CLALLAM COUNTY SOLID WASTE MANAGEMENT PLAN

Preliminary Draft
January 2021

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Preliminary Draft
January 2021

Prepared for:

Clallam County, City of Port Angeles, City of Sequim
and City of Forks

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ACKNOWLEDGMENTS

This Clallam County Solid Waste Management Plan incorporates the modifications put into practice since the previous solid waste plan was adopted in 2014, while looking forward to the future needs of Clallam County. The Clallam County Public Works Department would like to thank the following organizations and individuals for their assistance in the development of this Plan:

- The elected officials and staff of the three cities in Clallam County.
- The Clallam County Solid Waste Advisory Committee.
- Representatives of the Makah Nation, the Jamestown S'Klallam Tribe, and other Tribes.
- Washington Department of Ecology staff.
- Clallam County Health and Human Services Department, as well as other departments of Clallam County.

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

A special thanks to the SWAC members and County staff that provided the "callouts" that are inserted throughout the plan, including Ann Soule (City of Sequim), and county staff Megan Juran, Eli Owens and Meggan Uecker.

Cover photos, from left to right:

Rethink sign made from trash, photo taken 6-4-19.

Propane tank recycling at Regional Transfer Station, 6-15-17.

Inmates dismantling junk RV, 5-9-19.

Forks e-waste collection event, 10-20-19.

Applying "No Plastic Bags" sign on drop box, 6-3-19.

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EXECUTIVE SUMMARY

CLALLAM COUNTY SOLID WASTE MANAGEMENT PLAN

INTRODUCTION

This Clallam County Solid Waste Management Plan is intended to provide guidance for the solid waste system in Clallam County. The solid waste system in Clallam County has two primary missions. One of these missions is to properly collect and remove solid waste so as to maintain a clean and healthy environment. These programs are discussed in Chapters Three through Five of this Plan. This has been the primary mission in past decades, but recently the potential contribution of the solid waste system to a sustainable future has increasingly become a second mission. More and more, the products and packaging once seen as only being fit for discarding are being put to a second use through recycling and other programs. These programs are discussed primarily in Chapters Six through Eight of this Plan.

This document was developed in response to the Solid Waste Management Act, Chapter 70A.205 of the Revised Code of Washington (RCW), which states:

> "Each county within the State, in cooperation with the various cities located within such county, shall prepare a coordinated, comprehensive solid waste management plan" (RCW 70A.205.040).

The Solid Waste Management Act also specifies that this Plan must "be maintained in a current condition" through periodic review and revisions (RCW 70A.205.075).

GOALS OF THE PLAN

In addition to meeting the requirements of State law and other mandates, the primary goal for the update of this Plan is to develop and maintain a solid waste management system that protects public health and the environment in a cost-effective manner. More specific goals include soliciting community input to identify needs; encouraging public-private partnerships; providing guidelines for an equitable balance between convenience, expense, climate impact, environmental quality, and public health and welfare; incorporating flexibility to anticipate future needs; and encouraging cooperative and coordinated efforts among government agencies, private companies and the public to achieve effective management of solid waste. Section 1.8 of this Plan provides the complete list of goals.

OVERVIEW OF PLAN CONTENTS

Most of the chapters of this Plan address specific elements of the solid waste system or provide basic information about Clallam County waste streams, as described below.

Introduction (Chapter 1): Chapter 1 of this Plan provides background information on the reasons for this Plan and the process for its development.

Background of the Planning Area (Chapter 2): Chapter 2 provides basic information on the demographics of Clallam County and on the amount and composition of the solid wastes produced by the residents and businesses in the county.

Solid Waste Collection (Chapter 3): Garbage collection is a fundamental service, and Clallam County and the cities are well-served by an appropriate mix of waste collection programs. A few refinements would be helpful, such labeling residential and commercial garbage containers to describe materials that shouldn't be placed in the garbage, and looking into the potential benefits of a service level ordinance and universal (mandatory) garbage collection.

Waste Transfer (Chapter 4): The waste transfer system in Clallam County is also working well and this Plan recommends continuing that system, with possible future refinements that could be considered in response to any challenges that might crop up with access or capacity.

Disposal (Chapter 5): This chapter recommends a number of refinements and activities for landfills and waste export (shipping waste out of county), but perhaps the most important recommendation is to begin the process in 2023 for a new waste export and disposal contract for the Regional Transfer Station.

Waste Reduction (Chapter 6): Waste reduction includes methods that prevent waste from being created, while recycling and composting programs handle materials after those have been created as a waste. This Plan contains several recommendations for continuing or beginning waste reduction activities for specific materials, including encouraging the use of safer substitutes for toxic products, avoiding food waste, encouraging more backyard composting and more reuse of construction materials, clothing and other materials.

Recycling (Chapter 7): The markets for recyclable materials are experiencing significant challenges. There are signs of recovery, however, along with a renewed emphasis on collecting clean recyclables. This Plan adopts a goal of 75% recycling by 2025 (including composting and other organics diversion programs), which is a significant increase over the current recycling rate of about 50%. This Plan also recommends exploring options for increasing curbside and commercial recycling programs, and improvements to various other parts of the recycling system. Actions proposed to help reduce contamination of recyclables are separately addressed in the Contamination Reduction and Outreach Plan (see below and Appendix D for more details).

Organics (Chapter 8): This Plan makes several recommendations for yard waste and other organics. Some of these recognize the importance of continuing existing programs and activities for collection, processing and marketing various organic materials. Other recommendations address the need to do more about food waste and other organics. The overall goal for organics proposed in this Plan is to reduce the amount of organics in the solid waste stream from about 22% currently to less than 10% by weight by 2025.

Miscellaneous Solid Wastes (Chapter 9): Chapter 9 of this Plan addresses various specific wastes that merit special attention, including agricultural wastes, animal carcasses, asbestos, biomedical wastes, construction and demolition wastes, and marine debris/derelict vessels. Recommendations are provided for improved management practices for five of these waste streams.

Regulation and Administration (Chapter 10): The Clallam County Public Works Department, the Health and Human Services Department, state and regional agencies, various departments of the three cities and Tribal offices are all involved in various ways in solid waste management. These entities provide specific services and, in some cases, also enforce regulations. This chapter supports the need to take measures to ensure funding for solid waste management programs and recommends continuing a few other activities.

Implementation (Chapter 11): This chapter lists all of the recommendations of this Plan and provides additional details for their implementation, including the lead agencies, schedule and costs.

There are also two attachments to this Plan that provide additional recommendations for programs in Clallam County:

Hazardous Waste Management Plan (Appendix B): The Clallam County Hazardous Waste Management Plan addresses the small quantities of hazardous wastes generated by households and small businesses. These are wastes that are not regulated by federal laws concerning hazardous wastes because they are generated in small quantities, and so otherwise might "fall through the cracks" without the outreach and programs described in this hazardous waste plan.

Contamination Reduction and Outreach Plan (Appendix D): A recent change to State law now requires counties to include this element in their solid waste plans. The Clallam County CROP Plan contains several recommendations for actions that can be taken to measure and reduce the levels of contamination in all types of recycling programs (curbside, commercial, multi-family and drop-off). Some of these recommendations represent significant additional expenses for the parties involved in recycling, but these are important changes that must be made for the long-term success of recycling.

RECOMMENDATIONS AND IMPLEMENTATION DETAILS

Table ES-1 shows the lead agencies, schedule and costs for the recommendations shown in this Plan. In many cases the recommendations are for continuing existing activities and so there is no additional fiscal impacts. Some of the recommendations do represent additional or new costs, and in these cases the funds will need to come from tipping fees or service rates. Grant funds will also be used when available to supplement tipping fees. The recommendations have been abbreviated to fit into Table ES-1, and additional details about the meaning and intent of specific recommendations can be found in the appropriate chapter of the plan.

Table ES-1. Implementation Summary for Recommendations			
Recommendation	**Lead Agency**	**Schedule**	**Cost**
Chapter 3, Solid Waste Collection			
WC1) Consider a service level ordinance that requires curbside recycling for garbage collection customers.	County	By 2024	Staff time
WC2) Clallam County should investigate universal collection service.	County	By 2024	Staff time
WC3) All garbage containers should be labeled to list unacceptable materials.	Haulers, PA	By 2023	$80,000
Chapter 4, Waste Transfer			
T1) The Clallam County SWAC, JSWAB, and other governmental agencies should continue to work together to develop plans and programs.	County, PA	Ongoing	Staff time
T2) Consider extending hours and/or adding additional drop boxes if access or capacity become an issue at Blue Mountain.	County, PA	Ongoing	Staff time
T3) Consider siting a drop box facility if illegal disposal or access is an issue.	County, PA	Ongoing	Staff time
T4) Study placing containers at all transfer and drop box sites to collect source-separated yard wastes and additional recyclable materials.	County, PA	Ongoing	Staff time
T5) Obtain funding for a waste characterization study at RTS.	County	Ongoing	$0 (grant)
T6) Consider user fees at transfer and drop box facilities for recyclables.	County, PA	Ongoing	Staff time
T7) Study the need for a new facility on the east end.	JSWAB	2022	$50,000
Chapter 5, Disposal			
LF1) Support remediation activities at the Neah Bay Landfill.	All	Ongoing	Staff time
LF2) Consider proposals and options to develop limited purpose landfills.	County	Ongoing	Staff time
LF3) Explore the possibility of the final closure of the Lake Creek landfill.	County	2022-2024	Staff time
WE1) Beginning in 2023, the process should begin to prepare for a new waste export and disposal contract for RTS.	PA	By 2023	Staff time
WE2) Encourage West Waste to continue waste export and possibly expand.	County	Ongoing	Staff time
WE3) Contracts for waste export services should identify alternative disposal plans and routes.	PA	By 2025	Staff time
WE4) Any regional solid waste landfill used for Clallam County waste must meet or exceed all Minimum Functional Standards requirements.	PA	By 2025	Staff time
WD1) Evaluate future proposals for disposal facilities, anaerobic digestion, incinerators and waste conversion on a case-by-case basis.	County, SWAC	Ongoing	Staff time

Notes: Recommendations have been abbreviated to fit into this table. County = Clallam County (primarily the Public Works Department but depending on the recommendation, possibly including the Health and Human Services Department and contractors such as WSU); Haulers = Waste Connections and West Waste; PA = City of Port Angeles; SWAC = Solid Waste Advisory Committee.
Staff time = existing staff time plus minimal additional expenses.

Table ES-1. Implementation Summary for Recommendations, continued			
Recommendation	**Lead Agency**	**Schedule**	**Cost**
Chapter 6, Waste Reduction			
WR1) Continue to promote waste reduction activities.	County, WSU	Ongoing	Existing
WR2) Continue to encourage safer substitutes for toxic products.	County, WSU	Ongoing	Existing
WR3) Conduct public education about how to avoid wasting food.	County, WSU	Start 2021	$20,000
WR4) Develop promotional materials for clothing and household goods reuse options.	County	Ongoing	Existing
WR5) Promote reuse of construction materials.	County	2021	$5,000
WR6) Conduct more promotion of on-site composting.	County, WSU	Ongoing	$5,000
WR7) Pursue grants and investments to increase food recovery.	County	Ongoing	Staff time
WR8) Support reuse events organized and implemented by others.	County	Ongoing	Staff time
WR9) Support State legislation on product bans, repair opportunities and similar programs, as appropriate.	County	Ongoing	Staff time
WR10) Investigate the potential for a broader ban on plastic packaging.	County, SWAC	Ongoing	Staff time
Chapter 7, Recycling			
R1) The SWAC recommends adopting a 75% recovery goal by 2025.	County	By 2025	Staff time
R2) Continue public education efforts.	All	Ongoing	Existing
R3) Monitor and consider any proposals for the processing of recyclables.	County	Ongoing	Staff time
R4) Companies and agencies collecting or processing recyclables should be encouraged to file reports to Ecology.	All	Ongoing	Staff time
R5) Explore options of expanding curbside service in the County.	County	Ongoing	Staff time
R6) A SWAC subcommittee will help identify barriers for commercial recycling and develop strategies to increase it countywide.	County, SWAC	By 2022	Staff time
R7) Support product stewardship and market development proposals.	County	Ongoing	Staff time
Chapter 8, Organics			
O1) The goal for organics is to reduce it below 10% by the end of 2025.	County	By 2025	Staff time
O2) Continue collecting and processing at the Compost Facility, and increase the amount processed as allowed by the facility's capacity.	PA	Ongoing	Existing
O3) Work to eliminate illegal dumping and burning of yard waste and consider separate collection of yard waste in the county.	County	Ongoing	Existing
O4) Continue to develop end uses, County and cities should lead by example.	County, cities	Ongoing	Staff time

Notes: Recommendations have been abbreviated to fit into this table. County = Clallam County (primarily the Public Works Department but depending on the recommendation, possibly including the Health and Human Services Department and contractors such as WSU); WSU = Washington State University Extension; SWAC = Solid Waste Advisory Committee; PA = City of Port Angeles; Cities = all three cities. Staff time = existing staff time plus minimal additional expenses.

Table ES-1. Implementation Summary for Recommendations, continued			
Recommendation	**Lead Agency**	**Schedule**	**Cost**
Chapter 8, Organics, continued			
O5) Investigate options for food waste.	County	Ongoing	Staff time
O6) Encourage large commercial generators to divert food waste.	County	Ongoing	Staff time
O7) Continue public education for yard waste and food wastes.	All	Ongoing	Existing
O8) Continue working with WSU Extension for outreach programs.	County	Ongoing	Existing
O9) Explore additional recovery of wood waste.	County	By 2022	Staff time
O10) Consider proposals for alternative methods for wood waste.	County	Ongoing	Staff time
Chapter 9, Miscellaneous Solid Wastes			
MW1) Clallam Conservation District and NRCS should continue to work with producers on Best Management Practices for agricultural waste.	CCCD, NRCS	Ongoing	Existing
MW2) Proposals for processing agricultural wastes should be encouraged.	County	Ongoing	Staff time
MW3) Monitor aquaculture industries for waste management issues.	County	Ongoing	Staff time
MW4) Continue communications with the Humane Society, veterinarians and those disposing of animal carcasses.	County	Ongoing	Staff time
MW5) Review the solid waste system's role in emergency animal disposal.	County	By 2022	Staff time
MW6) Examine possibility of providing game meat to food banks.	County	By 2023	Staff time
MW7) Monitor disposal of biomedical wastes by small waste generators.	Health	Ongoing	Staff time
MW8) Support product stewardship legislation for sharps.	County	Ongoing	Staff time
MW9) Provide more promotion and funding for Syringe Exchange Program.	Health	By 2022	$5,000
MW10) Promote existing opportunities for recycling of construction and demolition wastes.	County	Ongoing	Staff time
MW11) Explore regional solutions for specific construction and demolition materials.	County	By 2023	Staff time
MW12) Continue outreach and education on marine debris.	County, others	Ongoing	Existing
Chapter 10, Regulation and Administration			
R&A1) Clallam County, Port Angeles and Sequim shall continue to meet their respective commitments as specified in the ILA.	County, PA, Sequim	Ongoing	Existing
R&A2) Clallam County will investigate adopting a flow control ordinance.	County	By 2024	Staff time
R&A3) ILA signatories will prioritize essential services.	County, PA, Sequim	Ongoing	Existing

Notes: Recommendations have been abbreviated to fit into this table. County = Clallam County (primarily the Public Works Department but depending on the recommendation, possibly including the Health and Human Services Department and contractors such as WSU); CCCD = Clallam County Conservation District; NRCS = Natural Resources Conservation Service; Health = Clallam County Health and Human Services; PA = City of Port Angeles.
Staff time = existing staff time plus minimal additional expenses.

Table ES-1. Implementation Summary for Recommendations, continued			
Recommendation	**Lead Agency**	**Schedule**	**Cost**
Chapter 10, Regulation and Administration, continued			
R&A4) The signatories to the ILA for the regional system will investigate creating a solid waste disposal district.	County, PA, Sequim	By 2024	Staff time
R&A5) Appropriate measures will be taken by the signatories to the ILA for the regional system to ensure (sufficient funding.	County, PA, Sequim	Ongoing	Existing
R&A6) Clallam County will take appropriate measures to ensure sufficient funding needed to continue education and outreach.	County	Ongoing	Existing
R&A7) The County will continue to seek grants for prevention, diversion and illegal dumping.	County	Ongoing	Existing
R&A8) The County should recruit participants for state-funded abandoned RV program.	County	Begin 2021	Existing
Appendix B, Clallam County Hazardous Waste Management Plan	See Appendix B for the implementation plan for the Hazardous Waste Management Plan.		
Appendix D, Contamination Reduction and Outreach Plan	See Appendix D for the implementation plan for the CROP Plan.		

Notes: Recommendations have been abbreviated to fit into this table. County = Clallam County (primarily the Public Works Department but depending on the recommendation, possibly including the Health and Human Services Department and contractors such as WSU); PA = City of Port Angeles.
Staff time = existing staff time plus minimal additional expenses.

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CHAPTER 1

INTRODUCTION

1.1. ROLE AND PURPOSE

This update of the Clallam County Solid Waste Management Plan (this "Plan") was prepared to provide direction for managing solid waste and moderate risk waste programs in Clallam County. This document was developed in response to the Solid Waste Management Act, Chapter 70A.205 of the Revised Code of Washington (RCW), which states:

> "Each county within the State, in cooperation with the various cities located within such county, shall prepare a coordinated, comprehensive solid waste management plan" (RCW 70A.205.040).

The Solid Waste Management Act also specifies that these plans must "be maintained in a current condition" through periodic review and revisions (RCW 70A.205.075), hence the need for this update to the previous plan.

1.2. MATERIALS ADDRESSED BY THIS PLAN

Solid waste can be divided into categories based on regulatory requirements and handling methods. In this Plan, solid waste is divided into three categories:

- Municipal solid wastes (MSW), which includes typical garbage, food waste, yard waste and recyclables generated by households, businesses, and institutions in Clallam County. This is the largest category of solid waste and most of this Plan is directed at this type of waste.
- Moderate risk wastes (MRW), which are potentially hazardous wastes generated in small quantities by households and commercial sources and that require special handling due to toxicity, flammability, and other hazardous characteristics. If generated in large quantities, these materials are regulated as hazardous wastes, which are managed separately from solid wastes and are not included in this Plan.
- Other wastes that are managed separately from MSW due to special characteristics, such as biomedical wastes.

1.3. PARTICIPATING JURISDICTIONS

Chapter 70A.205 RCW delegates the authority and responsibility for the development of solid waste management plans to the counties. State law allows cities to fulfill their solid waste management planning responsibilities in one of three ways:

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

In this case, the cities of Forks, Port Angeles, and Sequim have agreed to participate in the planning process. These cities have authorized Clallam County to prepare a countywide solid waste plan that includes the three municipalities. Representatives of the cities of Forks, Port Angeles, and Sequim participated in this process through the Solid Waste Advisory Committee. Representatives of the cities of Port Angeles and Sequim also participate in the solid waste management system through the Joint Solid Waste Advisory Board (JSWAB.)

Other governing bodies (such as Tribes and Federal agencies) may participate in a county's planning process at their option. 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 in the solid waste system and this Plan is voluntary.

The primary federal agency in Clallam County is the Olympic National Park, but other agencies also have offices and operations in the County. In general, the federal agencies participate in the existing solid waste management system.

1.4. REQUIRED MINIMUM CONTENTS OF THIS PLAN

The minimum contents of this plan are specified by State law (RCW 70A.205.045) and further described in the Guidelines for Development of Local Comprehensive Solid Waste Management Plans and Plan Revisions issued by the Washington Department of Ecology in February 2010. To summarize, RCW 70A.205.045 requires solid waste management plans to include:

- An inventory of existing solid waste handling facilities, including an assessment of any deficiencies in meeting current waste handling needs.
- The estimated future needs for solid waste handling facilities for a period of twenty years.
- A program for the development of solid waste handling facilities that is consistent with this Plan and that meets the Minimum Functional Standards. The development program must also take into account land use plans; provide a six-year construction and capital acquisition program; and provide a financing plan for capital and operational costs.
- A program for surveillance and control.
- An inventory of solid waste collection needs and operations, including information on collection certificates (franchises), municipal operations, population densities, and projected solid waste collection needs for a period of six years.
- A comprehensive waste reduction and recycling element that provides programs for the reduction of waste quantities, provides incentives and mechanisms for source separation, and provides opportunities for recycling source-separated materials.
- Waste reduction and recycling strategies, including residential collection programs in urban areas, drop-off or buy-back centers at every solid waste handling facility that serves rural areas, monitoring methods for programs that collect source-separated materials from

nonresidential sources, collection programs for yard debris and food waste, and education programs for waste reduction and recycling.

- An assessment of the impact that implementation of the recommendations will have on solid waste collection costs.
- A review of potential sites for solid waste disposal facilities.
- A contamination reduction and outreach plan (CROP) by July 2021.

Because this is a combined solid and moderate risk waste management plan, Washington State law pertaining to local hazardous waste plans (RCW 70A.300.350) is also applicable. Specific components that are required for local hazardous waste plans include:

- A program to manage moderate risk wastes from households and businesses.
- An ongoing public education program that includes information on potential hazards from MRW and the proper handling of these wastes.
- An inventory of existing hazardous waste generators and facilities to manage hazardous waste (based on data provided by Ecology).
- A description of the public involvement process used in developing the plan.
- A used oil recycling element (per RCW 70A.300.360).
- A description of the eligible zones designated in accordance with RCW 70A.300.370.
- Other elements deemed appropriate by local government.

These components are addressed in Appendix B of this Plan.

1.5. RELATIONSHIP TO OTHER PLANS

This plan must function within a framework created by other plans and programs, including policy documents and studies that deal with related matters. One of the more important of these documents is the Clallam County Comprehensive Plan (see Chapter 10 for more details). Other pertinent plans and agreements related to solid waste management in Clallam County include:

- The Clallam County Hazardous Waste Management Plan (Appendix B of this document)
- Interlocal Agreement Regarding Regional S.W. Export and Transfer System, 2007 (see Chapter 10 for more details)
- 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, 2014
- Blue Mountain Drop-Box and Recycling Center Operations Plan, 2007
- Makah Indian Reservation Solid Waste Management Plan, 2003 (currently being updated)
- Clallam County Code, Chapter 41.10: Solid Waste Regulations, 2018 (see Chapter 10)
- Capital facilities plans for the cities of Port Angeles and Sequim

1.6. 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 solid waste plan. 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 solid waste plan, beginning with the 1988 draft. A final draft of the new plan 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 Clallam County Comprehensive Solid Waste Management Plan. 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 Clallam County Comprehensive Solid Waste Management Plan. An amendment to the 2006 plan, which addressed the stabilization of the closed Port Angeles Landfill, was adopted in February of 2013.

In 2014, an update of the Clallam County Comprehensive Solid Waste Management Plan and the Clallam County Hazardous Waste Management Plan was prepared by County staff. Table 1-1 shows the recommendations from the 2014 plan and the status of those recommendations as of October 2019.

Table 1-1. Status of Recommendations from the 2014 Plan

Recommendation	Status*
Solid Waste Collection	
CO1) Consider a service ordinance for curbside recycling pick up.	Not accomplished
CO2) Investigate universal collection service.	Not accomplished
In-County Transfer and Drop Box	
T1) Continue to work together to develop plans and alternatives for waste export.	Ongoing
T2) Study the possibility of placing additional containers at all transfer and drop box sites for yard wastes and to collect additional recyclable materials.	Ongoing
T3) Obtain funding for a waste characterization study at the Regional Transfer Station.	Not accomplished
T4) Consider user fees at the transfer and drop box facilities for recyclable materials if the cost of service becomes a significant net loss.	Not accomplished

Table 1-1. Status of Recommendations from the 2014 Plan, continued	
Recommendation	**Status***
Incineration and Energy Recovery	
I1) Evaluate proposed incineration projects for select waste streams.	Ongoing
ER1) Investigate and develop proposals for energy recovery on a case by case basis	Ongoing
ER2) Work with Port Angeles staff to evaluate options to use LFG.	Accomplished
In-County Landfilling	
LF1) Consider alternatives to reduce or eliminate the risk of refuse from entering the marine environment and to slow down the rate of bluff erosion.	Accomplished
LF2) Maximize the development of appropriate state and federal grant funding for corrective actions at the Port Angeles Landfill.	Accomplished
LF3) Consider reopening a disposal cell for waste to reduce or eliminate the risk of refuse from entering the marine environment.	Accomplished
LF4) Support post-closure activities at the Neah Bay Landfill.	Accomplished
LF5) Consider proposals and options for special-purpose landfills.	Ongoing
Waste Export/Import	
WE1) Continue to export waste from the Regional Transfer Station.	Ongoing
WE2) Encourage West Waste to continue and possibly expand waste export.	Ongoing
WE3) In preparation for natural disaster, require any contracts for private waste export services to identify alternative disposal plans, routes and transportation.	Not accomplished
Waste Prevention	
WP1) Continue public information and education.	Ongoing
WP2) Encourage the formation of citizen advisory/action groups to help with public education efforts.	Accomplished and ongoing
WP3) Use existing county and city websites to promote waste prevention.	Ongoing
WP4) Conduct waste audits and consider the idea of waste exchanges.	Ongoing
WP5) Adopt WasteWi$e or develop other waste reduction programs for the county and municipalities	Partly accomplished
WP6) Recognize businesses that do a good job of waste reduction.	Ongoing
WP7) Pursue funding and opportunities for public/private partnerships and programs that target organic waste reduction.	Ongoing
WP8) Support reuse events organized and implemented by others.	Ongoing
Recycling	
R1) 30% near-term and 40% long-term waste recycling goal.	Accomplished
R2) Continue to collect designated recyclables and review the list annually.	Ongoing
R3) Promote recycling at multi-family properties and consider restructuring commercial rates to make recycling an economical alternative.	Not accomplished
R4) Continue public education, modeling new programs after existing efforts.	Ongoing
R5) Consider additional curbside collections, and opportunities to establish drop-off or curbside collections in Tribal Reservations should be supported.	Ongoing
R6) Maintain existing drop-off sites and consider additional sites in the county.	Ongoing
R7) Continue and improve school recycling collection and education programs.	Ongoing
R8) Continue to educate about the requirement for recycling at special events. Work with private haulers, festival organizers, and volunteers to provide recycling bins and collection.	Ongoing
R9) Monitor and consider proposals for processing recyclables in the county.	Ongoing
R10) Lead by example. Consider expanded recycling programs and policies such as environmentally preferred purchasing by county and city departments.	Not accomplished at County

Table 1-1. Status of Recommendations from the 2014 Plan, continued	
Recommendation	**Status***
Recycling, continued	
R11) Encourage all companies and agencies collecting recyclables and other diverted materials in Clallam County to report their data to Ecology.	Not accomplished
R12) Establish outdoor public space recycling as a pilot program.	Ongoing
Composting	
C1) Continue collecting yard waste and composting it at the Composting Facility. Increase the amount of materials to the extent of the facility's capacity.	Ongoing
C2) Work to eliminate illegal dumping and burning of yard waste.	Ongoing
C3) Continue to develop end uses for compost and lead by example.	Ongoing
C4) Consider separate collection of yard debris by private haulers.	Partly accomplished
C5) Encourage neighborhood chipping services.	Partly accomplished
C6) Investigate economical and efficient options for handling food waste.	Ongoing
C7) Continue public education to encourage residents to handle yard debris and food waste separately through home composting and mulching.	Ongoing
Special Wastes	
AG1) The Conservation District and National Resource Conservation Service should continue to work with producers to implement Best Management Practices to minimize the contamination of surface waters by agricultural waste.	Ongoing
AG2) Monitor and consider any proposals for processing of agricultural wastes that may increase the ability to process additional amounts of organic wastes.	Ongoing
AN1) Monitor aquaculture industries for waste management issues.	Ongoing
ASH1) Continue to encourage the ash-producing companies to explore recycling or other disposal alternatives first.	Ongoing
AUTO1) Continue to identify ideas and alternatives for managing the disposal or accumulation of auto hulks.	Accomplished
BW1) Monitor disposal of biomedical wastes by small biomedical waste generators for potential problems or risks.	Not accomplished
CDL1) Promote existing opportunities for recycling of CDL wastes.	Ongoing
CDL2) Enhance the recycling of CDL wastes by establishing expanded markets for the materials.	Not accomplished
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.	Not accomplished
CS1) Explore new technologies for managing contaminated soil.	Not accomplished
EW1) Continue to work with and educate the public on how to handle e-waste.	Ongoing
EW2) Consider additional E-Cycle locations, especially on the west end.	Partly accomplished
MD1) Continue to provide outreach and education on proper response and prevention of marine debris.	Ongoing
PW1) CCEH should continue to work with others to maintain public education programs on how to properly dispose of pharmaceutical waste.	Ongoing
PW2) Consider a pharmaceutical take back program for west end residents.	Accomplished
WD1) Explore the possibility of recovering additional amounts of wood waste.	Not accomplished
WD2) Consider proposals for managing wood waste on a case by case basis.	Ongoing
WD3) If wood waste amounts increase, consider new ideas for managing it.	Ongoing

Table 1-1. Status of Recommendations from the 2014 Plan, continued	
Recommendation	**Status***
Regulation and Administration	
RA1) Clallam County, Port Angeles and Sequim should continue to meet their commitments as specified in the ILA for the Regional Solid Waste Export and Transfer System.	Ongoing
RA2) Develop a methodology for assessing the effectiveness and needs of the solid waste program and provide an annual analysis of solid waste activities.	Not accomplished
RA3) Clallam County should consider adopting a flow control ordinance.	Not accomplished
RA4) Clallam County should consider establishing a position of Solid Waste Planning Lead to coordinate county-wide solid waste activities.	Accomplished
RA5) Investigate creating a solid waste disposal district in Clallam County.	Not accomplished

Notes: Many of the above recommendations have been abbreviated due to space constraints, see the previous plan for the full text of the recommendations.
* Status shown is as of October 2019.

1.7. PROCESS AND SCHEDULE FOR UPDATING THIS PLAN

Development of the Current Plan

The process of updating and adopting this plan consisted of the following steps:

- Draft chapters were reviewed with Clallam County staff and the SWAC.
- After all of the chapters were reviewed by the SWAC, they were compiled into a complete draft for review and comment by SWAC members and County staff. After this review and the subsequent revisions, it was released as the "Preliminary Draft Plan."
- A SEPA checklist was prepared for the Preliminary Draft Plan.
- A Cost Assessment Questionnaire was prepared for review by the Washington Utilities and Transportation Commission (UTC).
- The Preliminary Draft Plan, SEPA checklist and Cost Assessment Questionnaire were released for review by the public, Tribes, Ecology, Department of Agriculture and UTC. The release of the Plan was publicized using a newspaper ad and the County's website, and a public hearing was held during the review period to further solicit public comments.
- Comments received on the Preliminary Draft from the public, municipalities, UTC, Ecology and other interested parties will be reviewed with the SWAC and then incorporated into the plan to produce the Final Draft Plan.
- The Final Draft Plan will be offered for adoption by the cities and Clallam County. The Tribes will be invited to adopt or endorse it to the extent they feel is appropriate.
- After local adoption, the waste reduction and recycling portion of the Plan will be reviewed by the SWAC (or the SWAC can choose to skip this step if no significant changes have been made), and then the Plan will be submitted with resolutions of adoption to Ecology for final approval.
- After final approval by Ecology, the process of updating the Plan will be completed and the

implementation period for the new Plan will begin.

Public participation was encouraged throughout this process. Among other activities, the following steps were taken to encourage public input during the planning process:

- A press release was distributed at the start of the process to notify the community and encourage participation.
- Public comments were solicited at each of the SWAC meetings.
- Information about the Plan and process was posted on Clallam County's website, along with periodic updates.
- As noted in the above list of process-related steps, additional steps were taken when the preliminary draft plan was released for public review and comment.
- The SEPA process provides an opportunity for public comment on the impact of the Plan.
- The local adoption process provides another opportunity for comment.

A few additional activities that were originally planned for this process had to be curtailed due to the Covid-19 pandemic. Other activities were modified to allow those to continue safely during the pandemic, such as the SWAC meetings being conducted "virtually" instead of being conducted in-person.

Periodic Evaluation, Amendment and/or Revision Schedule

State law (RCW 70A.205.075) requires that a solid waste management plan be reviewed every five years at a minimum to assess if the plan reflects 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 redefine the planning vision. Consequently, amendments do not need to undergo as extensive of a review and adoption process. The process to amend this Plan consists of the following steps:

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

Examples of reasons for a plan amendment include:

- Update of the six-year and 20-year projections, which are of the same scope and scale as 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 a 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 can redefine the vision for local solid waste management. 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 public or 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 2021 for this plan). This Plan should be reviewed in 2024 to allow time for a revision if necessary, with a goal of adopting an updated plan by 2026.

1.8. POLICY GUIDANCE FOR THE PLAN

Overall Goals for Managing Solid Wastes

The overall goal for solid waste management in Clallam County for the next 20 years is to prevent land, air, and water pollution, and to conserve the natural, economic, and energy resources of this state. Specific objectives for managing solid waste in Clallam County are identified in the Plan's recommendations.

Goals for this Update of the Plan

The overall goal of the planning process is to develop and maintain a solid waste management system that protects public health and the environment in a cost-effective manner. The specific goals of this solid and moderate risk waste management planning process are to:

- Review current solid waste regulations and policies giving particular attention to waste stream reduction, recycling, food waste and future disposal needs.
- Extend the planning period to 2040.
- Review existing facilities and solid waste handling practices, and seek community input to 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 with

a regional perspective.

- Encourage public-private partnerships.
- Involve the expertise of private industry wherever those capabilities are available.
- Coordinate with counties, cities and the private sector to identify capital cost estimates and implementation schedules for recommended improvements with emphasis on those improvements recommended within a six-year period.
- Provide guidelines for an equitable balance between convenience, expense, climate impact, 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.
- Outline funding mechanisms.

These goals were used to develop alternatives for new or revised programs that are discussed in this Plan.

Policy Guidance from Ecology

A relevant source of guidance on policies and goals is the State solid and hazardous waste plan, Moving Washington Beyond Waste and Toxics. Commonly referred to as the "Beyond Waste" plan, this plan has adopted a vision that states:

> *We can 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.*

This transition is expected to take 20-30 years or more. Since 2004, this plan has been called the Beyond Waste Plan and it is updated every five years. The Beyond Waste plan was updated in 2015. The plan previously focused on actions that could be taken in five areas (industrial waste, small volume hazardous waste, organic materials, green building, and measuring progress). The updated Beyond Waste plan is divided into five sections:

Managing Hazardous Waste and Materials
Managing Solid Waste and Materials
Reducing Impacts of Materials and Products
Measuring Progress
Providing Outreach and Information

Each of these sections presents goals and actions that can be taken over the next five years. The updated plan also incorporates the concept of sustainable materials management, which has been adapted from recent work by the U.S. Environmental Protection Agency (EPA). Sustainable materials management looks at the full life cycle of materials, from the design and manufacturing phase, to the use phase, and then to the end-of-life phase when the material is either disposed or recycled. Materials management still focuses on recycling and disposal issues, but in looking at production methods and the use of materials, this approach can help

identify more sustainable ways to design products that use less energy, water and toxics. This is important because the adverse environmental impacts of extraction, production and use can be far greater than those associated with disposal when the product becomes a waste. According to the EPA, a materials management approach is essential to conserving natural resources to meet both today's needs and those of future generations.

The Beyond Waste plan is referenced in later chapters of this Plan as appropriate to the topics in each chapter. Copies of the Beyond Waste plan and additional information can also be downloaded from the Ecology's web site (www.ecy.wa.gov/beyondwaste/index.html).

Rules and Legislation regarding Solid Waste Management

Each of the chapters addressing specific elements of the solid waste system (such as waste collection, transfer, recycling, etc.) begins with a review of the laws and rules, including recent legislation, that are directly relevant to the activities discussed in that chapter.

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CHAPTER 2

BACKGROUND OF THE PLANNING AREA

2.1. INTRODUCTION

This chapter provides basic information on demographics and on the amount and composition of solid waste (garbage) in Clallam County. This information is required by Ecology's guidelines and is used in several of the following chapters of this Plan. Additional information about the physical and environmental characteristics of the County, including information relevant to the siting of solid waste facilities, is provided in Appendix C.

2.2. DEMOGRAPHICS

Current Population and Demographics

Population data for the cities and unincorporated areas in Clallam County is shown in Table 2-1. The characteristics of Clallam County's population include:

- The three cities in Clallam County had 30,950 residents in 2019, or 41% of the total population of the county.
- The largest of Clallam County's three incorporated areas, Port Angeles, has 26% of the population.
- Over half of the county's population (59%) 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

Area	2010 Population	2010 Percentage	2019 Estimated Population	2019 Percentage
Incorporated Areas	**29,176**	**41%**	**30,950**	**41%**
Forks	3,532	5%	3,635	5%
Port Angeles	19,038	27%	19,620	26%
Sequim	6,606	9%	7,695	10%
Unincorporated Areas	**42,228**	**59%**	**45,060**	**59%**
Tribal Population Subtotal	3,902	5%	3,976	5%
Non-Tribal Population	38,326	54%	41,084	54%
Total Population	**71,404**	**100%**	**76,010**	**100%**

Sources: Data is from the Office of Financial Management (OFM) April 1, 2019 Population of Cities, Towns and Counties and OFM Estimates of Total Population for American Indian Areas for Reservation and Trust Land populations for the Jamestown S'Klallam, Lower Elwha, Makah and Quileutte Tribes.

Past and Future Population Trends

Table 2-2 shows previous and projected population figures for Clallam County. Evaluating trends in population is useful for estimating future solid waste generation. The figures shown in Table 2-2 for 2020 and beyond are from the Office of Financial Management (OFM) and are based on the "medium series" projections. These projections represent a population increase of approximately 8% over the 20-year planning period of this Plan (from 2020 to 2040). 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. Much of the future growth, however, is expected to occur in the Sequim area, which poses other implications for services in this area.

Table 2-2. Clallam County Population Trends

Year	Total Population	Annual Increase
Historical:		
1970	34,770	
1980	51,648	49%
1990	56,464	9%
2000	64,525	14%
2010	71,404	11%
2015	72,650	2%
Projected:		
2020	74,707	3%
2025	76,847	3%
2030	78,683	2%
2035	80,123	2%
2040	80,928	1%

Notes: Data is from Projections of the Total Population for Growth Management, 2017 GMA Projections, Medium Series, by the Washington State Office of Financial Management (OFM).

2.3. QUANTITY AND COMPOSITION OF SOLID WASTE

Types of Waste Addressed by this Plan

An analysis of the current and future quantities of solid waste in Clallam County is necessary to provide the basis for determining solid waste handling needs for the next twenty years. Composition data is also helpful for this, and for evaluating existing waste diversion programs as well as designing new programs.

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 four broad categories:

1) recycled materials,
2) materials diverted from disposal through activities other than recycling, such as reuse and energy recovery (incineration),
3) municipal solid wastes ("MSW") disposed, and
4) other waste types disposed (e.g. industrial wastes).

This Plan focuses primarily on MSW, which are those wastes generated by residents and businesses and that are handled through the County's solid waste disposal system. The total waste stream for Clallam County consists of many types of wastes, almost all of which are classified as MSW and are handled through the County system and then transferred to a large regional landfill in Oregon. Some wastes generated by industrial and agricultural sources are handled separately from the solid waste disposal system. Various other wastes (such as hazardous wastes and biomedical wastes) are also handled through separate collection and disposal systems. Large quantities of hazardous wastes are handled through a separate system and so are not addressed in this Plan, but hazardous wastes generated by households and in small quantities by non-residential sources (known as moderate risk wastes, or MRW) are handled through the County's waste disposal system. More details on the amounts and types of MRW and other wastes that merit special attention can be found in the Clallam County Hazardous Waste Management Plan (see Appendix B).

Past and Present Solid Waste Quantities

The solid waste disposed at Clallam County facilities is brought there by a variety of customers, including two private haulers (Waste Connections and West Waste & Recycling), a municipal hauler (the City of Port Angeles), and many residential and commercial customers that are hauling their own wastes ("self-haul"). Table 2-3 shows the amount of wastes from the various sources in Clallam County for 2018. It should be noted that the figure for self-haul waste at

Table 2-3. Clallam County Waste Tonnages (2018)

Source	Annual Tons	Percent
Haulers	**42,192**	**74.5%**
City of Port Angeles	16,583	29.3%
Waste Connections	21,122	37.3%
West Waste & Recycling	4,487	7.9%
Self-Haul	**14,459**	**25.5%**
Blue Mountain Transfer Station	1,244	2.2%
West Waste Transfer Station	2,105	3.7%
Regional Transfer Station	9,845	17.4%
Makah Transfer Station	1,265	2.2%
TOTAL	**56,651**	**100.0%**

Notes: Data is from Port Angeles and West Waste records.

West Waste's transfer station includes 500 tons collected by the Quileute Tribe and the figure for the Makah Transfer station is a combination of Tribal collections and self-haul deliveries.

Clallam County's waste stream has fluctuated significantly over the past 20 years. Table 2-4 shows the annual waste quantities for the past 20 years and the amount of change from the previous year. These figures do not include wastes that are handled separately from the municipal solid waste stream (such as biomedical wastes) or wastes that are exported directly to out-of-county facilities. For instance, Ecology records show that 19,778 tons of asbestos, ash, construction and demolition debris, industrial wastes and petroleum-contaminated soils were exported directly out of the county in 2016.

As can be seen in Table 2-4, there have been significant fluctuations in the amount of wastes in some years. These fluctuations can also be seen in Figure 2-1, which shows the per capita disposal rates for Clallam County since the year 2000. As with many areas, Clallam County had a significant reduction in waste tonnages in 2008 due to the recession. As of 2017, solid waste tonnages still had not returned to pre-recession levels.

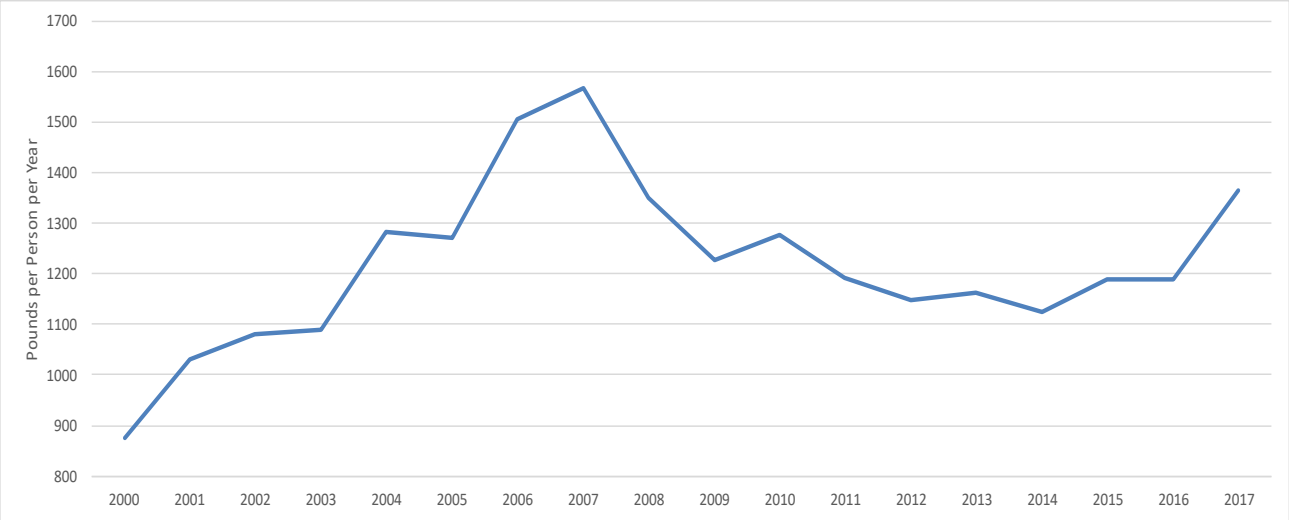
Other impacts include the potential for self-haulers to dispose of waste at out of county transfer stations or drop boxes that have lower tipping fees than Clallam County; as is currently

Table 2-4. Annual Disposal Tonnages

Year	Total Waste, TPY	Percent Change
1999	26,113	
2000	28,041	7.4%
2001	33,313	18.8%
2002	35,377	6.2%
2003	35,963	1.7%
2004	42,826	19.1%
2005	42,986	0.4%
2006	51,960	20.9%
2007	54,803	5.5%
2008	47,674	-13.0%
2009	43,632	-8.5%
2010	45,650	4.6%
2011	42,657	-6.6%
2012	41,358	-3.0%
2013	42,066	1.7%
2014	40,794	-3.0%
2015	43,222	6.0%
2016	43,637	1.0%
2017	50,732	16.3%

Source: Disposal figures are for MSW only and are from Solid Waste Disposal Annual Summary, Recoverable and Non-Recoverable Wastes Generated in Washington State, 1994-2017, by the Washington Department of Ecology.

