THURSTON COUNTY

SOLID WASTE MANAGEMENT PLAN

Preliminary Draft

June 2017

THURSTON COUNTY SOLID WASTE MANAGEMENT PLAN

June 2017

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EXECUTIVE SUMMARY for the THURSTON COUNTY SOLID WASTE MANAGEMENT PLAN

INTRODUCTION

This Solid Waste Management Plan (SWMP) is intended to provide guidance for the solid waste system in Thurston County. The solid waste system includes garbage collection and disposal, and programs for waste reduction, recycling, organics, permitting, compliance, special wastes and the administration of those programs. This SWMP provides guidance on program development and implementation for these activities for the next six years, while also attempting to anticipate the needs of the solid waste system for up to 20 years from now.

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

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

The Solid Waste Management Act also specifies that this SWMP must "be maintained in a current and applicable condition" through periodic review and revisions (RCW 70.95.110).

GOALS OF THE SWMP

The development of this SWMP was aided by an advisory group, the Solid Waste Advisory Committee (SWAC), which was comprised of representatives of the cities, industry and other key groups. Early in the process, the SWAC adopted a vision statement for what the future solid waste system should look like:

> *We see a future in which people, businesses, and agencies in Thurston County make less waste each day. Any waste that's left is managed in environmentally sound and sustainable ways.*

The SWAC also adopted a mission statement and a number of goals to guide the recommended actions for achieving the vision statement (see Section 1.8 of the SWMP). In addition, the SWAC is proposing a new recycling and organics recovery goal of 49% for Thurston County.

OVERVIEW OF PLAN CONTENTS

Most of the chapters of the SWMP addresses specific elements of the solid waste system, and the first two chapters provide basic information about Thurston County and the wastes generated. The SWMP consists of the following chapters:

Introduction (Chapter 1): Chapter 1 of the SWMP 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 Thurston County and on the amount and composition of the solid wastes produced by the residents and businesses in the county.

Waste Reduction and Recycling (Chapter 3): Waste reduction includes activities that prevent wastes from being generated in the first place, such as reuse of clothing and donations of edible food, whereas recycling requires remanufacturing materials into new products. Thurston County is currently served by a diverse network of public and private programs that are diverting significant amounts of materials from landfill disposal through waste reduction and recycling. Since 2001, Thurston County's recycling rate has increased from 19% to 43%. The draft SWMP proposes a large number of recommendations for waste reduction and recycling, most of which are directed at continuing or refining existing efforts and additional promotion of recycling opportunities for specific types of materials.

Organics (Chapter 4): Thurston County has made substantial progress in the past decade in collecting organics (yard waste, food waste and a few other types of materials) but a significant amount of food waste is still being disposed in the waste stream. The recommendations shown in the SWMP for organics target the key issues for organics, especially program participation and contamination problems.

Solid Waste Collection (Chapter 5): Garbage collection is a fundamental service, and Thurston County is well-served by an appropriate mix of programs. A few refinements would be helpful, but this is an area mostly being handled by the private sector and the City of Olympia.

Transfer System (Chapter 6): The Waste and Recovery Center (WARC) in Lacey and the two rural facilities near Rainier and Rochester provide an effective system for consolidating and transferring waste out of the county. Basic improvements and maintenance are an on-going need for all three facilities, but especially for WARC (which is beginning to "show its age").

Disposal System (Chapter 7): The contract for exporting waste to a landfill in eastern Washington expires in 2020, and the work needed to renew or re-bid that contract should begin soon.

Special Wastes (Chapter 8): This chapter of the SWMP addresses specific wastes and recyclable materials that merit special attention, including asbestos, asphalt paving and shingles, biomedical wastes, carpet and carpet padding, disaster debris, mattresses, moderate-risk waste, and pharmaceuticals. A few recommendations are provided for each of these as appropriate to the recycling or disposal needs for that waste or material.

Administration (Chapter 9): Chapter 9 of the SWMP provides an overview of the organizations and policies that are involved in the administration of the solid waste system in Thurston County. Several recommendations are made for refinements to existing administrative programs.

Implementation Plan (Chapter 10): Chapter 10 of the SWMP provides a summary of the recommendations and discusses key factors for the implementation of the recommendations (see next section).

RECOMMENDATIONS AND IMPLEMENTATION DETAILS

Table ES.1 shows the implementation responsibilities, priorities, costs and funding sources for the recommendations shown in Chapters 3 through 9. Recommendations that represent new activities for Thurston County have been assigned a level of priority (high, medium or low) to provide guidance for future work plans and budgets. Recommendations that are already included in the existing work plan and budget for Thurston County are noted as "existing" for the level of priority. Specific costs for each recommendation have not been calculated at this time and will instead be determined through annual budgets and workplans. The funding source for almost all of the recommendations is tipping fees paid at the WARC and Rainier and Rochester drop-box facilities, with grant funds also being 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 the recommendations can be found in the appropriate chapter of the plan.

Table ES-1. Implementation Summary for Recommendations (primary funding source is tipping fees)			
Recommendation	**Lead Agency**	**Priority**	**Cost**
Waste Reduction and Recycling (see Chapter 3)			
WRR1) The goal is to achieve a 49% recovery rate by 2020	SW	Existing	Staff time
WRR2) Develop measures to evaluate and report on WRR impacts	SW	Existing	Staff time
WRR3) Evaluate options to increase recycling and organics program participation	SW	Existing	Staff time
WRR4) Review service-level ordinance for consistency with goals and this plan	SW	Existing	Staff time
WRR5) Enhance food donation capacity and system	SW	High	Staff time
WRR6) Build on the success of the WasteLessFood program	SW	Existing	Staff time
WRR7) Promote more food waste prevention	SW	Medium	Staff time
WRR8) Support policies and rules to help businesses donate food	SW	Medium	Staff time
WRR9) Assist schools with waste reduction and recycling	SW	Existing	Staff time
WRR10) Provide K-12 classroom presentations and other outreach	SW	Existing	Staff time
WRR11) Evaluate options for educational opportunities at WARC	SW	Low	Staff time
WRR12) Partner with youth-oriented groups and organizations	SW	Existing	Staff time
WRR13) Partner with school-related groups	SW	Existing	Staff time
WRR14) Provide technical assistance to businesses	PHSS, SW	Existing	Staff time
WRR15) Perform periodic business waste reduction and recycling surveys	SW	Existing	$20K to $30K
WRR16) Promote existing used building material facilities	SW	Medium	Staff time
WRR17) Promote existing and new C&D recycling facilities	SW	High	Staff time
WRR18) Evaluate options to increase C&D recovery at WARC	SW	High	Staff time
WRR19) Work with building departments to increase C&D recycling	SW	High	Staff time
WRR20) Promote existing product stewardship programs	PHSS, SW	Existing	Staff time
WRR21) Support legislation for new product stewardship laws	PHSS, SW	Existing	Staff time
WRR22) Establish disposal rates that maintain adequate funding	SW	Existing	Staff time
WRR23) Evaluate alternative funding models and strategies	SW	Low	Staff time
WRR24) Identify and support new or expanded markets	SW	Medium	Staff time
WRR25) Promote sustainable procurement within Thurston County gvt.	SW	Existing	Staff time
WRR26) Continue to identify materials that could be recycled by the public	SW	Existing	Staff time
WRR27) Provide a core set of promotion and outreach services	SW	Existing	Staff time & material costs

Notes: SW = Thurston County Solid Waste. PHSS = Public Health. NA = Not Applicable. K = $1,000's.
"Existing" for priority level denotes an activity that is already part of the workplan for Thurston County staff. Other priorities (High, Medium and Low) show priorities established by the SWAC on February 9, 2017 for future workplans.
Recommendations have been abbreviated to fit into this table.

Table ES-1. Implementation Summary for Recommendations, continued			
Recommendation	**Lead Agency**	**Priority**	**Cost**
Waste Reduction and Recycling, continued			
WRR28) Incorporate sustainability into tech. assistance and education	SW	Existing	Staff time
WRR29) Promote waste reduction and recycling by strengthening partnerships with other county departments and agencies	SW	Existing	Staff time
WRR30) Coordinate messaging and materials with others	SW	Existing	Staff time
WRR31) Evaluate options to effectively provide education at facilities	SW	Existing	Staff time
Organics (see Chapter 4)			
O1) Evaluate options to increase participation in organics collections	SW	Existing	Staff time
O2) Evaluate options to increase recovery of wood waste	SW	High	Staff time
O3) Provide education to reduce contamination in organics	SW, Haulers	Existing	$20,000- $40,000
O4) Reduce contamination in the mixed organics delivered to the WARC	SW, Haulers	Existing	Staff time
O5) Partner with others to increase markets for organics	SW	High	Staff time
O6) Evaluate alternative technologies for organics	SW	High	Staff time
Waste Collection (see Chapter 5)			
WC1) Periodically evaluate waste collection options.	SW	Medium	Staff time
Transfer System (see Chapter 6)			
T1) Assess possible modifications to WARC and rural drop-box facilities	SW	Existing	$150,000
Disposal System (see Chapter 7)			
D1) The WARC and drop-box facilities should comprise the designated disposal system for all solid wastes from Thurston County.	BoCC	Medium	Staff time
D2) Evaluate future disposal options	SW	Medium	Staff time
D3) Evaluate alternative disposal options as appropriate	SW	Medium	Staff time
Special Wastes (see Chapter 8)			
SW1) Explore opportunities to partner with ORCAA and others to inform people of asbestos hazards and disposal options	PHSS	Medium	Staff time
SW2) Educate roofing contractors about recycling options for shingles	SW	Low	Staff time
SW3) Develop new recycling options for asphalt shingles and encourage better rules for use in paving	SW	High	Staff time
SW4) Expand sharps collection sites	PHSS	Low	$10,000 to $30,000
SW5) Arrange consistent handling of sharps collection containers	PHSS	Low	

Notes: SW = Thurston County Solid Waste. NA = Not Applicable. "Haulers" includes Waste Connections and City of Olympia. PHSS = Public Health.
"Existing" for priority level denotes an activity that is already part of the workplan for Thurston County staff. Other priorities (High, Medium and Low) show priorities established by the SWAC on February 9, 2017 for future workplans.
Recommendations have been abbreviated to fit into this table.

Table ES-1. Implementation Summary for Recommendations, continued			
Recommendation	**Lead Agency**	**Priority**	**Cost**
Special Wastes, continued			
SW6) Provide education for disposal of sharps, other biomedical wastes	PHSS	Low	$10,000 to $30,000
SW7) Monitor and support recycling options for carpet and padding	SW	Medium	Staff time
SW8) Prepare a disaster debris management plan	PHSS, SW	High	Up to $100,000
SW9) Monitor and support recycling options for mattresses	SW	Medium	Staff time
SW10) Continue operating HazoHouse and Swap Shop	SW	Existing	Existing
SW11) Conduct at least one mobile event for MRW	PHSS	Low	$20K to $30K
SW12) Enhance public education and outreach for MRW	PHSS, SW	Medium	$5K to $50K
SW13) Evaluate options for MRW facility in south County	SW	Medium	See T1
SW14) Continue to provide technical assistance for businesses to recycle, reduce or reuse hazardous wastes	PHSS	Existing	Staff time
SW15) Continue pharmaceuticals collection program	PHSS	High	Existing
SW16) Expand collection sites for pharmaceuticals if possible	PHSS	Medium	0 - $10,000
SW17) Enhance public education for pharmaceuticals	PHSS	High	$10K to $20K
SW18) Explore opportunities for statewide or regional program for pharm.	SW, PHSS	High	Staff time
SW19) Advocate for pharm. take-back program funded by industry	SW, PHSS	High	Staff time
Administration (see Chapter 9)			
A1) Develop MOU's for shared funds from tipping fees	SW	Existing	Staff time
A2) Develop strategy and funding source for nuisance properties	PHSS	High	Staff time
A3) Design education programs based on hierarchy and public needs	PHSS, SW	Existing	Staff time
A4) Ensure programs are based on data	PHSS, SW	Existing	Staff time
A5) Ensure sufficient funding for solid waste infrastructure	SW	Existing	Staff time
A6) Ensure sufficient funding for permitting, compliance, education and outreach	PHSS, SW	Existing	Staff time
A7) Continue to seek grant funding for waste diversion programs and advocate for continuing grant funding	PHSS, SW	Existing	Staff time
A8) Continue to provide technical assistance for businesses to minimize the generation of hazardous wastes	PHSS	Existing	Staff time
A9) Improve data collection and analysis methods	SW	Existing	Staff time
A10) Consider changes to Sanitary Code to improve enforcement and maintain consistency with state regulations	PHSS	Existing	Staff time

Notes: SW = Thurston County Solid Waste. NA = Not Applicable. PHSS = Public Health. K = $1,000's.
"Existing" for priority level denotes an activity that is already part of the workplan for Thurston County staff. Other priorities (High, Medium and Low) show priorities established by the SWAC on February 9, 2017 for future workplans.
Recommendations have been abbreviated to fit into this table.

CHAPTER 1
INTRODUCTION

1.1. ROLE AND PURPOSE

This Solid Waste Management Plan (SWMP) is intended to guide solid waste and recycling activities in Thurston County. This document was prepared in response to the Solid Waste Management Act, Chapter 70.95 of the Revised Code of Washington (RCW), which states:

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

The Solid Waste Management Act also specifies that these plans must "be maintained in a current and applicable condition" through periodic review and revisions (RCW 70.95.110), hence the need for this update to the previous plan.

1.2. PARTICIPATING JURISDICTIONS

Chapter 70.95 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, or
- by authorizing the county to prepare a plan that includes the city.

In this case, the cities in Thurston County have agreed to participate in this planning process through an interlocal agreement (see Appendix A).

Other governing bodies (such as Tribes and Federal agencies) may participate in a county's planning process at their option. The two Tribes in Thurston County generally use the County's waste disposal facilities. Because this SWMP may impact their current and future solid waste management options, careful review of this plan is recommended for the Confederated Tribes of the Chehalis Reservation and the Nisqually Tribe. Federal agencies with significant facilities and activities in Thurston County are also encouraged to review this plan because of the potential impacts on their operations.

1.3. REQUIRED MINIMUM CONTENTS OF PLAN

The minimum contents of this SWMP are specified by State law (RCW 70.95.090) 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 (Ecology, February 2010). To summarize, solid waste management plans must contain:

- an inventory of existing solid waste handling facilities, including an assessment of any deficiencies in meeting current disposal needs.
- the estimated 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 SWMP 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 for 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, yard debris collection programs and education programs.
- 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.
- other details for specific programs and activities.

1.4. RELATIONSHIP TO OTHER PLANS

This SWMP 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 Thurston County Comprehensive Plan (adopted in 1995 and most recently amended in 2015). One of the more important aspects of the Comprehensive Plan is the Capital Facilities Plan, which is updated annually and provides guidance on schedules and financing methods for public facilities such as the transfer stations. Other important documents that will be taken into consideration for solid waste planning include the Thurston County Hazardous Waste Management Plan (2014), the 2014-2018 Strategic Plan for Thurston County, the Thurston Regional Planning Council's sustainability plan (Creating Places – Preserving Spaces: A Sustainable Development Plan for the Thurston Region, 2013), the Thurston Thrives initiative, the City of Olympia's Waste ReSources Management Plan (2015), city comprehensive plans, and other local plans and reports.

1.5. PREVIOUS SOLID WASTE PLANS

Thurston County and the cities adopted the first solid waste plan in 1981. In 1988, the County prepared the Evaluation of Alternative Solid Waste Management Systems. Subsequent solid waste plans were adopted in 1993, 2001 and 2009. The most recent plan (the "2009 Plan") was developed over the course of a few years, beginning with the Solid Waste System Assessment prepared in 2007. Table 1-1 shows the recommendations from the 2009 Plan and the status of those recommendations as of May 2015.

Table 1-1. Status of Recommendations from the 2009 Solid Waste Plan

Administration/Data Management	
A1. Track Data in Order to Evaluate Programs, Policies, and Actions	
A1.a. Maintain and report landfilled per capita data; create a baseline for 2005.	Accomplished
A1.b. Monitor annual system disposal for facility planning purposes and maintaining system capacity.	Accomplished and ongoing
A1.c. Continue to collect and monitor curbside, WARC, waste sort and Ecology data for disposal/recycling of all commodities to track trends	Ongoing – much improved
A1.d. Work with haulers to establish disposal/recycling tracking for commercial accounts.	Accomplished
A1.e. Conduct waste sort in 2009 and 2013 to quantify types of materials being disposed and to inform SWMP implementation updates.	Accomplished
A2. Maintain Balance Between Program Responsibilities and Funding	
A2.a. Evaluate rates relative to solid waste, programs, staffing levels and capital improvements to ensure achievement of goals within this plan.	Done annually – rates raised significantly
Solid Waste and Recycling Facilities	
B1. Provide Adequate System Capacity as Needed	
B1.a. Complete facility needs analysis (capital, O&M).	Done annually
B1.b. Explore feasibility of IGA for use of the Centralia Transfer Station or jointly site a new facility to provide additional waste/recycling capacity.	Determined not feasible

Note: A few of the above recommendations have been abbreviated due to space constraints, see previous plan for full text of recommendations.

Table 1-1. Status of Recommendations from the 2009 Solid Waste Plan, continued	
Solid Waste and Recycling Facilities, continued	
B 2.Restructuring the WARC to Decrease Self-Hauler Traffic Congestion and Stimulate Reduction, Reuse, and Recovery	
B2.a. Separate commercial haulers and self-hauler systems.	Determined not to be needed
B2.c. Create signage and literature for WARC users.	Accomplished
B2.d. Establish a transaction fee to cover administration costs.	Accomplished
B2.e. Increase minimum weight for the transaction basis.	Accomplished
B2.f. Accept credit and debit payment.	Accomplished
B2.g. Round-up transaction charges to the nearest $1.	Accomplished
B3. Increase Diversion at WARC by Operator	
B3.a. Amend operation and disposal contracts for increased diversion.	Not accomplished
B4. Increase Recycling by Expanding Rochester and Rainier Drop Box Service	
B4.a. Add yard waste to drop-box sites and charge accordingly.	Determined not to be cost-effective
B4.b. Add bulk recycling (appliances, electronics, large metal, C/D) at drop-box sites.	Determined not to be cost-effective
General Waste Reduction	
C1. Increase Community Education and Program Development	
C1.a. Expand general education and outreach for residential, commercial and multi-family sectors.	Ongoing - many improvements
C1.b. Increase number of school presentations.	Increased more than 125%
C1.c. Increase assistance to schools with development, start-up and maintenance of waste diversion programs.	Accomplished and ongoing
C2. Increase Reuse and Recycling Partnership Opportunities	
C2.a. Promote private recycling/reuse locations and develop private sector/government partnerships for sites/ programs.	Many partnerships have been forged
C3. Increase Commercial Recycling Participation	
C3.a. Form and facilitate a Business Recycling Focus Group.	Accomplished, ongoing
C3.b. Work with hauler to provide material commingling in the same manner as the residential mix where applicable.	Accomplished
C3.c. Implement a business assistance program.	Accomplished, ongoing
C3.d. Consider mandatory commercial recycling if the recycling goal of a 15% increase is not met.	Reached 21%
C4. Increase Consistency For Recyclables Collection County-Wide	
C4.a. Work with haulers and City of Olympia to achieve consistency for recyclables collection.	Accomplished and ongoing
C5. Increase Effectiveness of E-waste Recycling Programs	
C5.a. Evaluate and implement additional recycling drop-offs for e-waste.	Accomplished, ongoing
C6. Increase Advocacy to Improve Waste Reduction and Recycling	
C6.a. Promote product stewardship policies.	Ongoing
C6.b. Collaborate with Building Departments to encourage and promote green building standards and the use of C&D recycling plans.	Some progress – work ongoing
C6.c. Consider mandatory C/D recycling deposits if the recycling goal of a 15% increase is not met.	Recycling increased to 29%

Note: A few of the above recommendations have been abbreviated due to space constraints, see previous plan for full text of recommendations.

Table 1-1. Status of Recommendations from the 2009 Solid Waste Plan, continued	
General Waste Reduction, continued	
C7. Increase Information for Reduction, Reuse, Recycling and Buying Recycled within Thurston County Government	
C7.a. Serve as an example by implementing Thurston County's Sustainability Policy.	Accomplished and ongoing
C7.b. Provide web-based resources and implementation strategies for local jurisdictions and businesses to use as a template.	Some progress, and ongoing
C8. Increase Residential Curbside Participation and Recycling	
C8.a. Evaluate mandatory residential curbside trash and recycling collection if the number of self-haulers does not decrease by 5%.	Reduced 19%
General Waste Reduction: Organics Recycling	
D1. Increase Opportunities for Organics Recycling	
D1.a. Establish use of WARC as food waste transfer site.	Accomplished
D1.b. Add food waste to yard debris collection for residents.	Accomplished
D1.c. Implement food waste collection program at schools and businesses.	Accomplished
General Waste Reduction: C/D Recovery and Recycling	
E1. Increase C/D Recovery	
E1.a. Evaluate potential locations and partnerships for a regional C/D facility.	Determined not to be cost-effective
E1.b. Establish C/D rates at the WARC to encourage mixed and source-separated C/D recycling.	Determined not to be cost-effective
E1.c. Increase recovery reimbursement to facility operator.	Under consideration
E2. Increase Waste Reduction, Reuse, and Recycling for New Buildings and Remodels	
E2.a. Promote available reuse opportunities and resources to the building community.	Ongoing – promotion increased

Note: A few of the above recommendations have been abbreviated due to space constraints, see previous plan for full text of recommendations.

1.6. SOLID WASTE ADVISORY COMMITTEE

The formation, membership makeup, and role of solid waste advisory committees are specified by State law (RCW 70.95.165 (3)):

> "Each county shall establish a local solid waste advisory committee to assist in the development of programs and policies concerning solid waste handling and disposal and to review and comment upon proposed rules, policies, or ordinances prior to their adoption. Such committees shall consist of a minimum of nine members and shall represent a balance of interests including, but not limited to, citizens, public interest groups, business, the waste management industry, agriculture, and local elected public officials. The members shall be appointed by the county legislative authority."

As required by State law, the Thurston County Solid Waste Advisory Committee (SWAC) includes individuals representing various interests in solid waste issues. The members represent not only the interests of their respective agencies and businesses, but as residents and members of the community they also represent the public's interest. The SWAC functions in a review and advisory capacity throughout the plan development process. The current membership (as of July 2016) and affiliations of the SWAC members are shown in Table 1-2.

Table 1-2. Membership of the Thurston County SWAC

Members	Area of Representation
Lenny Greenstein	City of Lacey
Dan Daniels	City of Olympia
Dave Watterson	City of Tenino
Joan Cathey	City of Tumwater
J.W. Foster, Vice Chair	City of Yelm
Renee Sinclair	District #1,Citizen
Burton Guttman	District #2, Citizen
Joe Hyer, SWAC Chair	District #3, Citizen
E.J. Zita	Port of Olympia Commissioner
Diana Wall	Recycling Industry
Delroy Cox	Refuse Industry
Sandra Romero	Thurston County Commissioner
Vacant	Agricultural Interest
Vacant	Town of Bucoda
Vacant	City of Rainier

Current as of July 2016.

1.7. PROCESS FOR UPDATING THE SWMP

The process of updating and adopting this SWMP will consist of the following steps:

- initial meetings were held with Thurston County Solid Waste staff, the SWAC, and other key stakeholders.
- a facilitated meeting with the SWAC was conducted to develop a vision statement, mission statement and goals for the new plan.
- draft chapters will be developed and reviewed with Thurston County staff and then the SWAC.
- after all of the chapters have been reviewed by the SWAC, they will be compiled into a complete draft for review and comment by SWAC members and County staff. After this review and the subsequent revisions, the draft plan will become

the "Preliminary Draft."

