon".

Peter Y. Lyon
Regional Section Supervisor
Waste 2 Resources Program

cc: Julie Robertson, Ecology
Penny Ingram, WUTC

Acknowledgements

The 2014 Clallam County Comprehensive Solid Waste Management Plan was updated through the cooperative efforts and input of the following people, and organizations that they represent:

**Clallam County Solid Waste Advisory Committee,
members and attendees, past and present**

Clallam County Public Works Staff

Clallam County Environmental Health Division Staff

City of Port Angeles Solid Waste Division Staff

The City of Sequim

The City of Forks

The Makah Nation

The Washington Department of Ecology, Waste2Resources Staff

Solid Waste Advisory Committee

- Laura Dubois, City of Sequim
- Rod Fleck, City of Forks
- Brent Gagnon, West Waste
- Bob Martin, Clallam County
- Tom McCabe, City of Port Angeles
- Steve Pendleton, Makah Tribe
- Faleana Wech, North Olympic Building Association
- Kent Kovalenko, Murray's Olympic Disposal

Staff

- Helen Freilich, City of Port Angeles
- Jennifer Garcelon, Clallam County Environmental Health
- Meggan Uecker, 2013-14 Plan Update Coordinator

Ecology

- Julie Robertson, Waste 2 Resources

TABLE OF CONTENTS

EXECUTIVE SUMMARY	i
INTRODUCTION	i
BACKGROUND	ii
Economic Challenges	ii
The Port Angeles Landfill Bluff Stabilization Project.....	ii
Beyond Waste Plan.....	ii
SUMMARY OF CONDITIONS AND RECOMMENDATIONS	iii
Solid Waste Collection, Transfer, and Disposal	iii
Waste Prevention, Recycling, and Composting.....	iv
SPECIAL WASTES	v
Construction, Demolition and Land-Clearing Debris (CDL) Wastes	vi
Electronic Wastes.....	vi
Marine Debris	vi
Wood Waste.....	vii
REGULATION AND ADMINISTRATION	vii
THE CLALLAM COUNTY HAZARDOUS WASTE MANAGEMENT PLAN	viii
1. OVERVIEW	1
1.1 ROLE AND PURPOSE	1
1.2 RELATIONSHIP TO OTHER SOLID WASTE PLANS AND AGREEMENTS	2
1.3 PREVIOUS SOLID WASTE PLANS	2
1.4 PROCESS AND SCHEDULE FOR UPDATING THE CSWMP	8
1.4.2 Periodic Evaluation, Amendment, and/or Revision Schedule.....	9
1.5 GOALS AND OBJECTIVES OF THE CSWMP	10
1.5.1 Goals and Objectives for this Update	10
1.5.2 Goals and Objectives for Managing Solid Waste.....	10
2. BACKGROUND OF THE PLANNING AREA	12
2.1 INTRODUCTION.....	12
2.1.1 DESCRIPTION OF THE PLANNING AREA	12
2.1.2 Natural Environment	12
2.1.3 Topography	12
2.1.4 Geology and Soils	12
2.1.5 Climate	13
2.1.6 Human Environment	13
2.1.7 Current Population/Demographics	13
2.2 EVALUATION OF POTENTIAL SITES FOR SOLID WASTE FACILITIES	15
2.2.1 Solid Waste Facility Siting Process.....	15
2.2.2 Solid Waste Facility Siting Factors	16
2.2.3 Facility Construction, Capital Acquisition, and Financing	20

TABLE OF CONTENTS (contd.)

3. CHARACTERISTICS OF THE MATERIALS WASTE STREAM.....	21
3.1 INTRODUCTION.....	21
3.2 SOLID WASTE GENERATION AND ANALYSIS METHODS	21
3.3 SOLID WASTE QUANTITIES.....	21
3.3.2 Projections of MSW Disposal and Recycling Quantities.....	23
3.3.3 Other Waste Types Disposed (Industrial, etc.).....	25
3.4 SOLID WASTE COMPOSITION	26
3.4.1 MSW Disposed Composition	26
3.4.2 MSW Recycled Material & Diversion Composition.....	27
4. COLLECTION & TRANSFER.....	30
4.1 INTRODUCTION.....	30
4.2 SOLID WASTE COLLECTION	30
4.2.1 Existing Conditions	30
4.2.2 Needs and Opportunities	34
4.2.3 Alternative Methods	34
4.2.4 Recommendations	35
4.3 IN-COUNTY TRANSFER AND DROP BOX FACILITIES	35
4.3.1 Existing Conditions	35
4.3.2 Needs and Opportunities	37
4.3.3 Alternative Methods	38
4.3.4 Recommendations	38
5. DISPOSAL	41
5.1 INTRODUCTION.....	41
5.2 INCINERATION & ENERGY RECOVERY.....	41
5.2.1 Existing Conditions	41
5.2.2 Needs and Opportunities	43
5.2.3 Alternative Methods	44
5.2.4 Recommendations	44
5.3 IN-COUNTY LANDFILLING	44
5.3.1 Existing Conditions	44
5.3.2 Needs and Opportunities	46
5.3.3 Alternative Methods	47
5.3.4 Recommendations	48
5.4 IMPORT/EXPORT	48
5.4.1 Existing Conditions	49
5.4.2 Needs and Opportunities	49
5.4.3 Alternative Methods	50
5.4.4 Recommendations	51
6. WASTE REDUCTION.....	52
6.1 INTRODUCTION.....	52

TABLE OF CONTENTS (contd.)

6.2 WASTE PREVENTION	52
6.2.1 Existing Conditions	52
6.2.2 Needs and Opportunities	55
6.2.3 Alternative Methods	56
6.2.4 Recommendations	57
6.3 RECYCLING	58
6.3.1 Existing Conditions	58
6.3.2 Needs and Opportunities	62
6.3.3 Alternative Methods	62
6.3.4 Recommendations	64
6.4 COMPOSTING	65
6.4.1 Existing Conditions	65
6.4.2 Needs and Opportunities	67
6.4.3 Alternative Methods	68
6.4.4 Recommendations	69
7. SPECIAL WASTES	71
7.1 INTRODUCTION	71
7.2 AGRICULTURAL WASTES	72
7.2.1 Existing Conditions	72
7.2.2 Needs and Opportunities	72
7.2.3 Recommendations	72
7.3 ANIMAL CARCASSES	73
7.3.1 Existing Conditions	73
7.3.2 Needs and Opportunities	73
7.3.3 Alternative Methods	73
7.3.4 Recommendations	73
7.4 ASBESTOS WASTES	73
7.4.1 Existing Conditions	73
7.4.2 Needs and Opportunities	74
7.5 ASH	74
7.5.1 Existing Conditions	74
7.5.2 Needs and Opportunities	74
7.5.3 Alternative Methods	74
7.5.4 Recommendations	75
7.6 AUTO HULKS	75
7.6.1 Existing Conditions	75
7.6.2 Needs and Opportunities	75
7.6.3 Alternative Methods	75
7.6.4 Recommendations	75
7.7 BIOMEDICAL WASTES	76
7.7.1 Existing Conditions	76
7.7.2 Needs and Opportunities	76

TABLE OF CONTENTS (contd.)

7.7.3	Alternative Methods	76
7.7.4	Recommendations.....	76
7.8	BIOSOLIDS.....	76
7.8.1	Existing Conditions	76
7.8.2	Needs and Opportunities.....	77
7.8.3	Alternatives.....	77
7.8.4	Recommendations.....	77
7.9	CONSTRUCTION, DEMOLITION, AND LAND-CLEARING WASTES.....	77
7.9.1	Existing Conditions	77
7.9.2	Needs and Opportunities.....	78
7.9.3	Alternative Methods	78
7.9.4	Recommendations.....	79
7.10	CONTAMINATED SOILS	79
7.10.1	Existing Conditions	79
7.10.2	Needs and Opportunities.....	79
7.10.3	Recommendations.....	79
7.11	DERELICT VESSELS	80
7.11.1	Existing Conditions	80
7.11.2	Needs and Opportunities.....	80
7.12	ELECTRONIC WASTES.....	80
7.12.1	Existing Conditions	80
7.12.2	Needs and Opportunities.....	80
7.12.3	Recommendations.....	81
7.13	MARINE DEBRIS.....	81
7.13.1	Existing Conditions	81
7.13.2	Needs and Opportunities.....	81
7.13.3	Alternative Methods	82
7.13.4	Recommendations.....	82
7.14	MODERATE RISK WASTES	82
7.14.1	Existing Conditions	82
7.15	PHARMACEUTICAL WASTE.....	82
7.15.1	Existing Conditions	82
7.15.2	Needs and Opportunities.....	83
7.15.3	Alternative Methods	83
7.15.4	Recommendations.....	83
7.16	STREET SWEEPINGS.....	83
7.16.1	Existing Conditions	83
7.16.2	Needs and Opportunities.....	84
7.17	TIRES	84
7.17.1	Existing Conditions	84
7.17.2	Needs and Opportunities.....	84
7.18	WOOD WASTES	84

TABLE OF CONTENTS (contd.)

7.18.1 Existing Conditions	84
7.18.2 Needs and Opportunities.....	85
7.18.3 Alternative Methods	86
7.18.4 Recommendations.....	86
7.19 OTHER PROBLEMS	86
7.20 PET WASTES.....	86
7.20.1 Existing Conditions	86
7.20.2 Needs and Opportunities.....	87
8. REGULATION AND ADMINISTRATION.....	88
8.1 INTRODUCTION.....	88
8.2 REGULATION AND ADMINISTRATION	88
8.2.1 Existing Conditions	88
8.2.2 Needs and Opportunities.....	93
8.2.3 Alternative Methods	94
8.2.4 Recommendations.....	96
9. SEPA ENVIRONMENTAL CHECKLIST.....	97
10. COST ASSESSMENT QUESTIONNAIRE.....	109
INTRODUCTION	109
1. DEMOGRAPHICS	110
2. SYSTEM COMPONENT COSTS.....	111
3. FUNDING MECHANISMS	117
11. REFERENCES	121
APPENDICES	
A Recommendations	
B Interlocal Agreement and Adoption of the CSWMP	
C Rates and Regulations	
D The Clallam County Hazardous Waste Management Plan	
E State Environmental Policy Act (SEPA) Determinations of Significance	
F Summary of Ecology & Public Comment on Preliminary Draft & Response	
G Clallam County Solid Waste Advisory Committee Bylaws	
H Recycled Asphalt Shingles Feasibility Report	
LIST OF FIGURES	
3-1 Clallam County Waste Generation Trends 2005-2012	24
3-2 West WGA Waste Stream Composition by Material Class.....	27
4-1 Makah Transfer Station.....	37
4-2 Clallam County Solid Waste Collection Service Areas	40
5-1 Exposed refuse at the Port Angeles Landfill.....	46
5-2 Depiction of waste cells 304 and 351	47
6-1 2Good2Toss: Diversion Totals 2005-2012	53

TABLE OF CONTENTS (contd.)

6-2	Recyclopedia Brochure	58
6-3	Materials currently accepted for recycling in Clallam County	60
6-4	Quantity of Yardwaste & Biosolids Composted	66
7-1	Japanese dock remnants	81

LIST OF TABLES

ES-1	Summary of Recommendations	ix
1-1	Status of Recommendations from the 2006 SWMP	3
2-1	Clallam County Population by Area	14
2-2	Clallam County Population Trends	14
3-1	Municipal Solid Waste (MSW) Quantities	23
3-2	Projected MSW Quantities	25
3-3	Recycled Materials Composition & Quantities: 2005 and 2011	28
3-4	Diverted Materials Composition & Quantities: 2005 and 2011	29
4-1	Summary of Existing Collection Conditions	31
5-1	Clallam County Landfill Status in 2014	45
6-1	Curbside & Drop-off Recycling Services in Clallam County	59
8-1	Waste Disposal Permit Fees	90

ACRONYMS

BMP	Best Management Practice
CBCC	Clallam Bay Corrections Center
CCEH	Clallam County Environmental Health
CDL	Construction, Demolition, and Land-Clearing
CSWMP	Comprehensive Solid Waste Management Plan
Ecology	Washington Department of Ecology
EPA	U.S. Environmental Protection Agency
EPP	Environmentally Preferred Purchasing
ILA	Interlocal Agreement
JSWAB	Joint Solid Waste Advisory Board
LFG	Landfill Gas
MRW	Moderate Risk Waste
MSW	Municipal Solid Waste
NRCS	National Resource Conservation Service
NOAA	National Oceanic & Atmospheric Association
OFM	Washington Office of Financial Management
ONP	Olympic National Park
ORCAA	Olympic Region Clean Air Agency
RCW	Revised Code of Washington
SEPA	State Environmental Policy Act
SWAC	Solid Waste Advisory Committee
WAC	Washington Administrative Code
WSU	Washington State University
WUTC	Washington Utilities and Transportation Commission

EXECUTIVE SUMMARY

INTRODUCTION

Since the first solid waste management plan was prepared for Clallam County in 1972, the County's programs have expanded to meet the needs of its residents, and to comply with the state and federal mandates regarding solid waste. Various changes have included the shift to waste export systems, collection of household hazardous waste, curbside and drop-off collection of recyclables and yard debris, composting of biosolids and yard debris, and many other efforts to improve waste management.

This Comprehensive Solid Waste Management Plan (CSWMP) was prepared in a cooperative effort by consultants and staff from Clallam County, the City of Port Angeles, the City of Sequim, the City of Forks, the Clallam County Solid Waste Advisory Committee (SWAC), and the Washington State Department of Ecology (Ecology). The SWAC members represent not only the interests of their respective agencies and businesses, but as residents and members of the community they also represent the public's interest.

Renewing and continuing the commitments established in the 2006 CSWMP, the objectives of this updated plan are to:

- Review the recommendations of the previous plan.
- Describe current characteristics of the solid waste system, including the recent transition at the Makah reservation from landfilling to a transfer station and waste export.
- Review current solid waste regulations and policies giving particular attention to waste stream reduction, recycling, and future disposal needs.
- Extend the planning period to 2034 and develop current waste generation data.
- Review existing facilities and solid waste handling practices, and identify additional needs.
- Assess alternatives and develop recommendations for future action, incorporating the most recent reviews of studies, statistics, and drivers of solid waste issues in Clallam County.
- Give particular consideration to alternatives that involve the expertise of private industry wherever those capabilities are available.
- Develop capital cost estimates and implementation schedules for required improvements with emphasis on those improvements required within a six-year period.
- Provide guidelines for an equitable balance between convenience, expense, environmental quality, and public health and welfare.
- Incorporate flexibility to anticipate future needs.
- Encourage cooperative and coordinated efforts among government agencies, private companies and the public, to achieve effective management of solid waste.

BACKGROUND

There are a number of conditions which should be considered as a backdrop to solid waste management in Clallam County. These include: (1) the economic conditions in Clallam County, including the impact of the 2008 economic downturn; (2) the Port Angeles Landfill Bluff Stabilization Project, an environmental legacy dilemma demanding urgent response; and (3) the State's continued direction for managing waste as represented in Ecology's 2009 *State Solid and Hazardous Waste Beyond Waste Plan*.

Economic Challenges

Consistent with trends observed across the United States, Clallam County has been impacted by the economic downturn of 2008. This slowdown included a significant reduction in waste generation rates, as consumers began buying and building less. Municipal solid waste generation rates dropped 17% in Clallam County between 2005 and 2011, a decrease of thousands of tons. Uncertainty over economic recovery rates continues.

Clallam County's solid waste system relies heavily on revenue from tipping fees, the price per ton a customer pays for waste disposal. Therefore, less waste generation has meant a reduction in revenue. Variable costs such as transportation remain or have increased. Critical special operations at the closed Port Angeles Landfill require unexpected funding from the solid waste budget.

Other factors could also affect this economic picture. Population growth rates in Clallam County have slowed and are expected to remain as such, with implications for solid waste generation and tipping fee revenue relative to existing populations.

The Port Angeles Landfill Bluff Stabilization Project

At the closed Port Angeles Landfill, a marine bluff acts as the sole buttress between the Strait of Juan de Fuca and large quantities of garbage between 60 and 80 feet deep. In the summer of 2011 during maintenance inspections, City of Port Angeles staff observed that the bluff face had experienced localized failure at one location along the unprotected eastern half, exposing some refuse at the top of the bluff. Subject to severe wave action, failures of this unstable bluff are expected to be sudden and episodic.

The City of Port Angeles Public Works and Utilities Department has developed a number of alternatives to reduce or eliminate the risk of refuse entering the marine environment; in which waste would be removed from the East 304 Cell, in part or completely, and relocated on-site or transferred off-site. Some alternatives also would decrease the rate of bluff erosion.

The City has been working with consultants and Ecology to perform initial studies and design and to obtain funding for initial phases of work. Funding will occur by bonds repaid through solid waste tipping fees and other sources.

Beyond Waste Objectives

Beyond Waste is the Washington state plan for managing hazardous and solid waste. The clear and simple goal of this 30-year plan is to eliminate wastes and toxics whenever we can and use the remaining wastes as resources. For an effective and cheaper approach to waste management, the Beyond Waste Plan shifts from a reactive approach, focusing on management and clean-up, to a proactive approach, with an emphasis on preventing waste in the first place. The Beyond Waste Plan is aligned with Ecology priorities of mitigating climate change, protecting Washington waters, and reducing toxic threats.

The Beyond Waste Plan focuses on five areas or initiatives:

- Significantly reduce most wastes and the use of toxic substances in Washington's industries.
- Significantly reduce small-volume hazardous wastes from businesses and households.
- Expand the recycling system in Washington for organic wastes such as food wastes, yard waste, and crop residues.
- Reduce the negative impacts from the design, construction, and operation of buildings.
- Develop a system to measure progress in achieving our goals.

Reduce, reuse, recycle is a central tenet of solid waste management systems. Clallam County's solid and hazardous waste reduction goals demonstrate its commitment to the state Beyond Waste Plan.

SUMMARY OF CONDITIONS AND RECOMMENDATIONS

An overview of existing conditions and a narrative summary highlighting some of the recommendations of this CSWMP are provided below. A table follows that identifies lead agencies, implementation schedules, and funding sources for each recommendation. The full text of the recommendations is provided as Appendix A.

RCW 70.95.090(3)(c) requires that the plan identify a six-year construction and capital acquisition program for solid waste facilities that may be considered. However, no new public facilities are identified in this CSWMP or expected in the next six years, as documented in the recommendations below.

RCW 70.95.090(3)(d) requires that the plan provide information on the financing of both capital costs and operational expenditures of the proposed solid waste management system. As described above, no major capital projects are proposed. Operational expenditures and associated financing are described in Chapter 10 of this CSWMP.

Solid Waste Collection, Transfer, and Disposal

Collection and Transfer- There are six garbage collection operations in Clallam County. These operations, and residents who opt to self-haul, currently take municipal solid waste (MSW) to (1) the Regional Transfer Station, (2) the Makah Transfer Station, (3) the Blue Mountain Drop Box and Recycling Center or (4) the privately owned West Waste Transfer Station in Forks prior to export out of the County for disposal.

Refuse collection is mandatory within the cities of Port Angeles & Sequim and is available curbside in those areas; curbside recycling and yard waste collection is also available. As a low-cost strategy to make recycling easier, and increase participation rates, it is recommended that Clallam County consider a combined service ordinance for curbside recycling pick up where curbside garbage collection occurs throughout the county.

Recycling currently may be put in drop boxes at the Regional Transfer Station and Blue Mountain Drop Box and Recycling Center at no charge. Clallam County will consider user fees at the transfer and drop box facilities for recyclable materials if the cost of service determines that collection of recyclables becomes a significant net loss for the transfer stations.

Based on population projections, Clallam County has estimated future MSW quantities and infers that the existing collection system, transfer stations and drop box facilities should be

able to handle the future expected quantities of solid waste. As a contingency, the hours of operation or number of containers at a facility could be increased, or additional drop-box facilities could be considered. A waste characterization study or periodic monitoring of MSW at the Regional Transfer Station is recommended to provide a better picture of the Clallam County waste stream composition in order to apply the best strategies for ongoing management of solid waste.

Disposal- Although incineration of municipal solid waste provides an alternative to waste export, the cost could likely not compete with the cost of waste export. There are two biomass burners in Clallam County which utilize hog fuel made from wood waste. Clallam County will continue to evaluate opportunities for the incineration of select waste streams, energy recovery from landfill gas, biomass-to-energy, and biogas-to-energy operations on a case-by-case basis.

While Clallam County has entirely changed over to a waste export system, issues remain at two local, closed landfills. The Port Angeles Landfill, as discussed above, requires urgent action to reduce or eliminate the risk of refuse from entering the marine environment, due to erosion of the bluff which stands between exposed cells of garbage and the Strait of Juan de Fuca. The Makah Nation, which closed the Neah Bay Landfill in 2011, is still pursuing funding for post-closure activities.

Waste Prevention, Recycling and Composting

Waste reduction can be a cost-competitive, pollution-preventing solid waste management strategy. Waste prevention, recycling, and composting, all methods of waste reduction, are employed in a variety of ways in Clallam County to reduce environmental burden, create jobs and save money, and meet waste reduction goals.

Waste Prevention - Waste prevention is defined as those methods and activities that avoid the creation of waste. The focus of waste prevention will continue to be public information and education with themes of reducing the weight and volume of waste collected; increasing material and product life through repair and reuse; reducing or eliminating packaging; and decreasing product consumption.

Waste prevention activities range from exchanges such as the web-based 2good2toss.com, where participants buy, sell or give away items they can't use anymore, to commercial deconstruction projects, to donations of unsold food from stores to charities. Continued efforts such as these, paired with recognition, promotion and other support from public and private entities, can further realize waste prevention gains.

Opportunities for waste prevention at the commercial level can be supported through business waste audits or new prevention programs. This CSWMP encourages the pursuit of funding and opportunities for public/private partnerships and programs that target organic waste reduction in specific. As well, Clallam County and its municipalities can provide an example for businesses by adopting existing or developing their own waste reduction programs.

Recycling - Clallam County currently recycles approximately 26 percent of its solid waste. The SWAC recommends a goal of a 30 percent recycling rate within the next 5 years, with an eventual goal of 40 percent recycling for the County in the long term. These goals do not include the numerous categories of waste that are diverted from disposal but don't fall into the traditional definition of municipal recycling such as asphalt, even though diversion is also a significant method of waste reduction. Recycling options include drop-off sites, household (curbside) collections, commercial collections, and various collection or buy-back centers.

As with waste prevention, existing recycling efforts will continue. Ensuring the public knows what and where materials are accepted is a key to increasing the recycling rate. Expanding

the types of materials collected or adding additional recycling drop boxes will be considered on a case by case basis. Outreach, education, and technical support for recycling will be especially focused on specific groups such as residents of multi-family properties, businesses, schools, and areas where residents currently do not receive curbside recycling services.

Another service that will be considered is providing recycling in public places. This is a highly visible way to promote and educate about recycling, impress visitors and attract business. This often complements new infrastructure and development and demonstrates values around waste reduction, resource conservation, and state and local mandates.

In 2007, a law was passed in Washington requiring that vendors provide recycling at all events held within a jurisdiction where curbside recycling programs exists. Efforts to educate and help event vendors abide by this law will occur where applicable in Clallam County.

Clallam County and cities will consider revising their purchasing policies to encourage or require the use of recycled materials. In so doing, the County and cities would help to build the local market for recycled materials and promote the idea of purchasing recycled products.

Composting - Composting can be defined as the controlled biological decomposition of yard debris, food, sewage, or other organic waste to produce a beneficial product. Current practices in Clallam County include: composting of yard debris from self-haul and curbside collections (in the cities of Sequim and Port Angeles) at the Port Angeles Composting Facility, yard debris composting at private facilities from self-haulers, composting of food and yard waste by commercial generators for on-site use, and home composting supported through education and outreach.

The amount of yard debris and biosolids processed at the Port Angeles Composting Facility has been generally increasing since its inception. The Composting Facility is operating at 74% capacity, although some yard waste is imported to maintain material levels needed for composting of biosolids suggesting adequate processing capacity at the Composting Facility for the five year planning window addressed in this plan. In 2007, the City of Port Angeles began marketing the product from the Composting Facility as “Garden Glory”, a Class A compost.

State and County waste reduction goals mandate a significant focus on removing organic material from the waste stream. To that extent, the County and its cities will continue to develop end-use markets for compost, hog fuel, and mulch, and lead by example by maximizing its own use of these products. Other strategies for reducing organics in the waste stream include investigating options for handling food waste in a rural area, encouraging home composting through education and outreach, and considering expansion of curbside or drop box services for yard waste in areas that currently don’t have these services.

SPECIAL WASTES

Special wastes generally require special handling and disposal for one or more reasons, such as potential toxicity, large quantities, or size and weight problems. Most of these wastes are best disposed of somewhere other than in a municipal solid waste disposal system. Eighteen special wastes and waste problems are identified in the CSWMP, and specific recommendations are developed for eleven special wastes (agricultural wastes, animal carcasses, ash, auto hulks, construction and demolition wastes, contaminated soils, electronic wastes, marine debris, pharmaceutical wastes, and wood wastes). Conditions and recommendations for four of the special wastes are summarized below.

Construction, Demolition, and Land-Clearing (CDL) Wastes

Construction, demolition and land-clearing (CDL) wastes are defined simply as the wastes that are generated from construction and demolition activities and include new and used building materials, concrete, asphalt, soil, stumps, and brush that is generated at construction or demolition sites. These wastes are usually generated at a rate proportional to construction activity, which dropped significantly beginning with the 2008 economic downturn. Yet CDL waste remains a large component of the waste stream in Clallam County and presents an opportunity for environmentally preferable recycling and reuse, including cost benefit.

Private and public entities promote, provide and utilize options for recycling and reusing CDL waste in Clallam County. These range from the retailing of used building materials to crushing asphalt for road aggregate. Clallam County will continue to promote existing opportunities for the reduction, reuse, and recycling of CDL wastes; enhance the recycling of CDL wastes by establishing expanded markets for the materials; and only consider the development of a limited purpose disposal site for non-recyclable CDL wastes if existing methods for disposing or diverting the waste are inadequate, especially for big demolition projects.

Electronic Wastes

In 2006, the State of Washington passed a law which required companies that make and sell certain electronic products to take back and recycle their products. This law created a program, E-Cycle Washington, which designates locations in every county to accept used electronics from households, small businesses, schools & school districts, small governments, special purpose districts, and charities- free of charge. There are three current E-Cycle locations in Clallam County accepting TVs, computers, monitors, tablet computers and e-readers.

Recycling of electronic wastes has increased over the years per capita, but the amount of electronic waste generated per capita in Washington State has increased even faster. This is likely due to the increasing ubiquity of electronic wastes as such products increase in popularity and affordability. These wastes contain components of value such as rare earth metals, as well as toxic materials, therefore it is imperative that they are recycled.

Clallam County will continue to work with and educate the public on how to handle electronic waste. As well, it will consider additional E-Cycle locations, especially on the west end.

Marine Debris

With 250 miles of shoreline, Clallam County has been tackling the issue of washed up marine debris such as styrofoam, plastic, treated wood, nylon rope, glass, and metal for decades. The 2011 Japanese earthquake and tsunami brought this issue to international attention, sweeping an estimated 5 million tons of debris into the Pacific Ocean. Marine debris from this event began appearing on Clallam County beaches in 2012 and is predicted to continue for some years.

National, state and local organizations operate a variety of marine debris management efforts; including drafting the 2012 Washington State Marine Debris Response Plan which identifies key tasks and cooperative stakeholder response. This CSWMP recognizes the unique issues regarding marine debris. Clallam County will provide outreach and education to the public on proper response and prevention of marine debris and coordinate communication and outreach efforts with state and federal partners for consistent messaging.

Wood Waste

The forest products industry in Clallam County generates wood shavings, chips, sawdust, log ends, bark, hog fuel, sorting yard wastes, pulp and paper mill sludges, and boiler ash. Wood waste is also accumulated through the operation of marine terminals and adjacent log yards. Many of the major producers of wood waste already recycle it through private companies for use as a soil amendment, hog fuel, and paper making.

Clallam County will explore the possibility of recovering additional amounts of wood waste through uses like compost feedstock or hog fuel. If necessary, Clallam County and its municipalities will increase the market for landscaping mulch produced from log yard waste through public procurement programs. Clallam County will also consider proposals for alternative methods for managing wood waste.

REGULATION AND ADMINISTRATION

Oversight of the solid waste system in Clallam County ranges from federal and state rules and regulations to local management and enforcement activities. The Clallam County Road Department manages activities such as litter clean up while the Environmental Health Department issues permits and inspects facilities. Other authorities include the County and Cities' Public Works Departments, including Tribal Councils and Tribal Public Works Departments. Local codes contain solid waste rules. The Clallam County Solid Waste Advisory Committee, (SWAC) assists in the implementation of programs and policies concerning solid waste handling and disposal, and reviews and comments on proposed changes to the CSWMP. Its membership is comprised of nine representatives; one from each of the incorporated cities, the waste industry, tribal councils, Clallam County, state and federal agencies, private industry, and one at-large.

A 2007 Interlocal (ILA) agreement between Clallam County and the cities of Port Angeles and Sequim established roles and responsibilities of the signatories to provide for competitively-priced Regional Solid Waste Export and Transfer System facilities and services. It also centralized responsibility for operating and administering this System with the City of Port Angeles, established an enterprise fund for deposit of revenues from operation and management, and established the Joint Solid Waste Advisory Board, which reviews policies, procedures, costs, rates and operates as an advisory group to the Port Angeles City Council and SWAC. Alternatives for solid waste administration include establishing a solid waste district, or establishing a special district based on Home Rule Charter. Further investigation of the benefits and drawbacks of the former alternative is recommended.

It is recommended that Clallam County and the Cities of Port Angeles and Sequim continue to meet their respective commitments as specified in the ILA for the Regional Solid Waste Export and Transfer System. Also, to provide stronger coordination of county-wide solid waste management activities in Clallam County, it is recommended that an annual, comprehensive analysis assessing the solid waste system be completed; and the formation of a Solid Waste Planning Lead position at the County level be considered. It is also recommended that Clallam County consider a flow control ordinance.

THE CLALLAM COUNTY HAZARDOUS WASTE MANAGEMENT PLAN

The first hazardous waste plan for Clallam County was developed in 1991 to comply with The *Hazardous Waste Management Act* Chapter 70.105 of the Revised Code of Washington (RCW). A 2012 update is included as part of this CSWMP as Appendix D. In this revision, there is new emphasis on waste reduction, product stewardship, and other strategies outlined in Ecology's *Beyond Waste Plan*.

The Hazardous Waste Management Plan develops a plan for managing small quantities of hazardous waste in Clallam County. The goal of the Hazardous Waste Management Plan is to provide safe disposal options for hazardous waste to protect the stormwater, ground water, environment and human health in Clallam County. These materials should not be poured down a household or storm drain or transported in the garbage to a landfill.

Clallam County Environmental Health and the City of Port Angeles, together with other private and public entities addressing hazardous waste, provide program elements such as the collection of household hazardous waste at the Moderate Risk Waste Facility (MRWF), household hazardous waste education and outreach, small business technical and collection assistance, enforcement, and used oil collection.

Strategic goals of the plan for the next five years include further integration of product stewardship programs such as mercury-containing lights and e-waste recycling; considering the acceptance of small business hazardous waste at the MRWF, and development of an online clearinghouse for businesses to work together on their hazardous waste disposal.

Table ES-1. Summary of Recommendations

Activity	Lead Agency	Schedule	Funding Source*
Solid Waste Collections:			
CO1) Consider a combined service ordinance for Clallam County for curbside recycling pick up where curbside garbage collection occurs.	Clallam County, Cities, JSWAB, collection companies	As needed	Collection Fees
CO2) Clallam County should further investigate the impacts of instituting universal collection service across the county.	Clallam County, SWAC	As needed	Collection Fees
In-County Transfer and Drop Box:			
T1) The Clallam County SWAC, JSWAB, and other governmental agencies should continue to work together to develop plans and programs, while also continuing to explore viable alternatives, for waste export and transfer and related options, such as extended hours of operation, additional drop boxes, and additional facilities.	Clallam County, others	Ongoing	Tipping fees
T2) Study the possibility of placing additional containers at all transfer and drop box sites to collect source-separated yard wastes and to collect additional recyclable materials.	Clallam County, others	Ongoing	Tipping fees
T3) Obtain funding for a waste characterization study at the Regional Transfer Station. Alternately, develop a plan for periodically monitoring municipal solid waste received at transfer and drop box facilities, with an emphasis on noting significant quantities of potentially-recyclable materials (yard waste, scrap metals, textiles, etc.).	Clallam County, City of Port Angeles, collection companies	Every 2 years	Tipping fees, grants
T4) Consider user fees at the transfer and drop box facilities for recyclable materials if the cost of service determines that collection of recyclables becomes a significant net loss for the transfer stations.	JSWAB & collection companies	As needed	Tipping fees
Incineration & Energy Recovery:			
I1) Evaluate new proposed incineration projects for select waste streams and/or locations based on an objective review of the potential impacts to human health and environmental quality, as well as a comparison to alternative disposal methods.	Clallam County, SWAC and JSWAB	As needed	Tipping fees
ER1) Investigate and develop proposals for energy recovery methods, on a case by case basis	City of Port Angeles	As needed	Grants/tipping fees
ER2) Work with City of Port Angeles staff to continue to evaluate a range of opportunities to use the LFG produced at the City-owned landfill.	City of Port Angeles	As needed	Permit fees and private funds

Activity	Lead Agency	Schedule	Funding Source*
In-County Landfilling:			
LF1) Consider the range of alternatives necessary to reduce or eliminate the risk of refuse from entering the marine environment and to slow down the rate of bluff erosion at the Port Angeles Landfill.	City of Port Angeles, JSWAB	2014-15	Bonds, other
LF2) Maximize the development of appropriate state and federal grant funding to reduce impacts to utility ratepayers when implementing corrective actions at the Port Angeles Landfill.	City of Port Angeles, JSWAB	2014-15	Other
LF3) Consider reopening the existing WAC 351-compliant MSW disposal cell at the Port Angeles Landfill necessary to accommodate partial or complete removal of waste from the 304-compliant cell to reduce or eliminate the risk of refuse from entering the marine environment.	City of Port Angeles, JSWAB	2014-15	Bonds, other
LF4) Support post-closure activities at the Neah Bay Landfill.	Makah Nation, Clallam County	Ongoing	Grants
LF5) Consider proposals and options to develop special-purpose landfills, such as wood waste or construction and demolition waste landfills, as they are proposed.	CCEH and JSWAB	Ongoing	Permit fees
Waste Export/Import			
WE1) Continue to export solid and other permitted waste from the Regional Transfer Station to an out of county regional landfill.	City of Port Angeles	Ongoing	Tipping fees
WE2) Encourage West Waste to continue their waste export activities and to possibly expand these activities as needed to serve additional west end customers.	Clallam County, SWAC	Ongoing	Collection fees
WE3) In preparation for natural disaster, require any contracts with private businesses for waste export services to identify alternative disposal plans, including alternative routes and modes of transportation.	Cities, SWAC, CCEH	As needed	Tipping and/or permit fees
Waste Prevention:			
WP1) Continue public information and education with themes of reducing the weight and volume of waste collected; increasing material and product life through repair and reuse; reducing or eliminating packaging; and decreasing product consumption.	City of Port Angeles, and CCEH	Ongoing	Tipping fees and grants
WP2) Encourage the formation of citizen advisory/action groups to help with public education efforts.	SWAC	Ongoing	Tipping fees for staff time

Activity	Lead Agency	Schedule	Funding Source*
Waste Prevention (contd.)			
WP3) Use existing county and city websites to promote waste prevention.	Clallam County & Cities	Ongoing	Tipping fees
WP4) Conduct waste audits, targeting small to medium-sized businesses first, on the assumption that the larger businesses have the staff and other resources to best meet their needs. Consider the idea of waste exchanges and similar activities directed specifically at businesses for future implementation.	City of Port Angeles and citizen committees	Ongoing	Grants
WP5) Provide an example for the above businesses by adopting WasteWi\$e or developing waste reduction programs within the county and its municipalities	City of Port Angeles & Clallam County	2016	Grants
WP6) Recognize businesses that do a good job of implementing waste reduction programs and practices.	SWAC	Ongoing	Grants
WP7) Pursue funding and opportunities for public/private partnerships and programs that target organic waste reduction.	Clallam County, Cities, others	Ongoing	Grants, private funds
WP8) Support reuse events organized and implemented by others.	Clallam County, Cities, others	Ongoing	Grants and tipping fees
Recycling:			
R1) 30% near-term and 40% long-term waste recycling goal.	Clallam County, cities, others	Annually	Utility rates and tipping fees
R2) Continue to collect designated recyclables. Review the list of recyclables annually to ensure the proper materials are being targeted by recycling programs and expand amounts and grades of materials as markets allow.	Clallam County, SWAC, JSWAB	Annually	Utility rates and tipping fees revenue
R3) Promote recycling at multi-family properties and consider restructuring commercial rates to make recycling an economical alternative for these properties as well as commercial businesses.	City of Port Angeles	Ongoing	Utility rates and tipping fees revenue
R4) Continue public education, modeling new programs after existing efforts.	City of Port Angeles	Ongoing	Tipping fees and grants
R5) Consider additional curbside collections where they don't exist, and opportunities to establish drop-off or curbside collections in Tribal Reservations should be supported.	Clallam County, Cities, Tribes	Ongoing	Collection rates
R6) Maintain existing drop-off sites and consider additional sites in the county.	Clallam County, Cities, Tribes	Ongoing	Tipping fees and revenues from commodities
R7) Continue and improve school recycling collection and education programs.	Public and Private Schools and City of Port Angeles; citizen committees	Ongoing	School funds and avoided disposal costs; grants

Activity	Lead Agency	Schedule	Funding Source*
Recycling (contd.)			
R8) Continue to educate about the requirement for recycling at special events such as sport activities and public festivals. Cooperate with private haulers, festival organizers, and volunteers to provide recycling bins and collection.	Clallam County, cities	Ongoing	Tipping fees, permit fees, revenue
R9) Monitor and consider any proposals for the processing of recyclables within the county that may reduce the cost of exporting materials while creating jobs within the county.	SWAC	Ongoing	Tipping fees and grants
R10) Lead by example. Consider expanded recycling programs and adopting policies such as environmentally preferred purchasing of recycled materials within county and city departments.	Clallam County, cities	Ongoing	Collection fees and grants
R11) Encourage all companies and agencies collecting recyclables and other diverted materials in Clallam County to report their data to Ecology.	Clallam County, cities and collectors	Annually	Public and private funds for staff
R12) Establish outdoor public space recycling as a pilot program at select city and county parks, downtowns, and at public transit bus stops as a cooperative venture between government, hauling companies, and business owners.	Clallam County, cities	Ongoing	Collection fees, grants
Composting:			
C1) Continue curbside collection, processing, and composting yard waste at the Port Angeles Composting Facility. Increase the amount of materials processed to the extent of the facility's capacity.	City of Port Angeles	Ongoing	Tipping fees
C2) Work to eliminate illegal dumping and burning of yard waste, therefore increasing diversion to compost facilities.	Clallam County Code Enforcement, ORCAA	Ongoing	Grants, public funding
C3) Continue to develop end uses such as mulch, hog fuel, and compost, and other uses that may also be identified. Lead by example. The county and cities should maximize use of these products in their own projects.	Clallam County, cities	Ongoing	Tipping fees
C4) Consider separate collection of yard debris by Murrey's Olympic Disposal and West Waste in their respective solid waste collection service areas customers demand it and yard waste is found in the garbage.	Clallam County and collection companies	Ongoing	Collection fees
C5) Encourage neighborhood chipping services.	Clallam County, City of Port Angeles	Ongoing	Grants and user fees
C6) Investigate economical and efficient options for handling food waste.	Clallam County, cities, others	Ongoing	Grants, private funds
C7) Continue public education to encourage residents to handle yard debris and food waste separately through home composting and mulching. Continue to offer the Master Composter and other outreach programs.	Clallam County, cities	Ongoing	Tipping and collection fees, grants

Activity	Lead Agency	Schedule	Funding Source*
Special Wastes:			
AG1) The Clallam Conservation District and National Resource Conservation Service should continue to work with producers around the County to implement Best Management Practices to minimize the potential contamination of surface waters with agricultural waste.	Clallam Conservation District and National Resource Conservation Service	Ongoing	Conservation Commission
AG2) Monitor and consider any proposals for processing of agricultural wastes within the County that may increase the ability to process additional amounts of organic wastes while reducing greenhouse gas output.	CCEH, Clallam County, cities	Ongoing	Grants
AN1) Monitor aquaculture industries for waste management issues.	CCEH and SWAC	Ongoing	Grants
ASH1) Continue to encourage the ash-producing companies to explore recycling or other disposal alternatives first. For example, encourage them to investigate land application and industrial applications such as cement.	SWAC, ash producers, and regulatory agencies	Ongoing	Grants and private funding
AUTO1) Continue to identify ideas and alternatives for managing the disposal or accumulation of auto hulks. One option may be to support stronger enforcement of the County ordinance regarding auto hulks.	SWAC, Clallam County, and cities	Ongoing	Grants and private sources
BW1) Monitor disposal of biomedical wastes by small biomedical waste generators for potential problems or risks. Provide increased education or other services as necessary.	CCEH	Ongoing	Grants
CDL1) Promote existing opportunities for recycling of CDL wastes as part of the public education efforts conducted for waste reduction and recycling. In particular, the County and its municipalities should help promote the Built Green concept.	Clallam County, cities, citizen committees, North Peninsula Builders Association	Ongoing	Grants
CDL2) Enhance the recycling of CDL wastes by establishing expanded markets for the materials. These markets include using processed concrete and asphalt concrete for county and municipal public works projects, especially roads and utilities, and processing clean wood material as hog fuel for area boilers.	Clallam County, CCEH, SWAC and JSWAB	Ongoing	Private sources
CDL3) Consider the development of a limited purpose disposal site for non-recyclable CDL wastes if existing methods for disposing or diverting the waste are inadequate. If a separate site is developed and if sufficient quantities of recoverable materials are observed being disposed at this site, additional recycling operations should be considered for those materials.	Clallam County, CCEH, SWAC and JSWAB	As needed	Permitting fees and private funding
CS1) Explore new technologies for managing contaminated soil.	Clallam County	Ongoing	Private sources
EW1) Continue to work with and educate the public on how to handle electronic waste through the state E-Cycle collection program.	CCEH, Cities	Ongoing	Grants and tipping fees
EW2) Clallam County should consider additional E-Cycle locations, especially on the west end.	CCEH, Ecology, City of Forks	Ongoing	Grants

Activity	Lead Agency	Schedule	Funding Source*
Special Wastes (contd.)			
MD1) Continue to provide outreach and education to the public on proper response and prevention of marine debris. Coordinate communication and outreach efforts with state and federal partners for consistent messaging.	CCEH, cities, NOAA & partners	Ongoing	Grants
PW1) CCEH should continue to work with the two hospital districts, law enforcement, retail suppliers, and other healthcare providers to maintain public education programs on how to properly dispose of pharmaceutical waste.	CCEH, community partners	Ongoing	Tipping fees and grants
PW2) Clallam County and the City of Forks should consider establishing a pharmaceutical take back program for west end residents.	CCEH, City of Forks	2015	Tipping fees and grants
WD1) Explore the possibility of recovering additional amounts of wood waste through composting, hog fuel, and biomass-to-energy.	Public sector	Ongoing	Private sources
WD2) Consider proposals for alternative methods for managing wood waste, such as biogas to energy, on a case by case basis.	Clallam County, CCEH, SWAC and JSWAB	Ongoing	Grants, private sources.
WD3) Should the amount of wood waste managed in the solid waste stream increase substantially due to markets, regulations, or other outside influences, collaborate with private companies to develop new ideas for managing this waste stream.	Clallam County, SWAC, private companies	TBD	Tipping fees and grants
Regulation & Administration			
RA1) Clallam County and the Cities of Port Angeles and Sequim should continue to meet their respective commitments, as specified in the ILA for the Regional Solid Waste Export and Transfer System.	JSWAB, Clallam County, cities	Ongoing	Tipping fees
RA2) Develop a consistent methodology for assessing effectiveness and needs of solid waste program, including such measurements as greenhouse gas emissions of the solid waste system and cost analyses. Provide a comprehensive analysis of solid waste activities in an annual summary of the Regional Solid Waste Export & Transfer System.	Clallam County, JSWAB, SWAC	Annually	Tipping fees
RA3) Clallam County should consider adopting a flow control ordinance.	Clallam County, Board of County Commissioners	2014	N/A
RA4) Clallam County should consider establishing a position of Solid Waste Planning Lead to coordinate county-wide solid waste activities.	Clallam County	2014	Tipping fees
RA5) Investigation into the benefits and drawbacks of creating a solid waste disposal district in Clallam County	Clallam County, JSWAB, SWAC	Ongoing	Tipping fees

Tipping fees will be supplemented when necessary and appropriate with financial or in-kind contributions from jurisdictions not using the regional facilities.

1. OVERVIEW

1.1 ROLE AND PURPOSE

This Comprehensive Solid Waste Management Plan (CSWMP) Update 2014 was prepared to provide direction for managing solid waste, including collection and handling, within Clallam County. This CSWMP was developed in response to the Solid Waste Management Act, Chapter 70.95 of the Revised Code of Washington (RCW), which states:

“Each County within the State, in cooperation with the various cities located within such county, shall prepare a coordinated, comprehensive solid waste management plan” (Section 70.95.080).

The Solid Waste Management Act also specifies that this CSWMP must “be maintained in a current condition and reviewed and revised periodically...” Review and revision as necessary is required at least every five years (RCW 70.95.110). This Plan, albeit outside of this five year window, serves as a revision to the July 2006 CSWMP.

This CSWMP addresses solid waste management throughout Clallam County. The incorporated areas, which include the cities of Forks, Port Angeles, and Sequim, had the option to develop their own plans but chose to participate in the County’s planning process through Inter Local Agreements (ILAs) (see Appendix B), as defined per RCW 70.95.080(3)(c). Each city authorizes the county to prepare a plan for the city’s solid waste management for inclusion in the comprehensive county plan.

Tribal Councils were invited to participate in the planning process, including the Makah Tribe, the Quileute Tribe, the Lower Elwha Klallam Tribe and the Jamestown S’Klallam Tribe. While information and recommendations about solid waste management on tribal lands is threaded throughout the CSWMP, it is important to note that the State of Washington, Clallam County, and its municipalities do not have jurisdiction over tribal land. Instead, tribal participation is voluntary.

The minimum contents of a CSWMP are specified by state law (RCW 70.95.090) and further described in the Guidelines for the Development of Local Solid Waste Management Plans and Plan Revisions, February 2010 issued by the Washington State Department of Ecology (Ecology 2010). In summary, the CSWMP must contain:

- Inventory of existing solid waste handling facilities, including an assessment of any deficiencies in meeting current solid waste handling needs.
- Estimated needs for solid waste handling facilities for the next twenty years.
- Program for the development of solid waste handling facilities consistent with minimum functional standards and comprehensive land use plans. A six-year construction and capital acquisition program and a financing plan for capital and operational costs must also be included.
- Program for surveillance and control.
- Inventory of solid waste collection needs and operations, including information on certificated collection companies, municipal operations, population densities of areas covered by either certificated or municipal operations, and projected solid waste collection needs for a period of six years.

- Comprehensive waste reduction and recycling element that provides for reduction of wastes, provides incentives and mechanisms for source separation, and provides opportunities for recycling source-separated materials.
- Waste reduction and source-separated recycling strategies, including residential collection programs in urban areas, drop-off or buy-back centers in rural areas, monitoring methods for programs that collect source-separated materials from nonresidential sources, yard waste collection programs, and education programs.
- Recycling strategies including descriptions of markets, a review of waste generation trends, waste composition information, a description of existing programs and suggestions for additional services, and an implementation schedule.
- Assessment of the impact that implementation of the CSWMP's recommendations will have on solid waste collection costs.
- Review of potential sites for solid waste disposal facilities.

1.2 RELATIONSHIP TO OTHER SOLID WASTE PLANS & AGREEMENTS

In addition to aligning with state regulations and plans, this CSWMP coordinates with pertinent plans and agreements related to solid waste management in Clallam County, including but not limited to:

- The Clallam County Hazardous Waste Management Plan, Appendix D of this CSWMP
- Interlocal Agreement Regarding Regional S.W. Export and Transfer System 2007
- Solid Waste Processing Facility Development and Management Service Agreement 2005
- Port Angeles Transfer Station Operational Plan 2006
- MRW Facility Operations Plan 2007
- Co-Composting Facility Operations Plan: Port Angeles Transfer Station 2007
- Blue Mountain Drop-Box and Recycling Center Operations Plan 2007
- Makah Indian Reservation Solid Waste Management Plan 2003
- Clallam County Code, Chapter 41.10: Solid Waste Regulations, 2004

1.3 PREVIOUS SOLID WASTE PLANS

In September 1972, the first solid waste planning document, the Comprehensive Plan for Solid Waste Management, was completed for Clallam County by URS/Hill, Ingman, Chase and Company of Seattle, Washington. In 1981, an attempt was made by Clallam County and the City of Port Angeles to update this plan through an in-house effort, but this plan was never completed. In 1983, Parametrix, Inc. of Bellevue, Washington, was contracted by Clallam County to revise and update the CSWMP. The final draft of this update was completed in September of 1984, but was not adopted by all jurisdictions. By 1988, solid waste data had significantly changed, so the County's Solid Waste Advisory Committee (SWAC) began to update the 1984 draft plan. At the same time, substantial changes were occurring with state laws and it proved to be impractical to finish revisions to the plan in 1988.

In late 1989, SCS Engineers was retained to finish the process of revising the CSWMP, beginning with the 1988 draft. A final draft of the new CSWMP was completed in December 1992, adopted by the County and cities, and received final approval from Ecology in April 1993.

In 1999, Green Solutions was enlisted to update the 1993 plan, resulting in the November 2000 CSWMP. This plan followed Ecology’s new Guidelines for the Development of Local Solid Waste Management Plans and Plan Revisions, December 1999.

Beginning in 2004, Parametrix was again contracted to update the plan. They produced the 2006 CSWMP. A summary of the Recommendations from the 2006 plan are listed in **Table 1-1**. An amendment to the 2006 plan, which addressed the stabilization of the closed Port Angeles Landfill, was adopted in February of 2013.