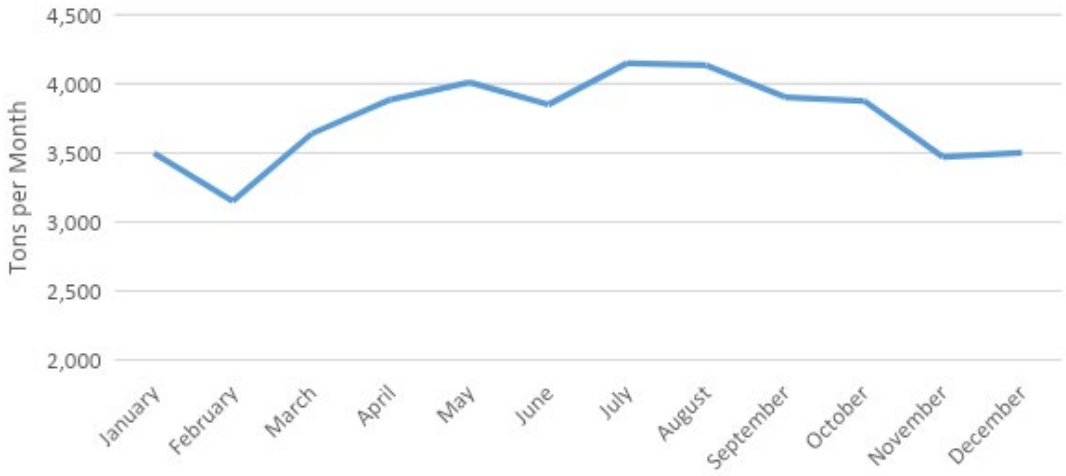
Figure 2-1: Per Capita Disposal Rates for Clallam County



the case in nearby counties including Jefferson, Mason, Gray Harbor, Kitsap and Island County. Another factor could be packaging trends; for example, the weight of packaging may decrease as companies search for cost saving measures.

The rate at which solid waste is generated varies throughout the year due to seasonal differences in residential and commercial activities. Data from the Port Angeles Regional Transfer Station shows that the average amount of solid waste disposed at that facility over the past six years (2013- 2018) varied from a low of 3,151 tons in February to a high of 4,150 tons in July (see Figure 2-2). This is a typical pattern for many areas, with the lowest amounts of wastes

Figure 2-2: Solid Waste, Tons per Month at RTS (6-Year Average)



Based on Port Angeles records for the Regional Transfer Station for the years 2013 through 2018.

being disposed in the winter months (after the impact of the holiday season has been experienced) and then higher amounts in the summer (especially in areas with a significant amount of tourism).

Current Recycling Levels

The most recent recycling survey conducted by Ecology shows that 48,601 tons of materials were recycled in 2017 from Clallam County residences and businesses, which was higher than in 2016 but similar to 2015. Table 2-5 shows the tonnages of materials recycled for the past three years (2015-2017), and the average of those three years. These figures should be viewed with some caution, as the data is based on a survey that depends on voluntary self-reporting by the collectors and processors. The amount of cooperation and the quality of responses for this survey varies from year to year and from company to company.

Table 2-6 shows other materials that were diverted from the waste stream through activities such as energy recovery and reuse, which are not defined as recycling and so are not included in the calculation of the County's recycling rate. Although these materials are being used beneficially, these do not meet the State's definition of recycling.

The recycled and diverted figures shown in Tables 2-5 and 2-6 include an allocated portion of the "unknown tonnages" measured by Ecology's survey. In some cases, the tonnages reported by private companies for the annual recycling survey cannot be identified by source and so cannot be allocated to a specific county. Ferrous and non-ferrous metals make up the largest amount of the unallocated tonnages, and there are also significant amounts of tires, cardboard and other paper grades that were not identified by source. The "unknown tonnages" were about 11% of the total statewide amount in 2017. The generally recommended approach for dealing with the unallocated tonnages is to assign these tonnages to individual counties based on population, which is what has been done here (based on Clallam County's 1.0% share of the State's population).

The data in Table 2-5 can be combined with disposal data to calculate the recycling rate for Clallam County (see Table 2-7). Based on 48,601 tons of materials recycled in 2017 and a waste disposal amount of 50,732 tons in 2017, the recycling rate for Clallam County in 2017 was 48.9%. This figure is generally called a "recycling rate," although it also includes organics that are composted.

The data shown in Tables 2-5 and 2-6 can also be used to calculate a "recovery rate," which includes the diverted materials that are not counted as recycling. In this case, other types of waste that are not defined as MSW must also be included in the calculation (see "Other Wastes Disposed" in Table 2-7). The recovery rate for 2017 is not much different from the recycling rate (51.7% for the recovery rate versus 48.9% for the recycling rate), but the difference is much greater for the previous two years due to larger amounts of diverted materials and smaller amounts of other wastes.

As noted above, the recycled and recovered tonnages shown in Tables 2-5 and 2-6 are based primarily on voluntary reporting and participation in the annual survey can be sporadic. In some

Table 2-5. Recycled and Composted Quantities by Material				
Material	**Annual Tons**			**Three-Year Average**
	2015	**2016**	**2017**	
Construction and Demolition (C&D) Mtl.				
Asphalt and Concrete	23,793	13,559	26,408	21,253
Gypsum	0	2	4	2
Wood	277	600	1,003	626
Other C&D	492	21	23	179
Glass				
Glass (Containers and Other)	1,153	626	733	837
Metals				
Aluminum Cans	189	72	86	116
Appliances/White Goods	0	0	387	129
Other Ferrous	6,645	6,398	8,450	7,164
Other Non-Ferrous	1,044	551	577	724
Steel (Tin) Cans	142	4	17	54
Moderate Risk Wastes				
Antifreeze	35	33	28	32
Batteries, Auto Lead Acid	252	276	239	256
Batteries, Household	3	6	3	4
Batteries (all other)	55	11	13	26
Electronics	54	25	10	30
Light Bulbs	6	4	3	5
Oil Filters	2	13	4	6
Used Oil	186	295	265	249
Organics				
Food Processing Wastes	0	0	12	4
Food Scraps	0	150	0	50
Meats, Fats, and Oils	242	221	172	212
Yard Waste	6,826	7,634	5,344	6,601
Other Organics	1,788	1,858	1,858	1,834
Paper				
Cardboard	3,964	3,015	1,466	2,815
High Grade	142	136	73	117
Mixed Paper	1,237	911	902	1,017
Newspaper	322	72	114	169
Plastic				
HDPE	57	16	11	28
LDPE	18	41	6	22
PET	76	6	21	34
Other Plastics	19	18	8	15
Other				
Tires (recycled, including baled tires)	245	204	358	269
Toner/Ink Cartridges	1	0	0	0
Miscellaneous	0	0	3	1
Total Recycled Materials	**49,267**	**36,777**	**48,601**	**44,882**

Note: All data is from the annual recycling survey conducted by Ecology.

Table 2-6. Additional Recovered Materials				
Material	**Annual Tons**			**Three-Year Average**
	2015	**2016**	**2017**	
Materials used for Energy Recovery				
Landclearing Debris	49,737	23,636	0	24,458
Tires	56	77	34	56
Used Oil	43	36	3	28
Wood Waste	35,537	60,483	31,469	42,496
Reuse				
Food	0	128	0	43
Tires	41	26	24	30
Total Additional Diversion	**85,413**	**84,385**	**31,530**	**67,109**

Table 2-7. Recycling and Recovery Rates				
Material	**Annual Tons**			**Three-Year Average**
	2015	**2016**	**2017**	
MSW:				
Recycled Materials	49,267	36,777	48,601	44,882
MSW Disposed	43,222	43,637	50,732	45,864
Waste Generation (Recycled Amount + MSW Disposed)	92,489	80,414	99,333	90,745
Recycling Rate	**53.3%**	**45.7%**	**48.9%**	**49.5%**
All Wastes:				
Recycled Materials	49,267	36,777	48,601	44,882
Recovered Materials	85,413	84,385	31,530	67,109
All Diverted Materials	134,680	121,162	80,131	111,991
MSW Disposed	43,222	43,637	50,732	45,864
Other Wastes Disposed	13,120	13,935	24,202	17,086
All Wastes Disposed	56,342	57,572	74,934	62,949
Recovery Rate	**70.5%**	**67.8%**	**51.7%**	**64.0%**
Pounds per Capita:				
Population	72,650	73,410	74,240	73,433
MSW, Recycled, lb/person/yr	1,356	1,002	1,309	1,222
MSW, Disposed, lb/person/yr	1,190	1,189	1,367	1,249
MSW, Generated, lb/person/yr	2,546	2,191	2,676	2,472
All Wastes Recovered, lb/person/yr	3,708	3,301	2,159	3,050
All Wastes Disposed, lb/person/yr	1,551	1,569	2,019	1,714
All Wastes Generated, lb/person/yr	5,259	4,869	4,177	4,765

Note: All data is from annual surveys conducted by Ecology, except the population and per capita figures.
lb = pounds

cases the reports are required by solid waste facility permits and so cooperation is more assured, but much of the data is gathered from private companies, non-profit organizations and others that can simply choose not to take the time to respond to the survey. An example of this issue can be seen in the food scraps category in Table 2-5. A large amount of food scraps (150 tons) is shown for 2016 but none is shown for 2015 and 2017 because a large retailer in Clallam County only reported in 2016 and chose not to report in 2015 and 2017. This same company also recycled significant amounts of other materials. Altogether they recycled 1,445 tons in 2016, or almost 4% of the total amount of recycled materials for Clallam County in 2016. This same company reported the 128 tons of donated food shown in Table 2-6. The lack of reporting for the other two years is a problem, but it is also clearly a problem that that the many tons of other food donated by other companies to local food banks is not being tracked by the survey. Another example of reporting issues can be seen in Table 2-6 for landclearing debris, which is shown as zero tons for 2017. Although this is largely the result of Nippon Paper (now McKinley Paper) temporarily shutting down their cogeneration plant, clearly landclearing debris in Clallam County was still being diverted to other uses in 2017.

There is little data available on the current levels of waste diverted by most forms of waste reduction, although a few categories of reuse are at least partially tracked (see the Reuse section in Table 2-6). If all waste reduction activities could be measured, the County's recovery rate would be significantly greater.

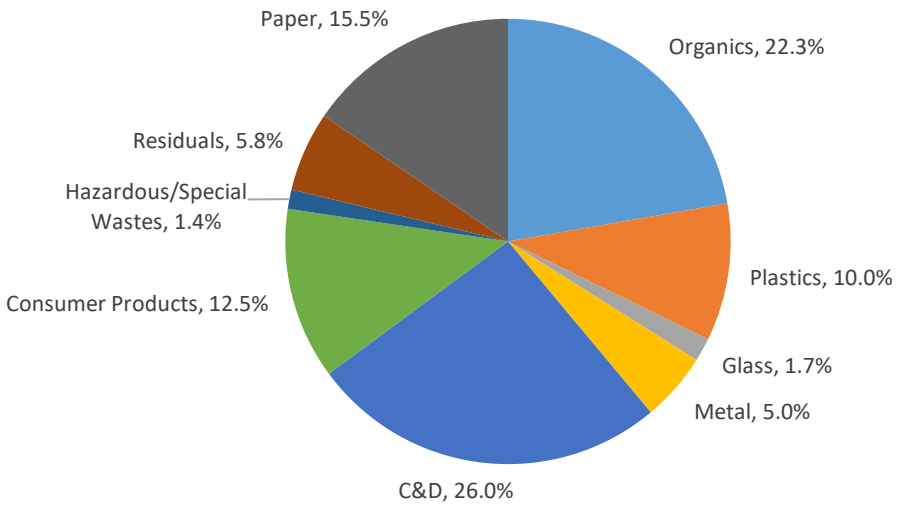
Data on the amounts of materials recycled (or recovered) and disposed can also be combined to determine the total amount of waste generated. Figures in Table 2-7 show the amounts of waste generated for each year, based on the amount of MSW recycled and disposed, as well as per capita waste generation figures for MSW and for all types of wastes. The use of waste generation figures is seen as a method to encourage waste reduction, by recognizing that all wastes generated must be managed in some way and so not generating wastes in the first place (through waste reduction activities) is a better approach. It should be noted, however, that this approach works better on a statewide basis, since data for smaller areas such as counties is subject to variations caused by reporting issues.

Solid Waste Composition

Data on the composition of the wastes being disposed is useful for designing solid waste handling and disposal programs. No waste composition studies have been conducted recently in Clallam County, however, as these studies are a relatively expensive endeavor. A statewide study was conducted for Ecology in 2016 and this study divided the state into six Waste Generation Areas (WGA). Clallam County and Grays Harbor were the selected representatives of the West WGA; and samples of waste were taken at the Port Angeles Regional Transfer Station for this study. A breakdown of the West WGA composition is shown in Figure 2-3. The findings demonstrate that wood and other construction and demolition wastes make up the largest category of disposed waste (26.0%), followed closely by organics (22.3%) and other potentially recyclable or divertible materials (paper, 15.5%, and plastics, 10.0%).

Waste composition can be expected to change in the future due to changes in consumption patterns, packaging methods, disposal habits, tourism, the economy, and other factors. These

Figure 2-3. Waste Composition for West WGA



Source: 2015 - 2016 Washington Statewide Waste Characterization Study, Ecology.

changes are very difficult to predict in the long term. Furthermore, it is hoped that implementation of this Plan will affect waste composition in Clallam County by changing purchasing, consumption, and disposal practices.

Future Solid Waste Quantities

In Table 2-8, waste quantities have been projected using average per capita recycling and disposal rates (see Table 2-7) multiplied by population forecasts for the County. The amounts of diverted materials (such as wood waste burned for energy) are not included in these figures because those are not defined as recycling. Non-MSW types of solid waste are also not included

Table 2-8. Projected Solid Waste and Recycling Quantities for Clallam County

	2020	2025	2030	2035	2040
Population	74,707	76,847	78,683	80,123	80,928
At Average per Capita Rates					
Recycled Amounts, 1,222 pounds/person/year	45,646	46,954	48,075	48,955	49,447
Disposed Amounts, 1,124 pounds/person/year	46,692	48,029	49,177	50,077	50,580
Total Waste Generated, tons/year	92,338	94,983	97,252	99,032	100,027

Source: Based on the three-year average per capita figures shown in Table 2-7 and the population figures shown in Table 2-2.

in these figures because those materials are typically handled outside of the County solid waste system, so there will not be a need to build future system capacity to manage them.

A note about the 2020 pandemic and future waste quantities: The projections in Table 2-8 are based on recycling and waste quantities from 2015 to 2017. Although recycling markets were very challenging during this period, it was otherwise a relatively stable period economically and otherwise. The Covid-19 pandemic in 2020 has at least temporarily disrupted recycling and waste generation patterns, and it remains to be seen what long-term impacts it will have.

2.4. EXISTING SOLID WASTE FACILITIES

The primary solid waste and recycling facility for Clallam County is the Port Angeles Regional Transfer Station (RTS). This facility includes a transfer station for MSW, a self-haul waste receiving site, an MRW facility, a recycling drop-off center, and a composting facility that processes yard waste and biosolids. Three other transfer stations serve other parts of Clallam County, including the Blue Mountain Transfer Station (located between Sequim and Port Angeles), the Makah Transfer Station (near Neah Bay) and the West Waste Transfer Station (near Forks). These facilities are shown in Figure 2-4.

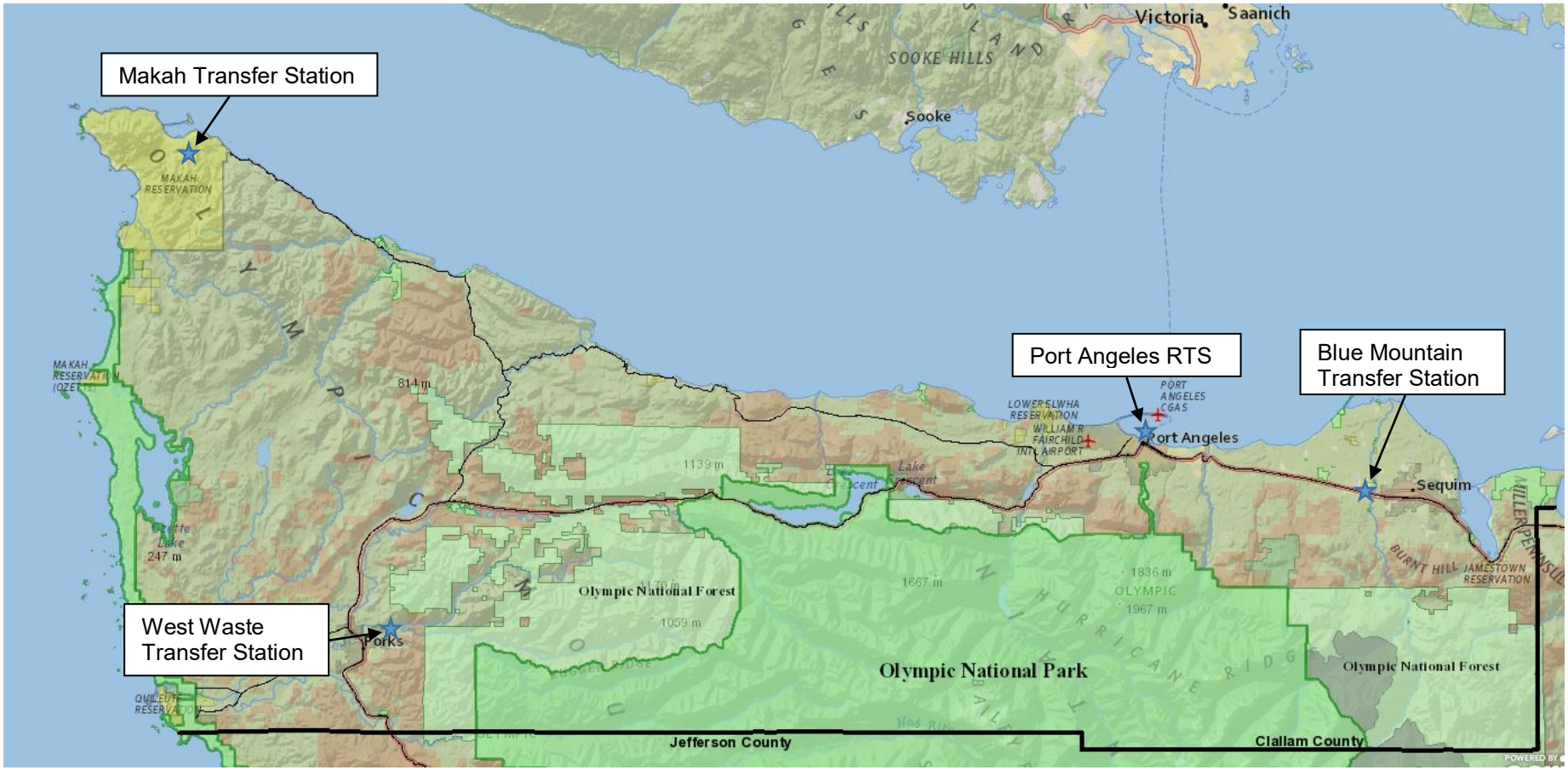
Several private operations provide important additional opportunities for recycling and/or yard waste composting, including Johnston Farm in Agnew, Around Again in Carlsborg and All Metal Recycling in Port Angeles.

2.5. CONCLUSIONS

The primary solid waste facilities in Clallam County are transfer operations that consolidate and ship wastes to other sites outside of the county. As such, the capacities of these facilities are not limited to a fixed amount, but can be affected by open hours and other operational factors. In reviewing the projected solid waste tonnages anticipated to be generated in Clallam County over the next 20 years (see Table 2-8), these facilities appear to be adequate to handle these amounts. Significant expansions in the recycling of specific materials may require additional or expanded facilities in the future.

As noted previously in this chapter, Clallam County does not currently have up-to-date local waste composition data. Performing a waste composition study or similar analysis of Clallam County's waste stream would be helpful, especially if programs or facilities are proposed that depend on the composition of the waste stream. A detailed local study would cost a substantial amount ($100,000 to $200,000) and so is not being recommended at this time. A detailed study should be considered, however, prior to any substantial investments in Clallam County that depend on the composition of the waste stream. In addition, if grants or similar funding becomes available in the future for this type of study, Clallam County should consider using such funds to conduct a waste composition study.

Figure 2-4
Location of Clallam County Solid Waste Facilities



From Clallam County website, 2019

CHAPTER 3

SOLID WASTE COLLECTION

3.1. INTRODUCTION

Background for Solid Waste Collection

This chapter addresses the solid waste (garbage) collection system in Clallam County. The collection system currently consists of five entities; a municipal collection system (Port Angeles), two private collection companies (Waste Connections and West Waste), and two Tribal operations (for the Makah and Quileute Reservations, although strictly speaking the reservations are not part of the planning area for this plan).

State Regulations Concerning Waste Collection

The State authorities that govern collection activities are Ecology and the Washington Utilities and Transportation Commission ("UTC"). RCW 70A.205.010 also assigns responsibilities to local government for the management of solid waste handling while encouraging the use of private industry. The various laws that may apply to solid waste collection companies include:

- **Chapter 81.77 RCW, Solid Waste Collection Companies**: This law establishes the state regulatory authority for solid waste collection companies and the procedures and standards with which they must comply.
- **Chapter 35.21 RCW, Cities and Towns**: This law establishes the authority of towns and cities in regard to solid waste. Per RCW 35.21.120, "A city or town may by ordinance provide for the establishment of a system or systems of solid waste handling for the entire city or town or for portions thereof. A city or town may provide for solid waste handling by or under the direction of officials and employees of the city or town or may award contracts for any service related to solid waste handling."
- **Chapter 36.58 RCW, Solid Waste Disposal, and 36.58A RCW, Solid Waste Collection Districts**: Chapter 36.58A RCW authorizes counties to form a collection district that would enable the adoption of mandatory waste collection. Chapter 36.58 RCW primarily addresses disposal activities, including the ability to form a solid waste disposal district, but one section (RCW 36.58.045) authorizes counties to "impose a fee upon … a solid waste collection company" to fund compliance with a solid waste management plan.
- **Chapter 480-70 WAC, Rules for Solid Waste and/or Refuse Collection Companies**: This chapter establishes standards for public safety, fair practices, reasonable charges, nondiscriminatory application of rates, adequate and dependable service, consumer protection, and compliance for solid waste collection companies.

The Washington Utilities and Transportation Commission

In 1961, State law established exclusive territories for solid waste collection in order to ensure that everyone has access to garbage collection service and to limit the number of garbage trucks operating in each area. Solid waste collection companies must be issued a "certificate"

that allows them to collect specific types of waste in specific areas. The UTC is responsible for issuing these certificates and further supervises and regulates waste collection companies by:

- Fixing and altering rates, charges, classifications, rules and regulations.
- Regulating the accounts, service, and safety of operations.
- Requiring the filing of annual reports and other reports and data.
- Supervising and regulating such persons or companies in all other matters affecting the relationship between them and the public which they serve.
- Requiring compliance with local solid waste management plans and related implementation ordinances.
- Requiring certificate holders to use rate structures and billing systems consistent with the solid waste management priorities and the minimum levels of solid waste collection and recycling services pursuant to local comprehensive solid waste management plans.

The UTC also regulates energy companies (electrical and natural gas utilities), private water companies, telecommunications, and other transportation companies (such as commercial ferries, pipelines, and railroads). More information can be found at UTC's website (www.utc.wa.gov/).

Waste Collection Options for Cities

Four forms of collection services are allowed by State law in the cities and towns:

- **Municipal**: This approach utilizes municipal employees and equipment to collect waste. Port Angeles uses this approach.
- **Contracted**: Incorporated cities and towns may elect to contract with private companies for waste and recycling collection. Services provided by the contractor and regulated by the jurisdiction need to comply with Chapter 70A.205 RCW (Washington State Solid Waste Management program). Forks and Sequim use this approach.
- **Certificated**: With this collection method, cities are not actively involved in garbage collection. Instead, it allows the UTC-certificated hauler to provide service under UTC regulation (and at rates approved by the UTC). None of the cities in Clallam County use this approach currently.
- **Licensed collection**: This method applies to municipalities that require private collectors to have both a city-issued license as well as a UTC certificate. This approach gives the municipality limited control over collection services, and allows cities to require that important services be provided. For instance, some cities in the past have used this method to require collection companies to pick up Christmas trees, provide a semiannual residential cleanup, or provide free service to public buildings and facilities.

Local Regulations Concerning Waste Collection

Garbage collection service is mandatory in Port Angeles and Sequim, as designated in their municipal codes. Residential recycling is included but participation is not mandatory. Additional provisions for garbage collection addressed in these codes include collection rates, unlawful disposal of prohibited materials, container requirements and other related regulations. Garbage collection service is not mandatory in Forks or other parts of the county.

Port Angeles: Port Angeles's municipal code addresses the creation of the Solid Waste Utility for the purpose of implementing the solid waste regulations within the Public Works and Utilities (Chapter 13.52) and addresses the requirements for garbage collection, including rates (Chapter 13.54).

Sequim: Chapter 8.08 of Sequim's municipal code addresses solid waste collection. This chapter focuses on the maintenance of health and sanitation, and the removal and disposal of garbage.

Local Utility Taxes: Cities and towns are allowed to assess a utility tax on waste collection services within their boundaries. Forks assesses a 6% tax on garbage collection services conducted in the city, Sequim assesses an 8% tax on garbage collection services, and Port Angeles assesses a 10% tax on private solid waste services conducted in their city.

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.

Goals for Waste Collection

Four of the goals for this plan are applicable to waste collection:

- Encourage public-private partnerships.
- Involve the expertise of private industry wherever those capabilities are available.
- Provide guidelines for an equitable balance between convenience, expense, climate impact, environmental quality, and public health and welfare.
- Encourage cooperative and coordinated efforts among government agencies, private companies and the public to achieve effective management of solid waste.

3.2. EXISTING SOLID WASTE COLLECTION ACTIVITIES

There are two private service providers, one municipal operation, and two Tribal operations 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, Waste Connections (under the names of DM Disposal and Murrey's Olympic Disposal), 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. Waste Connections provides garbage collection services in the City of Sequim. West Waste & Recycling provides garbage collection services in the City of Forks. Waste Connections and West Waste have contracts to collect waste from various businesses and agencies and are certificated to collect waste in the unincorporated areas of Clallam County. The collection service providers, their mailing addresses and the current population density for

each service area are shown in Table 3-1, and the service areas for the two private haulers are shown in Figure 3-1.

Table 3-1. Waste Collection Service Providers in Clallam County

Service Provider	Address	Population Served (2019)[1]	Land Area, square miles[2]	Density (people per square mile)[3]
City of Port Angeles	321 East 5th Street, Port Angeles, WA, 98362	19,620	10.5	1,870
Waste Connections	970 Carlsborg Road, Sequim, WA, 98382	50,851	1,669	30
West Waste & Recycling	272 La Push Road, Forks, WA, 98331	NA	NA	NA
Makah Tribe	PO Box 115, Neah Bay, WA, 98357	1,437	46.9	31
Quileute Tribe	PO Box 279, La Push, WA, 98350	467	1.6	292
Totals		76,010	1,738	44

Notes: All figures are estimates for the year 2019.

1. Population data is from the Office of Financial Management (OFM) April 1, 2019 Population of Cities, Towns and Counties and OFM Estimates of Total Population for American Indian Areas for the populations of the Makah and Quileute Tribes. Figures for Waste Connections are based on the difference between the county total (76,010 people) minus the population of Port Angeles, Forks, and the Makah and Quileute Reservations. Figures are not available for the West Waste service area.
2. From the Office of Financial Management. Figures for Waste Connections are based on the difference between the county total (1,738 square miles) minus the land area of Port Angeles, Forks, and the Makah and Quileute Reservations. Figures are not available for the West Waste service area.
3. Density figures are calculated from the population and land area figures.

Rate structures in the cities of Port Angeles and Sequim include recycling services in the residential garbage fees. Volume based incentives are present in the form of every-other week (EOW) and monthly collection options for some operations. Commercial collection fees also vary with frequency and container size; commercial recycling fees vary with collection operators. A sampling of current rates charged for collection and disposal services is shown in Table 3-2. Rates for non-residential service levels are for once-weekly service. Rates for temporary non-residential containers may differ from the rates shown in Table 3-2. Also not shown are rates for larger containers (roll-offs and stationary compactors). Charges for roll-offs and stationary compactors are based on rental fees for the container plus a hauling fee and a disposal fee for the actual amount (by weight) of garbage in the container each time it is emptied.

Figure 3-1. Clallam County Solid Waste Collection Service Areas

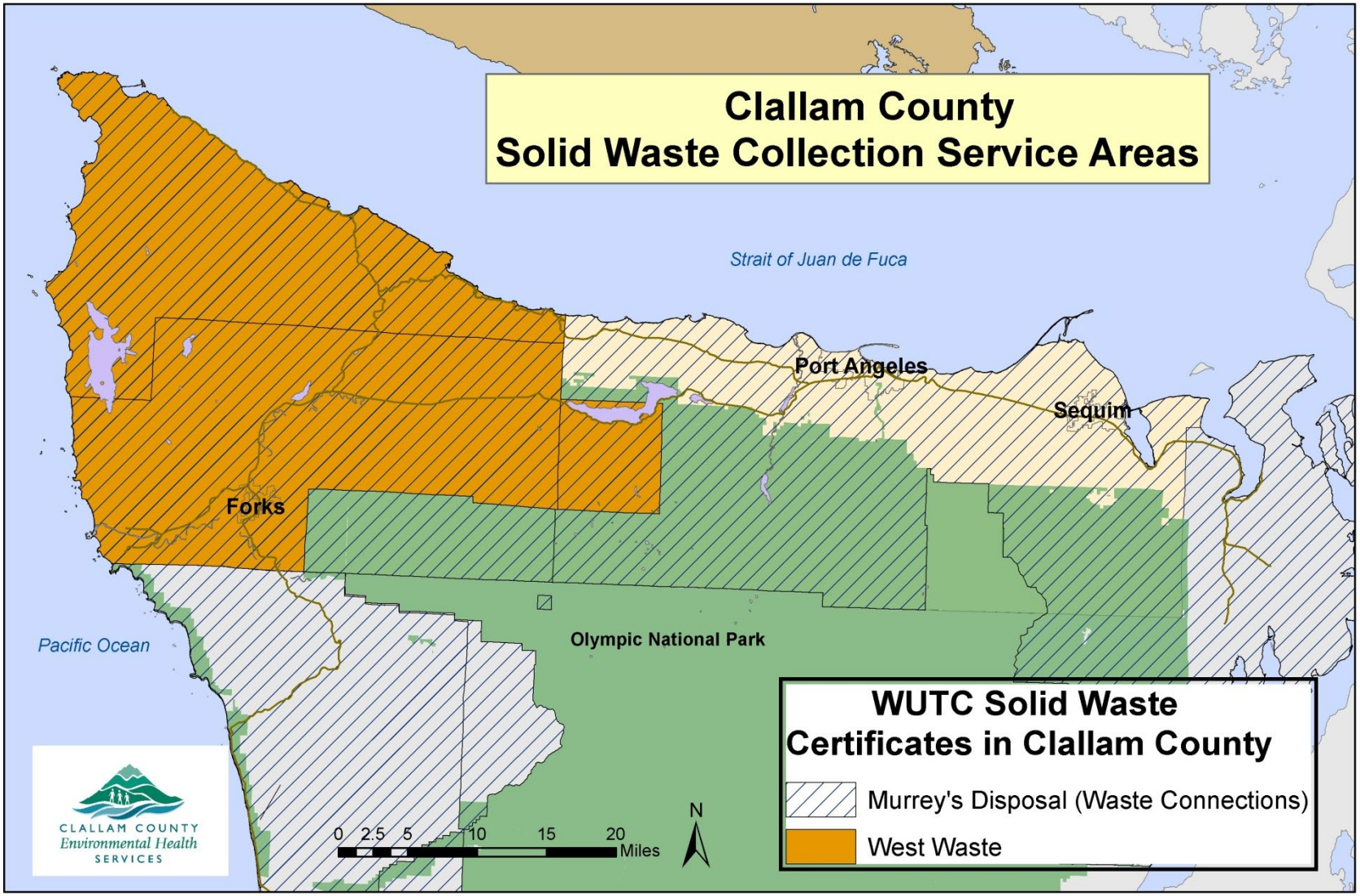


Table 3-2. Waste Collection Rates in Clallam County

Service Level	City of Port Angeles	City of Sequim	Waste Conn, Clallam Co.	City of Forks	West Waste, Clallam Co.
Residential					
Weekly collection					
Mini-can (20 gallon)	NA	$25.36	$17.36	NA	$15.07
One 32-gallon can	NA	NA	$22.66	$19.40	$18.34
Two 32-gallon cans	NA	NA	$34.70	$29.49	$27.87
Three 32-gallon cans	NA	NA	$47.70	$39.02	$36.89
One 35-gallon cart	NA	$34.49	$25.15	NA	NA
One 64 gallon cart	NA	$39.18	$32.80	NA	NA
One 90- or 96-gallon cart	$39.97	$48.58	$42.68	NA	NA
Two 90- or 96-gallon carts	$79.94	NA	NA	NA	NA
Biweekly collection					
One 32-gallon can	NA	NA	$13.09	$10.72	$10.14
One 35-gallon cart	NA	$21.53	$14.51	NA	NA
One 64-gallon cart or 2 cans	NA	$30.09	$18.79	NA	$14.30
One 90- or 96-gallon cart	$26.74	$36.47	$24.42	NA	NA
Monthly collection (one can)	NA	NA	$7.75	NA	$6.46
Biweekly recycling	Included	Included	$11.23	NA	NA
Biweekly yard waste	$8.85	$11.18	NA	NA	NA
Non-Residential (Commercial)					
Weekly collection					
One 96-gallon cart	$37.88	NA	NA	NA	NA
One 300-gallon container	$97.61	NA	NA	NA	NA
One yard dumpster	NA	NA	$97.01	$76.17	$72.00
One and ½ yard dumpster	NA	$147.50	$138.67	$106.60	$100.77
Two yard dumpster	NA	$188.16	$191.54	$150.67	$142.43
Three yard dumpster	NA	$275.51	NA	NA	NA

Notes: 1. Biweekly means every-other week.
NA = not applicable, service level is not provided.
Rates are effective as of January 1, 2020, and include the State 3.6% Refuse Tax and local utility taxes.

Many residents and businesses haul their own waste ("self-haul") to waste facilities. In Clallam County, self-haul customers can bring wastes to the facilities located in Port Angeles, near Sequim, Forks, and the Makah Reservation (see next chapter for more details). Almost three-quarters of the waste generated within the planning area is collected by the three haulers (74.5%) and the rest is self-hauled (25.5%).

City of Port Angeles Solid Waste Utility

The City of Port Angeles Solid Waste Utility collects garbage from over 7,400 residential customers and 1,500 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 provided for a fee equal to the charge for the first container. Residential containers are labeled to show the materials that are not acceptable in the city's waste collection system (such as yard waste, sod, etc.).

An every-other week curbside recycling service is provided to residential customers at no extra charge in Port Angeles, but residents must request the service. This service is provided by Waste Connections through a contract with the City of Port Angeles. The curbside recycling service uses a 90-gallon container, and no extra containers are provided. In 2019, 84% of residential customers requested the recycling service. Every-other week yard waste service is provided for an extra fee, and 40% of the residents subscribe to this service. Residents can request additional yard waste containers for a fee.

Commercial customers may receive collection service one to six days per week. 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. Upon approval, commercial customers may self-haul directly to the transfer station, or contract with Waste Connections if their waste volume and/or weight exceeds the capacity of the city's mechanized garbage collection system.

City of Sequim

Garbage collection is mandatory for residents in the City of Sequim. The city currently contracts with Waste Connections (dba Murrey's Disposal Company) for these services. Sequim residents receive weekly or every-other week garbage service and every-other week curbside recycling service. Residents can use 20, 35, 64, or 96-gallon garbage containers, with the collection fee varying accordingly, and recycling is included in the collection fee. Yard waste service is provided for an extra fee upon request.

Commercial customers can use 1-1/2, 2, 3, 4 or 6 cubic yard dumpsters, with the collection fee varying accordingly. Commercial collection varies from 1 to 5 times per week, depending on customer need. Commercial recycling is an optional service. Waste Connections transports solid waste collected in Sequim to the Regional Transfer Station as specified in the 2007 ILA (see Appendix A).

City of Forks

Garbage collection is optional for residents in the City of Forks. The city currently contracts with West Waste for these services. Recycling and yard waste services are not available. West Waste brings the solid waste collected in Forks to their transfer station.

Makah Tribal Solid Waste Collections

Makah Tribal Solid Waste Collections provides collection service in 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.

Garbage collection service is provided for Tribal members and institutions at no charge. Non-tribal members and businesses can opt in to this service for a fee of $28.00 per pickup for a

two-yard container. Residential service is provided with a 2.5 ton rear-loading truck. Garbage is hauled to the Makah Transfer Station.

Tribal members can choose to participate in a voluntary curbside recycling service. In addition, tribal and non-tribal members, commercial businesses and visitors can bring commingled recyclables to two drop-off locations. The garbage and recyclables are taken by Waste Connections to the RTS or a recycling transfer operation near RTS.

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.

The other 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.

Waste Connections, Inc.

Waste Connections 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 dumpsters that are one to six cubic yards, and tilt frame (roll-off) trucks for hauling drop boxes with capacities of 10, 20, 25, 30, 40 and 53 cubic yards.

Waste Connections has contracts to provide garbage collection services for Olympic National Park and Sequim Bay State Park, and is certificated by the UTC to collect solid waste throughout Clallam County. The UTC certificate (Certificate G-9) grants Waste Connections the authority to offer waste collection services to residents and businesses in the unincorporated areas of the county. Waste Connections also offers every-other week curbside recycling service in this area, and the cost for that is discounted for residents who are also garbage customers (with taxes, the cost for curbside recycling for garbage customers was $9.85 per month in 2020 versus $11.23 for recycling alone). 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.

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 UTC 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 the certificated area for Waste Connections.

3.3. SOLID WASTE COLLECTION PLANNING ISSUES

This section discusses management issues associated with collection of municipal solid waste.

Current and Future Capacity

The current collection system does a good job of collecting and removing solid wastes generated by the residents and businesses in Clallam County. Future waste quantities have been estimated (see Table 2-8), and the existing collection system is anticipated to be able to handle the projected increase. There is, however, a significant problem with illegal dumping in the national parks and other areas of Clallam County (illegal dumping is addressed in greater detail in Chapter 10).

Education and Outreach

Clallam County residents and businesses are lacking easy access to information about rates for various services and different service levels. Better access to such information would help inform appropriate decisions about garbage and recycling services.

Incentive Rates

Some areas use incentive rates, where residential garbage collection fees are reduced for customers that agree to recycle. An additional incentive for recycling could be provided in Clallam County through the wider use of these rates.

3.4. ALTERNATIVE METHODS FOR SOLID WASTE COLLECTION

The following alternatives were considered for new or expanded waste collection activities. The listing of an alternative in this section does not mean that it is considered feasible or desirable, nor that it is recommended (see Section 3.5 for waste collection recommendations). In addition, the alternatives are not listed in order of priority.

Service Level Ordinance

The adoption of a service level ordinance by the County could be a method to implement specific programs or services in the unincorporated areas, areas that normally the County would have little control over (barring a collection district or another special mechanism). Collection rates and services in the cities (Forks, Port Angeles and Sequim) are determined by city ordinances and contracts. Collection rates and services in the unincorporated areas are set by the UTC based on financial and other data submitted by the waste collection companies. The County could not dictate specific rates, but could require (through a service level ordinance) that single-family and multi-family customers receive services such as:

- Bundling curbside recycling or yard waste collection services with garbage collection service.
- Implementing rate structures in the unincorporated areas of the county, such as incentive rates where garbage collection fees are reduced if a customer commits to recycle.
- Providing every-other week waste collection service (although most areas already have this

available as an option).

Any service level ordinance would only apply in the cities if the cities agreed to that, in which case a service level ordinance could establish different levels of service for incorporated and unincorporated areas, and could also separately address services in unincorporated areas that are in urban growth areas.

Mandatory Garbage Collection

Another alternative for waste collection in Clallam County is mandatory collection. Currently about 36% of the county's population resides in areas where collection service is mandatory (Port Angeles and Sequim), and the remainder is in areas where it is voluntary.

Instituting mandatory or "universal" garbage collection throughout all of Clallam County could provide benefits such as a reduction in illegal dumping; a reduced need for enforcement of illegal dumping, littering, and other laws; a greater ability to provide curbside recycling programs (assuming a combination of recycling services with garbage removal); and increasing recycling rates. Drawbacks for this approach could include providing a disincentive for those who are actively trying to reduce wastes and the general unpopularity of mandatory programs, especially during the initial implementation. The cost of garbage collection is sometimes viewed as a problem for low-income households, leading to consideration of discounts for low-income households. This approach leads to even higher costs for other customers, however, as the other customers would then need to make up for the resulting loss of revenue created by the low-income discount.

Mandatory collection in unincorporated areas could be provided through a solid waste collection district. State law (Chapter 36.58A RCW) enables a county to establish such a district. The concept of a solid waste district is discussed in greater detail in Chapter 10.

Better Information for Collection Service Requirements

A limited amount of information is currently being distributed to residents and businesses as to which materials should be recycled and which materials should be brought to disposal sites. While more information in these areas would be helpful, one of the largest gaps at this point is information about materials that should not be placed into garbage containers. Subscribers to garbage services cannot be expected to participate correctly in a system if they do not have the knowledge on how to do that. A variety of methods could be used to inform garbage subscribers, but one of the more effective methods would be labels placed on the garbage containers for both residential and commercial customers. These labels could be imprinted into containers (for plastic carts) or could be in the form of a large sticker that is placed on the container. This sticker could potentially be placed on the lid, on the underside of the lid, or on the side of a dumpster or roll-off. This type of sticker would fade after a few years and so would need to be replaced periodically, but this would also allow the opportunity to update the information. New containers that are distributed could be labeled immediately, and existing containers could be labeled over the period of a year or two. There would be about 9,000 containers that would need labels in the City of Port Angeles, 4,500 in the City of Sequim, 1,500 in the City of Forks, and an additional 11,500 containers in the unincorporated areas.

3.5 RECOMMENDATIONS FOR SOLID WASTE COLLECTION

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

WC1) Consider a service level ordinance for Clallam County that requires that curbside recycling services be provided for garbage collection customers.

WC2) Clallam County should further investigate the impacts of instituting universal collection service throughout the county.