- a SEPA checklist will be developed for the Preliminary Draft SWMP.
- a Cost Assessment Questionnaire will be prepared for review by the Washington Utilities and Transportation Commission (UTC).
- the Preliminary Draft SWMP, SEPA checklist and Cost Assessment Questionnaire will be released for review by the public, Ecology, Department of Agriculture and UTC. The release of the plan will be publicized using a newspaper ad and postings to the County's website at a minimum, and a public hearing will be held during the review period to further solicit public comments.
- comments received on the Preliminary Draft from the public, municipalities, UTC, Ecology, Department of Agriculture and other interested parties will be reviewed with the SWAC and then incorporated into the plan to produce the Final Draft SWMP.
- the Final Draft will be offered for adoption by the cities, towns and Thurston County.
- after local adoption, the Final SWMP will be submitted with resolutions of adoption to Ecology for final approval.
- after final approval by Ecology, the process of updating the SWMP will be completed and the implementation period for the new SWMP will begin.

Public participation will be encouraged throughout this process. Among other activities, the following steps will be 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 will be solicited at each of the SWAC meetings,
- information about the plan and process was posted on Thurston County's website, along with periodic updates, and
- as noted in the above list of process-related steps, additional steps will be taken when the preliminary draft plan is released for public review and comment,

1.8. POLICY GUIDANCE FOR THE SWMP

The following vision statement, mission statement and goals are intended to provide guidance for the programs and policies to be developed in this SWMP. These statements were initially developed at the SWAC meeting on May 14, 2015, and then revised later based on review by Thurston County staff.

Vision Statement

The vision statement for this plan was developed through a process that included imagining what the ideal future would look like for Thurston County. As such, the programs and policies for this SWMP should help reach this ideal future. The vision statement adopted for this plan is:

> *We see a future in which people, businesses, and agencies in Thurston County make less waste each day. Any waste that's left is managed in environmentally sound and sustainable ways.*

Mission Statement

The mission statement for this plan describes, in broad terms, the next steps for achieving the vision:

> *Our mission is to promote waste prevention and sustainable resource use in Thurston County. We do this by providing education, infrastructure, and technical assistance to fully engage the community in reducing waste, conserving resources, and ensuring materials are properly managed.*

Goals

The goals adopted for this SWMP provide the next level of guidance in how this SWMP will achieve the vision and mission statements. These goals are categorized according to the aspect of the solid waste system that they primarily address (infrastructure, sustainability, education, and outside influences).

Infrastructure and System

- Thurston County diverts material away from the landfill by cost-effectively handling and separating recyclable and compostable material.
- The infrastructure needed to provide maximum recycling opportunities and waste diversion is present in the County.
- The collection infrastructure is flexible and adaptable to changing recycling and waste diversion practices.
- In Thurston County it is easier and less costly for people to reduce, reuse, recycle, or compost their waste than it is to dispose of it.
- Wastes are properly managed and waste facilities are operated in full compliance with appropriate rules and regulations.

Economic Sustainability

- In Thurston County waste is managed as a resource to increase local job opportunities and support economic development.
- Thurston County's solid waste system has a sustainable funding mechanism.

- Thurston County's development community is aware of and invested in less wasteful and more sustainable building and development practices.
- In Thurston County, all edible food is eaten and all inedible food is composted or processed into other value-added products.

Education

- People in Thurston County act on the basis of their understanding of the societal, environmental, health, and financial impacts of their consumption and disposal choices. This includes their impact on climate change.
- In Thurston County, people and businesses make responsible choices about what they produce and consume, and what they generate as waste.

Outside Influences

- Thurston County promotes and supports life cycle product stewardship and industry advancements in packaging standards that lead to less waste generation.
- Thurston County supports changes to federal and state regulations and policies that support increased recycling opportunities and waste diversion.

The above goals will be used to evaluate the alternatives that are considered in later chapters of this SWMP.

1.9. ORGANIZATION OF THE SWMP

This SWMP is organized into the following chapters:

Executive Summary
Chapter 1: Introduction
Chapter 2: Background of the Planning Area
Chapter 3: Waste Reduction and Recycling
Chapter 4: Organics
Chapter 5: Solid Waste Collection
Chapter 6: Transfer System
Chapter 7: Disposal System
Chapter 8: Special Wastes
Chapter 9: Administration
Chapter 10: Implementation Plan
Glossary and Appendices

Chapter 1 (this chapter) is intended to address the reasons and requirements for this SWMP, and also addresses important aspects of the planning process. Chapter 2

provides basic information about demographics, waste quantities and other factors common to the remaining chapters. Chapters 3 through 9 address particular elements of Thurston County's solid waste management system in order to:

- review existing programs, activities and policies in Thurston County and the cities for each element of the solid waste system.
- identify any outstanding issues (i.e., needs, problems, or opportunities) that are not addressed by existing activities and programs.
- identify and evaluate alternatives to address the issues.
- recommend future programs or actions as appropriate to the needs and abilities of the County's and Cities' residents, businesses and service-providers.
- present implementation schedules and costs for the recommended programs and facilities.

Chapter 10 contains all of the recommendations from each chapter and provides information about the schedule and responsibilities for implementing the recommendations. The appendices to this plan contain information relevant to the planning process, including the Interlocal Agreements, description of siting factors, UTC Residential Garbage and Recycling Consumer Guide, UTC Cost Assessment Questionnaire, SEPA Checklist and resolutions of adoption.

1.10. STANDARD NOMENCLATURE USED IN THE SWMP

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

- City: When capitalized, this refers to a particular city. When not capitalized, it simply refers to cities or city authority in general.
- County: When not capitalized, this refers to counties or county authority in general. When capitalized, this refers specifically to Thurston County. In the latter case, the term may apply to the County government, to the unincorporated area outside of the City, or to the entire County (including the cities). Examination of the context should clarify the exact meaning of the term.
- Ecology: When capitalized, this refers to the Washington Department of Ecology.
- State, Federal and Tribes: These words are almost always capitalized on the grounds that these almost always refer to a specific entity.

More information about the definitions for words used in this SWMP can be found in the Glossary.

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 Thurston 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 siting of solid waste facilities, is provided in Appendix B.

2.2. DEMOGRAPHICS

Current Population and Demographics

According to the Washington State Office of Financial Management, Thurston County had an estimated population of 264,000 people in 2014. The seven cities and towns in Thurston County had 125,840 residents in 2014, or 47.7% of the total population of the county. In other words, slightly more than half of the residents in Thurston County live in the unincorporated areas (outside of city or town limits). Table 2-1 shows the County's population distribution for 2010 and 2014.

Table 2-1. Thurston County Population by Area

Area	2010 Population	2010 Percentage	2014 Estimated Population	2014 Percentage
Incorporated Areas:				
Bucoda	562	0.2%	560	0.2%
Lacey	42,393	16.8%	45,320	17.2%
Olympia	46,478	18.4%	49,670	18.8%
Rainier	1,794	0.7%	1,850	0.7%
Tenino	1,695	0.7%	1,725	0.7%
Tumwater	17,371	6.9%	18,800	7.1%
Yelm	6,848	2.7%	7,915	3.0%
Subtotal, Incorporated Areas	117,141	46.4%	125,840	47.7%
Unincorporated Areas	135,123	53.6%	138,180	52.3%
Total Population	252,264		264,000	

Notes: Data is from April 1, 2014 Population of Cities, Towns and Counties, by the Washington State Office of Financial Management.

Future Population/Demographics

Evaluating growth trends in an area's population is useful in determining future trends in solid waste generation. Table 2-2 shows historical and projected population figures for Thurston County. As shown in Table 2-2, the population of Thurston County is expected to increase significantly by 2040. The projected 2040 population of Thurston County (358,031 people) represents a 34% increase over the current (2015) estimated population.

Table 2-2. Thurston County Population Trends

Year	Total Population	Annual Increase
Historical:		
1960	55,049	---
1970	76,894	4.0%
1980	124,264	6.2%
1990	161,238	3.0%
2000	207,355	2.9%
2010	252,264	2.2%
Projected:		
2015	266,224	1.1%
2020	288,265	1.7%
2025	307,930	1.4%
2030	326,426	1.2%
2035	343,019	1.0%
2040	358,031	0.9%

Notes: Historical data is from Intercensal Estimates of April 1 Population for the State and Counties, 1960-2010, by the Washington State Office of Financial Management (OFM). Projected data is from Projections of the Total Resident Population for the Growth Management Act, Medium Series, by the OFM.

2.3. ECONOMY

Thurston County's economy is influenced by the presence of the State Capitol and numerous State agencies. The local economy also benefits from nearby Joint Base Lewis-McChord and several colleges and universities. The public sector (government) is the single largest employer, and this includes police and fire departments, court, public health and several other functions. The largest private employers in Thurston County in 2014 were Providence Hospital (1,700 employees), Walmart (1,023), Safeway (876), Xerox (650), Lucky Eagle Casino (600), Nisqually Red Wind Casino (600), Weyerhaeuser (565), and YMCA (551). Table 2-3 shows the number of employees by type of business for Thurston County in 2013.

Table 2-3. Employment by Type of Business in Thurston County (2013)			
Business Type	**Number of Employees**	**Percentage**	**Statewide Percentage**
Agricultural, Forestry and Fishing	1,501	1.5%	3.2%
Mining	16	0.02%	0.1%
Utilities	169	0.2%	0.2%
Construction	3,498	3.5%	4.7%
Manufacturing	3,126	3.1%	9.6%
Wholesale Trade	3,064	3.1%	4.2%
Retail Trade	11,547	11.6%	11.0%
Transportation and Warehousing	2,211	2.2%	2.8%
Information	902	0.9%	3.6%
Finance and Insurance	2,258	2.3%	3.0%
Real Estate	1,232	1.2%	1.5%
Professional and Technical Services	3,526	3.5%	5.8%
Management Services	688	0.7%	1.3%
Administrative, Support, Waste Management	4,931	4.9%	4.9%
Educational Services	1,666	1.7%	1.3%
Health Care and Social Services	11,588	11.6%	11.4%
Arts, Entertainment and Recreation	1,115	1.1%	1.5%
Accommodation and Food Services	7,769	7.8%	8.0%
Other Services	4,482	4.5%	4.5%
Government (Federal, State and Local)	34,632	34.7%	17.5%
Total	99,919		

Source: Data is from the Washington Employment Security Department and is for 2013. The number of employees shown are annual averages.

2.4. QUANTITY AND COMPOSITION OF SOLID WASTE

An analysis of the current and future quantities of solid waste in Thurston 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.

This SWMP focuses primarily on "municipal solid waste" (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 Thurston County consists of many types of wastes, almost all of which are handled through the Thurston County Waste and Recycling Center (the WARC) in Lacey and then transported to a large regional landfill in Klickitat County, Washington. Some special wastes generated by industrial and agricultural sources are handled separately from the solid waste disposal system. Various other special wastes (such as hazardous wastes and biomedical wastes) are also handled through separate collection and disposal systems.

Past and Present Solid Waste Quantities

The solid waste disposed of at the WARC is brought there by a variety of customers, including a private hauler (Waste Connections), a municipal hauler (the City of Olympia), and many residential and commercial customers that are hauling their own wastes ("self-haul"). Table 2-4 shows the amount of wastes from the various sources in Thurston County for 2014.

Table 2-4. Thurston County Waste Tonnages (2014)

Source	Annual Tons	Percent
Haulers	**111,717**	**69.1%**
Olympia	26,733	16.5%
Waste Connections	84,894	52.6%
Self-Haul	**46,267**	**28.6%**
Rural Drop Boxes	**3,642**	**2.3%**
Rainier	1,782	1.1%
Rochester	1,861	1.2%
TOTAL	**161,626**	**100%**

Notes: Data is from Thurston County records.

Another way to look at the sources of waste in Thurston County is by generator type (single-family, multi-family, commercial, etc.). Table 2-5 shows this data from the 2014 Waste Composition Study.

Table 2-5. Annual Quantities by Type of Generator

Type of Generator	Annual Amounts (2013-2014) Total Tons	Percent
Residential Self-Haul	21,490	13.5%
Rural Drop-boxes	3,435	2.2%
Single-Family	46,888	29.5%
Multi-Family	9,686	6.1%
Residential Subtotal	**81,499**	**51.4%**
Non-Residential Self-Haul	18,479	11.6%
Commercial	58,723	37.0%
Non-Residential Subtotal	**77,202**	**48.6%**
Totals	**158,701**	**100.0%**

Notes: The annual amounts shown above are for the period from September 1, 2013 through August 31, 2014, as this period corresponded to the timing of the waste composition study, and are based on inbound waste tonnages.

Thurston County's waste stream has grown over the past 20 years. Table 2-6 shows the annual waste quantities for this period and the amount of change from the previous year. These figures are the amounts of solid waste sent out from the WARC (or brought to the Hawks Prairie Landfill prior to April 30, 2000). These figures do not include the special wastes that are handled separately from the municipal solid waste stream (such as biomedical wastes) or the waste amounts that are exported directly to out-of-county facilities.

As can be seen in Table 2-6, there have been significant fluctuations in the amount of wastes in some years. The largest fluctuations occurred recently due to the recession that began in 2008, and waste tonnages have only begun to recover from the recession in the past few years. Solid waste tonnages are still lower than pre-recession levels, although some of the decrease could be due to increased waste reduction and recycling activities. These fluctuations can be seen in Figure 2-1, which shows the per capita disposal rates over the past ten years.

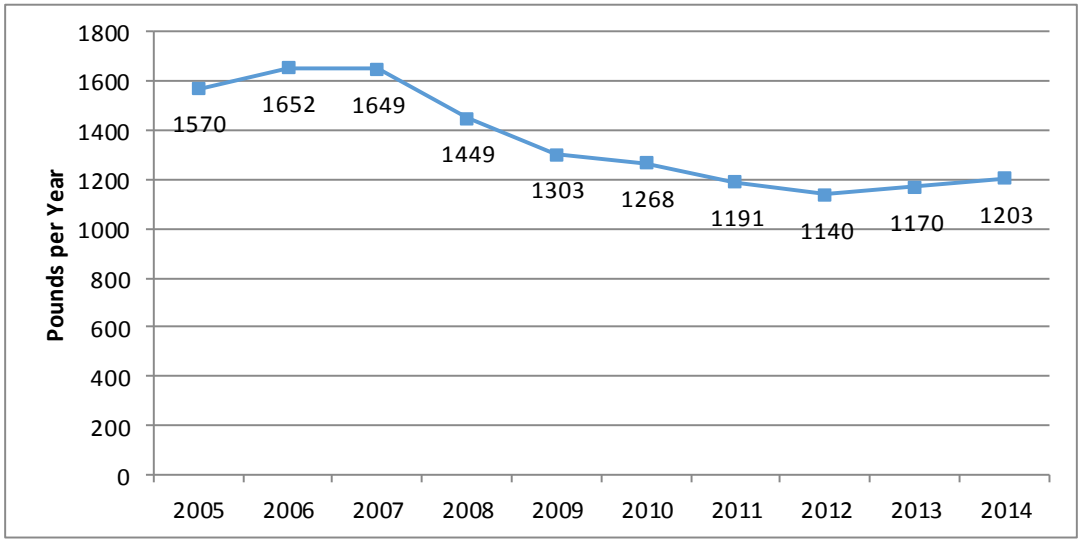
Table 2-6. Annual Tons Landfilled

Year	Total Waste, TPY	Percent Change
1995	125,884	--
1996	124,856	-1%
1997	125,288	0%
1998	131,447	5%
1999	139,346	6%
2000	139,595	0%
2001	146,070	5%
2002	155,960	7%
2003	168,051	8%
2004	170,231	1%
2005	175,945	3%
2006	190,837	8%
2007	196,221	3%
2008	177,660	- 9%
2009	162,701	- 8%
2010	159,933	- 2%
2011	151,318	- 5%
2012	146,360*	- 3%
2013	152,163	4%
2014	158,844	4%
2015	168,928	6%
2016	179,733	6%

Source: Thurston County invoice records of container weights for waste disposed at Roosevelt Regional Landfill.

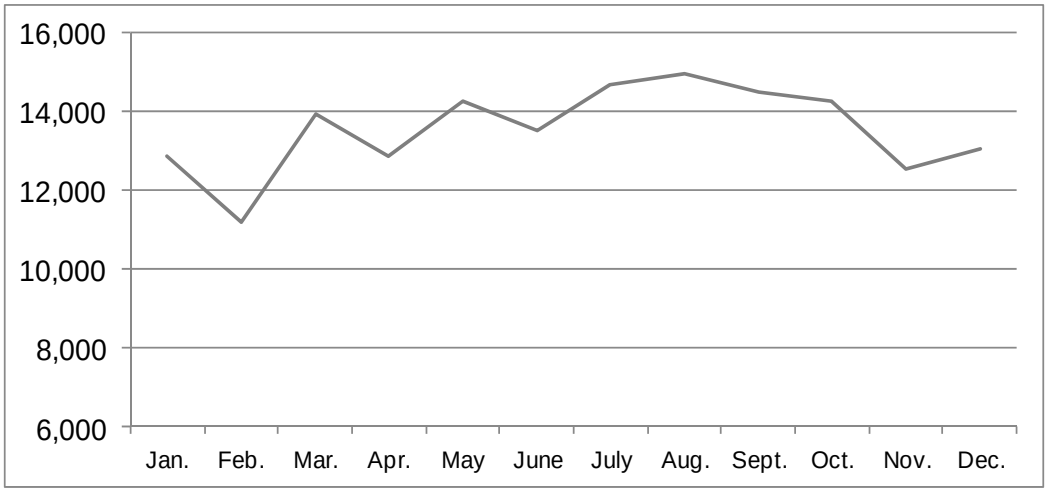
* The 2012 waste figure does not include 8,000 tons of waste that was excavated from an old landfill cell for the construction of the Intercity Transit Park and Ride.

Figure 2-1
Per Capita Disposal Rates



The rate at which solid waste is generated varies throughout the year due to seasonal differences in residential and commercial activities. Data from Thurston County records shows that the amount of solid waste disposed in any one month in 2014 varied from a low of 11,220 tons in February to a high of 14,702 and 14,951 tons in July and August, respectively (see Figure 2-2). This is a typical pattern for many areas, with the lowest amounts of wastes being disposed in the winter months (after the impact of the holiday season has been experienced), although it is somewhat unusual for the largest amounts of waste to occur in the summer months. This is more typical in areas with large amounts of seasonal homes and tourism.

Figure 2-2
Solid Waste, Tons per Month (2014)



Based on inbound tonnages for 2014.

Current Recycling Levels

The most recent recycling survey conducted by Ecology shows that 150,333 tons of materials were recycled in 2013 from Thurston County residences and businesses, which was more than in the previous two years. Table 2-7 shows the tonnages of materials recycled for the past three years (2011-2013), 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.

The bottom section of Table 2-7 shows materials that are not defined as "recycling" and so are not included in the calculation of the County's recycling rate. These "diverted" materials, including materials burned for energy recovery and some of the recycled construction materials, are being put to beneficial uses but are not defined by Ecology as recycling.

The figures shown in Table 2-7 include an allocated portion of the "unknown tonnages" measured by Ecology's survey. The data reported for the annual recycling survey does not identify the source of this material which is mostly ferrous and non-ferrous metals. These "unknown tonnages" have amounted to about 15% of the recycling totals for the past three years, and only 0.1% of the diverted amount. The generally recommended approach for dealing with these tonnages is to allocate these to individual counties based on population, which is what has been done here (based on Thurston County's 3.8% share of the State's population).

The data in Table 2-7 can be combined with disposal data to calculate the recycling rate for Thurston County (see Table 2-8). Based on 150,333 tons of materials recycled in 2013 and a waste disposal amount of 152,162 tons in 2013, the recycling rate for Thurston County in 2013 was 49.7%. This figure is generally called a "recycling rate," although it also includes organics that are composted.

The data shown in Table 2-7 can also be used to calculate a "diversion 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 2-8).

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. If all waste reduction activities could be measured, the County's current diversion rate would be significantly greater.

Solid Waste Composition

Composition data is useful for designing solid waste handling and disposal programs. The most recent composition study performed in Thurston County was

Table 2-7. Recycled and Composted Quantities by Material				
Material	**Annual Tons**			**Three-Year Average**
	2011	**2012**	**2013**	
Recycled Materials				
Cardboard	14,985	16,389	15,900	15,758
Newspaper	2,509	3,105	9,832	5,148
Other Recyclable Paper	25,296	13,958	10,419	16,558
PET Bottles	543	749	783	677
HDPE Bottles	163	414	450	342
Other Plastics	557	829	990	792
Glass	417	5,817	3,163	3,132
Aluminum Cans	628	637	448	571
Tin Cans	232	657	670	519
Appliances/White Goods	405	337	148	297
Ferrous Metals	33,952	45,672	26,793	35,472
Non-Ferrous Metals	3,849	5,003	5,003	4,618
Food Waste	1,055	798	1,200	1,017
Yard Waste	6,140	1,721	4,494	4,118
Mixed Food/Yard Waste	18,793	13,137	19,954	17,368
Fats, Oils and Rendering	1,146	879	1,270	1,098
Textiles	866	780	158	601
Tires	581	766	719	688
Wood	7,683	1,051	8,646	5,793
Gypsum	638	158	128	308
Batteries, Auto Lead Acid	651	1,146	461	752
Electronics	632	1,241	1,611	1,161
Fluorescents	24	39	22	28
Used Oil	1,641	1,670	1,020	1,443
Other	10	2	--	4
Total Recycled	**123,393**	**116,953**	**114,234**	**118,194**
Diverted Materials				
Agricultural, Other Organics	1,137	11	1,379	842
Antifreeze	167	165	162	165
Batteries (All Other)	7	8	6	7
C&D (several types)	88,981	68,372	37,633	64,995
Food Waste	225	789	830	615
Glass (for aggregate)	2,893	602	62	1,186
Land-clearing Debris	23,630	27,722	176	17,176
Mattresses	441	--	166	202
Oil Filters	97	104	78	93
Reuse (clothing, household)	309	194	--	168
Tires (baled, burned, reused)	1,099	879	1,641	1,206
Used Oil (burned for energy)	315	321	264	300
Wood (burned for energy)	16,646	16,296	1,320	11,421
Miscellaneous/Other	16	35	11	21
Total Diverted	**135,962**	**115,498**	**43,730**	**98,397**

Note: All data is from the annual recycling survey conducted by Ecology. These figures should be viewed with caution, as the data is based on a voluntary survey and the quality of responses for this survey varies from year to year and from company to company.

Table 2-8. Recycling and Diversion Rates				
Material	**Annual Tons**			**Three-Year Average**
	2011	**2012**	**2013**	
MSW:				
Recycled Materials	123,393	116,953	114,234	118,194
MSW Disposed	151,318	146,136	152,162	149,872
Waste Generation (Recycled Amount + MSW Disposed)	274,711	263,089	266,396	268,066
Recycling Rate	**44.9%**	**44.5%**	**42.9%**	**44.1%**
All Wastes:				
Recycled Materials	123,393	116,953	114,234	118,194
Diverted Materials	135,962	115,498	43,730	98,397
All Recovered Materials	259,355	232,451	157,964	216,590
MSW Disposed	151,318	146,136	152,162	149,872
Other Wastes Disposed	1,383	814	1,551	1,249
Total Wastes Disposed	152,701	146,950	153,713	151,121
Diversion Rate	**62.9%**	**61.3%**	**50.7%**	**58.3%**
Pounds per Capita (MSW only):				
Population	254,100	256,800	260,100	
Recycled, pounds/person/yr	971	911	878	920
Disposed, pounds/person/yr	1,191	1,138	1,170	1,166
Generated, pounds/person/yr	2,162	2,049	2,048	2,087

Note: All data is from annual surveys conducted by Ecology, except the population and resulting per capita figures. The figures for recycled and diverted materials should be viewed with caution, as the data is based on a voluntary survey and the quality of responses for this survey varies from year to year and from company to company.

completed in 2014, and previous studies were conducted in 1999, 2004, and 2009. Table 2-9 shows the results of the most recent study.