Table 1-1. Status of Recommendations from the 2006 SWMP

Year 2006 Recommended Activity		Schedule	March 2013 Status
Waste Prevention:			
WP1)	Continue public information and education with themes of reducing the weight and volume of waste collected; increasing material and product life through repair and reuse; reducing or eliminating packaging; and decreasing product consumption	Ongoing	Ongoing
WP2)	Establish a citizen advisory/action group to help with public education efforts.	July 2006	Completed
WP3)	Use existing county and city websites to promote business waste reduction.	Ongoing	Ongoing
WP4)	Conduct waste audits, targeting small to medium-sized businesses first, on the assumption that the larger businesses have the staff and other resources to best meet their needs. Consider the idea of waste exchanges and similar activities directed specifically at businesses for future implementation.	Ongoing	Ongoing
WP5)	Depending on the results of business waste audits, consider developing a pilot program for reducing commercial food waste.	As needed	Ongoing
WP6)	Provide an example for the above businesses by adopting WasteWi\$e or developing waste reduction programs within the county and its municipalities	2008	Ongoing
WP7)	Recognize businesses that do a good job of implementing waste reduction programs and practices.	2007	Ongoing
WP8)	Support reuse events organized and implemented by others.	Ongoing	Ongoing
WP9)	Better publicize the availability of less-frequent collections in the rural areas, and consider a similar approach throughout Clallam County.	Ongoing	Completed
WP10)	Evaluate the waste prevention program based on whether or not the activities recommended above have been conducted. Back up this performance-based evaluation by conducting surveys every few years to test changes in public attitudes and practices.	Annually	Ongoing
WP11)	Supplement the performance-based evaluation with an assessment of trends in per capital disposal rates.	January 1, 2008	Ongoing
Recycling:			
R1)	30% near-term and 40% long-term waste diversion goal.	Annually	Ongoing
R2)	Continue to recycle the same designated recyclables.	Annually	Ongoing
R3)	Concentrate additional and expanded recycling efforts on three areas: amounts and grades of currently-recycled materials, materials from the commercial/industrial waste stream, and construction and demolition materials.	Ongoing	Ongoing

	Year 2006 Recommended Activity	Schedule	March 2013 Status
R4)	Continue public education, and promoting new programs should be modeled after existing efforts.	Ongoing	Ongoing
R5)	Consider additional curbside collections in the rural areas, and opportunities to establish drop-off or curbside collections in Tribal Reservations should be supported.	Ongoing	Completed
R6)	Maintain existing drop-off sites and consider additional sites in the county. Also consider additional sites for temporary operation during the tourist season, if these can be operated cost-effectively by private recycling firms.	Every spring	Ongoing
R7)	Recycling programs in schools should be maintained and expanded.	Ongoing	Ongoing
R8)	Promote recycling at special events such as sport activities and public festivals. Cooperate with private haulers, festival organizers, and volunteers to provide recycling bins and collection.	Ongoing	Ongoing
R9)	Monitor and consider any proposals for the processing of recyclables within the county that may reduce the cost of exporting materials while creating jobs within the county.	Ongoing	Ongoing
R10)	Lead by example. Consider implementing expanded recycling programs, purchase of recycled materials, and adoption of policies that require this for all of departments in and vendors for the county and its municipalities.	2007	Ongoing
R11)	Together with private collectors, closely examine the potential for local markets for glass and other materials	Completed	Completed
R12)	Require all companies and agencies collecting recyclables in Clallam County to report their data to Ecology.	Ongoing	Ongoing

Composting:

C1)	In Port Angeles, continue curbside collection, processing, and composting yard waste at the Port Angeles Composting Facility. Increase the amount of materials processed to the extent of the facility's capacity. Investigate methods for increasing capacity through accelerated composting techniques.	Ongoing	Ongoing
C2)	Closely monitor the amount of yard debris coming in to the composting facility to determine if new fees are affecting diversion. If yard debris is being diverted through other (i.e., private) operations, consider accepting additional waste streams (e.g., ash, wood) as a co-compost feedstock or yard debris from other areas of the county. If yard debris is being disposed of unlawfully, revisit rate structure.	Ongoing	Completed
C3)	Continue collecting and chipping brush collected at the Sequim drop box. Increase the amount of brush and woody materials processed to the extent the end-uses for chips can accommodate. If capacity becomes an issue for this operation, consider expanding the operation at its current site or a new site or replacing with a composting operation that can also handle other waste streams	Ongoing	Completed
C4)	Continue to develop end uses such as mulch, hog fuel, and compost, and other uses that may also be identified. Lead by example. The county (and its municipalities) should maximize use of these products in its own projects.	Ongoing	Ongoing
C5)	Consider separate collection of yard debris by Olympic Disposal and West Waste in their respective solid waste collection service areas if quantities set out for collection increase significantly.	Ongoing	Completed
C6)	Encourage neighborhood chipping services.	Ongoing	Ongoing
C7)	Continue public education to encourage residents to handle their yard debris separately through backyard composting and use of mulching mowers. Work with WSU Extension to establish a Master Composter Program in Clallam County to present educational programs. Expand	Ongoing	Ongoing

	Year 2006 Recommended Activity	Schedule	March 2013 Status
	educational efforts beyond the City of Port Angeles to other areas of the county		
In-County Transfer and Drop Box:			
T1)	The Clallam County SWAC, JSWAB, and other governmental agencies should continue to work together to develop plans and programs, while also continuing to explore viable alternatives, for waste export and transfer and related options, such as extended hours of operation, additional drop boxes, and additional facilities.	Ongoing	Ongoing
T2)	Study the possibility of placing additional containers at all transfer and drop box sites to collect source-separated yard wastes and to collect additional recyclable materials.	Ongoing	Ongoing
T3)	Develop a plan for periodically monitoring municipal solid waste received at transfer and drop box facilities, with an emphasis on noting significant quantities of potentially-recyclable materials (yard waste, scrap metals, textiles, etc.).	Every 2 years	Ongoing
T4)	Develop a consistent methodology for estimating annual per capita disposal rate, which will be used in combination with other data to assess the effectiveness of and needs for the solid waste program.	Ongoing	Ongoing
T5)	Consider user fees at the transfer and drop box facilities for recyclable materials if the average market price for recyclables drops so low that collection of recyclables becomes a significant net loss for the facilities.	As needed	Ongoing
Incineration:			
I1)	Evaluate new proposed incineration projects for select waste streams and/or locations based on an objective review of the potential impacts to human health and environmental quality, as well as a comparison to alternative disposal methods.	As needed	Ongoing
I2)	Consider energy recovery from landfill gas in the future if and when this becomes economically feasible.	Ongoing	Completed
LF1)	Encourage and support the closure of the Neah Bay Landfill. If the Neah Bay Transfer Station does not proceed, consider directing the waste generated on the Makah reservation to one of the other two transfer stations in Clallam County.	Completed	Completed
LF2)	Consider proposals and options to develop special-purpose landfills, such as wood waste or construction and demolition waste landfills, as they are proposed.	As needed	Ongoing
Waste Export/Import			
WE1)	As planned, export solid waste from the new Port Angeles Transfer Station to the Waste Connections Finley Butte Landfill in Boardman, Oregon following closure of the Port Angeles Landfill at the end of 2006.	Completed	Ongoing
WE2)	Encourage West Waste to continue their waste export activities and to possibly expand these activities as needed to serve additional west end customers who had been shipping waste to the Port Angeles Landfill.	Ongoing	Ongoing
WE3)	Require any contracts with private businesses for waste export services to identify alternative disposal plans, including alternative routes and modes of transportation, should natural disaster or other conditions require re-routing.	As needed	Ongoing
Alternative Disposal Methods			
ADM1)	Pursue the development of a biomass-to-energy facility in Clallam County.	As needed	Completed
ADM2)	Consider proposals for alternative disposal methods, such as biogas to energy, on a case by case basis.	As needed	Completed

	Year 2006 Recommended Activity	Schedule	March 2013 Status
Special Wastes			
AG1)	Continue to work with producers around the County to implement BMPs to minimize the potential contamination of surface waters with agricultural waste.	Ongoing	Ongoing
AN1)	During the next planning period, identify ideas and alternatives for disposing of animal carcasses.	Ongoing	Ongoing
ASH1)	Encourage the ash-producing companies to explore recycling or other disposal alternatives first. For example, encourage them to investigate land application and industrial applications such as cement.	Ongoing	Ongoing
ASH2)	The first priority for the Port Angeles Composting Facility is the diversion of yard debris. However, if additional, private-sector alternatives develop to compete with the City's operation, consider accepting additional materials such as clean ash at the facility.	Ongoing	Completed
AUTO1)	During the next planning period, identify ideas and alternatives for managing the disposal or accumulation of auto hulks.	Ongoing	Ongoing
CDL1)	Promote existing opportunities for recycling of CDL wastes as part of the public education efforts conducted for waste reduction and recycling. In particular, the County and its municipalities should help promote the Built Green concept.	Ongoing	Ongoing
CDL2)	Enhance the recycling of CDL wastes by establishing expanded markets for the materials. These markets include using processed concrete and asphalt concrete for county and municipal public works projects, especially roads and utilities, and processing clean wood material as hog fuel for area hog-fuel boilers.	Ongoing	Ongoing
CDL3)	Consider the development of a limited purpose disposal site for non-recyclable CDL wastes if existing methods for disposing or diverting the waste are inadequate, especially for big projects such as the Elwha Dam demolition. If a separate site is developed and if sufficient quantities of recoverable materials are observed being disposed at this site, additional recycling operations should be considered for those materials.	As needed	Ongoing
CS1)	Explore new technologies for managing contaminated soil.	Ongoing	Ongoing
EW1)	Continue to work with and educate the public on how to handle electronic waste and hold periodic collection events.	Ongoing	Ongoing
MRW1)	Resume countywide educational efforts for proper disposal or reuse of moderate risk waste (MRW). Provide information on the new MRW Facility at the Port Angeles Transfer Station.	Ongoing	Ongoing
MRW2)	Consider continuing MRW collection events in the outlying portions of the county because Port Angeles may not be convenient for all county residents.	Ongoing	Ongoing
PW1)	Work with the two hospital districts, retail suppliers, and other healthcare providers to develop a public education program on how to properly dispose of pharmaceutical waste.	Ongoing	Ongoing
WD1)	Explore the possibility of recovering additional amounts of wood waste through composting, hog fuel, and biomass-to-energy.	Ongoing	Completed
WD2)	If necessary, increase the market for landscaping mulch produced from log yard waste through public procurement programs. As appropriate, encourage private sector companies to follow the public sector's lead in procurement of landscaping mulch produced from log yard waste.	Ongoing	Ongoing

	Year 2006 Recommended Activity	Schedule	March 2013 Status
WD3)	Consider proposals for alternative methods for managing wood waste, such as biogas to energy, on a case by case basis.	2007	Ongoing
WD4)	Should the amount of wood waste managed in the solid waste stream increase substantially due to markets, regulations, or other outside influences, collaborate with private companies to develop new ideas for managing this waste stream.	TBD	Ongoing

1.4 PROCESS AND SCHEDULE FOR UPDATING THE CSWMP

1.4.1 Update Process

This 2014 plan revision of the 2006 CSWMP serves to comply with RCW 70.95.110(1) in keeping the plan in current condition. This plan was prepared in a cooperative effort by a consultant and staff from Clallam County, the City of Port Angeles, Ecology, and the SWAC. SWAC members represent not only the interests of their respective agencies and businesses, but as residents and members of the community, they also represent the public's interest. SWAC members submit applications and are appointed based in part on their amount of community involvement.

The process of updating and adopting this CSWMP involved updating the data and text to reflect the current solid waste system, developing new recommendations and solid waste projections, and retaining pertinent text from the 2006 Plan.

The following methodology was applied:

- Development of a first draft of the CSWMP for SWAC review and comment.
- Development of a State Environmental Policy Act (SEPA) checklist and the Washington Utilities and Transportation Commission (WUTC) Cost Assessment Questionnaire.
- Incorporating SWAC's comments to create the Preliminary Draft CSWMP.
- The County distributes copies of the Preliminary Draft CSWMP for review and comment to the public.
- The Preliminary Draft CSWMP is revised by the County in response to public comment.
- The Preliminary Draft CSWMP is submitted to Ecology and WUTC. Ecology has a 120 review period that includes a 45 day review period for the WUTC.
- Ecology completes the 120 day review and provides written comments to the County that includes the WUTCs written comments.
- The County revises the Preliminary Draft CSWMP. The County incorporates the WUTC and Ecology comments to create a Final Draft of the CSWMP. The county prepares a response to comments summary for inclusion with the Final Draft.
- The Final Draft CSWMP is adopted by the participating jurisdictions including the cities, Tribes, and County.
- The Final Draft CSWMP is submitted for review to Ecology for the 45 day review period.
- Ecology reviews the CSWMP to ensure all issues identified in the preliminary draft review are addressed and the planning requirements are satisfied. The Final Plan becomes the approved plan for the County.

1.4.2 Periodic Evaluation, Amendment, and/or Revision Schedule

RCW 70.95.110, Maintenance of Plans, states that solid waste management plans be reviewed at a minimum of every five years to assess if they reflect the current state of the local solid waste system, including long range handling and financing needs. Keeping the plan updated helps ensure that permits, grants and services can be administered smoothly. Near the end of the five year window, or at any time the planning authority or Ecology deems that an update is necessary, it should be determined whether an amendment or a revision is appropriate. A brief description, examples and the process entailing each of these two different types of updates are outlined below.

Amendments are additions to an existing program or changes that implement a program, rather than define the planning vision. Consequently, amendments do not need to undergo as extensive a review and adoption process. The process to amend the CSWMP consists of the following steps:

1. Draft of plan amendment
2. SWAC review and approval of amendment
3. If rate changes are involved, JSWAB review and recommendation of amendment
4. Submission of amendment within 45 days to Ecology for approval
5. Ratification of amendment by the legislative bodies of jurisdictions signatory to the plan

Examples of plan amendments include:

- Update of the six-year and 20-year projections, which are of the same scope and scale and the current approved plan,
- An interim program being used to provide equivalent service when a full program is delayed,
- Minor changes in the scope of the program, such as the number of facilities permitted, or the inclusion of a new target audience for education, and
- Follow-up activities to plan implementation, such as completing a project based on the results of a feasibility study.

Revisions redefine the vision for local solid waste management; and will always be necessary outside of the five year review period. Additionally, a revision is required to incorporate new or revised WUTC cost assessments (Ecology, 2009).

Examples of situations requiring a plan revision include:

- There is a major shift in the level of service in a program that is not specified in the plan, which might include the addition or subtraction of curbside collections,
- Closure of a local landfill and a transition to long haul,
- Development of a new, private transfer or disposal facility, or
- Regionalization between previously independent planning entities.

The five-year period begins when the current plan has received final approval from Ecology (projected to be in 2014 for this plan). This plan should be reviewed in 2017 to allow time for a revision if necessary, with a goal of adopting an updated CSWMP by 2019.

1.5 GOALS AND OBJECTIVES OF THE CSWMP

1.5.1 Goals and Objectives for this Update

The objectives that were established by Clallam County for this update of the CSWMP were to:

- Review the recommendations of the previous plan.
- Describe current characteristics of the solid waste system, including the recent transition at the Makah reservation from landfilling to a transfer station and waste export.
- Review current solid waste regulations and policies giving particular attention to waste stream reduction, recycling, and future disposal needs.
- Extend the planning period to 2034 and develop current waste generation data.
- Review existing facilities and solid waste handling practices, and identify additional needs.
- Assess alternatives and develop recommendations for future action, incorporating the most recent reviews of studies, statistics, and drivers of solid waste issues in Clallam County.
- Give particular consideration to alternatives that involve the expertise of private industry wherever those capabilities are available.
- Develop capital cost estimates and implementation schedules for required improvements with emphasis on those improvements required within a six-year period.
- Provide guidelines for an equitable balance between convenience, expense, environmental quality, and public health and welfare.
- Incorporate flexibility to anticipate future needs.
- Encourage cooperative and coordinated efforts among government agencies, private companies and the public, to achieve effective management of solid waste.

1.5.2 Goals and Objectives for Managing Solid Waste

The overall goal of solid waste management in Clallam County for the next five to 20 years is prevention of land, air, and water pollution; and conservation of the natural, economic, and energy resources of this state. Specific goals and objectives for managing solid waste in Clallam County are identified in **Table ES-1**, which summarizes the CSWMP recommendations.

In addition, this CSWMP adopts by reference the state goals outlined in the State of Washington Hazardous Waste and Solid Waste Management Plan (Beyond Waste Plan). It describes for Washington State a vision of a "...transition to a society where waste is viewed as inefficient, and where most wastes and toxic substances have been eliminated. This will contribute to economic, social and environmental vitality."

Published in 2004 and updated in 2009, The *Beyond Waste Plan* aims to improve our waste management system, with the added benefit of addressing other state priorities such as mitigating climate change and protecting Washington waters. The *Beyond Waste Plan* identified five areas of focus:

- Significantly reduce most wastes and the use of toxic substances in Washington's industries.

- Significantly reduce small-volume hazardous wastes from businesses and households.
- Expand the recycling system in Washington for organic wastes such as food wastes, yard waste, and crop residues.
- Reduce the negative impacts from the design, construction, and operation of buildings.
- Develop a system to measure progress in achieving our goals (Ecology, 2009).

The 2009 Beyond Waste Plan and 2014 update can be viewed at www.ecy.wa.gov/biblio/0907026.html

2. BACKGROUND OF THE PLANNING AREA

2.1 INTRODUCTION

The purpose of this chapter is to:

- Describe the environmental, demographic, and land use conditions of Clallam County
- Outline population projections for use in analyzing solid waste system handling needs for the next twenty years
- Outline the solid waste facility siting process
- Evaluate the potential for solid waste facility siting in Clallam County considering criteria described in RCW 70.95.165, meeting the requirements of RCW 70.95.090(9)
- Address six-year construction and capital acquisition needs as required by RCW 70.95.090(3)(d)

This background information is organized in the following sections:

2.2 DESCRIPTION OF THE PLANNING AREA

2.3 EVALUATION OF POTENTIAL SITES FOR SOLID WASTE FACILITIES

2.1.1 DESCRIPTION OF THE PLANNING AREA

2.1.2 Natural Environment

Clallam County is located on the Olympic Peninsula in the northwestern corner of Washington State. The County is bordered by the Pacific Ocean to the west, the Strait of Juan de Fuca to the north, and Jefferson County to the east and south. The Olympic Mountains form a significant geographic barrier across most of the southern part of the county. Eighty miles separate the western and eastern boundaries. Clallam County encompasses a total of 1,750 square miles.

2.1.3 Topography

The topography of Clallam County is extremely varied, with a range in elevation from sea level to altitudes of over 7,000 feet. The dominant topographical feature is the Olympic Mountains, which comprise a major portion of Clallam County and neighboring Jefferson County to the south. These mountains are a densely timbered wilderness with numerous streams and steep slopes. The remaining area of Clallam County is rugged foothills and coastal terraces. Two large lakes, Lake Ozette and Lake Crescent, and several smaller lakes are located in the county.

2.1.4 Geology and Soils

The Olympic Peninsula is a region of complex geologic history. Bedrock sequences of sedimentary, igneous, and metamorphic rocks occur on the Peninsula in a variety of stages of deformation as a result of major tectonic activity. Repeated glaciations of the area has modified older bedrock deposits and left behind deposits of unconsolidated clay, silt, sand and gravel on much of the lowlands and foothills of the Olympic Peninsula.

Two major bedrock features occur on the Olympic Peninsula: the peripheral rocks and the core rocks. The peripheral rocks are Miocene to Eocene in age and consist of sandstone, argillite, and conglomerate that are layered with basaltic volcanic rocks of the Crescent

Formation. The peripheral rocks are folded and faulted, but in general are stratigraphically continuous. The core rocks are also Miocene to Eocene in age but are much more deformed than the peripheral rocks. Metamorphic lithology and textural characteristics are very common in the core rock assemblages.

2.1.5 Climate

The maritime climate of Clallam County primarily experiences cool dry summers and wet mild winters. The Olympic Peninsula has the widest range of rainfall in the United States; however, in Clallam County the average annual rainfall varies from 16 inches in Sequim (in the eastern part of the county) to 130 inches in Olympic National Park (in the western part of the county). The average number of days in which there is 0.1 inch or more of rain is approximately 160 days in the western part of the County, 79 days in Port Angeles and 57 days in Sequim. Snowfall is heavy in the mountainous regions, and at higher elevations it remains until late in the summer. During many winters little or no snow is experienced at lower elevations.

Temperatures are mild in the non-mountainous portion of Clallam County, averaging approximately 49° F over the year. The typical range between high and low daily temperatures is 12 degrees in the winter and 21 degrees in the summer. Temperature extremes throughout a year are rarely less than 15° F or more than 96° F in the populated portions of the county.

2.1.6 Human Environment

In addition to the environmental characteristics of Clallam County, demographic conditions are important to detail in this process because they also provide a point of reference for discussions of existing solid waste practices and future solid waste handling needs.

2.1.7 Current Population/Demographics

The Washington Office of Financial Management's (OFM) April 1 official estimate indicates that the population of Clallam County was 72,000 people in 2012 (United States Census Bureau, 2013). **Table 2-1** shows the county's population distribution over two decades.

The largest of Clallam County's three incorporated areas, Port Angeles, has 27 percent of the population. The other two incorporated areas, Sequim and Forks, contain 9 and 5 percent of the county's population, respectively. Over half of the county's population (59 percent) is located in the unincorporated areas. Over the past 20 years, the population over 65 years of age has been steadily increasing as a percentage of the total population.

Table 2-1. Clallam County Population by Area

	1990	2000	2010
Incorporated Areas			
Forks	2,838	3,047	3,532
Port Angeles	17,710	18,472	19,038
Sequim	3,616	4,323	6,606
Subtotal, Incorporated	24,164	25,842	29,176
Unincorporated Areas	32,300	38,683	42,228
Tribal Population Subtotal	1,754 ^a	2,119 ^a	2,494 ^a
Clallam County, Total	56,464	64,525	71,404

Source: Office of Financial Management, 1990, 2000, and 2010 Census Summaries.

a. Derived from sum of OFM American Indian Reservation & Trust Lands Demographic Profiles for Elwha, Jamestown, Quileute and Makah Reservations from corresponding Census Summaries.

2.1.7.1 Future Population/Demographics

Table 2-2 below shows previous and projected population figures for Clallam County. Evaluating trends in population is useful for estimating future solid waste generation. Since OFM’s April 1, 2012 estimate of 72,000 people in Clallam County (2012b) had surpassed OFM’s 2015 intermediate series estimate of 71,868 (2012a), Clallam County chose to independently develop projections through 2035. The methodology used to arrive at population projections utilized the Intermediate Series projections plus an additional population increase of 410, a figure which reflects the difference between projected and actual estimates for 2012.

These projections represent a population increase of approximately 7 percent over the 20-year planning period of this CSWMP. After two decades of strong population growth, Clallam County population growth levels are expected to slow considerably, with implications for solid waste generation and fees relative to existing populations.

Table 2-2. Clallam County Population Trends

Year	Total Population	Percent Change ^c
1970	34,770 ^a	n/a
1980	51,648 ^a	49%
1990	56,464	9%
2000	64,525	14%
2010	71,404	11%
2015	72,278	1%
2020	74,026	2%
2025	75,432	2%
2030	76,522	1%
2035	77,196	1%

A. SOURCE: DATA TABLE 2-2, 2006 SWMP

- b. Source: "County Growth Management Population Projections by Age and Sex: 2010-2040, Intermediate & High Series." by State of Washington, Office of Financial Management. August 2012.
- c. Percent change calculated by dividing the increase from the previous year by the amount in the previous year

2.2 EVALUATION OF POTENTIAL SITES FOR SOLID WASTE FACILITIES

2.2.1 Solid Waste Facility Siting Process

No new public facilities are proposed in the CSWMP. However, any new public or private facilities sited in the future will have to meet the state and local standards current at that time. State standards include the following:

- Criteria for Municipal Solid Waste Landfills (WAC 173-351), which address siting, design, and operation of municipal solid waste (MSW) landfills.
- Solid Waste Handling Standards (WAC 173-350), which address siting, design and operation of other solid waste handling facilities, such as transfer stations, compost facilities, and limited purpose facilities.

Local standards include ordinances designated in the Clallam County Code including: Solid Waste Regulations (Chapter 41.10) which specifies local solid waste standards; Zoning (Title 33), which would require a conditional use permit for the siting of most types solid waste facilities in any zone; and Title 31, Comprehensive Plan, which designates land use, services and capital facilities policies for individual cities and other regional planning entities as well as the entire county. Local land use plans, such as those in the Comprehensive Plan chapter, may apply depending on whether the proposed site(s) are in a city's jurisdiction.

The siting process for a new solid waste facility would usually include the following steps below. These steps typically apply to solid waste landfills, but could generally apply to other facilities (e.g. composting, recycling, etc.).

Step 1: Site Identification

For a public facility, the process of identifying sites may include soliciting nominations from citizens and interested parties, identifying major landholders and city/County properties, and other activities to initially identify as many sites as practical. For a private site, the site selection process may consist primarily of an inventory of sites currently available for purchase.

Step 2: Broad Site Screening

The second step typically involves evaluating potential sites for "fatal flaws", such as unsuitable neighboring land use, distance from the point of waste generation, site size, or presence of slopes, floodplains, wetlands, surface water, or shorelines. For a public site, the goal should be to retain up to 12 sites after this step is completed. For a private facility or other cases where there may be only a few sites to begin with, one or two sites should survive this evaluation.

Step 3: Detailed Site Ranking

After sites with fatal flaws have been eliminated, the remaining sites should be evaluated using more detailed criteria such as the availability of utilities (water, sewer, and electricity), traffic impacts and road access, and other factors affecting the ability to develop and use the site. For a publicly owned site, no more than four sites should remain after this step is completed.

Step 4: Detailed Site Evaluation

The final step in evaluating sites involves assessing impacts in accordance with the State Environmental Policy Act. This step should result in the recommendation of a preferred site.

Step 5: Siting Decision

The decision to proceed with a recommended site should be based on environmental, engineering, cost, and political factors. At this point, more detailed plans and drawings can be developed, the permit process can begin, and other documents and approvals (such as an Environmental Impact Statement, if required) can be sought.

2.2.2 Solid Waste Facility Siting Factors

A new MSW landfill located in the County would be required to meet the siting standards listed in WAC 173-351-130 and -140. These standards meet or exceed the federal regulations under the Resource Conservation and Recovery Act (RCRA), Subtitle D (40 CFR Part 258).

Other solid waste facilities that are required to comply with WAC 173-350 (e.g., composting, recycling, inert waste), must meet the siting standards listed in the applicable sections of WAC 173-350. Generally, these are listed in WAC 173-350-040, Performance Standards. Specific requirements are listed in:

- WAC 173-350-210 (Recycling),
- WAC 173-350-220 (Composting facilities),
- WAC 173-350-230 (Land application),
- WAC 173-350-240 (Energy recovery and incineration facilities),
- WAC 173-350-300 (On-site storage, collection, and transportation standards),
- WAC 173-350-310 (Intermediate solid waste handling facilities) – e.g. transfer stations and drop boxes,
- WAC 173-350-320 (Piles used for storage or treatment)
- WAC 173-350-330 (Surface impoundments and tanks)
- WAC 173-350-350 (Waste tire storage and transportation)
- WAC 173-350-360 (Moderate risk waste handling)
- WAC 173-350-400 (Limited purpose landfills), and
- WAC 173-350-410 (Inert waste landfills).

The subsections below describe criteria which must be considered for landfill siting, including criteria characteristics specific to Clallam County. There may be other issues that affect other solid waste handling facilities; however, these are not listed below for simplicity purposes. Siting for other waste handling facilities must meet requirements in WAC 173-350 as well as any other local and federal regulatory requirements.

2.2.2.1 Soils and Geology

The soils and underlying geology are important considerations for solid waste management facilities. Geology, groundwater, and the availability of appropriate soils are critical factors. The appropriate type of soil varies somewhat depending on the type of solid waste handling facility, but any structure, such as a transfer station or recycling center, must be built upon a stable foundation. The soils in Clallam County are generally acceptable for foundations.

A variety of soils are required for the construction and operation of a landfill. Silts, clay or claylike soils are used for landfill liners and final cover (caps) because these fine-grained soils tend to retard the movement of precipitation, gas, and leachate. Porous soils, such as sands and gravels, are undesirable because these may permit rainfall to enter the landfill (increasing leachate and gas production) and allow the uncontrolled migration of landfill leachate and methane gas. Thus, sand or gravel is not suitable for landfill cover or liners; however, gravel is often used for intermediate cover because it provides better traction for landfill machinery in wet weather. Coarse-grained materials such as sand and gravel, common in Clallam County, can also be used for gas venting and leachate collection systems. Detailed soils studies would be necessary for evaluating potential sites for landfills.

2.2.2.2 Groundwater

Distance to groundwater, measured in feet or in terms of the time that surface water takes to travel through the soil to the groundwater, is an important criterion for the siting of solid waste disposal facilities. Shallow layers of groundwater and/or short travel times are a problem due to the risks associated with spills and contaminated runoff from waste facilities. Other factors such as existing and potential beneficial uses of the groundwater, are also significant considerations, especially if the groundwater is, or could be, used for drinking water. A large percentage of the population in Clallam County depends on private wells for drinking water supplies. Groundwater must also be considered when siting or designing landfills because shallow groundwater can result in higher construction and maintenance costs, interfere with excavation, and require non-standard foundations.

2.2.2.3 Flooding

Areas known to experience flooding are not good sites for solid waste facilities. Solid waste facilities often entail risks such as the potential to create contaminated runoff. Additionally, solid waste facilities must remain operational during and after natural disasters to handle the large amount of debris that may be created.

2.2.2.4 Surface Water

Two large lakes, Lake Ozette and Lake Crescent, and several smaller lakes are located in the county. Numerous creeks and rivers are also present, generally draining from interior areas to the coastline. Regulatory standards require that new MSW landfills be located more than 200 feet from surface waters (RCW 173-351-140 (2)), thus eliminating a substantial amount of land for a water-rich area such as Clallam County.

2.2.2.5 Slope

Much of Clallam County is mountainous with slopes that are prohibitive for landfills and other solid waste disposal facilities. Steep slopes pose problems for site development and future access to the site. The lower valleys and coastal terrace areas have gentler slopes; therefore, these areas could receive consideration for siting solid waste handling facilities. However, these areas also have high value for other purposes, such as agriculture and housing.

2.2.2.6 Cover and Liner Materials

Cover and liner materials are important because their presence at landfill sites reduces the cost of construction, operations, and maintenance. These materials include silt and clay for liners and caps; sand and gravel for gas venting, leachate collection, and road construction; and a variety of materials that can be used for intermediate cover. Clay is a scarce material in parts of Clallam County, in which case synthetic liners may be more cost-effective to use for landfilling operations.

2.2.2.7 Capacity

WAC Chapter 173-351 also specifies various landfilling requirements based on size. For example, landfills that receive 100 tons per day or more of solid waste must meet the extensive requirements for landfill operations. If a new landfill were constructed to handle less than this capacity, serving only a part of Clallam County, it could be designed to less stringent standards. Even with fewer controls, however, the cost of constructing and operating a landfill, on a per ton basis, increases rapidly as the size of the landfill decreases. On a per ton basis, it is likely that any savings incurred for less stringent design requirements would be more than offset by the lower economies of scale.

2.2.2.8 Climatic Factors

Most of Clallam County receives extremely high amounts of precipitation, which poses a serious problem for MSW landfills due to the potential for generation of large quantities of leachate. Other types of solid waste handling facilities might be less affected, but care must still be taken to avoid surface water contamination by runoff. The eastern side of the county, especially in the area of Sequim, receives lower amounts of rainfall, but again much of the land in this area has considerable value for other purposes (agricultural and residential usage).

The implications of climate change on future precipitation levels should also be part of consideration of potential siting areas.

2.2.2.9 Land Use

Existing land use in Clallam County ranges from the relatively dense residential, commercial and industrial development in the Port Angeles and Sequim areas to the undeveloped land and forested areas of the Olympic Mountains. The wood products industry has historically been a major factor influencing the development in the county. Historic communities are found along the shores of the Strait of Juan de Fuca, the Sol Duc River, and the Forks Prairie. The City of Port Angeles, which is centrally located along the east-west transportation corridor with an active port and harbor, continues to be the center of economic activity.

A breakdown of the county's land area by ownership reveals that only a small portion of the County is available for private ownership. Approximately 46 percent of all land in the County is under federal ownership, including portions of the Olympic National Park and Forest, Native American reservations, and various Coast Guard installations. Olympic National Park is a major presence drawing over 2.8 million visitors annually (National Park Service, 2013). Approximately 14 percent of the County is in state ownership and 25 percent is owned by timber companies.

In addition to Port Angeles, modern development has occurred in two smaller incorporated areas, Forks and Sequim, and in a number of rural residential areas. The land use pattern to the east was primarily agricultural, with a present trend towards residential development. West of Port Angeles, there are several resort developments as well as isolated timber and commercial fishing areas. The larger communities in the west end include Forks, Lake Pleasant, LaPush, Sekiu, Clallam Bay, Neah Bay, and Joyce. To the east of Port Angeles are Sequim, Carlsborg, Agnew, Diamond Point, and Blyn.

2.2.2.10 Air Emissions and Air Quality

At present, the Olympic Region Clean Air Agency (ORCAA) is monitoring Clallam County for particulate levels to verify the area is meeting federal air quality standards. Outdoor burning, fugitive road dust, and industry contribute to particulate values, and in winter woodstove emissions are a significant contributor.

Air quality regulations are directed at many segments of society. Examples include outdoor burning, use of woodstoves, and activities at small and large businesses. Nippon Paper Industries USA (Nippon) in Port Angeles, and Interfor Pacific, Inc. in Forks, are two of the largest emitters in Clallam County. They are subject to Federal Clean Air Act, Title V (1963, amended 1990) Air Operating Permits (<http://www.orcaa.org/services/air-operating-permits>; accessed April 2013).

Historically, manufacturers of shingle and shake roofing materials in western Clallam County burned wood residuals in wigwam or cyclone burners. Current regulations prohibit the use of cyclone/wigwam burning devices (WAC 173-400-050) and since 2005, ORCAA has strictly enforced the state and federal standards that prohibit all those types of wood burners. Currently, these manufacturers are long hauling wood residuals throughout the region.

Two biomass-to-energy facilities are in operation in Clallam County. In 2010, Nippon began the process of installing a Co-Generation facility to replace a boiler at their facility in Port Angeles. This EPA regulated project is also expected to generate 20 megawatts of electricity. The Quillayute Valley School District Biomass Boiler Project, with developmental support from the City of Forks and Port of Port Angeles, recently completed a biomass boiler which is burning chipped hog fuel purchased from a private logging company.

Siting and operating a new landfill, new solid waste facility, or biomass-to-energy could impact air quality. Dust, gases, odors, particulates, and vehicle emissions are all potentially increased by solid waste operations. In certain cases, however, the centralization of such emissions is often preferable to the historical diffuse burning of waste. Any proposal not already being evaluated as part of the existing regulatory process (i.e., through EPA or ORCAA) should be studied by the County staff for net air quality impacts.

2.3.2.11 Summary of Siting Factors

Based on the preceding discussion of siting factors, it can be concluded that only very limited portions of Clallam County would be available for siting a MSW landfill; other potential solid waste facilities may be evaluated on a case-by-case basis. Most of the southern portion of the County is undesirable for large facilities due to its mountainous terrain. This area is also generally not available because it falls within the Olympic National Forest or National Park boundaries.

The western half of the County is not appropriate for siting a MSW landfill due to the high amounts of rainfall received, up to 130 inches per year. This amount of precipitation complicates runoff and leachate controls for disposal sites. Although solid waste handling facilities could be located on the west end of the County, these facilities should be restricted to transfer stations or other operations with low potential for generation of contaminated runoff. Facilities such as transfer stations also need to be conveniently located for public use and typically require less acreage. Local conditions will further restrict potential siting areas, however, including conditions such as current and adjacent land use, surface water, potential for flooding, and public opposition.

The eastern half of the County is climatically and geographically more suitable for solid waste disposal facility locations. However, the County would in all probability not be successful in siting a MSW landfill because of more prevalent agricultural and residential use, zoning, growth pressures, and the stated goal of the Clallam County Comprehensive Plan to “...encourage the retention of open space and development of recreational opportunities, conserve fish and wildlife habitat, increase access to natural resource lands and water, and develop parks...”.

In conclusion, siting a new MSW landfill in Clallam County is not considered feasible. Siting of other solid waste facilities should be considered on a case-by-case basis.

2.2.3 Facility Construction, Capital Acquisition, and Financing

RCW 70.95.090(3)(c) requires that this plan address six-year construction and capital acquisition programs for facilities that may be considered. RCW 70.95.090(3)(d) requires that the plan provide information about financing both capital costs and operational expenditures of the proposed solid waste management system. However, no new public facilities are proposed at the writing of this CSWMP. Chapter 10 provides information on program costs and financing.

3. CHARACTERISTICS OF THE MATERIALS WASTE STREAM

3.1 INTRODUCTION

The purpose of this chapter is to:

- Identify the quantity and composition of the materials waste stream of Clallam County.
- Discuss how the solid waste generation is tracked and analyzed at state and local levels.
- Summarize and compare the quantity of municipal solid waste (MSW) generated in Clallam County over the last two CSWMP planning periods.
- Calculate MSW generation quantities for the five and twenty year planning periods designated in this plan.
- Delineate the composition of Clallam County waste streams using available data to provide a basis for management of waste streams for future planning periods.

The activities discussed in this chapter are organized into three sections:

3.2 SOLID WASTE GENERATION AND ANALYSIS METHODS

3.3 SOLID WASTE QUANTITIES

3.4 SOLID WASTE COMPOSITION

3.2 SOLID WASTE GENERATION AND ANALYSIS METHODS

The total solid waste stream in Clallam County is generated from residential, commercial and industrial sources and includes a wide variety of materials. Data on the quantity and the composition of the county waste stream is tracked by Ecology in accordance with its type, producer, and destination, among other factors. Currently, Ecology analyzes county and state annual waste streams in these four broad categories: 1) MSW disposed, 2) MSW recycled, 3) other waste types disposed (e.g. industrial wastes) and 4) solid waste diverted from disposal (such as reused construction and demolition materials) (Ecology, 2011a). Information on the quantities, composition and trends of each of these portions of the Clallam County solid waste stream will be presented in the following sections in order to comprehensively analyze the materials waste stream.

Installation of scales and associated software at the Regional Transfer Station has improved data collection on much of the MSW stream in Clallam County. Paired with the reporting efforts of other businesses and governments that handle and track MSW, this information is presented for further analysis of the Clallam County solid waste generation including changes over time and future projections.

3.3 SOLID WASTE QUANTITIES

3.3.1 Existing MSW Disposal and Recycling Quantities

Any solid waste material that has been discarded from residential, commercial, institutional and industrial sources and community activities may be considered MSW, according to the definition in WAC 173-350-100. The MSW quantities analyzed in this section originate from MSW that has crossed the county transfer station scales, and includes source separated

recycling quantities. Data from the last two planning periods (2000-2005 & 2006-2012) are compared to illustrate changes in MSW generation in Clallam County over time (**Table 3-1**).

It can be noted on **Table 3-1** that significant reductions in the total amount of solid waste generated in Clallam County occurred between 2005 and 2011. These reductions were largely incurred in the Port Angeles and eastern county collection regions (down 26% and 18% respectively), despite modest population growth in those areas. The Sequim collection region tonnage was only up 3% despite a population increase of approximately 40% between those same years. This differs greatly from the planning period previous to 2005, which saw an increase in MSW generation for Sequim increase by 45% (since 1996). The western county collections area (West Waste collections) saw an increase in tonnages, up 18% since 2005.

Recycling quantity totals for Clallam County did not experience the same steep decline as MSW Disposed, increasing 3% over this time period. Recycled materials quantities and changes between 2005 and 2011 are further delineated in **Table 3-3**, Recycled Materials Composition.

During this period, per capita waste generation decreased from 6.03 lbs to 5.03 lbs per person per day. Per capita recycling and disposal rates decreased as well. Recycling rates diminished slightly from 1.37 to 1.33 lbs per person per day while disposal rate reduction made up most of the total decrease, from 4.66 down to 3.71 lbs per person per day. It may be noted that the per capita waste generation and recycling statistics from 2005 were recalculated upon discovery that Total Recycled Quantities (Tons) were cited incorrectly, using 2004 data listed as 2005 data, on Table 3-1 of the 2006 CSWMP.

These declines in total generation reflect larger trends in solid waste in Washington State over the same time period. Overall solid waste generation steadily rose in Washington between 1999 and 2005, when it leveled off and began decreasing until 2010, after which it rose again (Ecology 2013a).

At the local level, the overall trends in reduced solid waste generation can be attributed to a number of factors. The downturn in economic growth was a strongly influential factor. One example of this is the steep reduction in new home construction in Clallam County from approximately 470 building permits issued in 2005 to less than 100 by 2011 (WCRER 2013); a fact which had huge impacts on the amounts of solid waste generated in the county, most notably on construction, demolition and landclearing (CDL) waste. These economic indicators would also suggest an overall reduction in consumer purchasing, and thus disposal.

Other impacts include the potential for self-haulers to dispose of waste at out of county transfer stations or drop boxes that have lower tipping fees than Clallam County; as is currently the case in nearby counties including Jefferson, Mason, Gray Harbor, Kitsap and Island County (Ecology, 2012a). Another factor could be packaging trends; for example, the amount of material per package may decrease as companies search for cost saving measures.

Table 3-1. Municipal Solid Waste (MSW) Quantities

Waste Origin/Type	Tons of Solid Waste		Percent Change
	2005	2011	2005-2011
Port Angeles MSW ^a	19,834.00	14,641.38	-26%
Sequim MSW ^a	6,037.00	6,210.00	3%
Eastern County MSW ^a	24,827.00	20,325.97	-18%
Benefit Dump Day (Regional Transfer Station)		139.00	
<i>Subtotal P.A. Landfill/Transfer Station</i>	50,698.00	41,316.35	-19%
Western County MSW (West Waste) ^b	5,000.00	5,913.00	18%
Tribal Lands ^c	1,100.00	1,212.00	10%
Total MSW Disposed	56,798.00	48,441.35	-15%
Total MSW Recycled^d	16,758.00	17,325.00	3%
Total MSW Generated	73,556.00	65,766.35	-11%
Per Capita Waste Generation Rate/day (lbs) ^e	6.03	5.03	-17%
Per Capita Recycling Rate/day (lbs)	1.37	1.33	-3%
Per Capita Disposal Rate/day (lbs)	4.66	3.71	-20%

a. Data from Port Angeles Landfill (2005) and Regional Transfer (2011) **Tons and Loads** City of Port Angeles scale reports

b. Data from 2011 West Waste Annual Transfer Station report

c. 2005 data from 2006 CSWMP; 2011 estimates based on Makah Transfer Station 2012 records

d. Data from 2005 & 2011 Ecology *Recycling & Diversion Surveys*

Note: Table 3-1, 2006 CSWMP incorrectly listed Total MSW Recycled with 2004 data.

e. Calculated using 365-day year; 2005 population of 66,800 from 2006 CSWMP & 2011 population of 71,600 from *April 1, 2011 Population of Cities, Towns & Counties*

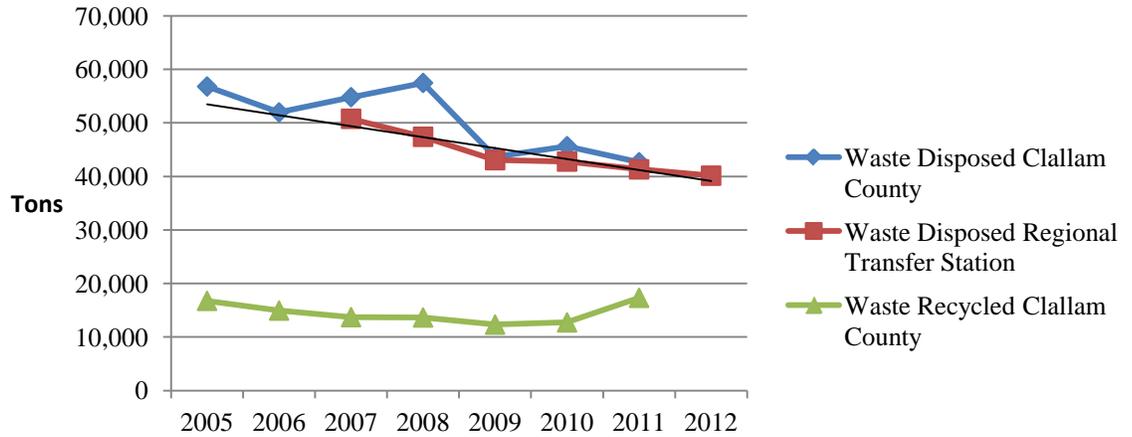
Note: 2005 Per Capita Generation & Recycling rates recalculated based on corrected 2005 data.

3.3.2 Projections of MSW Disposal and Recycling Quantities

Forecasting future quantities of solid waste is a necessary planning element in solid waste management. These projections can provide a basis for providing adequate and effective levels of collection and disposal capacity as well as waste reduction programs.

As noted in the previous section, the economic downturn of 2008-2010 had a great effect on waste generation, disposal and recycling rates; previous predictions proved quite inaccurate and there continues to be uncertainty regarding future trends in waste generation. **Figure 3-1** illustrates the general trend of decline in waste disposal that has been occurring in the majority of Clallam County as well as the more recent uptick in recycling.

**Figure 3-1. Clallam County Waste Generation Trends:
2005-2012**



Source: Ecology. Solid Waste Disposal Data by County (Landfilled and Incinerated: 1994-2011); City of Port Angeles. 2012. Solid Waste Trends Presentation.

While the economic recession has been declared to be over and nationwide signs point to a recovery, local indicators suggest a slow yet improved trend. Though nowhere near 2004 levels, building permit activity in Clallam County, and the cities of Port Angeles and Sequim has shown creeping growth since 2011.

Besides economic uncertainty, another factor which impedes precise projection estimates is the recent changes within Clallam County solid waste systems, as the two remaining landfills were closed (Port Angeles in 2006 and Neah Bay in 2011) and two Transfer Stations were opened to export waste (the Regional in 2007 and the Makah in 2012); this has created large changes in the types and quantities of materials that are being handled as well as the data collection systems. The accuracy of estimating long term trends will likely improve as data collection methodology becomes regimented under the new systems.

Despite these challenges in evaluating waste generation trends, this section will explore some scenarios based on current disposal and recycling rates of MSW to give a foothold for future planning over the next five and twenty year planning periods, as required for this plan. **Table 3-2** presents potential quantities of waste generation (delineated as Disposed and Recycled) for the years 2014, 2020 and 2034. Data for 2011, the year for which the most recent waste generation data was available, illustrates the current situation. The subsequent years presented were chosen for adherence to the requirements outlined in the Revised Code of Washington (RCW) 70.95.090, regarding the contents of a CSWMP to provide estimates of solid waste handling needs six and twenty years in the future, as well as through the life of this plan (approximately five years).

Three scenarios are presented in **Table 3-2** for the purpose of examining a range of potential waste generation patterns. These scenarios are:

- Scenario 1: Waste tonnages increase with population growth, waste generation rates increase 1% over 2011 disposal and recycling rates (see **Table 3-1** for rates).

- Scenario 2: Waste tonnages increase with population growth, waste generation rates increase 1% the recycling rate increases incrementally over time (30% by 2019, and 40% in 2034) to achieve the goals discussed in this plan.
- Scenario 3: Waste tonnages increase with population growth and waste generation rates increase 2% per year. Progress is made towards recycling goals to reach a 30% recycling rate in 2019 and 2034.

Table 3-2: Projected Solid Waste Quantities

Year	Population	Scenario 1 Current Rate ^a		Scenario 2 Based on Goals ^b		Scenario 3 Modest Growth (2%) & Recycling Rate Increase ^c	
		Disposed	Recycled	Disposed	Recycled	Disposed	Recycled
2011	71,600	48,441	17,325	N/A	N/A	N/A	N/A
2014	72,435	49,693	17,460	46,693	17,460	50,188	17,633
2019	73,521	50,439	17,721	47,712	20,448	48,188	20,652
2034	76,980	52,812	18,556	42,820	28,547	50,455	21,623

- Based on 2011 per capita disposal and recycling rates and assumes same percentage breakdown (74% & 26%) as shown in Table 3-1.
- Assumes recycling rate increases over time as discussed in this CSWMP: 26% in 2011 & 2014, 30% in 2019 and 40% in 2034.
- Assumes modest growth in generated tons of 2%; progress towards recycling goals to reach 30% in 2019 and 2034.

3.3.3. Other Waste Types Disposed (Industrial, Etc.)

In addition to the MSW which is tracked on its way through the transfer stations, various types of wastes are produced and disposed of by local industries. Examples of such wastes include industrial waste exported by the producing company, petroleum-contaminated soils, and ash; some of these materials will be discussed further in Chapter 7, Special Wastes.

Discussing this portion of the waste stream generated in Clallam County is important because it provides comprehensive information which may be used to support planning initiatives or material exchanges. Tabulations of the quantities of these types of wastes are included in Ecology’s annual disposal reports for each county; in 2011, approximately 35,613 tons^a of these other waste types were tracked and disposed of by industries in Clallam County (Ecology, 2011b).

3.3.4 Diverted Wastes

Beginning in 1999, Ecology expanded its traditional definition of recycling to include categories of materials that were being “diverted” from disposal. These materials include CDL wastes, materials burned for energy recovery, and reused materials. The recovery of these materials for uses other than landfill disposal is termed “diversion.”

A significant portion of the total solid waste stream is being diverted; the statewide average was 54% in 2010 (Ecology 2011a). Estimates in Clallam County suggest as much as 98,060 tons were diverted in 2011 (Ecology 2012b). The quantity and composition of diverted materials has potential to change greatly as the practice of diversion and reporting continues.

Table 3-4 on page 29 provides a comparison of the composition and quantities of materials that were diverted in Clallam County in 2005 and 2011.

3.4 SOLID WASTE COMPOSITION

Identifying the makeup, or composition, of the waste stream is an important part in directing waste management efforts in an effective manner. The composition of waste in the County can be expected to change in the future due to changes in consumption patterns, packaging methods, disposal habits, policy changes and other factors. These changes are difficult to predict in the long term.

3.4.1 MSW Disposed Composition

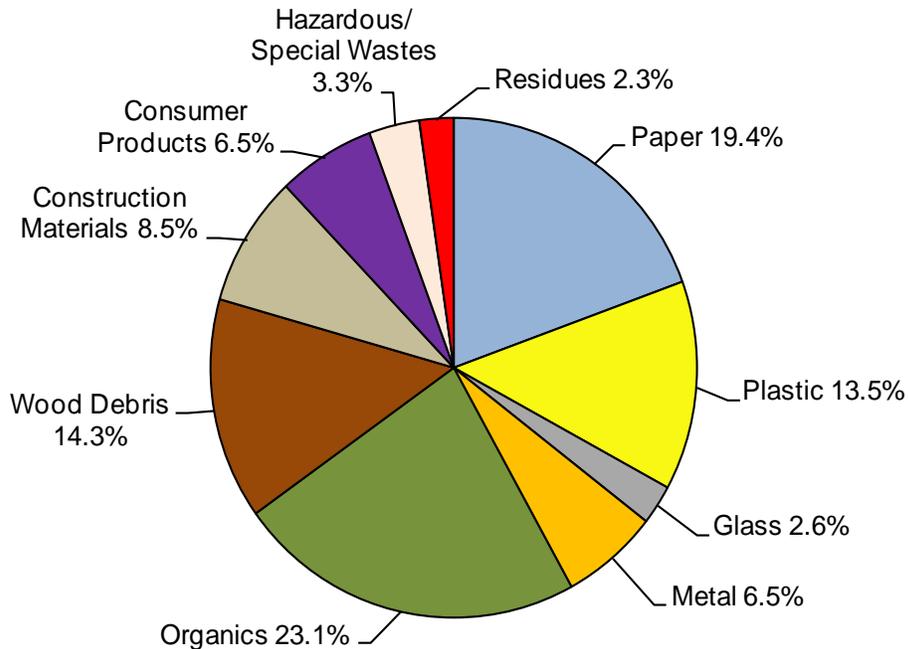
Two waste composition studies have been completed for Clallam County within the last ten years that provide further detail on the makeup of the local waste stream. These include the Clallam County Waste Composition Study by Green Solutions (2003) which was discussed extensively in the 2006 CSWMP, and the 2009 Washington State Waste Characterization Study by Ecology which will be discussed below.

The 2009 Ecology Waste Characterization study was an examination of the disposed MSW portion of the waste stream; it did not include recycled MSW. Sectors which contribute to this part of the waste stream include commercial, residential, and self-haulers. The study divided the state into six Waste Generation Areas (WGA), selected representative counties from each WGA, and conducted sampling and sorting at one facility in each of those counties, once per each of the four seasons of the year. Clallam County and Grays Harbor were the selected representatives of the West WGA; the Port Angeles Transfer Station, which receives more than 85% of the MSW disposed of in the county (see **Table 3-1**), was the selected Clallam county facility.

One hundred and thirty material types were analyzed. This wide set of materials was “rolled up” into ten Material Class levels. A breakdown of the West WGA composition by Material Class is presented in **Figure 3-2** on the following page. Although this figure includes data collected from Grays Harbor, together these counties present a sample which can be regarded as statistically significant. The findings demonstrate that organics make up the largest amount of disposed waste (23.1%), followed closely by the potentially recyclable or divertible materials paper (19.4%), wood debris (14.3%), plastics (13.5%) and construction materials (8.5%). These findings align with the categorically proportional amounts found in the waste streams of the other five WGAs (Ecology 2010).

Figure 3-2 illustrates the composition of the disposed MSW waste stream in Clallam County, as represented by the West WGA.

Figure 3-2. West WGA Waste Composition by Material Class



Source: Ecology. 2010. 2009 Washington Statewide Waste Characterization Study.

3.4.2 MSW Recycled Material & Diversion Composition

Ecology tabulates recycling and diversion data for each county through its annual Recycling & Diversion Survey, gathering information from haulers, governments, businesses, and industries. **Table 3-3** on the following page compares the composition of recycled materials reported in Clallam County in 2005 and 2011. Corrugated cardboard, mixed paper and yard debris made up the largest components of the recycling stream.

Other significant changes in the quantities of recycled materials occurred in Electronics, as a result of the Ecycle WA program started by Ecology in 2009. Another potential impact on the information presented in this table may be the conversion to a new scale and software system with the construction of the Regional Transfer Station.

Table 3-4, shown on page 29, catalogs and compares the types and quantities of materials diverted from the waste stream in Clallam County in 2005 and 2011. The information provides a basis of discussion on what is being diverted and increases the familiarity with the types of materials that might be targeted or reported with other diversion projects. For example, Ecology tracks county totals of diverted asphalt shingles. Though no quantities of this material is diverted in Clallam County at this time, options for diverting asphalt shingles have been considered by private industries and the SWAC in recent years.

Wood for Energy Recovery experienced the most notable drop in quantity between the two sample years; reporting may range high or low for this material due to the reporting errors according to Ecology. Asphalt/concrete diversion also declined significantly; this material is diverted primarily as a result of finite projects. Due to the absence of statistically significant data points for diversion data, percent change was not calculated; instead data was presented to provide for discussion of diversion in Clallam County.

Table 3-3. Recycled Material Composition & Quantities: 2005 & 2011

Recycled Material	Tons		Percent Change
	2005	2011	
Aluminum cans	98.72	189.95	92%
Appliances/White Goods	178.00	118.00	-34%
Batteries - Auto Lead Acid	199.04	150.18	-25%
Electronics	1.65	96.83	5768%
Fats and Oils	90.87	68.23	-25%
Ferrous metals	1,576.88	1,837.62	17%
Fluorescent Light Bulbs	1.79		-100%
Food Waste (post-consumer, other)	695.28	411.50	-41%
Glass - container	299.36	726.13	143%
Gypsum	16.42	0.00	-100%
Non-ferrous metals	238.49	1,072.34	350%
Paper - corrugated cardboard	3,433.34	4,556.17	33%
Paper - high grade		12.28	
Paper - mixed	754.80	2,556.02	239%
Paper - newspaper	1,585.12	562.69	-65%
Photographic films	0.37	0.90	143%
Plastic - HDPE	48.45	219.02	352%
Plastic - LDPE	23.70	81.39	243%
Plastic - other		62.31	
Plastic - PET	27.97	62.94	125%
Rendering - meat scraps	252.00	126.14	-50%
Steel cans	57.26	125.17	119%
Tires (recycled)	292.88	32.02	-89%
Used Oil	580.04	263.09	-55%
Wood - recycled	2,337.00	1,792.00	-23%
Yard Debris	3,968.53	2,200.00	-45%
Total Recycled	16,757.96	17,325.17	3%

Table 3-4. Diverted Material Composition & Quantities: 2005 & 2011

Diverted Material	Tons	
	2005	2011
Anti-freeze	52.54	28.16
Asphalt/Concrete ^a	28,051.20	15,610.48
Carpet or pad		9.59
C & D Debris	22.84	209.44
Donated Food	3.00	
Grit	1,094.00	
Household Batteries	0.08	1.14
Household Items - Reuse		29.94
Land clearing debris	42,807.39	
Land clearing debris for ER		37,189.50
Oil Filters	15.66	10.33
Reuse Household Items		29.94
Tires - baled		48.95
Tires - burned for energy	4.67	93.30
Tires - reuse		34.22
Toner/Ink Cartridges		5.51
Wood for Energy Recovery	80,667.17	42,948.36
Diversion Totals	152,718.55	96,248.86

a. Total of Asphalt/concrete categories

Source: "2005 & 2011 Washington State Recycling Survey" by the Washington Department of Ecology (Ecology, 2006, 2012). County data sheets (not published).