WC3) All residential and commercial garbage containers should be labeled to list unacceptable materials.

Table 11-1 identifies the responsible implementing agency and the preliminary implementation schedule for each of these recommendations.

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CHAPTER 4

WASTE TRANSFER

4.1. INTRODUCTION

Background for Waste Transfer

This chapter addresses the waste transfer system in Clallam County. The waste transfer system allows smaller loads of waste, from garbage trucks as well as personal vehicles, to be consolidated into larger containers for more economical shipping to landfills that are hundreds of miles away. Transfer facilities also provide important opportunities for waste diversion (recycling) activities, separate handling of special wastes, and co-location of other waste management facilities (such as composting).

State Regulations Concerning Waste Transfer

Washington State law defines transfer stations as "a permanent, fixed, supplemental collection and transportation facility, used by persons and route collection vehicles to deposit collected solid waste from off-site into a larger transfer vehicle for transport to a solid waste handling facility" (WAC 173-350-100). A "drop box facility" is defined as "a facility used for the placement of a detachable container including the area adjacent for necessary entrance and exit roads, unloading and turn-around areas. Drop box facilities normally serve the general public with loose loads and receive waste from off-site." "Detachable containers" are defined to include dumpsters and roll-off containers.

Other parts of Washington State law impact transfer station operations. Notably, RCW 36.58.050 states that transfer stations included in a solid waste plan are exempt from regulation by the UTC and requirements for using certificated haulers to service these facilities. Furthermore, it states that the county "may enter into contracts for the hauling of trailers of solid wastes from these transfer stations to disposal sites and return either by (1) the normal bidding process, or (2) negotiation with the qualified collection company servicing the area under authority of Chapter 81.77 RCW." Because the Blue Mountain Transfer Station is designated to be part of the regional solid waste system, it too is exempt from UTC regulations and the County (or Port Angeles) can choose how and who can transport the waste from it.

Local Regulations Concerning Waste Transfer

The primary local rules and regulations addressing the transfer facilities are included in Chapter 41.10 of Clallam County's code and in an interlocal agreement. 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 transfer and export system (see Appendix A). The ILA identifies the respective roles and responsibilities of the ILA signatories, and establishes the Joint Solid Waste Advisory Board (JSWAB). The JSWAB 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 transfer and export system.

Goals for Waste Transfer

Six of the goals for this plan are directly applicable to waste transfer:

- Review existing facilities and solid waste handling practices, and seek community input to 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 with a regional perspective.
- Encourage public-private partnerships.
- Involve the expertise of private industry wherever those capabilities are available.
- Coordinate with counties, cities and the private sector to identify capital cost estimates and implementation schedules for recommended improvements with emphasis on those improvements recommended within a six-year period.
- Encourage cooperative and coordinated efforts among government agencies, private companies and the public to achieve effective management of solid waste.

4.2. EXISTING WASTE TRANSFER ACTIVITIES

The transfer system in Clallam County includes four facilities; the Blue Mountain Transfer Station, the Regional Transfer Station, the West Waste Transfer Station, and the Makah Transfer Station. The locations of these facilities are shown in Figure 2-4, and descriptions of the facilities are provided below. Both the Blue Mountain and the Regional Transfer Stations are part of the Regional Export System implemented by the ILA. Waste from the Blue Mountain Transfer Station and the Makah Transfer Station is brought to the Regional Transfer Station. Waste from the Regional Transfer Station and the West Waste Transfer Station is exported to the Roosevelt Regional Landfill or landfills in Oregon (see Chapter 5 for more details).

Regional Transfer Station

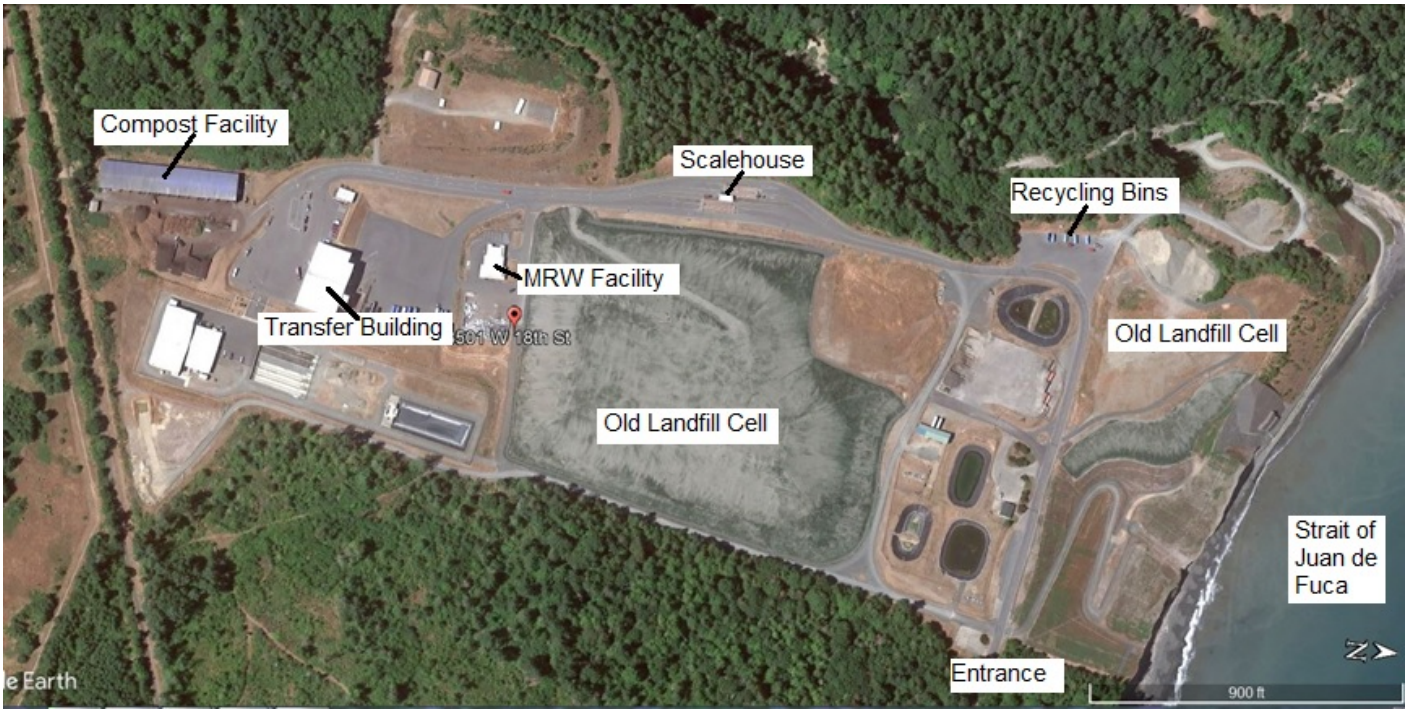
The Regional Transfer Station (RTS) became operational in 2007 and is located at 3501 West 18th Street. This transfer station replaced the solid waste landfill at the same site, which closed in late 2006. The transfer station area is approximately 10.7 acres. The facility includes:

- A waste transfer building, where waste is compacted into shipping containers that are hauled first by truck and then by train to an out-of-county landfill.
- A recycling drop-off center.
- Separate collection areas for scrap metal, tires, and refrigerated appliances.
- A yard debris and septage composting facility.
- A moderate risk waste (MRW) collection facility.

Waste Connections operates the transfer station under contract to the City of Port Angeles. The station is open to the public from 9 a.m. to 5 p.m. Monday through Saturday, and the facility is staffed during these hours. Figure 4-1 shows the site layout for the RTS. The current fees charged are shown in Table 4-1, and a summary of the tonnages handled in the past four years at the RTS is shown in Table 4-2.

The transfer building is designed to handle up to 900 tons per day of municipal solid waste (MSW). The tipping floor is designed to separate commercial from self-haul customers. Under normal operations, all MSW received each day is deposited into transfer trailers and removed from the facility within 24 hours.

Figure 4-1: Site Layout for the RTS



Google Earth © 2019 Google

Table 4-1. Current Solid Waste Fees at RTS

Type of Waste	Charge
Solid waste, municipal or franchise hauler	$144.99/ton
Solid waste, self-hauled	$193.98/ton, $10.00 minimum charge
Yard waste, municipal or franchise hauler	$31.55/ton
Yard waste, self-hauled	$51.19/ton, $5.00 minimum charge
Contaminated soils	$218.52/ton
Scrap metal and appliances	$78.40/ton, plus $25.82 for each refrigerator or freezer
Asbestos	$411.02/ton

Note: Rates shown became effective January 1, 2020. Rates for some types of waste are not shown.

Table 4-2. Sources of Wastes Handled at RTS (Annual Tons)				
Source	**2016**	**2017**	**2018**	**2019**
City of Port Angeles				
Garbage Collection System	9,745	9,859	10,061	10,084
Commercial Roll-Offs	1,903	2,341	2,050	1,771
Residential Self-Haul	1,886	2,045	2,445	3,170
Commercial Self-Haul	1,426	1,763	1,855	3,081
Other	398	535	459	396
Subtotal, City of Pt Angeles	**15,358**	**16,543**	**16,870**	**18,502**
City of Sequim	**6,764**	**7,113**	**7,180**	**7,094**
Clallam County				
Blue Mountain Transfer Station	1,126	1,124	1,244	1,238
Neah Bay Transfer Station	1,422	1,351	1,265	1,281
Garbage Collection System	12,913	13,340	13,942	14,495
Residential Self-Haul	5,116	5,465	6,096	6,998
Commercial Self-Haul	2,998	3,037	3,212	2,934
Other	2	8	50	26
Subtotal, Clallam County	**23,577**	**24,324**	**25,809**	**26,973**
Federal	**38**	**44**	**35**	**33**
Other	**61**	**132**	**109**	**155**
TOTALS	**45,799**	**48,155**	**50,003**	**52,757**

Note: All figures are tons per year.

There are four types of recyclable materials currently accepted at RTS (and the Blue Mountain Transfer Station), including mixed paper, cardboard, mixed containers and glass bottles (see Chapter 6 for more details). Materials accepted at the metal and special waste area include tires, white goods, scrap metal, creosote-treated lumber, painted lumber, auto batteries, motor oil, antifreeze, asbestos and contaminated soils. Materials accepted at the MRW Facility includes cleaners, solvents, and pesticides. The Compost Facility accepts yard waste delivered by Waste Connections trucks from the yard waste collection service and by commercial and residential self-haul customers, and biosolids from the Port Angeles wastewater treatment plant.

Blue Mountain Transfer Station

The Blue Mountain Transfer Station (Blue Mountain) 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 Waste Connections staffs the station during these hours.

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

The facility accepts garbage for a minimum fee ($5.00) or an incremental fee based on the weight measured at the on-site scale ($256.89 per ton). Recyclable materials, including mixed plastic containers, mixed paper, corrugated cardboard, glass, metals, used motor oil and antifreeze are accepted at no charge. Refrigerators and freezers are not accepted at this site. Waste from this facility is hauled to the Regional Transfer Station.

West Waste Transfer Station

West Waste & Recycling (West Waste) constructed and began operating their transfer station in Forks in 2000. Waste handled by this transfer station includes waste collected in Forks (through a contract with the city), waste collected from unincorporated county areas (under a franchise granted by the UTC), waste collected by the Quileute Tribe, and residential and commercial self-haul waste. Hours of operation for accepting self-haul waste are Thursdays, Fridays and Saturday 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 at no charge, including cardboard, aluminum cans and used motor oil. West Waste also accepts white goods (large appliances) for a fee.

Makah Transfer Station

The Makah Tribe constructed and began operating the Makah Transfer Station in September 2012. This transfer station is located on Cape Flattery Road in Neah Bay and it 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. The construction of the transfer station allowed for the closure of the Neah Bay Landfill, also known as the Warmhouse Beach Open Dump.

Recyclables

The commingled recyclables collected by Waste Connections are brought to a facility near RTS, baled, and then shipped to Pioneer Recycling (near Tacoma) for processing. Glass is also transferred to an out-of-county processing facility. More details on these activities are provided in the chapter on recycling (see Chapter 7).

4.3. WASTE TRANSFER PLANNING ISSUES

This section discusses management issues associated with the transfer of solid waste.

Access to Transfer Facilities

Transfer facilities are currently located so that the majority of residents and businesses in Clallam County have reasonably good access to a transfer site, although additional needs for transfer and drop box facilities may be identified in the future. 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 and Modifications

Improvements at the existing transfer and drop-off facilities may be needed in the future to meet changing needs (such as for new approaches to yard waste or other materials), to address health and safety issues, or to address changes in state or local regulatory requirements. Maintenance is an ongoing need at all facilities. At the Blue Mountain Transfer Station, there is currently a need for pavement repairs (to eliminate some potholes), better signage, and a pile of tires that should be removed.

Recycling Services at Transfer Stations

Recycling collection opportunities at transfer facilities are an important and desirable service for many people. While collecting recyclable materials through drop-off containers at these facilities is a relatively inexpensive method, current 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 could be considered.

Waste Export and Transfer Station Contract

The agreement between Port Angeles and Waste Connections for the operation of RTS and Blue Mountain expires on January 1, 2027. Planning for a new or extended contract for transfer and waste export services will need to begin in 2023.

Flow Control

Flow control ordinances that would require solid wastes generated in Clallam County to be brought to a facility in Clallam County could help ensure revenue for the transfer system. In some cases, it can be less expensive for self-haul customers to use facilities in Jefferson or Kitsap County and so wastes are being brought there. Enforcement of a flow control ordinance for this type of customer could be challenging. See Chapter 10 for more discussion of flow control.

Transfer Efficiencies

Waste from the Blue Mountain Transfer Station is transported west to the Port Angeles Regional Transfer Station, placed into larger containers, and then shipped back east to be sent to an out-of-county landfill. It might be more efficient to avoid moving this waste back and forth, although that would require placing the waste into larger containers at Blue Mountain.

Shipping in larger containers from Blue Mountain would require compaction to be cost-effective, but that would require a significant expense for a compactor and facility modifications. On the other hand, if a large compactor were added to the Blue Mountain facility, then garbage trucks from Sequim could use this facility and thus reduce transportation costs for bringing those wastes to Port Angeles. While this could improve the cost-effectiveness of such an investment at Blue Mountain, it could reduce the cost-effectiveness of the operations at RTS.

Population growth in this part of Clallam County is significant. It is possible that this growth could "tip the scales" in favor of expansions or modifications at Blue Mountain at some future date (but outside of the planning period for this plan).

Waste transfer from East Clallam County

In light of an increasing growth rate in eastern Clallam County and increasing recognition that jurisdictions should limit carbon emissions when they are able to do so, certain operations of the "Regional Solid Waste Export and Transfer System" warrant closer cost-benefit examination.

For example, some questions specific to the transfer station at Blue Mountain serving east Clallam County regard whether the current location is adequately convenient and efficient (time, fuel cost, emissions, vehicle wear and tear) for the hauler and for residents, and whether existing rates and fees cover existing costs plus reserves for capital improvements at that site (in context of the Regional Transfer System as a whole).

The JSWAB briefly explored these and additional questions in October 2020, with the conclusion that a study could be recommended in the Plan, to be completed as soon as possible given that the existing contract for hauling and baling recyclables expires on January 1, 2027. (While the contract is between City of PA and Waste Connections, it has implications on all parties to the ILA and all residents and businesses in the service area.)

Written by Ann Soule.

4.4. WASTE TRANSFER ALTERNATIVES

The following alternatives were considered for new or expanded waste transfer activities. The listing of an alternative in this section does not mean that it is considered feasible or desirable, nor that it is recommended (see Section 4.5 for waste transfer recommendations). In addition, the alternatives are not listed in order of priority.

Additional Waste Transfer Facilities

If necessary, the Lake Creek and Clallam Bay transfer stations could be re-activated. These are currently closed, but the sites are still under County control and could be reactivated if additional capacity or locations were desired.

User-Pay System for Recycling

Instituting a user-pay system for some or all recyclables at the transfer stations could be done to make these operations financially self-supporting. Making the cost of recycling more visible to the consumer may also be a more effective and sustainable method of maintaining the viability of this service. If user fees are implemented at 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. Implementing this system may require additional staffing to collect fees, further increasing the cost of recycling.

Other Options for Waste Transfer

Clallam County's remote location increases the cost of transportation for the waste export system. Strategies for reducing the transfer cost could include other methods for shipping or barging wastes, or reducing the amount of waste that is transferred. The amounts of wastes or recyclables transferred out of county could be reduced by increasing the amount of waste diversion or through local processing systems for materials such as glass.

4.5. WASTE TRANSFER RECOMMENDATIONS

The following recommendations are made for changes in the transfer system in Clallam County (see also the waste export recommendations in Section 5.3):

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.

T2) Should access or capacity become an issue at the Blue Mountain Transfer Station, consider extending the hours of operation and/or adding additional drop boxes.

T3) Should illegal disposal or access to transfer/drop box facilities become an issue, consider siting an additional drop box facility.

T4) Study the possibility of placing additional containers at all transfer and drop box sites to collect source-separated yard wastes and to divert additional recyclable materials.

T5) Obtain funding for a waste characterization study at Regional Transfer Station. 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.).

T6) 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.

T7) Parties to the ILA (together) should study regional system needs in light of an increasing population in the east end of the County and the monetary cost plus carbon emissions of hauling increasing volumes between the east end and the RTS in western PA.

Table 11-1 identifies the responsible implementing agency and the preliminary implementation schedule for each of these recommendations.

CHAPTER 5

DISPOSAL

5.1. INTRODUCTION

This chapter of the Clallam County Solid Waste Management Plan discusses the various components and options for the disposal system in Clallam County. The solid waste management activities discussed in this chapter are organized into the following sections:

5.2 IN-COUNTY LANDFILLING
5.3 WASTE IMPORT AND EXPORT
5.4 WASTE DISPOSAL OPTIONS

State Regulations Concerning Disposal

State laws and regulations concerning waste disposal can be found in the Revised Code of Washington (RCW) and the Washington Administrative Code (WAC). The RCW contains the laws adopted by the State Legislature, while the WAC consists of the regulations adopted by State agencies to implement the laws contained in the RCW. Local regulations can be found in the Clallam County Code. Specific laws and rules that relate to disposal activities in Clallam County include:

- **Chapter 36.58 RCW, Solid Waste Disposal**, authorizes counties to contract for disposal services, designate disposal sites, and to form disposal districts.
- **Chapter 173-350 WAC, Solid Waste Handling Standards**, provides rules for implementing Chapter 70A.205 RCW and sets minimum functional performance standards for the proper handling of solid wastes. Chapter 173-350 WAC contains rules for facilities for recycling, composting, land application, anaerobic digesters, piles, MRW and limited purpose landfills, as well as providing rules for beneficial use permits, ground water monitoring, financial assurance and other important activities.
- **Chapter 173-351 WAC, Criteria for Municipal Solid Waste Landfills**, provides minimum statewide standards for municipal solid waste landfills.

Local Regulations

Chapter 41.10 of Clallam County's code addresses the solid waste management system. The purpose of this chapter is to provide solid waste regulations to prevent, control, mitigate and correct health hazards, nuisances, and air, water, and land pollution associated with solid waste disposal, and to achieve compliance with Chapter 173-350 WAC.

A landfill typically operates under the rules of the county in which it is located, as enforced by the local health district, as well as State and Federal rules. The Roosevelt Regional Landfill (owned by Republic Services), where part of Clallam County's waste is currently disposed, is governed by the rules of Klickitat County, Washington and its health district. Activities at the Roosevelt Regional Landfill are also guided by an agreement between Klickitat County and

Republic Services and by the conditional use permit for the landfill. Likewise, activities at the Finley Buttes and Wasco County Landfills (both in Oregon), where part of Clallam County's waste is disposed, are also guided by rules established by the local health agency.

Goals for Waste Disposal

All of the goals established for this plan (see Section 1.8) apply to waste disposal practices.

5.2. IN-COUNTY LANDFILLING

Existing Conditions for In-County Landfills

There are currently no solid waste landfills operating in Clallam County, but two such landfills were recently closed. There is one limited purpose landfill operating in the county, which is known as the McKinley Landfill (previously called the Lawson Landfill). The four significant closed and operating landfills are described further below.

Port Angeles Landfill: The Port Angeles Landfill was originally a regional dump site purchased by the City of Port Angeles in 1947. Through 2006, this landfill provided disposal services to residential, commercial, and industrial customers throughout Clallam County. The 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 (RTS) 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 the previous solid waste plan was written, concerns about bluff retreat and erosion exposing landfilled wastes led to the removal and re-burial of part of the old landfill (wastes that were buried under the previous set of State landfill rules, Chapter 173-304 WAC). These remedial actions were financed by a bond that is being paid from tipping fee revenues at RTS and the Blue Mountain Transfer Station. Part of the old wastes remain on-site and should a need arise in the future to address those, then removal of the remaining wastes may be considered.

Neah Bay Landfill: The Neah Bay Landfill, which served the Makah Tribe and surrounding areas, was closed in 2011 and replaced with a transfer station. 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 is not the responsibility of Clallam County. Much of the waste deposited at this site was burned to reduce its volume.

The U.S. Environmental Protection Agency (EPA) recently declared the Neah Bay Landfill as a Superfund Site and listed it on the National Priorities List (NPL). The NPL lists sites after completing a Hazard Ranking System screening and then soliciting and addressing public comments about the proposed site. The NPL guides the federal government in determining which sites should be investigated. The EPA is now conducting a remedial investigation and

feasibility study of the landfill. Potential options to remediate the landfill are total removal of all waste (which the Makah Tribe prefers) or closure in place.

McKinley Landfill: The McKinley Landfill is a limited purpose landfill near Port Angeles, and it is the only permitted limited purpose disposal site remaining in Clallam County. The landfill has operated since the 1980's. It previously operated as the Lawson Landfill and was used by Nippon Paper Industries for the ash from burning wood waste in their electrical generation plant. The paper mill and landfill were purchased by McKinley Paper Company in 2017 and the landfill was not active while the boiler was temporarily shut down in early 2017. For the five-year period prior to this (2012 through 2016), this landfill accepted 9,000 to 10,000 tons of ash per year. McKinley began disposing wood ash in the landfill again in early 2020 and they will continue to fill the third of four cells. They are currently evaluating the capacity of the landfill and expect to have space for at least a few more years for ash disposal. The wood ash will be from the paper mill's biomass cogeneration plant, which is expected to generate 9.5 megawatts of electricity.

Lake Creek Landfill: The Lake Creek Landfill near Forks is a closed landfill that is currently being monitored. Post-closure monitoring and testing is anticipated to continue for at least the next two years (through 2021). Clallam County is exploring the possibility of going through final closure for this landfill and ceasing monitoring activities after that.

Planning Issues for In-County Landfills

Lake Creek Landfill: Lake Creek Landfill near Forks has undergone post-closure monitoring for 20 years. As a closed landfill (it was closed under Chapter 173-304 WAC), without any apparent ongoing contamination problems, Clallam County could consider the financial benefits of undergoing full closure of this landfill.

Alternatives for In-County Landfills

Limited Purpose 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.

Recommendations for In-County Landfills

The following recommendations are made for in-county landfilling in Clallam County:

LF1) Support remediation activities at the Neah Bay Landfill.

LF2) Consider proposals and options to develop limited purpose landfills, such as wood waste landfills, as they are proposed.

LF3) Explore the possibility of the final closure of the Lake Creek landfill.

Table 11-1 identifies the responsible implementing agency and the preliminary implementation schedule for each of these recommendations.

5.3. WASTE IMPORT AND EXPORT

Existing Conditions for Waste Import and Export

For the purpose of maintaining necessary ratios of biosolids to yard waste for proper composting, Waste Connections has previously imported yard waste from out of the county for use at the Compost Facility. No such imports were done in 2019.

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 were sent to special facilities. Through 2006, the need to export waste from other parts of Clallam County was avoided due to the availability of the Port Angeles Landfill.

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

Planning Issues for Waste Import and Export

Waste Import Needs and Opportunities: A potential need in the future for waste import is to import either yard wastes or biosolids to maintain the proper ratio required for composting at the Compost Facility.

Waste Export Needs and Opportunities: All MSW collected 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. Forks and areas of Clallam County west of Lake Crescent receive waste export services from both West Waste & Recycling and Waste Connections.

Waste export incurs transportation costs as well as creating emissions of greenhouse gases and other air pollutants. Some of the exported waste consists of potential feedstocks (e.g. recyclables, organics) that could be used by local industries to meet energy or other production needs. Clallam County, municipal and tribal partners, and private interests could monitor the potential for cost-effective diversion plans that may lower export costs and achieve gains in development, energy production or greenhouse gas reduction.

There is a need for Clallam County to include solid waste planning in emergency contingency plans in the case of natural disasters that could interfere with waste export capabilities.

State solid waste planning guidelines require jurisdictions to consider waste disposal needs for a 20-year period. Port Angeles has a contract with Waste Connections to provide waste export

services (and several other services) through the year 2026. Port Angeles will need to begin preparing a Request for Proposals for a new contract in 2023. With the availability of at least three regional landfills expected to operate for the next 50 to 100 years, future disposal needs could continue to be met by a waste export system.

Alternatives for Waste Import and Export

Waste Import Alternatives: There are no waste import alternatives that are being considered at this time.

Waste Export Alternatives: Waste export is a system of shipping wastes to a large regional landfill. The 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 substantial 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.

Waste export was selected as the preferred waste disposal alternative for Clallam County when the Port Angeles Landfill closed in late 2006. Waste Connections (under contract with the City of Port Angeles) constructed a transfer station at the landfill site, and wastes are now compacted there into larger containers and shipped to out-of-county regional landfills. The waste export contract will expire on January 1, 2027 and will either need to be renewed or an alternative disposal system developed by then.

Recommendations for Waste Import and Export

Waste Import: No recommendations are being made for waste import.

Waste Export: The following recommendations are made for waste export:

WE1) Beginning in 2023, the process should begin to prepare for a new waste export and disposal contract for RTS.

WE2) Encourage West Waste to continue their waste export activities and to possibly expand these activities as needed to serve additional west end customers.

WE3) Contracts for waste export services should identify alternative disposal plans, including alternative routes and modes of transportation, in case a natural disaster or other conditions require re-routing of waste shipments.

WE4) Any regional solid waste landfill used for Clallam County waste must meet or exceed all Minimum Functional Standards requirements.

Table 11-1 identifies the responsible implementing agency and the preliminary implementation schedule for each of these recommendations.

5.4. WASTE DISPOSAL OPTIONS

This section of the Clallam County Solid Waste Management Plan discusses options that could be used for solid waste disposal instead of landfilling the waste. Over the past few years, these options have become known as "waste conversion technologies." This term is considered to be a good fit with the disposal options because all of the methods involve some process for converting wastes into energy, fuel and/or other materials. It should be noted that these options are not as universally applicable as landfilling. Incineration and pyrolysis, for instance, can only manage the combustible materials in the solid waste stream and these technologies still generate an ash that must be landfilled or managed in other ways. Likewise with anaerobic digestion, which can only break down specific types of organic materials and which also creates a residual material that must be further treated (generally through composting). A final note of caution about these alternatives is that some are not well-developed and may not have been tested on a large scale yet.

Existing Conditions for Waste Disposal Options

One alternative method that can be used to process solid waste is incineration, also known as waste-to-energy or energy from waste (EfW). This method burns municipal solid waste (MSW) under controlled conditions to create heat (for electricity and/or steam), and this method also reduces the weight and volume requiring landfill disposal.

There are no incinerators in Clallam County that are permitted for MSW disposal, although there are a few facilities in Washington State that currently incinerate MSW. The largest facility is in the City of Spokane, which operates an incinerator using mass burn technology. Mass burn technology is distinguished from other approaches by the fact that there is little pre-treatment of the waste. This facility has operated since 1991 and has a current capacity of 800 tons per day. It generates 22 megawatts of electricity, which is enough to power 13,000 homes. The solid waste processed is reduced 90% by volume and 70% by weight. The ash is sent to the Roosevelt Regional Landfill for disposal.

Similar technologies can be used for specific waste streams such as wood to produce heat and/or electricity. There are a few facilities in Clallam County which use or propose to use such technology as a means of energy recovery. These facilities take wood waste only and require specific permits from the Olympic Region Clean Air Agency (ORCAA) and the EPA. Wood wastes burned for energy in these facilities do not originate solely in Clallam County nor do they necessarily utilize all of the available woody biomass in Clallam County.

One of the facilities that burns wood waste in Clallam County is the paper mill in Port Angeles operated by the McKinley Paper Company. As described earlier in this chapter, this facility burns wood waste in a biomass cogeneration plant to provide electricity for their operations.

Another facility in Clallam County that burns wood waste is a wood chip boiler that produces heat for the Quillayute Valley School District in Forks. As a result of the closure of wigwam and cyclone wood burners several years ago, the City of Forks, the UW Olympic Natural Resource Center, and the Clallam County Economic Development Council (EDC) undertook a study in 2005 to see what alternatives could be available in the short and long term for producers of wood waste (i.e., shake and shingle manufacturers) that previously used burning to eliminate these wastes. The study recommended biomass energy conversion. A biomass energy feasibility study by Siemens provided the EDC and its study partners (Clallam County, PUD, Port of Port Angeles, City of Port Angeles, and the City of Forks) with a report that addressed 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. A few years after these efforts, in 2009, the Quillayute Valley School District was faced with the need to replace an expensive and failing diesel boiler. 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. The new boiler began operations in January 2013 and provides heat for the Forks Middle School and the Forks High School Addition.

Planning Issues for Waste Disposal Options

Current and Future Needs: While there is a need in Clallam County for the disposal of MSW now and in the future, these needs are being met adequately by the various transfer stations, recycling and composting facilities, and the waste export system. The substantial capital cost of municipal solid waste incineration requires large amounts of waste to achieve economies of scale, and it could likely not compete with current costs of the waste export system.

Wood Waste Disposal: Biomass-to-energy projects are currently incinerating wood wastes for energy recovery, thus 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.

Anaerobic Digestion: There is some interest locally in anaerobic digestion, although generally this is viewed as a small-scale approach for food waste and other organics. Hence, this idea is explored in more detail in the Organics Chapter (see Chapter 8).

Alternatives for Waste Disposal Options

There is significant interest and development efforts underway in alternative technologies to handle solid wastes, especially for organic materials in the waste stream, but there is limited experience in applying these technologies to solid waste in the United States. Conversion technologies are a way of converting a portion of solid wastes into energy or useful products. These technologies require inputs of waste and energy and may involve mechanical and or thermal pretreatment. The outputs can include energy (electricity and/or heat), valuable materials, inert materials, residuals requiring disposal, and flue gas emissions that require treatment. Conversion technologies (other than EfW) have a sparse track record of successful full-scale projects with demonstrated long-term economic feasibility from the sale of energy and/or byproducts. In addition, conversion technologies need to meet regulatory compliance

and environmental protection standards to gain public acceptance. The major types of waste conversion technologies are:

- **Pyrolysis**: Waste is broken down thermally in the absence of air, producing oil and synthetic gas that can be burned in gas turbines or gas engines to generate electricity.
- **Gasification**: This process is similar to pyrolysis, but primarily produces a synthetic gas that can be used to generate electricity.
- **Plasma gasification**: This process uses an electrical arc to break down organics into elemental gases that can then be burned in a gas turbine to generate electricity.
- **Anaerobic digestion**: This tank-based system uses microbes to digest organic waste and produce methane gas, which then powers turbines or engines to produce electricity. The waste heat from the engines may be reclaimed to heat the digester. The material remaining after anaerobic digestion typically needs further treatment, such as composting.
- **Chemical production**: Chemical and/or biological processes can be used to break down the organic portion of solid waste to produce useful chemicals such as ethanol.
- **Conventional energy from waste (EfW, formerly called incineration)**: There are well-established technologies for burning waste for energy production. Most of the steam produced is used to generate electricity, although some European cities use a portion of the steam for district heating of nearby buildings. There are about 2,000 EfW plants worldwide, mostly in Europe and Asia. Scrap metals are typically recovered from EfW plants and in some areas the ash is beneficially reused.

The first method listed above, pyrolysis, can be used to produce a charcoal-like substance called "biochar." Biochar has several interesting applications, including improving solid fertility and carbon sequestration. Biochar is highly stable and rich in carbon, and can exist for thousands of years. Hence, biochar could be produced and then integrated into soil or otherwise buried to effectively remove carbon from circulation for many years, thus helping to mitigate climate change. The production of biochar and other variations of the above technologies were recently studied in-depth by a report for Ecology, Advancing Organics Management in Washington State: The Waste to Fuels Technology Partnership, 2015-2017 Biennium. This study was conducted by the Washington State University (WSU) and it focused on alternative management methods for wood wastes, food processing wastes, and other organics. It concluded that there is some promise for systems that can convert the organics into fuels, raw materials for industrial processes, biochar and other materials.

As waste conversion technologies improve and if energy and materials markets become more favorable, it may be worthwhile to consider proposals for conversion technology facilities to process a portion of Clallam County's solid waste. These could be evaluated on a case-by-case basis for consistency with this plan and with the waste transfer and export agreement, as well as consistency with siting, zoning, environmental and health regulations. Potential adverse impacts on existing recycling and other diversion programs should be weighed against the potential benefits of energy production, and also bearing in mind the cyclical nature of energy prices.

Recommendations for Waste Disposal Options

The following recommendation is being made for waste disposal options:

WD1) Evaluate future proposals for disposal facilities, anaerobic digestion, incinerators and other waste conversion technologies on a case-by-case basis for consistency with this plan and according to other criteria appropriate to the proposed system.

Table 11-1 identifies the responsible implementing agency and the preliminary implementation schedule for this recommendation.

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CHAPTER 6

WASTE REDUCTION

6.1. INTRODUCTION

Background for Waste Reduction, Recycling and Organics

This chapter and the following two chapters on recycling and organics describe existing programs and future plans for activities that reduce the amount of solid waste being generated or disposed in Clallam County. This chapter discusses waste reduction methods that reduce the amount of waste being generated and the next two chapters discuss methods that reduce the amounts being disposed. In other words, waste reduction methods prevent wastes from being created, while recycling and organics methods handle materials after those have been created as a waste. Waste reduction is the highest priority for solid waste management according to RCW 70A.205, and is preferred over recycling and organics programs because the social, environmental and economic costs are typically lower for waste reduction. All three methods avoid the cost of disposing the diverted materials as garbage, but recycling and organics programs require additional expenses for collection and processing.

As used in this plan, waste reduction includes a broad range of activities that prevent materials from becoming wastes. Specific activities that help to achieve waste reduction include reuse of household goods, repair of consumer products to extend their useful life, and methods of avoiding wasted food, to name a few examples. On-site composting is generally included in this category because the yard waste or other materials being composted do not leave the site where those were generated. Waste reduction is also defined by State rules (RCW 70A.205.015) to include methods that reduce the toxicity of wastes. To a large extent, reducing the toxicity of consumer products and the resulting wastes requires changes to manufacturing processes that are generally beyond the reach of local government, although this goal can also be achieved by encouraging consumers to utilize less-toxic substitutes. Public education is a critical step for all of the waste reduction methods.

Regulations Concerning Waste Reduction

State Regulations: State requirements are shown in various sections of the Revised Code of Washington (RCW) and the Washington Administrative Code (WAC). Additional guidance is provided by Ecology's solid waste planning guidelines and the State Solid Waste Plan.

One of the more relevant provisions of State law is RCW 70A.205.040, which states "when updating a solid waste management plan developed under this chapter, after June 10, 2010, each local comprehensive plan must, at a minimum, consider methods that will be used to address waste reduction strategies." The 2010 amendments to RCW 70A.205.040 require that solid waste management plans address the handling and proper preparation of materials for reuse. Solid waste management plans are also required to address "construction and demolition waste for reuse." Amendments in 2019 added wasted food and food waste as materials that should be addressed by waste reduction strategies in solid waste plans.

Two state laws affecting waste reduction that were recently adopted include:

- RCW 70A.530, which bans single-use plastic carry-out bags and requires that a fee be charged for paper bags and reusable plastic bags, with the goal of promoting the use of reusable bags.
- RCW 70A.530 establishes a goal for the state to reduce by 50% the amount of food waste generated annually by 2030, relative to 2015 levels. A subset of this goal must include a prevention goal to reduce the amount of edible food that is wasted.

Goals for Waste Reduction

Planning Goals: Most of the goals for this plan are applicable to waste reduction:

- Review current solid waste regulations and policies giving particular attention to waste stream reduction, recycling, food waste and future disposal 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 with a regional perspective.
- Encourage public-private partnerships.
- Involve the expertise of private industry wherever those capabilities are available.
- Provide guidelines for an equitable balance between convenience, expense, climate impact, 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.

The State Solid and Hazardous Waste Plan: Another relevant source of guidance on policies and goals is the State solid and hazardous waste plan, Moving Washington Beyond Waste and Toxics. Commonly referred to as the "Beyond Waste" plan, this plan has adopted a vision that states:

> *We can 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.*

This transition is expected to take 20 to 30 years or more. The Beyond Waste plan was updated in 2015. The previous plan focused on actions that could be taken in five areas (industrial waste, small volume hazardous waste, organic materials, green building, and measuring progress). The updated Beyond Waste plan is divided into five sections, and each section presents goals and actions that can be taken over the next five years:

Managing Hazardous Waste and Materials
Managing Solid Waste and Materials
Reducing Impacts of Materials and Products
Measuring Progress
Providing Outreach and Information

The updated Beyond Waste plan also incorporates the concept of sustainable materials management, which has been adapted from recent work by the U.S. Environmental Protection Agency (EPA). Sustainable materials management looks at the full life cycle of materials, from the design and manufacturing phase, to the use phase, and then to the end-of-life phase when the material is either disposed or recycled. Materials management still focuses on recycling and disposal issues, but in looking at production methods and the use of materials, this approach can help identify more sustainable ways to design products that use less energy, water and toxics. This is important because the adverse environmental impacts of extraction, production and use can be far greater than those associated with disposal when the product becomes a waste. According to the EPA, a materials management approach is essential to conserving natural resources to meet both today's needs and those of future generations.

The Beyond Waste plan and additional information can be downloaded from Ecology's website (https://ecology.wa.gov).

6.2. EXISTING WASTE REDUCTION PROGRAMS

Existing waste reduction activities include diverting reusable items from disposal, education, unit-based garbage fees, on-site composting, and other activities. These activities are discussed below.

Re-Sellable Items and Hard-to-Recycle Materials

In Clallam County there are many opportunities to exchange items for reuse through garage sales, swap meets, resale stores, social media, etc. Reuse 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 otherwise be put in the garbage.

Specific reuse activities that are taking place in Clallam County include:

- The MRW Facility at RTS operates a "reuse shed" that offers reusable products for free to the public, such as usable paints and cleaners.
- The Makah Transfer Station has a diversion area where used household items can be left for reuse.
- There are two tool libraries, where people can borrow tools instead of needing to purchase those. Companies such as Home Depot also rent tools, which also helps people avoid the need to buy a tool that they may only need once or for a limited time.
- The Habitat for Humanity ReStore in Port Angeles is a nonprofit home improvement store and donation center that sells new and gently used furniture. In addition, this store collects a long list of reusable items such as building materials, appliances, jewelry and light fixtures.
- 2good2 toss, a web-based program, connects residents wanting to get rid of household items or building materials to potential recipients or buyers. Clallam County and the City of Port Angeles support the website 2good2toss.com. All items posted must be less than $99 and many are free. In 2019, the Clallam County 2good2toss.com site received 9,214 visits, with a total membership of 4,308 registered users. The number of listings in 2019 was 125.

From 2013 until 2019 the average number of successful exchanges tallied was 597 per year. The use of the "2 good 2 toss" exchange program has decreased.

- There are several Facebook pages that allow people to sell used goods and other items in Clallam County, including Buy Nothing Port Angeles, Buy Nothing Clallam County, Port Angeles Buy Sell Trade Free Stuff, Port Angeles Buy Swap and Sell, Clallam County Buy and Sell, and Clallam County Buy Sell Trade. Membership in these groups varies from 753 to 7,100 members, and the activity ranges from three posts per month to 170 posts per day. There is also Facebook Marketplace.
- There are neighborhood garage sales, such as the Great Strait Sale, where residents and businesses along Highway 112 host miles of garage sales on the same day of the year.
- Around Again, a non-profit store in Sequim, accepts donated items and then repurposes, sells, recycles, and up-cycles those items.
- The Port Angeles Goodwill and Sequim Goodwill stores are part of a long-standing nonprofit chain with a range of pre-owned clothing, furniture, housewares and more.
- Sequim Habitat Boutique Store features furniture, household goods and jewelry.
- Serenity House in Sequim sells household items, clothes, and furniture.
- The Answer for Youth accepts clothing, furniture and household goods.
- Forks Clothing Bank collects donations and sells reused clothes, as do several other organizations in Clallam County, including Sarge's Attic, Community Resources Connections, First Step Family Center, and a few consignment stores.

Additional waste reduction activities and programs are described below.

Food Recovery

Food recovery is when edible food resources that were bound for the trash or compost are used to feed people. Clallam County's Waste Prevention Program, in partnership with Clallam County Environmental Health, WSU Clallam County Extension and the Peninsula Food Coalition (PFC), is working to build capacity for local food recovery to address issues such as community hunger, resource conservation and waste reduction.

These efforts include assessing community needs for equipment, and providing education on how restaurants, caterers, cafeterias and community meal programs with ongoing or occasional edible food surpluses can be recovered safely rather than discarded. Through these efforts, Sequim Middle School has equipment to pilot a milk dispenser program to reduce milk and carton waste.

The food security agencies that form the PFC are the receiving agencies that can effectively funnel recovered food to local meal and food distribution programs across the County. Partnerships between businesses, PFC members, and the Waste Prevention Program have already successfully coordinated pilot runs of both one-time recovery events such as during winter storms or business shutdowns, as well as recurring recovery efforts at schools and businesses. Additionally, many PFC agencies currently work with state and nationwide agencies such as Food Lifeline which coordinates grocery store recovery; and food bank members

recover food directly from local grocery store chains like Costco and Safeway.

Food banks are located in Port Angeles, Sequim, Forks, and Clallam Bay; and the Makah, Jamestown S'Klallam, Quileute and Elwha Tribes all operate food banks. Other organizations such as the Salvation Army, The Answer for Youth, Boys and Girls Clubs, churches and senior centers can also be recipients of recovered food. State and federal Good Samaritan laws protect donors and businesses from liability when they donate food they believe is safe and edible.

WSU Extension operates the Clallam Gleaners, a group of volunteers who harvest leftover fruits and vegetables from a farm or garden. The produce is donated to local charitable organizations such as food banks, the Boys and Girls Clubs, and senior centers. This program harvested 30,000 pounds of produce in 2019 and delivered that to 19 charitable organizations. Since 2014, this program has gathered 115,000 pounds of 26 different varieties of fruits, nuts and vegetables. WSU Extension also partners with the Lower Elwha Klallam Tribe through the Native Harvest program that coordinate gleans with Tribal citizens and brings the surplus produce to the Lower Elwha Food Bank and Elder meal programs.

Preventing wasted food for local benefit

Tossing limp lettuce in the garbage. Leaving behind half the food on an oversized restaurant plate. Reading about a field of unharvested onions rotting in the field. Food waste is created at all levels of the food chain, but how big of a problem is it really? Up to 40 percent of food in the United States is wasted, resulting in environmental, economic, and societal impacts. This translates to approximately $375 worth of food wasted per person every year. The United States Environmental Protection Agency (EPA) has set a national goal to reduce food waste by 50% by 2030.