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

Table 2-9. Composition of Disposed Wastes								
Type of Material	Annual Average by Waste Generator						Total Waste Stream	Total Tons Disposed
	Residential Self-Haul	Rural Drop-boxes	Single-Family	Multi-Family	Non-Res. Self-Haul	Commer-cial		
Recyclable Paper	9.4	6.4	7.3	11.3	5.6	12.0	9.4	14,870
Compostable Paper	1.5	1.3	4.0	3.5	0.5	5.8	3.8	6,040
Non-Recyclable Paper	1.0	2.4	1.9	2.6	1.4	3.5	2.4	3,780
Plastic Bottles	1.2	1.1	1.4	3.0	0.2	1.5	1.4	2,150
Plastic Bags and Film	2.6	3.0	5.8	5.0	1.2	6.5	5.0	7,870
Other Plastics	5.1	6.0	4.9	4.6	4.5	5.9	5.3	8,350
Metals	8.4	12.3	3.9	4.8	2.8	4.6	4.9	7,740
Food Waste	11.1	7.7	22.9	22.4	0.6	19.0	16.9	26,830
Yard Debris	2.1	3.7	7.3	2.2	1.1	1.0	3.2	5,000
Recyclable Glass	6.1	2.7	3.4	5.5	0.4	1.4	2.8	4,400
Other Glass	1.7	0.2	0.3	0.3	4.6	1.5	1.4	2,220
Disposable Diapers	0.6	2.1	5.0	6.0	0.1	2.3	2.8	4,510
Textiles	4.4	3.9	4.8	5.8	0.8	3.1	3.7	5,830
Carpet and Padding	5.9	4.7	0.4	1.7	7.0	6.9	4.5	7,140
Furniture and Mattresses	7.7	3.1	0.6	1.1	8.7	0.7	2.6	4,160
Wood Waste	18.1	14.4	2.5	3.2	24.2	7.6	9.3	14,800
Construction/Demolition	5.2	8.6	1.3	0.9	34.5	5.1	7.2	11,500
Animal Excrement	1.0	1.1	7.0	4.8	0.1	0.5	2.7	4,100
Other Special Wastes	1.5	0.4	0.7	0.5	0.1	0.4	0.6	1,100
Other Materials	5.6	14.9	14.8	11.0	2.0	10.7	10.3	16,340
Totals	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**158,700**

Notes: All figures are percentages by weight, except the last column which is tons per year. The sum of the figures may not equal exactly 100% due to rounding.

Recovery Rates by Material

The data shown in Tables 2-7 and 2-9 can be combined to determine the recycling rate by material (see Table 2-10). The first column of figures in Table 2-10 shows the combined values for the amounts recycled and diverted for each type of material in 2013. The next column shows how much of each material was disposed, which is based on the waste composition study completed in 2014. There were three types of organics that were either not found or not measured separately in the waste composition study, including fats and oils (only incidental amounts were found and these small amounts were categorized as food waste), "other organics" (no significant quantities of agricultural or industrial organics were found in the waste composition study), and land-clearing debris (only small amounts of this type of waste were found and were categorized as yard debris). The figures for recovery rates by material can help identify what's working well and where there are opportunities to improve. For example:

- The materials with the highest recycling rates include antifreeze, used oil and lead acid batteries. Most lead acid batteries have a deposit attached to them, which encourages their return for recycling purposes. All three of these materials are broadly recognized as toxic and handled accordingly.
- For the paper materials, cardboard and newspaper are recycled at higher rates than other types of paper, probably because these are well-known as being recyclable. The greatest opportunity to raise the paper recycling rate is by increasing the recovery of mixed paper and other paper grades.
- For the plastics, the recovery rates for PET and HDPE could be better, given the access to curbside and other programs that collect these materials. The recovery rate for "other plastics" appears quite low, at 5%, but this category includes a variety of plastics, many of which are difficult to recycle and are not widely collected.
- The recovery rate for glass bottles is relatively low. This is likely due to its low value and to how difficult it is to collect.
- The overall recovery rate for metals is quite good, although it is surprising that the rate for aluminum cans is not better, given its relatively high value and how easy it is to recycle. This could be an example of reporting issues for Ecology's annual survey (i.e., some of the companies buying cans may not be participating in the survey).
- Food waste and compostable paper were only recycled at a 10% rate in 2013. Food waste represents the largest single item left in the waste stream by weight. New programs to prevent or compost food waste could significantly increase the County's overall recycling rate.
- Yard debris has a high recycling (composting) rate, thanks to well-established collection programs and a reduced tipping fee for this material at the WARC.

Table 2-10. Recycling Rates by Material			
Material	**Recycled and Diverted in 2013**	**Disposed in 2013-2014**	**Recovery Rate**
Paper	**36,691**	**20,910**	**64%**
Cardboard	15,900	5,260	75%
Newspaper	9,832	730	93%
Other Recyclable Paper	10,408	8,880	54%
Compostable Paper	541*	6,040	8%
Plastics	**2,177**	**18,370**	**11%**
PET Bottles	738	1,330	36%
HDPE Bottles	450	720	38%
Other Plastics	990	16,320	6%
Glass	**3,247**	**4,420**	**42%**
Glass Bottles	3,225	4,400	42%
Fluorescent Lights	22	20	53%
Metals	**33,062**	**7,740**	**81%**
Aluminum Cans	448	580	44%
Tin Cans	670	1,040	39%
Appliances/White Goods	148	140	51%
Ferrous Metals	26,793	5,320	83%
Non-Ferrous Metals	5,003	660	88%
Organics	**28,365**	**31,830**	**47%**
Food Waste	3,353*	26,830	11%
Yard Debris	21,994*	5,000	81%
Fats, Oils and Rendering	1,270	NA	
Other Organics	1,573*	NA	
Land-clearing Debris	176	NA	
Other Wastes	**4,295**	**6,830**	**39%**
Electronics	1,611	200	89%
Textiles	158	5,830	3%
Tires	2,359	230	91%
Mattresses	166	570	23%
Wood and C&D	**47,947**	**26,300**	**65%**
Wood	10,186*	14,800	41%
Asphalt Shingles	0	2,860	0%
Gypsum	128	3,490	4%
All Other C&D	37,633	5,150	88%
Special Wastes	**1,991**	**271**	**88%**
Used Oil	1,284	16	99%
Oil Filters	78	79	50%
Antifreeze	162	0	100%
Batteries, Auto Lead Acid	461	16	97%
Batteries (All Other)	6	160	4%
All Other Materials/Wastes	**480**	**42,029**	
Totals	**158,255**	**158,700**	**50%**

* Includes allocated portion of mixed organics.

- The "other wastes" category includes a variety of materials, some with high recovery rates (such as tires at 91%) and some materials with very low rates (such as textiles at 3%).
- Some of the C&D materials have good recovery rates. Several types of materials are included in the category of "all other C&D" but much of this category is made up of concrete and asphalt, which are materials typically handled separately from the solid waste system.

In general, the materials with high and low recovery rates can be summarized as:

High Recovery Rates	Needs Improvement
Newspaper	Food Waste
Yard Debris	Other Recyclable Paper
Electronics	Compostable Paper
Tires	PET and HDPE Bottles
Some Types of C&D	Textiles
Used Oil	Mattresses
Antifreeze	Some Types of C&D
Car Batteries	Other Batteries

Future Solid Waste Quantities

In Table 2-11, waste quantities have been projected using the current (2013) per capita recycling and disposal rates multiplied by population forecasts for the County. Projections using the 2006 disposal rate (1,652 pounds per household per year) are also shown in Table 2-11. Both sets of projections are shown because current disposal tonnages are just starting to recover from the recession, and it is unknown at this time if or when the disposal rate will return to the high point reached in 2006 prior to the recession (see Figure 2-1). The amounts of diverted materials and non-MSW types of solid waste are not included in either set of figures because these 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. Both sets of projections use the current (2013) recycling rate (1,156 pounds per household per year).

Conclusions

Based on the projections shown in Table 2-11, the capacity of existing facilities and disposal systems is adequate to handle the needs of Thurston County through the planning period. Significant expansions in the recycling of specific materials may require additional or expanded facilities in the future.

Table 2-11. Projected Solid Waste and Recycling Quantities for Thurston County				
	Current Amounts (2013)	2015	2025	2035
Population	260,100	266,224	307,930	343,019
At Current per Capita Rates				
Recycled Amounts, 0.44 tons/person/year	114,234	116,924	135, 241	150,651
Disposed Amounts, 0.585 tons/person/year	152,162	155,745	180,143	200,671
Total Waste Generated, tons/year	266,396	272,668	315,384	351,322
Recycling Rate	42.9%	42.9%	42.9%	42.9%
At 2006 Disposal Rate				
Recycled Amounts, 0.44 tons/person/year	114,234	116,924	135,241	150,651
Disposed Amounts, 0.826 tons/person/year	152,162	219,901	254,350	283,334
Total Waste Generated, tons/year	266,396	336,825	389,591	433,985
Recycling Rate	42.9%	34.7%	34.7%	34.7%

Source: Based on the per capita figures shown in Table 2-8 and Figure 2-1, and the population figures shown in Table 2-2.

CHAPTER 3

WASTE REDUCTION AND RECYCLING

3.1. BACKGROUND FOR WASTE REDUCTION AND RECYCLING

Introduction

This chapter addresses:

- waste reduction programs for all materials, including organics, and
- diversion programs for non-organic materials.

Diversion programs for organic materials are addressed in Chapter 4. Potential recycling programs for a few specific materials are discussed in the chapter on special wastes (see Chapter 8), including asphalt shingles, carpet and carpet padding, and mattresses. General education efforts are discussed more fully in the chapter on administration and public education (see Chapter 9).

The recommendations in the County's 2009 Solid Waste Management Plan primarily focused on expanding and improving recycling and organics collection programs and strengthening the County's overall solid waste management systems and infrastructure. Significant progress has been made in implementing these recommendations and achieving the goals set in 2009.

Without diminishing the need to continue to support and improve current recycling programs, this plan update shifts the County's focus up the solid waste management hierarchy toward waste reduction and reuse. It is important to make this shift because the vast majority of the environmental impacts of the materials in the waste stream occur before they enter the recycling and disposal systems. Producing, transporting, and consuming these materials requires a lot of energy, water, and other natural resources. To conserve these resources will require new and innovative approaches to managing materials. These include waste reduction initiatives, like the ones recommended in this Chapter, to prevent wasted food and to ensure youth have the knowledge and tools that will allow them to grow into well-informed consumers who make more sustainable choices.

Definitions for Waste Reduction and Recycling

In this SWMP, the following terms are defined as follows:

- **Waste Reduction**: Waste reduction is defined to include methods that reduce the amount of solid waste that is generated. Waste reduction is also defined by State rules (RCW 70.95.030) to include methods that reduce the toxicity of wastes. As used in this Plan, waste reduction includes activities such as food recovery and

backyard composting and also diverting materials that might otherwise become wastes to useful applications through reuse and repair.

- **Recycling**: Recycling refers to the act of processing materials to return them to a similar use. Recycling does not include materials burned for energy recovery or destroyed through pyrolysis and other high-temperature processes. The State's definition of recycling is "recycling means transforming or remanufacturing waste materials into usable or marketable materials for use other than landfill disposal or incineration. Recycling does not include collection, compacting, repackaging, and sorting for the purpose of transport" (Chapter 173-350 WAC).

Washington State Recycling Goal

The State's goal is to reach a 50% recycling and composting rate by 2007. This goal was achieved in 2011 when the recycling rate rose to 50.7%. The most recent data shows the rate slipping a bit, dropping to 48.9% in 2013. State law (RCW 70.95.010(9)) established the 50% statewide goal for recycling and composting, but does not mandate that each county or city adopt a 50% goal. Each community is expected to set a goal that suits its situation, provided that the goal is based on justified and sound reasoning. For example, RCW 70.95.090 explicitly recognizes that different levels of collection service are appropriate for urban and rural areas.

The annual recycling survey conducted by Ecology is a good source of information about the many recycling and composting activities that are being conducted by private companies and others in Washington State that are not otherwise easy for local governments to monitor and measure. On the other hand, reporting for this survey is voluntary, meaning that actual participation and the quality of reporting varies from company to company and from year to year. This issue leads to uncertainties in the survey results and also in year-to-year shifts that are difficult to explain. For this reason, the recycling survey is not very useful as a tool for monitoring progress towards an individual county's recycling goal. For Thurston County, a better alternative for setting a recycling goal and monitoring the progress towards that goal is provided by the data being collected by the County on local public drop-off, curbside and commercial recycling programs (see Section 3.2).

Another problem with the annual recycling survey, and with other commonly used evaluation methods, is that they only measure materials after they've been produced and need to be managed. For that reason, they fail to account for the economic, environmental, and societal impacts of waste reduction programs. In some cases, a decline in a community's recycling rate may actually represent progress toward achieving more important resource conservation and waste reduction goals.

It is also important to note that most evaluation methods measure how much material is collected for recycling, not how much is actually recovered to make new products. To address this issue, the 2010 Beyond the Curb report published by Ecology recommends that communities "switch the focus from collection to

recovery." This report, which is based on the findings of a group of Southwest Washington stakeholders including representatives from Thurston County, Waste Connections, and the City of Olympia, goes on to say that "recovering usable materials suitable for manufacturers is the priority of recycling programs," and that "diverting materials from the garbage can to the recycling can at the point of collection when those materials end up disposed at a processor or manufacturer is not recycling or diversion."

Planning Goals for Waste Reduction and Recycling

Many of the planning goals for this SWMP relate to the current and future programs for waste reduction and recycling. The most directly related goals include:

- Thurston County diverts material away from the landfill by cost-effectively handling and separating recyclable and compostable material.
- The infrastructure needed to provide maximum recycling opportunities and waste diversion is present in the County.
- The collection infrastructure is flexible and adaptable to changing recycling and waste diversion practices.
- In Thurston County, it is easier and less costly for people to reduce, reuse, recycle, or compost their waste than it is to dispose of it.
- In Thurston County, waste is managed as a resource to increase local job opportunities and support economic development.
- In Thurston County, all edible food is eaten and all inedible food is composted or processed into other value-added products.
- People in Thurston County act on the basis of their understanding of the societal, environmental, health, and financial impacts of their consumption and disposal choices. This includes their impact on climate change.
- In Thurston County, people and businesses make responsible choices about what they produce and consume, and what they generate as waste.
- Thurston County promotes and supports life-cycle product stewardship and industry advancements in packaging standards that lead to less waste generation.
- Thurston County supports changes to federal and state regulations and policies that support increased recycling opportunities and waste diversion.

Planning Requirements

In 2010, the State Legislature amended RCW 70.95.080 to require that solid waste management plans address source-separation and collection of recyclable materials, and the handling and proper preparation of materials for reuse or recycling. Plans are also required to address "construction and demolition waste for recycling or reuse; recoverable paper products for recycling; metals, glass, and plastics for recycling; and waste reduction strategies." The Legislature's stated intent for making this amendment (see notes attached to RCW 70.95.080) was "increasing available

residential curbside service for solid waste, recyclable, and compostable materials provides many 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."

Designated Recyclable Materials

Designation of recyclable materials is an important step in solid waste plans since the adoption of Chapter 173-350 WAC, which defines recyclable materials as materials "that are identified as recyclable materials pursuant to a local comprehensive solid waste plan." Not listing a specific material as recyclable does not mean that it cannot or should not be recycled, but designating a specific material as recyclable typically makes it easier to implement programs or install facilities for those materials.

Table 3-1 shows the list of designated recyclable materials for Thurston County. This list is not intended to create a requirement that every recycling program in the County collect every designated material. Instead, the intent is that through a combination of programs, residents and businesses will have an opportunity to recycle all of the designated materials through at least one program in Thurston County. For example, showing styrofoam or roofing materials on the designated materials list means that there should be at least one program in the County that collects those materials. The list has been prioritized to indicate the minimum degree of access that residents and businesses should have for these materials. It should be noted that Group 1 is meant to be consistent with Thurston County's minimum service level ordinance (Ordinance No. 13696, see additional details discussed under Single-Family Programs in Section 3.3), but with additional organics (food waste and compostable paper) and with additional recyclables (plastic buckets, plant pots, and metal pots and pans) to be consistent with current curbside recycling guidelines.

The list of "designated recyclable materials" shown in Table 3-1 is intended to be used as a guide to assist with planning recycling services and programs. It is based on existing collection programs and markets. Changes in market conditions and other developments may warrant revisions to the list. These include:

- 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 technologies that increase demand.
- New local or regional processing or demand for a particular material develops.
- No market can be found for an existing recyclable material, causing the material to be stockpiled with no apparent solution in the near future.

- The potential for increased or decreased amounts of diversion.
- Legislative or local mandate, or other new requirements.
- New or additional capital or processing costs.
- Other conditions not anticipated at this time.

Any proposed changes in the list of designated materials should be reviewed and approved by the Public Works Director, and minor changes in this list may be adopted without formally amending this SWMP.

Table 3-1. List of Designated Recyclable Materials

Priority Level	Material
Group 1: Materials that should be collected by curbside, multi-family and commercial recycling programs in urban areas (mixed organics services are not available in some rural areas).	Clean paper (newspaper, cardboard, office paper, and mixed paper) Glass bottles and jars Aluminum and steel cans Plastic bottles, jars and tubs Plastic buckets and rigid plant pots Metal pots and pans Yard waste Food waste Approved compostable products
Group 2: Materials that should be collected at drop-off and buy-back locations or through other collection services.	E-waste Fluorescent lights Clothing, textiles, shoes Oil and oil filters Antifreeze Scrap metals and appliances Reusable building materials Edible food (donated)
Group 3: Materials that should be recycled if markets and facilities are available.	Batteries (all types) Plastic film Styrofoam Wood Carpet and padding Drywall Roofing materials Mixed construction and demolition materials Tires Mattresses

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 70.95.090(7)(b)(i)) requires that recyclables be collected from homes and apartments in urban areas (although exceptions to this requirement can be granted if based on viable alternatives and other criteria), whereas drop-off centers and other methods can be used in rural areas.

In this case, Thurston County code requires that all garbage customers also receive curbside recycling services, so curbside recycling is available throughout the county. Commercial recycling services are generally also available county-wide. The only waste management service not available in all areas is mixed organics collection.

3.2. THURSTON COUNTY'S RECYCLING AND ORGANICS RECOVERY GOAL

Recovery Goal for Thurston County

As described below, this SWMP adopts a new recycling and organics recovery goal of 49% for Thurston County. Progress toward achieving this goal will be measured using data from the collection programs provided by the City of Olympia, Waste Connections and Thurston County.

Historical Recovery Rate in Thurston County

Setting a goal for the recovery of recyclables and organics is an important step that will provide valuable future guidance. As discussed in the previous section, using Ecology data for setting a countywide goal for recycling and composting (as is done by many counties) is not the best approach for Thurston County. For Thurston County, a better alternative for setting a goal and then monitoring progress towards that goal is possible due to the large amounts of high-quality data reported by the local service-providers (Waste Connections and the City of Olympia) on curbside, commercial and public drop-off recycling programs. Although this data does not include the various recycling activities that are occurring outside of the county's solid waste system, it does focus on those programs that Thurston County and their municipal and private partners can most directly influence and control.

Table 3-2 shows the 2014 amounts of recyclables and organics collected by the City of Olympia and Waste Connections, and also by Thurston County through programs at the Waste and Recovery Center (the WARC) and the rural drop-box facilities. In other words, these are the programs that are currently being monitored by Thurston County and that can be viewed as being part of the county system. Figure 3-1 shows

Table 3-2. Diverted and Waste Amounts, 2014					
Source	Material, Tons per Year			Total Annual Tons	Recovery Rate
	Recycling	Organics	Waste		
Curbside Collections:					
Single-Family	19,188	18,496	44,767	82,451	46%
Multi-Family	2,247	NA	4,250	6,497	35%
Commercial	18,142	1,589	62,700	82,431	24%
Self-Haul:					
Rural Drop-box facilities	653	0	304	957	68%
WARC	3,295	7,379	46,819	57,493	19%
TOTALS	43,525	27,464	158,840	229,829	**30.9%**

Note: All data is from Thurston County records. The figures shown above do not include the tonnages of materials that are recycled and diverted through programs outside of the county system, which amount to an additional 80,000 to 90,000 tons per year.
NA = Data is not available (but amount of organics diverted from multi-family sources is currently relatively small).

this data for the past seven years (the period of time for which reliable data has been collected).

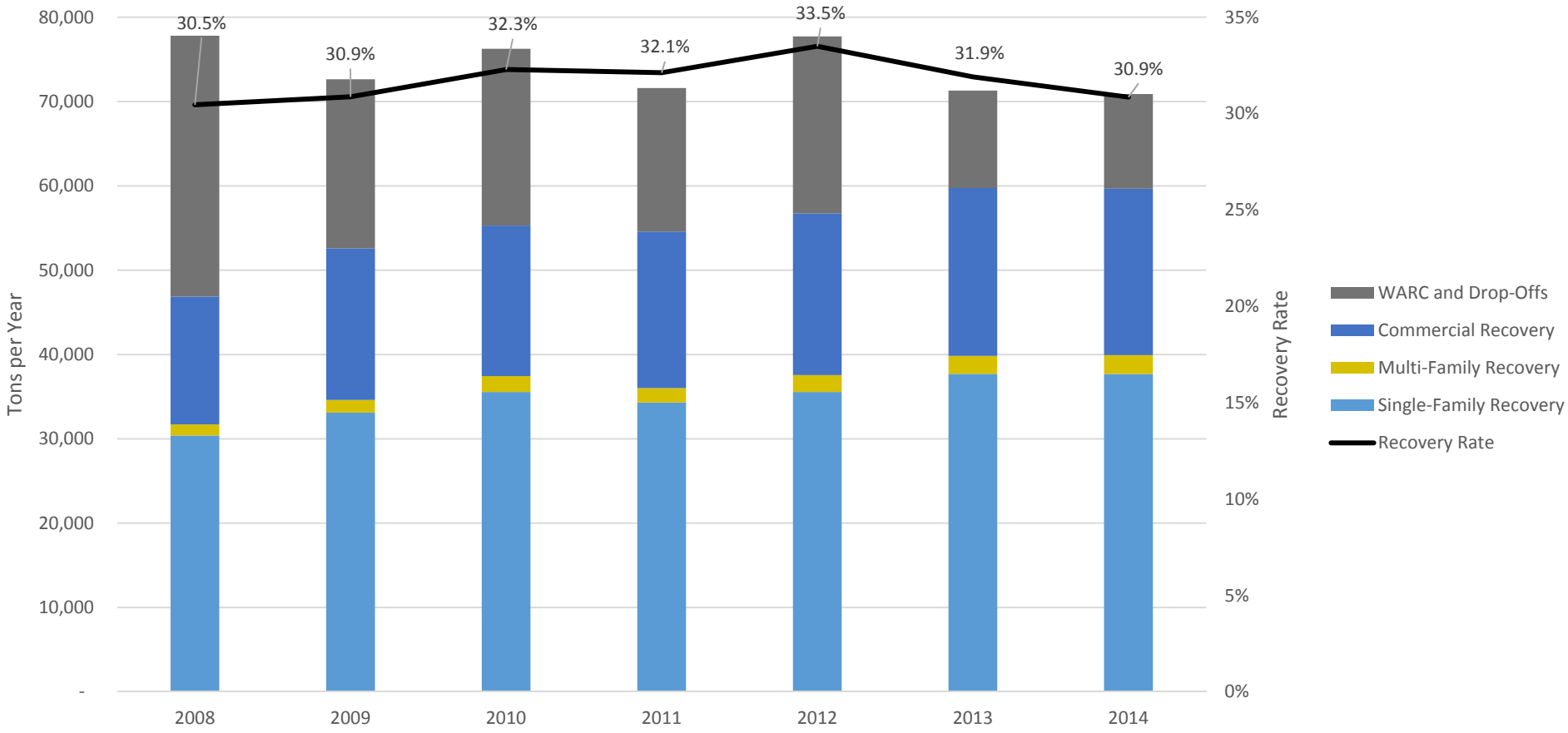
The recovery rate figure shown in Table 3-2 is the percentage of the materials generated by a given source that is diverted for recycling and composting. In this table, the term "recovery rate" is used in a slightly different way than in other parts of this chapter. In Table 3-2, the recovery rate is calculated solely using data on local programs and does not include the tonnages diverted by the many private and non-profit efforts that are being conducted outside of the Thurston County system. For this reason, the overall recovery rate shown here (30.9%) is substantially lower than the recovery rate that would be calculated if other recycled and composted materials were included, a figure that could exceed 50%.