4. COLLECTION AND TRANSFER

4.1 INTRODUCTION

The purpose of this chapter is to:

- Review existing waste collection and transfer activities in Clallam County.
- Identify the needs, problems, or opportunities not yet addressed by existing collection and transfer facilities and programs.
- Suggest alternatives to meet the identified needs and opportunities.
- Recommend future programs or actions to meet the needs and abilities of the County and the residents, businesses, and service-providers.
- Provide implementation schedules and planning-level costs for the recommended programs and facilities.
- Meet the requirements of Chapter 70.95.090(1), (3) and (5) RCW.

The activities discussed in this chapter are organized into two sections:

4.2 SOLID WASTE COLLECTION

4.3 IN-COUNTY TRANSFER AND DROP BOX FACILITIES

4.2 SOLID WASTE COLLECTION

4.2.1 Existing Conditions

Six curbside waste collection operations exist in Clallam County. They provide residential and commercial waste collection activities under a variety of rate structures, regulatory ordinances, and collection contracts. These operations include the City of Port Angeles, Makah Tribal Solid Waste Collections, DM Disposal and Murrey's Olympic Disposal (both subsidiaries of Waste Connections, Inc.), the Quileute Tribal Council, and West Waste & Recycling. The City of Port Angeles, the Makah Tribal Solid Waste Collections, and the Quileute Tribal Council provide collection services within their respective jurisdictions. DM Disposal provides garbage collection services in the City of Sequim. Murrey's Olympic Disposal and West Waste & Recycling have contracts to collect waste from various businesses and agencies, and are certificated to collect waste in the unincorporated areas of the County. Each of the collection operations is discussed in greater detail below, and is summarized in **Table 4-1** on the following page. The service areas are shown in **Figure 4-1** on page 41.

Rate structures in the cities of Port Angeles and Sequim include recycling services in the residential garbage fees. Some areas of unincorporated Clallam County have an incentive rate that discounts fees when curbside recycling services are received alongside garbage collection. Volume based incentives are present in the form of every-other week (EOW) and monthly collection options from some operations. Commercial collection fees also vary with frequency and container size; commercial recycling fees vary with collections operators. See Appendix C for current rate structures.

Regulatory ordinances that govern solid waste collections in Clallam County are examined in 4.2.1.7.

4.2.1.1 City of Port Angeles Solid Waste Utility

The City of Port Angeles Solid Waste Utility collects garbage from over 6,800 residential customers and 950 commercial customers using semi-automated trucks. Residential customers have a choice of weekly or every-other week garbage, collected in 90-gallon containers. Additional containers can be requested for a fee.

An every other week recycling service is provided at no extra charge, but residents have to request this service. This service provides (1) 90-gallon container; no extra containers are provided. In 2012, 80% of residential customers requested recycling. Every-other week yard waste service is provided for an extra fee; 38% of the residents have this service. Residents can request additional yard waste containers for a fee.

Commercial customers may receive collection service one to six days per week. Commercial customers have the option of using the utility’s service, self-hauling directly to the transfer station, or may contract with Murrey’s Olympic Disposal. Murrey’s serves accounts within the City of Port Angeles with the prior approval of the city, collecting waste from those businesses using roll-offs and compactors. Cardboard recycling service is provided to commercial customers and is included in the solid waste fee. Additional recycling (for bottles, cans, paper, etc) can be contracted directly with Waste Connections for an extra fee.

Collection rates for the City of Port Angeles are shown in Appendix C. The population density of Port Angeles is 1,779 people per square mile of land, using 2010 population data.

Table 4-1. Summary of Existing Collection Conditions

Area and Service Provider	Garbage Collection		Curbside Recycling	Curbside Yard Debris	Transfer, Processing or Disposal Location
	Residential	Commercial			
City of Forks;					
West Waste	X	X			Roosevelt Landfill
City of Port Angeles;					
Murrey’s Olympic Disposal		X			Regional Transfer Station
Municipal Crews	X	X			Regional Transfer Station
Waste Connections			X	X	recycling exported; yard waste to Composting Facility
City of Sequim;					
DM Disposal	X	X	X	X	Regional Transfer Station recycling exported
Tribal Lands;					
Makah Tribal Solid Waste Collections	X	X			Makah Transfer Station
Quileute Crews	X	X			Roosevelt Landfill (via West Waste)
Unincorporated Areas;					
Murrey’s Olympic Disposal	X	X	X		Regional Transfer Station; recycling exported
West Waste	X	X			Roosevelt Landfill

4.2.1.2 City of Sequim

Refuse collection is mandatory for residents in the City of Sequim. The city currently contracts with D.M. Disposal, a Waste Connections, Inc. company, for these services.

Sequim city residents receive weekly garbage service and every other week recycling service. Residents can use 32, 64, or 96-gallon garbage containers, with the collection fee varying accordingly, bundled with recycling fees. Yard waste service is provided at an extra fee upon request.

Commercial customers can use 1-1/2, 3, or 6 cubic yard roll-off containers, with the collection fee varying accordingly. Commercial collection varies from 1 to 5 times per week, depending on customer need, using semi-automated collection trucks. Commercial recycling is an optional service.

D.M. Disposal transports solid waste collected in Sequim to the Regional Transfer as specified in the 2007 ILA (see Appendix B). The rates are shown in Appendix C. The population density of Sequim is 1,037 people per square mile of land, using 2010 population data.

4.2.1.3 Makah Tribal Solid Waste Collections

Makah Tribal Solid Waste Collections provides collection service within the community of Neah Bay and other parts of the Makah Nation's Reservation, located on the Northwest tip of the County. This tribal entity replaced Gary's Disposal, which provided service to this area until 2011.

Refuse collection service is provided by the Tribal Council for Tribal members and institutions; non-tribal members and businesses can opt in to this service for a fee. Residential service is provided with a 2.5 ton rear-loading truck. Refuse is hauled to the Makah Tribal Transfer Station, which opened in September 2012.

4.2.1.4 Murrey's Olympic Disposal (Waste Connections, Inc.)¹

Murrey's Olympic Disposal, a Waste Connections, Inc. company, has a fleet of trucks with various capacities and capabilities that are used in Clallam County. The fleet includes rear packer trucks and front-end loaders, trucks that can handle containers that are one, two and three cubic yards, and tilt frame (roll-off) trucks for hauling drop boxes with capacities of 10, 20, 25, 30, 40 and 53 cubic yards.

Murrey's Olympic Disposal has contracts to provide refuse collection services for Olympic National Park and Sequim Bay State Park, and is certificated by the WUTC to collect refuse in parts of Clallam County. The WUTC certificate (Certificate G-9) grants Murrey's Olympic Disposal the authority to provide waste collection services to residents and businesses (at their request) in the unincorporated areas of the County. This certificate overlaps with West Waste's service area, which also has a certificate to collect garbage in the unincorporated areas west of Lake Crescent.

Refuse collection rates effective at this time for Murrey's Olympic Disposal is shown in Appendix C. The population density for the town of Forks and the unincorporated areas of Clallam County is 24.4 people per square mile (2002 data).

¹ The City of Port Angeles contracts with "Waste Connections." "Murrey's Olympic Disposal" is certificated to collect in the County. They are part of the same company.

4.2.1.5 Other Tribal Nation Collections

The Quileute Tribal Council provides garbage collection services for the residents of the Quileute Nation Reservation, located on the Pacific Coast, through the Quileute Nation Public Works Department. The garbage is brought to West Waste's Transfer Station and then exported to the Roosevelt Landfill for disposal.

As noted in 4.2.1.3, the Makah Tribal Solid Waste Collections provides refuse service to the Makah Nation Reservation residents. The remaining two reservations are the Lower Elwha Klallam Tribe Reservation (located on the Strait of Juan de Fuca west of Port Angeles), and the Jamestown S'Klallam Tribe Reservation (located along the south end of Sequim Bay). Solid waste collection and disposal services for these reservations are provided as part of the regular solid waste management system in Clallam County.

4.2.1.6 West Waste & Recycling

West Waste & Recycling has a contract with the City of Forks to collect garbage on a non-mandatory basis from homes and businesses in that city (i.e., homes and businesses choose whether to subscribe to the collection service). West Waste & Recycling also has contracts with Clallam County Parks and the Coast Guard Station at Neah Bay, and has a WUTC certificate (Certificate G-251) to collect garbage from homes and businesses in the unincorporated areas of Clallam County west of Lake Crescent. This certificated area overlaps with Murrey's Olympic Disposal certificated area.

The current rates charged by West Waste & Recycling are discussed in Appendix C.

4.2.1.7 Regulations Regarding Solid Waste Collection

4.2.1.8 State Regulations

The WUTC supervises and regulates garbage collection companies. Their authority (RCW 81.77 and WAC 480-70) is limited to private collection companies and does not extend to municipal collection systems operated by a city or to private haulers operating under contract to a city. For the operations under their jurisdiction, WUTC may require reports, fix rates, and regulate service areas and safety practices.

Cities and towns have several options for managing solid waste collection under state laws. None of these options eliminate the right of a waste generator to haul their own waste. These options are:

- If a city does not wish to be involved in the regulation of garbage collection within its boundaries, collection services would be provided by certificated collectors certificated by the WUTC.
- The city may require a certificated collector to secure a license from the city.
- The city may award contracts for collection for all or part of the city.
- The city may operate its own municipal collection system.

The WUTC would not have jurisdiction over the last three options (RCW 81.77.020).

Various motor vehicle standards also apply to trucks transporting solid waste.

4.2.1.9 Local Regulations

Garbage collection service is mandatory in the cities of Port Angeles and Sequim, as designated in the Municipal Code of each respective city. Additional provisions for garbage

collection addressed within the codes include collection rates, unlawful disposal of prohibited materials, container requirements and other related regulations (see Appendix C).

Garbage collection service is not mandatory in the town of Forks or other parts of the county.

4.2.1.10 Federal Regulation

The Resource Conservation and Recovery Act (RCRA) requires that federal facilities comply with substantive and procedural laws and regulations of state and local governments. Thus, military installations and federal agencies must operate in a manner consistent with local solid waste management activities and policies.

4.2.2 Needs and Opportunities: Solid Waste Collections

Additional incentives for recycling could be provided through incentive rates for garbage collection.

Future waste quantities have been estimated (see **Table 3-2**), and the existing collection system is anticipated to be able to handle the projected increase.

4.2.3 Alternative Methods: Solid Waste Collections

4.2.3.1 Collection Rate Structures

Collection rate structures are set by the WUTC within unincorporated Clallam County. Within the cities of Forks, Sequim and Port Angeles, rates are set by the respective councils.

Alternative methods to the current rate structure could include:

- Smaller container options at less cost
- Higher or lower incentives
- Commercial recycling incentives
- Combined rates in rural Clallam

Per RCW 70.95.212, the County must provide solid waste collection companies 75 days' notice of any change in tipping fees and disposal rate schedules. A solid waste collection company may agree to a shorter period as long as the notice period is not less than the 45 days' notice period required for public comment.

4.2.3.2 Service Ordinance

The adoption of new service ordinances by the County could be a method to effectively implement specific programs in the rural areas, areas that normally the County would have little control over (barring a collection district or another special mechanism).

Service ordinances might include:

- Mandating curbside recycling or yard waste collection services where curbside garbage collection is provided is an option being utilized by many city and county governments in Washington. This type of combined service ordinance is intended to be a low-cost strategy to make recycling and composting easier, more convenient and increase participation rates.
- Implementation of rate structures in the unincorporated areas of the County

4.2.3.3 Mandatory versus Voluntary Garbage Collection

Another alternative method to meet collection needs for Clallam County worthy of consideration is mandatory versus voluntary services. Currently about 36 percent of the county's population resides in areas where collection service is mandatory, and the remainder is largely in rural areas where it is voluntary.

Instituting mandatory or "universal" collection programs throughout all of Clallam County could provide both benefits, and possible drawbacks. Benefits include; a reduction in illegal dumping; a reduced need for enforcement of illegal dumping, littering, and other laws; and greater ability to provide curbside recycling programs (assuming a combination of recycling services with garbage removal), increasing recycling rates. Drawbacks may include: disincentive for those who are actively trying to reduce wastes, and a general unpopularity of mandatory programs, especially during the initial implementation.

Mandatory collection in unincorporated areas could be provided through a solid waste collection district. State law (RCW 36.58A) enables a county to establish such a district. The concept of a solid waste district is discussed in greater detail in Chapter 8.2.3.

4.2.4 Recommendations: Solid Waste Collections

The following recommendations are made for changes in the solid waste collection system:

- Consider a combined service ordinance for Clallam County for curbside recycling pick up where curbside garbage collection occurs. (CO1)
- Clallam County should further investigate the impacts of instituting universal collection service across the county. (CO2)

4.3 IN-COUNTY TRANSFER AND DROP BOX FACILITIES

4.3.1 Existing Conditions

An interlocal agreement (ILA) has been executed between Clallam County, the City of Port Angeles, and the City of Sequim for cooperation and implementation of the regional solid waste export and transfer system (see Appendix B). The ILA identifies the respective roles and responsibilities of the ILA signatories, and establishes the Joint Solid Waste Advisory Board (JSWAB). The JSWAB consists of members from both the city and the county, and acts as an advisory committee to the Port Angeles City Council, the SWAC, the Utilities Advisory Committee, and others as necessary. Among other things, the JSWAB makes recommendations for the management and operation of the solid waste export and transfer system.

Four transfer/drop box facilities are currently operating in Clallam County. 1) The Blue Mountain Drop Box and Recycling Center and 2) the Regional Transfer Station are operated by Waste Connections, Inc. under contract with the City of Port Angeles. 3) West Waste & Recycling owns and operates a private transfer station in Forks. 4) Lastly, the Makah Transfer Station was erected in 2012 to handle collections and transfer in Neah Bay.

Descriptions of these facilities are provided below. Both the Blue Mountain and Regional facilities are part of the Regional Export System implemented by the ILA.

4.3.1.1 Blue Mountain Drop Box and Recycling Center

The Blue Mountain facility is located at the site of the Blue Mountain Dump, which was closed in 1974, and is on land leased by the County from the Department of Natural Resources (DNR). It is located between Port Angeles and Sequim at 1469 Blue Mountain

Road. The current hours of operation are Tuesdays, Thursdays, and Saturdays from 9:00 a.m. to 5:00 p.m. An attendant from DM Disposal staffs the station during these hours.

On November 10th, 2013, a fire destroyed the garbage disposal area and office at the Blue Mountain facility. Following a temporary closure, Blue Mountain resumed Saturday service for recycling only on January 4th, 2014. Beginning May 17th, 2014 the usual schedule and collection service resumed.

The facility accepts garbage for a minimum fee plus an incremental fee based on additional weight measured at the on-site scale. Recyclable materials, including plastics, newspaper, cardboard, glass, non-ferrous metals, used motor oil and antifreeze are also accepted. There is currently no charge for dropping off recyclables. Refrigerators and freezers are not accepted at this site. Waste from this facility is hauled to the Regional Transfer Station.

4.3.1.2 West Waste Transfer Station

West Waste & Recycling constructed and began operating their transfer station in Forks in 2000. Waste handled by this transfer station consists of West Waste & Recycling collection contracts (see 4.2.1.6) and self-haul waste. Hours of operation for accepting self-haul waste are Thursdays, Fridays and Saturdays from 9:00 a.m. to 5:00 p.m.; the site is staffed during these hours.

The waste from this transfer station is being exported by another garbage handling company (Harold LeMay Enterprises) to a rail loading facility outside of the County and ultimately to Roosevelt Regional Landfill in Klickitat County, Washington.

Containers are provided at the transfer station for collection of some recyclable materials, including cardboard, mixed paper, and used motor oil, at no charge. West Waste also accepts white goods, other appliances, car batteries, and tires for a fee.

4.3.1.3 Regional Transfer Station

The Regional Transfer Station became operational in 2007 at the Port Angeles Landfill site, located at 3501 West 18th Street, near the airport. This transfer station replaced the solid waste landfill operation at the site which closed in late 2006.

Waste Connections, Inc. is operating the transfer station. The station is open to the public from 9 a.m. to 5 p.m. Monday through Saturday. The site is staffed during these hours.

The transfer station area is approximately 10.7 acres. The facility includes a transfer building and associated operations, a recycle area, a metal and special waste area, and a Moderate Risk Waste Facility (MRWF) which accepts hazardous household waste at no charge (see Appendix D: The Hazardous Waste Management Plan, for a detailed description of operations). In addition, a compost facility continues to be operated on the former landfill site.

- The transfer building is designed to handle up to 900 tons per day of municipal solid waste. The tipping floor is designed to separate commercial from self-haul customers. Under normal operations, all MSW received each day will be deposited into transfer trailers and removed from the facility within 24 hours.
- Materials accepted at the recycle area may include but are not limited to newspaper, mixed paper, corrugated cardboard, plastic (HDPE and PET), color-segregated glass, aluminum cans, and tin cans.

- Materials accepted at the metal and special waste area may include but are not limited to used tires, white goods, scrap metal, creosote-treated lumber, painted lumber, auto batteries, used motor oil, used antifreeze and contaminated soils.
- Materials accepted at the MRWF may include but are not limited to cleaners, solvents, and pesticides.
- The Compost Facility accepts yard waste delivered by commercial and residential customers, and biosolids delivered by the city's wastewater treatment plant.

Additional details are available in the Port Angeles Transfer Station Operational Plan (SCS Engineers 2006).

4.3.1.4 Makah Transfer Station

The Makah Tribe constructed and began operating the Makah Transfer Station in September 2012, located on Cape Flattery Road in Neah Bay. The transfer station handles waste collected by Makah Tribal Solid Waste Collections and self-hauled waste. This facility includes a transfer building and associated operations, a household hazardous waste collection area, recycling area, an area for white goods and metal collections, and a diversion area where used household items can be left for reuse. It also includes a rainwater harvesting system for collecting rainfall to be used during low precipitation months for activities such as washing equipment (see **Figure 4-1**).

This achievement allowed for the closing of the Neah Bay Landfill, also known as the Warmhouse Beach Open Dump. The Makah Tribe is still seeking funds to cover this landfill.



Figure 4-1. The Makah Transfer Station built in 2012. Two rainwater harvest systems, visible in center of picture, collect water for washing equipment.

4.3.2 Needs and Opportunities: In-County Transfer & Drop Box Facilities

Transfer and drop box facilities are now located so that the majority of residents and businesses in Clallam County have reasonably good access to a transfer site. Additional transfer and drop box facilities may be considered on a case by case basis. Specific additions that have been expressed by community groups and SWAC representatives include recycling drop boxes in the Clallam Bay/Sekiu area and the acceptance of business-generated moderate risk waste (Appendix D: The Clallam County Hazardous Waste Plan for more on the latter topic). Additional facility needs could be further analyzed through methods such as a waste characterization study, or periodic monitoring of solid waste received at the transfer station or drop box facilities.

Improvements at the existing transfer and drop off facilities may be needed in the future to meet changing needs (for new approaches to yard waste or other wastes) or due to changes in state or local regulatory requirements. One facility improvement that is currently being considered is the paving of areas adjacent to the drop boxes at the Blue Mountain Drop Box & Recycling Center.

Recycling collection at the transfer and drop box facilities is important for many people in the county. While collecting recyclable materials through drop-off containers at these facilities is a relatively inexpensive method to collect these materials, market revenues are not necessarily covering the costs of accepting and handling the materials for “free”; other systems for funding the recyclables waste stream management should be considered.

4.3.3 Alternative Methods: In-County Transfer & Drop Box Facilities

Alternative methods to the current transfer and drop box facilities in Clallam County include:

- Private ownership of transfer and drop off facilities. Operation of transfer stations can be accomplished by either the public or private sector, even if the facility is publicly owned.
- Activating Lake Creek and Clallam Bay transfer stations. These are currently closed, but the sites are still under County control and could be reactivated as a contingency
- Instituting a user-pay system for some or all recyclables at the recycle drop boxes. Making the cost of processing the recyclables waste stream visible to the consumer may be a more effective and sustainable method of maintaining the viability of this service. If user fees are implemented at additional transfer and drop box facilities, these fees should be kept lower than fees for garbage so that customers still have a financial incentive to recycle. In addition, a brochure or other educational material explaining the need for user fees, plus providing some forewarning, would be necessary to minimize negative public reaction.

4.3.4 Recommendations: In-County Transfer & Drop Box Facilities

The following recommendations are made for changes in the transfer system in Clallam County:

- The Clallam County SWAC, JSWAB, and other governmental agencies should continue to work together to develop plans and programs, while also continuing to explore viable alternatives, for waste export and transfer and related options. For example:
 - Should access or capacity become an issue at the Blue Mountain Drop Box and Recycling Center, consider extending the hours of operation and/or adding additional drop boxes.
 - Should unlawful disposal or access to the transfer/drop box facilities from remote areas of eastern Clallam County become an issue, consider siting an additional drop box facility to serve this area. (T1)
- Study the possibility of placing additional containers at all transfer and drop box sites to collect source-separated yard wastes (see discussion in Section 6.4.4) and to collect additional recyclable materials (see discussion in Section 6.3.4). One of the better methods for determining the need for additional containers is careful observations on the types and amounts of materials currently being disposed at the transfer and drop box facilities. (T2)
- Obtain funding for a waste characterization study at Regional Transfer Station. The last county specific study was in 2003. If funding cannot be obtained, develop a plan for periodically monitoring municipal solid waste received at transfer and drop box facilities, with an emphasis on noting significant quantities of potentially-recyclable

materials (yard waste, scrap metals, textiles, etc.). These results should be included in the annual summary of the Regional Solid Waste Export & Transfer System recommended in Regulation & Administration. (T3)

- Consider user fees at the transfer and drop box facilities for recyclable materials if the average market price determines that collection of recyclables becomes a significant net loss for the transfer stations. Do not implement user fees without the concurrence of the Clallam County SWAC, JSWAB, Port Angeles City Council and County Commissioners. Furthermore, announce any user fees at least 90 days in advance, and prepare and distribute a flyer or brochure explaining the new system beginning at least one month in advance. (T4)

Table ES-1 identifies the responsible implementing agency and the preliminary implementation schedule for each of these recommendations.

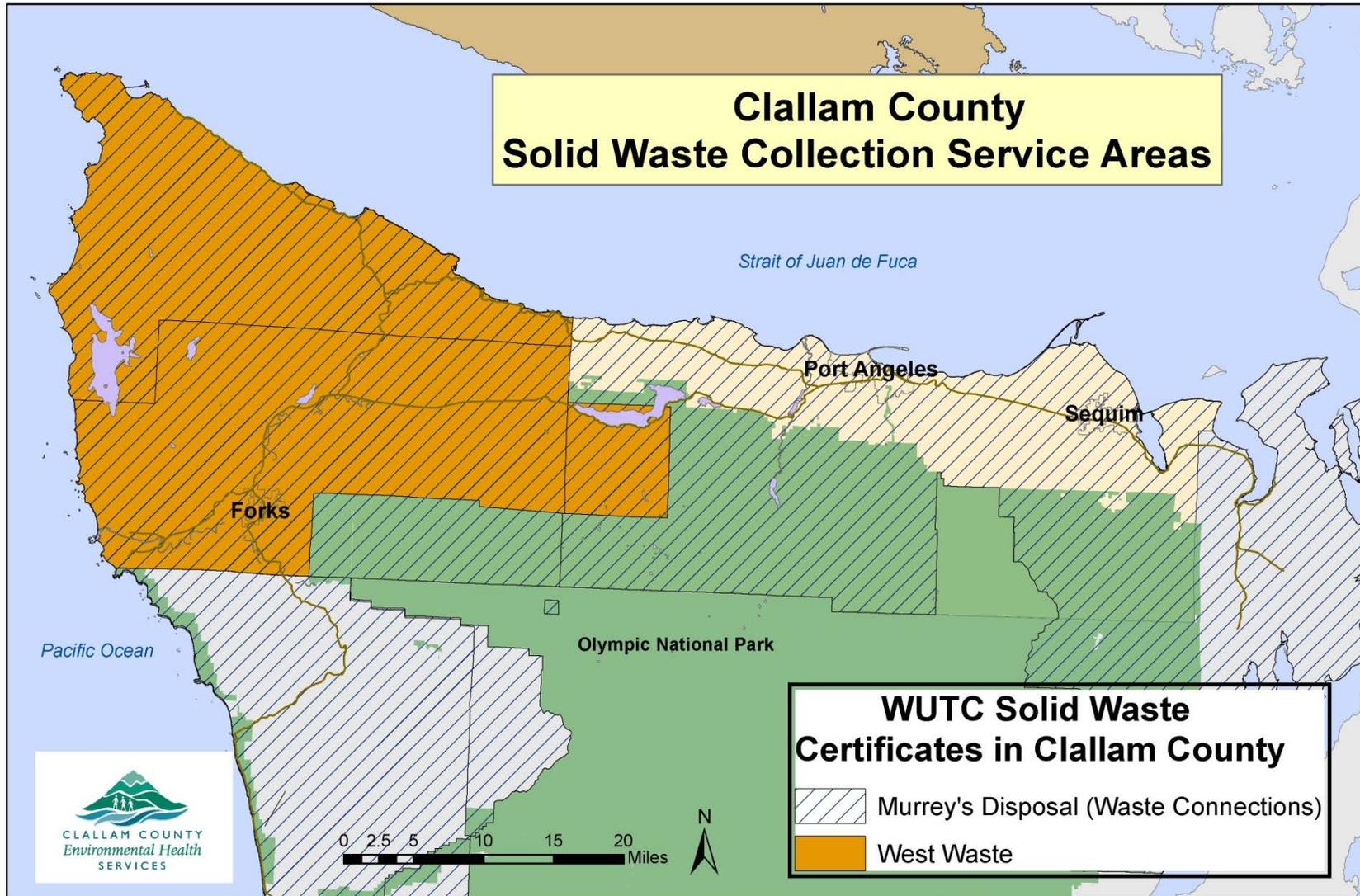


Figure 4-2. Clallam County Solid Waste Collection Service Areas

5. DISPOSAL

5.1 INTRODUCTION

The purpose of this chapter is to:

- Present existing and proposed waste disposal activities in Clallam County, including methods which allow for energy recovery.
- Identify the needs and opportunities not yet addressed by the existing disposal facilities and programs.
- To identify the needs and opportunities presented by the continuing erosion of the marine bluffs at the north margin of the closed Port Angeles Municipal Landfill.
- Meet the requirements of Chapter 70.95.090(1) and (3) RCW.

The solid waste management activities discussed in this chapter are organized into the following sections:

- 5.2 INCINERATION & ENERGY RECOVERY
- 5.3 IN-COUNTY LANDFILLING
- 5.4 IMPORT/EXPORT

5.2 INCINERATION & ENERGY RECOVERY

5.2.1 Existing Conditions

Technologies exist that can employ controlled flame combustion as a method of waste disposal and/or energy production. One such method is incineration, in which municipal solid waste (MSW) is combusted to reduce the weight and volume requiring landfill disposal. There are currently no incinerators in Clallam County permitted for general MSW disposal.

Other technologies, whose primary aim is to convert solid waste into usable energy, are called energy recovery systems. These methods of conversion of specific waste streams such as wood into heat and/or electricity also reduce volumes of waste that might be disposed of in a landfill, and include:

- Biomass-to-energy, which converts organic material, usually wood residuals, to energy utilizing combustion in a regulated, enclosed facility
- Biogas-to-energy, which converts gas produced from the decomposition of materials to energy through combustion

There are a few facilities in Clallam County which use or propose to use such technology as a means of energy recovery. Both incineration and energy recovery will be discussed in the following sections.

5.2.1.1 Waste-to-Energy

5.2.1.2 Waste-to-Energy Feasibility Studies

Two waste-to-energy studies that examined options for this method of waste management in Clallam County were conducted in 1988. These studies were:

- City of Forks Waste-to-Energy Feasibility Study by SCS Engineers. This study on the incineration of MSW concluded that a waste-to-energy facility for general solid wastes would not be cost effective either for Forks or for the west end of Clallam County and that a pile burner/lumber dry kiln might be cost-effective for disposal of wood waste only. A biomass-to-energy study has more recently been completed, and is discussed in Section 5.5 below.
- Waste-to-Energy Feasibility Study for the City of Port Angeles by R.W. Beck & Associates. This study concluded that flow control would be necessary to ensure a steady supply of waste to the incinerator, and waste would need to come from an area larger than the city's boundaries. The study recommended that the City and County work together to develop a solid waste management plan that would provide the framework for further exploration of a waste-to-energy facility.

5.2.1.3 Existing Incinerators & Energy Recovery Facilities in Other Areas

There are a few facilities in Washington that currently incinerate MSW. The City of Spokane operates an incinerator using mass burn technology. This facility processed 272,798 tons in 2011, producing 173,044 megawatt hours of energy (Spokane Regional Solid Waste System 2011). Washington State University (WSU) in Pullman opened a new incinerator in 1999. The WSU incinerator supports teaching, research, and support missions for medical and pathological waste in a clean and cost effective fashion.

5.2.1.4 Biomass-to-Energy

Biomass-to-energy facilities operate on similar principles as incinerators although instead of using trash to produce electricity, organic material known as "biomass" is used as fuel for the incinerator. There are two biomass-to-energy facilities currently operating in Clallam County: Nippon Paper Industries USA's (Nippon) biomass boiler which burns hog fuel to produce steam for the paper mill operations, and a wood chip boiler which produces heat for the Quillayute School District.

Statewide and local studies have been conducted on the feasibility of biomass-to-energy facilities that provided part of the impetus for the current facilities and provide research in the case of new facility considerations. Local cedar mills, Allen's Logging, and Interfor, generate an estimated 92,700 green tons (versus dry ton) of mill and wood waste annually (Siemens 2006). The majority of this waste stream is in the form of hog fuel.

As a result of the closure of wigwam and cyclone wood burners (described in Section 2.2.2.10), the City of Forks, the UW Olympic Natural Resource Center, and the Clallam County Economic Development Council (EDC) undertook a study (RTI 2005) to see what alternatives could be available in the short and long term to producers of wood waste (i.e., shake and shingle manufacturers) that previously used burning to remove such waste. The study recommended an approach to biomass energy conversion. A biomass energy feasibility study by Siemens provided the EDC and its associated study partners (Clallam County, PUD, Port of Port Angeles, City of Port Angeles, and the City of Forks) with a report that indicated numerous options utilizing this waste stream, including a heat or heat and power system for an industrial park in western Clallam County, and small wood chip boilers for heat generation (Siemens 2006).

Consequently, the Quillayute Valley School District, in partnership with city leaders, local mills and economic development officials built the first wood-fired biomass boiler in the State of Washington for school use, replacing a diesel-fired steam boiler as well as a propane-fired hot water boiler. The new boiler began operations in January 2013, used for heating at Forks Middle School and the Forks High School Addition (Quillayute Valley Schools 2013).

The consideration of additional facilities suggested by the 2006 study have been currently tabled while Nippon, the largest biomass facility in Clallam County completes a project which will more than double their biomass fuel needs (NPI USA 2012).

In mid 2012, Nippon began construction on a new biomass boiler with an attached Co-Generation facility which is expected to produce 20 megawatts of electricity for sale to the renewable energy market. This will replace their current biomass boiler, which burns 70,000 bone dry tons (BDT) of biomass annually, consisting of sawmill residuals and locally available residual forest waste slash. The new project will require approximately 170,000 BDT per year of fuel, an increase of 100,000 BDT (NPI USA 2012).

These facilities would take wood waste only. All require very specific ORCAA and EPA permits. Wood residuals burned for energy in these facilities do not originate solely in Clallam County nor do they necessarily utilize all available woody biomass in Clallam County.

5.2.1.5 Biogas to Energy

The closed Port Angeles Landfill emits landfill gas (LFG) as buried organic wastes decompose. LFG contains methane, a potent greenhouse gas that can be captured and used to fuel power plants, manufacturing facilities, vehicles, homes, and more. Currently, this gas is flared off, but it is not captured for energy recovery.

The City of Port Angeles issued a request for proposal (RFP) in 2012 for the collection and utilization of this LFG under the EPA's Landfill Methane Outreach Program (LMOP) voluntary assistance program. LFG availability from the Port Angeles Landfill is estimated to be about 220 standard cubic feet per minute (City of Port Angeles 2012). The RFP has not been answered at the writing of this CSWMP.

The LFG emitted from the closed Neah Bay Landfill is currently being released into the air.

5.2.1.6 Needs and Opportunities: Incineration & Energy Recovery

While there is a need in the County for disposal of MSW now and in the future, these needs are being met adequately by the various transfer stations, recycling and composting facilities in Clallam County. The cost of municipal solid waste incineration, which require economies of scale, could likely not compete with current costs of the waste export system and interest in this method is not being expressed by the County at this time.

Biomass-to-energy projects are currently incinerating wood residuals for energy recovery, providing a method of disposal for this portion of the waste stream. There may be a need for continued analysis of woody biomass waste streams in Clallam County to provide further support for proposed or ongoing biomass-to-energy projects.

The presence of recoverable amounts of LFG, such as that produced by the Port Angeles Landfill, presents both a need and an opportunity. There is a need to collect and control LFG to prevent it from migrating off-site (and possibly causing explosion hazards and odor problems). Support for the Makah Nation to include LFG considerations in their Neah Bay Landfill cover planning is needed.

Collection of LFG for energy recovery would be more feasible if the cost of energy increases, but at this time insufficient amounts of gas are being produced to maintain a cost-effective energy recovery program. The City of Port Angeles should continue to evaluate gas production rates and possibly consider further evaluation of a biogas-to-energy program in the future.

5.2.2 Alternative Methods: Incineration & Energy Recovery

Alternative methods of waste disposal concerning incineration or energy recovery include:

- At the present time, there appear to be no factors that would strongly favor incineration over other disposal methods in Clallam County.
- Further biomass incineration projects have been proposed within the last decade that could be pursued. These have been put on hold while the current projects (NPI & Quillayute School District boilers) get underway and establish their biomass handling needs.
- At the present time, there is not sufficient clean gas being generated at the closed County landfills to burn the flare continuously or to support an alternative method of handling it (such as energy recovery). The City of Port Angeles has a current RFP in circulation to further examine this opportunity at the Port Angeles Landfill.

5.2.3 Recommendations: Incineration & Energy Recovery

The following recommendations are being made for incineration and energy recovery facilities:

- Evaluate new proposed incineration projects for select waste streams and/or locations based on an objective review of the potential impacts to human health and environmental quality, as well as a comparison to alternative disposal methods. (I1)
- Investigate and develop proposals for energy recovery methods, on a case by case basis. (ER1)
- Work with City of Port Angeles staff to continue to evaluate a range of opportunities to use the LFG produced at the City-owned landfill. (ER2)

Table ES-1 identifies the responsible implementing agency and the preliminary implementation schedule for each of these recommendations.

5.3 IN-COUNTY LANDFILLING

5.3.1 Existing Conditions

Since the previous 2006 CSWMP, the last two landfills accepting MSW were closed. The Port Angeles Landfill was closed in 2007. Temporary reopening of one of the landfill cells to accept resurfaced refuse from the eroding landfill bluff is being discussed by the signatories to the ILA. The Neah Bay Landfill, which served the Makah Tribe and surrounding areas, closed in 2011.

The Lawson Landfill, a limited purpose landfill near Port Angeles, is still in operation. Both the operating and closed landfills are described below. Lawson Landfill is discussed further in Chapter 7. See **Table 5-1** for a brief recount of the operations of these landfills.

Table 5-1. Clallam County Landfill Status in 2014

Site Name	Operator	Facility Type and Tonnage	Permitted?	Comp. WAC ^a	Operational Status
Lawson Landfill, Port Angeles	Nippon	Limited purpose landfill	YES	Yes	Operating
Neah Bay Landfill, Neah Bay	Makah Tribal Council	Solid waste landfill	NA ^b	No	Closed
Port Angeles Landfill, Port Angeles	City of Port Angeles	Solid waste landfill	YES	Yes	Closed. Special operations to commence in 2014.

a Comp. WAC = Complies with WAC 173-351

b NA = Not Applicable

Current standards for municipal solid waste landfills are primarily contained in the State's Criteria for Municipal Solid Waste Landfills (WAC 173-351), which contains standards for planning, siting, operations, and closure of landfills. Standards are also contained in the County Solid Waste Regulations.

5.3.1.1 City of Port Angeles Landfill

The City of Port Angeles owns this landfill, located within city limits; lead oversight responsibilities are held by the Public Works Department. Clallam County Environmental Health works with Ecology to provide regulatory and technical oversight. The Port Angeles landfill was originally a regional dumping site purchased by the City in 1947. Through 2006, this landfill provided disposal services to residential, commercial, and industrial customers throughout Clallam County. During this time, the Port Angeles Landfill was the only disposal open to the general public for solid waste disposal in Clallam County (although there were also transfer stations that accepted waste from the general public).

The Port Angeles Municipal Landfill was closed in 2007 following the requirements of the State's Criteria for Municipal Solid Waste Landfills (WAC 173-351) and Clallam County Solid Waste Regulations. With closure of the landfill, the Regional Transfer Station was constructed on the site in 2006 and is currently in operation. Reserve accounts for closure and post-closure costs for the closed landfill are being funded by a portion of the solid waste tipping fee.

Since 2001, there has been concern with bluff retreat and erosion migrating into the Port Angeles Landfill facility. A WAC 173-304 compliant cell is located adjacent to the coastal bluff, and contains approximately 750,000 cubic yards (CY) of MSW. The west and east portions of the cell differ in important characteristics, and are referred to as the West 304 Cell and the East 304 Cell. The WAC 173-351 compliant cells (351 Cell), which includes subcells 1, 2, and 3 lies south (inland) of the 304 Cell.

In conjunction with the landfill closure, a seawall was constructed in 2006/2007 at the base of the West 304 Cell to prevent pollution to the Strait and to protect the landfill from further erosion. The slope above the wall was graded back to 1.25:1 (slightly flatter than 45 degrees), and was stabilized with erosion control plantings and geotextile fabric. Waste from the bluff and the beach was relocated to the 351 Cell, which was still open at that time.

Since the installation of the wall, bluff erosion along the unprotected eastern half has continued, further threatening slope failure and the uncontrolled release of refuse into marine waters. In the summer of 2011 during maintenance inspections, City of Port Angeles staff observed that the bluff face had experienced localized failure at one location along this unprotected eastern half that had exposed some waste at the top of the bluff (see **Figure 5-1**) and had broken a perimeter drain pipe that was left dangling over the edge. In fall 2012, the City of Port Angeles pulled back the solid waste on the top of the landfill and made stormwater improvements.



Figure 5-1. Exposed refuse, due to bluff erosion, at the Port Angeles Landfill on the Strait of Juan de Fuca. Photo credit: Tom Roorda. 2011. Arrow inserted by author.

5.3.1.2 Neah Bay Landfill

This disposal site, also known as the Warmhouse Beach Open Dump, is located on the Makah Reservation at Neah Bay. The facility is under the jurisdiction of the Makah Tribal Council and technically not the responsibility of Clallam County. Much of the waste deposited at this site was burned to reduce its volume. This landfill was closed in 2011. The Makah Tribal Council is still pursuing funding to cover the landfill.

The Makah Transfer Station was completed in 2012 to handle waste from Neah Bay and the surrounding areas. Details on the Makah Transfer Station are presented in 4.3.1.4.

5.3.1.3 Lawson Limited Purpose Landfill

The Lawson Landfill is the only permitted limited purpose disposal site remaining in Clallam County. Nippon Paper Industries USA (Nippon) disposes of approximately 40,000 cubic yards of ash per year in this landfill. The landfill is estimated to have remaining capacity adequate until the year 2018. Chapter 7, Special Wastes, provides additional discussion.

5.3.2 Needs and Opportunities: In-County Landfilling

There is an urgent need for the Port Angeles Landfill bluff erosion to be addressed. Localized failure that had exposed parts of the cell lining and waste refuse is a water quality and human health threat. In addition, analysis shows that, due to highly erosive wave impacts and inherently unstable vertical bluffs, the portions of the landfill shoreline not protected by the seawall are experiencing continued high rates of erosion. Erosion to date has reached the

point that the City of Port Angeles needs to undertake actions to reduce or eliminate the risk of refuse from entering the marine environment.

The City of Port Angeles Public Works Department is evaluating the alternative methods necessary to remove exposed refuse, repair drainage facilities, and to slow down the rate of bluff erosion. As part of the ongoing evaluation, the City is also assessing mechanisms to reduce the cost of the alternative corrective actions, including the impact on utility ratepayers; and assessing alternative funding for the corrective action.

The Neah Bay Landfill has succeeded in being closed after years of planning and discussion by the Makah Tribal Council and other supporting entities. Further closure activities such as installation of a landfill cover have been discussed and funding is being sought. This landfill and the Makah reservation are not within the jurisdiction of the County or state.

5.3.3 Alternative Methods: In-County Landfilling

5.3.3.1 Port Angeles Landfill

The City of Port Angeles Public Works and Utilities Department has developed a number of alternatives to reduce or eliminate the risk of refuse entering the marine environment. Some alternatives also would decrease the rate of bluff erosion. To reduce or eliminate the risk of refuse from entering the marine environment, waste would be removed from the East 304 Cell, in part or completely, and relocated on-site or transferred off-site.

The preferred location for relocating waste onsite would involve re-opening the existing 351-compliant cell on the Port Angeles Municipal Landfill industrial property, and relocating waste within the existing permitted footprint and height. All relocated waste cells will meet current solid waste landfill standards under WAC 173-351 and address engineering and regulatory challenges of placing a new cell onto an existing landfill cell. Off-site relocation would include transfer to an approved RCRA Subtitle D landfill.



Figure 5-2. Landfill Bluff conceptual design depicting waste cells 304 (containing waste to be relocated) and 351 (potential site of relocation.) Courtesy of City of Port Angeles. 2014.

The alternatives for removal of 304 Cell waste and relocation on-site would require some or all of the 750,000 cubic yards of waste in the 304 Cell to be moved within the permitted footprint and maximum height of the existing 351 Cell (see **Figure 5-2**). Depending on the proportion removed, the remaining East Cell 304 may be required to have an updated landfill cover system installed with gas collection.

The expanded 351 Cell would provide capacity within the existing landfill to accommodate the amount of refuse removed from East Cell 304, with the exact dimensions of the new cell to be determined by the amount re-located. The location of the new cell could be in or on top of existing cells. The cell would be constructed within standard landfill waste placement/compaction requirements. Once final grades are achieved, the disposal cell will be closed in compliance with current landfill WAC 351 standards.

Bluff stabilization strategies include both short-term and long-term approaches to address multiple issues such as dynamic hydrologic and climatologic forces, inherent bluff instability, worker safety and constructability of shoreline and bluff stabilization measures, and landfill proximity. Five conceptual alternatives have been identified which address the range of protective structures that could be considered on the shoreline, and the waste removal and relocation that would be needed in conjunction with each alternative:

1. Maintain the seawall in its current location
2. Remove the seawall
3. Install limited scour protection at the ends of the seawall
4. Stabilize the shoreline to the landfill extent
5. Stabilize the shoreline to the property extent

To address funding of corrective actions, the City plans to pursue a combination of appropriate state and federal grants and loans, and to utilize the Solid Waste Utility's bonding capacity for debt financing. Revenue bonds will be paid by revenue from the transfer station. To the extent debt financing is utilized, tipping fees will be increased and customers in the County will be affected.

5.3.3.2 Neah Bay Landfill

Installing a landfill cover system on the Neah Bay Landfill, to prevent impacts to human and environmental health, would be an option alternative to the current status at that site.

5.3.3.3 Other Landfills

Limited-purpose landfills, for waste streams such as wood waste or inert landfills for other materials have occasionally operated in Clallam County and will possibly be proposed again in the future to handle wastes from specific companies or other sources. This type of landfill typically provides a cost-effective disposal option for local industries without excessive environmental impacts.

5.3.4 Recommendations: In-County Landfilling

The following recommendations are made for in-county landfilling, including closed landfill oversight, in Clallam County:

- Consider the range of alternatives necessary to reduce or eliminate the risk of refuse from entering the marine environment and to slow down the rate of bluff erosion at the Port Angeles Landfill. (LF1)
- Maximize the development of appropriate state and federal grant funding to reduce impacts to utility ratepayers when implementing corrective actions at the Port Angeles Landfill. (LF2)
- Consider reopening the existing WAC 351-compliant MSW disposal cell at the Port Angeles Landfill necessary to accommodate partial or complete removal of waste from the 304-compliant cell to reduce or eliminate the risk of refuse from entering the marine environment. (LF3)
- Support post-closure activities at the Neah Bay Landfill. (LF4)
- Consider proposals and options to develop special-purpose landfills, such as wood waste or construction and demolition waste landfills, as they are proposed. (LF5)

Table ES-1 identifies the responsible implementing agency and the preliminary implementation schedule for each of these recommendations.

5.4 IMPORT/EXPORT

5.4.1 Existing Conditions

5.4.1.2 Existing Waste Import Activities

For the purpose of maintaining necessary ratios of biosolids to yard waste for proper processing, Waste Connections, Inc. began importing in 2010 less than 1,500 tons of yard waste from out of the county.

5.4.1.3 Existing Waste Export Activities

Exporting solid waste to disposal sites outside of the County began in November 1998 with the export of waste by West Waste & Recycling, Inc. Previously, waste export had not been used for Clallam County wastes, except for small quantities of special wastes (such as animal carcasses and biomedical waste) that are sent to special facilities. Through 2006, the need to export was avoided because of the availability of the Port Angeles Landfill.

Clallam County also partners with Jefferson County for the management and export of certain special wastes.

5.4.2 Needs and Opportunities: Import/Export

5.4.2.1 Waste Import Needs and Opportunities

There are currently no needs relating to waste import from outside Clallam County.

5.4.2.2 Waste Export Needs and Opportunities

With the closure of the Port Angeles Landfill in late 2006 and the Makah Transfer Station in 2011, all MSW waste generated in Clallam County is now exported to regional landfills outside of the county. As described in Chapter 4, an ILA has been executed between the City of Port Angeles, the City of Sequim, and Clallam County for coordinating, implementing, and

operating this system (Appendix B). Forks and areas of Clallam County west of Lake Crescent receive waste export services from West Waste & Recycling.

There is a need for Clallam County to include solid waste planning in emergency contingency plans in the case of natural disasters such as tsunamis.

5.4.3 Alternative Methods: Import/Export

5.4.3.1 Waste Import Alternatives

One alternative to the current waste import situation in Clallam County is to increase the amount of yard waste collected at the Compost Facility to maintain the proper ratio required for composting of biosolids. Strategies to increase the amount of yard waste collected in Clallam County are discussed in Chapter 6.4.

5.4.3.2 Waste Export Alternatives

Waste export is a system of shipping wastes to a large regional landfill. The three regional landfills used by communities in the Pacific Northwest are located in areas that reduce operating expenses due to low precipitation, favorable soils and hydrogeological conditions, and other factors. The use of these facilities by large communities (Seattle, Snohomish County and Portland, Oregon) has further reduced the disposal cost at regional landfills by creating significant economies of scale. Although transportation costs to send waste to these landfills from Clallam County is significant, the low disposal cost makes this option cost-competitive with other disposal options. The Solid Waste Disposal Feasibility Study conducted for the City of Port Angeles (Parametrix, 1993) concluded that waste export would be less expensive than the other disposal options evaluated, including the continued use of the Port Angeles Landfill.

The potential benefits associated with waste export include:

- Solid waste disposal becomes largely a variable cost, thus making it easier to realize savings associated with waste prevention and recycling.
- Additional cost savings occur due to a reduced regulatory burden.
- Significant reductions in long-term liability and environmental risks are possible, although jurisdictions using a large regional landfill, in combination with other jurisdictions and private companies, may be liable for future environmental damage under the CERCLA.
- The waste is sent to landfills that are more environmentally optimal (e.g., better terrain and climate).

The exporting of waste from Clallam County was selected as the preferred waste disposal alternative when the Port Angeles Landfill closed in late 2006. Waste Connections (under contract with the City of Port Angeles) has constructed a transfer station at the landfill site. Chapter 4 presents a discussion of the existing and proposed in-County transfer system.

In 2011, 11,209 tons of waste was exported to the Columbia Ridge Landfill in Oregon, 12.31 tons were taken to the Greater Wenatchee Regional Landfill in Washington, and almost all of the MSW collected in Clallam County (54,731 tons) was taken to the Roosevelt Regional Landfill in Roosevelt, Washington. Recyclable MSW is exported to Tacoma, Washington for processing; glass bottles are transported to recycling markets in the Seattle-Tacoma area.

5.4.4 Recommendations: Import/Export

5.4.4.1 Waste Import

No recommendations are being made for waste import.

5.4.4.2 Waste Export

The following recommendations are made for waste export:

- Continue to export solid and other permitted waste from the Regional Transfer Station to the Roosevelt Regional Landfill. (WE1)
- Encourage West Waste to continue their waste export activities and to possibly expand these activities as needed to serve additional west end customers. (WE2)
- Require any contracts with private businesses for waste export services to identify alternative disposal plans, including alternative routes and modes of transportation, should natural disaster or other conditions require re-routing. Any regional solid waste landfill used for Clallam County waste must meet or exceed all Minimum Functional Standards requirements. (WE3)

Table ES-1 identifies the responsible implementing agency and the preliminary implementation schedule for each of these recommendations.

6. WASTE REDUCTION

6.1 INTRODUCTION

The purpose of this chapter is to:

- Review existing waste prevention, recycling, and composting activities in Clallam County to identify the needs, problems, or opportunities for reducing the amount of waste being landfilled through existing facilities and programs.
- Suggest alternatives to meet the identified goals for reducing waste.
- Recommend future programs or actions for reducing waste that are appropriate to the needs and abilities of the County and the residents, businesses, and service-providers.
- Present implementation schedules and costs for the recommended waste reduction programs and facilities.
- Meet the requirements of RCW 70.95.090(6),(7).

RCW 70.95.010 (8) declares waste reduction one of the highest priority strategies in solid waste management for Washington State. The Washington State Department of Ecology (Ecology) further defines this approach to include the reduction of both the quantity and toxicity of solid waste, acknowledging waste reduction to be “the most environmentally significant and cost-effective impact on waste generation” (Ecology, 2009).

This chapter is divided into three sections that describe categories of waste reduction methods that are or could be practiced in Clallam County. It includes action oriented, specific, and locally viable waste reduction programs for both the residential and commercial sectors.

These sections are:

- 6.2 WASTE PREVENTION
- 6.3 RECYCLING
- 6.4 COMPOSTING

6.2 WASTE PREVENTION

6.2.1 Existing Conditions

Waste prevention is defined as those methods and activities that avoid the generation of waste. Recycling is differentiated from waste prevention because recycling handles materials after they have been created as a waste. The description of waste prevention activities presented below applies to all jurisdictions within the County, unless specifically stated otherwise.

Public education and outreach continue to be an important component of waste prevention efforts. Methods of outreach include: utility bill inserts, brochures, public presentations, and advertisements in the newspaper, on buses, billboards, websites, television, and radio. These efforts are largely coordinated and funded by the City of Port Angeles, Clallam County, and through Coordinated Prevention Grants (CPG) from Ecology; annual cost for City and County staff time, travel, materials and related expenses is the equivalent of one full-time employee.

Reuse facilitated through a variety of retail, donation, and personal exchanges are popular methods which contribute greatly to waste prevention by providing opportunities to divert materials that might be put in the garbage.

Such exchanges include:

- Swap meets and garage sales
- Second-hand, pawn, or consignment based businesses
- Charities and non-profits accepting food and non-food items for donation
- Sellers of used items such as car parts, metals, and building supplies

Data on the diversion of these materials does not generally get reported to public tracking systems such as Ecology's Annual Recycling & Diversion Surveys; though reuse activities present a significant contribution to the local economy (see the discussion in Section 6.2.2).

Clallam County and the City of Port Angeles participate in 2good2toss.com. This free, web-based program connects residents wanting to get rid of household items or reusable building materials and potential recipients or buyers. All items posted must be less than \$99; many are free. In 2012, the Clallam 2good2toss.com site received 79,024 visits, with a total membership of 3,086 registered users. From 2005 until 2012, the average number of listings per year was

2,215, the average number of successful exchanges tallied was 822 per year, and the average total avoided disposal costs were \$3,501 per year (Freilich 2013a).

Figure 6-1 illustrates the amount of waste diverted from the landfill through Clallam County's participation in the 2good2toss program since 2005.

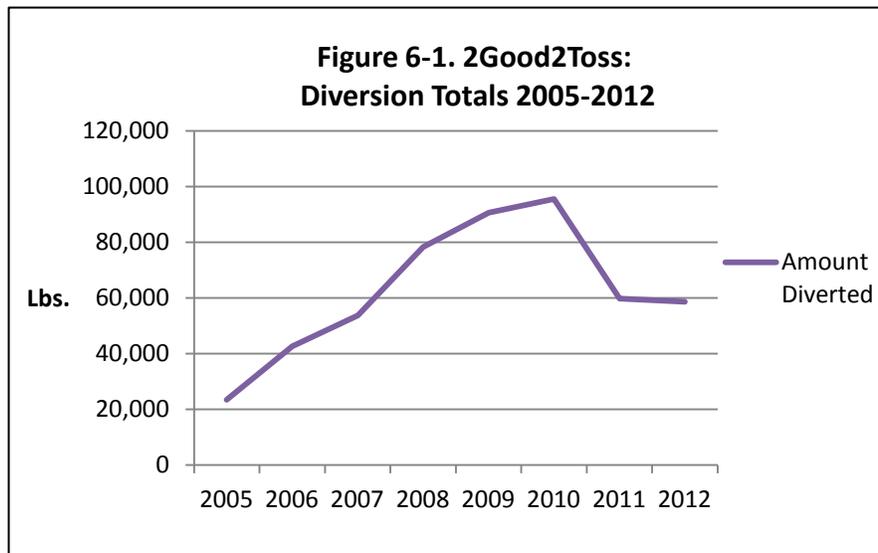


Figure 6-1. Source: Freilich. 2013 Clallam County 2good2toss Report.