Solutions to the enormous challenge of food waste can generate great benefits, particularly at the local level. In reducing the amount of food that is thrown out, counties can stabilize waste management costs and make progress toward climate and sustainability goals. By rescuing surplus food, municipalities can address food gaps in local communities. Instituting food scrap recycling programs can minimize what goes into landfills and spur economic development or generate energy. The State of Washington passed the Food Waste Reduction Act to develop a food waste prevention plan set for release in 2021 that may also guide local food waste management.

Clallam County has leveraged state funds to support the development of food waste reduction and rescue programs in partnership with entities such as the Peninsula Food Coalition and to implement food waste outreach. Recommendations in Chapter 6, Waste Reduction and Chapter 8, Organics encourage further pursuit of activities to reduce food waste that can seize upon local solutions to food waste for local benefit.

Written by Megan Juran and Meggan Uecker.

As with most forms of waste reduction, the amounts of materials diverted through such efforts are excellent examples of how waste reduction efforts can provide direct and meaningful benefits to the local economy and quality of life.

On-Site Composting

Clallam County and WSU Extension offer brochures and information on their websites about on-site composting. Many residents, schools and organizations in Clallam County are reducing the amount of yard and food waste they dispose of by choosing to compost on site. WSU Extension provides local composting experts for community events, presentations and composting projects.

WSU partners with Clallam County to run a Master Composter & Recycler Program. The volunteer waste prevention specialists are trained to educate community members on waste

prevention practices. The program highlights critical waste prevention activities with local solutions. They work with local haulers, governments and organizations to support best practices.

Education and Outreach Programs for Waste Reduction

Public education and outreach continue to be an important component of waste prevention efforts. Methods of outreach include utility bill inserts, brochures, public presentations, social media, news media, websites and advertisements in the newspaper, on buses, billboards, websites, television, and radio. These efforts are largely coordinated by the Cities of Port Angeles and Sequim, and Clallam County. In the past these efforts have been funded through the Local Solid Waste Financial Assistance (LSWFA) and Waste Reduction & Recycling Education (WRRED) grant programs administered by Ecology, but Sequim and Port Angeles paid for their outreach flyers in 2019.

The Clallam County Waste Prevention Program exists to help citizens, organizations and businesses implement sustainable actions and make positive social, environmental and economic impacts in the community. This program offers education, outreach and technical assistance for residents, businesses, organizations and schools on “recycling right,” composting, food waste reduction and other waste prevention methods. WSU hosts the website and they partner with Clallam County Public Works in delivering this program, which is funded by the LSWFA and WRRED grant programs.

The City of Port Angeles educates the public on carrying reusable bags to stores on their website. Their tips for remembering bags include keeping reusable bags in cars and carrying small foldable bags in purses, briefcases, backpacks, or attached to keychains.

County staff are also available to assist residents and businesses in waste prevention of hazardous waste; information on the reduction and safe disposal of hazardous waste is provided on a number of county webpages. The City of Port Angeles runs the Pollution Prevention Program funded by state Local Source Control funding to assist small businesses to prevent and safely dispose of hazardous waste.

Pharmaceuticals

Pharmaceutical wastes include 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/or can be the source of environmental contamination. Scientists have detected these chemicals in water, sediments and fish. Pharmaceuticals are being addressed here because, as mentioned previously in this chapter, State rules (RCW 70A.205.015) include methods that reduce the toxicity of wastes as a form of waste reduction.

Pharmaceuticals can be safely disposed through a system of drop boxes in Clallam County that has been arranged through the Secure Medicine Return Program. There are currently seven sites in Clallam County (three in Port Angeles and two each in Forks and Sequim), including pharmacies and police stations. Special envelopes can also be picked up at four Olympic Library

locations (in Clallam Bay, Forks, Port Angeles and Sequim) or mailed to a home. All of these options are provided at no charge.

6.3. WASTE REDUCTION PLANNING ISSUES

This section discusses management issues and service gaps associated with waste reduction.

Promotion of Reuse Stores and Online Resale Options

A variety of stores throughout Clallam County collect and re-sell used items. The WSU Extension Waste Prevention Reduce, Reuse, Recycle webpage features a flyer listing local reuse stores. Several additional online options for purchasing and selling reusable items have emerged in the last few years, such as Craigslist, Facebook groups and Marketplace, and Next Door. It can be challenging for a resident to know what reuse options are available and more promotion of these reuse options by government agencies could make them more impactful.

Disposal of Consumer Products and Other Materials

A significant amount of consumer products are disposed while still useful, or could be avoided altogether by purchasing used goods or renting items that are not used much. It is not possible to quantify the amount of products and materials that could be included in this category, but one only needs to spend a short time at a disposal facility to see numerous examples of products and materials that are potentially still useful when disposed. A related concern is the disposal of usable construction materials, especially materials in commercial loads, and some of these of these materials are rendered non-usable after having been mixed with other garbage.

Priorities based on Waste Disposal Quantities

Examining data on the composition of disposed wastes can be useful for identifying opportunities to reduce waste quantities. This data is available from an Ecology study (2015-2016 Washington Statewide Waste Characterization Study), which indicates that targeting the following materials could have significant waste reduction impacts:

- Food waste, which makes up an estimated 12.5% of Clallam County's waste, and half of this (6.3%) was edible at some point before disposal.
- Wood and other construction/demolition wastes, which make up an estimated 26% of Clallam County's waste.
- Yard waste, which contributes an estimated 4.9% of Clallam County's waste.
- Disposable diapers, which contributes an estimated 4.7% of Clallam County's waste.
- Clothing (textiles), which make up an estimated 5.5% of Clallam County's waste.

Preventing Wasted Food

As noted above, wasted food is a significant component of the waste stream and is estimated to be 6.3% of the Clallam County waste stream. Hence, the potential for waste reduction for wasted food deserves attention. There is increasing national awareness of the amount of edible food that is going to waste. According to the USDA, a family of four could save $2,275 per year

by avoiding wasted food through simple changes in the way they handle food purchases and storage. According to a report by the Natural Resources Defense Council (Wasted: How America is Losing up to 40 Percent of its Food from Farm to Fork to Landfill), almost half of edible food is wasted as it travels from farms to kitchen tables. A study for Thurston County (the 2014 Thurston County Waste Composition Study) showed that almost half (about 40%) of the total food waste in the Thurston County waste stream could have been eaten but either spoiled first or was still edible when disposed. This waste has significant environmental, social, and financial impacts. Reducing the amount of wasted food would save Clallam County residents and businesses a significant amount of money in wasted purchases and disposal fees. Less waste also equals less energy, water, and other resources needed to grow the food. Enhancing the food donation infrastructure and working with business to donate edible but unsellable foods could provide substantial social benefits on top of the environmental and financial benefits. Potential enhancements to the food donation infrastructure include more refrigeration and other storage capacity, as well as dishwashers and containers for the safe collection and transport of surplus food.

On-Site Organics Management

Organic materials (food waste and yard waste) are a substantial portion of the disposed waste stream, representing an estimated 17.4% of Clallam County's waste stream. Virtually all of this material could be handled through composting, although not all of the food waste is suitable for handling on-site due to the problems associated with composting meat and dairy products in small composting systems. Some of the woody yard waste ("prunings" represent 0.3% of the waste stream) would also be difficult for many people to handle on-site. Much of the organics can, however, be safely handled on-site in a number of ways.

Clothing Reuse

Despite the presence of a number of organizations addressing clothing reuse in Clallam County and other areas, the results of waste composition studies indicate that 5.5% of the waste stream consists of clothing and shoes. Not all of this amount would be reusable, but virtually all of this could be either reused or recycled (converted to rags or other products).

Reduced Use of Toxic Products

Reducing the use and disposal of toxic products would have numerous benefits for environmental quality, consumer safety and reduced costs for MRW management and disposal.

Measuring and Evaluating Waste Reduction Activities

Measuring waste reduction is difficult because the amount of waste generated in a specific area fluctuates with many variables, including economic conditions, seasonal changes and local weather. Hence, it can be difficult to demonstrate the cost-effectiveness or productivity of specific waste reduction techniques.

6.4. ALTERNATIVES FOR WASTE REDUCTION

The following alternatives were considered for new or expanded waste reduction activities. The listing of an alternative in this section does not mean that it is considered feasible or desirable, nor that it is recommended (see Section 6.5 for waste reduction recommendations). In addition, the alternatives are not listed in order of priority. Many of the following alternatives rely on education and outreach, which is also discussed in Chapter 10.

Increase Promotion of Clothing and Other Reuse Opportunities

Educational materials can encourage people to bring reusable or recyclable clothing and household goods to charities and other collection programs. Print materials are one tactic, but it could be more cost-effective to include this topic in existing materials and websites. Clothing reuse and recycling could also be a special focus of a newspaper ad, fair booth and other educational opportunity. Additional recycling options could be explored or promoted, although this idea should be approached carefully so as not to undermine existing efforts that are collecting reusable clothing and household goods for charitable purposes or create disposal problems in textile recycling programs.

Increased Promotion for Waste Reduction of Consumer Products

There is always more that could be done by residents and businesses to avoid creating wastes. Specific programs and activities that could be promoted for reducing the amount of consumer products (and associated packaging) that are disposed include:

- Smart shopping, such as buying in bulk or buying concentrated products, avoiding over-packaged items, purchasing durable and repairable products, and using reusable shopping bags.
- Buying or selling secondhand items.
- Borrowing or renting when possible.
- Creating and using additional tool libraries.
- Repairing products where possible.
- Encouraging people to bring reusable containers to restaurants for leftovers.
- Avoiding single-use or “disposable” products.
- Shared ownership of large items with a neighbor or friend.
- Sharing through social media such as Next Door and other methods.
- Putting items at curb with free sign.
- Supporting a “fixers’ collective”, where a group supports repair and restoration of items.

These activities could provide benefits to personal finances as well providing benefits to the local economy (to the extent that local businesses can provide repair and rental services). Promotion of these activities could be accomplished through printed materials or a community event could be organized around one or more of these ideas, such as coordinating a swap meet or a neighborhood garage sale.

Encouraging Safer Substitutes for Toxic Products

As discussed earlier in this chapter, reducing the toxicity of disposed products is defined as a waste reduction method. There are several ways to accomplish this, some of which are already being done in Clallam County:

- Avoiding products containing hazardous ingredients (thus reducing the potential for leftover products to become wastes).
- Encouraging the use of safer substitutes for hazardous products, such as weed killers, insecticides and cleaners, including the use of natural products.
- Encouraging consumers to buy less or to buy the "right amount" of a product.
- Encouraging consumers to use up all of a product or to only buy as much as needed.

Additional publicity could be conducted to encourage the above activities. This publicity could emphasize the environmental benefits as well as cost savings and other benefits.

Construction Material Reuse

Construction activities often generate a small percentage of materials that are still usable but that are not needed at the construction site. While the amount is small, these materials have value. Some materials are kept and used on other projects by the various companies involved in the construction process, or by the homeowner in the case of do-it-yourself remodeling projects, but a portion is thrown into disposal containers. There are better options for these materials:

- Offer materials for free or at a reduced price using an on-line service such as Craigslist.
- Place materials by the street with a free sign (although this may not be possible or easily done in all areas).
- Arrange for a collection service.

These options could be promoted through a brochure distributed at the Planning Department or even sent out with building permits.

Increase Promotion of Residential Organics Reduction

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. Waste reduction methods that could be encouraged include "grasscycling" (leaving grass clippings on the lawn rather than collecting them), on-site composting for yard and food waste, and the use of worm bins ("vermicomposting") for food waste.

Focus on Wasted Food

A substantial amount of edible food waste is unnecessarily discarded. Increased public education campaigns could be used to inform residents of the meaning of expiration dates, opportunities to donate food, and other steps that could be taken to reduce food waste. Much

of the materials for this campaign could be provided by other programs, such as EPA's "Too Good To Waste" program.

Increase Commercial Food Donations

This alternative involves identifying sources that may have significant amounts of surplus food and arranging for that food to be delivered to a food bank or other organization that can distribute it to families in need. Surplus food is often generated by grocery stores as well as institutions and large commercial establishments that provide meals, including schools, casinos, and some workplace kitchens. If surplus food from sources such as these can be properly packaged and refrigerated, and delivered to a food bank with cold storage, then the food could be distributed safely instead of being thrown out. Investment in public and private infrastructure that allows for safe food recovery can increase the beneficial use of this resource and reduce the impacts of food waste.

In 2019, the Washington Legislature passed a Food Waste Act that ordered the development of a plan to address food waste in K-12 schools across the state. The plan is under development by the Department of Agriculture, Ecology, Health and the Office of the Superintendent of Instruction, due for completion in 2020. Recommendations from the plan may affect local action over the life of this Plan.

More Outreach to Businesses

Increased comprehensive business waste reduction outreach could be 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$e program in government offices could serve as a model program. Offering a web page link to the WasteWi$e program and guidance to Clallam area entities wishing to participate would be a low cost opportunity for Clallam County to encourage waste reduction.

6.5. RECOMMENDATIONS FOR WASTE REDUCTION

The following recommendations are being made for new or expanded waste reduction programs in Clallam County:

WR1) Continue to promote waste reduction activities.

WR2) Continue to encourage safer substitutes for toxic products.

WR3) Conduct public education about how to avoid wasting food.

WR4) Develop promotional materials for reuse options for clothing and household goods.

WR5) Promote reuse of construction materials.

WR6) Conduct more promotion of on-site composting.

WR7) Pursue grants and investments in infrastructure and programs that would allow for increased food recovery.

WR8) Support reuse events organized and implemented by others.

WR9) Support State legislation on product bans, repair opportunities and similar programs, as appropriate.

WR10) Investigate the potential for a broader ban on retail plastic packaging.

Table 11-1 identifies the responsible implementing agency and the preliminary implementation schedule for each of these recommendations.

CHAPTER 7

RECYCLING

7.1. INTRODUCTION

Definition of Recycling

"Recycling" refers to the act of processing used products and packaging to convert those into a usable commodity. Recycling does not include materials burned for energy recovery or destroyed through pyrolysis and other high-temperature processes, although materials burned for energy recovery can still be considered "waste recovery." The State's definition for recycling is "transforming or remanufacturing waste materials into usable or marketable materials for use other than landfill disposal or incineration. Recycling includes processing waste materials to produce tangible commodities" (Chapter 173-350 WAC). As indicated in the definition, the common use of the term "recycling" to refer to the act of placing materials into a cart or other container to be collected separately from garbage is incorrect in the sense that recycling does not actually occur until the materials are processed and then used to create new products. On the other hand, keeping recyclable materials separate from garbage is typically an important first step in ensuring that materials are recycled.

Regulations Concerning Recycling

State Regulations: State requirements are shown in various sections of the Revised Code of Washington (RCW) and the Washington Administrative Code (WAC). Additional guidance is provided by Ecology's solid waste planning guidelines and the State Solid Waste Plan.

One of the more relevant provisions of State law is the 2010 amendment to RCW 70A.205.004. This amendment requires that solid waste management plans address source separation and collection of recyclable materials, and the proper preparation of materials for reuse or recycling. Solid waste management plans are also required to address "construction and demolition waste for recycling or reuse." The Legislature's stated intent for this amendment was "increasing available residential curbside service for solid waste, recyclable, and compostable materials provides enumerable public benefits for all of Washington. Not only will increased service provide better system-wide efficiency, but it will also result in job creation, pollution reduction, and energy conservation, all of which serve to improve the quality of life in Washington communities. It is therefore the intent of the legislature that Washington strives to significantly increase current residential recycling rates by 2020."

Chapter 70A.205 RCW was also amended in 2019 to require counties to include a Contamination Reduction and Outreach Plan (CROP plan) in their solid waste plans by July 1, 2021. Ecology was tasked with developing a statewide CROP plan by July 1, 2020, and counties had the option of adopting that plan or developing their own. Clallam County received a grant to develop their own CROP plan (see Appendix D). The 2019 amendments also added wasted food and food waste as materials that should be addressed by waste reduction and source separation strategies in solid waste plans.

Several other provisions were adopted into State law in 2019, including:

- a recycling development center was created to encourage markets for recycled materials (Chapter 70A.240 RCW),
- a product stewardship program for paint was created (Chapter 70A.515 RCW) that will become effective in 2021, and
- Ecology was required to prepare a report by October 31, 2020 on the amounts and types of plastic packaging sold in the state and how it is managed or disposed (Chapter 70A.520 RCW).

Local Regulations: Local regulations regarding recycling are shown in various city and county codes, interlocal agreements, and other contractual arrangements (see Chapter 10 and Appendix A for more details).

Urban-Rural Designation

State planning guidelines require that counties develop clear criteria for designating areas as urban or rural for the purpose of providing solid waste and recycling services. The urban-rural designations are important because these are the basis for determining the level of service that should be provided for recycling and other solid waste programs. For example, State law (RCW 70A.205.045 (7)(b)(i)) requires that recyclables be collected from homes and apartments in urban areas (although exceptions to this requirement can be granted based on viable alternatives and other criteria), whereas drop-off centers can be used in rural areas.

For the purposes of this plan, the Cities of Port Angeles and Sequim are designated as urban and all other areas of Clallam County are designated as rural. The City of Forks is included in the rural designation based on the current level of solid waste services in the city (i.e., garbage collection is not mandatory) and also due to the city's relatively small size (with a population less than 5,000), distance from recycling markets and other factors.

Goals for Recycling

Planning Goals: Most of the goals for this Plan are applicable to recycling:

- Review current solid waste regulations and policies giving particular attention to waste stream reduction, recycling, food waste and future disposal needs.
- Review existing facilities and solid waste handling practices, and seek community input to 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 with a regional perspective.
- Encourage public-private partnerships.
- Involve the expertise of private industry wherever those capabilities are available.
- Provide guidelines for an equitable balance between convenience, expense, climate impact, 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.

There are also two policies in Section 31.02.320 of the Clallam County Comprehensive Plan that pertain to recycling:

- Clallam County should attempt to attract businesses which can provide local solutions to waste disposal and recycling, including those which produce and/or utilize products from recycled materials (Policy No. 31).
- Education and incentive programs on solid and hazardous waste reduction, recycling, and disposal, including those for households and small businesses, should be made available. Opportunities for the collection and disposal of household, agricultural, and commercial hazardous waste should be provided (Policy No. 33).

State Recycling Goal: The State's goal is to reach 50% recycling and composting (RCW 70A.205.005 (9)), and this goal was achieved in 2011 when the recycling rate rose to 50.7%. The statewide recycling rate has decreased since that year, with the most recent year for which this was calculated (2016) showing it at 44.0%. As part of a broader focus on waste generation, Ecology has now switched to the use of a "recovery rate." The calculation of the recovery rate includes diverted materials that are not defined as recycling (such as materials burned for waste to energy and other beneficial uses of wastes), as well as non-MSW wastes. The recovery rate was also declining until 2015, and has since risen to 48.5% in 2017.

County Recycling Goal: RCW 70A.205.005 does not mandate that each county adopt a 50% goal, since it is recognized that less-populated areas have greater barriers to cost-effective collection and marketing of recyclable materials. Each community is expected to set a goal that fits its situation, provided that the goal is based on justified and sound reasoning. In Clallam County, the current (2017) recycling rate is 48.9% (see Table 2.7) and the waste recovery rate is 51.7%.

After discussion by the Clallam County Solid Waste Advisory Committee of the existing programs and the current challenges facing recycling programs, this Plan is adopting a recovery goal of 75% by 2025 for Clallam County. In other words, the emphasis in the next few years should be placed on improving the current levels of waste diversion while also continuing to refine programs to respond to marketing issues. The County's progress towards meeting this goal should be monitored primarily through the annual recycling survey conducted by Ecology, supplemented with local data as available and appropriate.

7.2. EXISTING RECYCLING PROGRAMS

This section describes the recycling methods currently used in Clallam County. Several types of collection methods are employed in Clallam County for recycling, including drop-off and buy-back sites, residential curbside collection, and commercial collections. Table 7-1 shows a summary of the services currently available in the county, with regards to curbside collection of

Table 7-1. Recycling Services in Clallam County			
Geographic Area	Single-Family Homes	Apartments	Commercial
Port Angeles	Cu, D	Co, D	Co, D
Sequim	Cu, D	Co, D	Co, D
Forks	D	D	Co, D
Tribal Lands	Cu, D	Co, D	Co, D
Unincorporated Areas;			
Clallam Bay/Seiku	Cu, D	Co, D	Co, D
Joyce	Cu, D	Co, D	Co, D
Other Unincorporated, East County	Cu, D	Co, D	Co, D
Other Unincorporated, West County	Cu, D	Co, D	Co, D

Notes: Cu = Curbside collection, Co = commercial collection, D = Drop-off.

recyclable materials, drop-off sites within a reasonable distance, and commercial collections for cardboard and possibly other materials.

Recycling Drop-Off Services

Drop-off sites are facilities that accept recyclable materials, and may consist simply of an unattended container. Fees may be charged for these services or in some cases payments may be provided (in which case the site is sometimes called a "buy-back" center).

RTS and Blue Mountain Transfer Station: The contract for the operation of the Blue Mountain Transfer Station (Blue Mountain) and the Regional Transfer Station (RTS) requires the contractor to receive source-separated recyclable materials. There are four types of recyclable materials currently accepted at RTS and Blue Mountain:

- mixed paper, including newspaper, office paper, junk mail, magazines, phone books, catalogs, paperboard (food boxes), paper bags, and other types of clean recyclable paper.
- corrugated cardboard.
- mixed containers, including plastic bottles, plastic tubs, jugs, and buckets, and aluminum and steel (tin) cans.
- glass bottles, including three colors (brown, clear and green).

The recycling drop boxes at RTS and Blue Mountain are intended to be for residential use only, and commercial customers are encouraged to subscribe to collection services instead. Drop boxes for glass are also provided in Port Angeles under the RTS contract, and in Sequim there are two drop boxes for glass provided through their contract with Waste Connections. Additional materials accepted at the metal and special waste area at RTS includes used tires, white goods (appliances), scrap metal, auto batteries, used motor oil, and used antifreeze.

In 2019, the drop boxes at RTS collected 953 tons of recyclables, and another 219 tons of glass were collected from the drop-off sites in Port Angeles (see Table 7-2). The two drop boxes for

glass in Sequim collected 266 tons of glass in 2019. The drop boxes at Blue Mountain collected 811 tons of recyclables in 2019. In the past, the amount of recyclables collected at Blue Mountain has been higher (1,023 tons in 2018 and 960 tons in 2017) and has been almost as much as the amount of garbage handled by that facility (1,238 tons in 2019).

Table 7-2. Residential Drop-Off Quantities (2019 Tons)

Drop-Off Site	Glass	Cardboard	Plastic and Metal Containers	Mixed Paper	Totals
Blue Mountain Transfer Station	208	246	128	229	811
Regional Transfer Station	215	354	156	229	953
Glass Boxes in Port Angeles	219				219
Glass Boxes in Sequim	266				266
West Waste Transfer Station		134*			134

Notes: The above data does not include scrap metals or household hazardous wastes, which are addressed elsewhere in this Plan.
* The amount of cardboard shown for West Waste includes some commercial cardboard.

West Waste Transfer Station: In Forks, West Waste provides containers at its transfer station for the collection of aluminum cans, cardboard, wood and used motor oil. In 2019, the transfer station handled 134 tons of cardboard and 4 tons of used motor oil.

Makah Nation's Reservation: In Neah Bay, tribal and non-tribal members, commercial businesses and visitors can bring commingled recyclables to two drop-off locations. The Makah Transfer Station also accepts white goods, metals, used motor oil, and anti-freeze for recycling.

Clallam Bay Coop: Volunteers at the Sunsets West Co-Op in Clallam Bay operate a drop-off program for some recyclables, including cardboard and commingled recyclables. The volunteers transport the commingled materials to RTS in a van once per week.

Other Drop-Off Sites: A number of private companies accept a variety of materials for recycling including electronics, nonferrous metals such as copper, brass, and tin, car or other batteries, printer cartridges, clothing, asphalt and plastic bags. Privately-operated drop boxes for items such as newspapers and clothing are provided in various locations in the County. Around Again in Sequim collects large appliances for recycling. They collect a number of materials including carpet, mattresses, paint, PVC pipe, furniture and plywood. Cars, RV's and trailers are collected for recycling at Cars for Homes and Heritage for the Blind. The City of Sequim, The Heartline and O'Reilly Auto Parts collect car batteries. O'Reilly Auto Parts also collects and recycles used motor oil and filters, and used oil and auto batteries can also be dropped off at Sequim's City Shop.

Other companies that have accepted materials for recycling in or near Clallam County, either previously or currently, include Blake Sand and Gravel (concrete), Hillcar & Fletcher Inc. (asphaltic materials), Old Smokey Pit (asphaltic materials), Lakeside Industries (asphaltic materials), Metals Express (metals), Olympic Printer Resources (printer cartridges), Pacific Iron & Metal (metals), Recovery 1 (construction and demolition), Fields Shotwell (asphalt and concrete), All Metal Recycling (metals), and George Zink's Salvage (metals).

E-Waste Collection Sites: Two sites in Clallam County, the Port Angeles Goodwill and the Sequim Goodwill stores, serve as E-Cycle Washington locations that collect computers, monitors, televisions, laptops, and e-readers in compliance with the 2009 electronic product recycling law (Chapter 70A.500 RCW). There is no charge; materials are accepted for free from households, small businesses, charities, schools and small governments. More information can be found on Ecology's website, https://ecology.wa.gov/Waste-Toxics/Reducing-recycling-waste/Electronics. The Office Depot store in Sequim recycles additional types of electronics, in some cases providing credit for the trade-in value, as well as computer peripherals and small appliances.

Mercury-Containing Lights: In 2010, the Mercury-Containing Lights Law (Chapter 70A.505 RCW) passed mandating a producer-financed product stewardship program for the collection, transportation and recycling of mercury-containing lights. 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 stores in the state. This product stewardship program started collecting lights on January 1, 2015. Three sites in Clallam County currently collect fluorescent lights (two in Port Angeles and one in Sequim). More information can be found on Ecology's website, https://ecology.wa.gov/Waste-Toxics/Reducing-recycling-waste/Mercury-lights.

Curbside and Commercial Collection Programs

Residential Curbside Recycling: Curbside recycling collection has been conducted in Port Angeles and Sequim since 1991. Curbside collections in these cities are currently commingled systems in which materials are collected in a single container. The materials collected in these cities and in the rural areas are the Group 1 materials shown in Table 7-3 (later in this chapter).Together, Port Angeles and Sequim have slightly more than 10,000 homes. Multi-family housing (apartments) is categorized as commercial recycling service and is described below. In 2019, 1,023 tons of recyclable materials were collected through the curbside routes in Port Angeles and 410 tons were collected in Sequim.

Waste Connections offers commingled curbside recycling services in the unincorporated areas of the county that it serves. Curbside recycling services in these areas are currently a subscription service, and in 2019 the subscription rate in these areas was 37%. In 2019, 796 tons of recyclables were collected from 3,582 customers in these areas.

On the Makah Nation's Reservation, Tribal members can choose to participate in a voluntary curbside recycling service. The recyclables are taken by Waste Connections to a recycling transfer operation near RTS.

Commercial Recycling: Waste Connections collects recyclables from commercial accounts throughout Clallam County. Materials collected can include cardboard and commingled recyclables. West Waste collects cardboard from commercial accounts in the City of Forks. Multi-family housing in Port Angeles can subscribe to recycling services through a commercial account. In Sequim, recycling services are required at multi-family properties.

In 2018, 1,054 tons of recyclables (mostly cardboard) were collected from commercial customers in Port Angeles and 768 tons were collected from commercial customers in Sequim. In 2019, 209 tons were collected from 173 commercial recycling customers in Waste Connections' service area outside of Port Angeles and Sequim.

Other Recycling Collection Programs

A number of private companies recycle a variety of materials from Clallam County, including companies such as Thermofluids (antifreeze and oil), Total Reclaim (white goods), Veolia (batteries and light bulbs), Agri Plas (plastics) and Stericycle (batteries, lights and electronics).

The Public Events Recycling Law, adopted in 2007 (RCW 70A.200.100), mandates that recycling programs must be provided by vendors who "sell beverages in single-use aluminum, glass, or plastic bottles or cans" at every official gathering and sports facilities in communities where recycling services are available to businesses. The Cities of Port Angeles and Sequim currently provide containers for public events, which are serviced by Waste Connections.

Public Education and Promotion for Recycling

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, City of Sequim 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 recycling options for a wide range of materials and collection methods is contained in the Recyclopedia brochure created by the City of Port Angeles. It is available on the City of Port Angeles and Clallam County websites (see https://www.cityofpa.us/DocumentCenter/View/2686/Recyclopedia-?bidId=). In Sequim, a brochure "How to Recycle Right: Do the Core Four" (see https://www.sequimwa.gov/DocumentCenter/View/14898/Sequim-Residential-Flyer-Final) is provided on the City's website and distributed in other ways as well.

Waste Connections sends out a recycling brochure for new customers throughout the County. They also send out a recycling brochure on what can be recycled to Sequim residents once a year. They are working on a website though it is not available at this time. West Waste does not promote recycling with mailers or on their website. Several private companies provide information on their services, such as signs and ads posted by All Battery Sales, Cascade Bark and Landscape Supply, Safety-Kleen and others.

Monitoring Commercial Recycling Programs

Chapter 70A.205 RCW requires monitoring programs for the collection of source-separated materials from non-residential sources where there is sufficient density to economically sustain

a commercial collection program. Clallam County satisfies this requirement by working cooperatively with Ecology and utilizing the data that they collect through the annual recycling survey.

Processing and Marketing of Recyclables

Most processing of recyclables occurs outside of Clallam County in the Seattle-Tacoma area. Processing of recyclables in Clallam County is limited to few private businesses for specific materials or for limited projects. Many of the materials are sent to markets across the United States or in other countries, although less material is being exported now than was previously done due to China's import restrictions. A few materials are marketed locally, such as cardboard being sold to Port Townsend Paper (and possibly to McKinley Paper in the future).

Materials collected through curbside routes by Waste Connections are consolidated at a facility in Port Angeles, baled and then shipped to processing facilities in Tacoma (JMK Fibers) or nearby (Pioneer Recycling Services in Frederickson). Materials that are collected separately (glass and, in some case, cardboard) are consolidated there and shipped directly to markets.

Hog fuel, produced from wood residuals (in Clallam County, this is primarily from logging activities), is the largest material with a local market. While not technically recycling, hog fuel from wood waste is both processed and marketed locally. Two entities, McKinley Paper and the Quillayute Valley School District, purchase hog fuel for use in biomass boilers (see Section 5.4 for more details). McKinley Paper also recycles large amounts of cardboard.

A new opportunity for local glass recycling

Glass containers have always been collected as a separated commodity in Clallam County. Currently there is no curbside collection of glass containers; but glass containers can be recycled at drop boxes throughout the county including at the Regional and Blue Mountain Transfer Stations and two locations each in Sequim and Port Angeles. Glass is hauled to one of a handful of glass recycling facilities in Washington State under contract; currently glass containers from Clallam County gets recycled into construction and landscaping materials. Clallam County reports recycling an average of 837 tons of container glass annually.

With a strong commitment to sustainability, Olympic National Park has applied for grant funding for a glass crusher that can turn a ton of glass per hour into sand and gravel sized material. The crusher would need to be sited, operated and maintained by a public entity. Work is underway to investigate the shift to system costs this new method would bring. This partnership offers an opportunity for local recycling while reducing hauling costs and emissions.

Written by Meggan Uecker.

Clallam County is home to the Composite Recycling Technology Center (CRTC). The CRTC aims to provide local opportunities for education and innovation of commercially competitive recycling of composite waste into new products. They are a non-profit organization and are supported by 24 educational and private agencies, including the Port of Port Angeles, Peninsula College, City of Port Angeles, and Clallam County. The CRTC employs engineers and product technicians who plan to expand the usage of recycled carbon fiber by delivering research and development on targeted areas of this material. CRTC incorporates recycled carbon fiber into products to help reduce weight, increase strength, improve aesthetics or promote sustainability. They offer recycled carbon fiber in customized formats for other companies to utilize in their products.

7.3. MARKET CONDITIONS AND DESIGNATION OF RECYCLABLE MATERIALS

Solid waste management plans are required to include two specific pieces of information for recycling: a market analysis and a designation of the materials considered to be recyclable. The two are inter-related because the types of materials that can be considered recyclable are highly dependent on which materials can be marketed for conversion into new products.

Recycling Markets

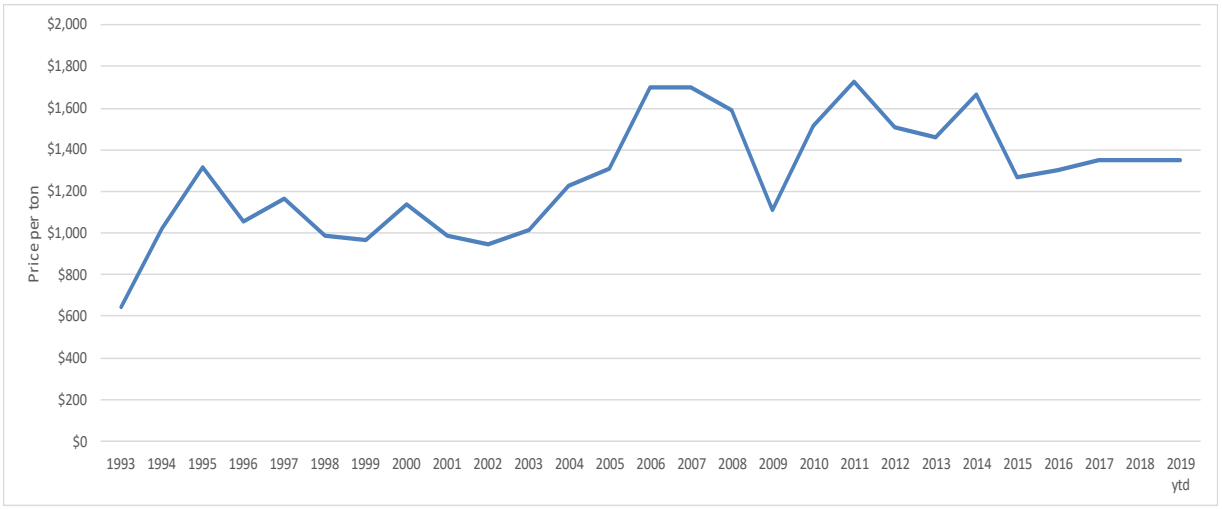
State regulations (RCW 70A.205.045 (7)(c)) require solid waste plans to include "a description of markets for recyclables," hence a description of the markets for recyclable materials collected in Clallam County is provided below. This is intended to be only a brief report of current conditions, and it should be noted that market conditions for recyclables can undergo substantial changes in a short amount of time.

The markets for many recyclables took a serious blow in 2018 due to a decision by the Chinese government to ban the import of most types of recyclables. This decision has seriously and negatively impacted the markets for most types of plastics and paper, and to a lesser degree metals and other materials. Much of the recyclable materials collected in Washington and other parts of the West Coast were being sold to Chinese companies, so this situation has left many in this area seeking alternative markets. This situation has also highlighted issues with the difficulties of recycling some types of materials and the high degree of contamination that is occurring in some collection systems. Both of these factors underscore the need to scrutinize the list of products and packaging that can be included in recycling programs, at least for the short term. In the long term, it is anticipated that recycling markets will improve due to investments in new paper mills and other markets.

It is worthwhile to note that market demand and prices for recyclables have often fluctuated significantly throughout the years, just as prices for all commodities fluctuate with demand and other factors. Some recyclable materials have seasonal cycles in supply and demand, but all materials exhibit long-term trends with the possibility of sudden price spikes or dips. Figures 7-1 and 7-2 show how the prices for aluminum cans and a few other materials collected from residential sources in the Pacific Northwest have fluctuated over the past 20 years. As can be seen in Figures 7-1 and 7-2, market prices dipped for most materials in 2008 and 2009 due to the slump in demand caused by the recession. Prices have risen or fallen at other times depending on several factors. It should also be noted that the prices shown in Figures 7-1 and 7-2 may not be representative of prices received for Clallam County materials, and are not adjusted for collection, processing and transportation costs.

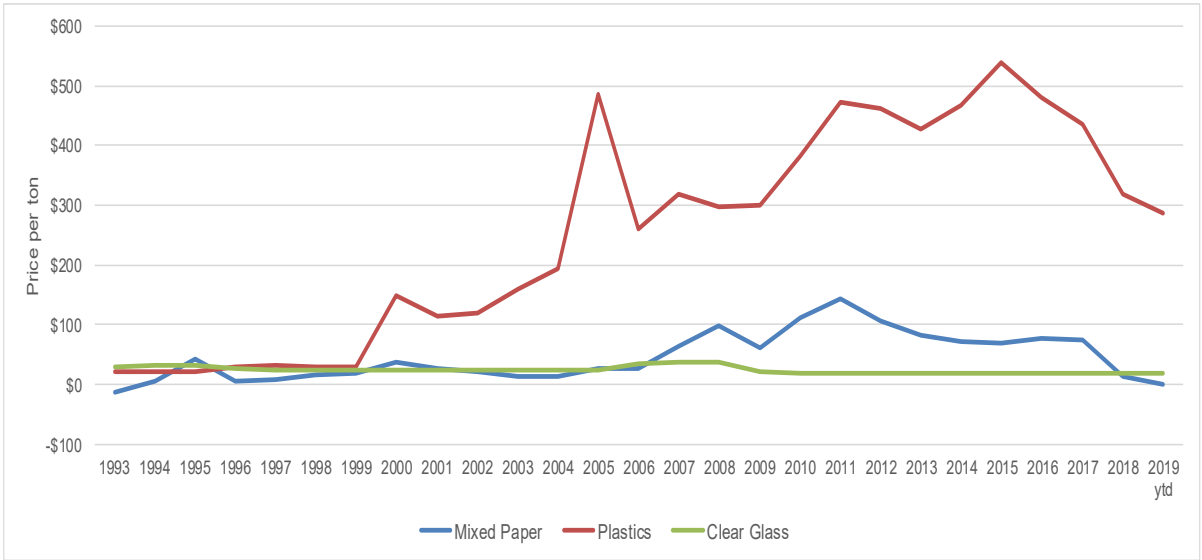
Important factors for marketing of recyclable materials collected in Clallam County include transportation costs and volumes of materials. The cost of transporting recyclable materials from Clallam County is higher than for other areas that are closer to the I-5 corridor or closer to processing facilities and markets in more urban areas. The low market value of many recyclable materials limits the number of materials that can be cost-effectively moved to market. The

Figure 7-1
Price Paid for Baled Aluminum Cans (annual averages)



Notes: Prices shown may not be representative of prices received for Clallam County materials, and are not adjusted for collection, processing and transportation costs.
2019 ytd = year-to-date, includes data through June 2019.
Source: Seattle Public Utilities website (original data source: American Metal Markets).

Figure 7-2
Prices Paid for Select Recyclable Materials (annual averages)



Note: Prices shown may not be representative of prices received for Clallam County materials, and are not adjusted for collection, processing and transportation costs.
2019 ytd = year-to-date, includes data through June 2019.
Source: Seattle Public Utilities website (original data sources are Mill Trade Journal's Recycling Markets, Pulp and Paper Week, Recycling Times, and Waste News).

relatively low volumes collected in Clallam County is also a disadvantage. Small-scale processing systems could help with this although few options are currently available for this.

Designated Recyclable Materials

The designation of recyclable materials took on more importance with the adoption of Chapter 173-350 WAC, which defines recyclable materials as being those materials "that are identified as recyclable material pursuant to a local comprehensive solid waste plan." Since market conditions for recyclables can change drastically in a short amount of time, the list of designated materials should also be accompanied by a description of the process for revising that list.

A wide variety of materials can theoretically be recycled, and many opportunities to recycle various materials exist in Clallam County as described previously in this chapter. Criteria that determines what can be recycled in the County includes the potential for waste diversion; collection efficiencies; processing requirements; market value and stability; transportation costs; environmental impacts; continuity with existing programs; and Washington laws and policies. These criteria have been considered in program development and in developing the list of designated recyclable materials.

Table 7-3 shows the list of designated recyclable materials in Clallam County. This list is not intended to create a requirement that every program in Clallam County collect every material. Instead, the intent is that through a combination of programs, residents and businesses should have at least one opportunity to recycle the designated materials. The list has been grouped to indicate the preferred degree of access that residents and businesses should have for the materials, although materials listed in Group 1 for curbside collection can also be collected through drop-off programs (Group 2). It should also be noted that this list is considered the minimum set of materials to be recycled, and that it is not intended to discourage the recycling of additional types of materials if there is an opportunity or program for other materials.

The list of "designated recyclable materials" shown in Table 7-3 is based on existing conditions (collection programs and markets), and future markets and technologies may warrant changes in this list. The following conditions are grounds for additions or deletions to the list of designated materials:

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

Table 7-3. List of Designated Recyclable Materials	
Degree of Access	**Material**
Group 1 Materials: Materials that should be collected by curbside and commercial recycling and yard waste programs in urban areas	Newspaper, mixed paper and cardboard Aluminum and tin cans Plastic bottles, jugs, tubs and buckets Yard waste
Group 2 Materials: Materials that should be collected at drop-off locations or through other collection services	Glass bottles and jars Edible food (donated) Cell phones Electronics (e-waste) Mercury-containing light bulbs Clothing and textiles Motor oil Antifreeze Asphalt and concrete Batteries (all types except alkaline) All other metals, including appliances Plastic bags Reusable building materials Tires Wood
Group 3 Materials: Materials that can be recycled if markets are available	Other plastics (containers, rigid plastics) Shrink wrap, building wrap, and other film plastics Polystyrene (styrofoam) Construction and demolition wastes Food waste and food-soiled paper

All materials to be recycled should be empty, clean and dry.
The listing of a material in this table is not intended to imply that it can be recycled free of charge.

The Solid Waste Advisory Committee (SWAC) will review the list of designated recyclable materials on an as-needed basis and changes in the list can be made without going through a formal amendment process. Collection of additional materials will be considered on a case by case basis and will not require an amendment to the plan. Any changes in the list proposed by others should be submitted to the SWAC for their discussion. Minor changes should be able to be addressed in about 60 to 75 days at most, depending on the schedule of SWAC meetings at the time of the proposed change. Should the SWAC conclude that the proposed change is a "major change" (what constitutes a "major change" is expected to be self-evident at the time, although criteria such as the inability to achieve consensus could also be used as indicators), then an amendment to the plan may be necessary. This process may vary slightly due to the material(s) under consideration, and possible scenarios and necessary steps are outlined below:

- 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.
- 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 UTC, depending on where they are proposed to occur within the county.

- 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.

7.4. RECYCLING PLANNING ISSUES

This section discusses management issues associated with recycling programs.

Markets for Recyclable Materials

Clearly the largest issue facing recycling programs at this point in time is the challenges with marketing plastics and paper. Clallam County and local service providers (West Waste, Waste Connections and the City of Port Angeles) have responded to this problem by considering eliminating some materials from their drop-off and curbside recycling programs. It is difficult to stop people from putting out materials once they have been allowed to recycle those materials, and so this change would require a significant public outreach effort. Developing new recycling habits to recycle empty, clean and dry items is also challenging.

Processing and Marketing of Recyclable Materials

Recyclable materials are generally exported out of the county for processing. If local processing operations could be found, those could reduce the cost of exporting materials while potentially creating jobs within the county. For example, various communities such as Orcas Island and the City of Cashmere are using or have previously used glass crushers to convert glass bottles into a product that could be used locally.

Contamination Issues

Contamination reduces the market value of recovered materials and causes the entire system to be more difficult and expensive to operate. Ongoing education about what's accepted in the recycling and organics programs is needed to minimize the levels of contamination. The level of contamination and issues caused by this is addressed more fully in the CROP Plan (see Appendix D).