New Recovery Goal for Thurston County

Based on the analysis presented later in this chapter and in other parts of this SWMP, there are several areas where the recovery of recyclable and compostable materials could be significantly increased:

- residential organics
- commercial recycling and organics
- recovery at the WARC
- diversion of construction materials

Figure 3-1
Historical Recovery Rates for Thurston County Programs



Notes: "WARC and Drop-Offs" includes "blue boxes" (now only at the two rural drop-box facilities), the public recycling drop-off site at the WARC, pick-line and other recovery from the tipping floor at the WARC and self-haul yard waste dropped off at the WARC. This data also includes commercial organics collected by Waste Connections prior to 2013.
Single-family, multi-family and commercial recovery figures include both recycling and organics collections (except for commercial organics collected by Waste Connections prior to 2013, which are included with the WARC figures).

The amount of additional materials that can be diverted in these and other areas will depend on many factors, including the level and scope of new program development, the effectiveness of the County's education and promotion programs, and whether participation is voluntary or mandatory to name just a few. Establishing a future recovery rate goal can help guide these efforts and programs.

Based on data from the 2014 Waste Composition Study, significantly increasing diversion in the areas listed above would make it possible for the County's recovery rate to rise from 30.9% today to as high as 49% in the future. It is also important to note, however, that waste reduction programs and larger economic and societal changes will impact the amount and composition of the materials collected for recycling and disposal. Although these changes may yield significant benefits to the economy, environment, and society, they may also make it more difficult to achieve higher recovery rates over the long-term.

3.3. EXISTING ACTIVITIES FOR WASTE REDUCTION AND RECYCLING

Overview of the Existing System

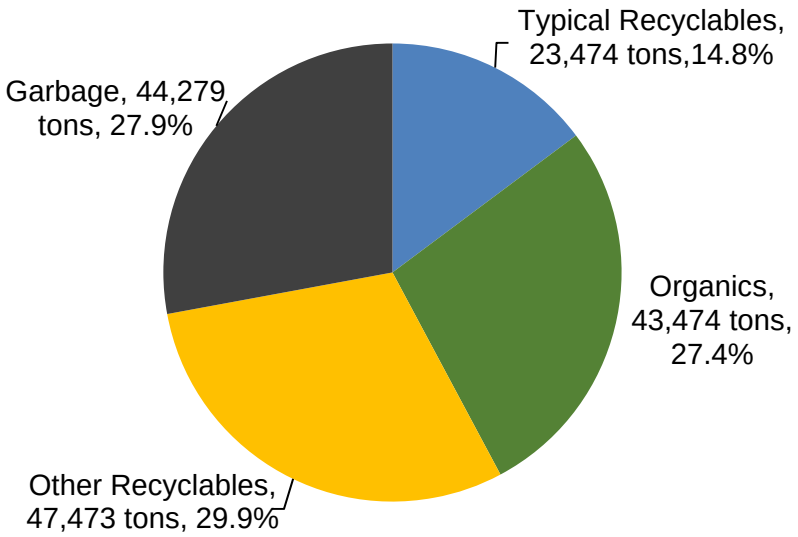
Waste Reduction: Thurston County Solid Waste typically takes the lead on waste reduction programs in the county, with significant coordination with municipal and private sector partners. Waste reduction is done through education and outreach, technical assistance, and through the use of technology. Public education programs for waste reduction and recycling that are specific to a particular waste generator are discussed in this chapter, but general education programs are discussed in Chapter 9 (Administration and Public Education).

Recycling: Recycling is conducted by a broad range of entities, including the collection services provided by the City of Olympia and Waste Connections, public drop-off programs at the WARC and other facilities, and a variety of private and public programs for specific materials. These efforts resulted in 42.9% of the solid waste from Thurston County being recycled or composted in 2013 (see Chapter 2 for more details), or more than 50% "diversion" if all types of reuse and other beneficial uses are included. This represents a significant reduction in disposal since 2001 when the recycling rate was 19%.

Additional Recycling Potential: Despite the progress that's been made, there is more that can be done (see Figure 3-2). The recent Thurston County Waste Composition Study concluded that the disposed waste stream still includes:

- 14.8% "typical recyclables," or materials that could be recycled through the existing curbside and commercial recycling collection programs, including

Figure 3-2
Recycling Potential for the Thurston County Waste Stream (2014)

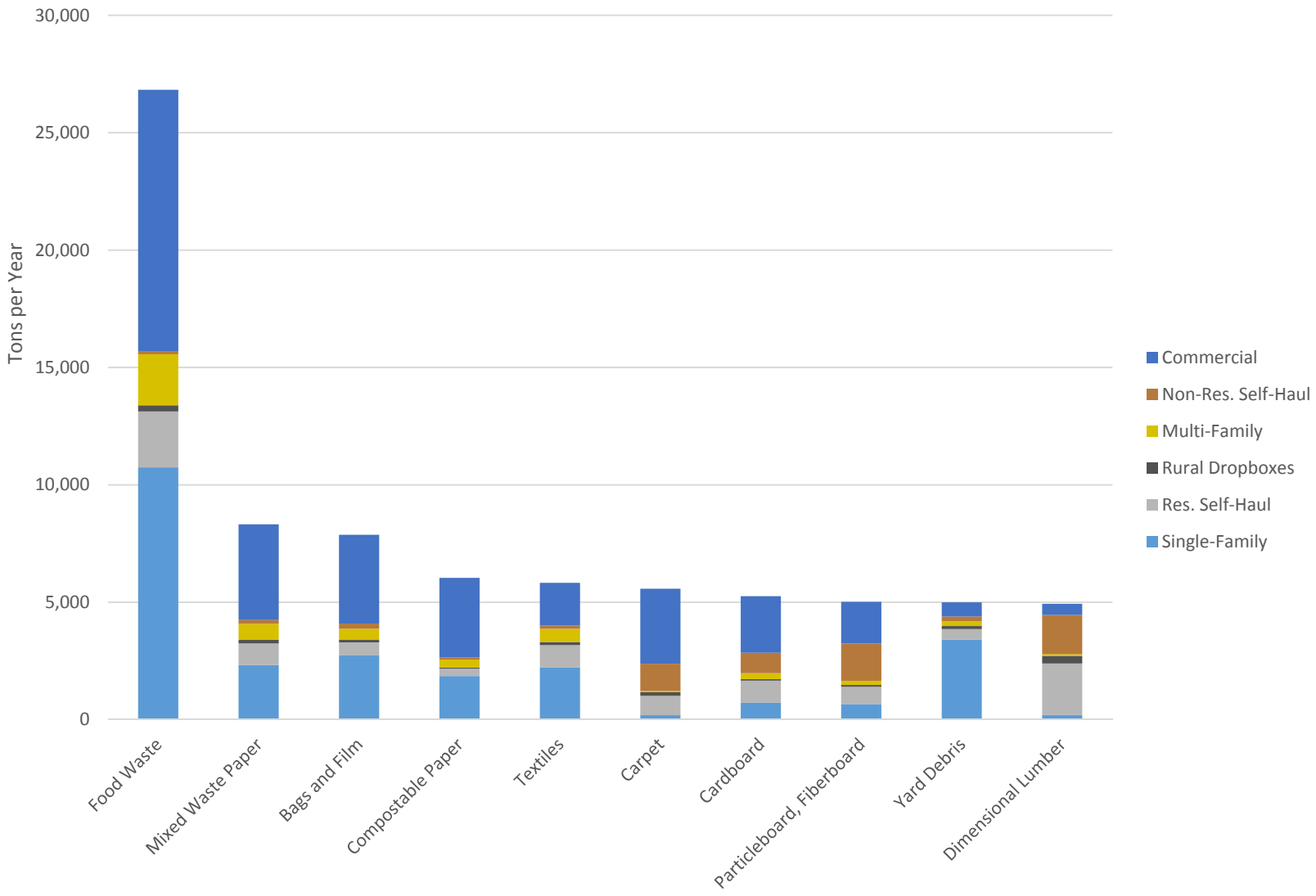


recyclable grades of paper, plastic bottles and tubs, aluminum and tin cans, and glass bottles.

- 27.4% organic materials that could be composted and that are collected through existing programs, including food, yard debris, compostable paper, untreated lumber, pallets and crates.
- 29.9% that could be recycled through new or existing drop-off facilities or special collection programs, as market conditions and facilities allow. These materials include plastic bags and film, some types of plastic packaging, expanded polystyrene, all other metals besides cans, light bulbs, e-waste, other electronics, tires, textiles, carpet and padding, stumps, plywood, particleboard, ceramics, rocks, bricks, concrete, soil, gypsum board, asphalt roofing, motor oil, oil filters, car batteries, and household batteries. These are all materials that are currently being collected for recycling through other programs (other than curbside) in the Puget Sound region. Not all of these materials, however, can be easily recycled in Thurston County.
- this leaves 27.9% of the existing waste stream that actually needs to be landfilled at this time, including materials such as laminated and other types of non-recyclable paper, plastic products (such as toys and pipe), diapers, animal excrement, and furniture.

Another way to look at the overall waste stream for the purpose of targeting additional materials for recycling and composting is to look at the specific materials disposed in the largest quantities in Thurston County's waste stream. Figure 3-3

Figure 3-3
Top Ten Materials Disposed by Source in 2014

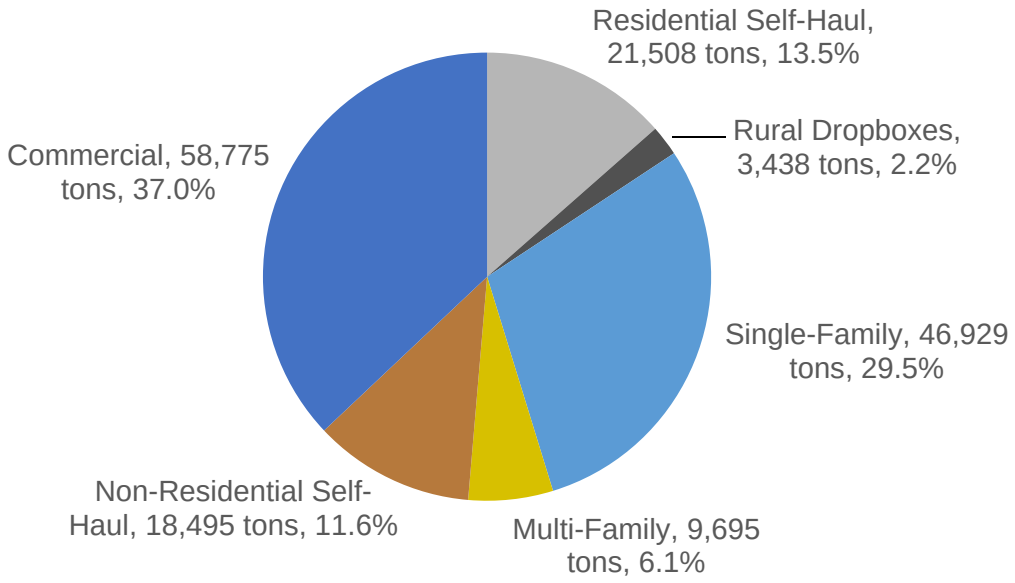


shows the top ten materials in the Thurston County waste stream and the sources of these materials. These ten materials represent 50.8% of the entire waste stream.

As can be seen in Figure 3-3, food is the largest material disposed and it represents almost 17% of the County's waste stream. In addition, 12,490 tons of this food was edible before it was thrown away. It is also interesting to note that most of the materials that can be collected through the existing organics program, including food, yard debris, compostable paper and dimensional lumber, appear on the list of the top ten materials and altogether represent 27% of the waste stream.

Sources of Waste: There are several different sources of waste in Thurston County, and the amount and composition of the materials disposed by them varies significantly. Figure 3-4 shows the percentage of the Thurston County waste stream by source. For instance, the data shows that apartment residents (Multi-Family) generate only about one-fifth as much waste as residents of single-family homes. This is due primarily to the lower number of people living in apartment buildings, although the per-person generation rate is also lower for apartment dwellers.

Figure 3-4
Amount of Waste by Source (2014)



The Commercial, Single-Family and Multi-Family categories consist of wastes collected from those sources by garbage haulers (Waste Connections or the City of Olympia). The category for Non-Residential Self-Haul is largely made up of

contractors hauling construction and demolition debris from their jobsites, although it also includes a few other types of businesses as well. Surveys conducted in 1999 and 2004 (as part of the waste composition studies conducted in those years) show that virtually all of the Residential Self-Haul customers are from single-family homes, with only a small percentage from apartment units. The Rural Drop-box category is likely primarily from customers hauling their own wastes from single-family homes, but also contains an unknown amount of non-residential wastes. For the purposes of the programs discussed in this chapter, Residential Self-Haul can be combined with Single-Family to provide data that more fully characterizes the wastes produced by single-family residents in Thurston County.

The following sections describe existing waste reduction and recycling programs and identify opportunities for improvements for the five major sources of waste in Thurston County:

- Single-family (including wastes and programs for residential self-haul)
- Multi-family (apartments)
- Rural drop-box facilities
- Commercial (businesses and institutions)
- Non-residential self-haul

Single-Family Programs

Waste Reduction Programs for Single-Family Residents: Much of the recent outreach effort for single-family residents has been focused on wasted food. On a national level, it has been estimated that 40% of the food that is grown for human consumption is wasted as it moves from "farm to fork." In the recent Thurston County Waste Composition Study, it was found that 7.2% of the County's waste stream is edible food (food that was safe and fit for consumption before it was wasted). This is the equivalent of 12,490 tons per year of food that is purchased and then not consumed. Of this amount, over half (6,537 tons per year or 52%) is from single-family sources (including residential self-haul customers).

Curbside Recycling: All single-family homes throughout the county have access to curbside recycling service. In 2006, part of the County code (Section 8.24.020) was amended by Ordinance No. 13696 to address single-stream recycling and to expand the minimum service level requirement to multi-family properties (see next section). Curbside recycling is bi-weekly pickup using a wheeled cart for all materials except glass. Glass is collected every four (4) weeks in a separate bin, provided by the resident. The primary cart is approximately 96 gallons in size, but customers may request a 65 gallon cart instead. Materials that can be collected include:

- Cardboard: corrugated cardboard and Kraft paper, including unbleached, unwaxed paper with a ruffled (corrugated) inner liner.

- Metal cans: tin-coated steel cans and aluminum cans, excluding aerosol cans.
- Mixed-waste paper: clean and dry paper, including: glossy papers; magazines; catalogs; phone books; cards; laser-printed white ledger paper; windowed envelopes; paper with adhesive labels; paper bags; non-metallic wrapping paper; packing paper; glossy advertising paper; and chipboard (paperboard), such as cereal and shoeboxes.
- Newspaper: printed ground wood newsprint, including glossy advertisements and supplemental magazines that are delivered with the newspaper.
- Plastics: round dairy containers, such as yogurt and margarine tubs; bottles and jars #1-7, such as soft drink, water, salad dressing, milk, shampoo, laundry detergent bottles, and all other bottles with a neck narrower than its base.
- Glass: bottles and jars of all colors.

Curbside recycling collections in the City of Olympia are conducted by city trucks and crews, and the materials are collected in a slightly different manner (glass is included in the materials collected in the cart) and a smaller cart size (35 gallons) is provided on request. The curbside recycling collections throughout the rest of Thurston County are conducted by Waste Connections. The materials collected by each program are slightly different (Olympia collects additional types of paper).

Performance of Existing Residential Recycling Programs: Thurston County staff, with assistance from Waste Connections and the City of Olympia, have collected extensive data on the tonnages and number of subscribers for curbside recycling and organics services for the past decade. Figure 3-5 shows the data for recycling, organics and garbage quantities for single-family residents from 2006 to 2014. This data shows a significant increase in recycling tonnages when single-stream collection of recyclables was implemented in 2007. The tonnages collected through curbside recycling increased from 14,579 tons in 2006 to 17,947 in 2007 and then to 19,483 in 2009 before leveling off (a 33.5% increase between 2006 and 2009).

The data shown in Figure 3-5 includes tonnages collected by both the City of Olympia and Waste Connections. The population figures shown are for the total population in the county, and are not adjusted for the number of multi-family residents or for the number of subscribers. It is interesting to note that there has not been much growth in the recycling or waste quantities over the past nine years, while the amount of organics diverted through curbside collection has grown from 10,493 tons in 2006 to 18,496 tons in 2014. The recovery rate based on these figures has increased from 36% in 2006 to 46% in 2014.

Recycling Potential for Single-Family Waste: Even with the extensive programs available to single-family residents, a significant amount of recyclable and compostable material is still being disposed by this sector. Figure 3-6 shows the amounts of recyclable and compostable materials in the waste stream from single-

Figure 3-5
Single-Family Recycling and Waste Tonnages (2014)

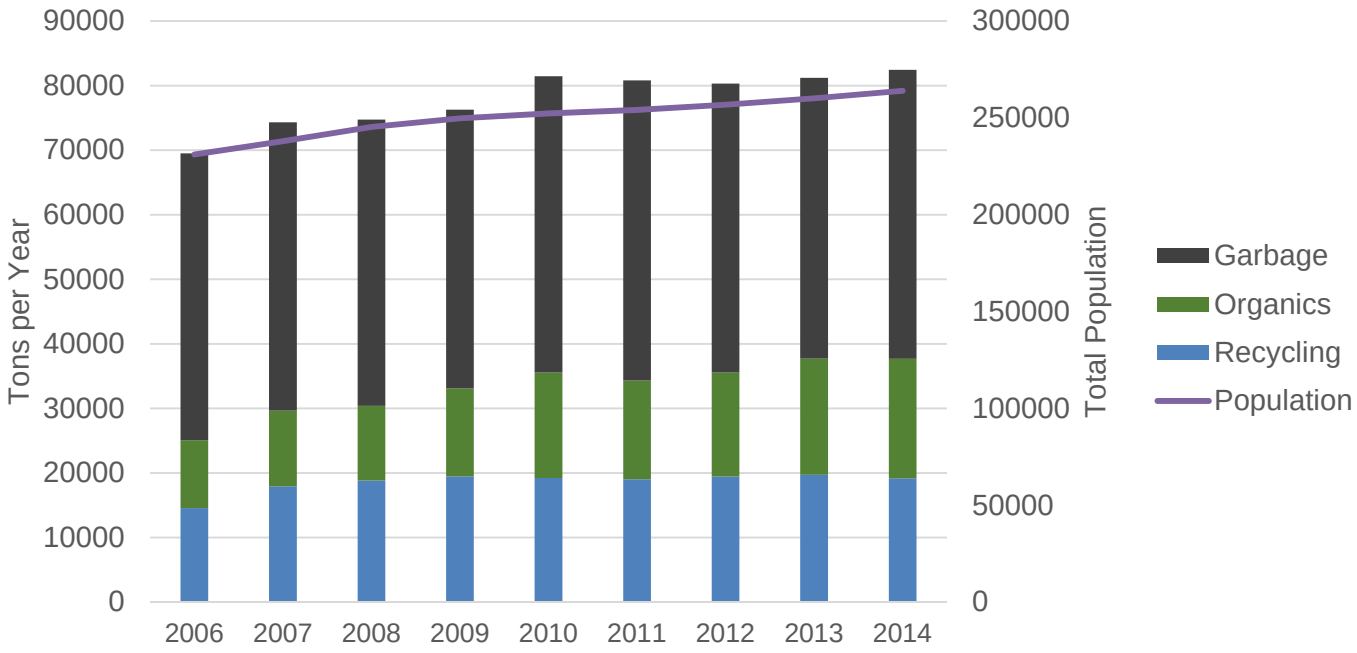
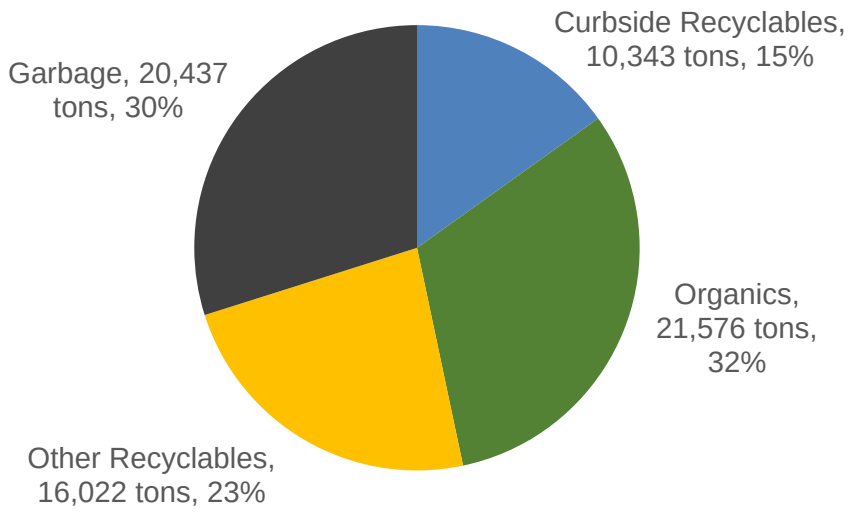


Figure 3-6
Recycling Potential for Single-Family Waste (2014)



family homes (including the amounts brought in by residential self-haul customers). Almost one-third (31%) of the curbside recyclables is mixed waste paper, with almost as much glass (28%) and lesser amounts of cardboard, plastic bottles, tin cans and other materials. The organics from this source consist primarily of food (69%) as well as significant amounts of yard debris (20%). The "other recyclables" include textiles (23% of this category), plastic bags and film (21%), mixed metals (12%), carpet and padding (11%), with lesser amounts of plastic packaging, ferrous and non-ferrous metals, mattresses and other materials.

Multi-Family Programs

Waste Reduction Programs for Multi-Family Residents: Multi-family residents only generate about 6% of all waste disposed in the County. For this reason, fewer resources have been dedicated to providing recycling and waste reduction education and outreach to these communities. One of the challenges in reaching multi-family residents is that because they do not pay for trash service, they also do not receive the educational billing inserts that are sent twice a year to single-family residents.

Multi-Family Recycling: Multi-family properties are included in Ordinance No. 13696 (see previous discussion), meaning that these properties are required to pay for recycling as part of their garbage service but are not required to participate. Multi-family properties are defined as duplexes, triplexes, quadplexes, and larger apartment buildings where service is paid by a residential property owner or manager. This also includes mobile homes and condominiums.