County and City staff are available to assist businesses in waste prevention. Business waste audits, such as those available through the City of Port Angeles, help businesses and organizations identify potential opportunities for waste prevention through analysis of their waste streams. From 2007-2012, ten locations received at least one visit; confidential results were shared with each entity (Freilich 2013b).

Reduction and safe disposal of hazardous waste by small businesses is a major focus in local waste prevention programs. Since 2009 Ecology has funded Local Source Control Programs, operated under contract by CCEH through 2012, as well as the City of Port Angeles from 2012 to the present. These programs deliver no-charge technical assistance visits to businesses, providing information on a host of pollution and waste prevention topics (see Appendix D, the Clallam County Hazardous Waste Management Plan, for more details).

Education, outreach and technical assistance for residential and business sector waste prevention is an important aspect of various positions within the County and city programs. A partnership with Washington State University (WSU) Extension, the County and the City of Port Angeles will establish a part time position from 2013-2015 which will focus on a variety of waste prevention activities, including backyard composting education and business waste reduction projects.

Many waste prevention activities involving commercial or industrial sectors are largely enacted via private efforts. One notable commercial endeavor in Clallam County was undertaken by Aramark Olympic Properties, contracted to manage concessions for Olympic National Park at three facilities, Lake Crescent Lodge, Fairholme Store, and Hurricane Ridge Visitor Center which together serve about 124,000 visitors a year. Aramark's 2010 contract bid aimed for a 90% waste diversion goal by 2012; it achieved 55% diversion through reuse, recycling and composting activities (Freilich 2013b).

The commercial sector generates a significant proportion of the county's construction and wood debris waste. These categories of waste, which include materials such as carpet and pallets, represented nearly 37% of the commercial waste stream in 2009 (Ecology, 2010). Various entities in Clallam County attempt to address this situation. Built Green® of Clallam County, an affiliate of the North Peninsula Building Association (NPBA), offer workshops and resources on construction related waste reduction, and promote, certify and research construction, demolition and landclearing (CDL) recycling and deconstruction opportunities.

Businesses, tribes and governmental organizations may opt for deconstruction over demolition on some projects to facilitate reuse or recycling of materials. Incentives for deconstruction can be supported through county and city ordinances or permitting.

Numerous private businesses accept certain CDL waste for reuse and recycling, serving residential and commercial sectors. These efforts in CDL waste prevention and recycling face a number of barriers, though, many due to Clallam County's rural location. These barriers include: limited local market options, high transportation costs, and lack of incentives, such as reduced costs or permitting requirements to choose waste prevention methods over disposal. More information is provided on recycling of CDL waste in the next section of this chapter as well as in Chapter 7.9 Special Wastes.

Specific components of the waste stream are further targeted in prevention efforts through a number of methods. For instance, attempts to address organic wastes such as yard debris and food waste include: food waste diversion through donation to charity; organized gleaning activities; fats, oils, and grease (FOG) recycling; and municipal and home composting (see Section 6.4 for more on composting). A volunteer run gleaning program has been harvesting unwanted produce from local farms from June through December since 2008. Food rescue programs such as this one have been very successful in other communities, especially as partnerships between volunteer, nonprofit, and government organizations addressing issues such as community hunger, resource conservation and waste reduction. Nash's Farm in Sequim, the largest organic farm in Washington, diverts unsold produce from its farm store to feed its livestock (Nash's 2013).

Moderate risk waste generated by residential sectors can be brought for exchange to the Reuse Area at the Moderate Risk Waste Facility (MRWF) in Port Angeles. Products such as stain, fertilizer, oil-based paints, household cleaners or plant food which are in good condition can be brought or taken during facility open hours. Commercial and industrial generators must arrange for moderate risk waste disposal through a private vendor, or they can make arrangements with the Jefferson County MRWF. Appendix D, the Clallam County Hazardous Waste Management Plan, contains further detail.

6.2.2 Needs and Opportunities: Waste Prevention

The aforementioned existing conditions detailed education, outreach, activities and programs which enact waste prevention. There is both a need for ongoing efforts in these routes, and opportunities for improved and expanded endeavors. Waste prevention activities can have significant impacts on future environmental, social, and economic outcomes.

Education and Outreach

Ongoing education and outreach are key to waste prevention. Existing brochures, ads, and public information require regular updating to ensure that information is accurate and effectively distributed. There is opportunity to engage in new methods of outreach such as social media. Public, private and volunteer entities can work together to accomplish mutual or analogous goals in waste prevention.

Increased Prevention Activities

Reuse opportunities are present in Clallam County, but there is also opportunity for additional activities to address both waste prevention and economic potential. This potential can emerge both in the form of avoided costs (prevention of negative externalities such as pollution) and jobs that might be created in reuse industries.

CDL waste prevention via deconstruction and reuse was the focus of a 2012 study commissioned by Built Green® of Clallam County. Some of the needs identified in this study included: analysis of policy barriers to deconstruction, and providing support for deconstruction and CDL recycling projects (Built Green 2012). Chapter 6.3 has more on specific CDL recycling projects.

Commercial and industrial waste streams can also represent opportunities for revenue rather than a waste disposal cost. The Network for Business Innovation and Sustainability (NBIS), a northwest regional non-profit supporting business sustainability since 2003, is one such entity that could offer Clallam County businesses opportunities for economic development while fostering waste prevention goals. NBIS' By-Product Synergy NW Initiative engages members as diverse as Alaska Airlines, Cedar Grove Composting, Trex, Nucor Steel, and Nordstroms to assess their waste streams, connect with waste exchange opportunities, and implement best practices in waste reduction (NBIS 2013).

There is a need for increased options for small businesses to dispose of moderate risk wastes. Providing this service through the MRWF at the Regional Transfer Station is an opportunity which is also discussed in Appendix D, the Clallam County Hazardous Waste Management Plan.

Another opportunity for increased waste prevention could target specific organic wastes, such as food waste (See **Figure 3-1**). Because there are no large scale composting operations which accept food waste in Clallam County, food waste prevention should take high priority. New strategies could include increased source reduction such as food rescue or more diversion for animal feed.

Monitoring Waste Prevention Results

With all waste prevention efforts, measuring effectiveness is vital to achieving prevention goals with allotted resources, yet effectiveness of programs and other activities can be difficult to measure for a number of reasons. One challenge is finding variables which can provide a reasonable correlation to prevention efforts. For example, per capita waste generation might seem to provide this insight; but such statistics fluctuate from factors as diverse as economic trends, changing demographics, tourism, and packaging and technology trends. In Clallam County, per capita waste generation has decreased 17% from 2005 to 2011 (**Table 3-1**). In observation of larger state and national trends, though, the likely reason for

the decrease is the economic downturn during this period, masking analysis of waste prevention efforts from these types of data.

Surveys and “performance-based standards”, which tabulate other measurements of program effectiveness such as numbers of materials distributed, or participants at a particular event, can also be used to supplement assessment of waste prevention programs. While such measurements are tracked by various government entities or Ecology, monitoring of waste prevention results, perhaps via regular summaries alongside other solid waste planning objectives and assessments could be a useful tool for solid waste management in Clallam County. See Chapter 8, Regulation & Administration for further discussion on analyzing the local solid waste system.

6.2.3 Alternative Methods: Waste Prevention

Waste prevention in Clallam County could be more effective, increased, or improved through alternative methods such as:

New or Improved Education and Outreach

- Website enhancement including social networking, video and web links, and comprehensive listings of current waste prevention events and information on existing municipal websites.
- Increased comprehensive business waste reduction outreach facilitated through current or new partnerships with entities that have commercial sector programs such as pollution prevention, energy conservation, or economic development.
- Adoption of EPA’s WasteWi\$e program in government offices as a free, voluntary waste reduction program model. Offering a web page link to the WasteWi\$e program and guidance to Clallam area entities wishing to participate would be a low cost opportunity for Clallam County to encourage waste reduction.

Alternative Prevention Activities

- Enhance incentives for waste prevention through increased use of variable rate structures that charge waste generators according to amount of waste produced, including commercial customers. Alternative methods of collection rates and service ordinances that could encourage waste prevention were also discussed in Chapter 4.2.4.
- Target source reduction at commercial and industrial levels through material exchanges and other waste prevention models.
- Provide deconstruction audits for demolition permits to increase deconstruction activities.
- Collect small business moderate risk waste at the MRWF at the Regional Transfer Station.
- Promote organic waste reduction prioritizing prevention through activities such as source reduction, food rescue and diversion for animal feed.

- Support a “fixers’ collective”, a reuse opportunity that is growing in popularity in Washington cities; this could be a location or group which supports repair and restoration of items instead of throwing something away that could be fixed.

6.2.4 Recommendations: Waste Prevention

The following recommendations are made for waste prevention activities in Clallam County:

- Continue public information and education with themes of reducing the weight and volume of waste collected; increasing material and product life through repair and reuse; reducing or eliminating packaging; and decreasing product consumption.

Share the responsibility for this with cities, Tribal Councils, and schools, with private sector involvement as appropriate. A shared approach will improve results through increased exposure to information on waste prevention, and because individuals may be more receptive to information from one source over another. Whenever possible, public information materials should be distributed electronically to reduce waste and mailing costs. (WP1)

- Encourage the formation of citizen advisory/action groups to help with public education efforts. Such committees could provide general waste reduction policy research, advice to government entities, educational outreach, and volunteer support for waste reduction opportunities; and could be a subcommittee of SWAC. (WP2)
- Use existing County and city websites to promote residential and business waste prevention. Facilitate interest and currency using new approaches such as social media, video and local event calendars. At a minimum, provide a link from the County and City of Port Angeles web sites to existing waste reduction program web pages. (WP3)
- Conduct waste audits, targeting small to medium-sized businesses first, on the assumption that the larger businesses have the staff and other resources to best meet their needs. Assistance in conducting the waste audits could be provided by volunteers (e.g., the citizen advisory/action group). Consider the idea of waste exchanges and similar activities directed specifically at businesses for future implementation. (WP4)
- Provide an example for the above businesses by adopting WasteWi\$e or developing waste reduction programs within the County and its municipalities. (WP5)
- Recognize businesses that do a good job of implementing waste reduction programs and practices. (WP6)
- Pursue funding and opportunities for public/private partnerships and programs that target organic waste reduction. (WP7)
- Support reuse events organized and implemented by others. (WP8)

Table ES-1 identifies the responsible implementing agency and the preliminary implementation schedule for each of these recommendations. Recommendations for supporting green building initiatives and moderate risk waste reuse are described in Chapter 7.

6.3 RECYCLING

6.3.1 Existing Conditions

Recycling in Clallam County is handled primarily through private companies, and in some cases through contracts with municipalities. Promotion of recycling services is frequently conducted by the public sector. For example, the City of Port Angeles and Clallam County provide information and encouragement for recycling through inserts, brochures, ads in a variety of locations, website links and many other activities. Comprehensive information on the most current recycling options for a wide range of materials and collection methods is contained in the Recyclopeda brochure created by the City of Port Angeles (Figure 6-2). It is available on the City of Port Angeles and Clallam County websites.



Figure 6-2. Recyclopeda brochure. Source: City of Port Angeles. 2013.

According to data from the Washington State Recycling Survey (Ecology 2012), approximately 17,325 tons of materials were recycled from Clallam County in 2011 (see Table 3-1). An additional 96,248 tons of materials were diverted in Clallam County in 2011 (Table 3-5); these materials don't fall into the traditional definition of municipal recycling, but are being diverted from disposal and often recycled into another product. One example is the approximately 10,000 tons of concrete from the Elwha dam removal project being stockpiled at a County rock quarry to eventually be crushed and used for road aggregate.

Efforts to recycle CDL and other types of waste streams not typically collected through curbside or drop box programs are also present in Clallam County. Besides the Recyclopeda, information is compiled by Built Green® Clallam County in a list of vendors that accept a wide variety of CDL and other materials for recycling (Built Green 2012). Local companies accept items ranging from asphalt to mercury lamps to wood and metal scrap.

1 The Public Events Recycling Law, introduced in 2007, mandates a recycling program at every official gathering which occurs in communities where recycling services are available to businesses. The City of Port Angeles has helped facilitate compliance with this law by providing recycling containers to event organizers by request.

6.3.1.2 Recycling Collection Methods:

Numerous types of collection methods are employed in Clallam County for recycling, including drop-off sites, household (curbside) collections, commercial collections, and various collection or buy-back centers. This section describes some of the details of these methods currently existing in Clallam County.

Table 6-1 shows a summary of services currently available to various sectors in the County, with regards to: curbside collection of recyclable materials, drop-off sites within a reasonable distance, and special arrangements with (2) service providers (“provider arrangements”).

Table 6-1. Curbside & Drop-off Recycling Services in Clallam County

Geographic Area	Single-Family Homes	Apartments	Commercial
Cities:			
Port Angeles	C, D	PA, D	C (for OCC), PA, D
Sequim	C, D	C, D	C (for OCC), PA, D
Forks	D	D	PA (OCC, MP), D
Tribal Lands	C, D	C, D	C, D
Unincorporated Areas:			
Joyce	PA, D	PA, D	PA, D
Clallam Bay/Seki	--	PA (for OCC, MP)	PA (for OCC, MP)
Other Unincorporated	C, D		PA (for OCC, MP)

C = Curbside collection OCC = Corrugated cardboard
PA = Provider arrangements MP = Mixed paper
D = Drop-off

Drop-Off Sites: Drop-off sites are facilities that accept recyclable materials, and may consist simply of an unattended container. Fees for these services vary, including no fee, depending on contract limitations, market rates and other variables.

The contract for the operation of the Blue Mountain Drop Box and Recycling Center and the Regional Transfer Station requires the contractor to receive source separated recyclable materials including but not limited to: aluminum cans, glass, plastic bottles, jars, tubs, and pots, tin cans, cardboard and newspaper, car batteries, used motor oil and antifreeze. Under this current contract, there are also three glass drop boxes in Port Angeles; Sequim also has a contract with Waste Connections for one glass drop box. At the Regional Transfer Station, areas are designated for white goods (appliances), yard debris, tires, and scrap metal.

In Forks, West Waste provides containers at its transfer station for collection of some recyclable materials, including aluminum cans, cardboard, mixed paper, used motor oil white goods, tires, car batteries, and wood debris. No plastics are collected

In Neah Bay, collection of source separated recycling of aluminum & tin cans, plastic, cardboard and newspaper occurs at the Makah Transfer Station, opened in 2012, as well as two drop boxes at other locations in town. The Makah Transfer Station also accepts white goods, metals, used motor oil, and anti-freeze for recycling.

Privately operated drop boxes for items such as newspapers and clothing reside in various locations in the County.

Collection or Buy-Back Centers: A number of private companies accept or buy back a variety of materials including electronics, nonferrous metals such as copper, brass, and tin, car or other batteries, printer cartridges, clothing, asphalt and plastic bags.

Three sites in Clallam County serve as Ecycle Washington locations that collect computers, monitors, laptops, e-readers and TVs in compliance with RCW 70.95N, the 2009 electronic product recycling law. There is no charge; materials are accepted from households, small businesses, charities, schools and small governments.

In 2010, the Mercury-Containing Lights Law (RCW 70.275), that mandated a producer-financed product stewardship program for the collection, transportation and recycling of mercury-containing lights was passed. A bill amending the original law was signed by Governor Inslee in 2014. This amendment requires the producers to finance the stewardship program through an environmental handling charge added to all mercury-containing lights sold at retail in the state. The new product stewardship program start date is January 1, 2015.

Curbside Residential Recycling: Current curbside collections, occurring in the cities of Port Angeles and Sequim since 1991, are currently comingled systems in which accepted materials are collected in a single container. Together, Port Angeles and Sequim have approximately 10,000 homes. Multi-family housing (apartments) is categorized as commercial recycling service and is described below.

Murrey's Olympic Disposal offers dual stream, curbside recycling services in the unincorporated parts of the County that it serves. All collection territories that offer curbside recycling in the county are currently opt-in services.

Commercial Recycling: Murrey's and West Waste collect recyclables from commercial accounts in Port Angeles, Sequim, Forks, and surrounding areas. Materials collected can include cardboard and comingled recyclables. Multi-family housing in the cities of Port Angeles and Sequim can opt for recycling services through a commercial account.

Clallam Bay Corrections Center (CBCC) collects and extensively sorts its own recyclable materials, as well as those from the Olympic Corrections Center (OCC) in Jefferson County. In accordance with the Washington State Department of Corrections' goals to be a leader in government sustainability (Department of Corrections 2012), CBCC recycles materials not commonly recycled in Clallam County at this time, including shrink wrap and mercury-containing lamps. Recyclables are transported to various locations outside the county.

6.3.1.3 Materials Collected for Recycling in Clallam County

A wide variety of materials can theoretically be recycled, and many opportunities to recycle various materials exist in Clallam County as described in the preceding section. Criteria that determines what can be recycled in the County includes: the potential for waste diversion; collection efficiencies; processing requirements; market conditions; transportation costs (relative distance to markets); environmental impacts; continuity with existing programs; and Washington laws and policies.



Figure 6-3. Materials currently accepted for recycling in Clallam County. Source: City of Port Angeles. 2013.

Figure 6-3 illustrates the current list of designated recyclables accepted through curbside collection programs and at municipal transfer stations, including the Makah Transfer Station, the Regional Transfer Station, and Blue Mountain Drop Box and Recycling Center. Collection of additional materials will be considered on a case by case basis and will not require an amendment to the CSWMP.

A clear and efficient process for designating a change in the materials collected for recycling in municipal programs is warranted to maintain cost-effective continuation of the recycling system. This process may vary slightly due to the material(s) under consideration; possible scenarios and necessary steps are outlined below:

- 1) Changing designated material(s) without changes to regulations or costs. In this case, an informal agreement between affected parties (e.g. haulers, municipalities) can bring about the proposed changes.
- 2) Changing designated material(s) which change program rates. Proposed rate changes then must be brought before relevant governing bodies including city councils, commissioners, and the WUTC, depending on where they are proposed to occur within the county.
- 3) Adding a new materials collection program. In this case, the proposed program should be discussed by SWAC, including a cost-benefit analysis. SWAC recommendations should then be presented to relevant governing bodies, as in the preceding scenario.

At a minimum, a review of designated recyclables shall be conducted by SWAC for inclusion in the annual summary of the Clallam County solid waste system (see Chapter 4.3.4).

6.3.1.3 Processing and Marketing of Recyclables

Most processing of recyclables occurs out of Clallam County in the Seattle-Tacoma area. Materials are sent to markets worldwide.

Processing of recyclables in Clallam County is limited to few private businesses for specific materials or for limited projects. Concrete from the Elwha dam removal is being processed by Clallam County for road aggregate. ECycle NW, one of the County's E-waste receivers, disassembles electronics not accepted in the state program for component recycling. Ecycle NW also works with local manufacturers and organizations to find markets for particular waste materials which that client generates in large quantities.

One unique application of recyclables processing has been the production of "potty pebbles" at Around Again, a used building material and home furnishing store with locations in Sequim and Port Angeles. Porcelain toilets were accepted by donation and crushed to make a material useful for drainage and fill.

Local markets for recyclable materials are also limited. Hog fuel, produced from wood residuals, is the most common material that is reprocessed for another use (See Chapter 7.18). While not technically recycling, hog fuel from wood waste is both processed and marketed locally, representing a large component of waste stream reuse in Clallam County. Two entities, described in Chapter 5.2.1.4, purchase hog fuel for use in biomass boilers. One of those entities, Nippon Paper Industries USA, also pulps recycled newspaper and telephone directories for fiber supplies (NPI 2013). The recycled paper is bought from suppliers nationwide. Some newspapers are collected by local charities and delivered to the mill; these are only a tiny percentage of the materials they process daily.

6.3.2 Needs and Opportunities: Recycling

Needs and opportunities concerning recycling in Clallam County include:

- Increased recycling in public spaces. Many municipalities provide recycling in public spaces alongside garbage collection, as a highly visible way to promote and educate about recycling, impress visitors and attract business. This often complements new infrastructure and development and demonstrates values around waste reduction, resource conservation, and state and local mandates.
- A wider variety of materials collected for recycling. Waste can be regarded as an economic opportunity and a resource. Materials such as mattresses, carpet, asphalt shingles and numerous plastics are just some of the items that can potentially be collected.
- Improved standardization of outreach, education and policy changes between stakeholders. Clallam County's recycling system consists of a network of government programs, private businesses, non-profits and even volunteer organizations. There is a need to present and amend current information or methods in a cooperative approach that ensures effectiveness.
- Expanded information at the County and cities' building permit counters and other venues (such as building materials supply stores) about how to prepare and where to take construction debris for recycling.
- County-wide service ordinances which mandated curbside recycling to be provided in conjunction with all curbside garbage service could result in more tons collected or more economical service.
- Market development is an important aspect of ensuring future demand for the materials that are collected for recycling, and offer opportunities for local economic development. CSWMP signatories and partners such as utilities, industries and businesses can invest in market development through strategies such as environmentally preferred purchasing (EPP) of recycled materials, especially those generated locally.
- Better documentation of all recycling that is occurring in Clallam County. Reporting to Ecology the annual amounts handled by various recycling activities will be critical for future monitoring of progress and related activities.
- Local support of state-wide product stewardship laws in the form of letters and phone calls to legislatures. These laws (such as electronic and mercury lighting collection and recycling) help ensure manufacturer responsibility, reducing the burden on local government of recycling or disposal of these items.

6.3.3 Alternative Methods: Recycling

6.3.3.1 Collection Methods

There are a number of options for collecting increased amounts of recyclable materials, including both new methods and existing methods that could be expanded. Alternatives for additional or revised programs include options such as:

- Additional or expanded curbside recycling programs (mandatory or voluntary, commingled or source-separated).
- Increased financial incentives in rate structures, especially for commercial collections, to encourage recycling.
- Additional or expanded commercial recycling programs (collections or drop-off).
- Additional or expanded drop-off and buy-back centers (publicly or privately operated).
- Public/private partnerships to encourage recycling in public spaces: sharing of costs for container purchases, costs for collection, and monitoring for contamination.
- Material recovery facilities (private or public, with varying degrees of capacity to handle mixed waste or additional recyclables).
- Co-collection of recyclables and garbage. In rural areas of the county, this approach may improve the economics of collecting recyclables, and reduce greenhouse gas emissions from transportation.

Factors to be considered when evaluating collection options include the objective to maintain private sector involvement where possible (see Chapter 1); the state's requirement to place a priority on waste prevention and recycling efforts (Ch. 70.95 RCW); a state requirement that private haulers use rate structures and billing systems that are consistent with the state's priorities and provide minimum levels of services as established in local comprehensive solid waste management plans (Ch. 81.77 RCW); and the need for a substantial promotion effort to encourage good levels of participation.

6.3.3.2 Materials Collected for Recycling

Another method for increasing recycling levels is to collect additional types of materials. Feasible options for expanded recycling include: additional grades of currently collected materials such as additional types of plastics, materials produced in industrial/commercial waste streams, or more construction and demolition materials, as discussed in Chapter 7 Special Wastes.

Criteria which determine collection of additional materials depends on a variety of factors, as discussed in previous sections. Assistance for this alternative may require policy change or other political support in order to enact this method.

6.3.3.3 Processing and Marketing of Recyclable Materials

Recyclable materials are generally exported out of the County for processing. However, the County should monitor and consider any proposals for the processing of recyclables within the County that may reduce the cost of exporting materials while potentially creating jobs within the county. Consideration has been given to materials such as asphalt shingles, glass, and CDL waste.

The current and future status of markets for recyclable materials is an important consideration in evaluating recycling activities, but often encompasses forces outside the jurisdiction of this CSWMP. There are actions, however, that may stem from this CSWMP which can affect the recyclables market, including at a local level. One such action would be the incorporation of environmentally preferred purchasing (EPP) into the policies of public agencies to encourage the use of recycled materials. Models for this approach can be found within federal and state government resources.

6.3.4 Recommendations: Recycling

The following recommendations are made for recycling programs in Clallam County:

- The SWAC recommends a goal of a 30 percent recycling rate within the next 5 years, with an eventual goal of 40 percent recycling for the County in the long term. The recycling rate is currently at about 26 percent. (R1)
- Continue to recycle the following recyclables currently accepted in Clallam County including but not limited to: newspaper, cardboard, mixed paper, glass, aluminum and tin cans, all other metals, plastic bottles (PET and HDPE), rigid plastics, concrete, asphalt, clean wood waste, white goods and special wastes such as motor oil, car batteries and antifreeze. (The diversion of yard debris is discussed in the next section on composting.)

Not all of these materials can be collected by all of the programs in the county. If it becomes necessary to change this list of recyclables, a process as outlined in 6.3.1.2 will ensue. At a minimum the list of recyclables will be evaluated annually to ensure that the proper materials are being targeted by the program, undertake efforts to expand amounts and grades of materials as markets allow. (R2)

- Promote recycling at multi-family properties. Use the results of the 2012-2013 Washington State Recycling Association survey of multi-family recycling to understand the barriers and solutions in other part of the state. Consider restructuring commercial rates to make recycling an economical alternative for these properties as well as commercial businesses. (R3)
- Continue public education efforts. Share the responsibility for this with the cities, Tribal Councils, and schools, with private sector involvement as appropriate. Consider new, low cost approaches such as social media and other expanded outreach on municipal websites. (R4)
- Consider the possibility of establishing curbside recycling collections where they don't exist, and support opportunities to include recycling in curbside collections on Tribal Reservations. (R5)
- Maintain existing drop-off sites and consider additional sites in the county. (R6)
- Continue and improve school recycling collection and education programs to increase recycling tonnages and to reinforce other education efforts (R7)
- Continue to educate about the requirement for recycling at special events such as sport activities and public festivals. Cooperate with private haulers, festival organizers, and volunteers to provide recycling bins and collection. (R8)
- Monitor and consider any proposals for the processing of recyclables within the County that may reduce the cost of exporting materials while creating jobs within the county. (R9)
- (The public sector should) lead by example. Consider expanded recycling programs and adopting policies such as environmentally preferred purchasing of recycled materials within county and city departments. (R10)
- The County and cities should encourage companies and agencies engaged in collection or processing recyclables and diverted materials to file reports on their activities on an annual basis, as required by Ecology. (R11)

- Establish outdoor public space recycling as a pilot program at select city and county parks, downtowns, and at public transit bus stops as a cooperative venture between government, hauling companies, and business owners. (R12)

Table ES-1 identifies the responsible implementing agency and the preliminary implementation schedule for each of these recommendations. Recommendations for recycling construction, demolition, and land clearing wastes, as well as electronic waste (e-waste), are described in Chapter 7 Special Wastes.

6.4 COMPOSTING

6.4.1 Existing Conditions

Organic material such as yard debris and food waste represents the single largest component of the local waste stream, comprising over one-fifth of what is disposed of as MSW in Clallam County (see **Figure 3-1**). This material represents a significant disposal cost, due in part to the heavy weight of organic material.

Clallam County's foremost strategy to address organic material in the waste stream is through composting programs. Composting can be defined as the controlled biological decomposition of yard debris, food, sewage, or other organic waste to produce a beneficial product. Current practices consist of:

- Composting of yard debris from self-haul and curbside collections (in the cities of Sequim and Port Angeles) at the Port Angeles Composting Facility
- Yard debris composting at private facilities from self-haulers
- Composting of food and yard waste by commercial generators for onsite use
- Home and commercial scale composting education and outreach

Other strategies to address reduction of organic materials in the waste stream were included in Chapters 6.2.1 Waste Prevention.

6.4.1.1 Yard Debris Collections

The City of Port Angeles and the City of Sequim both have optional fee-based curbside programs, which collect source-separated yard debris. Every other week yard waste collection is available to all city residents; collection reduces to once a month during December, January and February. Yard waste includes branches, lawn clippings, small trimmings, leaves, weeds and brush; dirt and sod are not accepted.

The City of Forks and unincorporated Clallam County areas do not have curbside yard waste service.

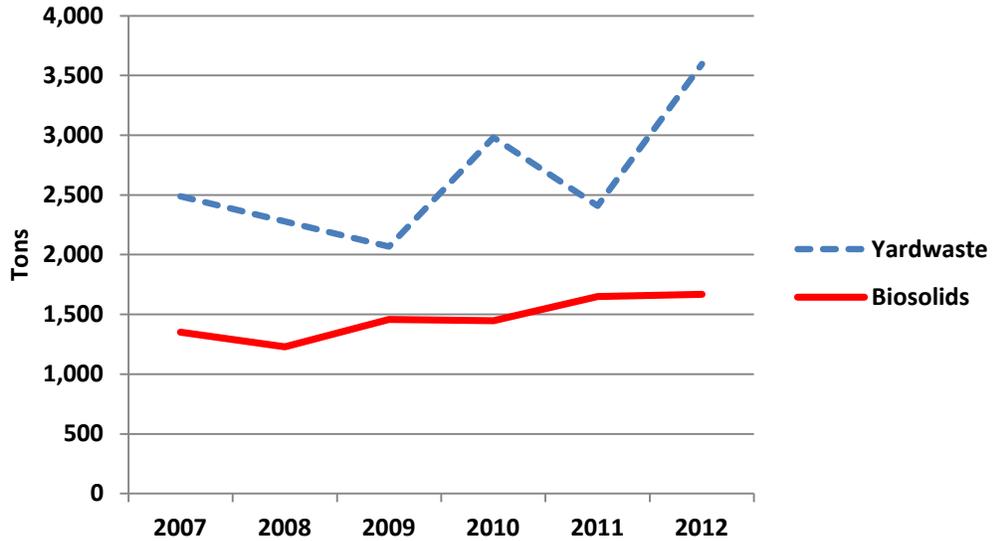
All county residents can also choose to self-haul yard waste to the Regional Transfer Station, or various private facilities that accept yard waste.

6.4.1.2 Commercial Composting

The yard debris that is collected from the Port Angeles and Sequim curbside programs is currently delivered to the Port Angeles Compost Facility and stockpiled along with the yard debris that is delivered by self-haul customers. Upon accumulation of sufficient material, a mobile tub grinder is hired to process the pile. In the 1990s, the City of Port Angeles began processing biosolids from the Port Angeles Waste Water Treatment Plant with yard waste to produce compost that was used for landfill cover. In 2007, the City of Port Angeles began

marketing this product as “Garden Glory” a Class A compost. Recent data on the quantities of materials composted at the Composting Facility are presented in **Figure 6-4**.

**Figure 6-4. Quantities of Yardwaste & Biosolids Composted:
Port Angeles Compost Facility 2007-2012**



Source: City of Port Angeles. 2013.

Some commercial facilities in Clallam County have small scale, on-site composting operations to handle food and other wastes. Aramark Olympic Properties composts food waste, serviceware, paper towels, and napkins in Earth Tubs™ on one of the properties where they manage concessions for Olympic National Park. During the summer the staff can process up to 200 pounds per day; the compost is used on the grounds and taken home by employees (Freilich 2013b).

In another project, the North Olympic Peninsula Skills Center, a Port Angeles School District facility, was awarded a Terry Husseman award from Ecology for the 2011-2012 school year; a multi-disciplinary team of students built and manages a composting system to handle pre-consumer food waste from the Culinary Arts program kitchen.

The Clallam Bay Corrections Center (CBCC) also diverts 4-5 tons/week of food waste to Olympic Corrections Center (OCC) in Jefferson County (27 miles south of the City of Forks) where they co-compost it with sludge from the OCC wastewater treatment plant. CBCC also reuses its own yard debris for bank stabilization and other onsite projects.

6.4.1.3 Home and Small Scale Composting

Providing education and support for Clallam County residents to compost at home, schools and other non-commercial ventures is an effective way to reduce organic materials quantities in the waste stream. This type of education and outreach has largely been provided by the City of Port Angeles Waste Reduction Specialist, with financial assistance from Ecology’s Coordinated Prevention Grant (CPG) program, continuously since 2007. All county residents are able to participate in these programs. The Waste Reduction Specialist promotes composting through the following activities:

- Providing information at approximately 6-8 special event booths, 4-6 scheduled workshops, and 4 school programs, reaching approximately 1,000 people per year.
- Distributing informational materials including: a booklet, *Composting Made Easy*, plastic food scrap collection buckets, and flyers on composting methods and materials.
- Conducting a 12 hour training to become a Master Composter. This is offered every other fall; as of 2012, 45 Master Composters served to present programs and staff booths at special events. WSU Extension Clallam County partnered with the City of Port Angeles on this program from 2007-2009, and plans to continue in the future.

In addition, the Waste Reduction Specialist and the Citizen Waste Reduction Committee partnered with local schools to obtain funding and provide technical assistance for educational composting programs. Composting bins were built or purchased at eight county schools between 2007 and 2009: five elementaries, one middle school, and Peninsula College. Funding was provided jointly by individual Parent Teacher Organizations and Ecology CPG monies awarded to the City of Port Angeles.

As well, efforts to provide unincorporated county residents with home composting outreach included a 2013 burn barrel for compost bin exchange sponsored by the Department of Natural Resources, hosted by West Waste Transfer Station in Forks (ORCAA 2013). This program, in support of wildfire prevention, exchanged twenty barrels for bins.

WSU Extension Clallam County also provides education, outreach and technical assistance on composting, mainly at the agricultural level. Curriculum on composting is included in the Master Gardeners training; information is also distributed through their website, office, and at various events. It is within the scope of WSU Extension to provide support to commercial ventures as well, such as technical assistance or workshops for small farms on navigating regulatory or operational aspects of larger scale composting operations.

6.4.1.4 Local Regulations Regarding Yard Waste

The Port Angeles Municipal Code contains an ordinance in which yard debris cannot be disposed in garbage containers.

ORCAA regulations permit no outdoor burning of yard waste is allowed within the urban growth boundaries. Outdoor burning is regulated in other areas by the local fire district.

6.4.2 Needs and Opportunities: Composting

6.4.2.1 Yard Debris Collections

Curbside collection programs in Sequim and Port Angeles appear to be an effective method of reducing organic material from entering the waste stream. Of the total 3,500 tons of yard waste that were diverted and composted at the Compost Facility in 2012 (see **Figure 6-2**), 1,245 tons were collected in the curbside programs in the cities of Port Angeles and Sequim. However, the City of Forks and unincorporated Clallam County represent opportunities to reduce this amount even more by expanding collection of yard debris into these areas.

6.4.2.2 Food Waste

The municipal composting program in Clallam County handles only yard debris, leaving the bulk of organic wastes such as food waste bound for disposal. State and county goals to address waste and greenhouse gas emission reductions present a need to consider options for these types of organic materials in the waste stream.

Large scale composting operations that accept food waste and other organics present an opportunity for waste reduction. The Composting Facility was not designed to handle organic wastes other than yard debris; re-engineering the facility to accept such materials represents one option, though it may be cost-prohibitive. Other composting technology, such as anaerobic digestion, presents other options that could be considered.

Expansion of home composting education and outreach programs would provide an opportunity to teach Clallam County residents how to manage their own organic waste. Informational booths and programs have proven popular, attracting many attendees; this method represents a dispersed, but effective method to achieve organics waste reduction goals.

Ongoing support for school composting programs is needed. Challenges that can occur with school programs include: maintaining the bin year round, finding adult volunteers or staff who can dedicate time to operate the program, and changes in knowledgeable personnel.

6.4.2.3 Processing Capacity

The Port Angeles Composting Facility processed 3,596 tons of yard waste and 1,668 tons of biosolids in 2012. Handling capacity at this facility is approximately 4,700 tons of yard waste and 2,400 tons of biosolids, for a total handling capacity of 7,100 tons (City of Port Angeles 2013). Thus, in 2012, operating capacity was at about 74%; yard waste capacity was at about 77%.

Additionally, it can be noted that in 2012, 1,387 tons of yard waste were imported to meet processing needs. County generated yard waste was actually 2,209 tons, or 47% of capacity (City of Port Angeles 2013). Barring this significant import quantity, the total amount of yard waste generated in Clallam County has remained below 2,500 tons since curbside collections began in the most populated areas of Clallam County, this suggests that there is adequate processing capacity at the Composting Facility for the next five years of this plan.

6.4.2.4 End Use Markets

As with recycling, there is also an ongoing need to increase end use demand for compost and mulch.

6.4.3 Alternative Methods: Composting

6.4.3.1 Yard Debris Collection and Drop-Off

To maximize the diversion of yard debris, expanded curbside collection and/or additional drop-off sites could be considered, under the following circumstances:

- Enough yard debris is observed in the disposed waste stream from specific areas of the County, such as the City of Forks, to make diversion efforts cost-effective.
- The capacity of existing composting operation in Port Angeles, mulching operation in Sequim, or private sector processing is sufficient to support the diversion efforts. See discussion below.
- The market for finished compost or mulch is sufficient to support the diversion efforts. See discussion below.

6.4.3.2 Other Options for Processing Organics

Additional processing facilities or options may be necessary in the future, if the combined capacity of the existing Composting Facility in Port Angeles and private sector processing

operations is insufficient to handle additional yard debris, or to address other organic waste streams. Processing options for organics range from simple and relatively inexpensive systems, such as wood chipping, to more involved systems requiring a larger investment in equipment.

One option which is increasingly being utilized in Washington State is anaerobic digestion. This method is a biological process which essentially composts organic waste material in an oxygen-free environment, producing biogas for power and heat, and high value digestate and compost products. Anaerobic digestion projects can occur on a variety of scales and incorporates sustainable, closed-loop, full cycle uses of organic materials, meeting many state and county environmental objectives.

6.4.3.3 Product Marketing Options

The success of any organics processing system depends on the ability to effectively market the resulting product. While a wide variety of potential markets exist, they vary greatly in the type and quality of product they will accept, the distribution system required to reach them, and the price (if any) they will pay for the product. Development of new or increased processing systems would require development of an expanded marketing system.

6.4.4 Recommendations: Composting

Most of the yard debris and food waste will need to be removed from the waste stream through backyard composting and centralized facilities to meet Clallam County's overall goal for waste reduction. Yard debris represents a relatively easy material to handle through alternative methods. It is present in substantial quantities and offers a significant opportunity to reduce the waste stream, and it is a resource that should not be taking up valuable landfill space. Other compostable organics also represent a significant portion of the County's waste stream.

To achieve the County's diversion goals, the following recommendations regarding composting should be continued or implemented:

- Continue curbside collection, processing, and composting yard waste at the Port Angeles Composting Facility. Increase the amount of materials processed to the extent of the facility's capacity. (C1)
- Work to eliminate illegal dumping and burning of yard waste, therefore increasing diversion to compost facilities. (C2)
- Continue to develop end uses such as mulch, hog fuel, and compost, and other uses that may also be identified. Lead by example. The County and cities should maximize use of these products in their own projects. (C3)
- In addition to Port Angeles and Sequim, separate collection of yard debris could be considered by Murrey's Olympic Disposal and West Waste in their respective solid waste collection service areas if customers demand it and yard waste is found in the garbage. (C4)
- Encourage neighborhood chipping services. (C5)
- Investigate economical and efficient options for handling food waste. (C6)
- Continue public education to encourage residents to handle their yard debris and food wastes separately through strategies such as home composting and use of mulching mowers. Continue working with WSU Extension to offer the Master Composter Program in Clallam County and other outreach programs. (C7)

Table ES-1 identifies the responsible implementing agency and the preliminary implementation schedule for each of these recommendations.

7. SPECIAL WASTES

7.1 INTRODUCTION

The purpose of this chapter is to describe the management of special wastes generated in Clallam County. These wastes generally require special handling and disposal for one or more reasons, such as potential toxicity, or quantities generated. Most of these wastes are best disposed of somewhere other than in a municipal solid waste disposal system.

Specific waste issues are also included in this chapter. These wastes do not require special handling, but are of special interest due to their impact and the potential for mitigation through management strategies.

The following special wastes are discussed in this chapter:

- 7.2 AGRICULTURAL WASTES
- 7.3 ANIMAL CARCASSES
- 7.4 ASBESTOS
- 7.5 ASH
- 7.6 AUTO HULKS
- 7.7 BIOMEDICAL WASTES
- 7.8 BIOSOLIDS
- 7.9 CONSTRUCTION AND DEMOLITION WASTES
- 7.10 CONTAMINATED SOILS
- 7.11 DERELICT VESSELS
- 7.12 ELECTRONIC WASTES
- 7.13 MARINE DEBRIS
- 7.14 MODERATE RISK WASTES
- 7.15 PHARMACEUTICAL WASTES
- 7.16 STREET CLEANINGS
- 7.17 TIRES
- 7.18 WOOD WASTES

The following other waste issues are also discussed in this chapter:

7.1.2.1 PET WASTES

The nature and source(s) for each special waste and other waste issues are described in this chapter, as well as existing programs and facilities in Clallam County for handling these wastes. All of the wastes are also examined for needs and opportunities, but recommendations are not warranted for all eighteen wastes and other waste issues. Instead, specific recommendations are developed for ten special wastes (agricultural wastes, animal carcasses, ash, auto hulks, construction and demolition wastes, contaminated soils, electronic wastes, marine debris, pharmaceutical wastes, and wood wastes) no recommendations were made for other waste issues (pet waste).

7.2 AGRICULTURAL WASTES

7.2.1 Existing Conditions

Agricultural wastes result from farming and ranching activities, and includes crop residues (such as plant stalks) and manure. Most agriculture and dairy farming is located on the east side of Clallam County in the Sequim-Dungeness area where favorable climate and land characteristics exist. The amount of farmland in Clallam County has decreased significantly over the past 50 years, dropping from 76,000 acres in 1950 to 22,822 acres in 2007 (USDA 2007). This trend is expected to continue, as current agricultural acreage is still being converted to housing and other uses.

According to the most current waste characterization study in Clallam County, agricultural residues and manures accounted for less than 3% of the total overall disposed waste stream (Ecology 2010). This is due to the fact that current practices do not result in substantial quantities of agricultural waste that require disposal off the farm. Most wastes are incorporated into the soil to enhance fertility, used as livestock feed, or handled on-site in other ways.

Dairy farms are subject to more specific requirements in RCW 90.64 that requires the development of a dairy nutrient management plan for handling manure wastes in order to protect water quality. There are only two commercial dairies left in Clallam County, located in the Sequim area, with less than 500 cows total.

The Natural Resources Conservation Service (NRCS), WSU Extension Clallam County, and the Clallam Conservation District provide an array of education and technical assistance to support waste management in regards to new or existing agricultural activities in Clallam County.

7.2.1 Needs and Opportunities: Agricultural Wastes

The impact of manure handling and application on surface waters is a continuing concern in Clallam County, especially in areas with the highest concentration of agricultural activities, namely the Sequim-Dungeness area. Due to years of technical assistance and outreach, best management practices (BMPs) have been implemented at most livestock operations in this area. Small horse and livestock operations in areas just west of the City of Port Angeles (and within Water Resource Inventory Area 18) present the greatest need for outreach in waste management (Clallam Conservation District 2013).

7.2.2 Alternatives: Agricultural Wastes

One alternative to improve handling and disposal of agricultural wastes is increased composting. There are various types of composting, as discussed in Chapter 6.4, which could be utilized to address a wider variety of feedstocks, create alternative sources of income for the agriculture industry, and produce useful products such as biogas or soil amendments. Biogas to energy is discussed in Chapter 5.

7.2.3 Recommendations: Agricultural Wastes

The following recommendations are made for the management of agricultural wastes in Clallam County:

- The Clallam Conservation District and NRCS should continue to work with producers around the County to implement Best Management Practices to minimize the potential contamination of surface waters with agricultural waste. (AG1)

- Monitor and consider any proposals for processing of agricultural wastes within the County that may increase the ability to process additional amounts of organic wastes while reducing greenhouse gas output. (AG2)

7.3 ANIMAL CARCASSES

7.3.1 Existing Conditions

The two primary generators of animal carcasses in the County are the Humane Society (in Port Angeles) and Battelle Marine Sciences Laboratory (near Sequim). Both the Humane Society and the laboratory currently use Petland Crematorium in Aberdeen for cremation of animals. Battelle sends its hazardous carcasses to Pacific Marine Lab for disposal.

State Patrol and County Sheriff personnel refer information about road kills to the Washington State Department of Transportation (WSDOT) or County Road departments. The Clallam County Road Department buries carcasses at remote locations on public lands scattered throughout the county.

Marine animal or bird carcasses appear on Clallam County beaches with frequency. Except in cases of large carcasses such as whales or other nuisance factors, these are left to natural decomposition processes.

Aquaculture industries produce animal carcasses that require waste management. Often this byproduct can be dealt with on-site, such as burial of fish carcasses. Ocean Protein in Westport, WA and Oly Mountain Fish Compost in Belfair, WA accepts fish waste for processing that cannot be handled onsite or through other waste management techniques.

7.3.2 Needs and Opportunities: Animal Carcasses

Current procedures for management of road kills or marine-derived carcasses appear to be adequately handled by government or private organizations.

New aquaculture industries need to be monitored for waste management issues. Large fish kills occurring in these industries may overwhelm current management procedures and require alternative measures.

7.3.3 Alternatives: Animal Carcasses

One alternative that Clallam County could pursue would be to consider additional or different policies regarding the management of animal carcasses in the aquaculture industry residing in Clallam County.

7.3.4 Recommendations: Animal Carcasses

- Monitor aquaculture industries for waste management issues. (AN1)

7.4 ASBESTOS WASTES

7.4.4 Existing Conditions

Asbestos waste is any material containing more than one percent asbestos by weight. The amount of asbestos generated in Clallam County is typically small (less than 50 tons per year) and is usually from demolition activities and pipeline replacement projects.

Asbestos is considered nonhazardous when properly contained. Asbestos handling must follow Olympic Region Clean Air Agency (ORCAA) regulations and local permitting

requirements. Asbestos can be brought to the Regional Transfer Station for disposal. Contractors may also take asbestos out of the county for disposal.

7.4.5 Needs and Opportunities: Asbestos

Current handling of asbestos appears to be adequate to meet the needs of Clallam County. In addition, less asbestos waste is expected to be generated in the future as the existing stocks of this material are gradually removed and disposed.

7.5 ASH

7.5.1 Existing Conditions

Ash results from the burning of solid fuels such as wood and solid waste. In Clallam County, significant amounts of ash are produced by the forest products industry from burning hog fuel or pulp and paper sludges. The major producers of ash in Clallam County include Interfor, and Nippon Paper Industries USA (Nippon). As well, a wood-fired biomass boiler began operating at Forks High School in January 2013.

In the case of Nippon, ash is disposed of in the Lawson Limited Purpose Landfill; Nippon disposes of less than 15,000 tons of hog fuel boiler ash per year (Ecology 2011b). Interfor reported approximately 24 cubic yards of ash per month (144 tons per year) produced from each of its two Clallam County operations: Port Angeles, and Beaver.

Small quantities of ash are also produced in residential fireplaces and wood-burning stoves. This ash is generally disposed of by burying it on residential property or placing it in with their household waste. The Regional Transfer Station accepts ash waste for export with other municipal solid waste (MSW).

7.5.2 Needs and Opportunities: Ash

Although ash can be managed in the foreseeable future through the Lawson Limited Purpose Landfill and the Regional Transfer Station, opportunities to reuse or recycle this material could be preferable to land disposal. New options and alternatives have been developed and are discussed below.

As projects such as the Forks High School Biomass Boiler are developed for wood waste to heat or energy (see Section 5.2.1.4), there may be additional amounts of ash that would require disposal or reuse/recycling.

7.5.3 Alternatives: Ash

Ash can potentially be used as a feedstock at the Port Angeles Composting Facility. Two conditions limit this alternative:

- (1) The facility is already at about 74-percent of its design capacity. If significant quantities of ash are processed through the facility, then the City would potentially not be able to increase the amount of yard debris or other materials (e.g., wood waste) accepted at the facility.
- (2) The ash must be tested and meet certain standards for being “clean” (e.g., high salt-content ash is not accepted).

An additional option that could be investigated by the private ash generators would be land application of ash to agricultural, silvicultural, and open forest lands. WAC 173-350-230

designates that a solid waste permit is required for the land application of ash if the ash is not a registered fertilizer with the Department of Agriculture.

Another alternative to landfilling would be the use of ash in industrial applications, such as its use as an ingredient in high-density concrete or in fertilizer.

7.5.4 Recommendations: Ash

The following recommendations are made for changes in the management of ash in Clallam County:

- Continue to encourage the ash-producing companies to explore recycling or other disposal alternatives first. For example, encourage them to investigate land application and industrial uses such as in concrete or fertilizer. (ASH1)

7.6 AUTO HULKS

7.6.1 Existing Conditions

Automobile hulks are currently accepted by licensed auto hulk operators in Clallam County for recycling parts and scrap metal. Markets for whole auto hulks are located in Seattle and Tacoma.

Auto hulks also accumulate on private property and are an environmental hazard. Chapter 19.60 of the Clallam County Code, the Junk Vehicle Public Nuisance Ordinance, declares the prerogative of the Code Enforcement Team to remove auto hulks deemed as junk vehicles from a property. Since 2007, 4000 junk vehicles have been removed and recycled, usually through vehicle owner voluntary compliance (Clallam County 2013b).

7.6.2 Needs and Opportunities: Auto Hulks

Despite efforts to remove auto hulks through private efforts and government enforcement, abandoned autos are common throughout Clallam County. Auto hulks are often a public nuisance and can depress property values. Auto hulks can also pose an environmental threat since auto components often contain hazardous chemicals such as mercury, lead, and fluids.

While voluntary compliance has been an effective method of addressing auto hulks, further gains in auto hulk management may require stronger enforcement of abatement ordinances.

7.6.3 Alternatives: Auto Hulks

Alternatives to addressing auto hulks in Clallam County include stronger enforcement or proceeding at the current level of enforcement.

7.6.4 Recommendations: Auto Hulks

- Continue to identify ideas and alternatives for managing the disposal or accumulation auto hulks. One option may be to support stronger enforcement of the County ordinance regarding auto hulks. (AUTO1)

7.7 BIOMEDICAL WASTES

7.7.1 Existing Conditions

Biomedical waste is defined by RCW 70.95(k) as “the infectious and injurious waste originating from a medical, veterinary, or intermediate care facility”. These wastes require special handling and disposal practices to protect the health and safety of both medical and solid waste disposal personnel. Medical facilities have the responsibility to determine which medical wastes are considered biomedical, and then arrange for the proper handling and disposal of these wastes.

The two largest generators of biomedical waste in the County are the two largest hospitals (in Port Angeles and Forks). Both the Olympic Memorial Hospital in Port Angeles and the Community Hospital in Forks and its affiliates have their biomedical waste transported out of the County by a licensed biomedical waste hauler. (The Community Hospital discontinued use of its incinerator in 2001.)

The WUTC regulates transporters of infectious wastes. Their regulations also allow regular solid waste haulers to refuse to haul wastes that they observe to contain infectious wastes as defined by WUTC.

Small quantities of biomedical waste are also disposed by individuals, such as sharps (i.e., used needles). Instructions on proper disposal procedures are provided on the County website. A used syringe exchange program is operated by the Clallam County Health & Human Services Department for intravenous drug users.

7.7.2 Needs and Opportunities: Biomedical Wastes

There are adequate systems for handling biomedical wastes from the hospitals and clinics in Clallam County. No additional needs are identified at this time for these generators.

There may be infectious wastes from smaller generators that are not being handled properly. Home health care, for instance, is increasingly practiced for more serious conditions, and there is concern that this may lead to improper handling of infectious waste. This situation should be monitored, and increased education may be necessary in the future if it appears that home health care is causing potential problems or risks.

7.7.3 Alternatives: Biomedical Wastes

One alternative to the current management of biomedical wastes would be to provide more syringe exchange locations in the county.

7.7.4 Recommendations: Biomedical Wastes

- Monitor disposal of biomedical wastes by small biomedical waste generators for potential problems or risks. Provide increased education or other services as necessary. (BW1)

7.8 BIOSOLIDS

7.8.1 Existing Conditions

There are seven wastewater treatment plants in Clallam County. Each is managed individually by: the City of Port Angeles, City of Forks, City of Sequim, Clallam County (at Clallam Bay and Sekiu), the Clallam Bay Corrections Center (CBCC), and SunLand Owners

Association (SLOA). Clallam County transfers their biosolids to the City of Port Angeles for further processing; SLOA transfers their biosolids to the City of Sequim for further processing. The City of Sequim and the City of Forks process the biosolids into a Class A product (as rated by Ecology) that is applied for landscaping. The City of Port Angeles composts biosolids with yard debris at the Port Angeles Compost Facility. CBCC is currently storing biosolids in aerated lagoons.

7.8.2 Needs and Opportunities: Biosolids

Federal and state law govern the options for handling biosolids; they may be burned, landfilled, or beneficially used for improving soil characteristics such as land application or as a feedstock for compost. As directed by state law, Ecology seeks to maximize beneficial use but requires biosolids to be treated to meet strict quality standards. All biosolids produced in Clallam County are currently processed for beneficial use.

While management of biosolids appears to be adequate to meet current needs, a growing population may require expanded services in the near future and this situation should be monitored.

7.8.3 Alternatives: Biosolids

One alternative to current biosolids management in Clallam County would be incineration of biosolids. Drawbacks to this method include air pollution, ash, and the complete loss of nutrients and organic matter which otherwise could be returned to soils.