Recycling Drop-Off Sites

Recycling drop boxes are located in the county and are helpful for residents who want to recycle glass and other materials. One of the difficulties for the County and the waste haulers is the cost of labor to staff these sites. When drop boxes are not staffed, illegal dumping and excessive contamination often occurs.

Collection Frequency

The collection frequency for the residential curbside recycling programs is currently every-other-week in Port Angeles, Sequim and other parts of Clallam County. Various studies have shown that more frequent collections lead to more diversion, although a recent rate study

done for a neighboring county, Island County, concluded that every-other-week collection was more cost-effective.

Changes in the Composition of Recyclables

Several trends are occurring that are making recycling more challenging and potentially less profitable. One such trend is the decreasing amounts of newspapers and magazines that are being produced, whereas those materials used to make an important contribution to the profitability of recycling systems. According to the American Forestry & Paper Association, the amount of newspaper recycled in the U.S. has been cut in half in the past 20 years (from 15.8 million tons to 7.9 million tons) despite an increase in the recovery rate during the same period (from 50% to 69%). At the same time, some of the non-paper materials have gotten lighter. The average weight of an aluminum beer can has decreased by 38% since 1972 according to the Aluminum Association, while the Beverage Marketing Corporation reports that the weight of a half-liter plastic water bottle has declined by 52% since 2000. The net result of all these changes is a lighter curbside recycling mix. This is beneficial for waste reduction purposes but can lower recycling revenues and make it more difficult to achieve recycling goals.

Further complicating this issue is the increasing use of plastic pouches and other flexible packaging. These materials are also generally good for waste reduction but are not acceptable in the curbside recycling mix and so reduce the amount of recyclables generated in a household and also become a contaminant if they are placed in curbside carts. New combinations of materials, such as packaging constructed with paper and plastic layers, also create issues for recycling.

7.5. ALTERNATIVES FOR RECYCLING

The following alternatives were considered for new or expanded recycling activities. The listing of an alternative in this section does not mean that it is considered feasible or desirable, nor that it is recommended (see Section 7.6 for recycling recommendations). In addition, the alternatives are not listed in order of priority.

Increase Curbside Recycling Services

Curbside recycling services could be expanded in Clallam County in a few ways:

- Begin curbside recycling in Forks.
- Increase curbside recycling participation in the unincorporated areas of Clallam County.

Discussions have periodically occurred about the possibility of curbside recycling in Forks. There is clearly some interest in this service, but the low volumes and distance from markets for this area have proven challenging. A citizens group is currently exploring a new approach to this and may start arranging curbside recycling services on a subscription basis.

Increasing the participation rate for curbside recycling in the unincorporated areas could be done by requiring this service to be combined with garbage service. This would require a

service level ordinance, which could be difficult to implement. Another downside to this alternative is the current problems with markets for recyclable materials. This would be a difficult time to begin new recycling programs given the problems with marketing the amounts of recyclable materials currently collected. The recycling markets are expected to improve, however, within a few years, so planning could start now for implementation of new programs in three to four years.

Increase Commercial Recycling Services

This alternative addresses the possibilities for increasing recycling by businesses, institutions and other non-residential entities. Currently, the number of commercial recycling accounts in unincorporated Clallam County is only 20% of the number of commercial garbage accounts, and they are only recycling 2% of their wastes. Additional businesses and institutions are recycling through the use of drop-off sites and other opportunities, and so the actual recycling rate is higher, but it appears that there is room for growth in this sector.

Additional recycling could be encouraged through voluntary methods, including more outreach and technical assistance to businesses, although it could be argued that this is the method that has been used to date with only limited success. Mandatory requirements could also be considered. This could take a number of different approaches, including requirements to recycle specific materials (such as cardboard), to recycle the primary materials generated by the business, a requirement for all businesses to subscribe to commingled recycling, or other approaches. Businesses often generate significant amounts of relatively clean recyclables, but resist recycling programs for a variety of reasons. Requiring all business to recycle would create a "level playing field" that

Business recycling barriers and opportunities

Only 20% of commercial garbage accounts in the unincorporated areas opt to recycle, as compared to 34% of the residential accounts. What accounts for this difference and what opportunities may be found in the business recycling stream?

For years old corrugated cardboard recycling (OCC) was the only commercial recycling service offered in Clallam County; it can be added to garbage accounts at no extra cost. However, many businesses produce additional recyclable materials. Sometimes these are materials collected in commingled recycling; businesses can request a recycling bin for commingled recycling for an extra fee.

Commercial businesses often produce particular waste materials in large quantities. For example many restaurants produce lots of glass bottles. Larger commercial quantities are technically prohibited at drop boxes; time and needed labor costs are generally dissuading. Plastic film is another recyclable commodity that wraps many business deliveries, however, the current option for recycling is to manage in-house collection and coordinate with Puget Sound area recyclers. The lack of recycling support results in a large amount of recyclable plastic film going in the trash.

Dungeness Valley Creamery (DVC) is a local milk producer packaging milk in HDPE containers, one of the most recyclable plastics on the market. During production, DVC accumulates defect milk jugs; they also take empty customer jugs back in a nod to Extended Producer Responsibility (EPR). These defect and returned jugs more than fill two 90 gallon recycling bins every week; meeting the limits of recycling bin size and collection frequency. Since businesses are prohibited from using drop boxes at transfer stations, DVC has no option for additional recycling. Yet this clean, single type of material may ultimately be of higher value to recycling markets than much of the mixed residential recycling that goes in bins and drop boxes.

Commercial businesses may have quantity and quality of materials going to waste that offers market potential. Materials management strategies that incentivize or provide opportunity to capture clean, plentiful commodities for recycling should be considered for benefits to commercial service and the recycling stream.

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would not create a competitive advantage or disadvantage. On the other hand, such requirements would not be well received by the businesses and could be politically difficult to implement.

The fees for recycling services can be a problem for small businesses, but businesses are prohibited from using the drop-off containers at RTS and Blue Mountain, which leaves them without a viable option in some cases. Labor costs can also be a disincentive for businesses. Reduced garbage rates (due to lower volumes of waste) can help offset these extra expenses. As with residential recycling, one of the major barriers to increasing commercial recycling at this point in time is the poor markets for recyclables.

Address Contamination Issues

A large part of the current marketing issues for recycling has to do with contamination by non-recyclable materials. This has been an increasing problem over the past decade due to a variety of factors (the use of single-stream carts, the push to recycle more, confusing claims made by manufacturers, etc.). Some curbside collection programs in Washington State currently have contamination rates as high as 20%. The processing facilities for recyclable materials are unable to remove all of these contaminants, and in fact cannot even separate acceptable recyclables from each other once they have been mixed. The materials shipped to markets from these facilities include contaminants and are also cross-contaminated with other recyclables (such as plastic bottles in paper bales).

This issue is addressed in greater detail in the Contamination Reduction and Outreach (CROP) Plan (see Appendix D).

Support for Market Development

New or expanded markets for products made from recycled materials would help recycling programs by increasing the value of the materials collected. Creating or encouraging the development of such markets is generally beyond the reach of local governments due to the substantial financial investments required, although if a private proposal was made then the County could consider providing their support for it. More likely, market development efforts would occur on a state or national level, and Clallam County could consider providing their support for those efforts if appropriate. These efforts might include mandates for recycled content in specific products or requirements for state and local agencies to use recycled materials where applicable.

Market development could be possible in Clallam County for select materials, such as developing a processing system and local end use for crushed glass or porcelain.

User-Pay System for Recycling

As discussed in the Transfer Chapter (see Section 4.4), instituting a user-pay system for some or all recyclables at the transfer stations could be done to make these operations financially self-

How does recycling play a part in local economic growth?

In 2018, China severely restricted the import of recycling from the United States, thus disrupting the recycling markets that determine the cost of this common service. This dramatic shift encouraged policy makers and business interests to rethink local market development of businesses using recycled feedstocks. In Washington State, the Recycling Development Center (RDC) was created to develop new end markets and make a more sustainable and cleaner recycling system for Washington. In Clallam County, a number of businesses rely on recycled feedstocks in their business models.

Local mills recycle old corrugated cardboard (OCC)

After shuttering phone book paper production in 2017, a mill in Port Angeles is retooling to OCC to produce cardboard and specialty bags under the management of McKinley USA, a subsidiary of the international Bio Pappel. Once up to capacity, they expect to employ about 150 people and consume 900 tons of OCC daily. The plant will run under a "sustainable business model to produce paper without cutting down trees, co-generate green energy with steam from operations and recycle water from industrial processes".

Commercial and drop box collections of OCC in Clallam County currently goes to Port Townsend Paper for recycling. Since big-box stores haul OCC out of county, Clallam County collects just a fraction of OCC per what is needed as feedstock for local mills, though more could potentially be source separated for local recycling. Increasing local collection and local recycling of OCC could have both economic and environmental benefits.

Recycling carbon fiber composites

The Composite Recycling Technology Center (CRTC) is a nonprofit corporation whose purpose is to reduce carbon fiber waste being landfilled by providing workforce training and manufacturing capability to individuals and businesses to incorporate recycled composites into product lines. The CRTC employs about 15 people. Using recycled scrap carbon from Puget Sound located industries, the CRTC has begun to manufacturer products such as pickle ball paddles to park benches, with a goal to divert two million pounds of carbon fiber composites from landfill by 2022.

Organics recycling on the rise

Biodegradable materials, also known as organics, are the largest portion of the waste stream; organics recycling has a swatch of market options, some which are in practice in Clallam at this time. Composting of yard waste is done privately by Lazy J Farms, and municipally by the City of Port Angeles in conjunction with biosolids composting. Sisterland Farms offers a curbside food waste compost collection to homes and businesses in Port Angeles. Hog fuel, produced by as a logging byproduct by local companies, is considered a recovered organic material burned for energy or used as mulch.

Metals, junk vehicles, and construction and demolition (C&D) materials are other marketable feedstocks that support the backbone of many local businesses.

The EPA's 2016 Recycling Economic Information (REI) Report found that recycling employs people by a 5 to 1 ratio as compared to waste collection and disposal. With state level support, Clallam County may benefit from economic development of recycling-based industries that can pair with environmental performance and service goals.

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supporting. Making the cost of recycling more visible to the consumer may also be a more effective and sustainable method of maintaining the viability of this service.

Additional Collections at Transfer Facilities

Also as discussed in the Transfer Chapter (see Section 4.4), additional containers could be placed at transfer stations and other facilities to collect other materials.

7.6. RECOMMENDATIONS FOR RECYCLING

The following recommendations are being made for new or expanded recycling programs in Clallam County (see also Chapter 4, In-County Transfer, Chapter 9, the Miscellaneous Solid Wastes Chapter, and Appendix D, the CROP Plan, for additional recommendations on recycling):

R1) The SWAC recommends adopting a 75% recovery goal by 2025. Increased recycling should emphasize quality over quantity, and should target materials with domestic markets to the extent possible.

R2) Continue public education efforts and share the responsibility for this with the cities, Tribal Councils, and private sector as appropriate.

R3) 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.

R4) 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.

R5) Explore options of expanding curbside service in the County.

R6) A subcommittee of the SWAC will work with Clallam County to identify barriers for commercial recycling and develop strategies to increase it countywide.

R7) Provide support for product stewardship and market development proposals as appropriate and consistent with the goals of this plan.

Table 11-1 identifies the responsible implementing agency and the preliminary implementation schedule for each of these recommendations.

CHAPTER 8

ORGANICS

8.1. INTRODUCTION

Background for Organics

This chapter addresses yard waste composting as well as programs for other types of organics such as food waste.

Yard waste is defined to include materials such as lawn clippings, leaves, weeds, vegetable garden debris, branches and brush. Because branches and brush are included in the definition of yard waste, programs discussed in this chapter and figures for "composting" include chipping and other processing of brush, Christmas trees and similar materials. As reflected in this chapter, there is an important distinction between food waste and wasted food. Wasted food refers to food that was edible at one point. Wasted food becomes food waste when it spoils or is discarded, but food waste also includes items that were never considered edible in the first place (such as banana peels, spent coffee grounds, etc.). On-site composting means a small-scale activity performed by homeowners or businesses on their own property, using yard waste that they have generated on that property. Some types of food waste, primarily fruit and vegetable scraps, can be managed through on-site composting or by using worm bins ("vermicomposting"). By definition, on-site composting and vermicomposting are considered to be a form of waste reduction and so are addressed in Chapter 6 of this Plan. Strategies for wasted food are also considered to be a form of waste reduction, since those approaches are directed at keeping food from becoming waste, and so are also primarily addressed in Chapter 6. This chapter also does not address agricultural wastes (see next chapter).

Composting can be defined as the controlled biological decomposition of organic materials to produce a beneficial product (compost). Compost has several applications, but as a soil amendment it provides organic matter and nutrients, loosens soils, and helps retain moisture.

Management programs for organics potentially have a significant advantage over other waste management programs in that organics can be handled locally through composting, anaerobic digestion and other methods, whereas other methods (such as recycling and waste disposal) generally require transportation to out-of-county facilities. At the same time, significant amounts of organics, especially food waste, remain in Clallam County's waste stream. It is estimated that almost one-quarter (22.3%) of the county's waste stream is comprised of various types of organics (see Figure 2-3).

Additional potential benefits of organics programs include climate change mitigation due to the carbon sequestration abilities of compost in soil (in addition to the greenhouse gas reductions from not shipping organics long distances to a disposal site). Local economic benefits are also created through composting and related programs, thanks to the creation of local jobs, benefits

to farms, and related factors. Taken together, these factors provide significant improvements to local community resiliency.

Regulations Concerning Organics

State Regulations: In 2010, the State Legislature amended RCW 70A.205.040 to require that solid waste management plans address source separation and collection of organic materials. Plans updated after June 10, 2010 are required to address "organic material including yard debris, food waste, and food contaminated paper products for composting or anaerobic digestion." Solid waste plans are also required to "consider and plan for … source separation of … organic materials" and "handling and proper preparation of organic materials for composting or anaerobic digestion."

State law (RCW 70A.205.045 (7)(a)) requires that solid waste management plans include waste reduction strategies that "may include strategies to reduce wasted food and food waste that are designed to achieve the goals established" in a statewide wasted food reduction and food waste diversion plan. At the time this chapter was being written (early 2020), the statewide plan was still under development. RCW 70A.205.045 (7)(b)(iii) also requires that solid waste management plans include source separation strategies that address yard waste and food waste collection programs where "there are adequate markets or capacity for composted yard waste within or near the service area to consume the majority of the materials collected." The law implies that, when cost-effective, waste and food waste should be processed into compost. The types of programs needed to satisfy this provision are not clearly stated, but it is generally assumed that a mix of drop-off and curbside programs is adequate for meeting this provision.

A new law adopted in 2020, the Compost Procurement and Use bill (ESHB 2713) amended Chapter 43.19A RCW to add three new sections. Among other provisions, these sections:

- Recognize the benefits of organics diversion and compost usage.
- Requires State agencies and local governments to consider the use of compost in government-funded projects, and to use compost if it is reasonably priced and available, and if the compost meets existing procurement, health and other standards.
- Encourage State agencies and local governments to give priority to locally-produced compost.
- Encourages local governments that provide "residential composting service" to buy back at least 50% of the compost produced from the collected organics.

Regional Regulations: ORCAA regulations prohibit outdoor burning of yard waste within the urban growth boundaries. Outdoor burning is regulated in other areas by local fire districts.

Local Regulations: The Port Angeles Municipal Code prohibits yard waste from being placed in garbage containers (Chapter 13.54.140.E) and addresses other conditions of the yard waste collection service. Residential garbage cans are monitored and tagged if yard waste is present.

Goals for Organics

Planning Goals: Almost all of the goals for this plan are applicable to organics:

- Review current solid waste regulations and policies giving particular attention to waste stream reduction, recycling, food waste and future disposal needs.
- Review existing facilities and solid waste handling practices, and seek community input to 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 with a regional perspective.
- Encourage public-private partnerships.
- Involve the expertise of private industry wherever those capabilities are available.
- Coordinate with counties, cities and the private sector to identify capital cost estimates and implementation schedules for recommended improvements with emphasis on those improvements recommended within a six-year period.
- Provide guidelines for an equitable balance between convenience, expense, climate impact, 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.

Organic materials collected for composting or other management methods are intended to count towards Clallam County's recovery goal of 75% (see Section 7.1).

State Solid and Hazardous Waste Plan: The Washington State Solid and Hazardous Waste Plan, "Moving Washington Beyond Waste and Toxics," has adopted a vision that society can transition to a point where waste is viewed as inefficient and most wastes have been eliminated. This transition is expected to take 20 to 30 years or more. In the short term, the 2015 update to the State plan establishes several goals for better managing and increasing the diversion of organic materials. These include goals to reduce wasted food; to increase the use of compost and other soil amendments from recycled organics to reduce water consumption and the need for fertilizers, pesticides and herbicides; and to diversify the state's organics processing infrastructure and the end-use markets for recycled organic products.

Waste Management Hierarchy: The programs in Clallam County are intended to be based on a hierarchy of management methods for organics. Washington State law (RCW 70A.205.005 (8)) provides direction on the preferred management methods for yard waste (and for recycling and other solid wastes in general). In addition, recent work by the U.S. EPA provides a hierarchy specifically for food waste. The hierarchy for food waste differs somewhat from other organics because a portion of the food waste can be recovered to feed people and animals. Otherwise, both are similar in that each begins with waste prevention as the most desirable management method and ends with landfilling as the least preferred option. Table 8-1 shows specific options for managing yard waste and other organics and options for food waste, in order of preference from waste prevention to disposal methods.

This chapter primarily addresses the second method shown in Table 8-1, the collection and processing of organics into compost and for other purposes. Waste prevention methods are addressed in Chapter 6 and disposal options are addressed in Chapter 5.

Table 8-1. Hierarchy of Preferred Management Methods

Management Method (in order of highest to lowest preference)[1]	Yard Waste, Wood, Compostable Paper, Other Compostables	Food Waste[2]
Waste Prevention	Product Substitution[3] On-Site Composting Grasscycling	Source Reduction Feed People Feed Animals
Composting and Recycling	Collection and Processing into Mulch (for wood waste) Collection and Processing into Compost	Collection and Processing into Compost and Other Products Rendering
Energy Recovery	Anaerobic Digestion Fuel (wood waste)	Anaerobic Digestion Biodiesel (grease)
Landfilling and Incineration without Energy Recovery	Disposal (waste export)	Disposal (waste export)

Notes:
1. The management methods shown in the first column are based on Washington State law (RCW 70A.205.005 (8)).
2. The hierarchy shown above for food waste is based on EPA''s "Food Recovery Hierarchy," but with energy recovery methods downgraded below composting.
3. Product substitution in this case includes the use of durable products (ceramic plates, cloth napkins, etc.) in place of disposable products (such as paper plates and napkins).

8.2. EXISTING ACTIVITIES FOR ORGANICS

Existing options for organics include on-site management, drop-off sites, and residential curbside collection in some areas of the county. These options are discussed below.

On-Site Management of Organics

Yard waste and some types of food waste can be handled through on-site composting and worm bins. These activities are defined as a form of waste reduction and so are discussed in greater detail in Chapter 6 of this plan. Avoiding wasted food is also considered a form of waste reduction and so is also discussed in Chapter 6.

Land clearing debris is sometimes burned where it is generated or handled through on-site grinding and land application. Several local companies operate mobile grinders for on-site grinding. Open burning of land clearing debris is allowed outside of the designated urban growth areas, subject to a permit from Public Health and other conditions.

The Clallam Bay Corrections Center sends food waste to the Olympic Corrections Center. In 2019, 49 tons of food waste was diverted this way by the Clallam Bay Corrections Center. The Olympic Corrections Center, which is located in Jefferson County 27 miles south of the City of Forks, composts their own organic materials, including biosolids from their wastewater treatment plant and food waste.

The Lake Crescent Lodge, which is managed by Aramark, diverted 9,000 pounds of food waste in 2019 using three Earth Tubs. They have implemented various waste prevention measures and also recycle corks and other materials.

Drop-Off Sites

The Compost Facility accepts yard waste delivered by commercial and residential customers, and biosolids delivered by the City of Port Angeles' wastewater treatment plant. More details about the Compost Facility are shown in the Processing and Market Capacity section below.

Residents and businesses can also choose to self-haul yard waste and/or other materials to various private facilities in and near Clallam County. For instance, Cascade Bark in Sequim accepts clean wood, woody yard waste and landclearing wastes from commercial and residential sources. Hermann Brothers Logging & Construction, accepts wood waste such as stumps, large diameter tree limbs, and clean wood from commercial sources (not from the general public) at their log yard located near Port Angeles. Both companies produce hog fuel, mulch and related products. These facilities have the potential capacity to handle much of the County's clean wood waste. Lazy J Tree Farm, near Port Angeles, also accepts yard waste and sells the resulting compost, along with other products such as topsoil and mulch.

Curbside Collection Programs

Port Angeles and Sequim have optional fee-based curbside programs that collect source-separated yard waste. Every-other week yard waste collection is available to the city residents, and the collection schedule reduces to once per month in December, January and February. Yard waste accepted in these programs is based on the materials that can be handled at the Compost Facility, which currently includes branches, lawn clippings, small trimmings, leaves, weeds and brush. Dirt and sod are not accepted. The City of Forks and the unincorporated areas of Clallam County do not have curbside yard waste service.

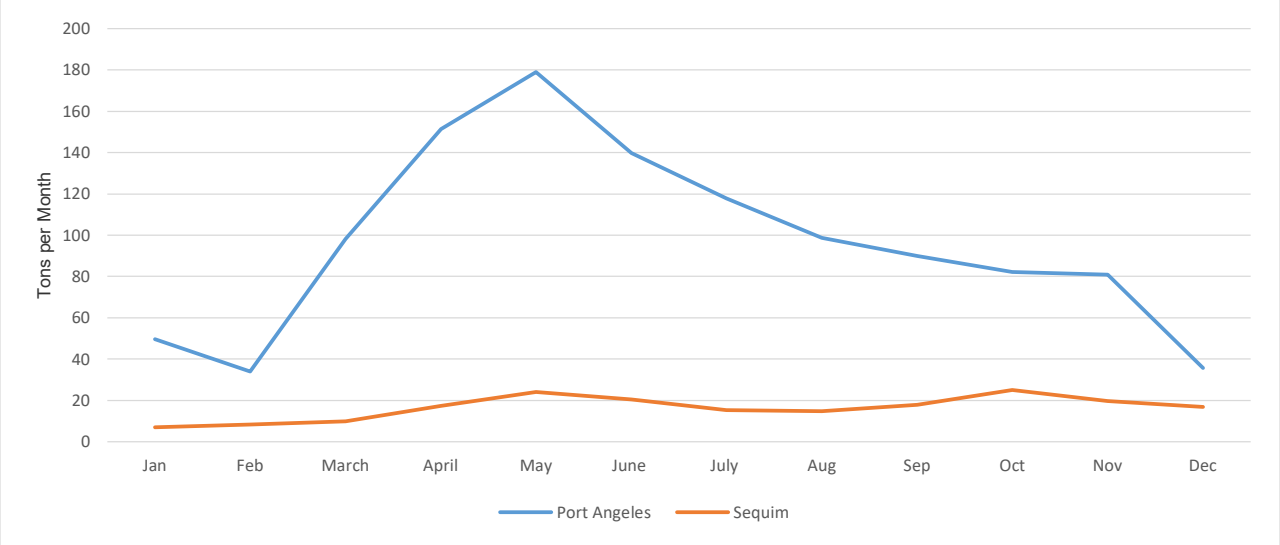
With more than 7,400 residential customers in Port Angeles and a 40% subscription rate to the curbside yard waste service, there about 2,960 yard waste customers currently in Port Angeles (as of December 2019). In Sequim, there are 2,640 residential garbage customers and 323 yard waste customers (as of January 2020), for a subscription rate of 12%. The tonnages collected from residential customers in these two cities for the past four years are shown in Table 8-2. Figure 8-1 shows the average monthly amounts for each city for this four-year period. For 2019, the amount of yard waste collected was 845 pounds per household in Port Angeles and 1,344 pounds per household in Sequim (for subscribing households only).

Table 8-2. Yard Waste Tonnages Collected through Curbside Routes

Month	City of Port Angeles					City of Sequim				
	2016	2017	2018	2019	Ave.	2016	2017	2018	2019	Ave.
January	30	28	52	88	50	6	9	7	6	7
February	39	28	35	33	34	10	6	11	6	8
March	134	80	99	80	98	7	8	13	12	10
April	176	147	132	151	151	16	15	18	20	17
May	149	194	191	181	179	14	25	26	30	24
June	113	154	136	156	140	18	22	22	19	20
July	103	110	117	141	118	16	13	14	18	15
August	94	91	102	108	99	13	12	16	18	15
September	91	94	84	91	90	15	17	17	23	18
October	73	65	99	92	82	20	36	22	22	25
November	89	66	81	87	81	23	10	18	28	20
December	27	39	35	41	36	10	13	28	16	17
Annual Totals	**1,119**	**1,097**	**1,163**	**1,250**	**1,157**	**170**	**185**	**213**	**217**	**196**

Notes: 1. Data is from Port Angeles records and is based on deliveries to the Compost Facility.

Figure 8-1
Yard Waste Collected by Curbside Routes, 2016-2019 Average



Other Collection Programs

SisterLand Farms composts a combination of materials that are generated on-site and food waste collected from nearby households and businesses. As of early 2020, they were serving about 30 subscribers and were targeting about 20 more. The farm was founded in September 2018 and within a year they had collected over 500 gallons of food waste using 5-gallon buckets. In 2020, they had been collecting about ten pounds per household per week, but this increased by three pounds per week during the stay-at-home period of the Covid-19 pandemic.

Other types of organics are collected through specific programs:

- Collection of fats, oils and other materials for rendering and biodiesel production is conducted by private companies such as Darling Ingredients and Encore Oils.
- Recovery of edible food is conducted by food banks and others (see Chapter 6 for more details).

North Mason Fiber, in Belfair, accepts land clearing debris, clean wood waste, yard waste and fish wastes to produce compost and other products. They have accepted some of these materials from Clallam County in recent years.

Public Education for Organics Programs

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 been funded through Local Solid Waste Financial Assistance (LSWFA), formerly known as Coordinated Prevention Grant (CPG), and Waste Reduction & Recycling Education (WRRED) grants from the Department of Ecology. All county residents are able to participate in these programs. Since 2013, Clallam County Public Works and WSU Clallam County Extension has coordinated home composting outreach composting through the following activities:

- Providing information at special event booths, scheduled hands-on workshops and school programs, reaching approximately 1,000 people per year.
- Distributing informational materials such as flyers on composting methods and materials.
- Conducting Master Composter & Recycler trainings. This half-day introduction to composting along with other recycling and waste prevention information is offered in Port Angeles, Sequim and west end communities every year.

The Clallam County website (www.clallam.net/environment/recycling.html) provides information about composting yard and food waste and promoting the food rescue program, including links to download brochures and additional information.

In addition, the Waste Reduction Specialist and the Citizen Waste Reduction Committee (now defunct) 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 elementary schools, one middle school, and the Peninsula College. Funding was provided jointly by individual Parent Teacher Organizations and Ecology

CPG monies awarded to the City of Port Angeles. Most of these programs lasted 2-4 years, although Jefferson Elementary in Port Angeles hosted a composting program from 2008-2018. As of 2020, there are compost bins at Franklin Elementary and Port Angeles High School.

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. This program, in support of wildfire prevention, exchanged twenty burn barrels for compost 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 and Master Composter & Recycler trainings; 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.

Processing and Market Capacity

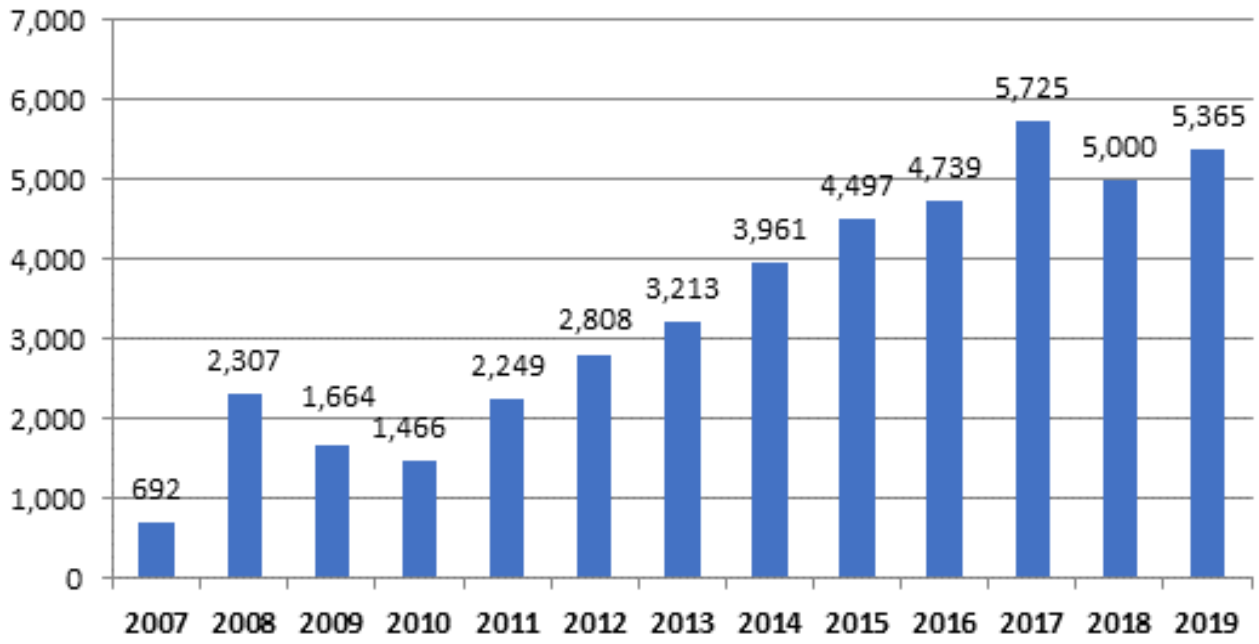
The yard waste that is collected from the Port Angeles and Sequim curbside programs is currently delivered to the Port Angeles Compost Facility. These materials are ground up and mixed with biosolids. In the 1990s, the City of Port Angeles began processing biosolids from the Port Angeles Waste Water 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," which is a Class A compost. Recent data on the quantities of materials composted at the Compost Facility and the resulting amounts of compost produced are shown in Table 8-3 and in Figure 8-2.

Table 8-3. Organics Received at Compost Facility (Annual Tons)

Source	2016	2017	2018	2019
Port Angeles;				
Yard Waste Collections	1,119	1,097	1,163	1,250
Yard Waste, Parks Dept.	101	113	108	206
Biosolids	1,744	1,858	1,451	1,441
Sequim, Yard Waste Collections	170	185	213	217
Storm Debris	NA	NA	506	NA
Self-Hauled Yard Waste	811	942	868	1,221
Out-of-County Yard Waste	1,554	1,632	606	0
Annual Totals, Amounts Received	5,499	5,827	4,915	4,335
Annual Amount of Compost Produced	4,739	5,725	5,000	5,365

Source: City of Port Angeles records.
NA = Not Applicable, storm debris was only tracked separately in 2018.

Figure 8-2
Compost Produced by Compost Facility, Annual Tons



Source: City of Port Angeles records.

As can be seen in Table 8-3, the Compost Facility processed 4,335 tons of yard waste and biosolids in 2019. The 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. Thus, in 2019, the facility operated at about 61% of its capacity. It can also be seen that the amount of biosolids received at the Compost Facility decreased after 2017. This was primarily due to a new processing system at the Port Angeles Wastewater Treatment Plant that resulted in drier biosolids.

8.3. PLANNING ISSUES FOR ORGANICS

This section discusses management issues associated with organics.

Quantities of Organics Disposed

Data from an Ecology report, the 2015-2016 Washington Statewide Waste Characterization Study, provides estimates of the percentages of organic materials in the solid wastes from Clallam County. In Table 8-4, these figures were combined with disposal tonnages for Clallam County (50,732 tons in 2017, see Table 2-4) to calculate the amounts of the various organics in the county's waste stream. It should be noted that the "other organics" is largely "animal manure" in the residential waste stream, meaning that this is likely mostly kitty litter and other

pet wastes. This material would probably not fit well with most of the new collection programs or processing facilities for handling additional organics. The clean wood shown in Table 8-4 may pose similar issues. The clean wood includes dimensional lumber, pallets and crates, and other untreated wood.

Based on the data shown in Tables 2-5 and 8-4, the estimated recovery rate in Clallam County for yard waste is 73% and for food waste it is 1%.

Table 8-4. Estimated Quantities of Organics in Clallam County Waste Stream

Material	Percent by Weight[1]	Annual Tons[2]
Yard and Garden;	**4.9%**	**2,486**
Leaves and Grass	4.6%	2,334
Prunings	0.3%	152
Food Waste;	**12.5%**	**6,342**
Edible Food	6.3%	3,196
Inedible Food	6.2%	3,145
Other Wastes;		
Other Organics	4.9%	2,486
Compostable Paper	6.6%	3,348
Clean Wood	6.5%	3,298

Notes:
1. Percent by weight figures are from the Ecology report, 2015-2016 Washington Statewide Waste Characterization Study, for the West waste generation area.
2. Annual tons were calculated based on the percentage figures in the previous column and 50,732 tons of solid waste.

Food Waste

As shown in the above analysis, food waste represents a significant opportunity for increased diversion. The estimated 6,342 tons per year of food waste in Clallam County's waste stream is significantly more than the amount of yard waste and biosolids being handled by the Compost Facility. Half of this amount is edible food that would not need to be treated as a waste in the first place, and if avoided or distributed to people in need, it could instead save residents a significant amount of money and provide increased food security for low-income families.

Finding an alternative for food waste in Clallam County could be challenging, however. A typical strategy for many areas is to add food waste to yard waste collection programs so that it can be composted together at existing processing facilities. In Clallam County's case, the yard waste is delivered to the Compost Facility at RTS, which is not set up currently to handle food waste as part of the mixture. Delivering food waste or a yard waste/food waste mixture to the Compost Facility would require substantial upgrades of the storage and handling systems there. Among other improvements, handling food waste at this facility would require an enclosed facility and raise concerns about vectors (animals) and odors, including concerns about increasing bird

traffic. With the Compost Facility's proximity to the airport, any potential to increase the bird traffic poses a serious issue. Previous efforts to control birds at this location cost $50,000 per year and required several years to permanently discourage birds. Other programs that have added food waste to existing yard waste collection programs have also experienced serious problems with contamination by plastic bags, packaging, and other non-compostable materials.

Other technologies for food waste, such as anaerobic digestion, could be considered.

West End Collection Programs

The west end of Clallam County lacks a composting facility, requiring that any organics collected in that area be transported to the Port Angeles area or out-of-county. If significant amounts of organics are to be collected in that area, a local processing or composting facility of some type may be necessary.

Yard Waste Collection Results

The subscription rate for yard waste collection in Port Angeles (40%) is higher than in Sequim (12%), yet the average pounds per subscriber in Sequim is higher than in Port Angeles (1,344 versus 845 pounds per household per year). While there could be several factors that influence these figures, one of the more likely explanations is that Sequim subscribers tend to be the larger generators of yard waste whereas the Port Angeles subscribers are a broader range of medium and high-volume generators. This could be the result of the yard waste disposal ban in Port Angeles. Factors such as lot size and the cost of the yard waste service ($8.85 per month in Port Angeles versus $11.18 in Sequim) could also affect these figures. The implication, however, is that more of the yard waste in Sequim is being disposed as garbage.

End Use Markets

There is an ongoing need to encourage end use demand for compost and mulch.

8.4. ALTERNATIVE METHODS FOR ORGANICS

The following alternatives were considered for new or expanded organics activities. The listing of an alternative in this section does not mean that it is considered feasible or desirable, nor that it is recommended (see Section 8.5 for organics recommendations). In addition, the alternatives are not listed in order of priority.

Increase Residential Yard Waste Collection

Of all the materials in the waste stream, yard waste is possibly the easiest material to handle through other means. Diversion of residential yard waste could be increased through various methods:

- Sequim could enact a yard disposal ban similar to Port Angeles.
- Forks could consider yard waste collection program, but a west end processing facility might be necessary to handle the materials collected.
- A county-wide yard waste disposal ban could be enacted.

- The cost of yard waste service could be embedded in the garbage rates in Port Angeles and Sequim (like recycling), so that more people would use the service (although this would be hard to justify since not all households generate yard waste whereas virtually all households generate recyclable materials).

A ban on the disposal of yard waste and garden wastes in garbage cans would require residents to compost on-site, subscribe to a yard waste collection service, or deliver their yard waste to a facility that would compost it. On-site management could include leaving grass clippings on the lawn, applied as a mulch in landscaping and gardens, handled through on-site composting (for leaves, grass clippings and some types of food wastes), or chipped on-site (for branches and other woody materials). If a ban is implemented, it should be accompanied by additional public education to promote these alternatives.

A significant increase in yard waste quantities in the Port Angeles/Sequim area may require the development of additional processing capacity, since the amount of yard waste handled by the Compost Facility is limited to the amount needed to process biosolids. An over-supply of yard waste would likely only be a seasonal issue (since yard waste quantities are highest in the spring and lowest in the winter) and it is possible that the Compost Facility's operation could be modified to handle this. Marketing the additional amounts of compost could also be an issue.

Residential Food Waste Collection

Adding food waste to the yard waste collection programs in Port Angeles and Sequim is not possible at this point but could be considered in the future if significant changes are being considered for the Compost Facility. This approach would also not be very effective, with the relatively low subscription rates that currently exist for the yard waste collection programs. Without significant changes in the collection and processing systems, diversion of residential food waste could be increased by:

- Encouraging more on-site handling of food waste through on-site composting and worm bins (see Chapter 6 for more details).
- Encourage more small-scale processing such as the SisterLand Farms approach.

Another option for residential food waste, although not considered feasible at this point in time, would be to change the garbage collection so that all food waste and other organics go into one container and all other materials go into a separate container. The organics could go to a composting facility or an anaerobic digester, and the other materials could go to a mixed waste processing facility that would pull out recyclables. Improvements in robotics and processing technologies could make this option more cost-effective in the near future.

Commercial Food Waste Collection

Specific types of commercial establishments generate significant quantities of food waste and small amounts of other organics, including restaurants, bakeries, grocery stores, cafeterias, canneries and other food manufacturers. Agricultural activities also generate substantial amounts of organics and, although these are typically managed on-site, could present an

opportunity for co-management of other organics. This has worked well for anaerobic digesters, for instance.

Increased Wood Diversion

The possibility of separately collecting clean wood at RTS and other transfer stations for delivery to McKinley could be explored.

Other Options for Processing Organics

Additional processing facilities or options may be necessary in the future, if the combined capacity of the Compost Facility and private sector processing operations is insufficient to handle additional yard waste, 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, such as anaerobic digestion. Anaerobic digestion 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.

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.

8.5 RECOMMENDATIONS FOR ORGANICS

The following recommendations are being made for new or expanded organics programs in Clallam County (see also Chapter 6, Waste Reduction, for recommendations concerning wasted food):

O1) The goal for Clallam County is to reduce the organics in the waste stream to below 10% by weight by the end of 2025.

O2) Continue curbside collection, processing, and composting yard waste at the Port Angeles Compost Facility, and increase the amount of materials processed to the extent of the facility's capacity.

O3) Work to eliminate illegal dumping and burning of yard waste and consider separate collection of yard waste in the county.

O4) Continue to develop end uses such as mulch, hog fuel, and compost, and other uses that may also be identified. The County and cities should lead by example by maximizing the use of these products in their own projects.

O5) Investigate economical and efficient options for handling residential, commercial and institutional food waste.

O6) Encourage large commercial generators to divert food waste to processing facilities.

O7) Continue public education to encourage residents to handle their yard waste and food wastes separately through strategies such as home composting and use of mulching mowers.

O8) Continue working with WSU Extension to offer the Master Composter & Recycler Program in Clallam County and other outreach programs.

O9) Explore the possibility of recovering additional amounts of wood waste through composting or hog fuel.

O10) Consider proposals for alternative methods for managing wood waste, such as biogas to energy, on a case by case basis.

Table 11-1 identifies the responsible implementing agency and the preliminary implementation schedule for each of these recommendations.

CHAPTER 9

MISCELLANEOUS SOLID WASTES

9.1. BACKGROUND FOR MISCELLANEOUS SOLID WASTES

Introduction

This chapter of the Clallam County Solid Waste Management Plan reviews the generation, handling and disposal methods for several types of wastes that merit special attention. These wastes require special handling and disposal methods due to regulatory requirements or for reasons such as toxicity or other special handling problems.

The following wastes are discussed in this chapter:

9.2 Agricultural wastes
9.3 Animal carcasses
9.4 Asbestos
9.5 Biomedical wastes
9.6 Construction and demolition (C&D) wastes
9.7 Marine debris and derelict vessels

The existing programs and facilities in Clallam County for each of these wastes are described in this chapter. Each waste is also examined for needs and opportunities (planning issues), and alternatives are proposed based on those needs if necessary. Recommendations are also provided if necessary.

Goals for Miscellaneous Solid Wastes

Most of the goals adopted for this plan are applicable to these wastes:

- Review current solid waste regulations and policies giving particular attention to waste stream reduction, recycling, food waste and future disposal needs.
- Review existing facilities and solid waste handling practices, and seek community input to 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 with a regional perspective.
- Encourage public-private partnerships.
- Involve the expertise of private industry wherever those capabilities are available.
- Provide guidelines for an equitable balance between convenience, expense, climate impact, 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.

9.2. AGRICULTURAL WASTES

This section addresses the large-volume agricultural wastes that are generated on farms, ranches and similar operations. This includes crop residues (such as plant stalks) and manure. Most of these wastes are managed on-site, often by being incorporated into the soil to enhance fertility. Animal carcasses are discussed in the next section. The household wastes (garbage) and moderate risk wastes generated in agricultural settings are not intended to be included here, but are intended to be managed as described elsewhere in this plan for those types of wastes (i.e., managed as garbage, moderate risk wastes or other types of special wastes).

Regulations for Agricultural Wastes

Agricultural operations are subject to a wide array of federal and state regulations concerning food safety and animal health, depending on the exact nature of their activities. Dairy farms are also subject to Chapter 90.64 RCW that requires the development of a dairy nutrient management plan for handling manure wastes in order to protect water quality.

Existing Management Practices for Agricultural Wastes

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. There are only two commercial dairies left in Clallam County, which are located in the Sequim area. The amount of farmland in Clallam County has decreased significantly over the past 50 years, dropping from 76,000 acres in 1950 to 23,640 acres in 2012 and to 17,197 acres in 2017 (the recent figures are from the 2017 Census of Agriculture). This trend is expected to continue, as current agricultural acreage is still being converted to housing and other uses.

According to the 2015-2016 Washington Statewide Waste Characterization Study, the only agricultural wastes in Clallam County's waste stream might be a small amount of "animal manure," except this is primarily pet wastes (from dogs and cats), not manure from agricultural sources. There is very little agricultural wastes in the county's waste stream due to the fact that current practices do not result in agricultural wastes that require disposal off of the farms. Most wastes are incorporated into the soil to enhance fertility or handled on-site in other ways.

The Clallam County Conservation District works with private land users to help them conserve natural resources and practice better environmental stewardship and farmers are their traditional audience. The Conservation District partners with the Natural Resources Conservation Service (NRCS). The Regional Conservation Partnership Program (RCPP) is an NRCS program with state and local matching funds. The Conservation District has an RCPP project that is part of a Puget Sound RCPP. The Conservation District receives funding from the Conservation Commission for technical assistance and outreach. They work with farmers in the Clean Water District to get them to the point of signing up for NRCS cost-share funding for a variety of conservation practices, including dairy waste management.