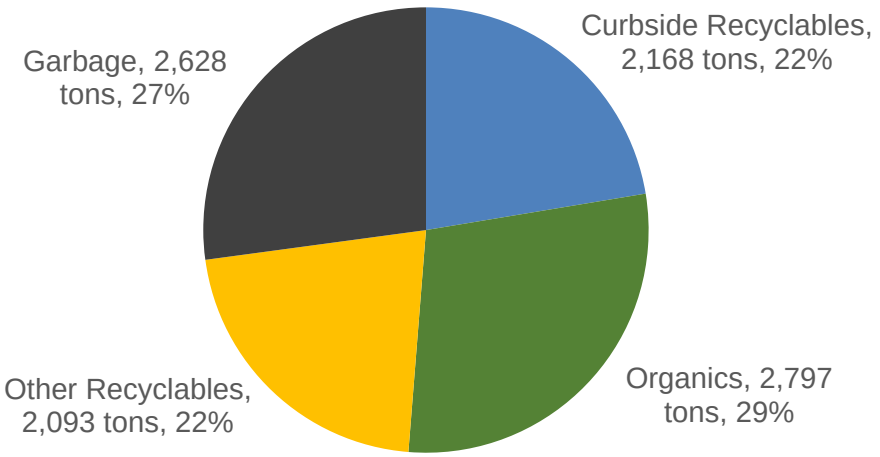
Waste Connections provides reports to the County on the number of multi-family units serviced. Comments from Waste Connections staff indicate that many complexes do not participate. The recent Waste Composition Study shows a higher percentage of "typical recyclables" (i.e., the materials collected through the curbside program, including paper, plastics, cans and glass bottles) in the multi-family waste stream compared to wastes from single-family homes (22.4% in multi-family wastes versus 15.1% in single-family wastes). The multi-family waste stream, however, is much smaller than the single-family waste stream. For this reason, the total amount of typical recyclables in the multi-family waste stream (2,168 tons) is much less than the amount of these materials thrown away by single-family households (10,343 tons).

In general, multi-family properties with eight or fewer residences are serviced with wheeled carts (approximately 96 gallons in size) collected bi-weekly. Glass is collected with the curbside mix in Olympia. In the rest of the county glass is collected from a customer-provided container every four weeks. Complexes can receive one cart per residence unless otherwise requested by the property owner/manager. Multi-family units greater than eight residences are serviced with containers ranging from 96-gallon carts to two-yard containers with glass collected in separate containers. Recycling collections can be provided weekly if deemed

necessary by both the landlord and hauler. Materials to be collected are the same as listed above for single-family residences.

Recycling Potential for Multi-Family Waste: A significant amount of recyclable and compostable materials are still being disposed by this sector. Figure 3-7 shows the amounts of recyclable and compostable materials in the waste stream from multi-family residents. The largest amounts of materials in the curbside recyclables category include mixed waste paper (31%), glass bottles (24%), plastic bottles (13%), and newspaper (12%), with lesser amounts of aluminum cans, tin cans, and other materials. The organics in the multi-family waste stream is primarily food waste (80%). The "other recyclables" include textiles (30%), plastic bags and film (21%), and lesser amounts of several other materials.

Figure 3-7
Recycling Potential for Multi-Family Waste (2014)



Rural Drop-box Waste Reduction and Recycling Programs

Waste Reduction at the Rural Drop-box Facilities: There are no waste reduction programs currently established for the rural drop-box facilities, although other jurisdictions have achieved some success with a variety of programs at this type of facility. These programs have included collection trailers or programs for organizations such as Goodwill and Habitat for Humanity, and exchange facilities for books, appliances, building materials and other reusable items.

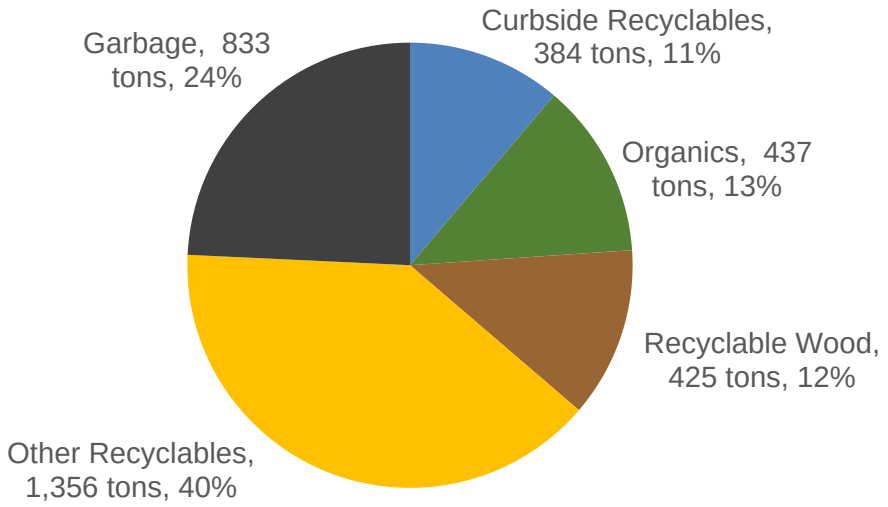
Recycling at the Rural Drop-box Facilities: Recycling containers at the Rainier and Rochester drop-box facilities provide an important opportunity for customers at

these sites. The previous solid waste plan also recommended adding collection programs at these sites for yard debris, appliances, electronics, scrap metal, and C&D, but these were determined not to be cost-effective. The recent Waste Composition Study sampled the rural sites separately from other waste streams and concluded that only small amounts of these materials were present.

Customers are placing significant amounts of recyclable materials in the wrong containers at the recyclables drop-off areas. This problem is more pronounced at the Rainier and Rochester drop-box facilities because the attendants spend most of their time at the garbage unloading area and are generally unavailable to answer questions or monitor activity. At the WARC, there is a full-time attendant at the recyclables drop-off area. Improved signage at the rural drop-box facilities would make it clearer to customers what types of materials should and should not go in which container. Larger fonts and pictures of appropriate materials would also be helpful.

Recycling Potential for Rural Drop-box Waste: A significant amount of recyclable and compostable materials are disposed at the two rural drop-box facilities. Figure 3-8 shows the amounts of these materials, including a separate category for recyclable wood (some of which could also be counted in the organics category) because there is a significant amount of this material. For all of the recyclable and compostable materials taken together, the greatest quantities of materials disposed are dimensional lumber (321 tons per year), food (265 tons), mixed metals (259 tons), tires (168 tons), carpet (160), mixed waste paper (149 tons), and textiles (133 tons).

Figure 3-8
Recycling Potential for Rural Drop-Box Facilities (2014)



Commercial Programs

Waste Reduction Programs for the Commercial Sector: Time spent on the business assistance program was extremely limited in 2013 and 2014. The program was revitalized in 2015 starting with a business survey and general outreach on available services. Commercial sources dispose of about 38% (4,807 tons) of the edible food that is wasted in Thurston County each year. For this reason, the County is providing additional assistance to businesses to help them reduce the amount of surplus edible food they generate, and to donate more food to community organizations that serve people in need.

Existing Commercial Recycling Programs: Commercial generators, including businesses, industries and institutions such as schools, churches, and government offices, have a variety of options to recycle. Waste Connections can provide services similar to those offered to residential customers (single-stream without glass), containers for specific materials (loose cardboard), and services for compactors (such as used for cardboard at grocery stores, etc.).

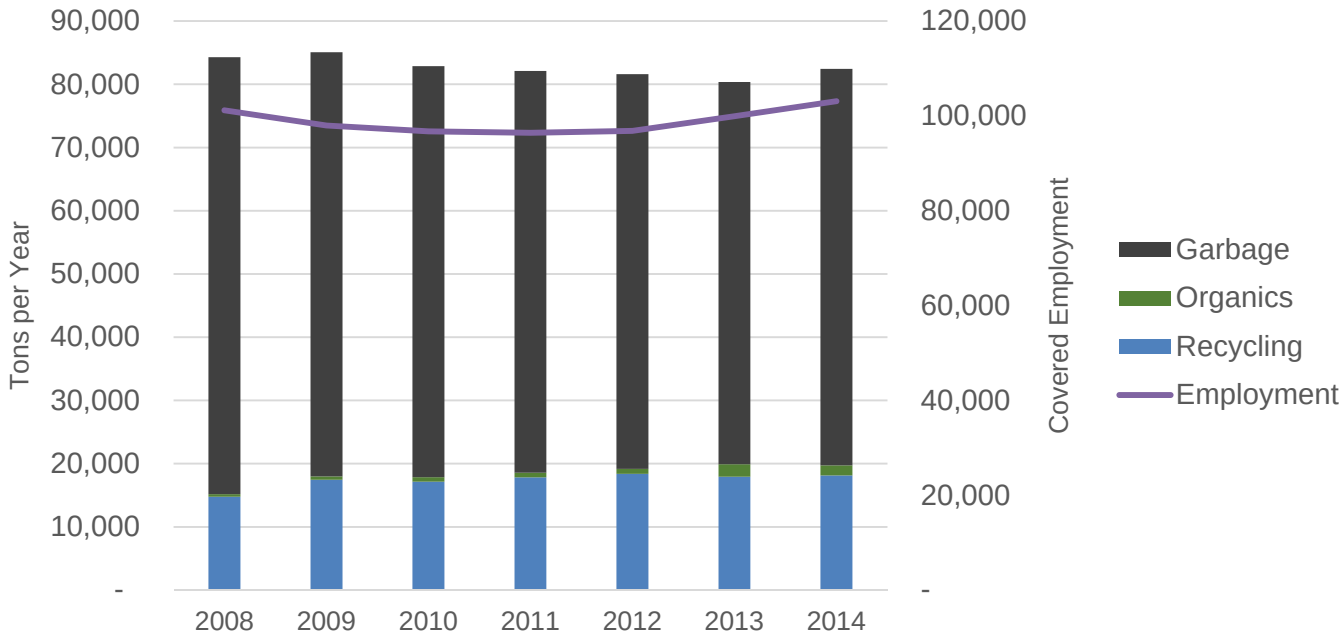
A number of other recycling companies provide collection services for materials such as paper, plastics, and metal, including companies such as Full Container Recovery, Calbag Metals and ReNu Recycling (to name just a few). Collection services are also available for special materials such as motor oil, grease, and confidential documents (shredding services). Accurate and complete data is not currently available on the number of customers served by these other companies, although some of their tonnages are reported as part of the annual recycling survey conducted by Ecology.

The amount of commercial recycling has increased over the past few years, thanks in part to access to single-stream recycling in Olympia and other parts of the county beginning in 2010 and 2011. Thurston County staff have continued to conduct a substantial amount of outreach to businesses which has also helped increase commercial recycling activity. County assistance to businesses include waste audits, signage, presentations and other technical help. Thurston County, the City of Olympia and Waste Connections participate in the Thurston Green Business Program, which has seen a steady increase in the past five years in the number of businesses recognized for their sustainability efforts.

Performance of Existing Commercial Recycling Programs: Thurston County staff, with the assistance of Waste Connections and the City of Olympia, have gathered extensive data on the tonnages collected by commercial recycling and organics programs since 2008. Figure 3-9 shows the recycling, organics and waste tonnages for commercial customers for the period 2008 to 2014.

The employment data used in Figure 3-9 are for "covered employment," meaning workers that are covered by unemployment insurance. For this reason, these figures do not include self-employed and certain other categories of workers. Based on this

Figure 3-9
Commercial Recycling and Waste Tonnages (2014)



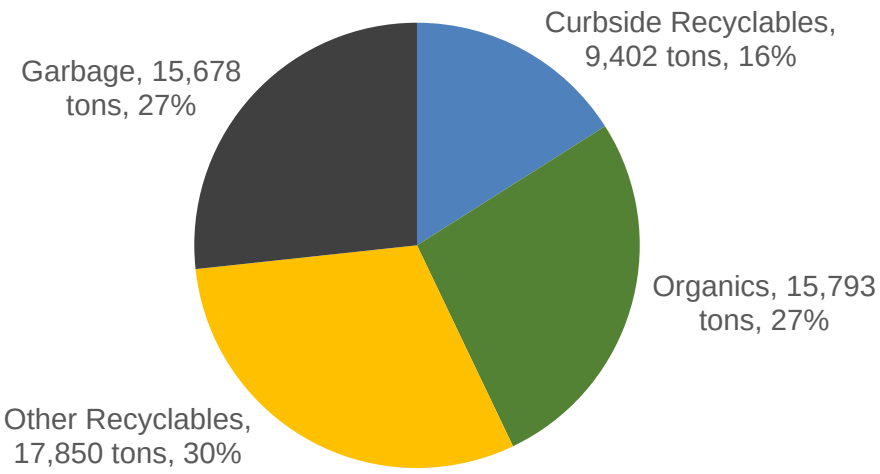
data, the recycling and composting rate for the commercial sector has increased from 18% in 2008 to 24% in 2014.

Recycling Potential for Commercial Wastes: Even with the extensive programs available to commercial customers, a significant amount of recyclable and compostable materials are still being disposed by this sector. Figure 3-10 shows the amounts of recyclable and compostable materials in the waste stream from commercial sources. A significant amount of the "curbside recyclables" disposed by commercial sources is mixed waste paper (43%) and cardboard (25%), with lesser amounts of plastic bottles (9%), glass bottles (8%) and other materials. The organics from this source consist primarily of food waste (74%) but with significant amounts of compostable paper as well (22%). The "other recyclables" include carpet and padding (26% of this category), plastic bags and film (23%), textiles (12%), gypsum board (10%), plastic packaging (8%), mixed metals (8%), and other materials.

Other Non-Residential Programs

The recent Waste Composition Study did not measure the construction and demolition debris (C&D) waste stream separately, but included this in the "non-residential self-haul" waste stream. This waste stream includes a few non-C&D sources but almost all of the customers in this category are related to construction activity and property maintenance.

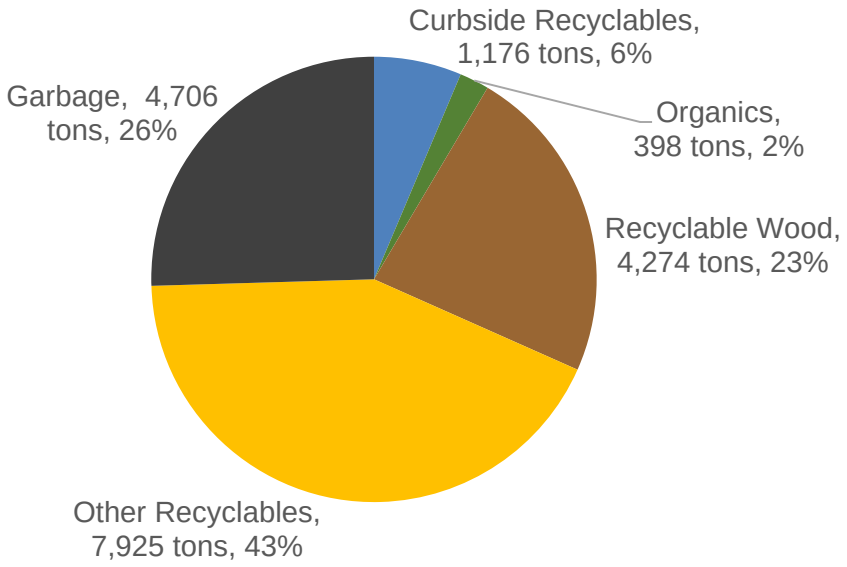
Figure 3-10
Recycling Potential for Commercial Wastes (2014)



Construction and Demolition Wastes (C&D) Recycling: A number of services and programs address C&D materials in Thurston County, including recycling opportunities for asphalt pavement, asphalt shingles, bricks, concrete, window glass, and wood. There are a few businesses in Thurston County that accept some of these types of materials (notably Concrete Recyclers, Inc. and Silver Springs Organics) and nearby (such as Recovery 1 and Miles Resources in Tacoma). Until recently, mixed C&D was being processed at the WARC (see Chapter 6, Transfer System, for more discussion of this). The loss of this pick-line means that there is no longer an in-county option for mixed C&D.

Recycling Potential for Non-Residential Self-Haul: A significant amount of recyclable and compostable materials are disposed by Non-Residential Self-Haul customers. Figure 3-11 shows the amounts of recyclable and compostable materials in the waste stream from this source, including a separate category for recyclable wood (some of which could also be counted in the organics category) because there is a significant amount of these materials. As can be seen in Figure 3-11, there is not much of the typical recyclable and compostable materials in this waste stream, but there are significant amounts of wood and other recyclables. For the "curbside recyclables," the majority is cardboard (74% of that category). The category for "recyclable wood" is mostly dimensional lumber (39%) and particleboard (37%), with some plywood (12%) and pallets/crates (11%). The "other recyclables" category includes significant amounts of asphalt roofing shingles (2,221 tons per year), gypsum board (1,877 tons), and carpet and padding (1,288 tons).

Figure 3-11
Recycling Potential for Non-Residential Self-Haul (2014)



General Waste Reduction and Recycling Programs

This section describes waste reduction and recycling programs that do not target a specific type of waste generator.

Recycling Drop-Off Program at the WARC: The WARC has an extensive recycling drop-off center that accepts cardboard, mixed paper, newspapers, aluminum cans, tin cans, plastic bottles, dairy tubs, plastic buckets, plastic plant pots, glass containers, and expanded polystyrene (styrofoam). Used cooking oil, motor oil, and vehicle oil filters are also accepted, along with car batteries. The majority of the customers using this site are likely from single-family homes, but some of the customers are also from apartments and businesses.

Plastic Bag Ban: Effective July 1, 2014, single-use carryout bags were banned from distribution and use at retail locations in four jurisdictions: Olympia, Lacey, Tumwater and the unincorporated area. Retail locations are also now required to charge a minimum of five cents for large paper bags. This has led to waste reduction by promoting the use of reusable bags in place of disposable bags. This has reduced waste as shoppers have replaced disposable bags with reusable ones. The ban was put in place to address the many serious problems created by disposable bags. These include increased litter and harmful impacts to the environment and to wildlife. Disposable bags also get tangled up in the equipment used to sort commingled recyclables, resulting in higher processing costs.

Event Recycling: Thurston County Solid Waste and the City of Olympia provide recycling containers and waste reduction assistance to event organizers to encourage diversion of recyclables and organics.

Other Recycling Opportunities: Residential and commercial customers can drop off several other types of materials for recycling at select locations throughout the county, including "e-waste"(computers, televisions, monitors, laptops and tablets), pharmaceuticals, fluorescent bulbs, ink cartridges, and several other products. The full list of items that can be recycled at various locations in and near the county can be found on the www.WhereDoITakeMy.org database on the Thurston County website.

3.4. RECYCLING PROCESSING AND MARKETS

State regulations (RCW 70.95.090(7)(c)) require "a description of markets for recyclables," hence a description of the markets for recyclable materials collected in Thurston 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.

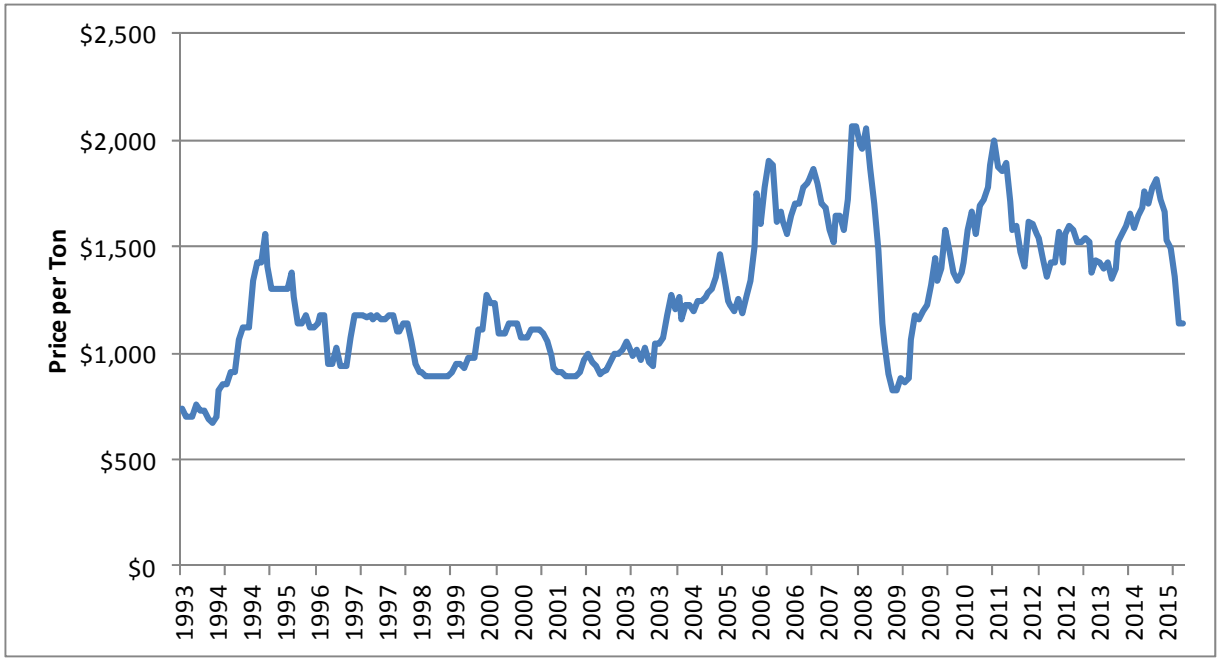
Global Markets

Market demand and prices for recyclables have fluctuated significantly over the past several years, just as prices for all commodities vary with demand and in response to 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. In some cases, long-term contracts with price floors can help moderate the swings in market revenues, but this isn't possible for all materials. Figures 3-12 and 3-13 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 3-12 and 3-13, market prices dipped substantially for most materials in 2008 and 2009 due to the slump in demand caused by the recession. Prices for most materials are also currently (as of late 2015) very low as well.

Local Processing Methods and Markets

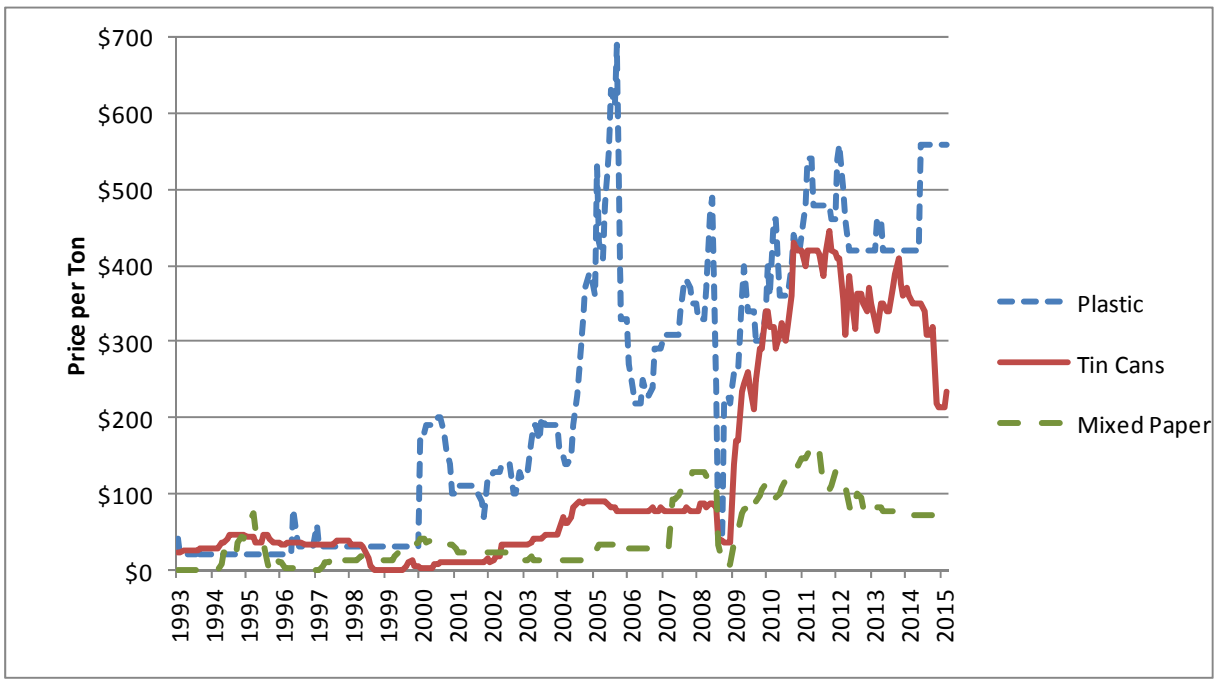
Recyclable materials collected in Thurston County typically pass through several steps before being made back into products. The mixed recyclables collected by the City of Olympia and Waste Connections from curbside routes and from multi-family and commercial customers are brought to the Pacific Disposal facility near the WARC. At this facility, the loads are transferred from collection vehicles to larger containers. Materials collected by Waste Connections are baled, but materials from Olympia are shipped loose due to the glass that is included in the City's mix. Mixed materials from both sources are shipped to the material recovery facility (MRF) in

Figure 3-12
Price Paid for Baled Aluminum Cans



Source: Seattle Public Utilities website (original data source: American Metal Markets).