Another alternative would be to landfill the biosolids. Drawbacks to this method are that landfilling is expensive, and landfill space is limited. Also, putting biosolids in landfills enhances the creation of a very potent greenhouse gas, methane, and there is a complete loss of nutrients and organic matter which otherwise could be returned to soils.

7.8.4 Recommendations: Biosolids

There are no specific recommendations for biosolids at this time.

7.9 CONSTRUCTION, DEMOLITION AND LAND-CLEARING WASTES

7.9.1 Existing Conditions

Construction, demolition and land-clearing (CDL) wastes are defined simply as the wastes that are generated from construction and demolition activities. These wastes include new and used building materials, concrete, asphalt, soil, stumps, and brush that is generated at the construction or demolition sites. These wastes are generated at a rate that is proportional to the construction activity in the County and so annual amounts vary depending on population growth and the economic climate. Large, one-time projects (such as the demolition of the Elwha Dams or the 8th Street Bridges) also have a significant impact on annual amounts.

Disposal: CDL waste is generally disposed of in landfills, although a land-clearing burning permit may be obtained through the Olympic Regional Clean Air Agency. Recent estimates of CDL waste amounts generated in Clallam County range from 7,000 tons per year (excluding major projects) according to the *Clallam County Construction, Demolition, and Land-Clearing Debris Waste Assessment* (Parametrix 2004), to 41,500 tons per year in the overall totals of wood debris and construction materials categories as estimated by the *Washington Statewide Waste Characterization Study* (Ecology 2009).

Recycling: Private and public entities provide and utilize options for recycling of CDL wastes. Private options are cataloged in the Construction Recycling Directory published regularly by Built Green of Clallam County. Concrete and asphalt, heavy and therefore costly to transport, is an example of one of the more common CDL materials which is recycled into a new product.

Reduction and Reuse: There are also existing opportunities for re-using CDL through several retail stores and thrift stores. Significant quantities of CDL type materials reported in Ecology's Recycling and Diversion Surveys further suggest that reuse and recycling of CDL waste is occurring in Clallam County; in 2011 there was 37,189 tons of landclearing debris, 209 tons of construction and demolition debris, 11,845 tons of asphaltic materials, and 3,565 tons of concrete reported as diverted in Clallam County (Ecology 2012).

Recycling, reduction and reuse of CDL waste continues to be assessed by private and public entities for opportunities to reduce environmental and economic impacts. In 2012, Built Green® commissioned a report assessing the viability of deconstruction in Clallam County, including an analysis of a deconstruction pilot project undertaken by the North Olympic Library System and Around Again, a private reuse business (Strait Solutions, LLC 2013).

Clallam County Built Green® is an environmentally-friendly, non-profit, residential building program. It is sponsored by the North Peninsula Builders Association (NPBA) and directed by a committee with representatives from the NPBA, the City of Port Angeles, Clallam County, Tribes, businesses, and concerned citizens. The committee developed a Built Green® Checklist to identify environmentally friendly building practices such as: the reuse and recycling of construction waste; using materials with recycled content; maintaining native landscape; and grinding stumps and limbs onsite for mulch. A Built Green® logo is assurance that a builder has certified that a project contains selected Built Green® features and meets the criteria on the Checklist.

7.9.2 Needs and Opportunities: CDL Waste

There are several needs and opportunities associated with CDL waste:

- Many CDL materials that get disposed of are recyclable or reusable in Clallam County. Diverting more waste materials through reuse or recycling would be the environmentally preferable option.
- Some CDL materials are recyclable or reusable, although opportunities to do this are not available locally. Increased opportunities to reuse or recycle CDL waste should continue to be explored in Clallam County

7.9.3 Alternatives: CDL Waste

The primary alternatives for this waste stream have been identified above, including disposal through the Regional Transfer Station, disposal on-site at the point of generation, and diversion through reduction, reuse, or recycling.

Recycling of CDL wastes often requires special facilities and equipment that are dedicated to a specific type of material (wood waste, concrete, or sheetrock), and the waste quantities to warrant such an investment for some of these materials. However, there are specific wastes that can be diverted to existing recovery operations, such as crushing of concrete or asphalt for use as road base, grinding of clean wood waste for use as a fuel or mulch, and more traditional recyclables (cardboard, bottles and cans) that can be recovered from construction site wastes.

7.9.4 Recommendations: CDL Waste

The following recommendations are made for changes in the management of CDL in Clallam County:

- Promote existing opportunities for recycling of CDL wastes as part of the public education efforts conducted for waste reduction and recycling. In particular, the County should help promote the Built Green concept. (CDL1)
- Enhance the recycling of CDL wastes by establishing expanded markets for the materials. These markets include using processed concrete and asphalt concrete for county and municipal public works projects, especially roads and utilities, and processing clean wood material as hog fuel for area hog-fuel boilers. Education and public information on alternatives available would be a fundamental component of this program. (CDL2)
- Consider the development of a limited purpose disposal site for non-recyclable CDL wastes if existing methods for disposing or diverting the waste are inadequate. If a separate site is developed and if sufficient quantities of recoverable materials are observed being disposed at this site, additional recycling operations should be considered for those materials. (CDL3)

7.10 CONTAMINATED SOILS

7.10.1 Existing Conditions

Soil is considered contaminated if it contains significant quantities of fuel oil, gasoline, or other toxic substances. Contaminated soils generated in Clallam County are usually contaminated with petroleum products. Prior to its closure, petroleum-contaminated soils (PCS) were accepted at the Port Angeles Landfill, but only after testing to ensure that the soil met legal limits for disposal (under 3,200 ppm total hydrocarbons and other tests as appropriate); contaminated soils were then used as cover material at the landfill.

The Regional Transfer Station accepts contaminated soils for disposal. Since 2007, the amount of contaminated soil disposed of at the Regional Transfer Station has continued to decrease; from 153.47 tons in 2007 to 0.64 tons in 2011.

Large amounts of contaminated soils and other wastes from major oil spills may be handled differently than smaller quantities, but are evaluated on a case-by-case basis.

7.10.2 Needs and Opportunities: Contaminated Soils

The amount of contaminated soils may be diminishing because of fewer occurrences of leaking storage tanks (and old incidents cleaned up), due to more stringent storage regulations. Fees to dispose of contaminated soils at the Regional Transfer Station may represent a barrier to safe and local disposal and may need to be reconsidered for improved contaminated soils management.

Treatment and disposal of wastes from large spills should continue to be addressed as they occur, depending on the nature and extent of the contamination.

7.10.3 Recommendations: Contaminated Soils

- Explore new technologies for managing contaminated soil. (CS1)

7.11 DERELICT VESSELS

7.11.1 Existing Conditions

In 2002, the State of Washington passed the Derelict Vessel Act, authorizing and providing funding for public entities to remove and dispose of derelict and abandoned vessels. Over 400 vessels have been removed from Washington waters by the Department of Natural Resources, administrators of the Derelict Vessel Program. As of the end of 2012, there were 254 vessels on the list.

As a county with about 250 miles of shoreline and numerous marinas, the impact of derelict vessels can be great. It is of special concern in the Neah Bay area. While Clallam County Codes do not address derelict vessels, Washington Administrative Code (WAC) 308-93-275 discusses some legal options for addressing derelict vessels. Also, most marinas in Clallam County, such as those under the authority of the Port of Port Angeles, have regulations regarding derelict vessels. For instance, Port staff removes hazardous material and then crush derelict vessels with an excavator, disposing of the waste at the Regional Transfer Station.

7.11.2 Needs and Opportunities: Derelict Vessels

Current handling of derelict vessels, usually by an authorized public entity such as the Port of Port Angeles or a marina, appears to be sufficient in addressing derelict vessels. There are no recommendations about derelict vessels at this time.

7.12 ELECTRONIC WASTES

7.12.1 Existing Conditions

In 2006, the State of Washington passed a law which required companies that make and sell certain electronic products to take back and recycle their products. This law created a program, E-Cycle Washington, which designates locations in every county that accepts used electronics from households, small businesses, schools & school districts, small governments, special purpose districts, and charities free of charge. The E-Cycle Program began in January 2009 accepting TVs, computers, and monitors; in 2011 tablet computers and e-readers were added to the list.

E-Cycle Washington locations in Clallam County currently include: Goodwill Industries in Port Angeles and in Sequim, and ECycle NW in Blyn. Nearly one hundred tons of electronics were recycled in Clallam County in 2011; about sixty tons were recycled in 2007.

Other electronics are accepted for reuse or recycling through various programs or companies. Cell phones and accessories are accepted for donation to the Clallam County Sheriff's 911 Cell Phone Bank, which provides the reconditioned phones to qualifying participants to access emergency services.

7.12.2 Needs and Opportunities: Electronic Wastes

The amount of electronic waste generated per person in Washington State has increased dramatically from 8.71 pounds per person in 2007 to 22.40 pounds per person in 2011 (Ecology 2013c). While recycling of these electronic wastes have also increased (from 3.80 pounds per person in 2007 to 9.20 pounds per person in 2011), these numbers indicate that electronic wastes are becoming a larger part of the waste stream as such products increase in popularity and affordability. These wastes contain components of value such as rare earth metals, as well as toxic materials, therefore it is imperative that they are recycled.

To achieve increased recycling of electronic wastes, Clallam County should consider additional collection locations, especially in the west end of the County, where there is no current location that accepts electronic wastes.

There is an ongoing need for education and outreach on the importance and opportunities to recycle electronic wastes. Current programs mandated by the state accept limited electronic wastes, though this may change in the future, requiring additional education, outreach, or services.

7.12.3 Recommendations: Electronic Wastes

- Clallam County should continue to work with and educate the public on how to handle electronic waste. (EW1)
- Clallam County should consider additional E-Cycle locations, especially on the west end. (EW2)

7.13 MARINE DEBRIS

7.13.1 Existing Conditions

Clallam County is bordered by the Pacific Ocean and the Strait of Juan de Fuca, with approximately 250 miles of shoreline. Marine debris such as styrofoam, plastic, treated wood, nylon rope, glass, and metal washing up on these shores has been an ongoing issue for decades. In 2011, an earthquake and tsunami struck Japan, killing thousands, and sweeping an estimated 5 million tons of debris into the Pacific Ocean. While much of that sank to the ocean floor, marine debris from this event began appearing on Clallam County beaches in 2012 and is predicted to continue for some years (NOAA 2013). In March 2013, a 185-ton dock from the tsunami washed ashore in Clallam County in Olympic National Park (ONP) and the Olympic Coast National Marine Sanctuary. This dock was dismantled and disposed of at West Waste & Recycling, Inc. in Forks (see **Figure 7.1**).



Figure 7.1 Japanese dock remnants.

Numerous public and private entities monitor and coordinate marine debris management. The National Oceanic and Atmospheric Administration (NOAA), Ecology, Tribes, and organizations such as Washington CoastSavers, Surfrider Foundation and the Clallam County Marine Resources Committee operate a variety of efforts linking Clallam County to international marine debris management efforts. These efforts include beach cleanups, marine debris tracking and retrieval and public education and outreach.

7.13.2 Needs and Opportunities: Marine Debris

Marine debris poses significant risks to ocean ecosystems, wildlife and human health and safety. It can maim, harm or kill wildlife that become trapped by it, or mistake it for food. Debris on beaches is unsightly and may cause injury or damage to humans or boats.

Washington's Emergency Management Division drafted the Washington State Marine Debris Response Plan in September 2012 to address the impacts of the Japanese tsunami debris and coordinate response among various stakeholders. This plan identifies tasks for stakeholders such as Clallam County in response to these areas of marine debris management: routine and small debris, large onshore debris, hazardous debris, offshore debris, volunteer coordination and management, invasive species, and communications and outreach.

In accordance with this plan, Clallam County has the impetus to support existing cleanup efforts, utilize dedicated state and federal funding to provide solid waste drop boxes and other equipment needed for marine debris removal, develop local response plans, issue permits for temporary solid waste accumulation sites if necessary, and contact and cooperate with other agencies for marine debris removal support (Emergency Management Division 2012). For tsunami as well as general marine debris, Clallam County can help to coordinate these tasks and opportunities among relevant stakeholders for both prevention and removal of marine debris.

7.13.3 Alternatives: Marine Debris

The County currently provides marine debris information links on the County website. Increased outreach and education via other government entities would be an alternative to current methods.

7.13.4 Recommendations: Marine Debris

The following recommendations are made regarding marine debris:

- Continue to provide outreach and education to the public on proper response and prevention of marine debris. Coordinate communication and outreach efforts with state and federal partners for consistent messaging. (MD1)

7.14 MODERATE RISK WASTES

7.14.1 Existing Conditions

Existing Conditions, Needs and Opportunities, Alternatives and Recommendations concerning Moderate Risk Wastes are presented in Appendix D: Clallam County Hazardous Waste Management Plan.

7.15 PHARMACEUTICAL WASTE

7.15.1 Existing Conditions

Pharmaceutical waste is prescription, over-the-counter or veterinary medicines that are no longer being used for whom they were intended. Once pharmaceuticals become waste, they pose significant problems due to the fact that they are often highly-addictive drugs, can cause accidental poisonings, and can be source of environmental contamination.

Clallam County law enforcement and public and private health organizations participate in the Take Back Your Meds program (www.takebackyourmeds.org) to help manage pharmaceutical waste safely. Accepted pharmaceuticals include prescription and over-the-counter medicines, vitamins, pet medicines, inhalers, medicated creams and ointments, liquid medicines, and medicine samples. Collected pharmaceutical waste is incinerated in the Spokane Waste-to-Energy Facility.

Pharmaceutical waste can be disposed of at these three locations in Clallam County: Jim's Pharmacy, the Sequim Police Department and the Clallam County Sheriff's Office. From July 2009 through December 2012, these three locations in Clallam County together have collected 9,280 pounds of unwanted medicines.

Pharmaceutical waste is regulated by the Washington State Department of Health's Board of Pharmacy, the United States Drug Enforcement Administration, and Ecology.

7.15.2 Needs and Opportunities: Pharmaceutical Waste

Pharmaceutical waste presents many risks for human and environmental health. In November of 2010, the Clallam County Board of Health unanimously passed a resolution which recognized the significance of these risks, and supported a take back program for pharmaceuticals in Clallam County (Clallam County Board of Health 2010). Take-back programs are needed to dispose of pharmaceutical waste to prevent it from being used inappropriately, particularly in the west end of Clallam County where none exist.

A 2004 screening analysis by Ecology for 24 types of pharmaceuticals and personal care products (PPCPs) in Sequim-Dungeness area wastewater treatment plants effluent, wells, and creeks detected 16 compounds in one or more effluents, and 3 compounds in the wells or creeks. However, this limited samplings gave no indication these compounds represented a need for concern. Additional monitoring appeared to be a low priority at that time (Ecology 2004). Continued education and outreach on proper disposal of pharmaceutical waste is needed to ensure waste contamination risks remain low.

7.15.3 Alternatives: Pharmaceutical Wastes

One alternative for addressing pharmaceutical waste could be establishing more take-back locations in Clallam County. Another method could be to establish a monitoring program for PPCP levels in Clallam County water sources.

7.15.4 Recommendations: Pharmaceutical Wastes

- CCEH should continue to work with the two hospital districts, law enforcement, retail suppliers, and other healthcare providers to maintain public education programs on how to properly dispose of pharmaceutical waste. (PW1)
- Clallam County and the City of Forks should consider establishing a pharmaceutical take back program for west end residents. (PW2)

7.16 STREET SWEEPINGS

7.16.4 Existing Conditions

This waste stream is the result of highway and road maintenance. Washington State Department of Transportation (WSDOT) currently operates a street sweeping/vactor/storage pad in Port Angeles. This facility is a solid waste pile used to treat and store street sweepings. The City of Port Angeles treats and stores sweepings at the Regional Transfer Station.

7.16.5 Needs and Opportunities: Street Sweepings

There may be opportunities to develop additional facilities such as WSDOT's for treating this waste stream. This situation should be monitored but requires no immediate actions.

7.17 TIRES

7.17.4 Existing Conditions

Tires are accepted at the Port Angeles Transfer Station and are exported for recycling or diversion options such as burning for energy. Tire dealers, automobile service stations, and entities which generate large quantities of tires are reusing or recycling tires outside of the Clallam County solid waste management system.

Ecology's Recycling and Diversion Survey reported 32.02 tons of tires that were recycled in Clallam County in 2011; tires were also reported as diverted in the following ways and amounts: baled (48.95 tons); burned for energy (93.30 tons); retreaded (8.46 tons); reused/resold (25.76 tons) (Ecology 2012b). No tires were reported as disposed. These statistics include Transfer Station tonnages as well as other entities that participate in the annual survey.

In 2005, the Washington State Legislature created a Waste Tire Removal Account which funds projects such as Ecology's Waste Tire Program. Through this program, Ecology distributes money to local governments or other public entities for waste tire pile prevention, cleanup and education. Clallam County Code Enforcement received \$17,923 in 2012 to address waste tires through activities such as amnesty (collection) events and pile removals. From 2010-2013, \$6,297 was also granted to Clallam County for pile removal (Ecology 2013b). Clallam County Code Enforcement reports that nearly 2 million pounds of solid waste, mostly consisting of tires, has been cleaned up since 2007 in Clallam County.

7.17.5 Needs and Opportunities: Tires

While many options exist for proper management of waste tires, there is an ongoing need to address unauthorized or accumulated tire piles. These piles present issues including fire hazards and public health problems associated with the breeding of mosquitoes and rodents. Ecology's Waste Tire Program presents a continued opportunity for Clallam County to address abandoned tire piles and to prevent further accumulation.

No specific recommendations are being made at this time for tires, but ongoing efforts to find better alternatives to tire disposal on a statewide basis should be monitored while also watching for improved options that may become available on a local basis.

7.18 WOOD WASTES

7.18.4 Existing Conditions

Wood waste is defined in WAC 173-350-100 as "solid waste consisting of wood pieces or particles generated as a by-product or waste from the manufacturing of wood products, construction, demolition, handling and storage of raw materials, trees and stumps. This includes, but is not limited to, sawdust, chips, shavings, bark, pulp, hogged fuel, and log sort yard waste, but does not include wood pieces or particles containing paint, laminates, bonding agents or chemical preservatives such as creosote, pentachlorophenol, or copper-chrome-arsenate."

The forest products industry in Clallam County generates wood shavings, chips, sawdust, log ends, bark, hog fuel, sorting yard wastes, pulp and paper mill sludges, and boiler ash. The major producers of these wastes are Port Angeles Hardwood, Nippon, Interfor, and smaller logging operations and shake or shingle mills. The tenants of the Port of Port Angeles are also a major generator of wood waste. Wood waste is accumulated through their operation of marine terminals and adjacent log yards.

Nippon currently recycles wood waste through other private companies. Log yard waste, for instance, is ground up by another company and then sold as a soil amendment. Nippon has also reduced their wood waste quantities by contracting log yard and chip production activities to other companies. Interfor grinds and ships waste bark and other wood to Nippon Port Angeles for use in paper drying; both companies burn wood waste for heating purposes.

Hermann Brothers Logging & Construction, a private company near Port Angeles, accepts wood waste such as stumps, large diameter tree limbs, lumber, old decking materials, and cedar mill waste and grinds it. The products are sold for hog fuel or for mulch to the public by delivery in large quantities. This facility has the potential capacity to accept much of the County's clean wood waste.

7.18.5 Needs and Opportunities: Wood Wastes

7.18.5.1 Quantity Generated

As described in Section 5.5, a significant amount of wood waste is generated in Clallam County. A large portion of this wood never makes it into the solid waste stream. However, there are two situations worth monitoring that could greatly increase the amount of wood waste in the solid waste stream:

- Currently a significant portion of wood waste generated by the collective mills in the region is used in the pulp and paper industry. If international market forces were to adversely impact the industry demand, a significant amount of wood waste would need to be handled in some fashion.
- Currently timber slash from logging is burned in place, left onsite, or delivered to facilities with biomass boilers. While no changes to the regulations have been proposed, industry groups and others are aware that the Olympic region's air quality measures are receiving national and international attention to protect air quality standards. Such outside influences could have impacts on the manner in which timber slash may be disposed in the future.

7.18.5.2 Technology Development

Advances in incineration and gasification technologies have significantly reduced emissions and ash output and usually exceeds state and federal standards. These advances have recently spurred a renewed interest in incineration and/or gasification facilities for specific waste streams such as wood. Such uses are discussed in more detail in Section 5.5 of this plan.

Another emerging technology that may become a viable tool for managing wood waste in the future is its chemical conversion to liquid fuel systems (renewable energy).

7.18.5.3 Other Environmental Considerations

The need for fossil fuel-derived energy is reduced when energy is created from feedstocks such as wood waste (RTI 2005). By avoiding truck transportation to distant disposal sites, green house gas emissions associated with combustion of fossil fuels may also be reduced.

7.18.6 Alternatives: Wood Wastes

Alternatives for future wood waste disposal or diversion could include:

- In combination with an enhanced hog-fuel processing program, a new special-purpose landfill(s) could be developed that would continue to take wood waste and ash.
- The materials could be processed to produce value-added products that would have market value (including mulch, compost, hog fuel, and possibly other products).
- The materials could be sent to another compost facility, either for a fee or possibly sold to them as a needed raw material.
- The materials could be used for biomass-to-energy or biogas-to-energy, as described in Chapter 5.

7.18.7 Recommendations: Wood Waste

The following recommendations are made for changes in the management of wood waste in Clallam County:

- Explore the possibility of recovering additional amounts of wood waste through use as composting or hog fuel. (WD1)
- Consider proposals for alternative methods for managing wood waste, such as biogas to energy, on a case by case basis. (WD2)
- Should the amount of wood waste managed in the solid waste stream increase substantially due to markets, regulations, or other outside influences, the SWAC should collaborate with private companies to develop new ideas for managing this waste stream. (WD3)

7.1.2 OTHER WASTE PROBLEMS

7.1.2.1 PET WASTES

7.1.2.2 Existing Conditions

Ecology has identified fecal coliform bacteria pollution as a major problem in Washington State surface waters. Pet wastes can be a significant source of this non point source pollution as untended pet waste washes into storm drains, entering rivers, lakes and streams. This bacterial pollution can make water hazardous for drinking and swimming and contaminate shellfish beds, making them unsafe to harvest.

According to the American Veterinary Medical Association, 37% of Washington households own an average of 1.5 dogs. That suggests that Clallam County is home to approximately 17,387 dogs based on the 2010 census of households. Producing an estimated 0.25 pounds of solid waste per day, this means that 4,347 pounds, or over 2 tons of dog waste is produced per day. Unless pet owners make sure to scoop this poop and put it in the trash, this raw sewage is a significant source of bacterial pollution for Clallam County waters.

Clallam County has pet waste collection systems in many areas, though ongoing maintenance provides a challenge due to location or funding.

7.1.2.3 Needs and Opportunities: Pet Waste

Properly locating, installing, and maintaining pet waste collection systems are the best first step for addressing the problem of animal waste in public areas. Public education on the risks that pet waste poses to water quality is needed to help prevent fecal coliform pollution.

While public and private efforts toward these strategies occur, expanded endeavors may be needed to thoroughly address the impacts of pet waste. At this time, however, no recommendations are made regarding pet waste.

8. REGULATION AND ADMINISTRATION

8.1 INTRODUCTION

The purpose of this chapter is to:

- Identify the regulations and agencies that currently affect solid waste management in Clallam County.
- Identify the needs, problems, or opportunities not yet addressed by the existing system of regulations and administration.
- Suggest alternatives to meet the identified needs and opportunities.
- Recommend future programs or actions as appropriate to the needs and abilities of Clallam County and the County's residents, businesses and service-providers.
- Present implementation schedules and costs for the recommended programs and facilities.
- Meet the requirements of RCW 70.95.090(4).

8.2 REGULATION AND ADMINISTRATION

8.2.1 Existing Conditions

At the federal and state levels, the primary regulatory authorities for solid waste management are the Environmental Protection Agency (EPA) and Ecology, respectively. The Clallam County Environmental Health (CCEH), a division of the Department of Health and Human Services, is the responsible local authority (per RCW 70.95.160) for issuing permits for solid waste handling operations. The minimum requirements of both the state and federal programs must also be satisfied before a permit can be issued by the local agency.

8.2.1.1 Federal Level

The Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA) (42 U.S.C. 6901-6987), is the primary body of legislation dealing with solid waste. Subtitle D of RCRA deals with non-hazardous solid waste disposal and requires the development of a state comprehensive solid waste management program that outlines the authorities of local, state and regional agencies. Subtitle D requires that the state program must prohibit "open dumps" and provide disposal of all solid waste in an environmentally-sound manner.

8.2.1.2 State Level

The state Solid Waste Management Act (RCW 70.95), adopted in 1969, provides for a comprehensive, statewide solid waste management program. It assigns primary responsibility for solid waste handling to local governments, giving each community, in cooperation with its cities, the task of setting up a coordinated county solid waste management plan which places an emphasis on waste reduction and recycling programs. Cities may also choose to develop their own solid waste management plans, but this approach is generally prohibitively expensive and impractical for a smaller jurisdiction. Enforcement and regulatory responsibilities are assigned to cities, counties, or jurisdictional health departments depending on the activity.

In 1985, Ecology promulgated the Minimum Functional Standards for Solid Waste Handling (WAC 173-304) under the authority granted by RCW 70.95. The Minimum Functional

Standards reflected the State's solid waste management priorities at that time and the desire to protect the environment from adverse impacts that may have been created by solid waste disposal facilities. In 2003, Ecology issued WAC 173-350, Solid Waste Handling Standards, which essentially superseded the Minimum Functional Standards. A separate section, Criteria for Municipal Solid Waste Landfills WAC 173-351, issued in 1993, contains the current location, design, and operational criteria for MSW landfills.

RCW 36.58, Solid Waste Disposal, establishes the counties' rights and responsibilities regarding solid waste management, including the authority to establish solid waste disposal districts. These districts can be set up to provide and fund solid waste processing, disposal and/or collection services in the unincorporated parts of the county, and in incorporated areas with the cities' consent.

The Model Litter Control and Recycling Act (RCW 70.93) and associated state regulations (WAC 173-310) generally prohibit the deposit of garbage or refuse on any property not properly designated as a disposal site. A "litter fund" was created through a tax levied on wholesale and retail businesses, and the monies from this fund are being used for education, increased litter clean-up efforts by the State, and grants to counties for litter and illegal dump clean-up activities.

8.2.1.3 County Level

In Clallam County, the governmental organizations involved in solid waste oversight include the Clallam County Road Department and the CCEH.

At the county level, the Clallam County Road Department is the agency primarily responsible for solid waste management activities for Clallam County. The Road Department Utilities Coordinator manages the Coordinated Prevention Grant (CPG) funds provided by Ecology to support solid and hazardous waste activities. Currently, these grants are the primary source of funding for solid and hazardous waste activities conducted by Clallam County. Beginning in 1998, additional grant funds have been received from Ecology for local litter clean-up. These funds have been used to have correctional crews clean up high-litter areas and illegal dumping sites.

The CCEH is the local enforcement agency for County and State (WAC 173-350 and 173-351) regulations regarding solid waste activities. The local requirements are promulgated in Clallam County Code 41.10. The CCEH acts on complaints of illegal dumping, issues permits and conducts periodic inspections of disposal facilities. Both the Roads Department and the CCEH partner with the County Sheriff's Department for management and enforcement of solid waste activities such dump site cleanup.

The activities of the CCEH are funded through the Division's budget, reimbursed through tipping fees generated at the transfer stations, the permit fee system, and CPG funds from Ecology. As with many other counties in the State, these funds do not cover all of the costs of effectively supporting the mandated programs.

The permit process for disposal facilities requires an application and approval for new sites, and an annual review and renewal for existing permits. The initial application form, developed by Ecology, requires information about the type of wastes to be disposed, environmental conditions of the area and operating plans. Permit fees are based on the type of solid waste facility. **Table 8-1** lists the fees associated with different types of facilities. The fees shown in **Table 8-1** were established by a resolution of the County Board of Commissioners adopted in 2012.

Table 8-1. Waste Disposal Permit Fees

No.	Permit	Fee *
1	Plan review for new applications (for all facilities listed below)	Base fee \$810 then \$81/hour if more than 10 hours
2	Municipal Solid Waste Facility <ul style="list-style-type: none"> a. Annual Permit Renewal b. Closure Permit c. Post Closure Permit (Annual Renewal) 	\$6,900 \$8,625 \$3,450
3	Transfer Station <ul style="list-style-type: none"> a. Annual Permit Renewal <ul style="list-style-type: none"> i. Facilities Handling 5,000 tons/yr or greater ii. Facilities handling less than 5,000 tons/yr 	\$3,220 \$805
4	Limited Purpose Landfills <ul style="list-style-type: none"> a. Annual Permit Renewal b. Closure Permit c. Post Closure Permit (Annual Renewal) 	\$4,025 \$5,750 \$2,415
5	Composting <ul style="list-style-type: none"> a. Type 1 or 2 Feedstock b. Type 3 or 4 Feedstock 	\$805 \$1,610
6	Inert Landfills <ul style="list-style-type: none"> a. Annual Permit Renewal 	\$2,415
7	Recycling Only Facility <ul style="list-style-type: none"> a. Annual Permit Renewal b. Facilities Exempt from Permitting but Still Requiring Inspection of LHJ c. Oil/Antifreeze Collection Drop Boxes 	\$805 \$322 \$322
8	Late Permit Fee	Additional 50% of base permit fee
9	Penalty Fee – Reinspections Required due to Operational Noncompliance	10% of base fee/event

Source: Clallam County Health & Human Services Effective 2012

* Applicable conditions should be summed up for each disposal site to arrive at the total permit fee.

Disposal permits are issued for landfills, transfer stations and other disposal sites. Unpermitted and illegal sites have been a problem in the County. Private residential dumps, though not required to obtain a permit, have created nuisance problems in some areas. County action against these offenses is often slow due to funding and personnel constraints. CCEH and the Sheriff Department’s Code Enforcement Division have received State grant assistance for enforcement actions and have become more active in dealing with these problems.

8.2.1.4 Other Authorities

Other authorities in Clallam County include the City of Port Angeles Public Works Department, the City of Sequim Public Works Department, the City of Forks Public Works Department, and the Tribal Councils. Each of these entities has its own special area of operations; providing specific services to the residents within that area and enforcing specific rules and regulations. Local rules that affect solid waste management include land use plans and zoning codes.

City of Port Angeles

The City of Port Angeles' Solid Waste Utility manages the Regional Transfer Station, the Blue Mountain Drop Box & Recycling Center and operates the City's solid waste collection system. See Chapter 4.2.1.1 for more information on the collection service.

The City is also responsible for post-closure funds for the Port Angeles Landfill (see Chapter 5.3.1.1 for more detail). An Interlocal Agreement (ILA) between the County and the Cities of Port Angeles and Sequim further outlines the authority and responsibilities of the City of Port Angeles. See the Regional Export and Transfer System discussion below, or Appendix B: ILA for Regional Solid Waste and Transfer System.

Port Angeles Municipal Code, Chapter 13.54.030, authorizes compulsory refuse collection service be provided by the City. The burning or dumping of solid waste, other than as provided for in the code, is unlawful.

City of Sequim

The City of Sequim contracts with D.M. Disposal to provide commercial and residential customers with automated refuse collection, recycling and yard waste services within the incorporated area. See Chapter 4.2.1.2 for more information on Sequim collection service.

Sequim Municipal Code, Chapter 8.08, authorizes compulsory solid waste collection. The burning or dumping of solid waste, other than as provided for in the code, is a misdemeanor.

City of Forks

The City of Forks contracts with a private company, West Waste & Recycling, for garbage collection services. West Waste provides garbage collection service to the residents of Forks on an optional basis. Many residents choose to haul their own waste to the West Waste Transfer Station. See Chapter 4.2.1.6 for more information on Forks collection service.

Tribal Councils

Within Clallam County there are a number of Indian Tribes: the Makah Nation; the Quileute Nation, the Lower Elwha Klallam Tribe and the Jamestown S'Klallam Tribe. The tribes exercise solid waste management authority over Tribal lands within their respective reservations. Local and state governments have no jurisdictional authority over the reservations or their residents in terms of solid waste planning, implementation or taxation.

The Makah and Quileute Nations provide collection service to Tribal residents within their Reservation areas; the Makah Nation takes collections to the Makah Transfer Station and the Quileute Nation takes collections to West Waste Transfer Station in Forks. The remaining two Tribes utilize local refuse collection companies for service. See 4.2.1.5 for more details on Tribal collection services.

The Tribes must abide by regulations imposed by the Federal Government and outlined in RCRA. The Tribes are governed by a Tribal Council or Committee made up of elected members. The Councils hold regular meetings and handle all business affairs of the Tribes.

8.2.1.5 Regional Export and Transfer System

In 2004, Clallam County and the City of Port Angeles executed an ILA regarding Regional Solid Waste Export and Transfer System cooperation and implementation. In 2007, the City of Sequim became an additional party to the ILA (see Appendix B). While this CSWMP provides goals, policies, and direction, the ILA provides for the cooperation, implementation, and consistent application of the current plan. The ILA defines the roles and responsibilities of the signatories to provide for competitively-priced Regional Solid Waste Export and Transfer System facilities and services; promote the health, safety and welfare of the County's residents; and protect the natural environment through the County. Among other things, the ILA:

- Centralizes responsibility for operating and administering the Waste Export and Transfer System with the City of Port Angeles; and
- Establishes an enterprise fund into which revenues received from the operation and management of the Regional Solid Waste Export and Transfer System are deposited.

The areas of operation, services provided, and enforcement rules and regulations for each of the local governmental organizations are summarized below.

Per ILA, the County (among other things):

- May consider amendments to County regulations to ensure consistency with the CSWMP and the designations of the ILA regarding Regional Solid Waste Export and Transfer System, to the extent permitted by law. Will continue to make a good faith effort to negotiate and execute with Jefferson County an interlocal agreement requiring each county to amend its CSWMP and other related ordinances and agreements to prohibit accepting waste generated outside its boundaries at disposal sites within said county, to the extent permitted by law.
- May consider forming a solid waste disposal district in the eastern part of the County, to the extent it may become necessary to provide a dedicated source of funds to help finance the capital and operations and maintenance costs associated with the Solid Waste Export and Transfer System.
- Shall not construct or have constructed any municipal solid waste export and transfer system in the eastern part of Clallam County without the approval of the Joint Solid Waste Advisory Board (JSWAB).
- Participates in developing the request for qualifications/proposals and selecting the contractor(s), for designing, building and if appropriate operating the Solid Waste Export and Transfer System facilities, disposal services, and long haul services.
- Appoints representatives to the JSWAB.
- Negotiates and administers the land lease between the County and the Washington Department of Natural Resources enabling the continuation of drop box services at Blue Mountain.
- Encourage recycling of yard waste and special wastes to the maximum extent possible.

Per ILA, the City of Port Angeles is responsible for the following (among other things):

- Establish the JSWAB to review policies, procedures, costs, rates and operate as an advisory group to the Port Angeles City Council and SWAC.

- Act as custodian of the Regional Solid Waste Export and Transfer System/landfill enterprise fund.
- Incorporate in its annual budget the budget for Regional Solid Waste Export and Transfer System services.
- Provide administrative services for the facilities it operates.
- Consider an ordinance designating the Regional Solid Waste Export and Transfer System as the City's solid waste system and prohibiting solid waste facilities that are not consistent with the system.
- Cooperate with the County in the formation of a disposal district to the extent the district includes incorporated areas of the City of Port Angeles.

Per ILA, the City of Sequim is responsible for the following (among other things):

- Direct solid waste collected within the City of Sequim to the Regional Solid Waste Export and Transfer System facilities consistent with the Plan.
- Appoint representatives to the JSWAB.
- Encourage recycling of yard waste and special wastes to the maximum extent possible.

8.2.1.6 Land Use Plans & Zoning Codes

Other local regulations which pertain to solid waste planning include the land use plans and zoning codes delineated in the County and Cities' Municipal Codes. Title 31 of Clallam County's Municipal Code, the Comprehensive Plan, addresses general issues and goals for various land uses in the County. Title 31 also codifies other city and regional plans regarding land use within Clallam County.

Zoning codes describe zoning designations and restrictions, including industrial uses such as solid waste facilities. Title 33 of the Clallam County Municipal Code necessitates a conditional use permit for new solid waste management facilities. The City of Port Angeles Municipal Code, Chapter 17.96.060, states that siting a solid waste facility within City bounds would require an Unclassified Use Permit. The Sequim Municipal Code, Chapter 18.56, discusses the permitting of special land uses such as solid waste facilities. More information on local regulations concerning solid waste is provided in Appendix C: Rates and Regulations.

8.2.2 Needs and Opportunities: Regulation & Administration

The Regional Solid Waste Export & Transfer System could face financial challenges due to its reliance on solid waste tipping fees for much of its funding. Waste quantities are decreasing due to many factors (see Chapter 3.3.1 for discussion), so the funding generated through tipping fees may also decrease. There is a need for a long term strategy which addresses this funding challenge.

Illegal dumping continues to be a problem throughout the County. Clallam County relies on state funding for cleanup of illegal dump sites and roadside litter. These types of activities should also be considered in long term funding strategies due to the variability in state funding.

Clallam County and the Cities of Port Angeles and Sequim have worked to create a regional approach to waste export and transfer by entering into an ILA and with ensuing

implementation. Pursuing further opportunities to work with regional partners such as Tribes, or neighboring counties would continue to support the viability of the Regional Export and Transfer System. These efforts could be supported through the development of a consistent methodology for assessing the effectiveness and needs of the solid waste program, including such measurements as greenhouse gas emissions of the solid waste system and cost analyses. Additional continuity could come from a comprehensive analysis of solid waste activities documented in an annual summary of the Regional Solid Waste Export & Transfer System.

8.2.3 Alternative Methods: Regulation & Administration

There are numerous options which can address the needs and opportunities identified related to long term funding strategies as well as continued regional partnerships. These alternatives are discussed in the following sections.

8.2.3.1 Solid Waste Disposal Districts

Chapters 36.58 and 36.58A of the Revised Code of Washington (RCW) allow the establishment of waste disposal districts and waste collection districts, respectively, within a county. A solid waste disposal district is a quasi-municipal corporation with taxing authority set up to provide and fund solid waste disposal services. A disposal district has the usual powers of a corporation for public purposes, but it does not have the power of eminent domain. The county legislative authority is the governing body of the solid waste district. A disposal district established in eastern Clallam County could assess each resident or business (in incorporated areas only with the city's approval) a pro rata share of the waste exportation cost. This dedicated source of funds could help finance the capital and operations and maintenance costs associated with the Regional Solid Waste Export and Transfer System.

The formation of a solid waste district could also help to discourage illegal dumping by lowering the apparent cost of proper disposal. The assessment by the disposal district would be paid regardless of where the resident or business dumped the waste, or whether it was self-hauled or transported by a commercial hauler.

RCW 36.58.140 states that a disposal district "may levy and collect an excise tax on the privilege of living in or operating a business in the solid waste disposal taxing district, provided that any property which is producing commercial garbage shall be exempt if the owner is providing regular collection and disposal". The district has a powerful taxing authority, since it may attach a lien to each parcel of property in the district for delinquent taxes and penalties, and these liens are superior to all other liens and encumbrances except property taxes.

The funds obtained by a levy may be used "for all aspects of disposing of solid wastes...exclusively for district purposes" (RCW 36.58.130). Potential uses include providing:

- Solid waste planning.
- Cleanup of roadside litter and solid wastes illegally disposed of on unoccupied properties within the district.
- Public information and education about waste reduction and recycling.
- Subsidized waste reduction/recycling activities such as composting, or increasing the types of recyclables received at transfer stations
- Subsidized household hazardous waste collection events to minimize the amount of these wastes entering the waste stream.

- Closure and post-closure costs for landfills and other solid waste facilities.

As stipulated in its ILA with the City of Port Angeles and the City of Sequim, the County will consider forming a solid waste disposal district in the eastern part of the County, if it becomes necessary to provide a dedicated source of funds to help finance the capital and operations and maintenance costs associated with the Solid Waste Export and Transfer System.

8.2.3.2 Flow Control Ordinances

Many counties in Washington State are choosing to enact flow control ordinances in order to provide a dependable revenue stream at public solid waste facilities. Flow control ordinances provide government entities the ability to determine where solid waste collected within a County's boundaries will be taken for disposal. Flow control compels residents and businesses to share in the cost of the system, which is provided for the benefit of all, thus helping to control costs for waste disposal.

Clallam County could enact a flow control ordinance as a means of ensuring adequate solid waste funding.

8.2.3.3 Special District based on Home Rule Charter

The fact that Clallam County is a "home rule charter county" means that the county has powers beyond those shown in state regulations. In summary, a home rule charter county has the ability to implement activities that are approved by a majority vote of the residents, as long as the proposed activity does not directly contradict or violate state regulations. In this case, for instance, the County could create a special district with authority and abilities that differ from collection and disposal districts.

8.2.3.4 Solid Waste Planning Lead

Another alternative for the regulation and administration of solid waste in Clallam County would be to establish a solid waste planning lead position to coordinate county-wide solid waste activities. These county solid waste functions might include:

- lead coordinator of SWAC and JSWAB activities such as the update and implementation of the CSWMP
- preparation and analysis of technical data for annual summary of solid waste activities in Clallam County
- oversight of operation of County waste facilities
- education and outreach for waste reduction
- coordination solid waste activities among cities, tribes and volunteer groups
- apply for and coordinate solid waste grant funding
- promote recycling industries in the County
- maintain waste exchange and recycling database for residents and businesses
- interaction with regulators, permitting agencies, and contractors in the county interest

The current solid waste system in Clallam County is administered through numerous entities. Establishing a solid waste planning lead at the County level could bridge various efforts for a more effective and strategic approach to solid waste planning.

8.2.4 Recommendations: Regulation & Administration

The following recommendations are made regarding Regulation & Administration:

- Clallam County and the Cities of Port Angeles and Sequim should continue to meet their respective commitments, as specified in the ILA for the Regional Solid Waste Export and Transfer System. (RA1)
- Develop a consistent methodology for assessing the effectiveness and needs of the solid waste program, including such measurements as greenhouse gas emissions of the solid waste system and cost analyses. Provide a comprehensive analysis of solid waste activities in an annual summary of the Regional Solid Waste Export & Transfer System. (RA2)
- Clallam County should consider adopting a flow control ordinance. (RA3)
- Clallam County should consider establishing a position of Solid Waste Planning Lead to coordinate county-wide solid waste activities. (RA4)
- Investigation into the benefits and drawbacks of creating a solid waste disposal district in Clallam County. (RA5)

Table ES-1 identifies the responsible implementing agency and the preliminary implementation schedule for each of these recommendations.

9. SEPA ENVIRONMENTAL CHECKLIST

INTRODUCTION

This chapter contains the environmental checklist as required by the State Environmental Policy Act (SEPA). SEPA, Chapter 43.21C of the Revised Code of Washington (RCW), requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. The purpose of this checklist is to provide information to help identify environmental impacts from the activities proposed by this Comprehensive Solid Waste Management Plan (CSWMP). Based in part on this checklist, the lead agency (in this case, Clallam County Department of Community Development) would determine whether an Environmental Impact Statement (EIS) must be prepared, or issue a Determination of Non-Significance (DNS).

The rest of this chapter is the actual SEPA checklist for the CSWMP. Much of this checklist addresses only the general concerns related to the CSWMP, but specific actions proposed by this CSWMP are addressed as appropriate. It is anticipated that at least one of the activities discussed in the CSWMP, the use of waste export for future disposal purposes, will require one or more separate SEPA processes when more implementation details are developed for it.

ENVIRONMENTAL CHECKLIST

A. BACKGROUND

1. Name of proposed project, if applicable:

Clallam County Comprehensive Solid Waste Management Plan (CSWMP).

A. Address or general location of site:

Not applicable. The CSWMP encompasses the entire County.

2. Name of applicant:

Clallam County

3. Address and phone number of applicant and contact person:

Project Manager:

Robert Martin
Emergency Services & Utility Manager
Clallam County, Washington
(360) 417-2305

Consultant:

Meggan Uecker
Independent Contractor.
Port Angeles, Washington
(360) 809-3305

4. Date checklist prepared:

September 12, 2013

5. Agency requesting checklist:

Washington State Department of Ecology (Ecology). State law for solid waste management plans requires a SEPA checklist.

6. Proposed timing or schedule (including phasing, if applicable):

The CSWMP will remain effective over the next five years.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

Yes. State law requires solid waste management plans to be updated every five years. In addition, a few of the recommendations in this CSWMP extend beyond the immediate five-year period, but separate environmental review processes would be conducted for these activities if necessary when plans for these activities are refined.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

NA

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.

No.

10. List any government approvals or permits that will be needed for your proposal, if known.

In order to participate in the CSWMP, each local jurisdiction will need to approve and adopt the CSWMP. These jurisdictions include Clallam County, the cities of Port Angeles, Sequim, and Forks. The Makah, Quileute, Lower Elwha and Jamestown S' Klallam Tribal Councils may also participate.

Other permits may be necessary to implement a few of the recommendations being made by this CSWMP, but these permits (and an environmental review process, if necessary) will be sought through separate processes at a later date.

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.)

The Comprehensive Solid Waste Management Plan (CSWMP) is a five-year plan for the unincorporated and incorporated areas of Clallam County, including the cities of Port Angeles, Sequim, and Forks. At their option, the Indian Nations may participate in this CSWMP. Federal rules require that the Olympic National Park and the Olympic National Forest abide by the policies and programs in this CSWMP.

This CSWMP discusses all aspects of solid waste management within the County and incorporated areas, including waste reduction, recycling, composting, energy recovery, collection, transfer, import/export, waste disposal, and regulation and administration. Specific recommendations are made for all of these elements, but in most cases these recommendations represent program or policy refinements that have no significant environmental impacts.

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 activities proposed by this CSWMP will generally take place throughout Clallam County, although a few of the recommendations are for specific areas (such as one or more of the cities) or sites.

B. ENVIRONMENTAL ELEMENTS

Responses to the following reflect the lack of a specific site for most of the recommendations of the CSWMP.

1. EARTH

- a. General description of the site (circle one): Flat, rolling, hilly, steep slopes, mountainous, other _____**

The specific sites impacted by the CSWMP's recommendations are generally the existing solid waste facilities and occupied areas in the County, which are flat or rolling.

- b. What is the steepest slope on the site (approximate percent slope)?**

Not applicable.

- 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.**

Not applicable.

- d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.**

Not applicable.

- e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.**

Not applicable.

- f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.**

Not applicable.

- g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?**

Not applicable.

- h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:**

Not applicable.

2. AIR

- a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.**

No significant amounts of emissions are anticipated as a result of any of the recommendations made by the CSWMP.

- b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.**

Not applicable.

- c. Proposed measures to reduce or control emissions or other impacts to air, if any:**

Not applicable.

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.**

Not applicable.

- 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.**

This is not anticipated.

- 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.**

Not applicable.

- 4. Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.**

This is not anticipated.

- 5. Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.**

Not applicable.

- 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.**

No.

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.**

This is not anticipated.

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.**

Not applicable.

c. Water Runoff (including storm water):

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.**

Not applicable.

2. **Could waste materials enter ground or surface waters? If so, generally describe.**

Not applicable.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

Not applicable.

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

All of these types of vegetation can be found in Clallam County.

b. What kind and amount of vegetation will be removed or altered?

None expected.

c. List threatened or endangered species known to be on or near the site.

Not applicable.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Not applicable.

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: _____

All of these birds and animals can be found in Clallam County.

- b. List any threatened or endangered species known to be on or near the site.**

Not applicable.

- c. Is the site part of a migration route? If so, explain.**

Not applicable.

- d. Proposed measures to preserve or enhance wildlife, if any:**

Not applicable.

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.**

Several of the activities recommended in the CSWMP will require small additional amounts of electrical power to support normal, everyday activities.

In addition, recommendations in the CSWMP may increase power supplies in the future; for instance, Section 5.2.4 recommends monitoring future proposals for potential energy recovery projects in Clallam County.

- b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.**

No, this is not anticipated.

- 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:**

Not applicable.

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.**

No, although the CSWMP touches on a related activity (moderate risk waste collections) that should help prevent this type of problem in the future.

1. Describe special emergency services that might be required.

Not applicable.

2. Proposed measures to reduce or control environmental health hazards, if any:

The Port Angeles Landfill closed in 2006, and waste disposal efforts were shifted to transfer station operations on the property. The Neah Bay Landfill closed in 2011, and waste disposal efforts were shifted to transfer station operations at the Makah Transfer Station, opened in 2012.

b. Noise

1. What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

Not applicable.

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.

Not applicable.

3. Proposed measures to reduce or control noise impacts, if any:

Not applicable.

8. LAND AND SHORELINE USE

a. What is the current use of the site and adjacent properties?

Not applicable.

b. Has the site been used for agriculture? If so, describe.

Not applicable.

c. Describe any structures on the site.

Not applicable.

d. Will any structures be demolished? If so, what?

Not applicable.

e. What is the current zoning classification of the site?

Not applicable.

f. What is the current comprehensive plan designation of the site?

Not applicable.

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.

Not applicable.

i. Approximately how many people would reside or work in the completed project?

Not applicable (no impacts to employment or population levels are anticipated to be caused by any of the CSWMP's recommendations).

j. Approximately how many people would the completed project displace?

Not applicable.

k. Proposed measures to avoid or reduce displacement impacts, if any:

Not applicable.

l. Proposed measures to ensure the proposal is compatible with existing and project land uses and plans, if any:

Not applicable.

9. HOUSING

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

Not applicable.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

Not applicable.

c. Proposed measures to reduce or control housing impacts, if any:

Not applicable.

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?

Not applicable.

b. What views in the immediate vicinity would be altered or obstructed?

Not applicable.

c. Proposed measures to reduce or control aesthetic impacts, if any:

Not applicable.

11. LIGHT AND GLARE

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

Not applicable.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

Not applicable.

c. What existing off-site sources of light or glare may affect your proposal?

Not applicable.

d. Proposed measures to reduce or control light and glare impacts, if any:

Not applicable.

12. RECREATION

- a. What designated and informal recreational opportunities are in the immediate vicinity?**

Not applicable.

- b. Would the proposed project displace any existing recreational uses? If so, describe.**

Not applicable.

- c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:**

Not applicable.

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, describe.**

No, none anticipated.

- b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.**

Not applicable.

- c. Proposed measures to reduce or control impacts, if any:**

Not applicable.

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.**

Not applicable.

- b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?**

Not applicable.

- c. How many parking spaces would the completed project have? How many would the project eliminate?**

Not applicable.

- 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).**

Unknown.

- e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.**

Unknown.

- f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.**

Solid waste management utilizes vehicular transportation for the purposes of collection and export, as described in this CSWMP. Number of trips per day and peak volumes varies according to waste tonnages; exact numbers are unknown.

g. Proposed measures to reduce or control transportation impacts, if any:

Not applicable.

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.

None anticipated.

b. Proposed measures to reduce or control direct impacts on public services, if any.

Not applicable.

16. UTILITIES

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.

Not applicable.

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.

Not applicable.

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?**

By providing for secure disposal of solid wastes and increased recycling activities, the CSWMP is expected to decrease impacts and discharges to water and air, and to provide for more secure handling of toxic or hazardous substances that may be part of the solid waste stream. No substantial increases or decreases in noise levels are expected as a result of the CSWMP's recommendations.

Proposed measure to avoid or reduce such increases are:

Not applicable.

- 2. How would the proposal be likely to affect plants, animals, fish, or marine life?**

No significant impacts to plant, animal, fish, or marine life are expected.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

Not applicable.

- 3. How would the proposal be likely to deplete energy or natural resources?**

A small amount of energy and materials will be needed to implement the recommendations in the CSWMP, but this is expected to be more than offset by the energy and resources conserved as the result of increased waste prevention, recycling and composting recommended by the plan.

Proposed measures to protect or conserve energy and natural resources are:

Not applicable.

- 4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?**

No substantial impacts, either positive or negative, are expected to result from the recommendations in the CSWMP.

Proposed measures to protect such resources or to avoid or reduce impacts are:

Not applicable.

- 5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?**

No substantial impacts, either positive or negative, are expected to land or shoreline use as a result of the activities proposed in the CSWMP.

Proposed measures to avoid or reduce shorelines and land use impacts are:

Not applicable.

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

The waste export system requires long-distance shipment of solid waste to large regional landfills and processors in Washington and Oregon. A significant increase in demand on existing transportation services is not expected over the life of this plan.

Proposed measures to reduce or respond to such demand(s) are:

Not applicable.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

The CSWMP is in response to a state requirement for the proper management of solid waste, and it complies with all applicable local, state and federal laws and requirements regarding protection of the environment.

10. COST ASSESSMENT QUESTIONNAIRE

INTRODUCTION

RCW 70.95.090 states, “Each county and city comprehensive solid waste management plan shall include the following:

- (8) An assessment of the plan’s impact on the costs of solid waste collection. The assessment shall be prepared in conformance with guidelines established by the Utilities and Transportation Commission (WUTC or Commission). The Commission shall cooperate with the Washington state association of counties and the association of Washington cities in establishing such guidelines”.

Accordingly, every local government solid waste management plan must contain a cost assessment. WUTC developed the questionnaire on the following pages to assist local planners in completing the cost assessment from which the Commission will calculate the potential rate impacts(s). The questionnaire provides the questions that need to be answered so the Commission staff can perform the assessment of the solid waste management plan and determine the impact it may have on rates.

In addition, this chapter also provides a summation of the costs of the solid waste system to aid Clallam County and pertinent entities assess funding impacts on future budgets.