The Manure Share Program managed by the Conservation District connects livestock owners who have extra manure with people who want manure. Livestock owners call the Conservation District and the supplier lists a description of the type of manure along with the general

location of their farm. Those looking for manure contact the suppliers to make arrangements to pick up the manure. It is important that manure is properly composted before use. Composting kills weed seeds and bacteria and produces a nutrient rich soil amendment that can be used in lawns, landscape beds and gardens.

Planning Issues for Agricultural Wastes

The impact on surface waters from manure handling and field application is a continuing concern in Clallam County, especially in areas with the highest concentration of agricultural activities, namely the Sequim-Dungeness area. Years of technical assistance and outreach has led to the implementation of best management practices at most agricultural operations in this area, but this outreach must be maintained in order to maintain this success.

Management Alternatives for 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 8, 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.

Recommendations for Agricultural Wastes

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

MW1) The Clallam County 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.

MW2) 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 should be encouraged if appropriate.

More details on the implementation of these recommendations are shown in Chapter 11.

9.3. ANIMAL CARCASSES

Regulations for Animal Carcasses

WAC 246-203-121 is the state code that regulates the proper disposal of dead animals. This law requires that animals be properly handled “within 72 hours after death or discovery” and provides a number of options for that. Additional requirements are applied if the animal died with a communicable disease (see also Section 9.5, Biomedical Wastes).

Clallam County Code 17.01.045 also addresses the disposal of animal carcasses. This code states “It shall be unlawful to dispose of or dump dead animals, animal carcasses, or animal parts on public property or private property, other than one’s own, without the permission of the owner. It shall be unlawful for a commercial establishment charging for the disposal of animals to dispose of animals by dumping or burying without proper permits. Violation of this section shall be a misdemeanor.”

Existing Management Practices for Animal Carcasses

The largest generator of animal carcasses in the County is the Humane Society (in Port Angeles). The Humane Society currently uses Petland Crematorium in Aberdeen for cremation of animals.

The Olympic Game Farm (in Sequim) accepts animal carcasses and uses the meat from those for the carnivores at the game farm. The game farm either retrieves the animal or accepts animals brought to them, depending on location, and they take in about 365 horses and other large animals per year. Most of the animal carcasses are from private individuals, but in some cases they deal with incorporated private companies such as dairies or horse breeders. They screen these sources for chemicals, such as veterinary medications or length of time since death occurred, and in some cases they can't accept an animal carcass. They occasionally receive calls from the Washington State Department of Fish and Wildlife, State Patrol, or a Sheriff from Clallam or Jefferson Counties. The animals are processed and then frozen to be fed out later to the carnivores. All bones and uneaten parts are stored in a freezer and picked up by Petland, Inc. (Aberdeen, WA) once per week. The offal is put into a biological compost on the premises. Animals that pass away at the Game Farm are handled in the same way, sent to Petland for cremation, or buried on site (for large exotics and bears).

In 2016, Washington State authorized private parties to utilize roadkill (predominately deer) for personal use. At least 20 other states also allow this practice. Consequently, the Roads Department does not get called to pick up roadkill nearly as much as they used to. If the carcass doesn't get picked up in time, it's transported to remote County property to decompose. In some states, arrangements can also be made to provide game meat to food banks.

Local veterinarians generally use an off-site crematorium, such as the Gateway Company in Seattle, or they allow owners to take the pet home or use a rendering service (for larger animals only). Pet owners that take a deceased animal home may bury it on their own property.

The Washington Department of Agriculture provides classes on how to compost animal carcasses for livestock owners that may be interested in using that approach.

Marine animals and bird carcasses frequently appear on Clallam County beaches. Except for large carcasses such as whales or other nuisance factors, these are left to naturally decompose. The disposal of whales or other animals that require removal is determined on a case-by-case basis.

Aquaculture industries produce animal carcasses that must be managed. Often this byproduct can be dealt with on-site, such as burial of fish carcasses. Ocean Protein in Hoquiam takes fish waste left over in the processing of food and turns it into fish meal, fish oil, fish soluble and fish bone products. These products are used in aquaculture feed, livestock food or pet food. Oly Mountain Fish Compost in Belfair composts fish waste and produces compost that is weed free and serves as a soil cover in beds.

Planning Issues for Animal Carcasses

Some farms, dairies and ranches may not have the heavy equipment necessary to bury horses and cattle on-site, or their location may not be suitable if it is in a high water table area. The location of the farm or dairy may also be too close to waterways. In these cases, off-site disposal is necessary, but this can generally be arranged through the Game Farm, a rendering service or other special arrangements.

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.

Current methods used for disposal of animal carcasses in Clallam County are adequate and no additional options need to be addressed at this time. This situation could change, however, should an animal epidemic occur (such as the discovery of a herd being infected with mad cow disease or a flock that develops a bird flu problem). Should an animal epidemic occur in Clallam County, the solid waste system may be called upon to assist with the disposal of large amounts of animal carcasses and possibly also infected bedding, manure and other materials. The final authority for determining disposal options will rest with local, state and federal emergency response agencies, but the solid waste system may need to address questions about services that can be provided while protecting worker safety. Any involvement by the solid waste system will need to be determined on a case-by-case basis if this type of problem should occur in the future, but solid waste representatives should be consulted at an early stage in emergency planning if there is any expectation of using the solid waste system for disposal of infected animals.

Management Alternatives for Animal Carcasses

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

A second alternative is for staff to review the solid waste system role in emergency disposal of infected animals and to develop preliminary protocols or procedures for responding to a large amount of animal carcasses.

Recommendations for Animal Carcasses

The following recommendations are made for animal carcasses in Clallam County:

MW3) Monitor aquaculture industries for waste management issues.

MW4) Continue communications with the Humane Society, veterinarians and those disposing of animal carcasses.

MW5) Review the solid waste system's role in emergency animal disposal.

MW6) The possibility of providing game meat to food banks should be examined.

More details on the implementation of these recommendations are shown in Chapter 11.

9.4 ASBESTOS

Asbestos waste is defined any material containing more than one percent asbestos by weight. Asbestos is a naturally-occurring fibrous mineral with resistance to heat, chemicals, and electricity. Before it was banned in the 1980s as a cause of respiratory diseases and cancers, asbestos was widely used in a variety of building materials such as siding, insulation, fireproofing, ductwork, and piping. Although asbestos is still used in some products, today it is most often encountered during the demolition of old buildings or removal of old piping, ductwork, boilers and furnaces during building renovations. Airborne asbestos particles are the primary health concern, as these particles become lodged in the lungs when breathed in and then cause long-term health problems.

Regulations for Asbestos

The disposal of asbestos is regulated by federal, state and county regulations. This extensive enforcement is largely due to health concerns for those who handle asbestos removal and disposal. On a federal level, asbestos was one of the first hazardous air pollutants regulated under Section 112 of the Clean Air Act of 1970, and many applications were forbidden by the Toxic Substances Control Act (TSCA). On a local level, asbestos handling must follow Olympic Region Clean Air Agency (ORCAA) regulations and local permitting requirements. ORCAA is the primary government agency responsible for enforcing federal, state and local air quality regulations in Clallam County. Asbestos removal and disposal is addressed in Rule 6.3 of ORCAA's regulations.

Existing Management Practices for Asbestos

Asbestos-containing wastes can be brought to the Regional Transfer Station for disposal. Contractors may also take asbestos out of the county for disposal. The asbestos generated in Clallam County is typically from demolition activities and pipeline replacement projects. Ecology tracks asbestos disposal quantities through the annual landfill reporting system. The amounts of asbestos disposed from sources in Clallam County over the past ten years are shown in Table 9-1. As can be seen in this table, the amounts of asbestos vary considerably from year to year, likely as a result of specific demolition or remediation projects. The large amount of asbestos waste in 2017 may have been the result of relocation of wastes from the old Port Angeles Landfill.

Planning Issues for 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.

Management Alternatives for Asbestos

No alternatives or recommendations are proposed for asbestos-containing wastes at this time.

Table 9-1. Asbestos Disposed from Clallam County, Annual Tons	
Year	Total Asbestos, TPY
2007	0
2008	12
2009	18
2010	21
2011	2
2012	3
2013	68
2014	6
2015	12
2016	84
2017	727

Source: Ecology records, based on annual reports from disposal facilities.

9.5 BIOMEDICAL WASTE

Biomedical waste includes waste contaminated by human or animal blood or diseases, and also used syringes ("sharps"). Biomedical waste can be generated in homes, farms, medical facilities, laboratories, dental offices, veterinary clinics, and funeral homes.

Regulations for Biomedical Wastes

Ecology has established applicable solid waste regulations related to disposal of biomedical waste in solid waste landfills. The Utilities and Transportation Commission (UTC) regulates transporters of biomedical wastes and has issued statewide certificates to two private companies for it: Waste Management and Stericycle. A few haulers also have certificates to collect medical wastes from one or two specific counties, such as Waste Connections in Clark and Skamania Counties. The UTC regulations allow regular solid waste haulers to refuse to haul wastes that they observe to contain infectious wastes as defined by the UTC. Non-residential generators of biomedical wastes such as hospitals and clinics can contract with the certificated haulers to dispose of biomedical wastes. The rules governing the transportation of biomedical waste include adoption of federal Department of Transportation rules.

Biomedical waste is defined by Chapter 70A.228 RCW 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.

RCW 70A.228.010 defines biomedical waste to include the following types of waste:

- **Animal waste**: This includes animal carcasses, body parts and the bedding of animals that are known to be infected with, or have been inoculated with, pathogenic microorganisms infectious to humans.
- **Biosafety level 4 disease waste**: This is waste which is contaminated with blood, excretions, exudates, or secretions from humans or animals who are isolated to protect others from highly communicable infectious diseases that are identified as pathogenic organisms assigned to biosafety level 4 by the Centers for Disease Control manual, Biosafety in Microbiological and Biomedical Laboratories, current edition.
- **Cultures and stocks**: These wastes are infectious to humans, including specimen cultures, cultures and stocks of etiologic agents, wastes from production of biologicals and serums, discarded vaccines, and laboratory waste that has come into contact with cultures and etiologic stocks or blood specimens. Such waste includes but is not limited to culture dishes, blood specimen tubes, and devices used to transfer, inoculate, and mix cultures.
- **Human blood and blood products**: This includes discarded waste human blood and blood components, and materials containing free flowing blood and blood products.
- **Pathological waste**: This includes biopsy materials, tissues, and anatomical parts from humans that emanate from surgery, obstetrical procedures and autopsy. This does not include teeth, human corpses, remains and anatomical parts that are intended for interment or cremation.
- **Sharps**: This category of waste includes all hypodermic needles, syringes, IV tubing with needles attached, scalpel blades, and lancets that have been removed from the original sterile package.

In Washington State, biomedical waste is primarily regulated by local governments. As a general rule, biomedical waste generators must segregate the waste and treat it before disposal. If the generator treats the waste onsite, they most likely have to obtain a permit from the local health department.

Existing Management Practices for Biomedical Wastes

The 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.

Small quantities of biomedical waste are also disposed by individuals, such as sharps (i.e., used needles). Clallam County Health and Human Services offers a Syringe Exchange Program to intravenous drug users. For each used syringe brought in, a sterile syringe is given back to the client. The Syringe Exchange Program allows an opportunity to conduct a health intervention for drug users and to provide additional services. The clients can get sterile syringes to prevent the transmission of blood borne diseases such as HIV and hepatitis. The County also assists with education about how to dispose of sharps used in a home setting for medical conditions or syringes found in public settings.

Planning Issues for Biomedical Wastes

In 2020, the Covid-19 pandemic spread across the U.S. and the solid waste industry saw a number of changes, including a rise in the amounts of potentially infectious waste that required special handling. These additional amounts were handled by existing companies. Stericycle is one of the country's largest medical waste processors, and they typically steam sterilize infectious waste before it is landfilled or incinerated. They handled increased amounts of masks, gloves and gowns, as well as waste from cruise ships. Covanta is the largest waste-to-energy company in the U.S., and they incinerated Covid-19 related waste at one of their facilities. The additional amounts were not in excess of what could be handled by existing systems, in part due to reduced amounts from elective procedures that were put on hold during the pandemic, but future pandemics could generate even more wastes.

There may be infectious wastes from smaller generators that are currently not being handled properly. As home-based health care increases, this situation should be monitored to ensure that home-based patients and caregivers understand the need for proper disposal of certain materials.

Containers of sharps are occasionally improperly placed in the recycling system, where they pose a safety risk to the staff at the facilities that handle the recyclables. Needle exchanges have been shown to be effective in reducing improper disposal of sharps. There is an existing needle exchange program operating in Clallam County, though it is possible that more outreach would increase the number of needles properly handled.

Other than issues raised by the Covid-19 spread, 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.

Alternatives for Biomedical Wastes

One alternative to the current management of biomedical wastes would be to provide more syringe exchange locations in the county. However, it should also be noted that the State Legislature considered a product stewardship bill for syringes in the 2020 legislative session, and although it didn't pass hopefully this bill will be re-introduced and may eventually be enacted into law. If that does happen, likely it would allow a few years before any new collection programs would become operational.

More education could be conducted to promote safe handling and disposal of sharps. Residential sources could be targeted with the assistance of home healthcare agencies and pharmacies. One form of education could be site visits to train staff at targeted facilities. More brochures could be made available at public locations and businesses, and as inserts mailed with garbage or other utility bills. Haulers could also inform their commercial customers (those that are potential generators of sharps) about safe disposal practices.

The existing needle exchange provides a safe method for disposing of sharps and should be continued. The exchange's activities could be expanded or could be publicized better.

Recommendations for Biomedical Wastes

The following recommendations are made for biomedical wastes in Clallam County:

MW7) Monitor disposal of biomedical wastes by small waste generators for potential problems or risks.

MW8) Support product stewardship legislation for sharps.

MW9) Provide more promotion and funding for Syringe Exchange Program.

More details on the implementation of these recommendations are shown in Chapter 11.

9.6. CONSTRUCTION AND DEMOLITION WASTES

Construction and demolition (C&D) wastes are defined as the wastes that are generated from construction and demolition activities. These wastes include materials such as new and used building products, concrete, roofing and sheetrock. These wastes are generated at a rate that is proportional to construction activity and so annual amounts vary depending on population growth and the economic climate. Large, one-time projects also have a significant impact on annual amounts.

In the past, "land-clearing waste" has sometimes been combined with C&D wastes. Strictly defined, land-clearing waste is largely vegetative (stumps, trees and brush), with possibly some soil and rocks. Any soil and rocks that need to be removed from a site do not need to be treated as a waste (unless these are contaminated in some way, which would put them into a separate category altogether). The vegetative fraction of land-clearing waste can be considered either wood waste or yard waste, and both of these are addressed in the previous chapter (see Chapter 8, Organics).

Construction and demolition (C&D) wastes are also discussed to varying degrees in the other chapters of this Plan, but are addressed in this section to highlight the specific issues and options associated with these wastes.

Regulations for C&D Wastes

In 2010, RCW 70A.205.040 was amended to include "when updating a solid waste management plan developed under this chapter, after June 10, 2010, each local comprehensive plan must, at a minimum, consider methods that will be used to address construction and demolition waste for recycling or reuse". Washington State regulations (WAC 173-345-040) require a separate collection container be provided for waste at jobsites that conduct recycling.

Existing Management Practices for C&D Wastes

Wastes from construction and demolition activities typically represent a significant portion of the waste stream. A recent statewide study shows that 17.5% of the waste stream is wood waste and another 8.5% is other types of construction and demolition wastes. These wastes contain a substantial amount of recyclable materials (wood, cardboard, metals, etc.), although a significant amount of C&D materials are also being recycled from Clallam County (see Tables

2-5 and 2-6). Based on Ecology's annual recycling survey for the three most recent years that data is available (2015-2017), the three-year average for the amounts of C&D materials recycled includes 21,253 tons of asphalt and concrete and 807 tons of other materials. There was also an average of 24,458 tons of landclearing debris diverted to energy recovery, plus an unknown number of tons of cardboard, metals and other materials recycled from jobsites.

Waste Connections brings clean concrete to Blake Sand and Gravel (Sequim), clean asphalt to Lakeside Industries (Port Angeles), and concrete with rebar and other materials is brought to Shold Excavating (Port Hadlock).

Reusable construction and demolition materials are being diverted from the solid waste system by the Habitat for Humanity Restore, Around Again, websites such as 2Good2Toss, and other programs. There is also a used construction material sale conducted by the North Peninsula Building Association, which in the spring of 2020 diverted four to five tons of material. This amount was apparently lower than typical due to several factors.

Small amounts of C&D waste are usually mixed with regular household and commercial garbage for disposal purposes, but larger quantities are often handled separately because large quantities are generated at specific construction or demolition sites.

C&D waste and recycling

Waste from construction and demolition (C&D) projects presents a number of unique problems but also opportunities, such as local businesses dedicated to reuse of building and landscaping materials. Many of these materials are also recyclable, although few have options for recycling on the Peninsula. Plus, the cost of tipping fees for heavy C&D waste increases the potential for illegal dumping on public forest lands.

How can communities reduce illegal disposal of C&D waste, encourage its recycling, and ensure safe disposal of associated dangerous wastes? One option is through "flow control" regulations, explored in Chapter 10, which require materials to be disposed locally (recycling is exempt). For example, the City of Port Angeles has a flow control ordinance which requires a demolition permit and C&D waste disposal at the Regional Transfer Station, but Clallam County and the City of Sequim do not have local C&D waste disposal requirements.

In addition to regulatory approaches, regional partners could explore developing markets for reusable and recyclable C&D products as well as education on local recycling and reuse opportunities, to fully address the challenges of this significant portion of the waste stream.

Written by Ann Soule and Meggan Uecker.

Planning Issues for C&D Wastes

Many C&D materials that get disposed from Clallam County are recyclable or reusable. Diverting more waste materials through reuse or recycling would be the environmentally preferable option.

No recycling facilities exist in Clallam County for C&D wastes. Diverting C&D wastes to a sorting facility using a simple picking line or other approach could increase the amounts of wood, metal and cardboard recovered from C&D wastes.

Flow control is an issue for C&D wastes, as some contractors take wastes out of the county to disposal facilities in neighboring counties with lower tipping fees.

Management Alternatives for C&D Wastes

In the case of construction and demolition wastes, there are three alternatives that could

potentially be pursued in Clallam County, and these are based on programs conducted in nearby jurisdictions.

- **Cooperative Arrangement with Private C&D Processing Facility**: This alternative is similar to the approach used in Skagit County, where loads of C&D wastes are allowed to be taken to a private facility (Lautenbach Industries) adjacent to the County's main transfer station. Normally it would be necessary for these loads to contain less than 10% non-recyclable materials in order to be classified as a recyclable load and thus be exempt from the Skagit County flow control provisions, but this agreement leads to more recycling. The agreement between Skagit County and Lautenbach Industries requires that the residuals from the processing facility be disposed through the County's waste export system.
- **Require Construction Sites to have Recycling Containers**: This alternative is loosely modeled after the approach used by Snohomish County, which requires trash containers to be present at construction sites that are using recycling containers. The intent of this approach is to ensure that relatively clean loads of recyclables are being taken to a recycling facility, while solid wastes remain within the county's disposal system. In Clallam County's case, the larger need is to encourage the reverse (more recycling).
- **Require Construction Sites to Recycle On-Site or Use Certified Recycling Facilities**: This is the approach being used by the City of Seattle and King County. They require that construction projects either have on-site recycling or send their wastes to a certified processing facility. There are several facilities in King County and adjoining areas that are currently certified. Certified facilities must submit quarterly reports on the amounts of waste received and recycled, and must be tested to show that their residuals contain less than 10% (by weight) of the seven target recyclable materials. The target recyclable materials are asphalt paving, bricks, concrete, gypsum board (sheetrock), metal and wood that are more than 6" long, and cardboard in excess of 8" long.

Recommendations for C&D Wastes

The following recommendations are made for C&D wastes in Clallam County:

MW10) Promote existing opportunities for recycling of construction and demolition wastes as part of the public education efforts conducted for waste reduction and recycling.

MW11) Explore regional solutions for specific construction and demolition materials.

More details on the implementation of these recommendations are shown in Chapter 11.

9.7. MARINE DEBRIS AND DERELICT VESSELS

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. A related problem is derelict vessels and nets.

Regulations for Marine Debris and Derelict Vessels

There are a number of statutory and regulatory tools at the federal, state, and municipal levels that can limit the amount of trash that gets into aquatic ecosystems. EPA utilizes the authorities and tools in the Clean Water Act (CWA), the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, also known as Superfund), the Resource Conservation and Recovery Act (RCRA), and the Pollution Prevention Act (PPA) to tackle the problem of mismanaged wastes that can become marine debris.

Chapter 79.100 RCW was adopted in 2002 to address derelict vessels. At that time, the legislature stated that:

> "The legislature finds that there has been an increase in the number of derelict and abandoned vessels that are either grounded or anchored upon publicly or privately owned submerged lands. These vessels are public nuisances and safety hazards as they often pose hazards to navigation, detract from the aesthetics of Washington's waterways, and threaten the environment with the potential release of hazardous materials. The legislature further finds that the costs associated with the disposal of derelict and abandoned vessels are substantial, and that in many cases there is no way to track down the current vessel owners in order to seek compensation. As a result, the costs associated with the removal of derelict vessels becomes a burden on public entities and the taxpaying public."

Chapter 79.100 RCW provides public funds to remove derelict vessels, including a voluntary turn-in program that was added in 2014 to allow boat owners to receive financial aid for the proper disposal of old boats.

Most marinas in Clallam County, such as those under the authority of the Port of Port Angeles, have regulations regarding derelict vessels.

Existing Management Practices for Marine Debris and Derelict Vessels

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

Ocean plastics

Clallam County has an extensive marine coastline that becomes littered with debris from local ocean-related tourism, aquaculture and fishing industries – but which also washes up via ocean currents with an unknown origin.

Marine debris has been ubiquitous across the globe for decades, but the advent of plastic packaging in the last century exacerbated the problem and continues to do so. There are ongoing efforts to remove debris from our coastlines in the past two decades, some fully-funded by government agencies and others reliant partly on volunteers for coordination, event support, debris collection, removal from staging areas and disposal. At times, helicopters are needed to finish the job.

Washington CoastSavers is an alliance of public and private entities that execute periodic beach clean-ups as well as educational programs in partnership with organizations including National Oceanic & Atmospheric Administration (NOAA), Feiro Marine Life Center, Olympic National Park and local tribes. Local government entities, nonprofits, and citizens supporting these efforts help ensure that coastlines continue to provide economic value and beauty despite the growing problem of marine debris.

Written by Ann Soule.

marine debris management efforts. These efforts include beach cleanups, marine debris tracking and retrieval, and public education and outreach.

In 2018, the NOAA Marine Debris Program released the Washington Marine Debris Action Plan. This document is the result of a productive and collaborative effort between the NOAA Marine Debris Program and regional partners, including over 50 workshop participants, and represents a partner-led effort to guide Washington's actions on marine debris for the next six years.

Throughout Washington, numerous organizations have worked diligently to prevent and remove marine debris from shorelines and marine waters. Outreach projects have targeted recreational and commercial fishermen to reduce gear loss and increase reporting of lost gear. Educational programs for children and adults have been developed to increase awareness of marine debris and encourage actions to prevent it. Marine debris is a large-scale problem, and its prevention and removal efforts benefit from partnerships and collaborations facilitated by a marine debris action plan. The purpose of the Washington Marine Debris Action Plan is to facilitate and track actions that prevent and reduce marine debris throughout Washington State, including the Puget Sound, the Northwest Straits, Washington's Pacific Coast, the Columbia River estuary, and inland sources.

The Washington Marine Debris Action 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. The Clallam County Marine Resources Committee has previously funded drop boxes for marine debris clean ups. The Waste Prevention Program has worked with NOAA and CoastSavers and Feiro Marine Life Center on outreach on marine debris clean ups, recycling and waste prevention.

The Washington Department of Natural Resources (DNR) is the agency responsible for managing the Derelict Vessel Removal Program. That program has removed more than 580 abandoned or neglected vessels since it was instituted in 2002. The program's budget for the current biennium (2019-2021) is $2.5 million.

Marinas in Clallam County generally have procedures in place to address derelict vessels. For instance, Port of Port Angeles staff remove hazardous materials and then crush derelict vessels with an excavator, disposing of the waste at the Regional Transfer Station. The Port is usually refunded 90% of these costs through the DNR Derelict Vessel Removal Program.

Planning Issues for Marine Debris and Derelict Vessels

Marine debris poses significant risks to ocean ecosystems, wildlife and human health and safety. Marine debris, as well as derelict vessels and nets, 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 in areas that are used for economic activity and recreation.

Current handling of derelict vessels, usually by an authorized public entity such as the Port of Port Angeles or another marina, appears to be sufficient in addressing derelict vessels. There are no additional management alternatives or recommendations for derelict vessels being proposed at this time.

Management Alternatives for Marine Debris and Derelict Vessels

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.

Recommendations for Marine Debris and Derelict Vessels

The following recommendation is made for marine debris in Clallam County:

MW12) 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.

More details on the implementation of this recommendation is shown in Chapter 11.

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CHAPTER 10

REGULATION AND ADMINISTRATION

10.1. BACKGROUND FOR REGULATION AND ADMINISTRATION

This chapter addresses the activities and programs undertaken to administer the solid and moderate risk waste system in Clallam County, including regulatory and enforcement programs and public education activities.

Regulations Concerning Administration and Enforcement

At the federal and state levels, the primary regulatory authorities for solid waste management are the Environmental Protection Agency (EPA) and Ecology, respectively. Clallam County Environmental Health (CCEH), a division of the Department of Health and Human Services, is the responsible local health jurisdiction (per RCW 70A.205.100) for issuing permits for solid waste facilities. The minimum regulatory requirements of both the state and federal programs must also be satisfied before a permit can be issued by the local health jurisdiction.

Federal Level: The Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984 (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 statewide 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. A provision of RCRA requires that federal facilities must comply with state and local (and Tribal in some cases) solid and hazardous waste requirements, including "statutes, regulations, permits, reporting requirements, and administrative and judicial orders and injunctions," and so military installations and federal agencies must operate in a manner consistent with local solid waste management plans and policies.

State Level: The Solid Waste Management Act (Chapter 70A.205 RCW), 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 county, 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 usually too expensive and impractical for them. Enforcement and regulatory responsibilities are assigned to counties, cities, or jurisdictional health departments depending on the activity.

In 1985, Ecology promulgated the Minimum Functional Standards for Solid Waste Handling (Chapter 173-304 WAC) under the authority granted by Chapter 70A.205 RCW. 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 from solid waste disposal facilities. In 2003, Ecology issued Chapter 173-350 WAC, Solid Waste Handling Standards, which replaced

the Minimum Functional Standards. A separate section, Criteria for Municipal Solid Waste Landfills (Chapter 173-351 WAC), which was issued in 1993, contains the current location, design, and operational criteria for MSW landfills.

Chapter 36.58 RCW, Solid Waste Disposal, delineates the counties' rights and responsibilities regarding solid waste management, including the authority to establish solid waste disposal districts (RCW 36.58.100 through 36.58.150) as well as providing special authorization for contracting procedures for solid waste handling facilities (RCW 36.58.090). The authority to establish waste collection districts is provided in Chapter 36.58A RCW. Solid waste disposal 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 (Chapter 70A.200 RCW) and associated state regulations (Chapter 173-310 WAC) 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 used for education, increased litter clean-up efforts by the State, and grants to counties for litter and illegal dump clean-up activities. Chapter 173-310 WAC provides minimum standards for litter receptacles and prescribes the use and distribution of litter receptacles throughout the state.

The Washington Utilities and Transportation Commission (UTC) regulates private garbage collection companies. The UTC oversees waste collection certificates (franchises) and approves rates for both garbage and residential recycling collection services in unincorporated areas (see Chapter 3, Solid Waste Collection, for more details).

Local Regulations: Regulations for solid and moderate risk wastes have been adopted by Clallam County and the cities. The Clallam County regulations include Chapter 41.10, on solid waste regulations, and Chapter 19.30, which adopts this plan and incorporates it into the County Code. The Port Angeles Municipal Code, Chapter 13.54.030, authorizes compulsory refuse collection service provided by the City. The burning or dumping of solid waste, other than as provided for in the code, is unlawful. Sequim Municipal Code, Chapter 8.08, also authorizes compulsory solid waste collection in that city. The burning or dumping of solid waste, other than as provided for in their code, is a misdemeanor.

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 requires 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 boundaries 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. The Forks Zoning Code (Chapter 17.15) lists solid waste disposal as a conditional use in industrial districts, low- and medium-density commercial districts and public lands.

Goals for Regulation and Administration

Six of the goals for this Plan are applicable to this chapter:

- Review current solid waste regulations and policies giving particular attention to waste stream reduction, recycling, food waste and future disposal 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 with a regional perspective.
- Provide guidelines for an equitable balance between convenience, expense, climate impact, 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.
- Outline funding mechanisms.

Clallam County Comprehensive Plan: There is also a policy in the Clallam County Comprehensive Plan that pertains to solid waste management. That policy states "education and incentive programs on solid and hazardous waste reduction, recycling, and disposal, including those for households and small businesses, should be made available. Opportunities for the collection and disposal of household, agricultural, and commercial hazardous waste should be provided (Policy No. 33)."

City of Forks Comprehensive Plan: A goal and a policy in the *City of Forks 2019-2039 Comprehensive Plan* also relates to solid waste issues: "ensure that the development and use of land in Forks is done in a manner consistent with sustainable use of resources and the natural environment" (ENV GOAL 4), and "make information available to citizens and contractors regarding the benefits of utilizing sustainable building practices and materials" (ENV Policy 4.1).

City of Port Angeles Comprehensive Plan: The *City of Port Angeles Comprehensive Plan* includes the following goals and policies:

- Goal G-5D: "to provide utility services in an efficient and cost-effective manner."
- Policy P-5D.04: "the City should promote and encourage energy conservation, renewable energy, distributed energy generation, improved distribution efficiencies, and recycling efforts throughout the community. The City's own practices should serve as a model."
- Goal G-7B: "to protect and enhance the area's unique physical features, its natural, historical, archaeological, and cultural amenities, and the overall environment."
- Policy P-7B.20: "the City should promote and utilize environment enhancing conservation practices. Those practices may include waste reduction, use of energy efficient and conserving materials, and energy conservation techniques and should also encourage the

development and use of alternative forms of energy and transportation."

- Goal G-8A "to provide and maintain safe and financially feasible urban services and capital facilities at or above stated levels of service to all City residents and the general public."
- Policy P-8A.04: "the City should cooperate with the appropriate private and/or public agencies to develop individual comprehensive service and facility plans for each of the following utilities and/or services… Solid waste collection and disposal."
- Policy P-8A.09: "the City should require concurrency at the time of development for the following utilities and services …Solid waste collection."
- Goal G-9A: "to create and maintain a balanced and stable local economy with full employment and emphasis on strengthening the community's traditional natural resource related industries as well as diversifying the overall economic base."
- Policy P-9A.16: "the City should encourage businesses with low carbon footprints."
- Policy P-9A.17: "the City should consider projected climatic change impacts and adaptation strategies when encouraging new businesses to establish in Port Angeles."
- Policy P-9B.08: "the City should utilize the Climatic Change Preparedness Plan in attracting businesses, to demonstrate a proactive approach to climatic change in the area."
- Policy P-9B.09: "the City should encourage and pursue economic development with positive environmental consequences, including non-polluting industries and eco-friendly business."

City of Sequim Comprehensive Plan: The *2015-2035 City of Sequim Comprehensive Plan* contains the following goals and policies relevant to this Plan:

- Goal CFU 5.3, TIMING OF NEW SERVICES: Maintain LOS as the community grows by ensuring that new development pays the full costs of increases in service demands created by the development.
- Policy CFU 5.3.1, SERVICE AVAILABILITY WITH OCCUPANCY: Ensure that adequate public facilities and utility services, including water, wastewater and solid waste, are available at the time of occupancy and use.
- Goal CFU 5.6, SOLID WASTE & RECYCLING: Provide quality waste disposal and recycling options to City customers.
- Policy CFU 5.6.1, SOLID WASTE: Coordinate with solid waste providers to provide quality solid waste and recycling opportunity in Se-quim.
- Goal EE 9.6, SUSTAINABLE DEVELOPMENT: Sustain growth without degradation of the natural environment and ecosystems by utilizing "green" development and best management practices.
- Policy EE 9.6.4, GREEN CONSTRUCTION PRACTICES: Promote "green construction" to balance development with a sustainable environment.

10.2. EXISTING REGULATION AND ADMINISTRATION PROGRAMS

Local agencies involved in solid waste management in Clallam County include the Clallam County Public Works Department, Clallam County Health and Human Services Department, and various departments of the cities and Tribes. Each entity has a particular area of operations, providing specific services within that area and enforcing specific rules and regulations.

Clallam County

The governmental organizations involved in solid waste oversight at the county level include the Clallam County Public Works Department and the Environmental Health Services Division of the Clallam County Health and Human Services Department. An Interlocal Agreement (ILA) between the County and the Cities of Port Angeles and Sequim further outlines the authority and responsibilities of Clallam County (see the ILA in Appendix A). The budget for County solid waste activities is shown in Table 10-1.

Table 10-1. Clallam County Solid Waste Budget

	2019	2020	2021
Revenues			
Public Works;			
Intergovernmental Transfer (SWE)*	$27,180	$44,000	$30,000
Grants (Ecology)	$36,355	$90,000	$57,000
Other/Miscellaneous (County)	$5,719	$100	$100
Environmental Health;			
Intergovernmental Transfer (SWE)	$12,900	$7,250	$13,000
Grants (Ecology)	$49,972	$56,471	$36,231
Permit Fees	$38,251	$34,000	$28,500
Sheriff's Dept. (Litter Cleanup)			
Intergovernmental Transfer**	$32,517	$32,516	$36,603
Grants (Ecology)	$20,000	$104,725	$104,725
Total Revenues	$222,894	$352,063	$306,159
Expenses			
Public Works;			
Staff (wages and benefits)	$22,698	$30,000	$53,751
Supplies and Equipment	$1,565	$150	$550
Professional Services	$43,462	$64,000	$21,500
DNR Lease/Risk Ins. (BMTS)	$8,331	$8,328	$8,500
Indirects/Other/Misc.	$3,918	$5,400	$4,560
Environmental Health;			
Staff (wages and benefits)	$59,935	$61,125	$73,605
Supplies and Equipment	$267	$220	$800
Other/Miscellaneous	$25,792	$23,675	$26,703
Sheriff's Department;			
Staff (wages and benefits)	$47,400	$100,000	$110,000
Supplies and Equipment	$5,100	$36,621	$30,000
Total Expenses	$218,468	$338,769	$329,969

Notes: All figures are in dollars and were provided by Clallam County Public Works. The 2019 figures are the actual amounts, and the 2020-2021 figures are budgeted amounts.
*SWE is the Solid Waste Enterprise Fund managed by the City of Port Angeles
**Roads pays for litter cleanup services under a contract for the sheriff's work crew to do a variety of activities (the amount shown here is 15% of contract spent on litter cleanup).

Clallam County Public Works Department: The Clallam County Public Works Department is the agency primarily responsible for solid waste planning activities for Clallam County. The Public Works Utilities Program Coordinator manages the Local Solid Waste Financial Assistance (LSWFA) 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 paid for corrections crews to clean up high-litter areas and illegal dumping sites. The Solid Waste Division is assisted by the Solid Waste Advisory Committee and by WSU.

Clallam County Environmental Health Services: Clallam County Environmental Health (CCEH) is a division of the Health and Human Services Department and is the local health jurisdiction responsible for enforcing County and State regulations regarding solid waste. CCEH permits and inspects 13 active solid waste facilities. CCEH responds to complaints of improper solid waste handling and illegal dumping. CCEH works with Clallam County Code Enforcement, a division of Clallam County Department of Community Development on solid waste complaint sites. Their activities are guided by Clallam County Code Chapter 41.10 (Solid Waste Regulations). The activities of CCEH are funded through the Division's budget, reimbursed through tipping fees generated at the transfer stations, the permit fee system, and LSWFA 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. Increased Ecology funding would be helpful.

The permit process for solid waste 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 10-2 lists the fees associated with different types of facilities.

Solid waste facility permits are issued for landfills, transfer stations and other disposal sites. Unpermitted and illegal sites have been a problem in the County. Private residential properties without garbage service have created nuisance problems in some areas. Clallam County Prosecuting Attorney's Office has provided staff time and enforcement assistance to remedy the nuisance properties. Additionally, Clallam County Code Enforcement has taken some solid waste violations through their Hearings Examiner process for enforcement.

Solid Waste Advisory Committee: The Solid Waste Advisory Committee (SWAC) assists with solid waste administration and regulation by serving in an important advisory capacity and by providing a vehicle for public input. The SWAC participates in the development of this solid waste management plan, assists in the development of policies and programs for solid waste management, and comments on proposed resolutions and ordinances prior to their adoption. SWAC recommendations are provided to the Board of Clallam County Commissioners.

Washington State University (WSU) Extension Service: The WSU Extension Service conducts education programs in Clallam County for solid waste, recycling and related topics. The Waste Prevention Program (WPP) has been a collaborative effort between WSU Extension and Clallam

Table 10-2. Waste Disposal Permit Fees		
No.	**Type of Permit**	**Fee***
1	Plan review for new applications (for all facilities listed below)	$930 for first 10 hours, then billed at hourly rate
2	Municipal Solid Waste Facility Annual Permit Closure Permit Post Closure Permit Annual Fee	 $7,935 $9,919 $3,968
3	Transfer Station, Annual Permit Renewal; Facilities Handling 5,000 tons/yr or greater Facilities handling less than 5,000 tons/yr	 $3,703 $926
4	Limited Purpose Landfills Landfill Annual Permit Landfill Closure Permit Post Closure Permit Annual Fee	 $4,629 $6,613 $2,777
5	Composting	$1,852
6	Inert Waste Landfill	$2,777
7	Recycling	$926
8	Late Permit Fee	50% of base
9	Penalty Fee	10% of base

Notes: * Applicable conditions should be summed up for each facility to arrive at the total permit fee.
Source: Clallam County Health & Human Services, effective 2018.

County since 2013. Through Ecology funding, the County has contracted with WSU for a part-time Waste Prevention Specialist to provide education and outreach. The WPP collaborates with other extension staff and WSU's research/faculty resources on composting education, the Master Composter Recycler program and food recovery. WSU hosts a Zero Waste Kit for check out and a robust gleaning program.

Municipalities

The three municipalities in Clallam County are currently active in solid waste management: Forks, Port Angeles and Sequim.

City of Forks: The City of Forks contracts with a private company, West Waste & Recycling, for garbage collection services.

City of Port Angeles: The City of Port Angeles Solid Waste Utility manages the Regional Transfer Station and the Blue Mountain Transfer Station, and operates the City's solid waste collection system. The annual budgets for these activities is shown in Table 10-3. The City is also responsible for post-closure funds for the Port Angeles Landfill. 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 and the ILA in Appendix A).

Table 10-3. Budget for Regional Solid Waste System			
	2019	2020	2021
Revenues			
Transfer Station	7,703,014	7,178,100	7,180,500
Transfer Station Surcharges	1,248,653	1,361,000	1,361,000
Grants (Ecology)	57,053	322,300	392,300
Collection Services	4,848,577	4,805,700	4,924,400
Total Revenues	**13,857,297**	**13,667,100**	**13,858,200**
Expenses			
Transfer Station	7,212,945	7,189,700	7,391,141
Collection Services	4,477,196	4,775,400	4,700,306
SW Capital/Debt Service/Interest Expense	651,824	1,164,500	1,063,400
Total Expenses	12,341,965	13,129,600	13,154,847
Balance	1,515,332	537,500	703,353
Landfill	253,314	464,700	482,295
Balance with Landfill	1,262,018	72,800	221,058

All figures are annual dollars and were provided by the City of Port Angeles.

City of Sequim: The City of Sequim contracts with Waste Connections to provide commercial and residential customers with automated refuse collection, recycling and yard waste services. Chapter 8.08 of Sequim's municipal code addresses solid waste collection, including the maintenance of health and sanitation, and the removal and disposal of garbage. Collection of garbage within the City is required for all properties. Collection of recyclable materials is required for residential and multi-family customers but not commercial properties, although recycling is provided to commercial customers upon request. 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 Sequim (see the ILA in Appendix A).

Regional Agencies

The Olympic Region Clean Air Agency (ORCAA) monitors and regulates outdoor air pollution in Clallam County. ORCAA is one of seven regional air pollution control agencies in Washington State. Established in 1968 after passage of the Washington Clean Air Act (Chapter 70A.15 RCW), ORCAA is responsible for enforcing federal, state and local air pollution standards and governing air pollutant emissions from new and existing sources. The Board of Directors establishes the policies and oversees the operations of the agency. The Board includes a representative from each of the seven counties in ORCAA's jurisdiction, plus representatives of the three largest cities in the territory; Lacey, Olympia and Port Angeles.

ORCCA conducts public outreach and enforcement in Clallam County for specific activities that are within their jurisdiction, which generally includes activities that may affect air quality (such

as open burning). ORCCA provides public information on their website for Clallam County residents and businesses such as:

- Providing Wood Smoke Reduction grants from the Washington Department of Ecology to provide wood stove replacement rebates for the more densely populated areas of Clallam County. One of the primary pollutants within ORCAA's jurisdiction is particulate matter (PM2.5) and the main source of that pollutant is burning. With the removal of just 60 uncertified wood stoves from the community, residents will reduce emissions by 10 tons of PM2.5 per year.
- Posting tips on their website such as how to dispose of Christmas trees in a clean and safe manner. When it comes time to dispose of a tree, they provide information on how to get rid of the tree cleanly, as opposed to burning the tree.
- Publishing comment opportunities for upcoming air pollution regulations and activities.

ORCCA conducts enforcement activities for open burning and for regulated facilities largely through permitting, inspections of permitted facilities and responding to complaints.

Tribes

There are four Native American Tribes in Clallam County: the Makah Nation, the Quileute Nation, the Lower Elwha Klallam Tribe and the Jamestown S'Klallam Tribe. The tribes exercise solid waste management authority within their respective jurisdictions. Local and state governments have no jurisdictional authority over the reservations or their residents in terms of solid waste planning, implementation or taxation. 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.

The Makah and Quileute Nations provide collection service to Tribal residents in their Reservations. The Makah Nation takes the waste collected to the Makah Transfer Station and the Quileute Nation takes waste to the West Waste Transfer Station in Forks. The remaining two Tribes utilize local refuse collection companies for service.

Private Companies

The two garbage haulers in Clallam County operate under a certificate issued by the UTC or under contracts. There are many requirements associated with the certificates (see Chapter 3 for more details). Garbage haulers are also required by State law to distribute public education materials annually (WAC 480-70-361(7)). At a minimum, these notices must be distributed to current customers (for garbage and/or recycling) in the certificate (franchise) areas and must describe all of the services and options available for waste collection and recycling (including mini-can rates for residential customers). If a brochure is distributed by a local government directly to the public instead, then the hauler does not need to distribute a brochure if the minimum information described above is included. If a local government provides a brochure to the hauler, then the hauler must distribute those, and in this case the brochure may also address commercial recycling and waste reduction options offered by other companies and

agencies. Brochures developed and distributed by the hauler are not required to present information on recycling and waste reduction programs offered by others.

Waste Connections sends out a recycling brochure for new customers throughout the County and City of Sequim. They contribute to the cost of the annual Port Angeles recycling mailer and service calendar. They are working on a website but it is not available at this time. West Waste does not promote recycling with mailers or on their website.