Figure 3-13
Prices Paid for Select Recyclable Materials



Source: Seattle Public Utilities website (original data sources are Mill Trade Journal's Recycling Markets, Pulp and Paper Week, Recycling Times, and Waste News).

Frederickson (southeast of Tacoma). This MRF is operated by Pioneer Recycling Services, who purchased this plant (and another MRF in Clackamas, Oregon) from SP Recycling Northwest in December 2014. Materials are processed at this MRF using a variety of mechanical and manual processing methods to separate the paper, plastic, metals and glass into marketable commodities. The separated commodities are shipped to paper mills and other manufacturers nationally and globally.

Between 2003 and 2015 the City of Olympia worked solely with Waste Connections for transload, transportation, and processing and marketing for comingled material under a shared risk agreement. Under this agreement, the cost to send materials to a MRF to be sorted were either fully or partially offset by the value of the commodities depending on market conditions. Historically, this agreement ranged between $10/ton income to costing upwards of $35 ton. In September 2015 the City began working with Waste Connections and Pioneer under separate agreements. The City pays Waste Connections a fee for transload and transportation, and then works directly with Pioneer for processing and marketing. Under this new arrangement the City receives the full value of commodities and pays the MRF a fixed cost for processing and marketing.

Glass that is collected separately by Waste Connections is shipped to Strategic Materials in Seattle and Waste Connections is paid for this material (Strategic Materials either pays or charges for the glass they accept, depending on the quality). The glass is processed by Strategic Materials using optical sorters and other technology to remove contaminants and to sort it by color. About 95% of the processed glass is sold to an adjacent facility (operated by the Ardagh Group) to be made into glass containers. The other 5% is shipped to a plant in Kalama, Washington. This plant, which was purchased by Owens-Illinois in February 2015, produces primarily wine and beer bottles. A small amount of glass is also shipped by Waste Connections to Concrete Recyclers, Inc., where it is crushed for use as aggregate, base material under concrete slabs, and similar applications.

Other materials collected separately by the City of Olympia and Waste Connections are sold directly to end-markets. Waste Connections bales and sells both "office pack" (a mixture of high-grade paper from document destruction services) and cardboard directly to domestic mills. Some plastics are also shipped directly to export markets by Waste Connections. Organics collected by Waste Connections and the City of Olympia are brought to the WARC to be processed and are then shipped to one of several facilities, but mostly to Silver Springs Organics in Rainier (see Chapter 4 for more details on organics collection and processing). Waste Connections also delivers small amounts of organics directly to Silver Springs.

The City of Olympia works with Waste Connections for source-separated cardboard, paying a small fee for tipping and processing and receiving market value in return. Scrap metal is collected by the City at the Saturday Drop-Off site. Residents drop the

material for free into 30 cubic yard boxes. When these containers are full, the City delivers them to a local metal recycler and is paid the current market rate. Curbside recyclables are also accepted for free at the Saturday Drop-Off site. The City also can provide drop boxes to customers with large amounts of scrap metal to recycle. This service is typically used by commercial and multi-family customers. In October 2015, the City began hauling large volumes of styrofoam from one of its commercial retailers to DART Container.

A wide variety of other local, national and international markets are used for the many other materials recycled from Thurston County. These markets are too numerous and varied to discuss in detail here.

3.5. PLANNING ISSUES FOR WASTE REDUCTION AND RECYCLING

The waste composition data discussed in earlier sections of this chapter provides important direction for new or expanded waste diversion programs. Additional issues related to waste reduction and recycling are discussed in this section.

Waste Reduction Issues

Reducing Wasted Food: Nationally, from farm to fork, Americans discard about 40% of all food produced, while one in six people go hungry. This is a huge waste of financial and environmental resources. Reducing wasted food conserves the energy, water, and other resources used to produce, transport, prepare, and dispose of food. It can also save households and businesses money and help fight hunger. Staff have been working to raise awareness about this issue and have been educating households and businesses on what they can do to prevent wasted food. These efforts include programs to enhance the food donation infrastructure in the County to recover more surplus edible food to feed to people in need. Staff began working on these programs in 2013. Substantial progress has already been made and plans are in place to expand this effort as staff and financial resources allow.

Measuring Progress: The quantities of recyclables, organics, and waste generated in Thurston County can fluctuate for many different and complex reasons. These include larger trends and shifts in the economy and society, in consumer behavior, and in the way products are manufactured and packaged. For these reasons, measuring the impact of waste reduction programs is much more difficult than measuring the impact of recycling programs on the quantities of materials disposed.

Banning Materials for Sale or Disposal: Bans can be much more effective than voluntary programs to increase diversion, but are also controversial and can be difficult to enact. Banning specific materials could be considered if the County is not making adequate progress toward achieving its waste reduction and recycling goals.

Recycling Issues

Value of Recyclables: Current market prices for many recyclable materials are especially low. This has resulted in the elimination of collection services for some recyclable materials, such as plastic film and bags.

Sustainability of Recycling Markets: A large percentage of the recyclables collected in Thurston County are exported, particularly plastics, metals and mixed paper. Local and regional markets for these materials have declined. As the exporting of recyclables grows, local programs can be affected by global political and economic forces that are out of their control. Local uses of recyclable materials may provide more long-term stability and sustainability, but are difficult to develop.

County Procurement Policy for Recycled Products: Thurston County has a procurement policy (Resolution #13755) that encourages county departments to use recycled office products (with an emphasis on paper). This policy has not been promoted for the past few years. More promotion would likely lead to better compliance.

Contamination Issues: Contamination reduces the market value of recovered materials and causes the entire system to be more difficult and expensive to operate. To minimize the levels of contamination, ongoing education about what's accepted in the recycling and organics programs is required. In addition, Ecology's Beyond the Curb report identified glass as a contaminant in the commingled stream that can reduce the value of other materials collected for recycling.

Construction and Demolition (C&D) Wastes: C&D wastes make up a significant amount of Thurston County's waste stream. The 2014 Waste Composition Study showed that various types of wood add up to 9.3% of the County's overall waste stream, and other C&D wastes add up to 7.2%. These numbers are expected to grow as construction activity increases as the economy improves. An estimated 80% of these materials (or 13.3% of the County's total waste stream) could potentially be recycled or composted.

Uniformity of Acceptable Recyclables: The materials accepted for recycling from residential and multifamily households are not the same countywide. The materials accepted by the City of Olympia include some materials (such as frozen food packaging) that are not collected in the rest of the county. The different way glass is collected in Olympia versus the rest of the county also creates some confusion and makes it more difficult and less efficient to educate the public.

Changes in the Composition of Recyclables: Several trends are occurring that are making recycling somewhat more challenging and potentially less profitable. One such trend is the decreasing amounts of newspapers and magazines that are being produced, whereas these 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 dropped 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%). Some would argue that the recycling processors have failed to take this shift into account and are now operating systems that are not well-designed for the mix of recyclables they are receiving. 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 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.

Signage at Rural Drop-box Facilities: Signage for recycling containers at the rural drop-box facilities could be improved.

Multi-Family Recycling: More could be done to increase multi-family recycling. Multi-family residents, however, are very difficult to incentivize, and this sector generates a relatively small amount of waste (according to the Waste Composition Study, only 6.1% of the county's waste stream is from multi-family residents), so this sector is not viewed as a high priority.

General Issues

Reuse and Repair: Reuse and repair of products is often difficult and discouraged due to high parts and repair costs and low prices for new items. Planned obsolescence is part of the design for some products. Lack of infrastructure or financial incentives for repairing and recycling products discourages design for repair and recycling. Toxics and mixed materials in products and packaging can impede recycling and harm public health.

Economic and Environmental Impacts of Using Raw Materials: The value of waste reduction and prices paid for recyclables do not reflect all of the environmental and social benefits associated with a decrease in the use of raw materials. Extraction of raw materials is often subsidized, and the public bears the "external" costs of the environmental impacts associated with mining and logging. Recycling typically saves substantial amounts of energy because raw materials require more energy to

convert into a usable form (such as the processing required to refine metals from ore). The U.S. EPA has developed a model, the Waste Reduction Model (WARM) that calculates the amount of greenhouse gas emissions reductions and energy conservation through recycling and other alternative waste management methods. This model shows that the 19,188 tons of recyclables collected from Thurston County households in 2014 led to a reduction in greenhouse gases equivalent to removing 10,204 cars from the road for a year, or saved the amount of energy equivalent to the amount needed to heat 3,790 houses for a year.

Future Funding for Waste Reduction and Recycling: The funding for Thurston County waste reduction and recycling programs comes primarily from fees charged for disposal. As more material is eliminated or diverted from the waste stream, there is less money available to fund these programs.

Rural Drop-box Customers: Lack of data about the customers who use the rural drop-box facilities hinders program planning and outreach efforts. This includes information about the source of the waste (residential or non-residential), and the reason why they are using the drop-box facilities instead of other options.

3.6. RECOMMENDATIONS FOR WASTE REDUCTION AND RECYCLING

This Solid Waste Management Plan is recommending the following to improve the County's current waste reduction and recycling programs. As mentioned at the beginning of this Chapter, these recommendations represent a shift toward waste prevention programs and policies and away from managing materials *after* they are produced, whether or not they are recycled into new products. At the same time, they also recognize the value of and need for continuing to promote, improve, and expand the County's current recycling and organics collection programs.

In developing these recommendations, the following criteria were used to identify what to include in this SWMP:

- ***Alignment with mission -*** How well aligned is it with the County's mission, vision, and goals? Where does it fall on the solid waste management hierarchy? How effectively does it promote waste prevention and sustainable resource use?
- ***Diversion potential –*** How much material would be diverted from disposal if it was implemented?
- ***Cost-effectiveness –*** What are its relative costs and benefits to the community? Does it offer opportunities to leverage resources to support the work of community partners to help achieve the County's goals? How will its implementation impact the resources available to provide core technical assistance, and education and promotion services?

- ***Feasibility –*** Is the funding, staffing, expertise, and authority available or potentially available to implement and sustain the work? What barriers will need to be overcome for it to be successful?

These criteria will be used to refine priorities as detailed work plans are developed to implement these recommendations. They will also be used to help decide whether or not to pursue new waste reduction, recycling, and related opportunities that emerge after the adoption of this SWMP.

The following recommendations are divided into eight categories:

- Recovery goal and monitoring progress
- Wasted food prevention
- School technical assistance and youth outreach and education
- Business technical assistance
- Construction and demolition debris
- Product stewardship
- System financing and market development
- General recommendations

The recommendations are numbered to allow them to be identified more easily in other parts of this SWMP, but the numbering is not intended to imply any level of priority, nor are the recommendations listed in order of priority.

Recovery Goal and Monitoring Progress

This SWMP recommends that the County:

WRR1) Establish a goal to achieve a 49% recovery rate by 2020 as measured by the results of the collection programs currently being monitored by the County. Products collected for recycling that end up at a processor or manufacturer and are not recycled are waste and should not be counted as recovered materials. Progress should be evaluated in ways that acknowledge the impact of waste reduction programs and larger economic and societal changes on the amount and composition of the materials collected for recycling and disposal.

WRR2) Develop measures to more fully and accurately evaluate, track, and report on the environmental, economic, and social impacts of waste reduction and recycling programs and services.

WRR3) Evaluate options to increase participation in residential and commercial recycling and organics collection programs.

WRR4) Review the County's minimum service-level ordinance (Thurston County Ordinance 13696) for consistency with waste reduction goals and the recommendations in this Plan.

Wasted Food Prevention

This SWMP recommends that the County:

WRR5) Work with community partners to enhance the countywide capacity of the food donation system in Thurston County to safely collect, process, store and distribute surplus edible food, especially fresh and prepared foods, that otherwise would have been landfilled or composted.

WRR6) Build on the success of the WasteLessFood program to translate community awareness of the negative financial, environmental, and social impacts of wasting food into behavior change at home, and advocacy for changes in the way food is managed by local businesses, institutions, and schools.

WRR7) Promote the expanded use of food waste prevention technologies into the County's organics management systems.

WRR8) Support policies and legislation that would make it easier and more cost-effective for businesses to safely donate food.

School Technical Assistance and Youth Outreach and Education

This SWMP recommends that the County:

WRR9) Provide technical assistance to schools to establish cost-effective and sustainable waste reduction policies and programs for recyclables and organics, with an increased focus on waste prevention.

WRR10) Provide K-12 classroom presentations, and other youth outreach programs on waste prevention, recycling, materials management, and sustainable purchasing.

WRR11) Evaluate options to expand educational opportunities at the Waste and Recovery Center (WARC) (see Chapter 6 – Transfer System), including an exploration of the options and feasibility of developing an on-site education center, and resuming public and school tours.

WRR12) Partner with youth-oriented groups and organizations to incorporate waste reduction and recycling topics into their services and programming.

WRR13) Partner with school-related groups, (school boards, principals, teachers, parent-teacher associations, etc.) to promote County programs and services.

Business Technical Assistance

This SWMP recommends that the County:

WRR14) Provide technical assistance to businesses to establish cost-effective and sustainable waste reduction and collection programs for recyclables and organics, based upon on the waste management hierarchy. In addition, continue to provide technical assistance for businesses to recycle, reduce or

reuse to minimize the generation of hazardous wastes as defined in the 2014 Hazardous Waste Management Plan.

WRR15) Perform periodic business waste reduction and recycling surveys to gather data on business waste management activity, identify barriers and opportunities to increase diversion, promote business assistance programs, and develop new contacts in the business community.

Construction and Demolition Debris

This SWMP recommends that the County:

WRR16) Promote the availability of existing facilities that accept used building materials for reuse and support the expansion of these services countywide.

WRR17) Promote the availability of existing construction and demolition (C&D) recycling facilities in the region and support the establishment of new facilities in Thurston County.

WRR18) Evaluate options to increase the recovery of C&D materials at the WARC.

WRR19) Collaborate with building and planning departments to explore options to increase the recovery of C&D materials.

Product Stewardship

This SWMP recommends that the County:

WRR20) Promote existing product stewardship programs, such as for electronic wastes and fluorescent light bulbs.

WRR21) Support legislative work to pass new product stewardship laws,

System Financing and Market Development

This SWMP recommends that the County:

WRR22) Establish set disposal rates that maintain adequate funding for the solid waste management system.

WRR23) Evaluate alternative funding models and strategies that reduce reliance on disposal fees and ensure the long-term viability of waste reduction and recycling programs.

WRR24) Identify and support the development of new or expanded markets for locally generated materials such as glass and mattresses.

WRR25) Promote sustainable procurement within Thurston County government.

General Recommendations

This SWMP recommends that the County:

WRR26) Continue to identify materials that could potentially be recycled by the public.

WRR27) Provide a core set of general promotion and outreach services, based upon on the waste management hierarchy.

WRR28) Incorporate sustainability practices into education and outreach efforts for existing programs for businesses, schools, and the community.

WRR29) Promote waste reduction and recycling programs by strengthening partnerships with other county departments and other agencies.

WRR30) Coordinate messaging and materials with other jurisdictions and service providers.

WRR31) Evaluate options to more effectively provide education and outreach materials at the WARC and rural facilities.

More details on the implementation of these and other recommendations are shown in the Implementation Chapter (see Chapter 10).

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CHAPTER 4
ORGANICS

4.1. BACKGROUND FOR ORGANICS

Introduction

This chapter addresses the diversion programs for organic materials in Thurston County. These programs currently target a hierarchy of management strategies that emphasize preventing wasted food and reducing yard debris, followed by diversion to composting and recycling programs. Table 4-1 shows specific options for prevention methods to disposal. The hierarchies of management methods for food differ somewhat from those for other organics due to the fact that edible food can be recovered to feed to humans and animals, but otherwise both are similar in that each

Table 4-1. Hierarchy of Preferred Management Methods for Organics

Management Method (in order of highest to lowest preference)	Yard Debris, Wood, Compostable Paper, Other Compostables	Food [1] (edible and inedible)
Waste Prevention	Product Substitution[2] On-Site Composting (including worm bins) GrassCycling	Source Reduction[3] Feed People Feed Animals
Composting and Recycling	Collection and Processing into Mulch (wood waste) Collection and Processing into Compost	Collection and Processing into Compost Rendering Conversion into Fertilizer (WISErg)
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 hierarchy shown above for food is based on EPA''s "Food Recovery Hierarchy," but with energy recovery methods downgraded below composting.
2. 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 paper napkins), and the use of compostable products in place of non-compostable items.
3. Source reduction for food includes educating people on ways to waste less food and preventing discarded food from businesses, institutions, and schools through better data tracking and other strategies.

begins with waste prevention as the most desirable management method and ends with landfilling as the least preferred option.

This chapter primarily addresses the current systems and programs in the County to collect and process organics for composting, for use as mulch, and for energy recovery from wood burned as hog fuel. Information on other management methods is provided in other chapters of this Solid Waste Management Plan (SWMP):

- Waste prevention methods for organic materials are addressed in Chapter 3 (Waste Reduction and Recycling).
- Processing and recovery methods for wood and other materials from construction wastes is discussed in Chapter 3 (Waste Reduction and Recycling).
- Disposal methods are addressed in Chapter 7 (Disposal System).

Definitions for Organic Materials and Other Terms
In this SWMP, the following terms are defined as follows:

- **Composting**: The controlled biological decomposition of organic materials to produce a beneficial product (compost). Compost has a number of applications including erosion control and as a soil amendment that provides organic matter and nutrients, loosens soils, and helps retain moisture.
- **Mixed organics**: This refers to the mixture of yard debris, edible and inedible food, and food-soiled paper collected curbside from residential and commercial sources in Thurston County.
- **Organics**: This includes compostable materials such as yard debris, edible and inedible food and compostable paper. Other compostable materials, such as wood, compostable plastics, and animal manures may also be included depending on the program being discussed.
- **Yard debris**: This includes lawn clippings, leaves, weeds, vegetable garden debris, and natural woody materials such as branches and brush.

Other technical terms used in this chapter include:

- **Anaerobic digestion**: This is a tank-based system that uses microbes to digest organic waste and produce methane gas, which then powers turbine or engine-generators to produce electricity. Sometimes the waste heat from the engines is reclaimed.
- **Biodiesel**: diesel fuel that has been produced from vegetable or animal fats. Biodiesel can be blended with diesel fuel in any proportion, and a blend of 20% biodiesel can generally be used in diesel engines with little or no modifications.
- **GrassCycling**: Allowing grass clippings to fall back on a lawn (instead of bagging them) and other mulching methods.

- **Hog fuel**: wood waste that has been coarsely ground to be suitable for use as a fuel in industrial boilers. Specifications for size, types of wood and allowable contamination vary depending on the facility.
- **In-vessel composting**: a method of composting that confines the composting materials within a building, container, or vessel. In-vessel composting systems typically consist of metal or plastic tanks or concrete bunkers in which air flow and temperature can be controlled.

Goals for Organics

Many of the planning goals for this SWMP relate to the current and future programs for organics. These goals include:

- Thurston County diverts material away from the landfill by cost-effectively handling and separating recyclable and compostable material.
- The infrastructure needed to provide maximum recycling opportunities and waste diversion is present in the County.
- The collection infrastructure is flexible and adaptable to changing recycling and waste diversion practices.
- In Thurston County it is easier and less costly for people to reduce, reuse, recycle, or compost their waste than it is to dispose of it.
- In Thurston County waste is managed as a resource to increase local job opportunities and support economic development.
- In Thurston County, all edible food is eaten and all inedible food is composted or processed into other value-added products.
- People in Thurston County act on the basis of their understanding of the societal, environmental, health, and financial impacts of their consumption and disposal choices. This includes their impact on climate change.
- In Thurston County, people and businesses make responsible choices about what they produce and consume, and what they generate as waste.
- Thurston County supports changes to federal and state regulations and policies that support increased recycling opportunities and waste diversion.

Washington State Solid and Hazardous Waste Plan

The Washington State Solid and Hazardous Waste Plan (the "Beyond Waste" plan) 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 Beyond Waste 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.

Planning Requirements

In 2010, the State Legislature amended RCW 70.95.080 to require that solid waste management plans address source separation and collection of organic materials. Plans are required to address "organic material including yard debris, food waste, and food contaminated paper products for composting or anaerobic digestion." The Legislature's stated intent for making this amendment (see notes attached to RCW 70.95.080) 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."

4.2. EXISTING ACTIVITIES FOR ORGANICS

Overview of Existing System

A significant amount of organics are generated in Thurston County through a diverse range of activities, from lawn maintenance to food preparation to construction. Likewise, these materials are generated by a wide range of sources, including homeowners, apartment residents, commercial establishments (especially restaurants and grocery stores), and other private companies such as construction contractors, landscapers and lawn services. The programs established to collect and process organics in the County are designed to address this diversity.

Much of the collection and processing of organics in Thurston County occurs within the county's solid waste system. This includes the curbside collection of mixed organics from residential and commercial sources by Waste Connections and the City of Olympia and the delivery of these materials for processing to the WARC. Yard debris and some wood is also delivered by self-haul customers to the WARC and to the City of Olympia's Saturday Drop-Off Site. Some organics are, however, handled outside of this system, including direct deliveries of yard debris, wood waste, and agricultural wastes to composting facilities such as Silver Springs Organics (SSO) in Rainier, WA, and construction debris that includes wood waste to processing facilities such as Recovery 1 in Tacoma, WA. The separate collection of fats, oils, and other organics for conversion to biodiesel or for rendering purposes also occurs outside of the solid waste system. Other private activities divert significant quantities of land-clearing debris and other types of wood. These are important services but are not within the control or jurisdiction of Thurston County and so are not addressed to a great extent in this SWMP.

Disposed Quantities of Organics

The results of the 2014 Waste Composition Study allow an examination of the amounts of organics disposed by specific residential and non-residential sources (see Table 4-2). Although some of the sources are disposing of significant amounts of organics on a percentage basis, the total amount of waste they generate may be relatively small and thus the actual amount of organics (in terms of annual tons disposed) may not be as large as other sources. For example, 31% of the multi-family waste stream is comprised of organics, but that only represents 3,006 tons per year (TPY), or about 6% of all disposed organics.