WUTC SOLID WASTE COST ASSESSMENT QUESTIONNAIRE

Please provide the information requested below:

PLAN PREPARED FOR THE COUNTY OF: Clallam
PLAN PREPARED FOR THE CITY OF: N/A
PREPARED BY: Bob Martin, P.E.
223 E. 4th Street, Port Angeles, WA
98362, bmartin@co.clallam.wa.us
CONTACT TELEPHONE: (360) 417-2389 DATE: September 30, 2013

DEFINITIONS

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

Throughout this document:

YR.1 shall refer to 2014

YR.3 shall refer to 2016

YR.6 shall refer to 2019

Year refers to (circle one) calendar (Jan 01 - Dec 31)
fiscal (Jul 01 - Jun 30)

1. DEMOGRAPHICS

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

1.1 POPULATION

1.1.1 What is the total population of your County/City?

YR.1 72,435 YR.3 73,092 YR.6 74,026

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

No city in the county is completing its own plan.

1.2 REFERENCES AND ASSUMPTIONS

See Tables 2-1 and 2-2 of the 2014 Clallam County CSWMP. Population estimates were derived from the State of Washington Office of Financial Management's (OFM) "County Growth Management Population Projections by Age and Sex: 2010-2040, Intermediate & High Series" and annual April 1st population estimates for 2012. Independent projections were developed by the County based on OFM's April 1, 2012 official population estimate (which was higher than OFM's report projections) while utilizing OFM's methodology.

The population increase in Clallam County is estimated to be 2.8% between 2012 and 2020. This translates to a 0.0034% annual increase. This annual increase was used to estimate the population of the County for each of the above years.

2. WASTE STREAM GENERATION

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

2.1 TONNAGE RECYCLED

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

YR.1	a. 17,460	YR.3	b. 17,596	YR.6	c. 17,721
	_____		_____		_____

2.2 TONNAGE DISPOSED

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

YR.1	a. 49,693	YR.3	d. 50,081	YR.6	e. 50,439
	_____		_____		_____

2.3 REFERENCES AND ASSUMPTIONS

Recycling and disposed tonnage rates have varied widely over the last planning cycle. Major impacts to tonnage rate data include the economic downturn beginning in 2008 and system changes such as the replacement of two landfills with transfer stations.

Projections for solid waste and recycling tonnages were made using population projections (see 1.1), the disposal and recycling rates of 2011 (3.71 & 1.33 respectively), and a 1% growth in waste generation over 2011 rates. Chapter 3, Section 3.3.2 also discusses alternate growth scenarios and projections.

3. SYSTEM COMPONENT COSTS

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

3.1 WASTE REDUCTION PROGRAMS

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

See the Clallam County CSWMP, Chapter 6 for implemented programs and Table E.1 "Summary of Recommendations" in the Executive Summary for proposed programs.

3.1.2 What are the costs, capital costs, and operating costs for waste reduction programs implemented and proposed?

IMPLEMENTED

YR.1 \$36,466 YR.3 \$37,963 YR.6 \$41,238

The costs shown above are staff salaries, which are increased by approximately 2% annually, and capital costs such as publications and outreach materials.

PROPOSED

YR.1 N/A YR.3 N/A YR.6 N/A

Although the emphasis on waste reduction is increasing, many of the additional costs will be covered by volunteer programs such as the Master Composters.

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

IMPLEMENTED

YR.1 Tipping fees, permit fees, and grants YR.3 Same YR.6 Same

PROPOSED

YR.1 N/A YR.3 N/A YR.6 N/A

3.2 RECYCLING PROGRAMS

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

IMPLEMENTED

PROGRAM	ANNUAL COST	FUNDING
Port Angeles Residential Curbside Recycling	\$344,000	Collection fees
Port Angeles Commercial Recycling Collection	\$46,000	Collection fees
Port Angeles Yard Waste Collection	\$202,000	Collection fees
Public Education, Information, & Outreach	\$29,466	Tipping fees and grants
Sequim Curbside Recycling	\$162,000	Collection fees

PROPOSED

See Table E.1 “Summary of Recommendations” in the Executive Summary of the Clallam County CSWMP. Most recommendations will be accommodated within existing staff salaries.

3.3 SOLID WASTE COLLECTION PROGRAMS

3.3.1 Regulated Solid Waste Collection Programs

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

Murrey's Olympic Disposal (Waste Connections) (G-Permit #9)			
	YR. 1 (2014)	YR. 3 (2016)	YR. 6 (2019)
RESIDENTIAL			
# of Customers	8,500	8,700	8,900
Tonnage Collected	6,500	6,655	6,764
COMMERCIAL			
# of Customers	766	770	775
Tonnage Collected	6,750	6,785	6,829

West Waste & Recycling (G-Permit #251)			
	YR. 1 (2014)	YR. 3 (2016)	YR. 6 (2019)
TOTAL RESIDENTIAL & COMMERCIAL			
# of Customers	900	915	940
Tonnage Collected	2,800	2,825	2,875

3.3.2 (Non-Regulated) Solid Waste Collection Programs

City of Port Angeles			
	YR. 1 (2014)	YR. 3 (2016)	YR. 6 (2019)
TOTAL RESIDENTIAL & COMMERCIAL			
# of Customers	7,310	7,350	7,720
Tonnage Collected	9,409	9,600	10,000

City of Sequim (Contracted to Waste Connections)			
	YR. 1 (2014)	YR. 3 (2016)	YR. 6 (2019)
RESIDENTIAL			
# of Customers	2,082	2,090	2,100
Tonnage Collected	1,571	1,578	1,586
COMMERCIAL			
# of Customers	308	310	312
Tonnage Collected	4,795	4,826	4,857

City of Forks (Contracted to West Waste & Recycling)			
	YR. 1 (2014)	YR. 3 (2016)	YR. 6 (2019)
RESIDENTIAL			
# of Customers	675	690	710
Tonnage Collected	2,575	2,600	2,630
COMMERCIAL			
# of Customers	185	187	190
Tonnage Collected	560	565	575

3.4 ENERGY RECOVERY & INCINERATION (ER&I) PROGRAMS

(If you have more than one facility of this type, please copy this section to report them.)
There are no incinerators in the County permitted to receive offsite solid waste.

3.5 LAND DISPOSAL PROGRAM

(If you have more than one facility of this type, please copy this section to report them.)

3.5.1(a) Provide the following information for each land disposal facility in your jurisdiction which receives garbage or refuse generated in the county.

Landfill Name: Port Angeles Landfill
Owner: City of Port Angeles
Operator: City of Port Angeles

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

YR.1 0 YR.3 0 YR.6 0

No disposal by WUTC regulated haulers will occur at the Port Angeles Landfill. However, special operations to prevent legacy waste in the landfill from entering the Strait of Juan de Fuca, moving it to reopened cells of the closed landfill is planned to occur beginning in the summer of 2014. Please see 3.7.3 for more information.

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

YR.1 0 YR.3 0 YR.6 0

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

YR.1 0 YR.3 0 YR.6 0

The Port Angeles Landfill has been closed since December 2006. Special operations to address inherited environmental problems are in pre-planning stages.

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

Funding mechanisms regarding the cost of special operations at the Port Angeles Landfill is discussed in 3.7.3(c)

3.5.1(b) Provide the following information for each land disposal facility in your jurisdiction which receives garbage or refuse generated in the county.

Landfill Name: Neah Bay Landfill
Owner: Makah Tribal Council
Operator: Makah Tribal Council

3.7.1(a) Describe the program, or provide a page number reference to the plan.

Blue Mountain Drop Box & Recycling Center

3.7.1(b) Owner/Operator:

Owner: Department of Natural Resources, leased by Clallam County; Operator: Waste Connections, under contract with City of Port Angeles;

3.7.1(c) Is WUTC Regulation Involved? If so, please explain the extent of involvement in Section 3.8.

No.

3.7.1(d) Please estimate the anticipated costs for this program, including capital and operating expenses.

YR.1	\$103,000 (capital, plus operating including export/disposal)	YR.3	\$112,550 (3% per year increase by the Consumer Price Index).	YR.6	\$134,390 (same percent annual increase)
------	---	------	---	------	--

Please note that these costs include the drop off recycling operation.

3.7.1(e) Please describe the funding mechanism(s) that will recover the cost of this component.

Tipping fees.

3.7.2(a) Describe the program, or provide a page number reference to the plan.

Regional Transfer Station

3.7.2(b) Owner/Operator:

Owner: City of Port Angeles; Operator: Waste Connections

3.7.2(c) Is WUTC Regulation Involved? If so, please explain the extent of involvement in Section 3.8.

No

3.7.2(d) Please estimate the anticipated costs for this program, including capital and operating expenses.

YR.1	\$5,336,000 (capital, plus operating including export/disposal)	YR.3	\$5,663,022 (3% per year increase by the Consumer Price Index)	YR.6	\$6,188,135 (same percent annual increase)
------	---	------	--	------	--

Please note that these costs include the drop off recycling operation.

3.7.2(e) Please describe the funding mechanism(s) that will recover the cost of this component.

Tipping fees

3.7.3 (a) Describe the program, or provide a page number reference to the plan.

Port Angeles Landfill Bluff Project (see section 5.3.1.1)

3.7.1(b) Owner/Operator:

City of Port Angeles

3.7.1(c) Is WUTC Regulation Involved? If so, please explain the extent of involvement in Section 3.8.

No.

3.7.1(d) Please estimate the anticipated costs for this program, including capital and operating expenses.

YR.1 \$19.5M YR.3 \$ YR.6 \$

3.7.1(e) Please describe the funding mechanism(s) that will recover the cost of this component.

Bonds, other.

The Port Angeles Landfill has been closed since December 2006. Special operations to address inherited environmental problems are in pre-planning stages and estimates are subject to change. The strategy of the Landfill Bluff Cell Stabilization project involves a managed retreat of the WAC 173-304 compliant cell from the most vulnerable north east edge, and relocating that waste on-site to the WAC 173-351 compliant cell. The anticipated quantity is 250,000 cubic yards, all in 2014. At 65 lbs. per cubic foot, it is estimated that about 210,000 tons of municipal solid waste will be relocated. The design also includes new cover systems and storm drainage, leachate, and landfill gas systems. The project also includes measures to protect ends of the existing revetment wall from erosive scour. The revetment wall was constructed in 2006 and 2007, and protects the western half of the 304-compliant waste cell from shoreline erosion. Adverse weather could cause some of the work to be delayed to the summer of 2015. If additional funding becomes available, an additional 100,000 cubic yards will be relocated in 2015.

3.8 REFERENCES AND ASSUMPTIONS

(ATTACH ADDITIONAL SHEETS AS NECESSARY)

See the back of this chapter for documentation on sources of costs and other information.

4. FUNDING MECHANISMS

4.1 FUNDING MECHANISMS

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

Table 4-1 Facility Inventory

Facility	Type of Facility	Tip Fee per Ton	Transfer Cost	Transfer Station Location	Final Disposal Location	Total Tons Disposed (estimated for 2013)	Total Revenue Generated (Tip Fee x Tons)
Regional Transfer Station	Transfer	\$116.00 (collection entities) \$141.85.00 (self-haulers)	\$55.06 per ton	Port Angeles, WA	Roosevelt	41,000	\$4,715,690
Blue Mountain Drop Box & Recycling Center	Drop Box	\$237.40	\$55.06 per ton	Port Angeles, WA	Roosevelt	1,000	\$237,000
Composting Facility	Yard Waste & Biosolids Composting	\$44.95		Port Angeles, WA	N/A	5,400	\$230,000
Moderate Risk Waste Facility	Household Hazardous Waste Collection & Transfer	N/A		Port Angeles, WA	Variety, handled by PCS	45,793 lbs.(2012 actual)	N/A

Private landfills and transfer stations were not included in the inventory.

Table 4-2. Tip Fee Components

Facility	Surcharge	State & City Tax	Transportation and Disposal Cost	Operational Cost	Administration Cost	Closure Costs
Port Angeles Transfer Station	0	13.1%	47%	30%	9.9%	0
Blue Mountain Center	0	13.1%	23%	63.9%	1%	0

Table 4-3. Funding Mechanism

Name of Program Funding Mechanism will defray costs	Approximate Cost (2014)	Estimated Funding Mechanisms						
		Grant Name	Grant Amount	Tip Fee	Bond	Taxes	Collection fees	Other
Waste Prevention	\$36,466	Ecology G1400332	\$6,250 ^a	\$30,216	x	x	x	x
Recycling & Yard Waste Collection	\$783,466 ^b	Ecology G1400332	\$4,687 ^c	\$30,000	x	x	\$748,779 ^b	x
Composting Facility Operations	\$210,000	x	x	\$161,700	x	x	x	\$48,300 ^d
MRWF	\$90,000	Ecology G1400332	\$63,750 ^e	\$26,250	x	x	x	x
Landfill Bluff Project	\$19.5M	x	x	x	\$14.6M	x	x	\$4.9M

^a This portion of the grant covers outreach & education: 2 good2toss, backyard composting, hazardous waste education.

^b Sequim and Port Angeles programs combined

^c This portion of the grant covers outreach & education.

- d Estimated revenue from compost sales.
- e This portion of the grant covers operations & disposal from residential customers and education & outreach..

Table 4-4. Tip Fee Forecast

Tip Fee per Ton by Facility	Year One (2014)	Year Two (2015)	Year Three (2016)	Year Four (2017)	Year Five (2018)	Year Six (2019)
Regional Transfer Station	\$141/ \$173 ^a	\$164/\$200	\$176/\$216	\$190/\$233	TBD	TBD
Blue Mountain Center	\$237	\$275	\$296	\$ 318	TBD	TBD
Compost Facility	\$29.09/ \$47.70	\$30.54/ \$49.56	\$32.07/ \$52.04	\$34.56/ \$56.07	TBD	TBD

Source: FCS Group report for City of Port Angeles, proposed increases of 21.00% in 2014, 15.75% in 2015 7.75% in 2016, and 7.75% in 2017. Based on estimates, actual increases may vary.

- a. The first number listed is the tipping fee for collection companies, and the second number is the tipping fee for self-haulers. This applies to each year for both the Transfer Station and the Compost Facility.

4.2 FUNDING MECHANISM SUMMARY BY PERCENTAGE

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

4.2.1 Year One

Funding Mechanism by Percentage

COMPONENT	Tip Fee %	Grant %	Bond %	Tax %	Collection Rates %	Other %	Totals
Waste Reduction	62%	38%					100%
Recycling		5%			95%		100%
Collection					100%		100%
ER&I (N/A)	---	---	---	---	---	---	100%
Transfer	100%						100%
Land Disposal (N/A)	---	---	---	---	---	---	100%
Administration	80%					20%	100%
Landfill Bluff Project			75%			25%	

Note: The bond will be repaid over time with Solid Waste Utility revenue from tipping fees. If the additional funding is obtained, the ratios become 30% other and 70% bond.

4.2.2 Year Three

No changes to the funding mechanism percentages are proposed.

4.2.3 Year Six

No changes to the funding mechanism percentages are proposed.

4.3 REFERENCES AND ASSUMPTIONS

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

Only publicly owned or operated facilities were listed above. Private facilities were not included.

4.4 SURPLUS FUNDS

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

11. REFERENCES

- Beck 1988. R.W. Beck & Associates. Waste-to-Energy Feasibility Study for City of Port Angeles, December 1998.
- Built Green Clallam County. 2010. *Construction Recycling Directory*.
<http://www.builtgreencallam.org/crd.pdf>
- Built Green Clallam County. 2012. “*Deconstruction in Clallam County-Viable or Not?*” Strait Solutions LLC. Blyn, WA.
- Clallam County. 2013a. *Clallam County Code, Title 41: Board of Health Regulations*.
<http://www.codepublishing.com/WA/clallamcounty.html>.
- Clallam County. 2013b. *Code Enforcement*.
<http://www.clallam.net/sheriff/CodeEnforcement.html>
- Clallam County Conservation District. 2013. *5-Year Plan (2013 to 2018) Clallam Conservation District Resource Inventory*.
<http://www.clallamcd.org/storage/publications/2013%20Long%20Range%20Plan%20Resource%20Inventory.pdf>.
- City of Port Angeles. 2004. Permit Renewal Application Port Angeles Landfill, City of Port Angeles, Appendix C. Prepared by Parametrix, Kirkland, Washington. Port Angeles, Washington.
- City of Port Angeles, Public Works and Utilities Department. 2011. 2004–2010 Solid Waste Load Forecast, Working Draft. Port Angeles, Washington.
- City of Port Angeles. 2013. *Quantities of Yardwaste & Biosolids Composted at the Port Angeles Compost Facility: 2007-2012*. Unpublished data.
- Ecology (Washington State Department of Ecology). 2010. *Guidelines for the Development of Local Solid Waste Management Plans and Plan Revisions*. Publication no. 10-07-005.
<https://fortress.wa.gov/ecy/publications/summarypages/1007005.html>
- Ecology (Washington State Department of Ecology). 2004. *Results of a Screening Analysis for Pharmaceuticals in Wastewater Treatment Plant Effluents, Wells, and Creeks in the Sequim-Dungeness Area*.
<https://fortress.wa.gov/ecy/publications/publications/0403051.pdf>
- Ecology (Washington State Department of Ecology). 2006. *2005 Washington State Recycling Survey*.
- Ecology (Washington State Department of Ecology). 2009. *Beyond Waste Plan: Summary of the State of Washington Hazardous Waste and Solid Waste Management Plan*. Publication no. 09-07-026.
<https://fortress.wa.gov/ecy/publications/summarypages/0907026.html>.
- Ecology (Washington State Department of Ecology). 2010. *2009 Washington Statewide Waste Characterization Study*. Publication no. 10-07-02.
<https://fortress.wa.gov/ecy/publications/publications/1007023.pdf>

- Ecology (Washington State Department of Ecology). 2011a. *Solid Waste in Washington, Twentieth Annual Status Report. Publication no. 11-07-039.*
<https://fortress.wa.gov/ecy/publications/publications/1107039.pdf>.
- Ecology (Washington State Department of Ecology). 2011b. *Solid Waste Disposal Data by County (Landfilled and Incinerated:1994-2011).*
<http://www.ecy.wa.gov/programs/swfa/solidwastedata/>
- Ecology (Washington State Department of Ecology). 2012a. *Tipping Fees in Washington State.*
https://fortress.wa.gov/ecy/swicdocs/docs/State_Profile_Document/WA_Solid_Waste_Tipping_Fees_2012.pdf
- Ecology (Washington State Department of Ecology). 2012b. *2011 Washington State Recycling & Diversion Survey.*
- Ecology (Washington State Department of Ecology). 2013a. *Current Solid Waste System Issues: Solid Waste Generated and Recycled/Diverted.*
http://www.ecy.wa.gov/beyondwaste/bwprog_swGenRec.html.
- Ecology (Washington State Department of Ecology). 2013b. *Ecology Waste Tire Projects.*
<http://www.ecy.wa.gov/programs/swfa/tires/pdf/TireProjectTable.pdf>
- Ecology (Washington State Department of Ecology). 2013c. *Electronics Recycling.*
<http://www.ecy.wa.gov/beyondwaste/bwprogEWaste.html>
- Ecology (Washington State Department of Ecology) & WSU (Washington State University). 2005. *Biomass Inventory and Bioenergy Assessment: An Evaluation of Organic Material Resources in Washington State. Pub. 05-07-047.*
<https://fortress.wa.gov/ecy/publications/summarypages/0507047.html>
- Emergency Management Division. 2012. *Washington State Marine Debris Response Plan.*
http://marinedebris.wa.gov/docs/responseplan_marinedebris_09182012.pdf
- Freilich, Helen. 2013a. Clallam County/ City of Port Angeles 2good2toss Report 2005-2012.
- Freilich, Helen. 2013b. "Olympic Level Recycling." Washington State Recycling Association (WSRA) Report. July 2013.
- Green Solutions 2003. Clallam County Waste Composition Study. South Prairie, Washington.
- NOAA (National Oceanic & Atmospheric Administration). 2013. *Marine Debris.*
<http://marinedebris.noaa.gov/welcome.html>.
- NPI USA (Nippon Paper Industries USA). 2012. *COGEN.* <http://www.npiusa.com/co-gen/>
- OFM (Office of Financial Management). 1991-2011. 1990, 2000, & 2010 Census Summary Files. Office of Financial Management, Forecasting Division. Census Data: Clallam County. <http://www.ofm.wa.gov/pop/census2010/sf1/default.asp>

- OFM (Office of Financial Management). 2012a. *2012 Projections: County Growth Management Population Projections by Age and Sex: 2010-2040*.
http://www.ofm.wa.gov/pop/gma/projections12/GMA_2012_county_pop_projections.pdf
- OFM (Office of Financial Management) 2012b. *April 1, 2012 Population of Cities, Towns and Counties Used for Allocation of Selected State Revenues*.
<http://www.ofm.wa.gov/pop/april1/default.asp>
- ORCAA (Olympic Region Clean Air Agency). 2012. *Current Air Operating Permits*.
<http://www.orcaa.org/services/air-operating-permits>.
- ORCAA (Olympic Region Clean Air Agency). 2013. *DNR program helps keep air clean while preventing wildfires*. <http://news.orcaa.org/tag/clallam-county/>.
- Parametrix 1993. Solid Waste Disposal Feasibility Study conducted for the City of Port Angeles.
- Parametrix 2004. Clallam County Construction, Demolition, and Land-Clearing Debris Waste Assessment.
- Philips Service Corp. 2007. MRW Facility Operations Plan. Port Angeles: PSC.
- PSR 1983. Paul S. Running & Associates. Makah Comprehensive Solid Waste Management Plan. June 30, 1983.
- Quillayute Valley School District. 2012. *Biomass Project Summary*.
<http://www.forks.wednet.edu/CapitalProjects/BiomassPlant/tabid/6009/Default.aspx>
- RTI (Rural Technology Initiative). 2005 Working Paper 3. Option for Cedar Mill Waste Utilization and Disposal in Western Clallam and Jefferson Counties. June 2005.
- SCS 1988. SCS Engineers. City of Forks Waste-to-Energy Feasibility Study. November 1988.
- SCS Engineers. 2007. Blue Mountain Drop-Box and Recycling Center Operations Plan. Bellevue: SCS Engineers.
- SCS Engineers. 2007. Co-Composting Facility Operations Plan: Port Angeles Transfer Station. Bellevue: SCS Engineers.
- SCS Engineers. 2006. Port Angeles Transfer Station Operational Plan. Bellevue: SCS Engineers.
- Siemens. 2006. Feasibility Study – Biomass Energy Solution. May 2006.
- Spokane Regional Solid Waste System (SRSWS). 2011. *Spokane Regional Solid Waste System: 2011 – A Year in Review*.
http://www.solidwaste.org/uploads/SRSWS_Annual_Report_2011_Final.pdf
- U.S. Census Bureau. 2013. State and County QuickFacts: Clallam County, WA. State & County Quickfacts. <http://quickfacts.census.gov/qfd/states/53/53009.html>.

Washington Center for Real Estate Research. 2013. Growth and Real Estate in Clallam County.

<http://www.warealtor.org/government/legsession2013/legday2013/Growth%20and%20Real%20Estate%20in%20Clallam%20County.pdf>.

APPENDIX A

Recommendations

APPENDIX A

Recommendations

COLLECTION

The following recommendations are made for changes in the solid waste collection system in Clallam County:

- Consider a combined service ordinance for Clallam County for curbside recycling pick up where curbside garbage collection occurs. (CO1)
- Clallam County should further investigate the impacts of instituting universal collection service across the county. (CO2)

TRANSFER

The following recommendations are made for changes in the transfer system in Clallam County:

- The Clallam County SWAC, JSWAB, and other governmental agencies should continue to work together to develop plans and programs, while also continuing to explore viable alternatives, for waste export and transfer and related options. For example:
 - Should access or capacity become an issue at the Blue Mountain Drop Box and Recycling Center, consider extending the hours of operation and/or adding additional drop boxes.
 - Should unlawful disposal or access to the transfer/drop box facilities from remote areas of eastern Clallam County become an issue, consider siting an additional drop box facility to serve this area. (T1)
- Study the possibility of placing additional containers at all transfer and drop box sites to collect source-separated yard wastes (see discussion in Section 6.4.4) and to collect additional recyclable materials (see discussion in Section 6.3.4). One of the better methods for determining the need for additional containers is careful observations on the types and amounts of materials currently being disposed at the transfer and drop box facilities. (T2)
- Obtain funding for a waste characterization study at Regional Transfer Station. The last county specific study was in 2003. If funding cannot be obtained, develop a plan for periodically monitoring municipal solid waste received at transfer and drop box facilities, with an emphasis on noting significant quantities of potentially-recyclable materials (yard waste, scrap metals, textiles, etc.). These results should be included in the annual summary of the Regional Solid Waste Export & Transfer System recommended in Regulation & Administration. (T3)
- Consider user fees at the transfer and drop box facilities for recyclable materials if cost of service determines that collection of recyclables becomes a significant net loss for the transfer stations. Do not implement user fees without the concurrence of the Clallam County SWAC, JSWAB, Port Angeles City Council and County Commissioners. Furthermore, announce any user fees at least 90 days in advance, and prepare and distribute a flyer or brochure explaining the new system beginning at least one month in advance. (T4)

INCINERATION & ENERGY RECOVERY

The following recommendations are being made for incineration and energy recovery facilities:

- Evaluate new proposed incineration projects for select waste streams and/or locations based on an objective review of the potential impacts to human health and environmental quality, as well as a comparison to alternative disposal methods. (I1)
- Investigate and develop proposals for energy recovery methods, on a case by case basis. (ER1)
- Work with City of Port Angeles staff to continue to evaluate a range of opportunities to use the LFG produced at the city-owned landfill. (ER2)

IN-COUNTY LANDFILLING

The following recommendations are made for in-county landfilling, including closed landfill oversight, in Clallam County:

- Consider the range of alternatives necessary to reduce or eliminate the risk of refuse from entering the marine environment and to slow down the rate of bluff erosion at the Port Angeles Landfill. (LF1)
- Maximize the development of appropriate state and federal grant funding to reduce impacts to utility ratepayers when implementing corrective actions at the Port Angeles Landfill. (LF2)
- Consider reopening the existing WAC 351-compliant MSW disposal cell at the Port Angeles Landfill necessary to accommodate partial or complete removal of waste from the 304-compliant cell to reduce or eliminate the risk of refuse from entering the marine environment. (LF3)
- Support post-closure activities at the Neah Bay Landfill. (LF4)
- Consider proposals and options to develop special-purpose landfills, such as wood waste or construction and demolition waste landfills, as they are proposed. (LF5)

WASTE IMPORT

No recommendations are being made for waste import.

WASTE EXPORT

The following recommendations are made for waste export:

- Continue to export solid and other permitted waste from the Regional Transfer Station to out of county regional landfills. (WE1)
- Encourage West Waste to continue their waste export activities and to possibly expand these activities as needed to serve additional west end customers. (WE2)
- In preparation for natural disaster, require any contracts with private businesses for waste export services to identify alternative disposal plans, including alternative routes and modes of transportation. Any regional solid waste landfill used for

Clallam County waste must meet or exceed all Minimum Functional Standards requirements. (WE3)

WASTE PREVENTION

The following recommendations are made for waste prevention activities in Clallam County:

- Continue public information and education with themes of reducing the weight and volume of waste collected; increasing material and product life through repair and reuse; reducing or eliminating packaging; and decreasing product consumption.

Share the responsibility for this with cities, Tribal Councils, and schools, with private sector involvement as appropriate. A shared approach will improve results through increased exposure to information on waste prevention, and because individuals may be more receptive to information from one source over another. Whenever possible, public information materials should be distributed electronically to reduce waste and mailing costs. (WP1)

- Encourage the formation of citizen advisory/action groups to help with public education efforts. Such committees could provide general waste reduction policy research, advice to government entities, educational outreach, and volunteer support for waste reduction opportunities; it could be a subcommittee of SWAC. (WP2)
- Use existing County and city websites to promote residential and business waste prevention. Facilitate interest and currency using new approaches such as social media, video and local event calendars. At a minimum, provide a link from the County and City of Port Angeles websites to existing waste reduction program web pages. (WP3)
- Conduct waste audits, targeting small to medium-sized businesses first, on the assumption that the larger businesses have the staff and other resources to best meet their needs. Assistance in conducting the waste audits could be provided by volunteers (e.g., the citizen advisory/action group). Consider the idea of waste exchanges and similar activities directed specifically at businesses for future implementation. (WP4)
- Provide an example for the above businesses by adopting WasteWi\$e or developing waste reduction programs within the County and its municipalities. (WP5)
- Recognize businesses that do a good job of implementing waste reduction programs and practices. (WP6)
- Pursue funding and opportunities for public/private partnerships and programs that target organic waste reduction. (WP7)
- Support reuse events organized and implemented by others. (WP8)

RECYCLING

The following recommendations are made for recycling programs in Clallam County:

- The SWAC recommends a goal of a 30 percent recycling rate within the next 5 years, with an eventual goal of 40 percent recycling for the County in the long term. The recycling rate is currently at about 26 percent. (R1)
- Continue to collect the following recyclables currently accepted in Clallam County including but not limited to: newspaper, cardboard, mixed paper, glass, aluminum

and tin cans, all other metals, plastic bottles (PET and HDPE), rigid plastics, concrete, asphalt, clean wood waste, white goods and special wastes such as motor oil, car batteries and antifreeze. (The diversion of yard debris is discussed in the next section on composting.)

Not all of these materials can be collected by all of the programs in the county. If it becomes necessary to change this list of recyclables, a process as outlined in 6.3.1.2 will ensue. At a minimum the list of recyclables will be evaluated annually to ensure that the proper materials are being targeted by the program, undertake efforts to expand amounts and grades of materials as markets allow. (R2)

- Promote recycling at multi-family properties. Use the results of the 2012-2013 Washington State Recycling Association survey of multi-family recycling to understand the barriers and solutions in other part of the state. Consider restructuring commercial rates to make recycling an economical alternative for these properties. (R3)
- Continue public education efforts. Share the responsibility for this with the cities, Tribal Councils, and schools, with private sector involvement as appropriate. Consider new, low cost approaches such as social media and other expanded outreach on municipal websites. (R4)
- Consider the possibility of establishing curbside recycling where they don't exist, and support opportunities to include recycling in curbside collections on Tribal Reservations. (R5)
- Maintain existing drop-off sites and consider additional sites in the county. (R6)
- Continue and improve school recycling collection and education programs to increase recycling tonnages and to reinforce other education efforts. (R7)
- Continue to educate about the requirement for recycling at special events such as sport activities and public festivals. Cooperate with private haulers, festival organizers, and volunteers to provide recycling bins and collection. (R8)
- Monitor and consider any proposals for the processing of recyclables within the County that may reduce the cost of exporting materials while creating jobs within the county. (R9)
- The public sector should lead by example. Consider expanded recycling programs and adopting policies such as environmentally preferred purchasing of recycled materials within county and city departments. (R10)
- The County and cities should encourage companies and agencies engaged in collection or processing recyclables and diverted materials to file reports on their activities on an annual basis, as required by Ecology. (R11)
- Establish outdoor public space recycling as a pilot program at select city and county parks, downtowns, and at public transit bus stops as a cooperative venture between government, hauling companies, and business owners. (R12)

COMPOSTING

To achieve the County's diversion goals, the following recommendations regarding composting should be continued or implemented:

- Continue curbside collection, processing, and composting yard waste at the Port Angeles Composting Facility. Increase the amount of materials processed to the extent of the facility's capacity. (C1)
- Work to eliminate illegal dumping and burning of yard waste, therefore increasing diversion to compost facilities. (C2)
- Continue to develop end uses such as mulch, hog fuel, and compost, and other uses that may also be identified. Lead by example. The County and cities should maximize use of these products in their own projects. (C3)
- In addition to Port Angeles and Sequim, separate collection of yard debris could be considered by Murrey's Olympic Disposal and West Waste in their respective solid waste collection service areas if customers demand it and yard waste is found in the garbage. (C4)
- Encourage neighborhood chipping services. (C5)
- Investigate economical and efficient options for handling food waste. (C6)
- Continue public education to encourage residents to handle their yard debris and food wastes separately through strategies such as backyard composting and use of mulching mowers. Continue working with WSU Extension to offer the Master Composter Program in Clallam County and other outreach programs. (C7)

SPECIAL WASTES

Agricultural Wastes

The following recommendations are made for the management of agricultural wastes in Clallam County:

- The Clallam Conservation District and Natural Resource Conservation Service should continue to work with producers around the County to implement Best Management Practices to minimize the potential contamination of surface waters with agricultural waste. (AG1)
- Monitor and consider any proposals for processing of agricultural wastes within the County that may increase the ability to process additional amounts of organic wastes while reducing greenhouse gas output. (AG2)

Animal Carcasses

The following recommendation is made for animal carcasses:

- Monitor aquaculture industries for waste management issues. (AN1)

Ash

The following recommendations are made for changes in the management of ash in Clallam County:

- Continue to encourage the ash-producing companies to explore recycling or other disposal alternatives first. For example, encourage them to investigate land application and industrial uses such as in concrete or fertilizer. (ASH1)

Auto Hulks

The following recommendations are made regarding auto hulks:

- Continue to identify ideas and alternatives for managing the disposal or accumulation auto hulks. One option may be to support stronger enforcement of the County ordinance regarding auto hulks. (AUTO1)

Biomedical Wastes

The following recommendation is made for biomedical wastes:

- Monitor disposal of biomedical wastes by small biomedical waste generators for potential problems or risks. Provide increased education or other services as necessary. (BW1)

Biosolids

No recommendations regarding biosolids are made at this time.

Construction, Demolition and Land-Clearing (CDL) Wastes

The following recommendations are made for changes in the management of CDL in Clallam County:

- Promote existing opportunities for recycling of CDL wastes as part of the public education efforts conducted for waste reduction and recycling. In particular, the County should help promote the Built Green concept. (CDL1)
- Enhance the recycling of CDL wastes by establishing expanded markets for the materials. These markets include using processed concrete and asphalt concrete for county and municipal public works projects, especially roads and utilities, and processing clean wood material as hog fuel for area hog-fuel boilers. Education and public information on alternatives available would be a fundamental component of this program. (CDL2)
- Consider the development of a limited purpose disposal site for non-recyclable CDL wastes if existing methods for disposing or diverting the waste are inadequate. If a separate site is developed and if sufficient quantities of recoverable materials are observed being disposed at this site, additional recycling operations should be considered for those materials. (CDL3)

Contaminated Soils

Recommendations regarding contaminated soils include:

- Explore new technologies for managing contaminated soil. (CS1)

Derelict Vessels

No recommendations regarding derelict vessels are made at this time.

Electronic Wastes

These recommendations were made regarding electronic wastes:

- Clallam County should continue to work with and educate the public on how to handle electronic waste. (EW1)

- Clallam County should consider additional E-Cycle locations, especially on the west end. (EW2)

Marine Debris

The following recommendations are made regarding marine debris:

- Continue to provide outreach and education to the public on proper response and prevention of marine debris. Coordinate communication and outreach efforts with state and federal partners for consistent messaging. (MD1)

Moderate Risk Wastes

Recommendations regarding Moderate Risk Wastes are contained in Appendix D: The Hazardous Waste Management Plan.

Pharmaceutical Wastes

The following recommendations are made regarding pharmaceutical wastes:

- CCEH should continue to work with the two hospital districts, law enforcement, retail suppliers, and other healthcare providers to maintain public education programs on how to properly dispose of pharmaceutical waste. (PW1)
- Clallam County and the City of Forks should consider establishing a pharmaceutical take back program to serve west end residents. (PW2)

Street Sweepings

No recommendations regarding street sweepings were made at this time.

Tires

No recommendations regarding tires are made at this time.

Wood Wastes

The following recommendations are made for changes in the management of wood waste in Clallam County:

- Explore the possibility of recovering additional amounts of wood waste through use as composting or hog fuel. (WD1)
- Consider proposals for alternative methods for managing wood waste, such as biogas to energy, on a case by case basis. (WD2)
- Should the amount of wood waste managed in the solid waste stream increase substantially due to markets, regulations, or other outside influences, the SWAC should collaborate with private companies to develop new ideas for managing this waste stream. (WD3)

OTHER WASTE PROBLEMS

Pet Wastes

No recommendations were made regarding pet wastes at this time.

REGULATION & ADMINISTRATION

The following recommendations are made regarding Regulation & Administration:

- Clallam County and the Cities of Port Angeles and Sequim should continue to meet their respective commitments, as specified in the ILA for the Regional Solid Waste Export and Transfer System. (RA1)
- Develop a consistent methodology for assessing the effectiveness and needs of the solid waste program, including such measurements as greenhouse gas emissions of the solid waste system and cost analyses. Provide a comprehensive analysis of solid waste activities in an annual summary of the Regional Solid Waste Export & Transfer System. (RA2)
- Clallam County should consider adopting a flow control ordinance. (RA3)
- Clallam County should consider establishing a position of Solid Waste Planning Lead to coordinate county-wide solid waste activities. (RA4)
- Investigation into the benefits and drawbacks of creating a solid waste disposal district in Clallam County. (RA5)

APPENDIX B

ILA and Resolutions for Adoption of CSWMP

INTERLOCAL AGREEMENT REGARDING
REGIONAL SOLID WASTE EXPORT AND TRANSFER SYSTEM
COOPERATION AND IMPLEMENTATION

THIS AGREEMENT is executed by and among Clallam County ("County"), and the City of Sequim and the City of Port Angeles (the "Cities"); (the County and the Cities are collectively referred to herein as "the Parties") for the purposes of providing for competitively-priced regional solid waste export and transfer system facilities and services; promoting the health, safety and welfare of the County's and City's residents; and protecting the natural environment throughout the County. The Parties enter into this Interlocal Agreement ("Agreement") effective as of the date set forth in Section 10(A) for the purposes and under the terms contained herein.

WHEREAS, the Parties have cooperated in developing and implementing the County's Comprehensive Solid Waste Management Plan ("the Plan") pursuant to Chapters 35.21, 36.58 and 70.95 RCW on behalf of the County and the City; and

WHEREAS, the Plan recommends exporting solid waste to meet future disposal needs of the residents, businesses, visitors and institutions within the Cities and the County; and

WHEREAS, the Plan recommends using interlocal agreements to create the institutional arrangements needed to implement the Plan; and

WHEREAS, the Plan recommends closing the Port Angeles Sanitary Landfill, the only operating municipal solid waste landfill in Clallam County serving the area from Lake Crescent eastward, as depicted in the map and legal description attached hereto as Exhibit A, when it reaches capacity (projected by the end of 2006), and citing a transfer station at the Port Angeles Sanitary Landfill, for the purposes of exporting solid waste for final disposal after the landfill is closed; and

WHEREAS, in anticipation of the closure of the Port Angeles landfill and in recognition of the absence of alternative local landfill sites, the Parties desire to cooperate to provide for a Regional Solid Waste Export and Transfer System consistent with the Plan; and

WHEREAS, by entering into an interlocal agreement providing for each Party's cooperation, the Parties can more effectively and efficiently implement the Plan and procure management of the Regional Solid Waste Export and Transfer System; and

WHEREAS, the Plan anticipates that the Regional Solid Waste Export and Transfer System facilities will be located at the current site of the Port Angeles Sanitary Landfill, will be operated by the City of Port Angeles or a private company under contract with the City of Port Angeles, and will be utilized by the City of Port Angeles, City of Sequim, and the County and by the private solid waste collection companies that serve the City and unincorporated area of the County from Lake Crescent eastward; and

WHEREAS, the City of Port Angeles has been responsible for accumulating closure and post-closure funds as required by law for the Port Angeles Landfill; and whereas the Parties intend for the Regional Solid Waste Transfer and Export System funding arrangement to provide for any additional funds related to unmet or unanticipated Port Angeles Landfill requirements provided, however, that this shall not make Clallam County or the City of Sequim separately or individually obligated for liabilities arising from Port Angeles' landfill site; and

WHEREAS, the Parties intend that a portion of the tipping fees for the Blue Mountain Transfer Station be collected to continue to pay for the lease fee and upkeep costs for this site presently being covered by the Blue Mountain Drop Box fees collected by the County; and

WHEREAS, the Parties are authorized and empowered to enter into this Agreement pursuant to Chapters 39.34 and 70.95 RCW.

THEREFORE, in consideration of mutual promises and covenants herein, and in order to implement the terms of the County's Comprehensive Solid Waste Management Plan, the Parties agree:

Section 1.

Definitions: Except for the terms defined in this section, and unless the context indicates otherwise, for the purposes of this Agreement and any related agreements, the Parties shall use the definitions found in RCW 70.95.030 and WAC 173-350, as they may be amended.

"Agreement" means this interlocal agreement.

"Cities" means the City of Port Angeles and the City of Sequim, Washington.

"County" means Clallam County, Washington.

"Ecology" means the Washington State Department of Ecology or its successor agency.

"Plan" means the Clallam County Comprehensive Solid Waste Management Plan as amended in accordance with this Agreement.

"Solid Waste Advisory Committee" is an advisory committee whose members are appointed by the County Commissioners to advise them on solid waste matters.

"Regional Solid Waste Export and Transfer System" means the facilities owned by and/or contracted by, the City of Port Angeles, where deposit, processing, recycling, composting, moderate-risk waste handling, and transfer of solid waste for disposal through a long-haul contract occurs. This will include the Blue Mountain drop-box site, facilities, and operations, unless the Board of Clallam County Commissioners determines in its sole discretion at any time during the term of this agreement that the Blue Mountain drop-box facilities should no longer be operated.

"Vendor" means either the City of Port Angeles or any company or person with whom the City of Port Angeles contracts for any or all of the design, construction, ownership, or operation of the Regional Solid Waste Export and Transfer System.

Section 2. Responsibilities of the County. The County shall:

- A. Process consideration of amendments to the Plan that are submitted by the Joint Solid Waste Advisory Board to the Solid Waste Advisory Committee to provide for disposal of all non-recyclable solid waste generated in the unincorporated areas of the County from Lake Crescent eastward at the Regional Solid Waste Export and Transfer System site(s) to the extent permitted by law. The Regional Solid Waste Export and Transfer System will be the only designated Export and Transfer System in the County East of Lake Crescent for the term of this Agreement.
- B. Process consideration of amendments to the County's zoning code, solid waste facility permitting process ordinance, and other applicable ordinances to prohibit solid waste transfer and export facilities that are not consistent with the Plan and to designate the Regional Solid Waste Export and Transfer System as the County's solid waste system consistent with the Plan and RCW 36.58.040, to the extent permitted by law.
- C. Make a good faith effort to negotiate and execute with Jefferson County an interlocal agreement requiring each county to amend its comprehensive solid waste management plan and other related ordinances and agreements, to the extent permitted by law, to prohibit accepting waste generated outside its boundaries at disposal sites within said county; unless approved as an emergency.
- D. Consider forming a solid waste disposal district in the eastern part of the County, to the extent it may become necessary to provide a dedicated source of funds to help finance the capital and operations and maintenance costs associated with the Solid Waste Export and Transfer System.

- E. Shall not construct or have constructed any municipal solid waste export and transfer system in the eastern part of Clallam County without the approval of the Joint Solid Waste Advisory Board.
- F. Participate in developing the request for qualifications/proposals and selecting the contractor(s), for designing, building and if appropriate operating the Solid Waste Export and Transfer System facilities, disposal services, and long haul services.
- G. Appoint representatives to the Joint Solid Waste Advisory Board.
- H. Negotiate and administer the land lease between the County and the Washington Department of Natural Resources enabling the continuation of drop box services at Blue Mountain.
- I. Encourage recycling efforts to the maximum extent possible for yard debris, special wastes, and CDL (construction, demolition, and land clearing waste) programs to minimize the amounts of material for waste export.

Section 3. Responsibilities of the City of Port Angeles. The City of Port Angeles shall:

- A. Conduct a procurement process for selecting one or more Vendors to provide solid waste export and transfer system facilities, services to operate the facilities if appropriate, disposal services, and long-haul services consistent with the Plan;
- B. In consultation and cooperation with the County, either provide itself, or enter into and administer a contract with one or more Vendors for, solid waste export and transfer system, and disposal services for the Parties consistent with the Plan; and
- C. In consultation and cooperation with the County establish a Joint Solid Waste Advisory Board that will review policies, procedures, costs, rates and will operate as an advisory group to the City of Port Angeles.
- D. Provide administrative service related to the operation of the Regional Solid Waste Export and Transfer System site(s) and long-haul service including but not limited to:
 - 1. Act as custodian of the Regional Solid Waste Export and Transfer System/landfill enterprise fund created under this Agreement.

2. Incorporate in its annual budget the budget for Regional Solid Waste Export and Transfer System services under this Agreement including, but not limited to revenues, administrative costs of the Parties, direct costs, indirect costs according to approved cost allocation plans, personnel services, insurance and land leases.
 3. For facilities that are operated by the City of Port Angeles as part of the solid waste export and transfer system, provide for administrative service including, but not limited to personnel services and insurance.
- E. Provide a site at the existing site of the Port Angeles Sanitary Landfill for the regional Solid Waste Export System facilities at no cost to the Parties.
 - F. The Blue Mountain operations and facilities will be included in the enterprise fund of the Regional Solid Waste Export and Transfer System with consideration of increased service, if approved by the Joint Solid Waste Advisory Committee.
 - G. Direct solid waste collected within the City of Port Angeles (whether collected directly by the City of Port Angeles or by a solid waste collection company) to the Vendor selected through the procurement process; take reasonable action to enforce such direction, including but not limited to entering into a long term contract that requires disposal of solid waste generated in the City of Port Angeles at the Regional Solid Waste Export and Transfer System facilities; and if the City of Port Angeles ceases to operate its own solid waste collection system, then the City shall require that any contract with solid waste haulers provides that solid waste hauled is disposed of at the Regional Solid Waste Export and Transfer System facilities consistent with the Plan.
 - H. Process consideration of an ordinance designating the Regional Solid Waste Export and Transfer System as the City's solid waste system consistent with the Plan and RCW 35.21.120, and amendments to the City's zoning code and other applicable ordinances to prohibit solid waste facilities that are not consistent with the Plan.
 - I. Cooperate with the County in the formation of a disposal district to the extent the district includes incorporated areas of the City of Port Angeles.
 - J. Encourage recycling efforts to the maximum extent possible for yard debris, special wastes, and CDL (construction, demolition, and land clearing waste) programs to minimize the amounts of material for waste export.

Section 4. Responsibilities of the City of Sequim. The City of Sequim shall:

- A. Direct solid waste collected within the City of Sequim (whether collected directly by the City of Sequim or by a solid waste collection company) to the Regional Solid Waste Export and Transfer System facilities consistent with the Plan.
- B. Appoint representatives to the Joint Solid Waste Advisory Board.
- C. Encourage recycling efforts to the maximum extent possible for yard debris, special wastes, and CDL (construction, demolition, and land clearing waste) programs to minimize the amounts of material for waste export.

Section 5. Responsibilities of additional parties. Additional parties to this Agreement shall:

- A. Direct solid waste (except yard debris and composting operations and materials) collected within the jurisdictional area of the additional party (whether collected directly by the additional party or by a solid waste collection company) to the Vendor selected through the procurement process; take reasonable action to enforce such direction, including but not limited to entering into a long term contract with the City of Port Angeles for disposal of solid waste generated in the jurisdictional area of the additional party at the Regional Solid Waste Export and Transfer System facilities; and if the additional party ceases to operate its own solid waste collection system, then the additional party shall require that any contract with solid waste haulers provides that solid waste hauled is disposed of at the Regional Solid Waste Export and Transfer System facilities consistent with the Plan; and
- B. Cooperate in implementing Plan elements.
- C. Adopt a resolution by the additional party's governing body approving the designation of the Regional Solid Waste Export and Transfer System as the additional party's solid waste system consistent with the Plan and RCW 35.21.120, and amendments to the additional party's zoning code and other applicable ordinances to prohibit solid waste facilities that are not consistent with the Plan. The resolution and amendments to zoning code and other applicable ordinances shall be made concurrent with or prior to the additional party accepting an amendment to this Agreement to include the additional party.

- D. Cooperate with the County in the formation of a disposal district including adoption of a resolution by the additional party's governing body approving the district to the extent the district includes incorporated areas of the additional party. The resolution shall be made concurrent with or prior to the additional party accepting an amendment to this Agreement to include the additional party. Incorporated areas of Sequim shall not be included in said disposal district.
- E. Encourage recycling efforts to the maximum extent possible for yard debris, special wastes, and CDL (construction, demolition, and land clearing waste) programs to minimize the amounts of material for waste export.

Section 6. Duration of Agreement:

- A. Except as provided in paragraph 6.B, this Agreement shall be in full force and effect from and after its effective date, as set forth in Section 10(A), and shall remain in force for 20 years from the date the Regional Solid Waste Export and Transfer System first commences commercial operations. Any changes to this Agreement must be agreed upon by all Parties. This Agreement shall automatically be extended for a period of five (5) years unless notice is given by any Party to the other parties within eighteen (18) months prior to the expiration of the original twenty (20) year term, and in writing, that they do not desire to extend the agreement.
- B. The City of Sequim, at their option, may withdraw from the Agreement at the end of 5th, 10th, or 15th year from the date of signature of the Agreement by providing 6 month prior written notice of such intent to the Joint Solid Waste Advisory Board. Otherwise, the City of Sequim will automatically remain a party to the Agreement through at a minimum the next 5 year interval.

Section 7. Governance and Rates.

- A. Joint Solid Waste Advisory Board: A Joint Solid Waste Advisory Board (JSWAB) shall be established. The Board will be composed of staff from the Parties to this Agreement. The Board will act as an advisory committee to the Port Angeles City Council, the Sequim City Council, and the Clallam County Solid Waste Advisory Committee and others as necessary. Although Clallam County, the City of Sequim, and the City of Port Angeles may each be represented by multiple members on the JSWAB in accordance with 7(B), each Party shall only be entitled to a single vote on recommendations to the Port Angeles City Council, the Sequim City Council, and the Clallam County Solid Waste Advisory Committee and others as necessary.

- B. Membership Body: The JSWAB shall consist of the following members: (1) Director of Public Works Clallam County, (2) Director of Public Works and Utilities City of Port Angeles, (3) Director of Public Works and Utilities City of Sequim (4) Solid Waste Superintendent City of Port Angeles, (5) Utilities Division Manager or designee from Clallam County. The Board shall draw upon other staff members from the agencies as necessary and appropriate to assist in carrying out its duties.
- C. Officers and Procedures: The JSWAB shall select a chair and such other officers as deemed necessary to conduct business. The Board shall adopt rules and procedures it deems necessary for the proper and efficient conduct of its business.
- D. Meetings: The JSWAB shall be responsible to fix a time and place for its meetings.
- E. Powers and Duties: The JSWAB shall have the following powers and duties:
1. Make recommendations for the management and operation of the Regional Solid Waste Export and Transfer System operated under this Agreement.
 2. Submit budget recommendations to the participating jurisdictions for action.
 3. Review and recommend fees and charges and for services related to disposal, operation of facilities, transfer and disposal of solid waste associated with the Regional Solid Waste Export and Transfer System, and for disposal districts.
 4. Review and recommend amendments to the Plan to the Solid Waste Advisory Committee. Review and recommend amendments to this Agreement to the Parties of this Agreement.
- F. Enterprise Fund: There shall be maintained an enterprise fund separate from all other funds within the City of Port Angeles into which revenues received from the Parties to this Agreement, fees, charges, and any other revenues associated with the operation and management of the Regional Solid Waste Export and Transfer System shall be deposited. This fund shall be part of the City of Port Angeles annual budget and administered in accordance with the City of Port Angeles budget regulation and guidelines. Expenditures from the fund shall be made only for the Solid Waste Export and Transfer System and landfill projects and closure and post closure costs not captured during the operation of the landfill activities, including actual administrative costs of the Parties pursuant to

their obligations under this agreement, the comprehensive solid waste plan, state and federal laws.

- G. Costs: The costs of solid waste disposal and management of all Parties to this Agreement not otherwise reimbursed shall be included in the operation of the enterprise fund. These costs shall include, but not be limited to, operation of transfer sites, long haul, recycling operations, composting, capitalization of facilities and equipment, administrative costs, planning, and other costs directly related to regional Solid Waste Export and Transfer System/Landfill operations. The JSWAB shall determine inclusive costs which shall be fair, reasonable and equitable to all Parties of this Agreement when making budget recommendations to the City of Port Angeles City Council.
- H. Fees and Charges: Fees for disposal shall be fair, reasonable and equitable and shall be applied equally throughout the jurisdiction of all participating Parties at the Port Angeles regional site. Fees shall be determined based on the cost of service and may be set in various amounts based on differences in waste types, the type of facility receiving that waste, commercial and self-haulers, and for any other fair, reasonable and equitable reason permitted by law. A separate fee structure may be developed for the Blue Mountain site, which shall be sufficient to cover all costs associated with operation of the Blue Mountain site. A surcharge or higher rate may be charged for solid waste collected within jurisdictions that are not signatories to this Agreement.

Section 8. Access to Records: Duly authorized representative of the Parties to this Agreement shall have the right to inspect the records of the JSWAB and the accounts and records of the City of Port Angeles relating to solid waste disposal and transfer operations at any reasonable time.

Section 8. Assets and Liabilities: On termination of this Agreement, any assets owned separately by a Party shall remain the property of that Party. In entering into this Agreement, no Party assumes liability for the actions or activities of the other, except as provided by law or as may be agreed by the Parties.

Section 10. Miscellaneous Provisions

- A. Effective Date: This Agreement shall take effect the first date on which all Parties have taken all necessary action to authorize and execute this Agreement.
- B. Amendment. This Agreement may be amended only in writing and only by agreement of all Parties except as set forth in this section. The Parties hereby agree that this Agreement may be amended to allow any other governmental entity within Clallam County, tribes and the Town of Forks, to join as an additional party. Additional parties joining shall not be members of the JSWAB. Additional parties shall be bound by all provisions

of this Agreement.