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 A). This ILA defines the roles and responsibilities of the signatories to provide for 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 in 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.
- Establishes the Joint Solid Waste Advisory Board (JSWAB) to review policies, procedures, costs, rates and operate as an advisory group to the Port Angeles City Council and SWAC.
- 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 City of Port Angeles is designated as custodian of this fund and incorporates into its annual budget the funds for the Regional Solid Waste Export and Transfer System Services.
- Provides participatory mechanisms for JSWAB members when 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.
- Continues County administration of the Blue Mountain Transfer Station land lease.
- Directs solid waste collected in City of Sequim to the Regional Solid Waste Export and Transfer Station Facilities.

10.3. PLANNING ISSUES FOR REGULATION AND ADMINISTRATION

This section discusses management issues associated with regulation and administration activities and programs in Clallam County.

Financial Stability

The financial outlook of the solid waste system is dependent on factors including: user (tipping) fees; market fluctuations of solid waste "products" such as garbage and recyclables; contracts for various services required (both public and private); and grant revenues. Waste reduction remains a top priority at the state level, yet tipping fees by the ton is the main source of

revenue. Planning issues related to financial stability include:

- **Varying rates and contracts within the county and cities.** The ILA for the Regional Export and Transfer System requires that JSWAB review any proposed rate changes at RTS and Blue Mountain. JSWAB is intended to act in an advisory capacity for rates and other aspects of the regional system that affect constituents of all the JSWAB members. In addition, JSWAB members may have their own contracts and agreements beyond the ILA.
- **Waste flow**. Ecology disposal records indicate that a significant amount of wastes are being shipped directly to landfills instead of going through the County's solid waste system. For instance, there were 20,150 tons of industrial wastes shipped to the Cowlitz County Landfill in 2017 and 4,283 tons of industrial wastes were shipped to the Columbia Ridge Landfill in 2016. These wastes could legitimately be materials that shouldn't be handled through the transfer stations, but better control over waste flows could be important for the long-term financial stability of the waste disposal system in Clallam County.
- **Consistent service needs funded by variable revenues**. The Regional Solid Waste Export and Transfer System could face financial challenges due to its reliance on solid waste tipping fees for much of its funding. Waste quantities could decrease due to many factors, so the funding generated through tipping fees may also decrease. For example, one such possibility is a recession brought on by a pandemic. There is a need for a long term strategy that addresses this funding challenge.

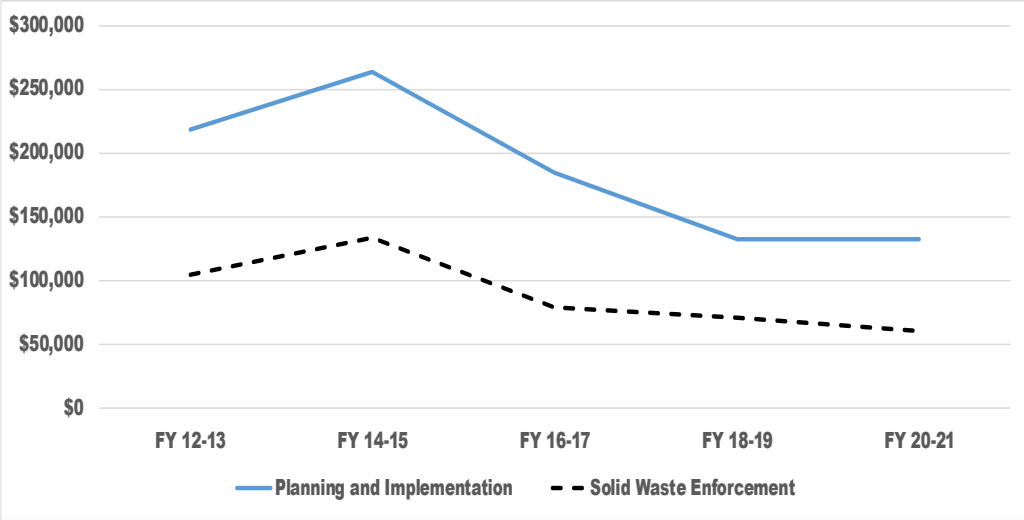
Prioritization of Essential Solid Waste Services

Chapter 70A.205 RCW gives counties and cities local authority to carry out essential solid waste services such as enforcement, planning and operations of solid waste facilities. Planning and implementation activities are conducted by the Clallam County Public Works Department, and enforcement activities are conducted by the Environmental Health Division while operations are generally executed by the City of Port Angeles through private contracts. Funds for these activities come from tipping fees generated at the transfer stations, the permit fee system, and grant funds from Ecology. Ecology grants to fund local solid waste activities have been significantly reduced over the recent years (see Figure 10-1). Regional prioritization of essential services and transparent costs of effectively supporting mandated programs is necessary to ensure that there is sufficient staff to meet the requirements for health and safety protection.

Illegal Dumping

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. The Clallam County Sheriff's Office uses jail inmate crews to clean public roadways, parks and other public access areas. This program cleans approximately 12,500 pounds of litter from 250 road miles and 40,000 pounds of debris from 20 acres of illegal dumps, recycling 600 pounds of material. These types of activities should also be considered in long term funding strategies due to the variability in state funding. A related problem is private residences that fail to satisfactorily manage garbage accumulated on their property, creating nuisance problems in some areas.

Figure 10-1
Ecology Grant Funding for Clallam County



Notes: FY = fiscal year, which for the Ecology grants is July 1 through June 30.
Source: Based on data compiled by Clallam County Health & Human Services, 2020.

Abandoned RVs—an increasing nuisance

Abandoned recreational vehicles (RVs) such as motorhomes, travel trailers and campers have become a visibly increasing problem in Clallam County and the City of Port Angeles. When abandoned on public property and roads, and if owners can't be located or are unable to pay, local governments are typically left with the disposal costs. These entities have managed costs by using inmate labor for dismantling RVs and through agreements with local salvagers that sometimes take the recyclable parts of the RV at no cost.

The Washington State Legislature recently passed an abandoned RV program run by the Department of Licensing. Costs accrued after May 2019 can be reimbursed by licensed businesses for towing, salvaging, storage, and disposal expenses of abandoned RVs, varying by RV type and length. There is no cost to make use of this program; however, the entity being reimbursed must be a private business with a registered Statewide Vendor number and not a government entity. Registration instructions and application form per WAC 308-61-215(2)(d) can be found at www.dol.wa.gov/business/vehicletransport/vtabandonedrv.html.

Currently no business in Clallam County is taking advantage of this reimbursement program. Clallam County could consider recruitment of towing and wrecking companies to reduce this cost of disposal of abandoned RVs and to increase access to this program by local businesses.

Written by Eli Owens and Meggan Uecker.

Abandoned vehicles are also an increasing issue for local governments. In 2019 there were 21 junk RVs and 119 junk vehicles disposed by the County. Tow companies will take junk cars for free for recycling; however, RVs require dismantling, often have little recyclable parts and thus incur disposal costs.

The City of Sequim, along with Waste Connections and Habitat for Humanity of Clallam County (HfHCC), sponsors a number of "Rally in the Alley" neighborhood cleanups where local residents can dispose of unwanted items at no cost. Items that can be reused are separated for donation to HfHCC. These events are conducted to prevent illegal accumulation of residential garbage within the City of Sequim.

Public Education Needs

Clallam County has a good system of public outreach through the agreement with WSU and in cooperation with other agencies. Changes that need to be addressed or that

are being proposed in the recycling system and other issues will, however, require additional outreach to successfully create behavior change. Increasingly, web-based resources such as websites provide a vital method of outreach. Active participation by all partners in the system to streamline and modernize quality outreach can increase the efficiency of public outreach efforts. The recommendations shown in the Contamination Reduction and Outreach Plan (see Appendix D) may require additional staffing and funding to implement.

Regional Opportunities

Clallam County and the Cities of Port Angeles and Sequim have worked together 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.

10.4. ALTERNATIVES FOR REGULATION AND ADMINISTRATION

The following alternatives were considered for regulation and administration. The listing of an alternative in this section does not mean that it is considered feasible, nor that it is recommended (see Section 10.5 for regulation and administration recommendations). In addition, the alternatives are not listed in order of priority.

Identify and Prioritize Funding for Essential Solid Waste Services

The available state funding for solid waste activities conducted by Clallam County, including both enforcement and planning/implementation, has been decreasing and has reached the point where it is nearly inadequate to conduct the programs required by State law and County code. Additional funding could be sought to support these activities. Possible sources of funding could include:

- Solid Waste Enterprise Fund for the Regional Solid Waste Export and Transfer System, which may require a slight increase in the tipping fee at RTS and Blue Mountain (up to $0.50 to $0.75 per ton).
- The County could impose a tax on solid waste collection services in the unincorporated areas “to fund the administration and planning expenses that may be incurred by the county in complying with the requirements of RCW 70A.205.045” (per RCW 36.58.045).
- A collection or disposal district could be used to collect fees or taxes (see below).
- Permit fees could be increased.
- Increased funding from local governments for relevant projects.
- Increased funding from state government to meet state mandates and for local programs.

Increased permit fees would have a very limited impact due to the small number of permits involved. Many of these options could be politically challenging.

Solid Waste Districts

Chapters 36.58 and 36.58A 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 export cost. This dedicated source of funds could help finance the capital, operations and maintenance costs associated with the Regional Solid Waste Export and Transfer System.

The formation of a solid waste collection district could help discourage illegal dumping by lowering the apparent cost of proper disposal. The assessment by the collection 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:

- Solid waste planning.
- Cleanup of roadside litter and solid wastes illegally disposed 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.

The ILA executed by Clallam County and the Cities of Port Angeles and Sequim stipulates that 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, operations and maintenance costs associated with the Solid Waste Export and Transfer System.

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.

JSWAB Meeting Schedule

The Joint Solid Waste Advisory Board (JSWAB) could schedule an annual meeting in the spring to review the budget for the regional solid waste system and also to review any rate changes proposed for that system. Any proposed rate changes could be accompanied by a financial analysis that clearly defines the need for higher or lower rates.

Flow Control Ordinances

Many counties in Washington State are have chosen 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 and the City of Sequim could enact a flow control ordinance as a means of ensuring adequate solid waste funding. A flow control ordinance could not be applied to materials that are legitimately being recycled, and so this approach could provide additional incentive for recycling and waste prevention activities.

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. The solid waste functions could include:

- Lead coordinator of SWAC and JSWAB activities such as the update and implementation of the Plan.
- Preparation and analysis of technical data for an annual summary of solid waste activities in Clallam County.
- Oversight of the operation of municipal waste facilities located within the county.
- Education and outreach for waste reduction.
- Coordination of solid waste activities among cities, tribes and volunteer groups.
- Apply for and manage grant funding.
- Promote recycling industries in the County.
- Maintain waste exchange and recycling databases 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.

Increased Public Education Efforts

Clallam County, the cities of Sequim and Port Angeles, and private haulers conduct public education for informing residents and businesses about existing solid and moderate risk waste programs. Changes in the solid waste system will, however, require a greater effort to both inform people about new programs and to ensure adherence to program offerings to ensure their sustainability. Furthermore, it will be important that a consistent message be sent out to all residents, whether for drop-off or curbside programs, by the County, cities, and collectors. These needs could be addressed through a subcommittee of the SWAC to communicate about consistent messages and public outreach methods. That subcommittee could include representatives of the collection operations, Clallam County and others.

Regional Partnerships

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 analysis. Additional continuity could come from a comprehensive analysis of solid waste activities documented in an annual summary of the Regional Solid Waste Export and Transfer System.

10.5 REGULATION AND ADMINISTRATION RECOMMENDATIONS

The following recommendations are being made for regulation and administration programs:

R&A1) Clallam County and the Cities of Port Angeles and Sequim shall continue to meet their respective commitments as specified in the ILA for the Regional Solid Waste Export and Transfer System.

R&A2) Clallam County will investigate the benefits and drawbacks of adopting a flow control ordinance.

R&A3) ILA signatories will prioritize essential services including associated staff and identify stable funding to support essential services.

R&A4) The signatories to the ILA for the regional system will investigate the benefits and drawbacks of creating a solid waste disposal district in Clallam County.

R&A5) Appropriate measures will be taken by the signatories to the ILA for the regional system to ensure (sufficient funding needed to repair, maintain, and replace) solid waste infrastructure in order to meet operational needs, regulatory requirements, and public demand for services now and into the future.

R&A6) Clallam County will take appropriate measures to ensure sufficient funding needed to continue education and outreach.

R&A7) Clallam County will continue to seek grant funding, as appropriate, to support waste prevention and diversion programs and illegal dumping activities.

R&A8) Clallam County should recruit participants for the state-funded abandoned RV program for a public/private partnership to address the problem of abandoned RVs.

Table 11-1 identifies the responsible implementing agency and the preliminary implementation schedule for each of these recommendations.

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CHAPTER 11

IMPLEMENTATION CHAPTER

11.1. INTRODUCTION

This chapter lists all of the recommendations from previous chapters and presents a plan to implement the recommendations. These recommendations are intended to guide decision-making activities for Clallam County for the next six years, while also providing direction for the next 20 years. Implementation of individual program elements will be accomplished through annual budgets, workplans and contracts.

11.2. SOLID WASTE COLLECTION RECOMMENDATIONS

The following recommendations are being made for solid waste collection programs (see Chapter 3 for more details):

WC1) Consider a service level ordinance for Clallam County that requires that curbside recycling services be provided for garbage collection customers.

WC2) Clallam County should further investigate the impacts of instituting universal collection service throughout the county.

WC3) All residential and commercial garbage containers should be labeled to list unacceptable materials.

11.3. WASTE TRANSFER RECOMMENDATIONS

The following recommendations are being made for waste transfer programs (see Chapter 4 for more details):

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.

T2) Should access or capacity become an issue at the Blue Mountain Transfer Station, consider extending the hours of operation and/or adding additional drop boxes.

T3) Should illegal disposal or access to transfer/drop box facilities become an issue, consider siting an additional drop box facility.

T4) Study the possibility of placing additional containers at all transfer and drop box sites to collect source-separated yard wastes and to divert additional recyclable materials.

T5) Obtain funding for a waste characterization study at Regional Transfer Station. 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.).

T6) 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.

T7) Parties to the ILA (together) should study regional system needs in light of an increasing population in the east end of the County and the monetary cost plus carbon emissions of hauling increasing volumes between the east end and the RTS in western PA.

11.4. DISPOSAL RECOMMENDATIONS

The following recommendations are being made for disposal programs (see Chapter 5 for more details):

LF1) Support remediation activities at the Neah Bay Landfill.

LF2) Consider proposals and options to develop limited purpose landfills, such as wood waste landfills, as they are proposed.

LF3) Explore the possibility of the final closure of the Lake Creek landfill.

WE1) Beginning in 2023, the process should begin to prepare for a new waste export and disposal contract for RTS.

WE2) Encourage West Waste to continue their waste export activities and to possibly expand these activities as needed to serve additional west end customers.

WE3) Contracts for waste export services should identify alternative disposal plans, including alternative routes and modes of transportation, in case a natural disaster or other conditions require re-routing of waste shipments.

WE4) Any regional solid waste landfill used for Clallam County waste must meet or exceed all Minimum Functional Standards requirements.

WD1) Evaluate future proposals for disposal facilities, anaerobic digestion, incinerators and other waste conversion technologies on a case-by-case basis for consistency with this plan and according to other criteria appropriate to the proposed system.

11.5. WASTE REDUCTION RECOMMENDATIONS

The following recommendations are being made for waste reduction programs (see Chapter 6 for more details):

WR1) Continue to promote waste reduction activities.

WR2) Continue to encourage safer substitutes for toxic products.

WR3) Conduct public education about how to avoid wasting food.

WR4) Develop promotional materials for reuse options for clothing and household goods.

WR5) Promote reuse of construction materials.

WR6) Conduct more promotion of on-site composting.

WR7) Pursue grants and investments in infrastructure and programs that would allow for increased food recovery.

WR8) Support reuse events organized and implemented by others.

WR9) Support State legislation on product bans, repair opportunities and similar programs, as appropriate.

WR10) Investigate the potential for a broader ban on retail plastic packaging.

11.6. RECYCLING RECOMMENDATIONS

The following recommendations are being made for recycling programs (see Chapter 7 for more details):

R1) The SWAC recommends adopting a 75% recovery goal by 2025. Increased recycling should emphasize quality over quantity, and should target materials with domestic markets to the extent possible.

R2) Continue public education efforts and share the responsibility for this with the cities, Tribal Councils, and private sector as appropriate.

R3) 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.

R4) 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.

R5) Explore options of expanding curbside service in the County.

R6) A subcommittee of the SWAC will work with Clallam County to identify barriers for commercial recycling and develop strategies to increase it countywide.

R7) Provide support for product stewardship and market development proposals as appropriate and consistent with the goals of this plan.

11.7. RECOMMENDATIONS FOR ORGANICS

The following recommendations are being made for organics programs (see Chapter 8 for more details):

O1) The goal for Clallam County is to reduce the organics in the waste stream to below 10% by weight by the end of 2025.

O2) Continue curbside collection, processing, and composting yard waste at the Port Angeles Compost Facility, and increase the amount of materials processed to the extent of the facility's capacity.

O3) Work to eliminate illegal dumping and burning of yard waste and consider separate collection of yard waste in the county.

O4) Continue to develop end uses such as mulch, hog fuel, and compost, and other uses that may also be identified. The County and cities should lead by example by maximizing the use of these products in their own projects.

O5) Investigate economical and efficient options for handling residential, commercial and institutional food waste.

O6) Encourage large commercial generators to divert food waste to processing facilities.

O7) Continue public education to encourage residents to handle their yard waste and food wastes separately through strategies such as home composting and use of mulching mowers.

O8) Continue working with WSU Extension to offer the Master Composter & Recycler Program in Clallam County and other outreach programs.

O9) Explore the possibility of recovering additional amounts of wood waste through composting or hog fuel.

O10) Consider proposals for alternative methods for managing wood waste, such as biogas to energy, on a case by case basis.

11.8. RECOMMENDATIONS FOR MISCELLANEOUS SOLID WASTES

The following recommendations are being made for miscellaneous solid wastes (see Chapter 9 for more details):

Recommendation for Agricultural Wastes

MW1) The Clallam County 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.

MW2) 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 should be encouraged if appropriate.

Recommendation for Animal Carcasses

MW3) Monitor aquaculture industries for waste management issues.

MW4) Continue communications with the Humane Society, veterinarians and those disposing of animal carcasses.

MW5) Review the solid waste system's role in emergency animal disposal.

MW6) The possibility of providing game meat to food banks should be examined.

Recommendation for Biomedical Wastes

MW7) Monitor disposal of biomedical wastes by small waste generators for potential problems or risks.

MW8) Support product stewardship legislation for sharps.

MW9) Provide more promotion and funding for Syringe Exchange Program.

Recommendations for Construction and Demolition Wastes

MW10) Promote existing opportunities for recycling of construction and demolition wastes as part of the public education efforts conducted for waste reduction and recycling.

MW11) Explore regional solutions for specific construction and demolition materials.

Recommendations for Marine Debris and Derelict Vessels

MW12) 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.

11.9. REGULATION AND ADMINISTRATION RECOMMENDATIONS

The following recommendations are being made for regulation and administration programs (see Chapter 10 for more details):

R&A1) Clallam County and the Cities of Port Angeles and Sequim shall continue to meet their respective commitments as specified in the ILA for the Regional Solid Waste Export and Transfer System.

R&A2) Clallam County will investigate the benefits and drawbacks of adopting a flow control ordinance.

R&A3) ILA signatories will prioritize essential services including associated staff and identify stable funding to support essential services.

R&A4) The signatories to the ILA for the regional system will investigate the benefits and drawbacks of creating a solid waste disposal district in Clallam County.

R&A5) Appropriate measures will be taken by the signatories to the ILA for the regional system to ensure (sufficient funding needed to repair, maintain, and replace) solid waste infrastructure in order to meet operational needs, regulatory requirements, and public demand for services now and into the future.

R&A6) Clallam County will take appropriate measures to ensure sufficient funding needed to continue education and outreach.

R&A7) Clallam County will continue to seek grant funding, as appropriate, to support waste prevention and diversion programs and illegal dumping activities.

11.10. RECOMMENDATIONS FROM THE CROP PLAN

The following recommendations are from the Contamination Reduction Outreach Plan (see Appendix D for more details):

Education and Outreach Actions for All Programs:

CROP1) Utilize consistent, clear, and harmonized messaging throughout the county, and coordinate with State efforts.

CROP2) Coordinate effective outreach programs with public and private regional entities. Provide adequate information to all entities using the regional recycling system (single-family, commercial, multi-family and drop box customers).

CROP3) Conduct direct mailings to all customers in the solid waste area including how, where and why to recycle.

CROP4) Update city, county, hauler, and WSU program websites to reflect all changes to recycling lists or collection methods. Periodically review the list of acceptable materials with collection and processing companies to keep outreach up to date.

- Include educational elements to clarify what should and should not be recycled. For clarity and overcoming language barriers, use pictures and graphics (green check for acceptable, red x for unacceptable, etc.) in addition to text. Address all types of recycling (commercial, drop box, etc.)
- Provide links to the most applicable education and outreach materials on other websites.

CROP5) Pursue opportunities for direct outreach including:

- Providing info via realtors/service providers or other existing newsletters or media channels.
- Working with property managers, maintenance staff, and residents on targeted outreach.
- Organize and staff an interactive educational booth at diverse community events.
- Collaborate with community leaders to engage the community on recycling issues.
- Promote social media pages and partner with organizations and community influencers to utilize their social media base and extend the reach of posts.
- Develop marketing and outreach materials using pictures and short videos to show recyclable and non-recyclable materials. Implement a multi-media (TV, radio, online and print ads, outdoor signage, etc.) campaign to reach target audiences and create a “brand” that normalizes proper recycling behaviors.

CROP6) Garbage and recycling containers should be sized appropriately. If garbage containers are under-sized, recycling containers will become the overflow container for garbage.

CROP7) Garbage containers need to be at least as convenient as recycling.

CROP8) Measure the amount of contamination quantitatively, and determine the major contaminants. A typical route should be examined for collections done in Port Angeles, Sequim, the unincorporated areas, commercial and drop box collections.

CROP9) Recycling service should be discontinued for households, apartment buildings or businesses that are repeat offenders on excessive contamination.

Single-Family Programs:

CROP10) Use cart tagging to give residential customers direct feedback on their recycling practices by identifying their bin contents. At a minimum, this should be done for the most contaminated route(s).

CROP11) Use targeted route mailers for the routes with higher levels of contamination. This and other educational pieces should highlight the top 5 to 10 contaminants.

CROP12) Use standardized colors for recycling and garbage containers. All programs in the County should use blue carts for recycling, grey or black carts for garbage and green carts for yard waste.

CROP13) All contracts for recycling services in Clallam County should require haulers to provide the right color of carts with labels, and to provide up-to-date websites with clear and comprehensive information about recycling and garbage options and rates regionally.

Multi-Family Programs:

CROP14) Take inventory of all multi-family properties. Engage property owners to reduce contamination with strategies including:

- Providing hauler service and pricing reviews.
- Assisting with tenant outreach on websites, newsletters, etc. with property managers to assess larger scale and shared problems or concerns.
- Attending multi-family community events to provide information and engage tenants.
- Support a Property Recycling Champion, who can help provide multi-family residents with a special bag or container, with instructions shown on that, to assist carrying their recyclables to a central container.

CROP15) Garbage containers should always be paired with recycling containers, so that each are about equally accessible and convenient.

CROP16) The service provider should inspect containers of recyclables for apartment buildings that are known to have issues and leave behind those that are excessively contaminated (to be collected and charged as garbage later).

Commercial Programs:

CROP17) Provide specific commercial outreach including:

- Walkthroughs for businesses to address their specific needs and identify available services.
- Include all haulers of key commercial recyclables on outreach materials.

- Work with service providers on outreach materials and provide appropriate indoor and outdoor signage to businesses. Encourage signage in common areas such as break or lunch rooms.
- Advise businesses to add links to recycling information on their websites.
- Reach out to commercial property managers to reach many commercial accounts at once.
- Work with service providers to provide outreach and assistance to commercial recycling customers.

CROP18) Work with business organizations such as a Chamber of Commerce to engage the business community. Provide presentations or informational booths at their business-related gatherings or a recognition program for businesses that are doing a good job of recycling.

- Provide resources and assistance to businesses about starting a Green Team or appointing a Recycling Champion.
- Encourage businesses or commercial property owners to request a service and pricing review with their hauler.

CROP19) The service provider should inspect containers of recyclables for businesses that are known to have issues and leave behind those that are excessively contaminated (to be collected and charged as garbage later).

CROP20) If commercial and residential recycling programs are similar enough, combine the education and promotion efforts.

CROP21) The same colors should be used for commercial as for residential for garbage containers (black or grey), recycling (blue), and organics (green).

CROP22) Garbage containers should always be paired with recycling containers, so that each are about equally accessible and convenient.

Drop Box Programs:

CROP23) Provide staff or volunteers to assist residents and provide education at dropbox locations.

CROP24) Review signage to ensure that it is clear and consistent with program guidelines. Change signs as necessary to make signage is clear and preferably use both pictures and text. Ensure signage is always present on drop boxes or a non-movable place. Use signage with actual objects stuck to them.

Actions that Can be Taken with or by Others:

CROP25) Clallam County should continue working with Jefferson County to explore possibilities for:

- Shared costs for equipment, transportation, education and outreach, operating costs, and capital for facilities.
- Cooperative marketing possibilities that could increase revenues.
- Regional economic stimulus from new collection and processing jobs.

CROP26) Ecology should conduct a recycling characterization study as soon as possible.

CROP27) The Washington Utilities and Transportation Commission (UTC), which has oversight responsibilities for the waste collection companies that operate in unincorporated and non-contract cities, should require waste collection companies to provide websites with current and comprehensive information on rates and services for garbage, recycling and yard waste. This may require a change to State law or rules, although possibly could be accomplished by a revision to WAC 480-70-361.

11.11. IMPLEMENTATION DETAILS

Table 11-1 provides a summary of the proposed recommendations, including responsible parties, schedule, costs, and funding sources. It should be noted that the recommendations have been abbreviated to fit better into this table, and that only new or additional expenses are shown.

11.12. FUNDING STRATEGY

The recommended programs will be funded through garbage rates, tipping fees, other user fees and State grants. A summary of the funding sources for the recommended programs is shown in Table 11-2. Specific costs for each recommendation will be further refined through annual budgets and workplans. In all cases, the implementation of specific recommendations is contingent on the availability of funding.

As indicated in Table 11-2, garbage rates will be used to fund solid waste collection, curbside recycling and commercial recycling programs. Tipping fees will be the primary source of funds for waste reduction, transfer, disposal, administration, education and some of the recycling programs. Special user fees will fund some of the recycling and miscellaneous solid waste programs. The Local Solid Waste Financial Assistance (LSWFA) program will be used primarily for education, with additional funds contributed from tipping fees.

Table 11-1. Implementation Summary for Recommendations			
Recommendation	**Lead Agency**	**Schedule**	**Cost**
Chapter 3, Solid Waste Collection			
WC1) Consider a service level ordinance that requires curbside recycling for garbage collection customers.	County	By 2024	Staff time
WC2) Clallam County should investigate universal collection service.	County	By 2024	Staff time
WC3) All garbage containers should be labeled to list unacceptable materials.	Haulers, PA	By 2023	$80,000
Chapter 4, Waste Transfer			
T1) The Clallam County SWAC, JSWAB, and other governmental agencies should continue to work together to develop plans and programs.	County, PA	Ongoing	Staff time
T2) Consider extending hours and/or adding additional drop boxes if access or capacity become an issue at Blue Mountain.	County, PA	Ongoing	Staff time
T3) Consider siting a drop box facility if illegal disposal or access is an issue.	County, PA	Ongoing	Staff time
T4) Study placing containers at all transfer and drop box sites to collect source-separated yard wastes and additional recyclable materials.	County, PA	Ongoing	Staff time
T5) Obtain funding for a waste characterization study at RTS.	County	Ongoing	$0 (grant)
T6) Consider user fees at transfer and drop box facilities for recyclables.	County, PA	Ongoing	Staff time
T7) Study the need for a new facility on the east end.	JSWAB	2022	$50,000
Chapter 5, Disposal			
LF1) Support remediation activities at the Neah Bay Landfill.	All	Ongoing	Staff time
LF2) Consider proposals and options to develop limited purpose landfills.	County	Ongoing	Staff time
LF3) Explore the possibility of the final closure of the Lake Creek landfill.	County	2022-2024	Staff time
WE1) Beginning in 2023, the process should begin to prepare for a new waste export and disposal contract for RTS.	PA	By 2023	Staff time
WE2) Encourage West Waste to continue waste export and possibly expand.	County	Ongoing	Staff time
WE3) Contracts for waste export services should identify alternative disposal plans and routes.	PA	By 2025	Staff time
WE4) Any regional solid waste landfill used for Clallam County waste must meet or exceed all Minimum Functional Standards requirements.	PA	By 2025	Staff time
WD1) Evaluate future proposals for disposal facilities, anaerobic digestion, incinerators and waste conversion on a case-by-case basis.	County, SWAC	Ongoing	Staff time

Notes: Recommendations have been abbreviated to fit into this table. County = Clallam County (primarily the Public Works Department but depending on the recommendation, possibly including the Health and Human Services Department and contractors such as WSU); Haulers = Waste Connections and West Waste; SWAC = Solid Waste Advisory Committee; PA = City of Port Angeles.
Staff time = existing staff time plus minimal additional expenses.

Table 11-1. Implementation Summary for Recommendations, continued			
Recommendation	**Lead Agency**	**Schedule**	**Cost**
Chapter 6, Waste Reduction			
WR1) Continue to promote waste reduction activities.	County, WSU	Ongoing	Existing
WR2) Continue to encourage safer substitutes for toxic products.	County, WSU	Ongoing	Existing
WR3) Conduct public education about how to avoid wasting food.	County, WSU	Start 2021	$20,000
WR4) Develop promotional materials for clothing and household goods reuse options.	County	Ongoing	Existing
WR5) Promote reuse of construction materials.	County	2021	$5,000
WR6) Conduct more promotion of on-site composting.	County, WSU	Ongoing	$5,000
WR7) Pursue grants and investments to increase food recovery.	County	Ongoing	Staff time
WR8) Support reuse events organized and implemented by others.	County	Ongoing	Staff time
WR9) Support State legislation on product bans, repair opportunities and similar programs, as appropriate.	County	Ongoing	Staff time
WR10) Investigate the potential for a broader ban on plastic packaging.	County, SWAC	Ongoing	Staff time
Chapter 7, Recycling			
R1) The SWAC recommends adopting a 75% recovery goal by 2025.	County	By 2025	Staff time
R2) Continue public education efforts.	All	Ongoing	Existing
R3) Monitor and consider any proposals for the processing of recyclables.	County	Ongoing	Staff time
R4) Companies and agencies collecting or processing recyclables should be encouraged to file reports to Ecology.	All	Ongoing	Staff time
R5) Explore options of expanding curbside service in the County.	County	Ongoing	Staff time
R6) A SWAC subcommittee will help identify barriers for commercial recycling and develop strategies to increase it countywide.	County, SWAC	By 2022	Staff time
R7) Support product stewardship and market development proposals.	County	Ongoing	Staff time
Chapter 8, Organics			
O1) The goal for organics is to reduce it below 10% by the end of 2025.	County	By 2025	Staff time
O2) Continue collecting and processing at the Compost Facility, and increase the amount processed as allowed by the facility's capacity.	PA	Ongoing	Existing
O3) Work to eliminate illegal dumping and burning of yard waste and consider separate collection of yard waste in the county.	County	Ongoing	Existing
O4) Continue to develop end uses, County and cities should lead by example.	County, cities	Ongoing	Staff time

Notes: Recommendations have been abbreviated to fit into this table. County = Clallam County (primarily the Public Works Department but depending on the recommendation, possibly including the Health and Human Services Department and contractors such as WSU); WSU = Washington State University Extension; SWAC = Solid Waste Advisory Committee; PA = City of Port Angeles; Cities = all three cities. Staff time = existing staff time plus minimal additional expenses.

Table 11-1. Implementation Summary for Recommendations, continued			
Recommendation	**Lead Agency**	**Schedule**	**Cost**
Chapter 8, Organics, continued			
O5) Investigate options for food waste.	County	Ongoing	Staff time
O6) Encourage large commercial generators to divert food waste.	County	Ongoing	Staff time
O7) Continue public education for yard waste and food wastes.	All	Ongoing	Existing
O8) Continue working with WSU Extension for outreach programs.	County	Ongoing	Existing
O9) Explore additional recovery of wood waste.	County	By 2022	Staff time
O10) Consider proposals for alternative methods for wood waste.	County	Ongoing	Staff time
Chapter 9, Miscellaneous Solid Wastes			
MW1) Clallam Conservation District and NRCS should continue to work with producers on Best Management Practices for agricultural waste.	CCCD, NRCS	Ongoing	Existing
MW2) Proposals for processing agricultural wastes should be encouraged.	County	Ongoing	Staff time
MW3) Monitor aquaculture industries for waste management issues.	County	Ongoing	Staff time
MW4) Continue communications with the Humane Society, veterinarians and those disposing of animal carcasses.	County	Ongoing	Staff time
MW5) Review the solid waste system's role in emergency animal disposal.	County	By 2022	Staff time
MW6) Examine possibility of providing game meat to food banks.	County	By 2023	Staff time
MW7) Monitor disposal of biomedical wastes by small waste generators.	Health	Ongoing	Staff time
MW8) Support product stewardship legislation for sharps.	County	Ongoing	Staff time
MW9) Provide more promotion and funding for Syringe Exchange Program.	Health	By 2022	$5,000
MW10) Promote existing opportunities for recycling of construction and demolition wastes.	County	Ongoing	Staff time
MW11) Explore regional solutions for specific construction and demolition materials.	County	By 2023	Staff time
MW12) Continue outreach and education on marine debris.	County, others	Ongoing	Existing
Chapter 10, Regulation and Administration			
R&A1) Clallam County, Port Angeles and Sequim shall continue to meet their respective commitments as specified in the ILA.	County, PA, Sequim	Ongoing	Existing
R&A2) Clallam County will investigate adopting a flow control ordinance.	County	By 2024	Staff time
R&A3) ILA signatories will prioritize essential services.	County, PA, Sequim	Ongoing	Existing

Notes: Recommendations have been abbreviated to fit into this table. County = Clallam County (primarily the Public Works Department but depending on the recommendation, possibly including the Health and Human Services Department and contractors such as WSU); CCCD = Clallam County Conservation District; NRCS = Natural Resources Conservation Service; Health = Clallam County Health and Human Services; PA = City of Port Angeles.
Staff time = existing staff time plus minimal additional expenses.

Table 11-1. Implementation Summary for Recommendations, continued			
Recommendation	**Lead Agency**	**Schedule**	**Cost**
Chapter 10, Regulation and Administration, continued			
R&A4) The signatories to the ILA for the regional system will investigate creating a solid waste disposal district.	County, PA, Sequim	By 2024	Staff time
R&A5) Appropriate measures will be taken by the signatories to the ILA for the regional system to ensure (sufficient funding.	County, PA, Sequim	Ongoing	Existing
R&A6) Clallam County will take appropriate measures to ensure sufficient funding needed to continue education and outreach.	County	Ongoing	Existing
R&A7) The County will continue to seek grants for prevention, diversion and illegal dumping.	County	Ongoing	Existing
R&A8) The County should recruit participants for state-funded abandoned RV program.	County	Begin 2021	Existing
Appendix B, Clallam County Hazardous Waste Management Plan	See Appendix B for the implementation plan for the Hazardous Waste Management Plan.		
Appendix D, Contamination Reduction and Outreach Plan	See Appendix D for the implementation plan for the CROP Plan.		

Notes: Recommendations have been abbreviated to fit into this table. County = Clallam County (primarily the Public Works Department but depending on the recommendation, possibly including the Health and Human Services Department and contractors such as WSU); PA = City of Port Angeles.
Staff time = existing staff time plus minimal additional expenses.

Table 11-2. Funding Strategies for Existing and Recommended Programs

Program or Activity	Garbage Rates	Tipping Fees	Special User Fees	Grants	Other Funding as Available
Solid Waste Collection	X				
Transfer and Disposal		X			
Waste Reduction		X		X	X
Recycling and Organics	X	X	X	X	X
Miscellaneous Solid Wastes		X	X	X	X
Administration and Education		X		X	
Hazardous Wastes	X	X	X	X	X
CROP Plan	X	X		X	X

11.13. SIX-YEAR CONSTRUCTION AND CAPITAL ACQUISITION PLAN

State law (RCW 70A.205.075) requires that solid waste plans include a construction and capital acquisition program for six years into the future. This requirement is generally interpreted to apply only to public facilities, since a solid waste plan cannot dictate construction schedules and capital acquisitions by private companies (except in limited cases pursuant to contracts and other agreements).

No significant construction or capital acquisition expenses are required by this plan, although four recommendations are being made that could lead to significant capital expenditures at a later date. These include:

- Recommendation T3 (should illegal disposal or access to transfer/drop box facilities become an issue, consider siting an additional drop box facility),
- Recommendation T4 (study the possibility of placing additional containers at all transfer and drop box sites to collect source-separated yard wastes and to divert additional recyclable materials),
- Recommendation T7) (parties to the ILA (together) should study regional system needs in light of an increasing population in the east end of the County and the monetary cost plus carbon emissions of hauling increasing volumes between the east end and the RTS in western PA), and
- Recommendation O5 (investigate options for food waste).

The capital expenditures associated with these recommendations, if any, will be determined at a later date and may occur outside of the six-year period. Additional details about capital

improvements at certain Clallam County facilities can be found in the City of Port Angeles Capital Facilities Plan, which is updated annually.

11.14. TWENTY-YEAR IMPLEMENTATION SCHEDULE

It is anticipated that the programs and facilities in Clallam County will generally be able to stay on the course established by this plan for the next twenty years. The waste stream for the County is not expected to increase by so much (see Table 2-8) as to create capacity issues for the collection and disposal system. Hence, the twenty-year implementation strategy is much the same as the implementation details shown in this chapter. Changes will continue to occur, however, in the local, statewide and national solid waste arena, and should any of these changes require an amendment or revision to this plan, then the steps described in Section 1.7 can be taken to address those.

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GLOSSARY

The following definitions are provided for terms used in this plan:

Anaerobic digester: a vessel that processes organic material through microbial decomposition under anaerobic (low oxygen) conditions.

Agricultural wastes: wastes from farms resulting from the raising or growing of plants and animals including, but not limited to, crop residue, livestock manure, animal bedding, and carcasses of dead animals.

Beneficial use: according to Chapter 173-350 WAC, includes the use of solid waste as an effective substitute for natural or commercial products, or as a soil amendment, in a manner that does not pose a threat to human health or the environment and when approved in accordance with Chapters 173-350-200 or 173-350-230 WAC. The use of solid waste as fill, or avoidance of processing or disposal cost alone, does not constitute beneficial use.

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

Biosolids: includes sludge from the treatment of sewage at a wastewater treatment plant and semisolid waste pumped from a septic system ("septage") that have been treated to meet standards for beneficial use (see Chapter 173-308 WAC for more details).

BMP: best management practice.

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

CCEH: the Clallam County Environmental Health Department.

C&D: construction, demolition, and land-clearing waste.

CDL: alternative term for C&D.

Cogeneration: the generation of electricity and other energy jointly, especially the utilization of the steam left over from electricity generation to produce heat.

Commercial solid waste: solid waste generated by non-industrial businesses. This includes waste from business activities such as construction; transportation, communications and utilities; wholesale trades; retail trades; finance, insurance and real estate; other services; and government.

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

Composting: the controlled biological decomposition of organic wastes to produce a humus-like final product that can be used as a soil amendment. In this plan, backyard composting means a small-scale activity performed by homeowners on their own property using yard debris that they generate.

Curbside recycling: the act of collecting recyclable materials from residential generators, usually after the materials have been placed in a cart at the curb.

Dangerous wastes: solid wastes designated as dangerous by Ecology under the dangerous waste regulations (Chapter 17-303 WAC).

Diverted materials: materials diverted from disposal to a broad range of other uses, including recycling, composting, energy recovery and reuse.

Ecology: the Washington Department of Ecology.

E-waste: electronic waste. As defined under Chapter 173-900 WAC, e-waste includes computers, monitors, laptops, tablet computers, televisions, portable DVD players and e-readers (these are sometimes collectively referred to as "covered units").

Encourage: in the context of the recommendations in this plan, means to allow and/or promote an activity or program.

Enterprise fund: a self-supporting fund designed to pay for expenses using fees for services and other sources of funds appropriate to the activity.

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

EPPP: environmentally preferred packaging policy.

Ferrous metals: materials that are predominantly (over 75% by weight) made of iron. Includes cans and various iron and steel alloys that contain enough iron such that magnets adhere to them, but for recycling this generally does not include paint cans or other containers that may contain hazardous residues.

Food waste: waste from fruits, vegetables, meats, dairy products, fish, shellfish, nuts, seeds, grains, and similar materials that results from the storage, preparation, cooking, handling, selling, or serving of food for human consumption. Includes, but is not limited to, excess, spoiled, or unusable food and includes inedible parts commonly associated with food preparation such as pits, shells, bones, and peels. Does not include dead animals not intended for human consumption or animal excrement (from RCW 70A.205.715).

Flow control: a term that refers to the authority to direct solid wastes to specific facilities.

Garbage: an alternative term for solid waste.

Grasscycling: leaving grass clippings on the lawn rather than collecting them to provide nutrients and reduce the need for fertilizer.

Greenwashing: also called "green sheen", is a form of marketing spin in which green PR and green marketing are deceptively used to persuade the public that an organization's products, aims and policies are environmentally friendly and therefore 'better' (from Wikipedia).

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

Gypsum: as used for Ecology's annual recycling report, generally refers to drywall (sheetrock).

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

HHW: household hazardous wastes.

Hog fuel: woody materials that have been ground to a smaller size for use as a fuel, generally at paper mills or other large industrial facilities.

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

ILA: interlocal agreement, a formal agreement between two or more public agencies to work cooperatively (see also RCW 70A.205.040 and RCW 39.34.030).

Incineration: means a process of reducing the volume of solid wastes operating under federal and state environmental laws and regulations by use of an enclosed device using controlled flame combustion.

Industrial waste: solid waste generated by manufacturing companies. Does not include hazardous wastes generated by these industries.

Investigate: in the context of the recommendations in this plan, means to research an idea or activity in order to evaluate its applicability to local needs or programs.

JSWAB: the Joint Solid Waste Advisory Board.

LSWFA: Local Solid Waste Financial Assistance, a program administered by the Washington State Department of Ecology to provide financial assistance to counties and others for solid and hazardous waste planning, implementation and enforcement.

LFG: landfill gas.

Mixed paper: other types of recyclable paper not including newspaper and cardboard. Includes materials such as "junk mail," magazines, books, paperboard (non-corrugated cardboard), and colored printing and writing papers.

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

MRW: moderate risk wastes.

MSW: municipal solid wastes.

MTCA: the Model Toxics Control Act.

Mulching: 1) leaving grass clippings on the lawn when mowing (also called "grasscycling" in this plan); 2) placing yard debris, compost, wood chips or other materials on the ground in gardens or around trees and shrubs to discourage weeds and retain moisture.

Municipal solid waste (MSW): includes typical garbage and recyclables generated by households, businesses, and institutions. According to State rules (Chapter 173-350 WAC), MSW does not include dangerous wastes (see Chapter 173-303 WAC), contaminated soils and other debris resulting from a cleanup conducted under federal rules, and source-separated recyclable materials.

Non-ferrous metals: materials predominantly made of copper, lead, brass, tin, aluminum, and other metals except iron.

NOAA: the National Oceanic & Atmospheric Association.

NRCS: the National Resource Conservation Service.