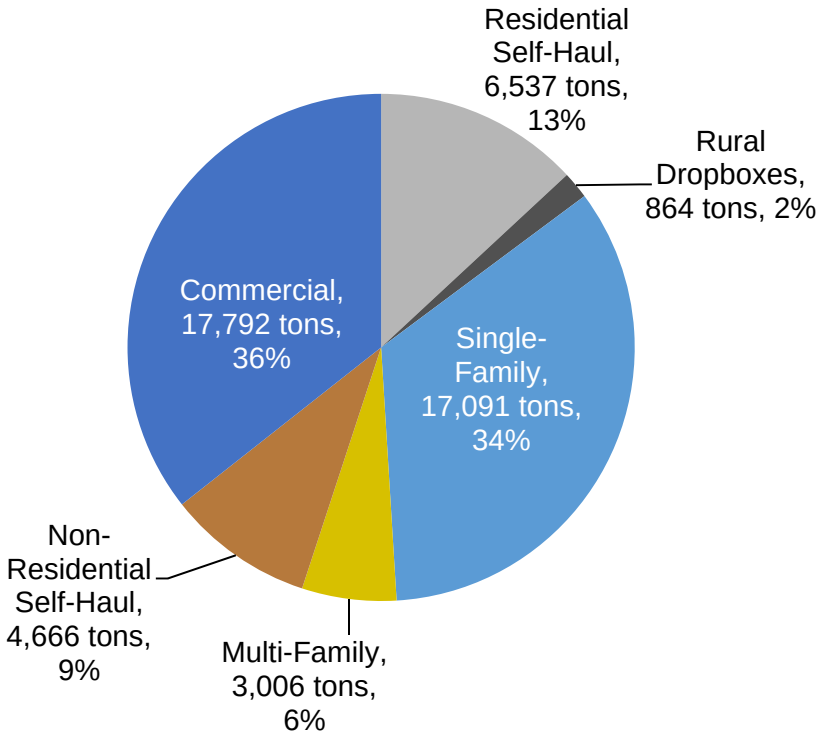
Table 4-2. Amount of Disposed Organics by Source

Source	Organics in Waste Streams By Source, percent by weight					Disposed Organics, tons per year
	Yard Debris	Edible & Inedible Food	Compost-able Paper	Clean Wood[1]	Total Organics	
Residential:						
Residential Self-Haul	2.1%	11.1%	1.5%	15.8%	30.4%	6,537
Rural Drop-box	3.7%	7.7%	1.3%	12.4%	25.1%	864
Single-Family	7.3%	22.9%	4.0%	2.3%	36.5%	17,091
Multi-Family	2.2%	22.4%	3.5%	2.9%	31.0%	3,006
Residential Subtotal	5.1%	19.1%	3.1%	6.4%	33.7%	27,498
Non-Residential:						
Non-Res. Self-Haul	1.1%	0.6%	0.5%	23.1%	25.3%	4,666
Commercial	1.0%	19.0%	5.8%	4.5%	30.3%	17,792
Non-Res. Subtotal	1.0%	14.6%	4.5%	9.0%	29.1%	22,458
Total All Sources	3.1%	16.9%	3.8%	7.8%	31.4%	
Total Annual Tons	4,999	26,836	6,046	12,061		49,943

Note: 1. The figures shown for wood have been adjusted to show only clean wood that could potentially be composted or used for hog fuel and mulch.

As shown in Table 4-2, disposed organics represent 31.4% of Thurston County's waste stream (49,943 TPY). Fifty-five percent of this material came from residential sources (27,498 TPY) and 45% from non-residential sources (22,458 TPY). Food is the largest single item by weight at 16.9% (26,836 TPY) in the County's waste stream and represents more than 50% of all disposed organics. About 46% (12,488 TPY) of this food is edible (food that at some point before it was thrown away could have been eaten). Wood waste represents 24.1% (12,061 TPY) of the disposed organics, followed by compostable paper at 12.1% (6,046 TPY), and yard debris at 10.0% (4,999 TPY). Figure 4-1 illustrates the total amounts of organics disposed by each source.

Figure 4-1
Annual Tons of Organic Materials Disposed by Source (2014)



Organics Diversion Programs

Diversion programs for organics include curbside and commercial collection by Waste Connections and the City of Olympia, drop-off programs at the WARC and at a City of Olympia site, and private activities.

Mixed Organics Collection Programs: Curbside and commercial collection of yard debris has been available in Thurston County since the 1990's. The City of Olympia began curbside collection of yard debris from residential customers in 1994. Pacific Disposal began offering yard collection in 1997. With the opening of Silver Springs Organics (SSO) in 2008, food, food-soiled paper, and some types of compostable plastics were added to the yard debris collection programs provided by the City of Olympia and Waste Connections. This new mixed organics collection service provided opportunities to divert much larger quantities of material from the landfill, especially from schools and some kinds of businesses.

In most areas of the County, single-family homes, multifamily complexes, and commercial customers currently have access to collection services for mixed organics. Subscription to these services is voluntary. Single-family customers are provided

with every-other-week service in 95-gallon carts provided by Waste Connections or by the City of Olympia (Olympia also provides a 35-gallon cart for the same monthly fee). Commercial customers are typically provided larger containers. Both Waste Connections and the City of Olympia also provide temporary containers for source-separated yard and wood debris. Table 4-3 shows the current numbers of subscribers in each area.

Table 4-3. Numbers of Mixed Organics Subscribers

Type of Service	City of Olympia	Waste Connections	Totals
Mixed Organics:			
Residential	7,700	16,617	24,317
Multi-Family and Commercial	175	224[1]	399
Solid Waste:			
Residential	14,300	53,748	68,048
Multi-Family and Commercial	1,400	3,190	4,590
Mixed Organics Subscription Rates:			
Residential	54%	31%	36%
Multi-Family and Commercial	13%	8%	9%

Notes: 1. The figure shown for Waste Connections for the number of multi-family and commercial customers (224) does not include the number of commercial organics customers that they service in the City of Olympia.
Data is current as of June and July 2015.

As can be seen in Table 4-3, the subscription rates are higher in the City of Olympia than in other parts of Thurston County. For residential customers, the lower subscription rate in more rural areas can be explained in part by the greater ability of people outside of the urban core to manage yard debris and discarded food on their own property. These options may include on-site composting, outdoor burning, and feeding animals.

The numbers of multi-family and commercial customers are combined in Table 4-3, but few multi-family locations are subscribing to mixed organics services. The figures shown are primarily for businesses and schools.

Since 2008, Thurston County and City of Olympia staff have provided significant support to public and private K-12 schools to assist with the development and implementation of mixed organics diversion programs thorough the County's Food to Flowers program and the City's WasteWise school program. These programs have helped schools reduce waste, foster environmental stewardship, and save money. For businesses, Thurston County staff provide technical assistance upon

request, including waste audits, facility walk-throughs, presentations to employees, and signage.

In 2009, Waste Connections purchased SSO and dramatically expanded and upgraded the facility. After the new facility opened in 2012, they restricted some of the types of materials they would accept. These restrictions included removing most food-soiled papers and compostable plastics from their list of acceptable materials. This made it more challenging to promote the mixed organics collection programs, and caused some businesses and schools to discontinue their collection service.

In 2013, the County signed a new contract with Waste Connections to receive, grind, blend, and transfer organics delivered to the WARC, including the materials that SSO does not accept. This allowed the County, Waste Connections, and the City of Olympia to adopt an expanded common acceptable materials list. With these changes, the County is actively promoting these services again, especially to businesses and schools.

The composition and level of contamination of the mixed organics collected by the City of Olympia and Waste Connections from their residential and commercial customers in Thurston County was measured as part of the 2014 Waste Composition Study. This data is included in Table 4-4. It shows that more than half of the residential organics (18,495 TPY) is being diverted from disposal. For commercial sources, the diversion rate is only 8% (1,589 TPY). Most of the organic material diverted from residential sources is yard debris at 92.8% (17,614 TPY) and most of the organic material collected from commercial generators is food at 65.3% (1,332 TPY).

Table 4-4. Diverted Amounts of Organic Material

Material	Residential, % by weight	Commercial, % by weight	Total Tons per Year
Yard Debris	92.8%	13.8%	17,614
Food (edible & inedible)	2.56%	65.3%	1,332
Compostable Paper	2.09%	11.6%	544
Other Compostables	0.59%	6.61%	193
Wood	1.11%	0.93%	221
Contaminants	0.84%	1.74%	181
Total Organics, Percent	**100.0%**	**100.0%**	
Total Organics Diverted (TPY)	**18,495**	**1,589**	**20,084**
Total Organics Disposed (TPY)	**17,091**	**17,792**	**34,883**
Diversion Rate	**52%**	**8%**	**37%**

The Waste Composition Study showed the percentage by weight of contaminants contained in the mixed organics was low, but even small amounts of contamination can cause problems in the composting process. Non-compostable materials in the mixed organics comprised less than 1% on average. Part of this amount was non-compostable and non-recyclable grades of paper, which included paper cups and other types of coated papers that could not be composted. The bulk of this material was waste that was accidentally included in the mixed organics, such as crayons, rubber gloves, non-compostable plastic objects, and treated or painted wood. Another source of contamination were the materials measured as curbside recyclables. Most of these items were cardboard and other recyclable paper. Although these materials are not detrimental to the composting process, they are not considered part of the mixed organics stream and it would be better if they were recycled into new paper products. The curbside recyclables found in the organics that are non-compostable (recyclable plastics, glass, and metals) amounted to 0.06%.

Organics Diverted through Drop-off Collection Sites: Thurston County has been actively involved in yard debris collection since the Compost Center was opened at the WARC in June 1993. At that time, yard debris and garden wastes were shredded and composted on-site. The Compost Center continued to operate until 2002, when it was closed due to odor complaints and other issues.

Currently, self-haul customers at the WARC can drop off loads of yard debris and clean wood (lumber, plywood and particle board) at a reduced rate ($45 per ton instead of $119 for garbage, or for a minimum fee of $9 instead of $18 for garbage). The receiving area for self-haul yard debris is adjacent to but separate from the receiving area for the mixed organics dropped off by collection trucks. In 2013, 4,005 tons were delivered to the WARC by self-haul customers and 5,763 tons were delivered in 2014. Food and food-soiled paper is not accepted from self-haul customers because these materials can attract vermin and birds, and cause odor problems.

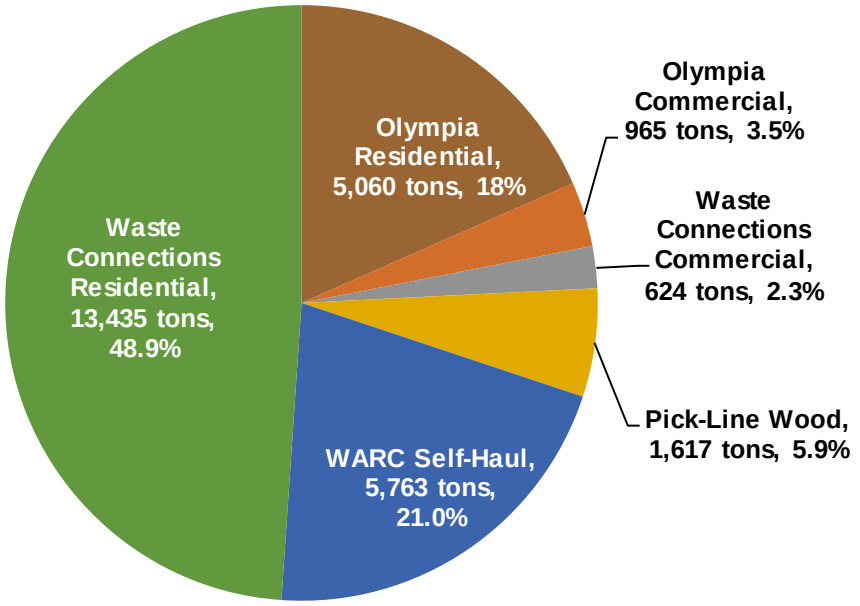
The pick-line at the WARC (see Chapter 6) was used to process primarily C&D loads to recover wood and other materials until it broke down in October 2014. The wood recovered from the pick-line was brought to the organics receiving area to be ground up and then shipped out as mulch and hog fuel or blended with other organics and then sent to composting facilities. Between 2011 and 2013, an average of 3,690 tons per year of wood was recovered off the pick-line. In 2014, 1,617 tons of wood was recovered from the pick-line before it was shut down. Options to replace or repair the pick-line will be considered during the development of the WARC facility master plan in 2016.

The City of Olympia has operated a drop-off site for City residents for yard debris since 1988. The Saturday Drop-Off Site accepts yard debris and clean lumber (but no painted wood, stumps, food, or dirt) for a fee that varies depending on the type and

amount of material. This material is brought to the WARC. Scrap metal and the mixed recyclables accepted in Olympia's curbside program were added to this service in 2009 and are accepted free of charge. This site currently operates on Saturdays from 9:00 a.m. to 2:00 p.m. March through November.

Figure 4-2 shows the amounts of organics received at the WARC from self-haul and other sources in 2014.

Figure 4-2
Tons of Organic Materials Diverted at the WARC in 2014

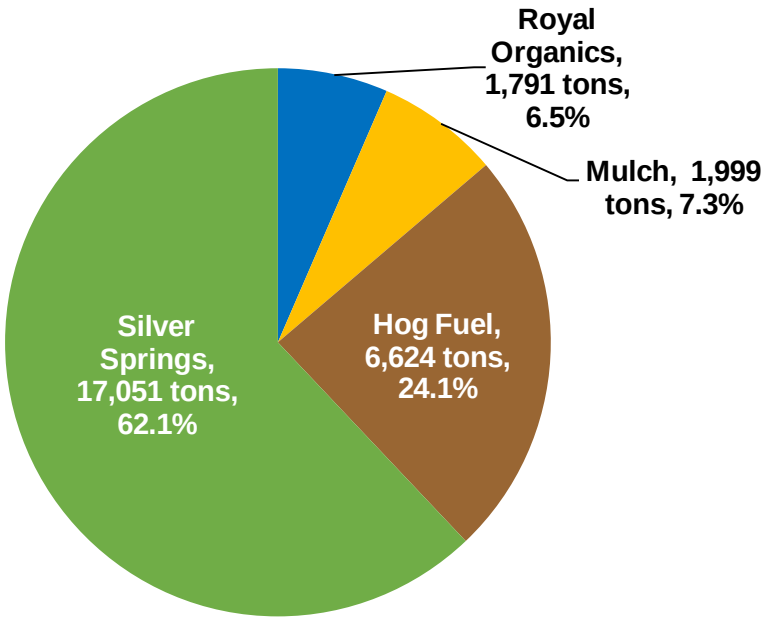


27,464 Total Tons

Mixed Organics Processing

Thurston County contracts with Waste Connections to accept, grind, and blend the various organic materials delivered to the WARC by collection trucks serving curbside residential and commercial customers, and by self-haulers who primarily bring in yard debris. The current contract expires in March 2016, with an option to extend the agreement until March 2019. Depending on the mix of materials, the organics are hauled to SSO or to Lenz Enterprises in Snohomish County for composting, or are shipped out as hog fuel or mulch. Figure 4-3 shows the amounts of each in 2014. Shipments to Lenz Enterprises did not begin until July, 2015, so they are not shown in this figure. Shipments to Royal Organics were discontinued in 2015.

Figure 4-3
Tons of Organic Materials Shipped Out from the WARC in 2014



27,464 Total Tons

Other Diversion Activities

Diversion of organics is also occurring outside of the County's system. These activities include:

- Private companies diverting land-clearing debris, pallets, other types of wood, and food processing wastes to Recovery 1, composting facilities, hog fuel markets and other facilities.
- Collection of fats, oils and other materials for rendering and biodiesel production.
- Recovery of food to feed people. For example, the Thurston County Food Bank recovered more than 515 tons of food to distribute to the community in 2014 through its food donation, gleaning, and rescue programs. These types of activities are not included in this chapter because they are classified as waste reduction (see Chapter 3.)

If all of these other activities are included, the total amount of organics generated in Thurston County would be higher than what is handled by County programs. Measuring these other sources of organics is challenging, however. The best source for this data is the annual survey conducted by the Washington State Department of Ecology (Ecology). As previously noted in this SWMP, this survey depends on voluntary self-reporting. Hence, the quality of data collected each year varies

depending on the degree of participation and care taken by the companies and organizations responding to the survey.

Table 4-5 shows the estimated quantities of organics disposed and diverted in Thurston County for 2013 (2013 is the most recent data available from Ecology at the time of this analysis). The amounts shown in Table 4-5 for Thurston County programs includes the materials collected through the residential and commercial mixed organics programs, wood waste diverted from the pick-line, yard debris self-hauled to the WARC and the amount of food handled by the Thurston County Food Bank. The figures for organics diverted through "other activities" were provided by the Ecology survey.

Table 4-5. Diverted and Disposed Amounts of Organic Material

Material	Recycled and Diverted in 2013			Disposed in 2013	Recovery Rate
	County Programs	Other Activities[1]	Total Diverted		
Yard Debris	21,505	489	21,994	4,793	82%
Food (edible & inedible)	1,838	1,515	3,353	25,731	12%
Compostable Paper	541		541	5,797	9%
Other Organics	194	1,379	1,573	NA	NA
Land-clearing Debris	NA	176	176	NA	NA
Fats, Oils and Rendering	NA	1,270	1,270	NA	NA
Wood	3,635	6,550	10,185	11,625[2]	47%
Total Organics	**27,713**	**11,379**	**39,091**	**49,930**	**45%**

Notes: NA = Not Applicable. These materials not handled by the county system or not measured by the waste composition study.

1. "Other activities" includes private collection activities for rendering and biodiesel production, as well as direct deliveries of various organics to various facilities.
2. The amount of disposed wood has been adjusted to show only clean wood that could potentially be composted or used for hog fuel and mulch.

The recovery rate for yard debris is 82%. The results of the Waste Composition Study show that 7.3% (3,410 TPY) of the waste from single-family sources is yard debris, which is up slightly from the previous waste composition study in 2009 that showed this to be at 5.9% (2,200 TPY). The amount of yard debris from single-family households now represents more than two-thirds (69%) of the yard debris remaining in the overall waste stream.

The recovery rates for food (12%) and compostable paper (9%) are very low. These materials represent significant opportunities for increased diversion through both

existing and new waste prevention and recycling programs. From the Waste Composition Study, the largest sources of food in the waste disposed are commercial generators (11,160 TPY) and single-family residents (10,750 TPY). Together, these two sources represent 82% of the food in the disposal stream. Single-family households are currently disposing of 10,750 tons of food and 1,860 tons of compostable paper annually. Combined, these materials represent 27% of the total single-family residential waste stream and 38% of all of the food and food-soiled paper that the County sends to the landfill each year.

4.3. PLANNING ISSUES FOR ORGANICS

Specific issues and opportunities for organic materials are noted below.

Opportunities to Increase Participation in Existing Programs

Thurston County and its partners (cities, waste haulers, and other private companies) have made significant investments in recent years in programs and infrastructure to create convenient and cost-effective options for diverting organics to beneficial uses. To a large extent what is needed now to increase diversion is more participation in these programs by county residents and businesses. It appears that more single-family households could be signed up for mixed organics collection service, especially in rural areas. Mixed organics services are not offered in all of these areas, however, and because rural residents are more likely to handle yard debris and discarded food on-site and less likely to subscribe to the service.

The 82% diversion rate for yard debris is good but could be improved. The greatest opportunities for increased prevention and diversion are for food. Only 12% of food is currently being diverted and it represents the single largest item left in the waste stream by weight. Only 8% of the mixed organics from commercial sources like restaurants and schools is now being diverted, so there is significant room for growth in this sector.

Although programs to prevent wasted food are not the primary focus of this chapter, it is important to note that nearly 12,500 tons of the food that the County sends to be landfilled every year is edible food that at some point before it was thrown away could have been eaten. The best ways to manage this food are to prevent it from becoming waste and to recover it to feed people.

Burn Ban Area in the County may be Expanded

Some consideration is currently being given to the idea of expanding the size of the of the outdoor burn ban area in Thurston County. Should this be adopted, the County may want to consider making mixed organics collection service available to more parts of the County.

Contamination

The 2014 Waste Composition Study found only small amounts of contamination in the total mixed organics stream, but it does not take much plastic, glass, or metal to contaminate a load of compost. As participation in mixed organics collection programs increases, especially in the commercial sector, the levels of contamination of the total mixed organics stream will also grow unless effective proactive and sustained education and outreach programs and other efforts such as increased monitoring at the WARC and by route drivers.

Processing Costs Higher for Commercial Organics

The mixed organics collected from commercial accounts are now shipped long distances to be composted because there are no local facilities that accept these materials. This results in higher tipping fees and environmental costs.

System Stability and Capacity

The changes in acceptance policies at SSO in 2012 disrupted existing organics collection programs and caused a decrease in commercial participants. The situation has been stabilized and the County now has contracts with two other facilities to provide additional capacity and to ensure there are outlets for the materials that SSO does not accept. Additional promotion will be needed to get the commercial organics programs back on track.

Although the County has increased the number outlets for its mixed organics, current collection programs are still at risk if one or more of these facilities are not able or willing to accept material. This could be a short-term problem due to weather or natural disasters like flooding. It could also be due to a variety of other factors including regulatory issues, changes in ownership, or changes in market conditions. The recent challenges experienced by collection programs across the region as large facilities scaled back their operations or limited the types of materials they would accept underscore these risks.

There are large quantities of organics left in the waste stream. If efforts to increase recovery of these materials are successful, the County's current organics management system may need to be enhanced. This may include expanding or supplementing the processing capacity at the WARC and/or securing additional composting and other outlets for organic materials.

Apple Maggot Quarantine Issues

Concerns have been raised recently by the Washington State Department of Agriculture (WSDA) about transporting mixed organics and garbage to eastern Washington and the potential for these practices to introduce apple maggots from quarantine areas to apple-growing areas. Restrictions have been placed on these practices pending further analysis, and as of mid-August, 2015 Thurston County was prohibited from shipping organics to Royal Organics in eastern Washington.

Materials that were being shipped to Royal are now being hauled to Lenz Enterprises in Snohomish County. Emergency rules were enacted by WSDA in May 2016 and these rules require special permits to move mixed organics or solid waste from quarantine to non-quarantine areas. For solid wastes, the permit requires handling procedures that will prevent the release and spread of apple maggots. For organics, grinding and some form of heat treatment is required before organics can be shipped from a quarantine to a non-quarantine area.

Markets for Compost

The supply of compost in western Washington has approached, and at times exceeded, market demand over the past several years. Until recently, the primary strategy to relieve the over-supply problem was to ship organic materials to central and eastern Washington for processing. The finished compost was then marketed for agricultural applications that could potentially absorb very large amounts. The full implementation of these plans have been postponed by questions about the impact of the apple maggot quarantine on compost markets in the region (see above). With many western Washington counties planning to divert increasing amounts of organics, steps will likely need to be taken to encourage local markets for compost. This would be less expensive and more sustainable in the long run. An alternative would be to ship finished compost to central and eastern Washington, which is a more costly option. In any case, demand for compost is often seasonal (for gardening and farming applications) or related to construction activity, and so seasonal surpluses will likely always be an issue.

Hog Fuel Markets and Wood Potential

Hog fuel markets have been the primary market for wood waste from construction, demolition and land clearing wastes, but the market for hog fuel is currently weak and suppliers are paying increasing fees to ship this material to existing outlets.

Wood waste is the second largest item by weight in the Thurston county waste stream (9.3% or 14,800 tons). Currently there are no C&D recycling facilities in Thurston County that accept and sort C&D waste to recover some of this wood. In addition, the pick-line at the WARC is currently not operational. As the economy improves and construction activity increases, more wood waste will be entering the waste stream. Without facilities and services to recover this material, it will end up in the landfill. Most of the wood waste delivered to the WARC for disposal comes from three sources: non-residential self-haul, (4,470 TPY), commercial (4,450 TPY), and residential self-haul (3,800 TPY). Together these make up 87% of all the wood in the waste stream.

New Opportunities for On-Site Diversion

Large generators of discarded food (including grocery stores, commercial kitchens and restaurants) can potentially manage this waste through on-site systems such as small-scale anaerobic digestion, on-site composting and other methods. Small-scale

anaerobic digestion is currently still under development and may be too technically challenging for most businesses, and on-site composting methods are generally not cost-effective where collection services provide a less labor-intensive approach. One on-site method that is currently available and does show some promise, however, is "The Harvester" offered by WISErg. This system provides a grinder that converts discarded food into a "nutrient-rich liquid" that is then collected and processed into a liquid fertilizer. An advantage of this equipment is that the control system allows for the tracking of food quantities by department, thus allowing a grocery store to determine and address the primary sources of their discarded food. It is also a closed, fully contained system that eliminates leachate, odor, and vector issues.

Large-Scale Anaerobic Digestion

A study conducted by the Washington State University (WSU) Energy Office examined the feasibility of an anaerobic digester in southern Thurston County. Such a facility could potentially handle a variety of feedstocks, including animal manures, wastewater treatment by-products, and food. The study was supported by The Evergreen State College, Thurston County Solid Waste, Thurston County Water Resources, the LOTT Clean Water Alliance, and Puget Sound Energy. The study concluded that an anaerobic digester in southern Thurston County could provide a number of benefits.