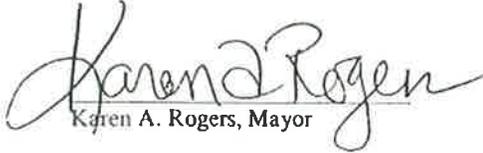
- C. Withdrawal: A Party may withdraw from this Agreement only upon unanimous agreement of all Parties (except as provided in paragraph 6.B of this agreement).
- D. Non-Waiver: No waiver by any Party of any term or condition of this Agreement shall be deemed or construed to constitute a waiver of any other term or condition or of any subsequent breach whether of the same or of a different provision of this Agreement.
- E. No Third-Party Beneficiary: This Agreement is entered into to protect the public health, safety and welfare of the residents of the Cities and County and to promote the effective and efficient disposal or other handling of solid waste in the Cities and the County. This Agreement is not entered into with the intent that it shall benefit any party not signing this Agreement, and no other person or entity shall be entitled to be treated as a third-party beneficiary of this Agreement.
- F. Assignment: Upon the creation of a solid waste disposal district pursuant to Ch. 36.58 RCW, the County and any City opting into such a disposal district may assign its rights and obligations under this Agreement to the solid waste disposal district. No other assignment of this Agreement is permitted without the prior written consent of all Parties.
- G. Severability: If any provision of this Agreement is determined to be invalid, the remaining provisions shall continue in full force and effect.
- H. Counterparts: This Agreement may be executed in two or more counterparts, and each such counterpart shall be deemed to be an original instrument. All such counterparts together will constitute one and the same Agreement.
- I. Risk Allocation - Liability: As among the Parties, the City of Port Angeles shall assume the risk for all activities and liabilities arising from the ownership and operation of the Regional Solid Waste Export and Transfer System and the Port Angeles landfill and shall hold harmless from the defense costs and liability Clallam County and the City of Sequim, except that Clallam County shall assume the risk from all activities and liabilities arising from the ownership and operation of the Blue Mountain facility. It is agreed among the Parties that the cost of liability insurance for such risk shall be considered an operation cost of the Regional Solid Waste Export and Transfer System and that any uninsured risk which results in a cost to the City and or County may be recovered by an appropriate increase in rates to cover any uninsured loss.

IN WITNESS WHERE OF, this agreement is executed by Clallam County and by the City of Port Angeles, Washington.

Dated this 27th day of Feb, 2007. Dated this 6th day of Feb, 2007.

CITY OF PORT ANGELES

CLALLAM COUNTY BOARD OF COMMISSIONERS


Karen A. Rogers, Mayor

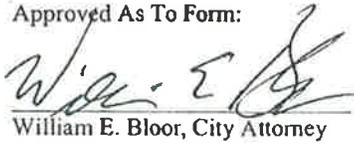

Stephen P. Tharinger, Chair

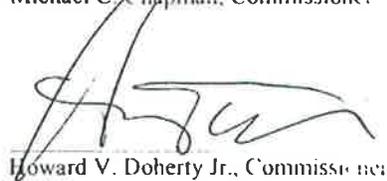
Attest:


Becky Upton, City Clerk


Michael C. Chapman, Commissioner

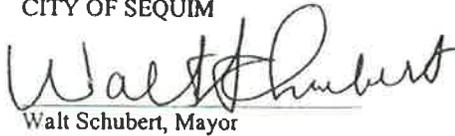
Approved As To Form:

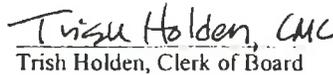

William E. Bloor, City Attorney


Howard V. Doherty Jr., Commissioner

CITY OF SEQUIM

Attest:

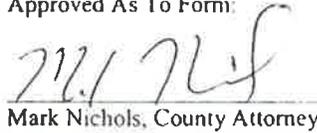

Walt Schubert, Mayor


Trish Holden, Clerk of Board

Attest:

Approved As To Form:


Karen Kuznek-Reese, City Clerk


Mark Nichols, County Attorney

Approved As To Form:


Craig Ritchie, City Attorney

4a
11/25



RESOLUTION 80, 2014

ADOPTING THE COMPREHENSIVE SOLID WASTE MANAGEMENT PLAN

THE BOARD OF CLALLAM COUNTY COMMISSIONERS finds as follows:

1. The Washington State Legislature, pursuant to the provisions of Chapter 70.95 RCW, enacted legislation to establish a comprehensive statewide program for solid waste handling and solid waste recovery and/or recycling which will prevent land, air, and water pollution and conserve the natural, economic, and energy resources of this state.
2. Pursuant to the provisions of RCW 70.95.080, each County within the state, in cooperation with the various cities located within such County, shall prepare a coordinated, comprehensive solid waste management plan.
3. Pursuant to the provisions of RCW Chapter 70.95 and the Regional Solid Waste Export and Transfer System Interlocal Agreement between the cities of Port Angeles and Sequim and the County, the following governmental entities have agreed among themselves by actions of the governing authorities of the respective parties that there should be only one solid waste management plan to encompass the entirety of Clallam County.

City of Port Angeles, a municipal corporation
 City of Sequim, a municipal corporation
 City of Forks, a municipal corporation

4. Pursuant to RCW Chapter 70.95 the Clallam County Solid Waste Advisory Committee and Solid Waste Staff have revised the Clallam County Comprehensive Solid Waste Plan.

NOW, THEREFORE, BE IT RESOLVED by the Board of Clallam County Commissioners, in consideration of the above findings of fact:

1. Adopts the 2014 Update of the Clallam County Comprehensive Solid Waste Management Plan for the management of solid waste in Clallam County.

PASSED AND ADOPTED this twenty-fifth day of November 2014

BOARD OF CLALLAM COUNTY COMMISSIONERS



 Michael C. Chapman, Chair



 Jim McEntire



 Howard V. Doherty, Jr.

ATTEST:



 Trish Holden, CMC, Clerk of the Board

RESOLUTION NO. 14-14

A RESOLUTION of the City Council of the City of Port Angeles, Washington, adopting the Clallam County Comprehensive Solid Waste Management Plan update.

WHEREAS, the Clallam County Comprehensive Solid Waste Management Plan update, which was presented to the City Council on July 15, 2014, contains elements that are important to the City's solid waste management programs and updates the 2006 Solid Waste Management Plan; and

WHEREAS, the Clallam County Comprehensive Solid Waste Management Plan was prepared in accordance with Chapter 70.95 RCW, which requires that the City either adopt the county-wide plan or develop its own plan that must be approved by the Department of Ecology; and

WHEREAS, throughout the process of developing this update, public input was sought in numerous ways, and the involvement of the Clallam County Solid Waste Advisory Committee (SWAC) was an important part of the plan development;

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Port Angeles as follows:

The City Council hereby adopts the 2014 Clallam County Comprehensive Solid Waste Management Plan Update, which is attached hereto as Exhibit A.

PASSED by the City Council of the City of Port Angeles at a regular meeting of said Council held on the 15th day of July, 2014.


Dan Di Giulio, Mayor

ATTEST:


Janessa Hurd, City Clerk

APPROVED AS TO FORM:


William E. Bloor, City Attorney

RESOLUTION NO. 2014-014

**A RESOLUTION OF THE CITY OF SEQUIM
ADOPTING THE CLALLAM COUNTY COMPREHENSIVE
SOLID WASTE MANAGEMENT PLAN UPDATE 2014**

WHEREAS, the Clallam County Comprehensive Solid Waste Management Plan Update 2014, which was presented to the City Council on June 23, 2014, contains elements that are important to the City's solid waste management programs and updates the 2007 Solid Waste Management Plan; and

WHEREAS, the Clallam County Solid Waste Management Plan was prepared in accordance with Chapter 70.95 RCW, which requires that the City either adopt the county-wide plan or develop its own plan which must be approved by the Department of Ecology; and

WHEREAS, throughout the process of developing this plan, public input was sought in numerous ways, and the involvement of the Clallam County Solid Waste Advisory Committee (SWAC) was an important part of the plan development;

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Sequim, Washington, as follows:

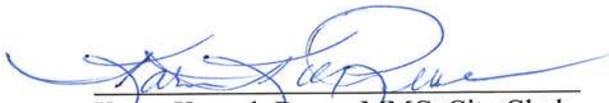
The City Council hereby adopts the 2014 Clallam County Solid Waste Management Plan Update 2014, which is attached hereto as Exhibit A.

ADOPTED by the Sequim City Council this 23rd day of June, 2014.



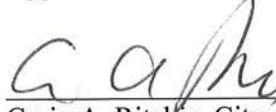
Candace Pratt, Mayor

Attest:



Karen Kuznek-Reese, MMC, City Clerk

Approved as to form:



Craig A. Ritchie, City Attorney

RESOLUTION No. 434

A Resolution of the City of Forks adopting the 2014 Update of the Clallam County
Comprehensive Solid Waste Management Plan

WHEREAS, the 2014 Update of the Clallam County Comprehensive Solid Waste Management Plan contains the required elements for such a plan as mandated by State law, and said elements are important to the City's solid waste management activities; and

WHEREAS, the update to the existing Clallam County Comprehensive Solid Waste Management Plan was prepared in accordance with Chapter 70.95 RCW, which requires that the City either adopt the county-wide plan or develop its own plan which must be approved by the Department of Ecology; and

WHEREAS, public input and comment was accepted through the development of the plan through various means and ways, and the involvement of the Clallam County Solid Waste Advisory Committee was the main organization associated with the development of the plan; and

WHEREAS, SEPA was complied with by Clallam County with the checklist and notice requirements were provided to the City staff;

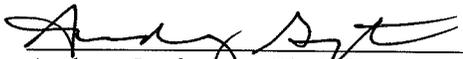
NOW, THEREFORE, BE IT RESOLVED by the City Council that the City of Forks adopts the 2014 Update to the Clallam County Comprehensive Solid Waste Management Plan;

PASSED by the City Council of the City of Forks at a regular meeting of said Council on this
9th of June 2014



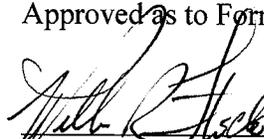
Bryon Monohon, Mayor

Attested to:



Audrey Grafstrom, Clerk/Treasurer

Approved as to Form:



William R. Fleck, Attorney/Planner



MAKAH TRIBE

P.O. BOX 115 • NEAH BAY, WA 98357 • 360-645-2201

The Makah Tribe is an equal opportunity employer.



July 9th, 2014

Julie Robertson
Southwest Regional Planner and Facilities Technical Specialist
Waste 2 Resources Program
Washington State Department of Ecology
PO Box 47600
Olympia, WA 98504

RE: Clallam County CSWMP Update 2014

Dear Ms. Robertson,

The Makah Tribe would like to affirm its support of the Clallam County CSWMP Update 2014. The Tribe participated in the update process as the Tribal Representative on the Clallam County Solid Waste Advisory Committee. As well, we appreciated the opportunity to discuss our Tribal solid waste operations during a 2013 site visit from the Update Coordinator to our recently completed Makah Transfer Station and subsequent phone conversations for inclusion in the plan update.

While Tribal solid waste operations do not fall under the jurisdiction of the CSWMP, we value the partnership with the County on many aspects of solid waste management and look forward to continuing this partnership in the future.

Thank you for your time.

Sincerely,

Steve Pendleton
Environmental Program Manager
Makah Tribe
PO Box 115
Neah Bay, Washington 98357
mtcenviro@centurytel.net

APPENDIX C

Rates and Regulations

For the duration of the planning cycle for which this CSWMP is written, it is probable that rates and regulations pertaining to the solid waste system in Clallam County may change. Therefore, this appendix contains web links to the sites and documents where the most current rates and regulations can be found so that the reader may access the most up to date information on these topics.

Rates:

Rates are listed on the Washington Utilities and Transportation Commission (WUTC) website, <http://www.utc.wa.gov/regulatedIndustries/transportation/solidWaste/Pages/SolidWasteCompanyTariffs.aspx>. There are currently two WUTC tariffs issued for solid waste collection in Clallam County.

Murrey's Disposal Company, Inc., PO Box 399, Puyallup, WA 98371, a subsidiary of Waste Connection, Inc., holds Tariff No. 23. See the tariff, including rates, at <http://www.utc.wa.gov/regulatedIndustries/transportation/TransportationDocuments/Murrey's%20Disposal%20Co.,%20Inc%20dba%20Olympic%20Disposal%20G-9%20Tariff%20No%2023.pdf>

West Waste & Recycling, Inc., 272 La Push Rd., Forks, WA 98331, holds Tariff No. 3. See the tariff, including rates at <http://www.utc.wa.gov/regulatedIndustries/transportation/TransportationDocuments/West%20Waste%20and%20Recycling%20Inc%20G-251%20Tariff%20No%203.pdf>

Regulations:

Relevant federal and state regulations have been discussed and referenced within this CSWMP. Three local jurisdictions have regulations regarding solid waste, Clallam County, and the cities of Port Angeles and Sequim.

Clallam County regulates solid waste in the County Code. These regulations are found within Chapter 41.10, Solid Waste Regulations, of Title 41: Board of Health Regulations. Read the regulations here: <http://www.codepublishing.com/WA/clallamcounty.html>.

The City of Port Angeles regulates solid waste in its Municipal Code, found at <http://library.municode.com/index.aspx?clientId=15090>. Read Title 13: Public Utilities, Chapters 13.52, 13.54, and 13.57 for various regulations regarding solid waste.

The City of Sequim regulates solid waste in the Sequim Municipal Code. See Title 8: Health and Safety, Chapter 8.08, Solid Waste Collection at <http://www.codepublishing.com/WA/sequim.html>.

APPENDIX D

Final Draft

Clallam County Hazardous Waste Management Plan



Clallam County Hazardous Waste Management Plan

Appendix D of the Comprehensive Solid Waste Management Plan

Table of Contents

List of Tables	ii
Introduction	1
Background	2
Planning Area	2
Planning Process	2
Analysis of Current Conditions.....	3
Moderate Risk Waste Inventory	3
Household waste.....	3
Oil, Auto Batteries and Antifreeze	6
Electronics.....	9
Conditionally Exempt Small Quantity Generator Waste	9
Other Hazardous Waste Inventory	10
Dangerous Waste Generators (Chapter 173-303 WAC)	10
Remedial Action Sites	12
Transporters in Clallam County.....	12
Disposal Facilities in Washington.....	12
Collection Facilities in Clallam County	13
Zone Designations.....	14
Legal Authority.....	14
Financing	17
Governance Structure	17
Program Philosophy.....	18
Program Services	18
Household Hazardous Waste Collection.....	18
Household and Public Education	18
Small Business Technical Assistance	19
Small Business Collection Assistance	19
Enforcement	20
Used Oil Education and Collection.....	20
Process for Updating the Plan.....	20

Mission Statement	21
Guiding Principle	21
Strategic Goals 2011-2016/Elements of the Plan	22
1. Household Hazardous Waste Collection.....	22
2. Household and Public Education	23
3. Small Business Technical Assistance	24
4. Small Business Collection Assistance	25
5. Enforcement	25
6. Used Oil Recycling.....	25
7. Evaluation	26
Programs and Milestones	27
Estimated Annual Budget Summary	28
Alternative Programs/Additional Potential	27

List of Tables

Table 1 Clallam County Collection Events 1987-2009.....	4
Table 2 Pound of HHW Collected at the MRWF 2007-2011* from all Clallam County Residents	5
Table 3 Fate of Materials Collected at the MRWF in 2011	6
Table 4 Pounds of Oil and Antifreeze Collected in Clallam County 2005-2011.....	7
Table 5 Total Pounds Collected from Small Quantity Generators 2001-2005.....	9
Table 6 Types of Waste Collected from Small Quantity Generators 2001-2005.....	10
Table 7 Clallam County Generators with RCRA Identification Numbers	11
Table 8 List of Current Vendors That Collect Hazardous Waste in Clallam County	12
Table 9 List of Treatment, Storage, and Disposal Sites in Washington.....	12
Table 10 List of Current Hazardous Waste Collection Sites in Clallam County	13
Table 11 Timeline for Strategic Goals.....	22
Table 12 Estimated Annual Budget.....	23

Master Section

Introduction

This document develops a plan for managing small quantities of hazardous waste in Clallam County. The goal of the Clallam County Hazardous Waste Plan is to provide safe disposal options for hazardous waste to protect the stormwater, ground water, environment and human health in Clallam County. These materials should not be poured down a household or storm drain or transported in the garbage to a landfill.

Leftover products with the words CAUTION, WARNING, or DANGER on the label are considered hazardous waste. These wastes are designated by 40 Code of Federal Regulations (CFR) Part 261 and regulated as hazardous by the United States Environmental Protection Agency. Products include oil paints, pesticides, fertilizers, de-greasers, cleaning agents, solvents, aerosols, and auto products. These products can be poisonous or cause long term health effects, can burn easily, can eat through materials (acid, for example) and can spontaneously ignite or cause poisonous vapors. The waste is generally exempt from federal and state hazardous waste regulation, but local governments are responsible for managing this waste and encouraging waste reduction, reuse, recycling, and proper disposal.

Leftover materials from homes are called Household Hazardous Waste (HHW). Residents may seek HHW disposal options when there is a property transaction or when the home is being cleaned out after a death in the family. Residents can currently take their left-over materials to the Moderate Risk Waste Facility in Port Angeles.

Small business waste is called Conditionally Exempt Small Quantity Generator Waste (CESQG) or more commonly (SQG). This designation is for businesses generating less than 220 pounds per month. The business waste regulations are found in Washington Administrative Code (WAC) 173-303, Dangerous Waste Regulations. Small business hazardous waste is not currently accepted at the Moderate Risk Facility.

The term “Moderate Risk Waste” came into use after the passage of the 1991 Washington State Hazardous Waste Management Act (RCW 70.105). It refers to household and small quantity generator waste defined above. It does not mean it is less hazardous than other waste, just that it is generated in smaller quantities.

For the purposes of this plan, *universal waste* (mercury bearing lamps, mercury-containing equipment, and batteries), computers, televisions and used oil will be included as a moderate risk waste.

Hazardous Waste: can be solid, liquid or gaseous materials. They are divided into specific hazardous categories including: flammable gases, flammable liquids, reactives, oxidizers, poisons, and corrosives.

Household Hazardous Wastes (HHW): hazardous wastes generated by residents

Conditionally Exempt Small Quantity Generator (SQG): businesses that generate less than 220 pounds of waste per month.

Background

The first hazardous waste plan for Clallam County was developed in 1991 by Paul S. Running and Associates of Seattle to comply with The *Hazardous Waste Management Act* Chapter 70.105 of the revised Code of Washington. It presented the existing and future problems, needs and conditions in Clallam County. The plan also included alternative strategies and recommended programs and actions. The emphasis was on the collection and proper handling of hazardous wastes. At that time the term “Moderate Risk Waste” began to be used to describe waste produced in small quantities by businesses and households.

This new plan follows the *Guidelines for Developing and Updating Local Hazardous Waste Plans (Department of Ecology 2010)*. It builds on the 1991 Plan with additional emphasis on waste reduction, product stewardship, and other strategies outlined in the Washington State Department of Ecology *Beyond Waste Plan (2004)*.

This plan will be incorporated as an appendix into the Clallam County Comprehensive Solid Waste Plan (2006) which is scheduled to be updated in 2012.

Planning Area

The planning area includes all unincorporated portions of Clallam County and the cities of Port Angeles, Sequim, and Forks. Clallam County is located on the northern Olympic Peninsula and is bordered on the north by the Strait of Juan de Fuca, on the west by the Pacific Ocean, and on the east and south by Jefferson County.

The estimated total population of Clallam County is 71,404 (US Census 2010). Three incorporated cities lie within Clallam County: Forks, Port Angeles, and Sequim. Port Angeles is the county seat and has the largest population of 19,000. Sequim is located 18 miles east of Port Angeles with a population of 6,060. The city of Forks is located 50 miles west of Port Angeles with a population of 3,532. According to 2009 US Census data, there are 30,260 households in the County.

In addition to the three cities, four tribes lie within Clallam County: Jamestown S’Klallam tribe is located on the southern edge of Sequim Bay; Lower Elwha Klallam tribe is located near the mouth of the Elwha River west of Port Angeles; Makah tribe is located on the northwest tip of the County adjoining the Pacific Ocean and Strait of Juan de Fuca; and Quileute tribe is located near the mouth of the Quileute River on the Pacific Ocean.

Planning Process

The *Guidelines* contain a detailed twelve-step planning process. After determining the planning area, scope, method, and planning period, a stakeholder meeting was held on September 10, 2010 at the Clallam County Courthouse. The planning process was described at an ECO Net meeting in February 2011, and input and ideas were requested. ECO Net is the education arm of the Puget Sound Partnership, a state agency established to protect and restore the Puget Sound ecosystem. Between October 2010 and June 2011, Jennifer Garcelon with Clallam County Environmental Health and Helen Freilich with the

City of Port Angeles began to meet regularly to develop the scope of work and complete a rough draft of the plan.

A draft Plan was emailed to the Solid Waste Advisory Committee (SWAC) on July 18, 2011, and was discussed at the July 21, 2011 regular meeting.

On January 27, 2012, a draft plan was published on Clallam County's website for public review at <http://www.clallam.net/boards/SWAC/documents/DraftHazardousWasteManagementPlanJanuary2012.pdf>. A press release was distributed on January 27, 2012 announcing the public comment period through February 27, 2012. The press release was published in the *Peninsula Daily News* on Sunday, January 29, 2012.

On June 20, 2012, the draft plan was submitted to Ecology for an informal review; comments were received February 21, 2013. During this time, it was decided the Hazardous Waste Management Plan would become an appendix of the Clallam County Comprehensive Solid Waste Management Plan (CCSWMP) which started its five year update in winter 2013.

A SEPA Checklist was submitted to the lead agency, Clallam County Department of Community Development. It received a Determination of Non-Significance on September 19, 2012.

The draft CCSWMP, with the Hazardous Waste Management Plan included as Appendix D, was submitted to Ecology in February 2014 for preliminary review. Responses to Ecology's comments on the Hazardous Waste Management Plan and resolutions of adoption of the CCSWMP by participating jurisdictions are required to submit the CCSWMP to Ecology for final review and adoption.

Analysis of Current Conditions

Moderate Risk Waste Inventory

Household waste

Household hazardous waste is usually collected at the MRWF or at periodic collection events; before the MRWF was built in 2007, the primary collection method was collection events. The Clallam County Environmental Health Services hosted the first household hazardous waste collection event in 1987 and then annually from 1990-2005. The events were held for two days each September in Port Angeles. In 1999 and 2000 there was one additional collection day in Forks. In 2001-2005, a third collection day was held in Sequim. There were no collection events in 2006-2008 because the permanent Moderate Risk Waste Facility was built in 2007 in Port Angeles. A collection event was held in Sequim in 2009.

Collection of household hazardous waste steadily increased over the years. In 1999 and 2001 there was a large public education campaign about proper disposal of household

hazardous waste using the slogan, “If It’s Toxic, Let’s Outfox It.” Education materials with a “Toxic Fox” and his family were developed and distributed in newspapers and at community events. There was also an increase of waste collected in 2005 likely attributed to a household hazardous waste information brochure in the PUD and City of Port Angeles utility bills, and to the addition of electronics to the collection. At the 2009 Sequim collection event, latex paint was not collected.

The tonnages and number of vehicles participating are presented below. The materials collected included oil based paints, latex paint, pesticides, acids and bases, solvents, antifreeze, oxidizers, auto batteries; events starting in 2004 also collected alkaline batteries, computers, and televisions.

Table 1 Clallam County Household Hazardous Waste Collection Events 1987-2009

YEAR	# Vehicles	Pounds	Location
1987	113	NA	Port Angeles only
1990	241	NA	Port Angeles only
1991	494	23,340	Port Angeles only
1992	350	14,290	Port Angeles only
1993	468	16,863	Port Angeles only
1994	537	17,607	Port Angeles only
1995	394	16,400	Port Angeles only
1996	417	20,821	Port Angeles only
1997	360	23,779	Port Angeles only
1998	406	36,532	Port Angeles only
1999	825	73,727	Port Angeles and Forks
2000	665	50,996	Port Angeles and Forks
2001	799	80,439	PA and Sequim
2002	763	56,924	PA and Sequim
2003	703	62,818	PA and Sequim
2004	874	68,379	PA and Sequim
2005	993	109,973	PA and Sequim
2006	no event		
2007	no event		
2008	no event		

2009	112	14,304	Sequim only
------	-----	--------	-------------

In 2007, the Moderate Risk Waste Facility opened at the Regional Transfer Station in Port Angeles. The wastes are packed in boxes and drums and shipped out for proper recycling and disposal. The total pounds as reported to the Department of Ecology (Fixed Facility Report) are presented below. By far, oil paint and paint related products category are the largest with 25,000-35,000 pounds collected/year.

Latex paint was collected at the collection events between 1987-2005. Mercury and lead were mostly removed from latex paints after 1992. Therefore, due to the decrease in toxic components, the high volume and costs associated with latex paint recycling, latex paints are not included in the accepted items at the Moderate Risk Waste Facility. Residents are instructed to solidify and place in the garbage, or try to give it away on the 2good2toss website.

Table 2 Pounds of HHW Collected at the MRWF 2007-2011* from all Clallam County

WASTE TYPE **	2007	2008	2009	2010	2011
Aerosols (consumer commodities)	1,800	1,085		1,150	1,350
Acids	950	810	1,000	795	1,400
Bases	2,465	500	1,100	2,465	400
Batteries - Small Lead Acid			78		
Batteries - NiCad/NIMH/Lithium		30	50		
Batteries - Household Dry Cell (alkaline/carbon)		125	400	500	
Flammable Solids	10	5	25	20	15
Flammable Liquids	1,400	2,275	1,300	450	236
Flammable Liquid-Poison [aerosol cans]	150			200	
Flammable Gas-Poison [aerosol cans]			600		
Flammable Butane, Propane, etc.			1,350		
Mercury Thermometers, Thermostats		60		8	
Non - Regulated Liquids (Soaps, Cleaners list others)				350	
Oil Contaminated (oily water, oil with PCB's, Oil with Chlorides)			1,200		
Organic Peroxides		5	10		
Oxidizers		220	100	510	
Paint - Oil Based	29,100	26,100	25,500	100	
Paint Related Materials				34,350	31,814
Pesticide/Poison Liquid	1,400		5,354	2,942	

Pesticide/Poison Solids	2,100	5,075	3,569	2,942	4,800
Reactives	10		15		
PCB Containing Light Ballasts		50	110		
# customers	583	523	430	640	658
Total pounds	39,385	36,340	41,761	46,782	40,465
Total pounds/customer	67.55	69.48	97.12	73.01	61.50

*(from Dept. of Ecology Fixed Facility Reports submitted by the City of Port Angeles)

** latex paint, electronics, household batteries, fluorescent tubes not collected after 2005.

The final disposition of moderate risk waste is outlined in Table 3. It is important to understand the fate of materials because of the cost of the program and the overall environmental effects of moderate risk waste.

Table 3 Fate of Materials Collected at the MRWF in 2010 and 2011

Waste Type	Disposal Method
Aerosols (consumer commodities)	Energy recovery
Acids	Wastewater disposal with or without pretreatment processing
Bases	Wastewater disposal with or without pretreatment processing
Batteries – Household Dry Cell (alkaline/carbon)	Recycled
Flammable Solids	Incineration
Flammable Liquids	Energy recovery
Flammable Liquid-Poison [aerosol cans]	Incineration
Mercury Thermometers, Thermostats	Recycled
Non – Regulated Liquids (Soaps, Cleaners list others)	Treated/solid waste processing before landfilling
Oxidizers	Treated/solid waste processing before landfilling
Paint – Oil Based	Energy recovery
Paint Related Materials	Energy recovery
Pesticide/Poison Liquid	Incineration
Pesticide/Poison Solids	Incineration

Oil, Auto Batteries and Antifreeze

Oil, antifreeze, and auto batteries are collected in areas throughout Clallam County via a combination of public and private collection sites. Pounds of collected oil and antifreeze are reported below; auto battery weights are not available. The data is self-reported by the manager at the site. In general auto batteries are highly recycled: in 2009, the

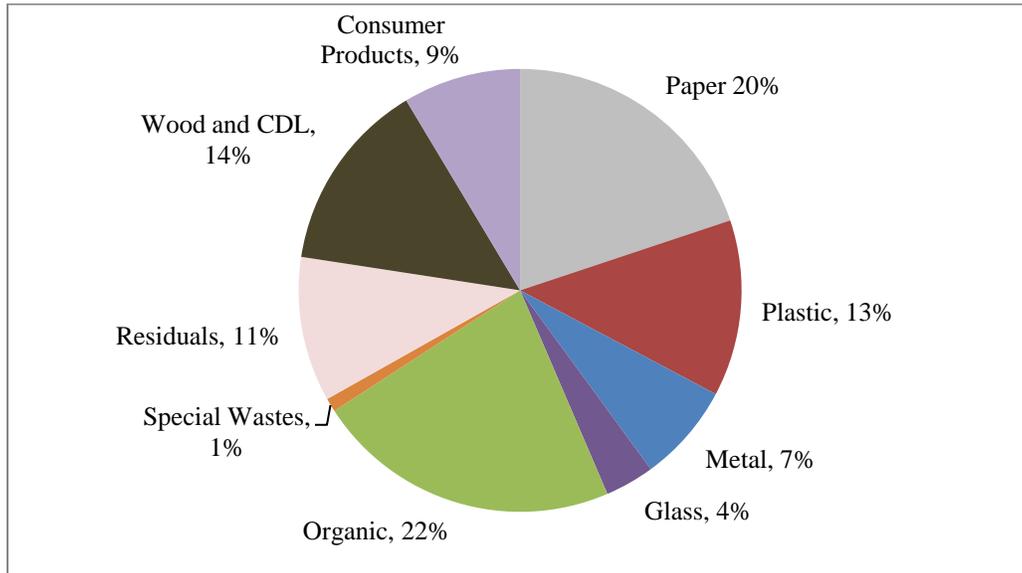
Environmental Protection Agency reported a 97% recycling rate for batteries (Municipal Solid Waste (MSW) in the United States: Facts and Figures). Oil is either recycled or burned for fuel. Antifreeze is usually recycled.

Table 4 Pounds of Oil and Antifreeze Collected in Clallam County 2005-2011

Oil Collection Site	2005	2006	2007	2008	2009	2010	2011
Port Angeles Landfill/TS	9,725	7,403	5,600	6,350	5,000	5,575	5,149
Blue Mountain TS	2,600	2,550	1,600	2,025	3,375	3,170	3,290
City of Sequim Utility Yard	2,900	1,975	2,075	775	1,875	1,275	2,000
West Waste TS	850	900	650	575	680	750	760
Jiffy Lube-PA	55	55	55	55	55	55	250
Port of Port Angeles-JWM	1,046	855	752	685	669	939	939
Port of Port Angeles-East BH	2,586	3,359	2,723	1,749	1,232	1,895	619
Port of Port Angeles-West BH	2,091	3,091	2,518	1,711	1,193	1,506	2,895
Wal-Mart Port Angeles	1,800	420	370	123	154	(na)	(na)
O'Reilly(Shucks) Auto Supply	1,500	1,400	1,500	1,250	1,500	1,860	1,800
Wal-Mart Sequim	1,200	4,325	265	5,650	425	500	5,040
Jiffy Lube-Sequim	75	75	75	500	75	75	(na)
Annual Total Gallons	26,428	26,408	18,183	21,488	16,233	17,600	22,742
Annual Total Pounds	195,567	195,419	134,554	158,715	118,119	137,280	177,388

Waste composition studies are periodically done by Ecology and local governments to obtain data on what is being put in the solid waste system. In 2003 Clallam County hired a contractor to complete a waste composition study. The study showed special wastes as 1% of the waste by weight. This category included medical waste, household batteries, and latex and oil paints. Figure 1 shows the results of the 2003 Waste Composition Study.

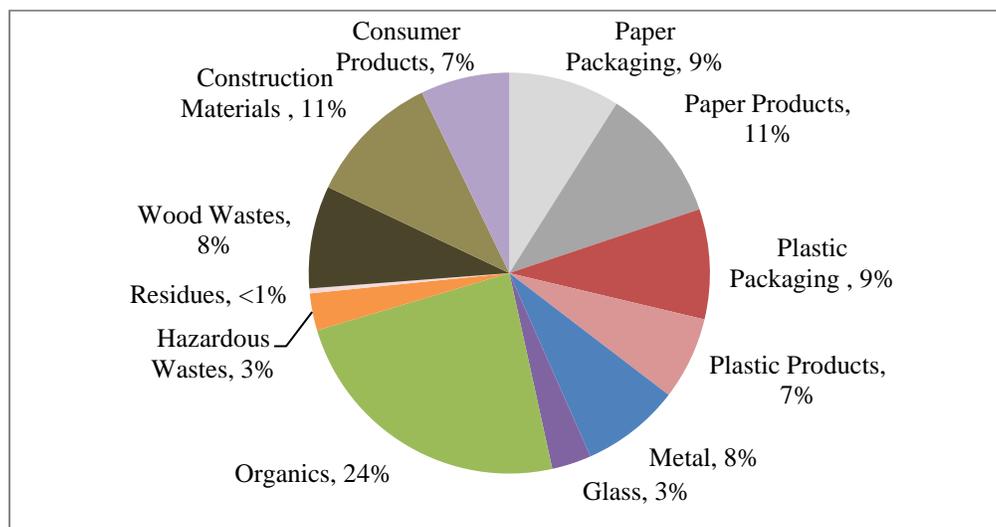
Figure 1 2003 Clallam County Waste Composition Study



From: Figure E-1 Waste Composition Results *Clallam County Waste Composition Study 2003*

In 2009, the Department of Ecology sponsored a Statewide Waste Characterization Study using different categories than the Clallam County 2003 study. The Port Angeles Transfer Station was one of the sampling sites and the data show 3% by weight hazardous wastes. It should be noted this category includes more materials than included in the 2003 study including disposable diapers; a material not collected in any of the hazardous waste collection programs. Figure 2 below outlines the results.

Figure 2 Statewide Waste Composition Study 2009 – Regional Transfer Station Data



Unpublished Regional Transfer Station data collected in 2009 by Cascadia Consulting Group for the *Washington Statewide Waste Characterization Study, June 2010*.

Electronics

E-Cycle Washington, the statewide collection of computers and electronics, began in 2009. In the first year, 417,463 pounds were collected in Clallam County and 385,856 pounds were collected in 2010. The official collection locations were EcycleNW in Blyn and Goodwill Industries in Port Angeles; 2010, the Goodwill store in Sequim also became a collection point.

Conditionally Exempt Small Quantity Generator Waste

Small business waste is called Conditionally Exempt Small Quantity Generator Waste (CESQG) or more commonly (SQG). This designation is for businesses generating less than 220 pounds per month.

Clallam County Environmental Health collected waste from small businesses during the annual hazardous waste round-up events between 1990-2005. The collection was done by appointment only for approximately ten businesses per year. Table 5 shows the amount of hazardous waste collected from SQGs from 2001-2005. Table 6 shows the types of waste that was collected. The majority of SQG waste collected was paint and paint related material.

Table 5 Total Pounds Collected from SQGs 2001-2005

Year	2001	2002	2003	2004	2005
Pounds of SQG	7,875	3,526	4,203	2,302	550

Table 6 Types of Waste Collected from SQGs 2001-2005

SQG Waste Collected Between 2001-2005	Pounds	
Acids	352	2%
Bases	860	5%
Flammable Liquids	807	4%
Flammable Solids	6	0%
Oxidizer	100	1%
Paint/Paint Related Materials	11,240	61%
Toxic Material	790	4%
Used Oil	1,480	8%
Soil with grease	1,900	10%
Light Ballasts	154	1%
Other	797	4%
Total Pounds	18,486	

Currently there is no collection of small business waste by a public agency and no data on how much is generated in Clallam County. CESQG collection events ended in 2005 when grant monies went to the operation of the MRWF in 2007.

Other Hazardous Waste Inventory

Dangerous Waste Generators (Chapter 173-303 WAC)

Dangerous wastes are those solid wastes designated *dangerous waste* or *extremely hazardous waste* under WAC 173-303-070 through WAC 173-303-100. The term “Dangerous Wastes” includes federal hazardous wastes and wastes regulated only by Washington State.

Table 7 (below) lists companies with a RCRA ID number as of 2011 in Clallam County. The Resource Conservation and Recovery Act (RCRA) requires individuals who generate or transport hazardous waste, or who operate a facility for recycling, treating, storing, or disposing of hazardous waste, to notify EPA or their authorized state waste management agency of their regulated waste activities and obtain a RCRA Identification (ID) Number.

Table 7 Clallam County Generators with RCRA Identification Numbers

Large Quantity Generator (more than 2,200 lbs/month)	
Baxter Auto Parts Inc	Port Angeles
Battelle Marine Sciences Lab	Sequim
Westport Shipyard Inc Port Angeles	Port Angeles
Medium Quantity Generator (220-2,2000 pounds/month)	
Westport Shipyard Interior Plant	Port Angeles
ASM Signs	Port Angeles
Wal Mart 2196	Port Angeles
Platypus Marine Inc	Port Angeles
Angeles Composite Technologies Inc	Port Angeles
Olympic Memorial Hospital Lab	Port Angeles
Small Quantity Generator (less than 220 pounds/month)	
UPS Port Angeles	Port Angeles
Clallam County PUD 1	Port Angeles
Olympic Correction Center	Forks
Clallam Bay Corrections Center	Clallam Bay
Nippon Paper Industries USA CO LTD	Port Angeles
Olympic National Park	Port Angeles
Wal Mart 5273	Sequim
Peninsula College	Port Angeles
Rite Aid 5265	Sequim
Port Angeles City Svc Garage	Port Angeles
Koenig Chevrolet Subaru	Port Angeles
US CG Group Port Angeles	Port Angeles
US DOE BPA Port Angeles Substation	Port Angeles
Home Depot 8998	Sequim
Non Regulated Waste Generator	
Clallam Transit System	Port Angeles
Ruddell Auto Mall	Port Angeles
Qwest Corporation W00425	Port Angeles
Port Angeles Marine Drive	Port Angeles
Costco Wholesale 639	Sequim
WA AGR Clallam 3	Forks
WA AGR Clallam 1	Sequim
Rite Aid 5258	Port Angeles
WA UW Olympic Natural Resources	Forks
Port Angeles Port William R Fairchild	Port Angeles

Remedial Action Sites

Remedial action sites are listed in Ecology’s Toxic Clean-up Program as “*needing investigation or undergoing hazardous waste clean-up activity.*” As of September 2011, there are 79 such sites in Clallam County. For more information on current remedial action sites, go to Washington State Department of Ecology’s facility site database at <http://www.ecy.wa.gov/fs/>.

Transporters in Clallam County

Currently, businesses can call one of the regional or national companies to arrange for pick-up in Clallam County. For additional information on transporters, contact Washington State Department of Ecology.

Table 8 List of Current Vendors That Collect Hazardous Waste in Clallam County

Company Name	Materials Collected
American Petroleum Services	Oil
Clean Harbor	Hazardous waste
Emerald Oil	Antifreeze, oil, solvents, oil filters
Philip Services Corp (PSC)	Hazardous waste
Safety Kleen	Hazardous waste

Disposal Facilities in Washington

There are no permitted hazardous waste disposal facilities in Clallam County. Several sites in Washington State treat hazardous waste into a non-hazardous waste, store for a period of time, or ultimately dispose the waste. Table 9 below shows a list of the Treatment, Storage, and Disposal sites in Washington.

Table 9 List of Treatment, Storage, and Disposal Sites in Washington

	City	County
Emerald Kalama Chemical LLC	Kalama	Cowlitz
Boeing Company Auburn	Auburn	King
ConocoPhillips Co Ferndale Refinery	Ferndale	Whatcom
US Navy PSNS & IMF	Bremerton	Kitsap
Kronos Micronutrients LP	Moxee	Yakima
Shell OPUS Puget Sound Refinery	Anacortes	Skagit
US Dept of Energy Hanford Facility	Richland	Benton
Perma Fix Northwest Richland Inc	Richland	Benton
Intalco Aluminum Corp Ferndale	Ferndale	Whatcom
Burlington Environmental (PSC) LLC Kent	Kent	King
Emerald Services Inc Alexander Ave	Tacoma	Pierce
Emerald Services Inc Airport Way	Seattle	King
Burlington Environmental LLC	Tacoma	Pierce

Tacoma		
AREVA NP Inc	Richland	Benton
SSA Tacoma, Inc	Tacoma	Pierce
US DOE BPA Ross Complex	Vancouver	Clark
US NAVY KEYPORT OU1	Keyport	Kitsap

Collection Facilities in Clallam County

There is a mixture of public and private hazardous waste collection sites within Clallam County. The types of hazardous waste collected, as well as the location of the collection site are shown in the table below.

Table 10 List of Current Hazardous Waste Collection Sites in Clallam County

Facility	Type of Hazardous Waste	Location
Port Angeles Transfer Station	Oil, car batteries and antifreeze	Port Angeles
Blue Mountain Transfer Station	Oil and antifreeze	Agnew/Port Angeles
City of Sequim	Oil	Sequim
West Waste Transfer Station	Oil	Forks
Port of Port Angeles: Boathaven East and West	Oil	Port Angeles
Port of PA: John Wayne Marina	Oil	Sequim
Moderate Risk Waste Facility	HHW	Port Angeles
Goodwill	E-waste	Port Angeles and Sequim
EcycleNW	E-waste, CFLs and tubes	Sequim/Blyn
Auto Part Retailers	Oil and car batteries	County
ASM Signs and Home Depot	CFLs and Fluorescent Tubes	Port Angeles and Sequim
Clallam County Sheriff	Pharmaceuticals	Port Angeles
City of Sequim Police	Pharmaceuticals	Sequim
Jim's Pharmacy	Non-narcotic pharmaceuticals	Port Angeles

Zone Designations

The Washington State Hazardous Waste Management Act (HWMA) of 1985 required local governments to establish land use zones or geographic areas for siting “designated zone facilities,” such as hazardous waste recycling, storage and treatment facilities. These local zoning requirements were consistent with the State’s hazardous waste siting criteria and allow hazardous waste processing or handling where hazardous substances, such as raw materials, are processed or handled.

According to Ecology records, the City of Sequim and Clallam County received approval for land use zones in 1992. No documentation has been found for the City of Port Angeles or City of Forks.

Legal Authority

Legal authority for the Program is based on Washington State statute and Clallam County Code Chapter 41.10 Solid Waste regulations. Federal law exempts household hazardous waste (HHW) and small quantity generators (SQGs) from federal regulation.

Federal Law

The 1976 Resource Conservation and Recovery Act (RCRA) makes the management of hazardous waste a priority. While it addresses large generators of hazardous waste, RCRA exempts SQGs and HHW from regulation at the federal level. It also delegates the management of hazardous wastes to the states, at their request. In Washington State, the management of hazardous waste was delegated to Ecology by the United States Environmental Protection Agency (EPA) through the RCRA State Authorization rulemaking process.

Hazardous wastes in Washington State are primarily regulated under RCW 70.105, the Hazardous Waste Management Act of 1985, and as amended. In the case of our Program, RCW 70.105.220(1)(a) specifically directed local governments to develop plans to address moderate-risk wastes (MRW). It also required waste characterization studies to help develop a locally appropriate system of managing MRW that would ensure the protection of the environment and public health.

Requirements for the collection and disposal of MRW are set forth in WAC 173-350 Solid Waste Handling Standards. This regulation specified the minimum functional standards for the design and operation of MRW storage and processing facilities, including spill containment, employee training, emergency planning, control of toxic and flammable vapors, and container management.

Federal Regulations

This section describes key provisions of the federal laws address hazardous materials and wastes.

Resource Conservation and Recovery Act

The 1976 Resource Conservation and Recovery Act (RCRA) provides a comprehensive framework for managing solid and hazardous waste so as to eliminate or minimize public health threats and environmental contamination. RCRA was modified by the Hazardous and Solid Waste Amendments (HSWA) in 1984. HSWA revised the minimum technical standards for the design and operation of solid waste facilities as a result of concerns about the disposal of unregulated quantities of hazardous waste at municipal landfills.

RCRA Subtitle C, the hazardous waste management program, and Subtitle D, the solid waste program, provide the primary sources of federal regulation associated with household and SQG hazardous waste. Subtitle C establishes a framework for managing hazardous waste by regulating generators who produce and accumulate hazardous waste in quantities above limits specified by EPA or state rules; waste transporters; and treatment, storage and disposal facilities (TSDs) handling the waste.

Hazardous waste generated or stored in quantities above the limits specified by EPA or state rules must be tracked by manifest from the point of generation to the ultimate disposal site, better known as “cradle-to-grave” tracking. Business and institutional generators producing and storing hazardous wastes below the specified limits are not fully regulated provided that they comply with rules regarding the designation, management and reporting of wastes. HHW is categorically exempt from RCRA regulation.

The EPA implements and enforces RCRA, although Subtitle C administration and enforcement may be delegated to states that meet or exceed Subtitle C requirements. Washington State has been authorized to implement the RCRA Subtitle C program, and Ecology administers it. RCRA, Subtitle D, encourages state-governed solid waste management plans and sets out the minimum technical standards for construction and operation of solid waste disposal facilities. Subtitle D requires a permit program to ensure that landfills receiving HHW and SQG hazardous waste meet minimum standards to prevent the release of contaminants.

Universal Waste Rule

In 1995, the EPA adopted the Universal Waste Rule, 40 CFR Part 273, to allow generators of certain hazardous wastes to use alternative regulatory requirements for those wastes in place of the more complex hazardous waste requirements. Wastes covered by the Universal Waste Rule (UWR) are typically generated in small quantities by numerous businesses. They include batteries, mercury bearing thermostats and fluorescent lamps. UWR are intended to promote recycling as well as proper disposal, and they ease some of the regulatory requirements for storing, collecting, and transporting universal wastes.

Since states are free to adopt any portion of the UWR, there is flexibility in regulating the specific waste streams. States may also petition to allow additional wastes to be managed under the UWR at the state level, without having them added to the list of federal universal

wastes. The easing of full RCRA Subtitle C regulations for certain universal wastes is intended to encourage more extensive collection and recycling programs for these wastes.

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), more commonly known as the “Superfund” act, complements RCRA by providing for the cleanup of sites contaminated by hazardous waste. Many of the sites addressed under CERCLA are inactive or abandoned, having been contaminated before RCRA was enacted, when little was known about the effects of hazardous chemicals on human health and the environment. CERCLA provides EPA with the financial resources and authority to clean up contaminated sites. EPA, along with state regulatory agencies, may arrange for the cleanup of contaminated sites by entering into agreements with responsible parties, issuing orders to require cleanup, or directly performing the cleanup.

State Law

Model Toxics Control Act

The Model Toxics Control Act, RCW 70.105D, provides for the identification and cleanup of contaminated sites in Washington State. The act assigns liability for damages to the environment and human health, provides enforcement authority to Ecology, and establishes penalties for failure to comply with Ecology orders. The state toxics control account, created by the statute, funds state hazardous and solid waste planning, enforcement and technical assistance, remedial actions, public education, and emergency response training. Local accounts created by the statute provide grants to local governments for remedial actions and local solid waste and hazardous waste programs.

Used Oil Recycling Act

The 1991 Used Oil Recycling Act, Chapter 70.951 RCW, required each local hazardous waste management plan to establish used oil collection sites based on local goals, enforce sign and container requirements, educate the public on used oil recycling, and create funding estimates for used oil collection. Local governments must also submit annual reports to Ecology describing the number of collection sites and amounts of used oil collected from households. Requirements for transport, treatment, recycling and disposal of used oil are also specified in the Used Oil Recycling Act.

On March 31, 2014 Senate Bill 6501 (concerning used oil recycling) was signed by Governor Inslee, amending sections of Used Oil Recycling Act. The changes require Ecology to develop best management practices (BMPs) for preventing and managing polychlorinated biphenyl contamination at public used oil collection sites as well as update the guidelines for public used oil collection sites by July 1, 2015. The updated guidelines must include the BMPs for prevention and management of contaminated used oil and a process for how to petition the legislature for relief of extraordinary costs incurred with the management and disposal of contaminated used oil.

The legislature directed Ecology's BMPs to address, at a minimum: (i) Tank testing requirements; (ii) Contaminated tank labeling and security measures; (iii) Contaminated tank cleanup standards; (iv) Proper contaminated used oil disposal as required under chapter 70.105 RCW and 40 C.F.R. Part 761; (v) Spill control measures; and (vi) Model contract language for contracts with used oil collection vendors. This law also requires local jurisdictions to include a plan for addressing the BMPs in their local hazardous waste plans once they are developed by Ecology.

Electronic Product Recycling Act

In 2006, the Washington legislature passed the Electronic Product Recycling Act, RCW 70.95N, requiring a convenient, safe and environmentally sound system for collecting and transporting covered electronic products. Covered electronics include televisions, computers, computer monitors and portable or laptop computers. Manufacturers must finance the collection, transportation and recycling system. Regulations set by Ecology in WAC 173-900 govern program implementation.

The E-Cycle Washington program, launched January 1, 2009, provides recycling for unwanted TVs, monitors, computers and laptops from residents, small businesses, charities, school districts, and small governments. The system is available at no charge at registered collection sites throughout Washington.

Local Regulations

Clallam County and the City of Port Angeles, each have solid waste regulations:

Clallam County Code Chapter 41.10 Solid Waste Regulations, and

The City of Port Angeles Waste Acceptance Policy (PW 1009) defines household hazardous waste and moderate risk waste and sets the procedures for disposal.

Financing

Since 2007, 75% of the costs for collecting, transporting, and disposing of hazardous waste at the Moderate Risk Waste Facility are paid by a Department of Ecology Coordinated Prevention Grant (CPG). The remaining 25% are paid by the City of Port Angeles, with revenue generated from tipping fees at the Regional Transfer Station. Some of the education and outreach costs are included in this grant funding.

Governance Structure

Each jurisdiction that is a signatory to the Comprehensive Solid Waste Management Plan also must be a signatory to the Hazardous Waste Management Plan. Clallam County is the hazardous waste lead agency with the assistance of the City of Port Angeles.

The Joint Solid Waste Advisory Board (JSWAB) was created in 2006 to advise SWAC, City Council, and County Commissioners on solid waste activities. JSWAB makes recommendations for the management and operation of the solid waste export and transfer system.

Program Philosophy

The Clallam County hazardous waste management program promotes waste reduction, reuse, recycling, and proper disposal of hazardous wastes through education and outreach, technical assistance to small businesses, and by providing accessible and convenient disposal options. The purpose of the program is to protect human health and the environment. The program is a collaboration of city and county governments, non-profit groups, residents, and small business owners. **Program Services**



Household Hazardous Waste Collection

The Moderate Risk Facility (MRWF) is located at the Regional Transfer Station in Port Angeles and is open 2 days a week from 11 am to 4 pm. There is no charge to residents. The facility is operated by PSC, a subcontractor to Waste Connections. Waste Connections is under a 20 year contract with the City of Port Angeles (2007-2027) to operate the Moderate Risk Waste Facility. The facility does not accept latex paint, electronics, fluorescent tubes, or business waste.

Hazardous materials in good condition are placed in a Reuse Area of the MRWF. The public is invited to look at the reuse area and take any materials they can use, for which there is no charge.



Household and Public Education

Both Clallam County Environmental



Health and the City of Port Angeles Solid Waste Division provide education and outreach to residents of unincorporated Clallam County and the incorporated cities. Information on waste reduction and proper disposal is published annually in the DEX Media phone book in the Recycling and Garbage Guide. Information is also available on the City of Port Angeles and Clallam County websites. Additionally, a brochure describing the MRWF is printed annually and distributed at public events and in utility bill mailings from the City of Port Angeles and Clallam County Public Utility District.

City and county staff present exhibits on household hazardous waste at the local home show, a kids festival, and the county fair.

Built Green Clallam County is the local green building program sponsored by the North Olympic Peninsula Building Association. This program is also funded through Coordinated Prevention Grants from Ecology routed through Clallam County Environmental Health. The Built Green Checklist is an educational tool. New homes can be certified "Built Green" by completing a checklist, including selecting less toxic alternatives to create healthy indoor living environments.

Small Business Technical Assistance

County Environmental Health Staff provides waste disposal information and referrals for small businesses. Small businesses are generally referred to one of the waste disposal vendors who come to Clallam County or they are directed to work with Jefferson County's Moderate Risk Waste Facility (MRWF). Jefferson County MRWF collects SQG waste, for which they directly bill the customer.

In 2007, Ecology started the Local Source Control Program. Local Source Control Specialists (LSCS) conducted free site visits to businesses that produce or use small amounts of hazardous materials; a checklist is completed to help evaluate the stormwater and hazardous waste practices. In 2010 the Clallam County Environmental Health Services LSCS visited 60 businesses to provide technical assistance to control and prevent pollution in local water sources.

In 2012, the City of Port Angeles hired a Pollution Control Specialist under the Local Source Control Program. The city staff will concentrate on businesses within city limits only and will assist business owners with voluntary efforts to control, reduce, or eliminate pollutants in stormwater. Identifying hazardous waste and suggesting proper disposal is part of the duties of this new staff position.

Small Business Collection Assistance

There are no public sponsored small business collection sites or events in Clallam County at this time.

Plans for accepting hazardous waste for a fee at the Moderate Risk Waste facility have been discussed between the City of Port Angeles and Waste Connections, Inc. A resolution has not been agreed upon.

The City of Port Angeles will begin development of a hazardous waste clearinghouse in 2012, with support from the Department of Ecology Coordinated grant program. An online database will provide information and will help businesses coordinate the disposal of hazardous waste through private contractors.

Enforcement

Clallam County Environmental Health staff investigates an average of 20-25 complaints per year about improper disposal of MRW. Each complaint is investigated. They work with property owners to resolve issues or they refer them to the Department of Ecology. Staff also inspect and permit the MRW facility and oil collection sites.

Used Oil Education and Collection

Clallam County Environmental Health sponsors radio ads on 1450 AM KONP during Mariner's games to inform the public about used oil collection sites throughout the County. Printed materials are developed in the form of brochures, utility bill inserts, direct mailings, and newspaper advertisements. Public websites contain current information: www.cityofpa.us, www.clallam.net, www.ecy.wa.gov. Each year the phone book pages are updated in the Dex Media Recycling and Garbage Guide for publication in the front of the phone book. Educational materials and outreach will be updated to reflect Ecology's best management practice guidelines as they are developed in accordance with Senate Bill 6501.