NWCAA: the Northwest Clean Air Agency; an agency with regulatory and enforcement authority for air pollution issues in Island, San Juan, Skagit and Whatcom Counties.

OFM: the Washington State Office of Financial Management.

ORCAA: the Olympic Region Clean Air Agency.

Organics: used in this plan to refer to potentially compostable materials such as yard waste and food waste.

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

Post-closure: refers to those actions taken by an owner of a landfill, or the period of time for those actions, after the closure of that landfill and until the landfill is determined to be functionally stable.

Promote: in the context of the recommendations in this plan, means to actively encourage an activity or program through verbal and/or written means.

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

Public information: educational materials for the public, including brochures, videos, and public service announcements.

Putrescible: material capable of being readily decomposed by microorganisms and which is likely to produce offensive odors.

Pyrolysis: the process of breaking waste down thermally in the absence of air, producing oil and synthetic gas that can be burned in gas turbines or gas engines to generate electricity.

RCRA: Resource Conservation and Recovery Act.

RCW: Revised Code of Washington.

Recycling: the act of transforming or remanufacturing wastes into usable or marketable materials for use other than landfilling or incineration.

Recycling rate: the percentage of materials that are recycled and composted, as a percent of all wastes (recycled, recovered, and disposed).

Recovery: a broader term that includes recycling of both MSW and non-MSW materials, as well as composting and other types of organics processing.

Recovery rate: the percentage of materials that are recovered, as a percent of all wastes (recycled, recovered, and disposed).

Refuse: an alternative term for solid waste.

Rendering: the process of converting meat and other animal wastes into usable materials, such as purified fats (lard or tallow), proteins and bone meal.

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

SEPA: State Environmental Policy Act.

Septage: a semi-liquid waste consisting of settled sewage solids combined with varying amounts of water and dissolved materials. Can include wastes removed from septic tanks, cesspools, portable toilets, type III marine sanitation devices, vault toilets, pit toilets, RV holding tanks, or similar systems.

Sewage sludge: the concentrated solids derived from the treatment of sewage at a municipal wastewater treatment plant (see also "biosolids").

Sharps: in this plan, refers to used needles (syringes) and similar items.

Small-quantity generator (SQG): a non-residential generator of small quantities of hazardous wastes that is exempt from the full regulations for hazardous wastes as long as the wastes are handled properly.

Solid waste: includes "all putrescible and nonputrescible solid and semisolid wastes including, but not limited to, garbage, rubbish, ashes, industrial wastes, swill, sewage sludge, demolition and construction wastes, abandoned vehicles or parts thereof, and recyclable materials" (from Clallam County Code 41.10.040 - Solid Waste Regulations).

In the context of services, "solid waste" is generally not meant to include recycling and other waste diversion activities.

Solid Waste Advisory Committee (SWAC): a group assisting Clallam County with the development of this solid and moderate risk waste management plan, composed of representatives from the general public, private industry, and the cities.

Source-separated: recyclable materials that have been kept separate from garbage or other forms of solid waste by the waste generator. In Clallam County, this term generally means keeping different types of recyclable materials separate from each other (see also "commingled").

Special wastes: wastes that have particular characteristics such that they present special handling and/or disposal problems, and so may be handled separately from the Clallam County waste disposal system.

SQG: see small quantity generator.

Support: in the context of the recommendations in this plan, means to actively encourage, through verbal and/or written means, an activity or program for which another person or agency is taking the lead. Generally does not include direct financial contributions.

Sustainable: meeting the needs of the present without compromising the ability of future generations to meet their needs.

SWAC: see Solid Waste Advisory Committee.

Tipping fee: the rate charged by transfer and disposal facilities, generally based on a per-ton basis.

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

UGA: Urban Growth Area, see Clallam County Comprehensive Plan for more details.

UTC: Washington Utilities and Transportation Commission, which is a State agency responsible for oversight of private utility and transportation services, including electric, natural gas, telecommunications, and water utilities; household movers, solid waste carriers, private ferries, and inter-city busses; and safety issues affecting charter buses, railroads, limousines, and nonprofit senior/handicapped transportation services.

Vermicomposting: the controlled and managed process by which live worms convert organic residues into dark, fertile, granular excrement.

WAC: Washington Administrative Code.

Waste: see solid waste.

Waste diversion: includes waste reduction, recycling and diversion of organics through composting and other means.

Waste prevention: reducing the amount or type of solid waste that is generated.

Waste reduction: reducing the amount or type of solid waste that is generated. Also defined by state rules to include reducing the toxicity of wastes. Waste reduction is the highest priority waste management approach due to the economic and environmental benefits associated with it.

Wasted food: refers to the edible portion of food waste (from RCW 70A.205.715).

White goods: term used to refer to large appliances, such as refrigerators, stoves, dishwashers, water heaters and similar consumer products.

Wishful recycling: the act of throwing an unacceptable item into a recycling cart in the hopes that it will get recycled.

WSU: Washington State University.

Yard waste: includes leaves, grass clippings, brush and branches.

See also Clallam County Code 41.10.040 and WAC 173-350-100 for additional definitions related to solid waste management. In the case of any inconsistencies, Clallam County Code, city codes, and State law will take precedence over the above definitions.

APPENDIX C

DISPOSAL FACILITY SITING FACTORS

INTRODUCTION

This Clallam County Solid Waste Management Plan (this "Plan") is required to contain the following information to provide guidance for siting new solid waste disposal facilities (per RCW 70A.205.045 (9) and RCW 70A.205.110). This requirement refers specifically to disposal facilities (landfills and incinerators).

DESCRIPTION OF THE PLANNING AREA

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.

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.

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.

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; in Clallam County the average annual rainfall varies from 16 inches in Sequim (in the eastern part of the county) to 130 inches in the 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 parts of the county.

A recent study on how climate change will impact the Olympic Peninsula (*Climate Change Preparedness Plan for the North Olympic Peninsula*) predicts increased temperatures (for air and rivers), diminishing snowpack in the mountains, changing precipitation patterns and other impacts that could affect future siting of solid waste and other facilities. One of the greatest impacts to facility siting could be from rising sea levels. The study predicts that, in the Port Angeles area, there is a 50% chance that sea levels will rise by 0.6 feet by 2050 and 1.9 feet by 2100. The study also predicted a 50% chance that coastal flooding could increase in that area by 2.6 feet by 2050 and 3.9 feet by 2100. These increases will also increase shoreline erosion.

EVALUATION OF POTENTIAL SITES FOR SOLID WASTE FACILITIES

Solid Waste Facility Siting Process

No new public facilities are proposed in this Plan. 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 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.

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),
- 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.

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.

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.

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.

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 (WAC 173-351-140(2)), thus eliminating a substantial amount of land for a water-rich area such as Clallam County.

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.

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.

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.

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.

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% 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. About 14% of the County is in state ownership and 25% 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.

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. 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.

Siting and operating a new landfill, new solid waste facility, or biomass-to-energy facility 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.

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.

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APPENDIX D

CONTAMINATION REDUCTION AND OUTREACH PLAN

SUMMARY

This Contamination Reduction and Outreach Plan (CROP Plan) for Clallam County is intended to fulfill a new State requirement for counties to reduce the level of contamination in materials collected for recycling in their jurisdictions. Contamination is defined as anything collected with recyclable materials that is not an acceptable material in a given community's recycling program, or is too wet or dirty for processing into new products and ends up in the garbage. As noted in this CROP Plan, however, more data is needed on the extent of this problem in Clallam County. This plan makes recommendations for addressing that need by collecting data on the levels of contamination present in various recycling programs (single-family, multi-family, commercial and drop-off). Outreach activities will need to be refined later based on the data collected. This plan also recommends several steps that can be taken in the meantime.

An important point about this plan is that it is expected to be refined and improved in future years. There is broad recognition that the current lack of contamination data and the need to further evaluate outreach and other activities are issues that will be addressed in the next few years, which will allow this plan to be improved. Furthermore, as part of the solid waste management plan, this CROP Plan should be updated when the solid waste plan is updated, or even integrated into the solid waste plan in the future.

This CROP Plan is organized into three sections:

- **Introduction**, which provides a historical perspective and information on the requirements for a CROP Plan.
- **Quantifying the Problem**, which includes data from Clallam County and other areas, and identifies the primary contaminants of concern.
- **Recommended Actions**, which includes a list of recommendations and an implementation schedule for those.

INTRODUCTION

Why is a CROP Plan Needed?

Contamination in most recycling programs has steadily increased in recent years to the point that it is a serious problem. This has occurred for a variety of reasons, most notably due to the switch to single stream recycling (with the associated issue of using a large cart), changes in consumer packaging and products, and a lack of oversight and enforcement from recycling markets that previously were willing to accept a high level of contamination.

History of Recycling

Recycling has undergone substantial evolution in the past few decades. Initially, curbside recycling programs had households "source separate" by putting materials out for recycling in three different bins, such as paper, aluminum cans and glass. Residential cardboard and plastic bottles were a less common commodity, but have increased over the years. Contamination rates in the three-bin systems were historically very low, and contamination rates over 3% were considered a serious problem. A study performed by Green Solutions in 2003 for King County and Waste Management found a contamination rate of less than one percent (0.81%) in loads collected from an area of Woodinville using the three-bin system. Photo 1 shows the newspaper tested for that study. The newspaper and mixed paper fractions of Woodinville's three-bin system had a contamination rate of 0.17% at that time. Eight months later, after that area had switched to single-stream, the contamination rate had already risen to 1.8% in the commingled mix.

Photo 1: Newspaper collected in a three-bin system

The newspaper collected using a three-bin system was typically very clean, with few contaminants. Photo taken July 23, 2003.

Many recycling programs switched to single-stream about 20 years ago, which allowed materials to be placed into one container. This approach allowed the use of wheeled carts to collect the materials, which provided a higher level of convenience to the participants and lower collection costs for the haulers. The use of carts generally led to a substantial increase in tonnages recycled. This approach also required more processing to separate the materials. At the time, it appeared that the increased processing costs would be more than offset by the lower collection costs, but it is clear that the processing facilities (generally called materials recovery facilities, or MRFs) have struggled to keep up from the start. The problems experienced by MRFs include:

- **Glass recovery**: For those programs that include glass in the single-stream mix, the MRFs have been unable to separate this into a marketable commodity in many cases. The glass is often broken, thanks in part to the high compaction ratios used in the collection vehicles, and then the broken glass is hard to separate from other small objects (shredded paper, bottle caps, etc.). Worse, tiny bits of glass contaminate the other materials, especially paper. Recovered paper sent to paper mills from single-stream MRFs have caused huge problems due to the abrasive qualities of glass embedded in the paper.
- **Cross-contamination by other recyclables**: A significant amount of good recyclables are sent to the wrong markets, such as flattened plastic bottles being caught up in bales of paper sent to mills. Although easy to screen out, the plastic bottles are no longer recyclable after passing through the initial processing step at the mill and instead leads to a large increase in the waste that the paper mill must dispose of.

- **Loss of good recyclables in the residuals from processing**: Studies conducted for Clark County in 2017, 2018 and 2019 found that half of the residuals disposed by the local MRF consisted of "good recyclables" that simply weren't recovered.
- **Ineffective removal of contaminants**: Other studies for Clark County concluded that only about half of the incoming contaminants were being removed, and the other half were being shipped out with bales of paper and other materials.

Processing facilities have had to continue to improve and adapt to handle larger amounts of contamination and an incoming stream that has changed significantly, but it has been a challenge for them to keep with the changes. Initially, many of the single-stream MRFs were designed to handle large amounts of newspaper, but the amount of newspaper has decreased substantially even as plastics have increased. The MRFs have had to conduct expensive retrofits to accommodate these changes.

Recycling programs in Whatcom County have continued to use the three-bin system and reportedly have a contamination rate of 1% currently.

Contamination levels have continued to rise, increasing from a few percent or less 20 years ago to 25% or more for many curbside programs now. The larger recycling carts, once lauded as a huge improvement, are probably at least partly to blame for the increased contamination. The carts are similar in appearance to garbage carts, leading to confusion or at least a feeling that they are similar. The greater volume provided by the carts also allows it to be used as a "catch-all" for excess garbage. The fact that is it easier to hide the contents of the carts, versus the open bins that were used in the three-bin systems, likely doesn't help.

Recent Trends in Recycling

There is currently much confusion about what materials are recyclable, thanks in part to manufacturer's claims and public outreach that grew lax and even non-existent over the years. What public education was being conducted often encouraged people to recycle as much as possible, which likely unintentionally helped to promote "wishful recycling" (the act of throwing an unacceptable item into a recycling cart in the hopes that it will get recycled). Many manufacturers are labeling products and packaging as recyclable, whereas the products may not be acceptable in local recycling programs. Compounding this problem is the diversity of terms that are used by manufacturers, such as sustainable, biodegradable and others, which adds to the confusion. In some cases, these are deliberate acts of "greenwashing" but in other cases this is the result of differing recycling rules throughout the country.

As mentioned above, the recycling stream has changed significantly in the past few decades. Part of these changes have been due to changing consumer habits (such as fewer people subscribing to newspapers). More problematic, however, are the changes that have occurred outside of consumer control. Consumers often have limited or no choice for the packaging used for products that they wish to purchase, and so they are unable to choose packaging that is recyclable locally. In addition, consumer packaging and products have become increasingly complicated. More packaging and materials are being produced that are combinations of different materials, such as coated papers or flexible plastic packaging with other materials attached. This creates more confusion for recycling program participants, while MRFs struggle

to keep up with the separation of more types of collected materials. As noted in the State CROP Plan, recycling contamination is often a design problem, where products and packaging are not designed to meet recycling market specifications. The State CROP Plan goes on to note that this increases recycling program costs and contamination levels, and that proper design would resolve many of the contamination problems addressed in that plan.

The combination of increasing amounts of contamination in single-stream programs and the inability of processing facilities to effectively remove these contaminants severely impacted markets for these materials. A few regional paper mills closed because they could not handle the dirtier materials and also had trouble competing with the higher prices that Chinese markets were previously willing to pay. The availability of the Chinese markets allowed collection and processing systems to operate without penalties for contamination, until the marketed recyclable materials became so dirty that the Chinese government started to restrict the import of these materials and then implemented a ban on numerous materials known as the China Sword initiative. This created huge problems for recycling programs in the U.S., as materials continued to be collected but without a market to take them. This led to stockpiling of baled materials, landfilling of recyclable materials in a few cases, and some program cutbacks. Paper mills and other companies in the United States and Canada are responding by increasing capacity, but this takes time. The situation has improved and will continue to improve, but clearly the recycling stream needs to be cleaned up to avoid a repeat of this situation.

All of these problems led Ecology to propose, and the State Legislature to approve, an amendment to the State law that now requires solid waste plans to include a CROP plan.

What is a CROP Required to Include?

The requirements shown in State law for CROP plans can be found in RCW 70A.205.045 (for the county's responsibilities) and in RCW 70A.205.070 (for Ecology's responsibilities). The requirements for local CROP plans are shown in Section 10 of RCW 70A.205.045 (this RCW lists the required contents for local solid waste management plans):

"Each county and city comprehensive solid waste management plan shall include the following:

(10) A contamination reduction and outreach plan. The contamination reduction and outreach plan must address reducing contamination in recycling. Except for counties with a population of twenty-five thousand or fewer, by July 1, 2021, a contamination reduction and outreach plan must be included in each solid waste management plan by a plan amendment or included when revising or updating a solid waste management plan developed under this chapter. Jurisdictions may adopt the state's contamination reduction and outreach plan as developed under RCW 70A.205.070 in lieu of creating their own plan. A recycling contamination reduction and outreach plan must include the following:

(a) A list of actions for reducing contamination in recycling programs for single-family and multiple-family residences, commercial locations, and drop boxes depending on the jurisdictions system components;

(b) A list of key contaminants identified by the jurisdiction or identified by the department;

(c) A discussion of problem contaminants and the contaminants' impact on the collection system;

(d) An analysis of the costs and other impacts associated with contaminants to the recycling system; and

(e) An implementation schedule and details of how outreach is to be conducted. Contamination reduction education methods may include sharing community-wide messaging through newsletters, articles, mailers, social media, web sites, or community events, informing recycling drop box customers about contamination, and improving signage."

The requirements for Ecology to prepare a State CROP Plan, as shown in RCW 70A.205.070, are:

"(4)(a) The department must create and implement a statewide recycling contamination reduction and outreach plan based on best management practices for recycling, developed with stakeholder input by July 1, 2020. Jurisdictions may use the statewide plan in lieu of developing their own plan.

(b) The department must provide technical assistance and create guidance to help local jurisdictions determine the extent of contamination in their regional recycling and to develop contamination reduction and outreach plans. Contamination means any material not included on the local jurisdiction's acceptance list.

(c) Contamination reduction education methods may include sharing community-wide messaging through newsletters, articles, mailers, social media, web sites, or community events, informing recycling drop box customers about contamination, and improving signage.

(d) The department must cite the sources of information that it relied upon, including any peer-reviewed science, in the development of the best management practices for recycling under (a) of this subsection and the guidance developed under (b) of this subsection."

The State CROP Plan

The draft Washington State Recycling Contamination Reduction and Outreach Plan (the "State CROP Plan") was released for public comment on August 7, 2020. This plan contains:

- a description of the current situation,
- a statewide action plan,
- a template for local CROP plans,
- a description of best management practices for contamination reduction, and
- a list of additional resources.

The activities included in the statewide action plan are:

1. Promote alignment and harmonization of recycling programs statewide:
   - Support the Recycling Steering Committee, the Recycling Development Center, and other groups working to develop more aligned and harmonized regional and statewide recycling programs.
   - Promote the use of a priority list of materials accepted for recycling statewide.
   - Enhance existing resources to support communities to make better informed decisions on what to accept in their recycling programs. This includes recycling market data and data on the environmental and social costs and benefits of recycling specific materials.
   - Expand and continue to support successful statewide contamination reduction campaigns like Recycle Right.
2. Encourage and support regional solid waste planning and aligned or joint contracting for services:
   - Enhance and maintain MRF-shed and MSW flow maps, and other resources to assist in identifying opportunities for regional collaboration.
   - Convene regional meetings to explore joint planning and program development opportunities.
   - Share MRF processing and collection contracting resources to assist local governments in their efforts to reduce recycling contamination and improve the overall performance of their recycling programs.
3. Gather and share data to measure the performance of the recycling system:
   - Conduct recycling characterization studies to gather data on recycling contamination and other key metrics like the capture rate for recyclables. These studies should be done on the same schedule as Ecology's waste characterization studies. In the future, these studies could be expanded to include organics and other streams.
   - Develop and maintain an easily accessible and searchable database on local recycling programs across the state.
4. Pursue legislative, funding, and policy solutions:
   - Work to secure increased state and federal funding for local government solid waste programs, including restoring funding for the Local Solid Waste Financial Assistance program.
   - Forge new and enhance existing public, private, and non-profit partnerships to support local recycling contamination reduction programs.
   - Evaluate Extended Product Responsibility, product labeling, product bans and restrictions, right to repair, market development, recycled-content, and other targeted legislative and policy options to assist in achieving recycling contamination reduction goals and strengthen our recycling system.

Unlike this plan, however, the State CROP Plan is not required to include an implementation schedule as to when these actions would be conducted or completed, although the State CROP Plan does note that some of these items (such as extending the Recycle Right campaign and conducting recycling characterization studies) are on hold until funding becomes available.

QUANTIFYING THE PROBLEM

Existing Recycling Programs in Clallam County

Several types of collection methods are employed in Clallam County for recycling, including drop-off sites, residential curbside collection, and commercial collections. Table D-1 shows a summary of the services currently available in the county, including curbside collection of recyclable materials, drop-off sites within a reasonable distance, and commercial collections for cardboard and possibly other materials. More details can be found in Chapter 7 of the Clallam County Solid Waste Management Plan, including the list of materials accepted by these programs (see Table 7-3, which is also the list of designated recyclable materials). The annual amounts of materials collected through the various methods are described in Chapter 7 (see Table 7-2 and pages 7-6 and 7-7), but to summarize those amounts here:

Drop Box Sites = 2,583 tons
Curbside Programs = 2,229 tons
Commercial and Multi-Family = 2,031 tons

The drop box amounts were collected at three transfer stations (the Blue Mountain Transfer Station, the Regional Transfer Station, and the West Waste Transfer Station) and at glass drop-off boxes in Port Angeles and Sequim. The curbside and commercial tonnages are collected by Waste Connections through contracts with Port Angeles and Sequim, and in their waste collection area in unincorporated Clallam County.

Table D-1. Recycling Services in Clallam County

Geographic Area	Single-Family Homes	Multi-Family	Commercial
Port Angeles	Cu, D	Co, D	Co, D
Sequim	Cu, D	Co, D	Co, D
Forks	D	D	Co, D
Unincorporated Areas	Cu, D	Co, D	Co, D
Tribal Lands	Cu, D	Co, D	Co, D

Notes: Cu = Curbside collection, Co = commercial collection, D = Drop-off.

Existing Outreach Activities

Clallam County staff recently conducted a survey of the education and outreach materials employed in Clallam County and Jefferson County. This survey was a first step in providing consistent, accurate and accessible information for residents and businesses on the Olympic Peninsula. The survey noted that there are some differences in the messaging about what is accepted even though the services are the same in Clallam County where curbside recycling is offered. In Clallam County, four of the primary sources of information about recycling and related matters (City of Port Angeles, City of Sequim, Clallam County and WSU Clallam County Extension) have fairly thorough and consistent information available on websites and in printed

materials. The fifth potential primary source of information about local programs, Waste Connections, has conflicting and incomplete information about recycling programs on two different websites that are hard to find.

Types and Amounts of Contamination

There is not much data on the levels of contamination in the recyclables collected in Clallam County, but some data is available thanks to studies conducted by Clallam County staff in 2018 and 2019.

The 2018 study was conducted at the Blue Mountain Transfer Station (BMTS) and Regional Transfer Station (RTS), with Clallam County staff and volunteers conducting the same activities for two days at each transfer station (four days total). Activities included a survey of drop box participants on recycling knowledge, visual estimates of the volume of contamination in all on-site drop boxes, traffic counts, and samples of recyclables being dropped off. This study reached the following conclusions about contamination at the drop box sites:

- Contamination of the mixed paper was about 5% by volume. The major contaminants for mixed paper included pet food bags, food-soiled paper, plastic-coated paper, and plastics (bags and other plastics). The study notes that the signage for mixed paper at BMTS could have been clearer, and likely contributed to mixed paper often being placed in the cardboard bin due to confusion.
- Contamination of the cardboard was about 10% by volume. The major contaminants were envelopes with plastic bubble wrap, tape, wet and dirty cardboard, styrofoam, cereal boxes, and frozen food boxes. Another observation was that the cardboard was often not flattened, causing the bin to fill up faster.
- Contamination in the container for tin, aluminum and plastic (TAP) was about 20%, and the major contaminants included plastic film and other incorrect types of plastics, pet food bags, and garbage.
- Contamination of the glass was about 2%, and major contaminants included food contamination, the wrong types of glass, and plastic and metal lids.

This study was informative for volunteers and the public as visual sorting and surveys were conducted on-site as recyclables were being dropped off. However, contamination estimates were obtained only with visual estimates and small samples from a handful of individual recyclers.

After this study, Olympic Disposal offered Clallam County the opportunity to sort on-site at their MRF in Port Angeles. Clallam County staff, with support from Waste Connections, City of Port Angeles staff and Master Composter Recycler volunteers, conducted three sorts of 30-yard containers of recycling. One container was from curbside collection in Sequim (single stream recycling), one was from BMTS drop boxes and one from RTS drop boxes. Information on the sorts is shown in Table D-2.

Contaminants were defined as materials that are not accepted in Clallam County recycling programs (e.g. clamshells, shredded paper) or those that weren't prepared according to

Table D-2. Clallam County Contamination Study					
Date of Test	**Type of Material**	**Source**	**Contamination, % by Volume**	**Major Contaminants**	**Other Findings**
3/19/19	Tin, Aluminum, Plastic (TAP)	RTS	46%	Plastic bags/bagged recycling, lids, food-soiled recycling, clamshells, oil/antifreeze jugs, non-recyclable plastics	8 yards trash, 6 yds bagged recycling
5/12/19	Mixed Paper	BMTS	5%	Ice cream/milk cartons, bagged shredded paper, paper towels/tissues	1.5 yards trash
6/5/19	Single Stream	Curbside (Sequim)	50%	Garden hoses, tarps, food-soiled recycling, bagged trash, non-recyclable plastics, clothing, dirty diapers	15 yards of trash

guidelines and would likely not be recycled (food soiled and bagged recyclables fell into this category). These contaminants were placed in a trash bin to be measured by volume. The amount of contamination found in the three sorts were: 14 yards in the TAP load; 1.5 yards in the mixed paper load; and 15 yards in the mixed recycling from curbside collection. It should be noted that of the TAP contamination, six yards were bagged materials that may have contained good recycling, but it is unknown how they are dealt with at the final MRF. They would be baled and shipped to the MRF by Olympic Disposal. However, staff opened a few bags initially, assuming the MRF would have to do the same and found a bag full of paint cans, brushes and other messy materials. The MRF study is intended to be repeated in 2021 using an Ecology grant.

Containers still slathered with peanut butter and other contents are a common contaminant found in the recycling stream.

Other Contamination Studies in Washington

To date, the local studies include limited data on single-family curbside recycling contamination, and do not address contamination levels for multi-family recycling and commercial recycling programs. Other counties in Washington State have studied these other sources, although in most cases this data is a few years old and hence potentially outdated. Those studies include:

- **Kitsap County 2013/2015**: Studies in 2013 and 2015 sampled curbside recyclables from single-family homes and sorted those into 23 categories of acceptable and non-acceptable materials. 9.5% contamination was found in 2015 and 9.0% contamination was found in the 2013 study. Major contaminants found in 2015 included non-recyclable plastics (bags, film, various types of packaging, and objects such as toys and garden hoses), non-recyclable paper (food-soiled paper and other types of non-recyclable paper), and food scraps.
- **Clark County 2015**: To measure the impact of an outreach campaign, single-family curbside recyclables were tested three times in 2015; in April, June and October. Samples of

recyclables were sorted into 39 categories. The study found a high amount of contamination initially, at 26%, with lower amounts after the outreach campaign was conducted (about 20%). Clark County has a dual stream program, where glass bottles are supposed to be placed into a separate bin, but about 2% of the contamination was from glass bottles. Other contaminants included non-recyclable paper, plastic packaging and bags, bags of garbage, e-waste, clothing and wood. This study employed a sorting table with a screen in the bottom to remove items less than two inches (to simulate the screening step that would occur in the processing facility) and 3-6% of the "contamination" was from this.

- **City of Yakima 2014**: The City of Yakima conducted a pilot project in 2014 to test the feasibility of implementing curbside recycling in the city using city crews (city crews currently collect garbage in Yakima). A variety of activities were conducted as part of the pilot project, including surveys, cart tagging and a test of the composition of materials collected. The cart tagging observed the following contaminants (in order of prevalence): plastic "clamshells", pizza boxes, plastic bags, trash, styrofoam, blister packaging and glass bottles. The composition test of the collected materials, conducted near the completion of the pilot project, found 7.4% contamination from plastic bags and packaging, glass bottles, and various other non-recyclable materials.

Based on these studies done by Clallam County and others, the initial list of key contaminants is described in the next section.

Key Contaminants

Contaminants can be identified by name (such as "plastic bags") or by descriptive phrases (such as "tangly" or "food-soiled"). Public education materials can use both approaches to identify a comprehensive list of contaminants to be avoided. It is worth bearing in mind, however, that phrases such as "tangly," which are not part of everyday language, will require additional explanation and this can be challenging in some cases. On the other hand, descriptive phrases such as "empty, clean and dry," especially if part of a consistent message, can help cover many different contaminants. With this in mind, the following list of key contaminants is proposed for the initial phase of the CROP plan implementation:

- **General**: The use of the message "empty, clean and dry" will help address many of the issues for contamination, and will help promote the idea that plastic bottles need to be empty, paper products shouldn't be food-soiled, and other materials need to be clean. Promoting loose recycling or non-bagged recycling is another general message that is important to addressing overall contamination.
- **Non-Program Plastics**: It is clear that plastic bags, "clamshells" and other types of plastic packaging and plastic objects such garden hoses are significant problems. The current recycling guidelines in Clallam County shows plastic tubs, buckets and plant pots as acceptable materials, but not plastic cups. There are some problems here. The variety of packaging used today prevents an easy distinction between tubs and other plastics such cups and clamshells. A recycle bin is often contaminated because it is perceived that if tubs can be recycled, other plastics such as cups and clamshells (contaminants) should be recyclable. The educational materials in Clallam County may want to avoid showing all of these items as acceptable until plastic markets improve. The emphasis for now could be

placed on “plastic bottles” (or “plastic bottles and jugs”) as being recyclable, and on the following as being key contaminants:

plastic bags
pill bottles
bottles that held motor oil and chemicals
clamshells
styrofoam

- **Non-Recyclable Paper**: Coated papers such as frozen food packaging and milk cartons have a long history of turbulence in their classification as recyclable or not. Their status as recyclable has changed frequently over time and between areas, in large part due to changes in processing systems at paper mills that could handle these materials or not, and also due to differences at MRFs and whether the MRFs were trying to capture milk cartons as a separate commodity. Furthermore, it is difficult to communicate to the public what coated papers should not be recycled. Although it is relatively simple to ask people not to recycle “frozen food packaging,” that does not cover other coated papers such as butter packaging, 12-pack cartons, and the variety of other papers that have been treated to avoid breaking down when wet. Because of these issues, it is recommended that programs in Clallam County should not put much effort into informing people that these types of paper are not recyclable. Likewise for pizza boxes, which were recently declared to be more recyclable than previously thought. Instead, pizza boxes can be covered by the “empty, clean and dry” message (in other words, people can be discouraged by the more generic message from recycling the pizza boxes that are heavily soiled). For paper products, the following can be considered key contaminants:

  pet food bags
  shredded paper
  paper plates, napkins and tissues

- **Metals**: There is not a lot that needs to be said about metals. In the future, it would be good to continue to stress that cans are recyclable and the following are not:

  aluminum foil
  aerosol cans

- **Glass**: Since glass is collected separately, this pertains primarily to the glass drop boxes. The key contaminants that have been observed in the glass drop boxes include:

  window glass
  light bulbs
  lids (plastic and metal)

- **Other Materials**: There is a large variety of other materials that sporadically show up in recycling programs, but many of these do not appear to be a huge problem and so may not be worth targeting initially as a key contaminant. The Clark County study in 2015, for instance, found 1.4% clothing in the first set of samples (this dropped to 0.4% after the outreach campaign was conducted), but this is not a typical problem. Likewise, small

amounts of wood, other construction debris, batteries, and other materials are often observed but are probably not worth treating as a large problem. Bags of garbage and potentially dangerous items such as syringes are cause for concern, but it can be argued that these are not problems that can be solved by more outreach (since it should already be obvious to all that these do not belong in recycling containers) and instead these should be addressed through other activities (such as cart inspections). At least initially, until more data perhaps shows that some of the other items are consistent problems, the following should be considered key contaminants:

food scraps
glass
tangly materials (hose, wire, rope, chain and cords)

The above lists should be revised and refined as new information becomes available from data collection efforts, feedback from collection and processing companies, and other sources.

Costs and Other Impacts of Contamination

Cost of Contamination: The contaminants identified above cause several problems. For the recycling programs in Clallam County, where the collected materials need to be transported a significant distance to processing facilities in or near Tacoma, the transportation costs for non-recyclable materials is a substantial additional cost for the recycling programs. Contamination adds other costs to recycling programs, which can impact rates or threatens the viability of recycling services. In Clallam County's case, a contamination surcharge has been added by at least one of the MRFs that has handled the County's material, which increases the cost of recycling programs in the County. In addition, the contaminants also:

- Slow down the sorting and processing of materials, thus increasing processing costs.
- Reduce the quality and value of the commodities separated from the recyclables. In times of tight markets, the more contaminated commodities may become unmarketable.
- Result in costly shutdowns.
- Damage collection, processing, and remanufacturing equipment.
- Cause serious injuries to collection and processing facility staff.

National Data on Costs: According to The Recycling Partnership, the greatest costs associated with managing a contaminated recycling stream at MRFs nationally come from the following and represent 80% of total contamination-related costs:

- 40% for disposal of residuals.
- 26% in value lost from contaminated recyclables.
- 14% in labor to remove contamination from sorting equipment.

Local Impacts: The Olympic Peninsula is home to two paper production mills that utilize recycled feedstocks in their production. Port Townsend (PT) Paper and McKinley Mill are major employers. Recycled cardboard is currently sold directly to PT Paper by a number of recycling service providers that service all of the residential and small commercial corrugated cardboard collections. Dirty feedstocks impacts the mills' expenditures and threatens their viability.

Global Impacts: Significant inefficiencies are caused by contamination, including the waste of resources and energy associated both with carrying garbage along with recyclables and the several ways that contamination prevents recyclable materials from actually being recycled. The increased energy consumption and loss of resources associated with these problems cause:

- Increased greenhouse gas emissions from increased fuel consumption.
- The environmental and social impacts of more mining, logging and other resource extraction activities created by lower recycling levels.
- The loss of jobs and other economic benefits associated with higher recycling levels and a more efficient system.

RECOMMENDED ACTIONS

Accurate and quantitative data is lacking for the amount of contamination from all sources, and clear information is also lacking in all cases for the types of contaminants. Given the current lack of data, it is impossible to:

- adequately define the problem,
- effectively address the problem, and
- evaluate any progress made in addressing the problem.

The activities recommended below address the need for more data while also recommending steps that can be taken in the meantime to address contamination in the recycling programs in Clallam County.

Education and Outreach Actions for All Programs:

1. Utilize consistent, clear, and harmonized messaging throughout the county, and coordinate with State efforts.
2. Coordinate effective outreach programs with public and private regional entities. Provide adequate information to all entities using the regional recycling system (single-family, commercial, multi-family and drop box customers).
3. Conduct direct mailings to all customers in the solid waste area including how, where and why to recycle.
4. Update city, county, hauler, and WSU program websites to reflect all changes to recycling lists or collection methods. Periodically review the list of acceptable materials with collection and processing companies to keep outreach up to date.
    - Include educational elements to clarify what should and should not be recycled. For clarity and overcoming language barriers, use pictures and graphics (green check for acceptable, red x for unacceptable, etc.) in addition to text. Address all types of recycling (commercial, drop box, etc.).
    - Provide links to the most applicable education and outreach materials on other websites.

5. Pursue opportunities for direct outreach including:
   - Providing info via realtors/service providers or other existing newsletters or media channels.
   - Working with property managers, maintenance staff, and residents on targeted outreach.
   - Organize and staff an interactive educational booth at diverse community events.
   - Collaborate with community leaders to engage the community on recycling issues.
   - Promote social media pages and partner with organizations and community influencers to utilize their social media base and extend the reach of posts.
   - Develop marketing and outreach materials using pictures and short videos to show recyclable and non-recyclable materials. Implement a multi-media (TV, radio, online and print ads, outdoor signage, etc.) campaign to reach target audiences and create a "brand" that normalizes proper recycling behaviors.
6. Garbage and recycling containers should be sized appropriately. If garbage containers are under-sized, recycling containers will become the overflow container for garbage.
7. Garbage containers need to be at least as convenient as recycling.
8. Measure the amount of contamination quantitatively, and determine the major contaminants. A typical route should be examined for collections done in Port Angeles, Sequim, the unincorporated areas, commercial and drop box collections.
9. Recycling service should be discontinued for households, apartment buildings or businesses that are repeat offenders on excessive contamination.

Single-Family Programs:

10. Use cart tagging to give residential customers direct feedback on their recycling practices by identifying their bin contents. At a minimum, this should be done for the most contaminated route(s).
11. Use targeted route mailers for the routes with higher levels of contamination. This and other educational pieces should highlight the top 5 to 10 contaminants.
12. Use standardized colors for recycling and garbage containers. All programs in the County should use blue carts for recycling, grey or black carts for garbage and green carts for yard waste.
13. All contracts for recycling services in Clallam County should require haulers to provide the right color of carts with labels, and to provide up-to-date websites with clear and comprehensive information about recycling and garbage options and rates regionally.

The Hawthorne Effect

A common question that comes up for cart inspection or tagging programs is whether to notify people beforehand that this activity will be done. Forewarning people may avoid some conflicts in the field, but it can also change the results. This is called the "**Hawthorne effect**," where people typically change their behavior when they know they are being watched. Depending on the goals and design of a cart inspection program, this should either be avoided or one could also try to capitalize on it.

Multi-Family Programs:

14. Take inventory of all multi-family properties. Engage property owners to reduce contamination with strategies including:
    - Providing hauler service and pricing reviews.
    - Assisting with tenant outreach on websites, newsletters, etc. with property managers to assess larger scale and shared problems or concerns.
    - Attending multi-family community events to provide information and engage tenants.
    - Support a Property Recycling Champion, who can help provide multi-family residents with a special bag or container, with instructions shown on that, to assist carrying their recyclables to a central container.
15. Garbage containers should always be paired with recycling containers, so that each are about equally accessible and convenient.
16. The service provider should inspect containers of recyclables for apartment buildings that are known to have issues and leave behind those that are excessively contaminated (to be collected and charged as garbage later).

Commercial Programs:

17. Provide specific commercial outreach including:
    - Walkthroughs for businesses to address their specific needs and identify available services.
    - Include all haulers of key commercial recyclables on outreach materials.
    - Work with service providers on outreach materials and provide appropriate indoor and outdoor signage to businesses. Encourage signage in common areas such as break or lunch rooms.
    - Advise businesses to add links to recycling information on their websites.
    - Reach out to commercial property managers to reach many commercial accounts at once.
    - Work with service providers to provide outreach and assistance to commercial recycling customers.
18. Work with business organizations such as a Chamber of Commerce to engage the business community. Provide presentations or informational booths at their business-related gatherings or a recognition program for businesses that are doing a good job of recycling.
    - Provide resources and assistance to businesses about starting a Green Team or appointing a Recycling Champion.
    - Encourage businesses or commercial property owners to request a service and pricing review with their hauler.
19. The service provider should inspect containers of recyclables for businesses that are known to have issues and leave behind those that are excessively contaminated (to be collected and charged as garbage later).
20. If commercial and residential recycling programs are similar enough, combine the education and promotion efforts.

21. The same colors should be used for commercial as for residential for garbage containers (black or grey), recycling (blue), and organics (green).
22. Garbage containers should always be paired with recycling containers, so that each are about equally accessible and convenient.

Drop Box Programs:

23. Provide staff or volunteers to assist residents and provide education at dropbox locations.
24. Review signage to ensure that it is clear and consistent with program guidelines. Change signs as necessary to make signage is clear and preferably use both pictures and text. Ensure signage is always present on drop boxes or a non-movable place. Use signage with actual objects stuck to them.

Actions that Can be Taken with or by Others:

25. Clallam County should continue working with Jefferson County to explore possibilities for:
    - Shared costs for equipment, transportation, education and outreach, operating costs, and capital for facilities.
    - Cooperative marketing possibilities that could increase revenues.
    - Regional economic stimulus from new collection and processing jobs.
26. Ecology should conduct a recycling characterization study as soon as possible.
27. The Washington Utilities and Transportation Commission (UTC), which has oversight responsibilities for the waste collection companies that operate in unincorporated and non-contract cities, should require waste collection companies to provide websites with current and comprehensive information on rates and services for garbage, recycling and yard waste. This may require a change to State law or rules, although possibly could be accomplished by a revision to WAC 480-70-361.

Implementation Schedule: The implementation schedule for the recommended actions is shown in the following table.

Covid-19

It can't be ignored that this plan was developed while a pandemic was causing huge impacts to business and personal activities, including travel and tourism, which in turn was creating huge impacts to municipal budgets, waste generation, recycling patterns, and a wide range of other factors. The uncertainty of when the pandemic will be contained leaves little choice but to press forward in the meantime, although the schedule in this plan has been extended somewhat to try to accommodate a "return to normal" in the summer of 2021.

Table D-3. Implementation Summary for CROP Recommendations			
Recommendation	**Lead Agency**	**Schedule**	**Cost**
Education and Outreach Actions for All Programs			
CROP 1) Utilize consistent, clear and harmonized messaging	All	Ongoing	Existing
CROP 2) Coordinate effective outreach programs	County	Ongoing	Existing
CROP 3) Direct mailings	Service Providers	Begin 2022	$20,000/yr
CROP 4) Update websites	All	2021	$7,000
CROP 5) Direct outreach	County	Begin 2022	$5,000
CROP 6) Garbage and recycling containers should be sized appropriately	Service Providers	Begin 2021	NA
CROP 7) Garbage containers at least as convenient as recycling containers	Service Providers	Begin 2021	NA
CROP 8) Measure contamination quantitatively	County	2021	Staff time, grants
CROP 9) Discontinue recycling for repeat offenders	Service Providers	Ongoing	NA
Single-Family Programs			
CROP 10) Cart tagging	Service Providers	2021	$2,000/route
CROP 11) Route mailers	Service Providers	Begin 2021	$1,000/yr
CROP 12) Standard colors for recycling and garbage containers	Service Providers	By 2023	TBD
CROP 13) Contracts to require proper color of carts with labels, and websites	PA, Sequim	By 2026	TBD
Multi-Family Programs			
CROP 14) Inventory multi-family properties	County, Cities	2024	$7,000
CROP 15) Pair garbage and recycling containers	Service Providers	Ongoing	NA
CROP 16) Inspect recycling containers, reject those with contamination	Service Providers	Ongoing	NA
Commercial Programs			
CROP 17) Outreach	All	Begin 2023	Existing
CROP 18) Work with business organizations	County	Begin 2023	Existing
CROP 19) Inspect recycling containers, reject those with contamination	Service Providers	Ongoing	NA

Notes: Recommendations have been abbreviated to fit into this table. County = Clallam County (primarily the Public Works Department but depending on the recommendation, possibly including the Health and Human Services Department and contractors such as WSU); Service Providers = Waste Connections, West Waste, and the City of Port Angeles; All = County, cities, WSU and haulers; Staff time = existing staff time plus minimal additional expenses; TBD = to be determined, for CROP 12 and 13, it is unknown how many carts are currently the wrong color; PA = City of Port Angeles; Cities = Forks, PA and Sequim; NA = Not Applicable, for costs this means there is not a direct cost for conducting the activity because it is paid by service rates.

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Table D-3. Implementation Summary for CROP Recommendations, continued			
Recommendation	**Lead Agency**	**Schedule**	**Cost**
Commercial Programs, continued			
CROP 20) Similar outreach for commercial, if possible	Service Providers	Ongoing	Existing
CROP 21) Same container colors for commercial as for residential programs	Service Providers	2023	TBD
CROP 22) Pair garbage and recycling containers	Service Providers	Ongoing	NA
Drop Box Programs			
CROP 23) Staff or volunteers to assist and educate	All	Ongoing	Staff time
CROP 24) Review signage	All	2021	$0 or minimal
Actions by Others			
CROP 25) Continue working with Jefferson County	Counties	Ongoing	Staff time
CROP 26) Ecology should conduct recycling characterization study ASAP	Ecology	ASAP	Unknown
CROP 27) UTC should require certificated haulers to provide current and comprehensive information on websites	UTC	2022	Unknown

Notes: Recommendations have been abbreviated to fit into this table. Service Providers = Waste Connections, West Waste, and the City of Port Angeles; TBD = to be determined, for CROP 21, it is unknown how many carts are currently the wrong color; Staff time = existing staff time plus minimal additional expenses; ASAP = as soon as possible; UTC = Washington Utilities and Transportation Commission.

APPENDIX F

SEPA CHECKLIST

INTRODUCTION

To be inserted later