Process for Updating the Plan

Clallam County is the lead agency with the assistance of the City of Port Angeles, City of Sequim, City of Forks, and tribal nations. The SWAC will be a lead reviewer and will make recommendations to the Plan. It will be made available for public comment during SEPA and during SWAC meetings. It will be reviewed as part of the Clallam Comprehensive Solid Waste Management Plan (CCSWMP) updates every five years. The CCSWMP is due to be updated and changes adopted in 2014.

If an amendment is necessary, the process identified in the CCSWMP will be followed.

Implementation Section

Mission Statement

To facilitate an economically efficient waste prevention, recycling and disposal system for hazardous waste that protects human health and the environment for the citizens of Clallam County. Develop, monitor and enforce various federal, state and local government plans, laws, regulations and grants.

Guiding Principle

Clallam County will:

1. In priority order, promote the following hazardous waste management strategies:
 - Waste prevention
 - Waste reduction
 - Reuse
 - Recycling appropriately
 - Product stewardship
 - Physical, chemical, and biological treatment
 - Incineration
 - Solidification or stabilization
 - Landfill
2. Establish program priorities, target resources and focus efforts accordingly
3. Ensure program services are available to and easily accessed by all county residents and businesses regardless of income levels or where they reside
4. Adapt to changing conditions, such as:
 - Community values
 - Environmental and health indicators
 - Environmental and health research and regulations
 - Political priorities
5. Respond and account to solid waste ratepayers
6. Develop partnerships that strategically advance the Program's mission, including nontraditional partnerships
7. Actively work "upstream" to reduce human and environmental exposure to hazardous materials and products, and reliance on publicly funded services. Examples include:

- Promoting greater producer responsibility/product stewardship
 - Encouraging businesses to use existing and emerging “green” technologies
 - Conducting and/or organizing outreach to known generators to encourage and help them to reduce their waste streams
8. Encourage greater coordination of effort by government and non-governmental organizations, businesses and residents
9. Facilitate interagency coordination and cooperation to:
- Improve regulatory oversight and enforcement
 - Minimize regulatory gaps
 - Reduce duplication of effort
10. Use emerging information technologies to the Program’s advantage. At the same time, use alternative communication methods to ensure that no group or community is excluded from Program information or services

Strategic Goals 2012-2017/Elements of the Plan

This section describes continuing and new programs for managing hazardous materials and wastes from households and small businesses in Clallam County. Programs will be updated as circumstances change or in response to new information or technologies.

Examples of a change in circumstances might include a new national or state product stewardship program, a decrease or increase in funding or a change in program priorities. This section also includes programs that are supported at the policy level, but lack funding at this time.

1. Household Hazardous Waste Collection

Objective: Provide HHW Collection Services that Meet Customer Needs and Protect the Environment of Clallam County

- 1.1. Regional Moderate Risk Waste Facility. Ongoing 2013-2018. The MRWF service includes collection of HHW from all households in the County. There is a reuse area at the MRWF for items that are in good condition.

Implementing Agency: City of Port Angeles Solid Waste Division

Estimated Cost: ~\$90,000-100,000 per year

Funding Source: CPG funds \$75,000, Tip fees \$25,000

- 1.2. Plan for satellite events. By the end of 2015, assess future regional HHW collection needs and develop recommendations. This planning effort should examine:

- Service level and mix of mobile or satellite collection events in either the Sequim or Forks area.

Implementing Agency: Clallam County Environmental Health

Estimated Cost: ~\$5,000

Funding Source: CPG funds and tip fees

- 1.3. By the end of 2015, evaluate electronics waste collection and other product stewardship program needs throughout Clallam County. Evaluate collection locations throughout the County.

Implementing Agency: City of Port Angeles Solid Waste Division and SWAC

Estimated Cost: Minimal staff cost

Funding Source: CPG funds and tip fees

- 1.4. Participate in National or State Product Stewardship Program for compact fluorescents, pharmaceuticals, or other material to lessen management impact to the County. Evaluate participation by the end of 2015. It is important to be part of the local and national information sharing and decision making on product stewardship.

Implementing Agency: Clallam County Environmental Health and City of Port Angeles Solid Waste Division

Estimated Cost: ~\$1,000

Funding Source: CPG and tip fees

- 1.5. By the end of 2016, prepare an emergency preparedness plan for collecting household hazardous waste during and after a disaster. At minimum, the plan will identify temporary sites, contractors to be used, and policies to follow.

Implementing Agency: Clallam County Environmental Health and Public Works Departments

Estimated Cost: \$8,000

Funding Source: CPG funds and tip fees

- 1.6. Participate in collection of waste materials identified with product stewardship programs, such as compact fluorescent lights (CFL) when appropriate. The CFL regulation comes into effect in 2015 and collection sites must be evaluated.

Implementing Agency: City of Port Angeles Solid Waste Division and Clallam County Environmental Health

Estimated Cost: Minimal staff cost

Funding Source: Product stewardship efforts should be paid by manufacturer

2. Household and Public Education

Objective: Provide HHW Information Services that Meet Customer Needs

2.1. Educate the public and local elected officials on local waste reduction goals.

Implementing Agency: Clallam County Environmental Health and City of Port Angeles Solid Waste Division

Estimated Cost: ~\$5,000

Funding Source: CPG and tip fees

2.2. Residents will have convenient access to hazardous material/waste information (e.g. waste reduction, reuse, recycling and disposal, safer alternatives, proper hazardous material storage, etc.). Programs may target the general public, specific populations or specific waste streams. The implementing agency will evaluate program effectiveness and adjust as needed. Ongoing 2014-2018.

- Household Hazards telephone number (360) 417-2258 or (360) 417-4874.
- Clallam County and City of Port Angeles Hazardous Waste websites and link to the Hazardous Substance Information and Education Office (HSIEO) website at Ecology.
- Improve local websites with current information and links.

Implementing Agency: Clallam County Environmental Health and City of Port Angeles Solid Waste Division

Estimated Cost: ~\$10,000 per year

Funding Source: CPG and tip fees

3. Small Business Technical Assistance

Objective: Provide Small Business Information Services that Meet Customer Needs

3.1. Continue technical assistance and/or compliance campaigns (2012-2017). CCEH will continue to develop and run technical assistance campaigns. CCEH and COPA will work with Ecology's Local Source Control Program and help choose a target sector and assist the LSC Specialist with visits. Staff will visit businesses within the chosen target sector and focus on providing compliance assistance, waste prevention, waste reduction and recycling information.

Implementing Agency: Clallam County Environmental Health and City of Port Angeles

Estimated Cost: ~\$5,000 per year

Funding Source: CPG and tip fees

3.2. EnviroStars. Clallam County will evaluate participation in the EnviroStars Program by the end of 2013. EnviroStars is a group of local jurisdictions, including Jefferson and

Kitsap Counties, who provide assistance and incentives for smaller businesses to reduce hazardous materials and waste, in order to protect public health, municipal systems, and the environment.

Implementing Agency: Clallam County Environmental Health and City of Port Angeles

Estimated Cost: ~\$5,000 per year

Funding Source: CPG and tip fees

4. Small Business Collection Assistance

Objective: Provide Small Business Collection Services that Meet Customer Needs.

- 4.1. Begin to accept small business waste at the Regional Moderate Risk Waste Facility (2013-2015). To use this service, businesses must pre-register their wastes, ensuring only eligible businesses and wastes are accepted. This service is by appointment only and eligible businesses will be billed for services rendered. It is estimated there will be 100 businesses per year that will participate.

Implementing Agency: City of Port Angeles Solid Waste Division and SWAC

Estimated Cost: \$35,000

Funding Source: Businesses will pay for disposal cost

5. Enforcement

Objective: Provide Protection of Human Health and the Environment for all Citizens of Clallam County.

- 5.1. Continue to respond to complaints of hazardous waste violations (2012-2017). The Clallam County Environmental Health Department investigates most of these complaints by visiting the site of the suspected violation under the authority of Clallam County Code 41.10. Inspect all MRW Facilities in Clallam County to ensure compliance with Chapter 173-350 WAC (2011-2016).

Implementing Agency: Clallam County Environmental Health

Estimated Cost: \$20,000

Funding Source: CPG and permit fees

6. Used Oil Recycling

Objective: Provide Used Oil Collection/Recycling Services that Meet Customer Needs

- 6.1. Continue a used oil collection program at current collection sites. As of June 2011, the Blue Mountain Transfer Station, City of Sequim Shop, Regional Transfer Station, Port of Port Angeles Boat Haven East and West, Port of Port Angeles John Wayne Marina, and West Waste Transfer Station collect used oil. Ongoing 2009-13.

Implementing Agency: SWAC, Clallam County and Cities of Forks, Port Angeles, and Sequim Public Works Departments

Estimated Cost: minimal cost

Funding Source: reimbursement from oil collection

- 6.2. Evaluate other sites. As populations within the County grows and move, additional oil collection sites will be evaluated.

Implementing Agency: SWAC, Clallam County and Cities of Forks, Port Angeles, and Sequim Public Works Departments

Estimated Cost: minimal cost

Funding Source: reimbursement from oil collection

7. Evaluation

Objective: Evaluate Effectiveness and Implementation Status of Programs

- 7.1 Clallam County and the City of Port Angeles will evaluate the effectiveness and status of each program listed in this implementation plan. A bi-annual report will summarize the findings and recommend any necessary adjustments. It will be reported to SWAC and Ecology.

Implementing Agency: Clallam County Environmental Health and City of Port Angeles Solid Waste Division

Estimated Cost: ~\$4,000 every two years

Funding Source: CPG and tip fees

- 7.2. Evaluate existing programs every two years. Evaluate the current status of MRW programs and incorporate new hazardous waste stream collections, like pharmaceuticals. Evaluate current MRW programs for any cost savings.

Implementing Agency: Clallam County Environmental Health and City of Port Angeles Solid Waste Division

Estimated Cost: ~\$5,000

Funding Source: CPG and tip fees

Programs and Milestones

The Implementation Section of the Hazardous Waste Management Plan describes strategic goals with specific timelines. The table below describes how often or at what time interval the goals should be reviewed.

Table 11 Timeline for Strategic Goals

Timeline	Strategic Goals	Agency Follow-up
Ongoing/ Annual	1.1 HHW Collection at MRWF	COPA
	2.1 MRW Reduction	CCEH
	2.2 Public Education	CCEH and COPA
	3.1 CESQG Technical Assistance	CCEH and COPA
	5.1 Enforcement	CCEH
	6.1 Used Oil Collection	All Signatories and SWAC
2015	1.2 Satellite Event Evaluation	CCEH
	1.3 Evaluate E-waste Needs	COPA and SWAC
	1.4 Participate in National Product Stewardship (PS)	CCEH and COPA
	1.6 Participate in Collection of PS Materials	CCEH and COPA
	3.2 Evaluate EnviroStar Program	CCEH and COPA
	4.1 Evaluate CESQG at MRWF	COPA and SWAC
	6.2 Evaluate Potential Used Oil Sites	All Signatories and SWAC
	7.1 Evaluate Implementation Plan every 2 years	CCEH and COPA
	7.2 Evaluate Existing Programs	CCEH and COPA
2016	1.5 Prepare HHW Collection Emergency Plan	CCEH and CCPW

Alternative Programs/Additional Potential

Additional hazardous waste programs have been identified during the planning processes that are supported at a policy level, but funding is not approved or available at this time in order to consider these programs for implementation. Should funding become available in the future, these programs could be implemented during this planning period. Examples:

1. Develop an Environmentally Preferred Purchasing Policy (EPPP) for all local government agencies Clallam County. The EPPP will encourage agencies to use less toxic products and use safer alternatives.
2. Provide additional HHW education to non-English speaking Clallam County residents.
3. Integrate HHW with surface and groundwater education, including Puget Sound Partnership's EcoNet.
4. Reduce availability and environmental contamination of the following products or materials:
 - Mercury; mercury can be found in old thermometers, thermostats, auto light switches, and fluorescent lights.

- Pesticides; pesticides are found throughout the environment and can be persistent, bioaccumulative, and toxic.
- Polybrominated diphenyl ethers (PBDEs). PBDEs are chemicals added to consumer products to act as a fire retardant. PBDEs are added to plastics, upholstery fabrics and foams in such common products as computers, TVs, furniture and carpet pads.
- Phthalates; phthalates are plasticizers used widely in consumer products such as cosmetics, vinyl flooring, children’s toys, flexible plastics, lubricants, and adhesives.
- Curbside collection bans on materials such as HHW, fluorescent tubes or electronics.
- Transfer station bans on materials such as HHW, fluorescent tubes or electronics.

Estimated Annual Budget Summary

Table 12 shows the estimated annual budget summary for the costs of the seven elements described in the implementation plan. It provides the cost estimate, the funding source, and the amount of full-time equivalent (FTE) or contract time that is needed to implement the plan.

Table 12 Estimated Annual Budget

Element Programs	Cost	Funding Source	# Employees
1. HHW Collection	\$100,000 \$14,000	CPG and tip fees	Contract .1 FTE
2. Household and Public Education	\$15,000	CPG and tip fees	.25 FTE
3. Small Business Technical Assistance	\$10,000	LSC, CPG and tip fees	.1 FTE
4. Small Business Collection Assistance	\$35,000	Small Business Participants	<.1 FTE
5. Enforcement	~\$10,000	CPG and tip fees	.1 FTE
6. Used Oil Education and Collection	Minimal	CPG and tip fees	< .1 FTE
7. Evaluation	\$4,000	CPG and tip fees	.1 FTE

References

City of Forks <http://www.forkswashington.org/>

City of Port Angeles <http://www.cityofpa.us>

City of Sequim <http://www.ci.sequim.wa.us/>

Clallam County <http://www.clallam.net>

EnviroStars <http://www.envirostars.org/>

Lower Elwha Klallam Tribe <http://www.elwha.org/>

Jamestown S'Klallam Tribe <http://www.jamestowntribe.org/>

Makah Tribe <http://www.makah.com/>

Quileute Tribe <http://www.quileutenation.org/>

Washington State Department of Ecology www.ecy.wa.gov/

2009 Washington Statewide Waste Characterization Study
Ecology Publication 10-07-023
Prepared by Cascadia Consulting Group, June 2010

Clallam County Solid Waste Composition Study
Clallam County Environmental Health
Prepared by Green Solutions, June 2003

Clallam County Hazardous Waste Management Plan
Clallam County Department of Public Works
Prepared by Paul Running and Associates, October 1991

Comprehensive Solid Waste Management Plan Update 2006
Clallam County
Prepared by Parametrix, January 2007

Guidelines for Developing and Updating Local Hazardous Waste Plans
Ecology Publication 10-07-006
Prepared by Department of Ecology, February 2010

APPENDIX E

**State Environmental Policy Act (SEPA)
Determinations of Non-Significance: CSWMP & HWMP**

**State Environmental Policy Act (SEPA) WAC 197-11
DETERMINATION OF NON-SIGNIFICANCE**

Application Number: ECL 2013-21

Applicant: Clallam County Public Works Department
223 East 4th St, Suite 6
Port Angeles, WA 98362

Location of Proposal: The proposed Clallam County Solid Waste Management Plan will be applied throughout the County, and will need to be approved and adopted by the cities of Port Angeles, Sequim, and Forks, and The Makah, Quileute, Lower Elwha and Jamestown S'Klallam Tribal Councils.

Description of Proposal: The Solid Waste Management Plan is a five-year plan discussing all aspects of solid waste management within the County and incorporated areas. The plan includes discussions and recommendations on waste reduction, recycling, composting, energy recovery, collection, transfer, import/export, waste disposal, and regulation and administration.

SEPA: This Plan is a non-project action (per WAC 197-11-704(2)(b)). Phased review is a component of a non-project action. The lead agency determines the appropriate scope and level of detail of environmental review to coincide with meaningful points in the planning and decision-making processes. Environmental review may be phased if it assists agencies and the public to focus on issues that are ready for decision and exclude from consideration issues not yet ready. Broader environmental documents may be followed by narrower documents such as site specific analysis (project specific) per WAC 197-11-060(5) of SEPA Rules. When specific project actions are proposed that are subject to the Solid Waste Management Plan, these project actions will be subject to further environmental review.

Adoption of Plan: The Clallam County Board of County Commissions will conduct a public hearing prior to adoption of the plan, which will be scheduled and publicized at a later time. The purpose of the hearing will be to receive public testimony on the proposed Clallam County Solid Waste Management Plan. The Board will make a decision regarding whether to adopt the plan upon the close of the public hearing. Interested parties in the plan are invited to make their views known by submitting comments to Clallam County (address above).

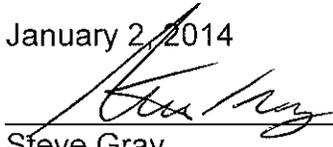
Lead Agency: Clallam County is the lead agency and has determined that this proposal will not result in probable significant adverse impact to the environment, based on Clallam County existing land use regulations. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and draft Hazardous Waste Management Plan. This information is available to the public on request at the office of the Responsible Official as listed below.

This Determination of Non-Significance (DNS) is issued under WAC 197-11-340(2).
Comments must be submitted by October 11, 2013.

Staff Contact: Donella Clark, Senior Planner (360) 417-2594

Responsible Official: Steve Gray, Planning Manager
Department of Community Development (DCD)
223 E. 4th Street, Suite 5, Port Angeles, WA 98362

Issuance Date: January 2, 2014

Signature: 
Steve Gray
Clallam County Department of Community Development

This may be the only opportunity to comment on the environmental impacts of the proposal. Unless the Responsible Official withdraws the threshold determination pursuant to WAC 197-11-340(3)(a), the threshold determination shall be final at the end of the comment period. Agencies and interested parties will be notified if the threshold determination is withdrawn. The threshold determination may be appealed as part of the Board of County Commissioner's final decision regarding the Hazardous Waste Management Plan. Contact the Clallam County Permit Center for SEPA appeal procedures, Donella Clark, Senior Planner, Clallam County DCD Permit Center, 223 East Fourth Street, Suite 5, Port Angeles, WA 98362, (360) 417-2594 or by e-mail at dclark@co.clallam.wa.us.

**State Environmental Policy Act (SEPA) WAC 197-11
DETERMINATION OF NON-SIGNIFICANCE**

Application Number: ECL 2012-12

Applicant: Clallam County Environmental Health
Jennifer Garcelon, Environmental Health Specialist
223 East 4th St, Suite 14
Port Angeles, WA 98362

Location of Proposal: The proposed Clallam County Hazardous Waste Management Plan will be applied throughout the County, and will need to be approved by all signatories of the Comprehensive Solid Waste Management Plan, which includes the Cities of Forks, Port Angeles, Sequim, Clallam County, and the Tribes.

Description of Proposal: The Hazardous Waste Management Plan is an appendix to the Clallam County Comprehensive Solid Waste Management Plan and develops a method for managing small quantities of hazardous waste in Clallam County that are exempt from federal and state hazardous waste regulations. This plan is a requirement of the Hazardous Waste Management Act, Chapter 70.195 RCW.

SEPA: This Plan is a non-project action (per WAC 197-11-704(2)(b)). Phased review is a component of a non-project action. The lead agency determines the appropriate scope and level of detail of environmental review to coincide with meaningful points in the planning and decision-making processes. Environmental review may be phased if it assists agencies and the public to focus on issues that are ready for decision and exclude from consideration issues not yet ready. Broader environmental documents may be followed by narrower documents such as site specific analysis (project specific) per WAC 197-11-060(5) of SEPA Rules. When specific project actions are proposed that are subject to the Hazardous Waste Management Plan, these project actions will be subject to further environmental review.

Adoption of Plan: The Clallam County Board of County Commissions will conduct a public hearing prior to the end of 2012, which will be scheduled and publicized at a later time. The purpose of the hearing will be to receive public testimony on the proposed Clallam County Hazardous Waste Management Plan. The Board will make a decision regarding whether to adopt the plan upon the close of the public hearing. Interested parties in the plan are invited to make their views known by submitting comments to Jennifer Garcelon (address above).

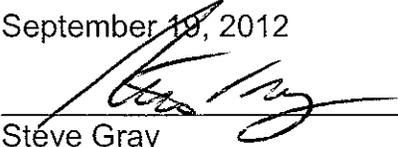
Lead Agency: Clallam County is the lead agency and has determined that this proposal will not result in probable significant adverse impact to the environment, based on Clallam County existing land use regulations. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and draft Hazardous Waste Management Plan. This information is available to the public on request at the office of the Responsible Official as listed below.

This Determination of Non-Significance (DNS) is issued under WAC 197-11-340(2).
Comments must be submitted by October 4, 2012.

Staff Contact: Donella Clark, Senior Planner (360) 417-2594

Responsible Official: Steve Gray, Planning Manager
Department of Community Development (DCD)
223 E. 4th Street, Suite 5, Port Angeles, WA 98362

Issuance Date: September 19, 2012

Signature: 
Steve Gray
Clallam County Department of Community Development

This may be the only opportunity to comment on the environmental impacts of the proposal. Unless the Responsible Official withdraws the threshold determination pursuant to WAC 197-11-340(3)(a), the threshold determination shall be final at the end of the comment period. Agencies and interested parties will be notified if the threshold determination is withdrawn. The threshold determination may be appealed as part of the Board of County Commissioner's final decision regarding the Hazardous Waste Management Plan. Contact the Clallam County Permit Center for SEPA appeal procedures, Donella Clark, Senior Planner, Clallam County DCD Permit Center, 223 East Fourth Street, Suite 5, Port Angeles, WA 98362, (360) 417-2594 or by e-mail at dclark@co.clallam.wa.us .

APPENDIX F

Summary of Ecology & Public Comment on Preliminary Draft & Response

**Clallam County CSWMP
Ecology Preliminary Draft Review Comments & County Response
May 20, 2014**

The following comments are items you must address in order for your plan to be approved.

1. Include the signed resolutions of adoption for the final draft plan submittal.

Response: To be included as Appendix B

2. Include the signed State Environmental Policy Act (SEPA) checklist and the determination with the final draft plan submittal.

Response: Included as Appendix E

3. Include a response to comments and comments section.

Response: Included as Appendix F

The following comments are items you should change to improve your plan:

1. Page viii, Update the year on the Hazardous Waste Management Plan. It should be a 2014 plan, if it is included as part of the Comprehensive Solid and Hazardous Waste Management Plan.

Response: Done

2. Page 1 and Page 91, Include an interlocal agreement that represents the City of Forks in Appendix B. The plan states the planning area includes all three incorporated cities.

Response: Forks will be included through resolution of adoption. An ILA including Forks should be drafted prior to the next update (2019).

3. Page 2, Section 1.2, Add the date for the Port Angeles Transfer Station Operations Plan.

Response:
Added-2006.

4. Page 31, Add the addresses for the haulers. This could be listed in an appendix.

Response:
Already included in Appendix C: Rates & Regulations

5. Page 37, Update the language regarding the Blue Mountain Facility.

Response:
Updated with fire, reconstruction, and resumed service.

6. Page 51, Appendix C is incorrectly cited.

Response:
Changed to correct citation, Appendix B.

7. Page 60, Update the mercury containing lights language. In 2010 the Washington Legislature passed the law for Mercury-Containing Lights - proper disposal (Chapter 70.275

RCW). This law requires a producer-financed product stewardship program be established for the collection, transportation and recycling of mercury-containing lights. A bill amending the original 2010 Mercury-Containing Lights Law (RCW 70.275) was signed by Governor Inslee in 2014. This amendment requires the producers to finance the stewardship program through an environmental handling charge added to all mercury-containing lights sold at retail in the state. The new product stewardship program start date is January 1, 2015.

Response: Updated with new amendment & date.

8. Page 108, the WUTC solid waste cost assessment questionnaire, under the definitions for year 3 should refer to 2016. Year 6 should refer to 2019.

Response: Done. More clarification on defining referenced years should be included on WUTC cost assessment documents (give examples based on submission dates, etc.) to prevent miscalculations.

9. Appendices, add page numbers and check that the referenced appendices and the actual appendices match.

Response: In progress

10. Add an appendix for the SWAC by-laws.

Response: Included as Appendix E.

Clallam County Appendix D, Hazardous Waste Management Plan, Ecology Preliminary Draft Review Comments

The following comments are items you should change to improve your plan:

1. Page 2, Update the dates of the plan.

Response: Done

2. Page 3, Update the language of the planning process.

Response: Done

3. Consider adding language regarding used oil recycling. On March 31, 2014 Senate Bill 6501 (concerning used oil recycling) was signed by Governor Inslee. This bill amended sections of RCW 70.95I.020 and 030 of the Used Oil Recycling law. The changes to the law require Ecology, by July 1, 2015, to develop best management practices (BMP's) for preventing and managing polychlorinated biphenyl contamination at public used oil collection sites. Additionally, Ecology must also update the guidelines for public used oil collection sites, by July 1, 2015.

The updated guidelines must include the best management practices for prevention and management of contaminated used oil and a process for how to petition the legislature for relief of extraordinary costs incurred with the management and disposal of contaminated used oil.

In developing the BMP's for preventing and managing polychlorinated biphenyl contamination at public used oil collection sites, the legislature directed Ecology to address, at a minimum: (i) Tank testing requirements; (ii) Contaminated tank labeling and security

measures; (iii) Contaminated tank cleanup standards; (iv) Proper contaminated used oil disposal as required under chapter 70.105 RCW and 40 C.F.R. Part 761; (v) Spill control measures; and (vi) Model contract language for contracts with used oil collection vendors. This law also requires local jurisdictions to include a plan for addressing the best management practices developed by Ecology in their local hazardous waste plans. There was no timetable given for locals to address these new requirements in their plan. Therefore, Ecology assumes local hazardous waste plans will begin including plans to address the BMP's after the BMP's have been developed and then included in their plans in accordance with their normal update schedule to their plans.

Because of this recent law change, you may want to include in your hazardous waste management plan language that acknowledges the changes that will be coming in the future and in general, addresses these planned new guidelines and best management practices.

Response:

Language added to Haz Waste Plan p. 19 & 23.

Additional Comments:

Page 5, Second paragraph after Table 1. Possible word change: "Therefore, due to the decrease in toxic components, and the high volume and costs associated with latex paint recycling, latex paints, it are is not included in the accepted items at the Moderate Risk Waste Facility."

Response: Changed

Page 14, First paragraph under the Federal Law heading, page 14. "In Washington State, the management of hazardous waste was delegated to the Ecology by the United States Environmental Protection Agency (EPA) through the RCRA State Authorization rulemaking process."

Response: Changed

Page 25, Adjust the dates in Table 11. According to the table there is a lot of work that should be completed.

Response: Changed timeline

Four persons submitted comments during the public comment period for the 2014 Update of the Clallam County CSWMP, which ran from 12/2/2013-1/1/2014. Below is a summary of their comments and County response. Full text of the emails have been retained as pdfs in the CSWMP_2014Update Files in the County and City of Port Angeles file records.

1. Gavin Wuttken (Around Again)

Public meeting attended: 12/2/2013

a. Section: general

Comment, summarized: Can language be included to make the County able to apply for GHG study grants for SW?

County Response: Good idea, added language to Recommendation (RA2)

2. Darlene Schanfald

901 Medsker Rd

Sequim WA 98382

Email received: 1/3/2014; *(Caps from commenter)*

a. Section: Appears to be in regards to where biosolids and composting appears in the plan.

Comments:

- Biosolids: pollutant rich, uptake from land application Oppose the sale of composts, or the like, with sewage wastes.
- Support each batch being analyzed for a full suite of contents, including pharmaceuticals, medical wastes (hospital, clinic and veterinarian), prions, personal care products, radiation, and any other potential contaminants -- harmful and unbeneficial, including hazardous materials in these wastes.
- Support warning labels of current products of potential harmful contents.
- Support research into safe options for turning this waste into energy.
- Support all entities in Clallam County leading the way in WA State to change direction from that of Ecology and do something safe and beneficial with these waste streams.
- Support a training program of staffs that include the research and documentation on the impacts of these wastes to air, soil, water, food and the health to wildlife and humans.
- Further, since these wastes might be labeled hazardous if not for language that there are some "soil amenities "such as a few metals, and since they can contain so many toxic and hazardous constituents, we believe these wastes should be studied under hazardous rules.
- SUMMARY OF CONDITIONS AND RECOMMENDATIONS DEFINITELY OPPOSE WHERE THESE CONTENTS INCLUDE TOXINS. ANY MARKETING SHOULD INCLUDE TRUTHFUL AND FULL LABELING AND HISTORY OF WHERE THE CONSTITUENTS COME FROM.

County Response: Further detail on biosolids alternatives and state recommendations have been included in added section 7.8.3 Biosolids Alternatives, to support the County's recommendation

- b. **Section:** I1) Evaluate new proposed incineration projects for select waste streams and/or locations based on an objective review of the potential impacts to human health and environmental quality, as well as a comparison to alternative disposal methods.
Comment: "SUPPORT. CITIZEN AND ENVIRONMENTAL ORGANIZATIONAL INPUTS SHOULD BE INCLUDED."
County Response: This would be satisfied by required SWAC representation; SWAC is a lead agency on this recommendation and would participate.
- c. **Section:** ER2) Work with City of Port Angeles staff to continue to evaluate a range of opportunities to use the LFG produced at the City-owned landfill
Comment: "SUPPORT, WHERE THESE ARE WELL DOCUMENTED TO BE SAFE."
County Response: Safety would be part of the review of LFG opportunities, though details of opportunities not listed in plan.
- d. **Section:** WP2) Encourage the formation of citizen advisory/action groups to help with public education efforts.
Comment: "SWAC SUPPORT RESEARCH."
County Response: Acknowledged.
- e. **Section:** 5.2 INCINERATION & ENERGY RECOVERY
Comment: "WE NEED GOOD DEFINITIONS OF "INCINERATION" V. 'PLASMA ARC," V. OTHER DEFINITIONS. THOSE THAT DO NOT EMIT AIR CONTAMINANTS COULD BE REVIEWED."
County Response: Recommendation ER1 states that the county should "Investigate and develop proposals for energy recovery methods, on a case by case basis." If this recommendation were pursued, definitions and review would be a necessary step in developing proposals.
- f. **Section:** 6.3.1.3 Processing and Marketing of Recyclables. Statement in CSWMP: Hog fuel, produced from wood residuals, is the most common material that is reprocessed for another use (See Chapter 7.18).
Comment: "RECYCLING HOG FUEL" NEEDS MORE DEFINITION AS TO THE "HOW."
County Response: Acknowledged. Revised 6.3.1.3, in conjunction with SWAC comments on 1/21/14, to distinguish wood waste reuse from other recycling. The "how" (biomass boiler use) is described.
- g. **Section:** 7.2.3 Recs: Agricultural Wastes, 7.7.2 Needs and Opportunities: Biomedical Wastes
Comment: "SUPPORT"
County Response: Acknowledged
- h. **Section:** 7.2.1 Needs and Opportunities: Agricultural Wastes
Comment: "WHAT ANTIBIOTICS ARE USED?"
Response: Water quality issue not relevant to CSWMP
- i. **Section:** 7.10 CONTAMINATED SOILS
Comment: "SOILS ARE ALSO CONTAMINATED BY "BIOSOLIDS."
County Response: Acknowledged; current Ecology standards guide biosolids and contaminated soils handling in County as listed.

- j. **Section:** 7.15.2 Needs and Opportunities: Pharmaceutical Waste
Comment “BIOSOLIDS CONTAIN THESE WASTES, NOT JUST BY FLUSHING PILLS DOWN DRAINS, BUT ALSO BY HUMANS EXCRETING THEM. THIS IS STANDARD DENIAL BY BOTH USEPA AND STATES. THE LIMITED SAMPLING DID PRODUCE TOXIC RESULTS. SINCE THE SAMPLING WAS LIMITED BUT SHOWED RESULTS, ECOLOGY SHOULD CONTINUE SAMPLING AND ANALYSIS. BOTH USGS (2002) AND USEPA DATA (2009) RESULTS SHOWED MUCH CAUSE FOR CONCERN. AND THIS IS IN ADDITION TO THE MANY OTHER STUDIES. IT IS TRUE RIGHT NOW THAT SINCE ECOLOGY IS APPEALING WAHAKIACUM COUNTY'S REFUSAL TO IMPORT, UPHELD BY SUPERIOR COURT, ECOLOGY MUST TAKE THE STANCE IT DOES--DENIAL.”
County Response: Section 7.15.3 lists as an alternative a monitoring program for PPCP. No recommendation regarding monitoring was made at this time, based on the 2004 study by Ecology referenced in the CSWMP noting that additional monitoring was a low priority.
- k. **Section:** 7.18 wood waste
Comment: “CURRENTLY, TIMBER SLASH IS BEING USED FOR BIOMASS PLANTS.”
County Response: Language revised in 7.18.5.1 to include the fact that quantities are used in biomass boilers in this section.
- l. **Section:** 7.18.5.2 Technology Development
Comment: “THE NEEDED INFORMATION FROM EACH IS HOW WELL THEY WORK? WHAT ARE THEIR EMISSIONS? WHAT TYPE OF WASTES CAN EACH TECHNOLOGY HANDLE WITHOUT BREAKING DOWN? AND WHAT SIZES DO THEY COME IN; WHAT AMOUNT OF WASTE IS OPTIMAL FOR EACH SIZE?”
County Response: Good questions. Not required by scope of plan to address technologies at this level. Consideration of emerging methods if pursued by County is recommended broadly to be “considered on a case by case basis” (WD2) and would require further study and environmental review required by authority other than this plan.
- m. **Section:** 7.18.5.3 Other Environmental Considerations
Comment: “IN FACT, TO GET THE FEED STOCKS, DIESEL TRUCKS RUN REGULARLY AND CONTAMINATE THE AIR DURING THEIR TRIPS. E.G., NIPPON DOUBLED THE NUMBER OF TRUCK PICKUPS AND INCREASED THEM TO 24/7.”
County Response: language changed from “green house gas emissions associated with combustion of fossil fuels would also be reduced” to “may also be reduced”.
- n. **Section:** SOLID WASTE DISPOSAL DISTRICT.
Comment: “THIS NEEDS TO REMAIN UNDER CURRENT ADMINISTRATIONS. CLALLAM COUNTY DOES NOT NEED ADDITIONAL GOVERNMENTS AND COSTS TO CITIZENS WITH TAXES, STAFF, OFFICES, ETC.”
County Response: Acknowledged. Recommendation is for “further investigation only” .

3. Bob Lynette

220 Strawberry Field Drive

Sequim, WA 98382

Email received: 1/1/2014

a. **Section:** 7.18.5.1 (Wood Waste)

Comment: “only a fraction of the timber slash is burned in place”. Also provided Ecology’s *Estimated Tons Burned Silvicultural Burning 2005-2008*.

County Response: Language revised in 7.18.5.1 to include the fact that quantities are used in biomass plants in this section, as well as burned onsite.

Harold G (“Hal”) Hawley

110 Fencebird Lane

Sequim, WA 98382

Email received: 12/27/2013

a. **Section:** General

Comment:

- “many of the recommendations appear not to be specifically actionable.”
- ” For the plan to be effective, it is important that all recommendations be actionable, specific, include measurable success criteria, and explicitly identify responsibility. Without these qualities, the plan will be ineffective.”
- E.g. "Consider a combined service ordinance for Clallam County for curbside recycling pick up where curbside garbage collection occurs. (CO1)"-nebulous, needs more info in plan

County Response: Table ES-1 lists Lead Entity and Funding Source for each recommendation. 4.2.3.2 describes the alternative of a combined service ordinance and gives brief examples of effects of such an ordinance on service. If this recommendation were to be considered by the lead entity (in this case, SWAC, Clallam County, JSWAB and the collection companies), further criteria of success and expected benefits and drawbacks would be discussed.

b. **Section:** General

Comment:

- “The plan does not adequately define or describe the problems for which the recommendations are the intended solutions. If it is not clear what is the problem, how can you expect to devise a cost effective solution?”
- e.g. “Clallam County should further investigate the impacts of instituting universal collection service across the county. (CO2)”

County Response: Responding to commenter’s example (Recommendation CO2), Section 4.2.3.3 of the CSWMP describes universal collection service possible benefits and drawbacks, alluding to collection “problems” that prompted the recommendation for further investigation of the universal collection recommendation. As a policy plan, it is felt that this CSWMP adequately describes problem to prompt “further investigation” as action.

c. **Section:** General

Comment: “The plan would benefit from further emphasis and innovative thinking on waste prevention.” E.g bulk buying

County Response: Waste prevention recommendations are intended as policy versus specific action. Some ideas for new or continued waste prevention methods are described in 6.2.2 and 6.2.3.

- d. Section:** Recommendation I1: Evaluate new proposed incineration projects for select waste streams and/or locations based on an objective review of the potential impacts to human health and environmental quality, as well as a comparison to alternative disposal methods.
Comment: inappropriate for CSWMP e.g. should be in another county doc
County Response: Incineration projects fall under solid waste jurisdiction and are required to be a part of this CSWMP

- e. Section:** (WP1) Continue public information and educationpublic information materials should be distributed electronically to reduce waste and mailing costs.
Comment: should “ensure that public awareness efforts are actually effective” such as electronic mailings
County Response: Effectiveness of public awareness efforts are measured through surveys and other measurement standards conducted by County and cities. Recommendation RA2 encourages developing solid waste system annual review including parameters such as effectiveness.

APPENDIX G

Clallam County Solid Waste Advisory Committee Bylaws



Clallam County Solid Waste Advisory Committee

223 E. Fourth Street, Suite 6,
Port Angeles, WA 98362

CLALLAM COUNTY SOLID WASTE ADVISORY COMMITTEE

BY-LAWS

(Adopted at January 20, 2011 meeting)

NAME

The committee shall be known as. "The Clallam County Solid Waste Advisory Committee" hereafter referred to as SWAC.

PURPOSE

The SWAC is established pursuant to RCW 70.95.165(3) to fulfill and perform all the functions required of local solid waste advisory boards.

Specifically, the purpose and charge of the SWAC shall be to:

- Advise Clallam County Commissioners on all aspects of solid waste management planning.
- Assist Clallam County in the development of programs and policies concerning solid waste management.
- Review and comment on proposed solid waste management rules, policies, or ordinances prior to their adoption.
- Advise Clallam. County on other solid waste matters as assigned by the Board of County Commissioners.

COMPOSITION AND TERM OF MEMBERS

The SWAC shall consist of nine members appointed by the Clallam County Board of County Commissioners as follows:

- One representative each to be designated by the Cities of Forks, Port Angeles, and Sequim.
- Two representatives of the solid waste industry in Clallam County.
- One Clallam County Staff member with solid waste management responsibility.
- One individual representing the business community of Clallam County and/or Cities within the County.
- One individual representing Tribal governments in Clallam County.
- One citizen-at-large.

City and County members serve until the respective jurisdiction designates a new representative. All other members shall serve a 3-year term from date of appointment.

ALTERNATES

Each member appointed to the SWAC may designate an alternate. Alternates must be designated in writing by a letter addressed to the chair. Alternates will have the full voting rights of the appointed member at any meeting for which the appointed member is not in attendance.

OFFICERS AND DUTIES

There shall be a Chair and Vice Chair. Officers will be elected by the Committee sitting in regular open public meetings. Officers of SWAC shall serve for one year from the date of election.

The Chair will preside over SWAC meetings. The Chair will sign all correspondence originated by SWAC on behalf thereof.

The Vice Chair will preside over SWAC meetings in, the absence of the Chair.

The SWAC may remove any officer whom they elect by the following procedure:

Any member of SWAC may offer a motion for removal at a meeting. If the motion is seconded, it will be considered and voted on by secret ballot at the next regular meeting of the Committee. Approval of a motion for removal will require a two-thirds majority of the members present and voting.

COMMITTEES

The Chair may appoint such standing and ad hoc sub-committees as may be considered useful and appropriate to investigate any matter of interest to the SWAC. Individuals need not be SWAC members to serve on sub-committees, however at least one SWAC member will serve on each sub-committee.

ABSENCES

A Committee member who accrues three consecutive, unexcused absences from regular meetings be removed from the Committee by the Chair with the concurrence of the majority of the members.

MEETINGS

All regular and special meetings of the SWAC shall be held in a place that is open and easily accessible to the public. The Committee is subject to, and will conform to the provisions of Clallam County Policy and Procedure 952, Boards and Committees. Members may participate in meetings by telephone.

All meetings will be conducted in general accordance with Robert's Rules of Order.

QUORUM

A quorum is required to be present before an official, regular or special meeting of the Committee can take place. A Simple majority of the appointed members of the Committee, or their alternates, shall constitute a quorum.

VOTING

Each member shall be allowed one vote on items considered by the Committee. Designated alternates will be allowed a proxy vote. Motions are adopted by majority of members (or alternates) present at any meeting.

REPORTS, RECOMMENDATIONS AND CORRESPONDENCE

Reports, recommendations and correspondence submitted to the Board of County Commissioners shall be forwarded on behalf of a majority of the members over the signature of the Chair. Minority reports, if any, shall be attached to, and forwarded with such reports, recommendations or correspondence without comment by the chair.

CONDUCT OF MEETINGS

The meeting agenda will be constituted as follows:

1. Call to order
2. Roll call
3. Minutes of previous meeting(s)
4. Public forum: Limited at the pleasure of the chair; extension at the pleasure of SWAC members in attendance. [moved up in the agenda at Max's suggestion]
5. Old business
6. New business
7. Next meeting agenda

AMENDMENT

These by-laws may be amended at any regular meeting of the SWAC by a two thirds majority of the members (or their alternates) present, except, in no case shall an amendment be approved with less than a simple majority of the full committee (five members or alternates) voting "aye."

ADOPTED this 20th day of January, 2011.

APPENDIX H

Recycling Asphalt Shingles: Feasibility Report

Recycled Asphalt Shingles Feasibility Report

April 2014

**Prepared for:
Clallam County Public Works**

**By
Meggan Uecker
Waste Reduction Coordinator
WSU Extension Clallam County**

**Funding for this report comes from the Department of Ecology's Coordinated Prevention Grant
program and WSU Extension Clallam County**

Executive Summary

Diverting asphalt shingles from the landfill for recycling into hot mix asphalt has demonstrated benefits including the containment or reduction of paving costs and the advancement of sustainability directives. On the other hand, a recycled asphalt shingle (RAS) program may face challenges such as market fluctuations and organizational logistics. This analysis is intended to provide stakeholders with the background, resources, and a variety of scenarios that can be used to further discuss the merit of implementing a RAS program in Clallam County.

Introduction

Asphalt shingle waste is generated in Clallam County from roof installations and tear-offs from re-roofing. These asphalt shingles can be ground up and successfully recycled for road applications such as hot mix asphalt (HMA) pavement, cold patch and other uses. While national and regional markets are developing, enacting a RAS program in Clallam County holds opportunities and challenges both akin to the broader RAS industry, and characteristic of the local solid waste system.

Clallam County stakeholders have expressed continued interest in how a local RAS program might affect them and the Regional Solid Waste Export and Transfer system. A RAS program could help meet state and county solid waste targets, outlined in the Clallam County Comprehensive Solid Waste Management Plan (CSWMP) 2014 Update, to increase waste diversion and support local waste processing opportunities. Local roofing contractors are interested in seeing how asphalt shingle recycling could affect disposal costs for their businesses. Another important consideration is how a switch from disposal to recycling shingles would affect the operations budget at the Regional Transfer Station, which relies on tipping fees for a significant amount of funding.

Much research exists on RAS, particularly its use in HMA. The King County Solid Waste Division's Linkup Program (Linkup), dedicated to expanding markets for recycled materials, has compiled extensive research on its Asphalt Shingle Resources [webpage](#) including national and regional performance evaluations, best practices, study reports, and example specifications; experts are available through this program to assist counties with further research. Therefore, this report instead focuses on a brief assessment of local options regarding RAS, utilizing County-specific data where possible and interviews with relevant stakeholders.

Background

Recycling Asphalt Shingles: Use, Performance and Specifications

The cost of virgin asphalt binder has increased significantly compared to recycled asphalt binder, making recycled asphalt an increasingly valuable component in the production of Hot Mix Asphalt (HMA). Reclaimed asphalt pavement (RAP) is used at a higher percentage by weight due to differences in binder properties; RAP is often an abundant byproduct of HMA producers' activities, therefore competing with RAS. However, RAS contains much more asphalt binder which replaces the costly virgin binder, and so has more significant cost savings benefits by weight. RAP has been used effectively at 15-20 percent of the HMA by weight, though many states are developing specifications or procedures for the use of RAS ranging between 3-8 percent by weight.

Studies have demonstrated comparable or improved performance standards in pavement containing RAS. National and state studies have prompted the Washington State Department of Transportation's (WSDOT) 2014 [Construction General Special Provisions](#) (GSPs), in [Division 5 Surface Treatments and Pavements](#) to include specifications for RAS on state roadways. Other state agencies including King County Roads Division, Solid Waste Division and Metro Transit, and City of Bellevue are using RAS in paving projects; King County is developing an HMA specification which will likely include RAS at 3% and RAP at 15% and will not require the significant amount of material and mix testing that is required under the WSDOT GSP.

Markets

The RAS market is still developing, including collection and processing infrastructure, end use markets, and ease of regional specifications. As recycling of asphalt shingles moves forward, it is imperative to confirm that recyclers are both successfully processing and distributing their end-products in solid markets. Especially in new markets, infrastructure can shift, reducing options for recycling and requiring another approach.

To strengthen the end use market, jurisdictions can require RAS on one or more projects, and include RAS as permissible in bid requests. An [alternative bid](#) (Krivit 2002) for RAS-containing HMA could turn out to be the cheaper option.

There are a small number of [shingle recyclers](#) in the region. Evergreen Shingle Recycling (Evergreen) in Woodinville is currently the closest and least expensive shingle recycler for Clallam County. Evergreen accepts shingles with metal and felt attached at \$65 per ton. Loads that are rejected due to contamination (excess wood, garbage or other material as defined by the recycler) would cost \$125/ton. The closest HMA producer in Clallam County is Lakeside Industries, located in Port Angeles. Lakeside Industries' Clallam County plant doesn't currently recycle asphalt shingles or use RAS; but they do utilize RAP in their HMA mix. However, four of Lakeside Industries other plants in Western Washington does use RAS, demonstrating an investment in this material by one of the biggest HMA producers in the state.

Amount produced in Clallam

The amount of asphalt shingle waste produced in Clallam County ranges from 700 to 1261 tons per year, based on analysis of sources described below. Re-roofs producing shingle waste occurs most heavily from June to October; shingle waste could expected to be generated at about 140 to 250 tons per month during that time.

The City of Port Angeles Solid Waste Division staff, responsible for the Regional Transfer Station operations, tracked about 700 tons of asphalt shingles crossing the scales each year. The City of Port Angeles Department of Community and Economic Development estimates that for the average 1,814 square foot home re-roofed in Port Angeles, 4,450 lbs. (nearly 2.5 tons) of tear-off asphalt shingles are generated. An average of 123 roofs of all building types was re-roofed in Port Angeles since 2009, representing over 300 tons of shingle waste from Port Angeles every year.

Clallam County and Tribal Lands do not issue permits for re-roofs; so estimates of shingle waste generated in the rest of the county are not presented here. Table 1-1 shown on page 4, estimating

weights of RAS based on a building’s square footage, could be used to derive estimates using data compiled by local roofing contractors.

Square Footage of Home	1000	1500	2000	2500
Asphalt bundles (75 lb ea.)	30	45	60	75
Felt rolls (40 lb/ea.)	10	15	20	25
Total weight	2650 lbs/ 1.325 tons	3975 lbs/ 2 tons	5300 lbs/ 2.65 tons	6625 lbs/ 3.312 tons

Source: Waste Connections, Inc. 2014.

The last waste characterization study at the Regional Transfer Station was the 2010 Waste Characterization Study by the Department of Ecology (Ecology) which tracked approximately 1,261 tons of asphalt shingles in the study area representing Clallam County (Ecology 2010). Common estimates put roof waste weight at 3-5 tons per roof; which supports the larger estimates tracked in the Ecology study.

Analysis

Recycling Options

Based on the information presented in the previous sections, four general options for recycling asphalt shingles that will be presented here. These options are: 1) purchasing a shingle grinding machine for the County or region; 2) public collection and hauling of shingles to a recycler; 3) private collection and hauling of shingles to a recycler; and 4) contracting with a mobile grinder to recycle shingles within the County or region. Temporary, undercover storage at a private or public site in the County would be a necessary consideration for all options. Regional partnerships could also be considered (for instance, with Jefferson County) to increase economies of scale. General costs, logistics, and other factors for consideration for each of these options will be presented in the following sections.

a) Shingle grinding machine

The average cost of a shingle grinding machine is \$500,000, with installation bringing initial investment to \$1 million. Preliminary research by the City of Port Angeles Department of Community and Economic Development suggests a minimum tonnage amount of 10-20,000 tons of shingles needed for a positive return on investment (ROI); 10-20 times the amount estimated to be disposed of in Clallam County in a year.

b) Public collection and hauling of shingles to a recycler

Only a few materials are currently recycled by public entities in Clallam County: metals, and tires. All other recyclables collected in the county are handled by private companies under contract through the Regional Solid Waste Export and Transfer System (System). The public sites operating under this System are the Regional and Blue Mountain Transfer Stations. A cost analysis of RAS recycling at the Regional Transfer Station is included below; other public sites were not identified in this analysis but could be a potential option for public collection of RAS.

Using the costs identified in the Markets section above, the comparison between disposal and recycling of shingles from an average roofing job (2.5 tons) are estimated below.

Disposal at regional transfer station at current tipping fee: 2.5 Tons @ \$170 = \$425.00

Disposal of acceptable RAS at Evergreen:

Transfer ops/fixed costs:	2.5 tons @ \$35 =	\$87.50	
Transportation Costs:	2.5 tons @ \$32 =	\$80.00	
Disposal Cost at Evergreen:	2.5 tons @ \$65 =	<u>\$162.50</u>	
	Total Recycling Cost:		\$330.00
	Net Savings from recycling:		\$95.00

Significant challenges to using the Regional Transfer Station have also been identified by various stakeholders. These include:

- 1) **Space.** Current operations utilize most of the covered space at the Transfer Station. Also, in the case of equipment breakdown, space availability becomes further hindered. Space limits could potentially be addressed with tighter scheduling of operations, and possibly depend on contract negotiations.
- 2) **Current solid waste contracts.** Negotiations may be necessary may impede collection of shingles to a recycler and
- 3) **Transportation costs.** Transportation costs may be extremely variable depending on load weight and fuel prices. The \$32/ton estimate provided by Waste Connections, Inc. would be amended if negotiations were entered with them for RAS hauling.
- 4) **Contaminated loads.** Rejection of loads at the Evergreen facility raises the tipping fee from \$65 to \$125 ton. Evergreen’s standards for acceptable RAS would have to be met by the party bringing the original load to the Transfer Station (e.g. roofer). Rejected loads would add \$150 per roofing job to the cost, wiping out recycling savings; thus loads would have to be monitored by Transfer Station staff and be charged full tipping fee if contaminated.

c) Private collection and hauling of shingles to a recycler

Another scenario for recycling asphalt shingles is an organization or group such as regional roofers, make arrangements for private collection and hauling to a recycler. Private haulers such as Waste Connections, Inc., may be able to offer a lower operations and fixed costs (e.g. collections and storage) than those incurred under the System.

Some of the challenges identified above would also need to be addressed in this scenario. Transportation costs and the potential for rejected loads may affect the actual savings. Space for collection and storage and a hauler would need to be identified and could also impact the gain in savings for recycling.

d) Contracting with a mobile grinder to recycle shingles onsite

Maximizing the end use of RAS is a critical part of ensuring a continued demand for the asphalt shingles being recycled. Grinding shingles onsite for local HMA production is a viable alternative to purchasing a costly grinding machine; and could potentially lower transportation costs. A conversation with Dave Bell at Lakeside Industries, Inc., confirmed Lakeside’s willingness to further

discuss options regarding the use of the mobile grinder for onsite processing of RAS. The local Lakeside manager had been previously contacted about also collecting and utilizing RAS at the Port Angeles facility, although those discussions have been stalled. As one of the County's more frequent paving bid winners, market support could again be buoyed through RAS requirements in County contracts.

Conclusion & Recommendations

The economic and environmental value of RAS is very promising, though collective effort is needed to move forward regional markets and processing of RAS. To carry out solid waste mandates and answer the interests of constituents, Clallam County can further investigate some of the potential actions discussed in this report. One action would be to include a RAS specification in one or more County contracts, stimulating regional and potentially local markets for RAS. As well, the options for asphalt shingle recycling presented for analysis can be used to engage stakeholders in discussions on the challenges and opportunities for recycling asphalt shingles in Clallam County.

Works Cited

Ecology (Washington State Department of Ecology). 2010. 2009 Washington Statewide Waste Characterization Study. Publication no. 10-07-02. <https://fortress.wa.gov/ecy/publications/summarypages/1007023.html>.

Environmental Protection Agency (EPA). 1998. From Roofs to Roads: Recycling Asphalt Shingles into Paving Materials. http://www.epa.gov/wastes/consERVE/imr/cdm/pubs/roof_br.pdf.

King County Linkup. 2013. Paving with Recycled Asphalt Shingles. <http://your.kingcounty.gov/solidwaste/linkup/documents/paving-with-RAS-brochure.pdf>.

Krivot, D. 2007. *Recycling Tear-off Asphalt Shingles: Best Practices Guide*. The Construction Materials Recycling Association (CMRA). <http://your.kingcounty.gov/solidwaste/linkup/documents/shingles-CMRA-best-practices.pdf>.

Krivot, D. 2002. *Manufacturer Shingle Scrap Recycling Project*. Asphalt Shingle Resources. <http://your.kingcounty.gov/solidwaste/linkup/documents/Dakota-County-alternate-bid.pdf>.