4.4. ALTERNATIVE STRATEGIES FOR ORGANICS

This chapter primarily addresses the collection and diversion of organics for composting, recycling, and energy recovery. These are and will continue to be key elements of the County's organics management system. However, to more fully realize the environmental, societal, health, and economic benefits that can be achieved through waste prevention, the County has significantly increased its focus on strategies at the top of the organics management hierarchy. These include programs to prevent wasted food, to recover surplus edible food to feed to people, and other initiatives such as replacing disposables with durables, and encouraging home composting, vermicomposting and grasscycling. These programs are discussed in the Waste Reduction and Recycling Chapter (see Chapter 3).

4.5. RECOMMENDATIONS FOR ORGANICS

This Solid Waste Management Plan is recommending the following to improve the County's current organics collection and processing system:

O1) Evaluate options to increase participation in commercial and residential organics collection programs.

O2) Evaluate options to increase recovery of wood waste from land-clearing, construction, and demolition debris.

O3) Provide education and outreach to reduce contamination in organics.

O4) Reduce contamination in the mixed organics delivered to the WARC.

O5) Work together in partnership with the Washington State Department of Ecology (Ecology), haulers and processors, other public agencies, and the private sector to help develop and promote the use of compost and other end-products produced from organic wastes.

O6) Evaluate alternative technologies to divert organics from disposal.

More details on the implementation of these and other recommendations are shown in the Implementation Plan (see Chapter 10).

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CHAPTER 5

SOLID WASTE COLLECTION

5.1. BACKGROUND FOR SOLID WASTE COLLECTION

Introduction

This chapter addresses the solid waste collection system in Thurston County. The collection system currently consists primarily of two entities; a municipal collection system (Olympia) and a private collection company (Waste Connections).

State Regulations Concerning Waste Collection

The Washington State authorities that govern collection activities are Ecology and the Washington Utilities and Transportation Commission ("UTC"). RCW 70.95.020 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 authority of towns and cities in regard to solid waste and the procedures and standards with which they must comply. Per RCW 32.21.120, "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 Chapter 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:

1. Fixing and altering its rates, charges, classifications, rules and regulations;
2. Regulating the accounts, service, and safety of operations;
3. Requiring the filing of annual and other reports and data;
4. Supervising and regulating such persons or companies in all other matters affecting the relationship between them and the public which they serve;
5. Requiring compliance with local solid waste management plans and related implementation ordinances; and
6. 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 has published a consumer's guide that addresses frequently asked questions (see Appendix C). The UTC also regulates energy companies (electrical and natural gas utilities), telecommunications, private water companies and other transportation companies (such as commercial ferries, pipelines, and railroads). More information can be found at UTC's website (www.utc.wa.gov/).

Local Regulations Concerning Waste Collection

The following laws govern the garbage collection and recycling in Thurston County:

- Thurston County Code, Chapter 8.24 Solid Waste Management, Reduction, and Recycling.
- Thurston County Ordinance 13696 defines the minimum levels of service for curbside recycling and yard waste collection within the urban and rural areas of the County.
- Article V – Rules and Regulations of the Thurston County Board of Health governing solid waste handling.
- Olympia Municipal Code, Chapter 13.12, provides the City's public works department with the exclusive authority to collect residential and commercial garbage in the city, and that garbage service is mandatory.
- Other cities and the town in Thurston County also address waste collection in their codes. Bucoda and Rainier, for instance, require residents and businesses to subscribe to garbage collection services.

Waste Collection Options for Cities and Towns

The four forms of collection services that are allowed by State law in the cities and towns are:

- **Municipal**: This approach utilizes municipal employees and equipment to collect waste.
- **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 70.95 RCW (Washington State Solid Waste Management program).
- **Certificated**: With this collection method, cities are not actively involved in the management of garbage collection. Instead, it allows the UTC-certificated hauler to provide service under UTC regulation (and at rates approved by the UTC).
- **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 required collection companies to pick up Christmas trees, provide a semiannual residential cleanup, and provide free service to public buildings and facilities.

Cities, towns and Tribal reservations are also allowed to assess a utility tax on waste collection services within their boundaries, and Lacey, Olympia and Tumwater each assess a 6% tax on the solid waste services in their cities.

Goals for the Solid Waste Collection System

The following planning goals relate to the current and future collection system:

- The collection infrastructure is flexible and adaptable to changing recycling and waste diversion practices.
- In Thurston County it is easier and less costly for people to reduce, reuse, recycle, or compost their waste than it is to dispose of it.
- Wastes are properly managed and waste facilities are operated in full compliance with appropriate rules and regulations.

5.2. EXISTING COLLECTION ACTIVITIES

Collection of garbage and recycling is conducted by two entities in Thurston County; Waste Connections and the City of Olympia. A large number of residents and businesses (including construction and clean-up companies) also haul their own waste ("self-haul"). The City of Olympia collects residential and commercial garbage from residents and businesses within the city limits. Olympia is the only city within

the County that provides waste collection services directly to its citizens. Table 5-1 summarizes the forms of collection service with the County. Table 5-2 provides required information for the two collection operations.

Table 5-1. Collection Area Regulatory Oversight Methods in Thurston County

Collection Area	Hauler	Arrangement	Rate Setting
Bucoda	Waste Connections dba Joe's Refuse	Contract	Collection Contract
Lacey	Waste Connections dba Pacific Disposal	UTC Certificate	UTC
Olympia	City of Olympia's Waste Resources Utility	Municipal Collection	Ordinance
Rainier	Waste Connections dba Joe's Refuse	Contract	UTC
Tenino	Waste Connections dba Joe's Refuse	Contract	Collection Contract
Tumwater	Waste Connections dba Pacific Disposal	UTC Certificate	UTC
Yelm	Waste Connections dba Rural Garbage	Contract	UTC
Unincorporated County	Waste Connections dba Pacific Disposal, Butlers Cove, Joe's Refuse and Rural Garbage	UTC Certificate	UTC

Table 5-2. Waste Collection Service Providers in Thurston County

Service Provider	Address	Population Served	Land Area, square miles	Density (people per square mile)
City of Olympia	PO Box 1967, Olympia, WA 98507	49,670	19.9	2,500
Waste Connections	2910 Hogum Bay Road NE, Lacey, WA 98516	214,330	754	284
Totals		264,000	774	341

Source: Population and land area figures are from the Washington Office of Financial Management (OFM) for 2014.

City of Olympia

All garbage, residential curbside recycling, residential mixed organics, landfilled C&D debris and some of the commercial mixed organics is collected by the City's

Waste ReSources Utility. Commercial recyclables, including mixed organics and C&D brought to the appropriate processing facilities for composting and recycling, are "open market" materials that can be collected by others as well.

Residential customers receive collection of garbage and commingled recycling on an alternating every-other-week basis with a roll cart ranging from 20 gallons up to 95 gallons. Residents set out garbage one week, from Tuesday through Friday, and the following week they set out recycling. Mixed organics collection is conducted on Mondays, with half of the City collected each week. Olympia is the only jurisdiction within the State that provides this type of alternating collection service, although other cities (Renton, for example) also provide every-other-week garbage collection. In addition to garbage and recycling, residents may subscribe to every-other-week collection of mixed organics (yard debris and food scraps). About 54% of the 13,900 residential customers in Olympia subscribe to this service. Improved efficiency in residential collection since 1998 has resulted in a 60 percent decrease in the number of trucks and staff required, despite a 20 percent increase in the number of customers.

Commercial and multi-family customers have the option, depending on the amount of waste generated, of receiving either a cart, front or rear load container, or roll-off compactor or drop box for storage and collection of garbage. Collection of commingled recycling is provided to multi-family complexes either on a weekly basis or every-other-week basis depending on the needs of the customer and the City.

Collection of recycling is not mandatory; however, the assessed collection fees are higher for residential customers that choose not to participate in the recycling program. Single-family residents also have the option of subscribing to weekly garbage collection (at a significantly higher cost). In 2015 only 12 customers (out of more than 14,000 total customers) were subscribed to this option. Collection of source-separated recyclable materials and mixed organics from commercial customers is provided by the City and by private collection companies. The collection rates charged by the City for commercial organics are less than the rates charged for garbage.

Approximately 70 businesses subscribe to the City's commercial organic collection program. The City utilizes 95-gallon carts as well as 1, 1.5, and 2 yard containers for storage and collection of organic waste. Table 5-3 summarizes the services provided by the City and the approximate number of customers. Other business in the City have their mixed organics collected by other haulers.

Waste Connections

Waste Connections (aka Harold LeMay Enterprises, Pacific Disposal, Rural Refuse, Butlers Cove Refuse Service and Joe's Refuse) collects garbage everywhere else in

Table 5-3. City of Olympia Customer Counts	
Collection Service	Customers
Residential Garbage	14,300
Residential Recycling	14,750
Residential Organics	7,700
Commercial Garbage	1,400
Multi-family Recycling	1,200
Commercial Recycling	125
Commercial Organics	175
Roll-Off Garbage	100

Data current as of July 2015.

Thurston County outside of the City of Olympia. Waste Connections is regulated in the unincorporated areas of Thurston County through the G-certificate program administered by the UTC. The UTC grants exclusive rights to specific haulers to collect waste in unincorporated areas and in cities that have not taken control over their collection systems.

Waste Connections has contracts with four cities and a town in Thurston County: Bucoda, Rainier, Tenino, and Yelm. Collection rates are specified in contracts, except that in Rainier and Yelm the rates are the same as the certificated rates for those cities. The other areas outside of these cities have rates that are approved by the UTC. The unincorporated areas and most of the cities and the town in Thurston County have a voluntary system for garbage subscription. Three cities (Olympia, Bucoda, and Rainier) require residents and businesses to subscribe to garbage collection.

The following table summarizes the current residential collection programs provided by Waste Connections in the County.

Residential collection services provided by Waste Connections varies slightly from area to area, but most areas include both weekly and monthly service options for 35-, 65- and 95-gallon garbage cans or carts. In southern Thurston County (south of 142nd Street), every-other-week service is provided. This service is only provided in this area because this area is served under a different tariff (Joe's Refuse) than the rest of the County. A weekly collection service for a "mini-can" (20-gallon can) is also available in all areas. Residential rates are charged for two-month periods with each billing, while commercial customers are billed each month.

Table 5-4. Waste Connections Residential Services in Thurston County					
City / Area	Hauler	Number of Customers	Garbage	Recycling	Mixed Organics
Unincorporated	Pacific Disposal, Butlers Cove, Joe's Refuse and Rural Garbage	33,926	V	E	V
Lacey	Pacific Disposal	12,049	V	E	V
Tumwater	Pacific Disposal	4,686	V	E	V
Bucoda	Joe's Refuse	252	M	E	V
Rainier	Joe's Refuse	570	M	E	V
Tenino	Joe's Refuse	450	V	E	V
Yelm	Rural Refuse	1,815	V	E	V
Total		53,748			

Notes: M = mandatory subscription, V = voluntary, E = embedded.

County Ordinance 13696 requires minimum service levels that collection companies have to provide to their residential customers. Recycling is collected every-other-week on the same days as their garbage collection. Mixed organics collection is provided on an every-other-week and is provided to residents in the urban growth areas and in major housing developments on a subscription basis. Waste Connections reports that 31%, or 16,617 customers subscribe to mixed organics collection.

Commercial garbage collection is provided by Waste Connections to approximately 3,190 customers throughout the County. Customers can select the container size and collection frequency depending on the amount of waste generated. Commercial customers also have the option to subscribe to recycling and mixed organics collection. Multi-family complexes within the unincorporated areas and some of the cities have the option of subscribing to collection service under rates established by the UTC. Commercial customers in Olympia can subscribe to recycling and mixed organics services provided by Waste Connections and others. Table 5-5 summarizes the current commercial collection customer counts and programs for Waste Connections within the County.

Collection Rates in Thurston County

Table 5-6 provides a sampling of the rates charged by the City of Olympia and Waste Connections. Not all service options that are provided are shown in the table due to space constraints.

Table 5-5. Waste Connections Commercial Collection Operations					
City / Area	Hauler	Garbage Customers	Recycling	Organics	Organic Customers
Unincorporated	Pacific Disposal, Butlers Cove, Joe's Refuse and Rural Garbage	1,766	V	V	173
Lacey	Pacific Disposal	737	V	V	25
Tumwater	Pacific Disposal	415	V	V	21
Bucoda	Joe's Refuse	8	E	V	0
Olympia	Pacific Disposal	0	V	V	NA
Rainier	Joe's Refuse	50	E	V	0
Tenino	Joe's Refuse	81	E	V	0
Yelm	Rural Refuse	133	E	V	5
Total		3,190			224

Notes: M = mandatory subscription, V = voluntary, E = embedded. Data current as of June 2015.

Other Collection Services in Thurston County

A wide variety of residential and non-residential customers regularly visit the WARC and the two rural sites to drop off their own garbage (self-haul). A few of these are large enough to be considered a solid waste collection service, including the Washington State Department of Enterprise Services (DES) and Panorama City. DES provides daily garbage collection service for dumpsters for buildings at the Capitol campus. DES also collects recyclables and organics from these buildings. Panorama City is a large retirement community (over 850 homes on 140 acres) in Lacey that includes single-family homes, duplexes, apartments and other living arrangements. Panorama City collects solid waste within their community and transports that to the WARC.

In addition to their regular services, both the City of Olympia and Waste Connections provide dumpsters and roll-off containers on a temporary basis. These containers are typically used for construction or other special projects. There are also several private companies that provide services such as property cleanup in addition to waste removal.

Table 5-6. Waste Collection Rates in Thurston County

Type of Customer and Service	Olympia	Bucoda	Lacey, Tumwater	Yelm	Rainier	Tenino	Uninc. Area
Single-Family [1]							
Weekly Garbage, 20 gallon can		NA	$15.45	$17.11	$18.77	NA	$15.45
Weekly Garbage, 35 gallon can		NA	$19.38	$20.46	$22.79	NA	$19.38
Weekly Garbage, 65 gallon can		$36.09	$26.07	$27.45	$29.99	$32.15	$26.07
Weekly Garbage, 95 gallon can		$47.75	$34.02	$35.01	$39.57	$42.31	$34.02
EOW Garbage, 20 gallon can	$9.31						
EOW Garbage, 35 gallon can	$16.08						
EOW Garbage, 65 gallon can	$21.95	$24.15				$21.99	$22.21[2]
EOW Garbage, 95 gallon can	$38.04	$35.14				$36.32	$29.30[2]
Monthly Garbage, 35 gallon can		NA	$12.58	$13.95	NA	NA	$12.58
Monthly Garbage, 65 gallon can		$18.65	NA	$15.10	$12.92	$14.99	NA
Monthly Garbage, 95 gallon can		$22.66	$15.91	$16.33	$16.30	$17.27	$15.91
Mixed Organics, EOW	$8.83	$8.88	$7.60	$11.01	$9.65	$9.65	$7.60
Commercial [3]							
Weekly Garbage, 35 gallon can	$19.19	NA	$13.89	$13.68	$13.97	NA	$13.89
Weekly Garbage, 65 gallon can	$29.28	NA	$20.52	$20.22	$26.72	$24.94	$20.52
Weekly Garbage, 95 gallon can	$55.06	NA	$27.45	$33.90	$37.76	$37.34	$27.45
1 yard, Weekly pickup	$108.24	$98.90	$80.36	$78.16	$103.58	$97.52	$80.36
2 yard, Weekly pickup	$177.79	$195.04	$134.52	$140.44	$181.26	$176.79	$134.52
4 yard, Weekly pickup	$316.28	NA	$232.45	$259.03	$311.55	NA	$232.45
6 yard, Weekly pickup	$459.25	NA	$316.87	$375.14	$417.40	NA	$316.87
Mixed Organics, 95 gallon cart	$8.83						

Notes: Rates effective June 30, 2015. Note that rates shown for Olympia include the 6% utility tax whereas the Lacey and Tumwater rates do not include the 6% utility tax, and none of the rates shown include the 3.6% State Refuse Tax.

1. Single-family garbage collection service includes every-other-week curbside recycling.
2. EOW rates in unincorporated Thurston County are only available where Joe's Refuse collects (south of 142nd Street).
3. Commercial service rates shown are for permanent service (i.e., not for temporary container service).

EOW = every-other-week. NA = Service level not available in that service area.

5.3. WASTE COLLECTION PLANNING ISSUES

Thurston County is currently well-served by waste collection programs, but a few potential improvements and issues are noted below.

Mixed Organics Services in Unincorporated Areas

It appears that more single-family households could be signed up for mixed organics collection service. The current (2014) number of subscribers in Waste Connections' service area is 16,617 single-family customers, compared to 53,748 single-family customers for garbage (a 31% sign-up rate for existing garbage customers). The results of the 2014 Waste Composition Study show that 7.3% (3,410 TPY) of waste from single-family sources is yard debris, which is up slightly from the previous waste composition study in 2009 that showed this to be at 5.9% (2,200 TPY). The amount of yard debris from single-family households now represents more than two-thirds (69%) of the yard debris remaining in the overall waste stream. Because the current mixed organics collection program also includes food scraps and food-soiled paper, increasing the amount of yard debris diversion would also increase the amount of these materials that are diverted. Single-family households are currently disposing of 10,750 tons of food scraps and 1,860 tons of compostable paper annually. Combined, these materials represent 27% of the total single-family residential waste stream and 38% of all of the food waste and food-soiled paper that the County sends to the landfill each year.

Number of Self-Haul Customers

More garbage subscribers would lead to fewer self-haul customers at the WARC and the two rural stations. The current subscription rate in areas without mandatory collection is estimated at 60-80% (based on the numbers of subscribers shown in Table 5-4 and OFM data on the number of households in the cities, the town, and in the unincorporated areas of Thurston County).

Options for Collection Frequency

The various collection areas in Thurston County have a range of service levels and collection frequencies available, although not all service levels are available in all areas. More consistency in service levels might provide for a more cohesive county-wide program and create less confusion for residents and businesses.

5.4. ALTERNATIVE WASTE COLLECTION STRATEGIES

A number of options for the waste collection system in Thurston County could be considered and evaluated at this point. These options could potentially range from maintaining the status quo to requiring mandatory waste collection throughout the county. Any discussion of waste collection alternatives and recommendations in this

Solid Waste Management Plan (SWMP) present some challenges, however, for several reasons:

- The waste collection system is highly complex, in that changes made in one area (such as collection frequency or mandatory services) can have significant impacts to other areas (such as recycling).
- The waste collection system is highly regulated by the State, and counties have very limited authority over collection.
- Cities have much broader authority over waste collection services in their jurisdictions and, as signatories to this plan, could be encouraged to make various changes.
- The vision of this SWMP is for a future in which less waste is created each day. This means minimizing the amount of material that will need to be collected over the long term.

Any proposed changes to the collection system need to made in the context of the other elements in this SWMP that will directly impact how much and what types of materials are collected in the County. These elements may include changes to the transfer and disposal system and new initiatives to prevent waste, and to increase recycling rates.

5.5. WASTE COLLECTION RECOMMENDATIONS

This Solid Waste Management Plan is recommending that the waste collection system in Thurston County be periodically examined for potential improvements. The potential for improvements could be examined in several areas:

- **Mandatory services**: not just for waste collection but also for recycling and mixed organics.
- **Collection frequency**: such as replacing weekly with every-other-week and monthly options.
- **Standardization of services**: more standardization of services to improve efficiencies in operations and outreach.
- **Collection operations**: such as waste collection on one side of the street and dual collection in the remote rural areas.
- **Education and outreach**: Identify new communication strategies to enhance the effectiveness of education and outreach about the collection system.
- **Accessory services**: such as bulky waste collection, semi-annual cleanups, etc.

These options should be evaluated according to several criteria:

- Consistency with the Solid Waste Management Plan
- Cost-effectiveness
- Feasibility (technical, political, legal authority, etc.)
- Diversion potential
- Impact on self-haul traffic and facilities at the WARC and rural sites
- Impact on illegal dumping
- Environmental benefits (reduced traffic emissions, etc.)

More details on the implementation of this and other recommendations are shown in the Implementation Plan (see Chapter 10).

CHAPTER 6

TRANSFER SYSTEM

6.1. BACKGROUND FOR THE TRANSFER SYSTEM

Introduction

This chapter of the Solid Waste Management Plan (SWMP) addresses the solid waste transfer system in Thurston County. The transfer system currently consists of two drop-box facilities in rural areas (Rainier and Rochester drop-boxes) and the main transfer station, the Waste and Recovery Center (WARC) in Lacey.

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. Both transfer stations and drop box facilities are included in the broader definition of an "intermediate solid waste handling facility," which also includes material recovery facilities. As intermediate solid waste handling facilities, both transfer stations and drop box facilities are required to adhere to specific design and operating standards, although closure and financial assurance standards are minimal for these types of facilities.

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. 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 drop-box facilities are intermediate solid waste handling facilities that are designated as part of the County's solid waste system, they too are exempt from UTC regulations and the County can choose how and who can transport the waste from the drop-box facilities to the WARC or other sites.

The primary local regulations addressing the transfer and other solid waste facilities are included in Article V, Rules and Regulations of the Thurston County Board of Health Governing Solid Waste Handling.

Goals for the Transfer System

The following goals adopted by the SWAC (see Section 1.8) apply to the transfer system:

- The infrastructure needed to provide maximum recycling opportunities and waste diversion is present in the County.
- Thurston County's solid waste system has a sustainable funding mechanism.
- Wastes are properly managed and waste facilities are operated in full compliance with appropriate rules and regulations.

6.2. EXISTING TRANSFER SYSTEM

Overview

The solid waste transfer system for Thurston County consists of one large transfer station (the Waste and Recovery Center, or the WARC), and two rural drop-box facilities (the Rainier drop-box and Rochester drop-box). Waste from the rural drop boxes is brought to the WARC and placed into shipping containers for transport to Roosevelt Regional Landfill in Klickitat County. Figure 6-1 indicates the locations of the three facilities.

Figure 6-1, Solid Waste Facilities in Thurston County

Map data © 2015 Google

The Waste and Recovery Center (WARC)

The WARC is owned by Thurston County and is partially staffed by County personnel. The County contracts with Republic Services to dispose of the waste

delivered to the WARC, and Republic subcontracts with Waste Connections to operate the transfer building. The facilities and programs at the WARC include:

1. A waste transfer building, where waste is compacted into shipping containers that are hauled by truck and train to the Republic Services landfill in Klickitat County, Washington.
2. An extensive recycling drop-off center that accepts cardboard, mixed paper, newspapers, aluminum cans, tin cans, plastic bottles, dairy tubs, plastic buckets, plastic plant pots, glass containers, and polystyrene (styrofoam). Used cooking oil, motor oil, and vehicle oil filters are also accepted, along with car batteries.
3. A yard debris and mixed organics collection and transfer operation.
4. A moderate-risk waste collection facility (the "HazoHouse").
5. A pick-line for removing recyclables from the waste stream (currently not operational).
6. Separate collection areas for scrap metal, tires, and refrigerated appliances.
7. Special collection programs for electronic wastes, and reusable household goods (e.g. Goodwill).
8. A vactor waste facility operated by Thurston County Public Works for managing materials removed from storm drains.
9. A dog park.
10. The closed Hawks Prairie Landfill.
11. A demonstration garden, the Closed Loop Park.
12. Intercity Transit Park & Ride facility.

For the purposes of this SWMP, references to the WARC are generally intended to address only the first seven elements listed above. Table 6-1 shows the staffing responsibilities at the WARC for these elements. Figure 6-2 shows the site layout for the WARC. A summary of the tonnages handled in the past four years at the WARC is shown in Table 6-2.

Table 6-1. Staffing Responsibilities at the WARC

Activity	Staff	Contract
Transfer Building and Pick-Line Self-Haul Area Recycling Center	Waste Connections	Transfer Station Development and Service Agreement
Organics Area	Harold LeMay Enterprises, Inc.	Yard Waste Collection Site Service Agreement
Scalehouse MRW Facility	County	NA

Figure 6-2
Site Layout for the WARC

Google Earth © 2015 Google

Upgrades and improvements are continually being considered and implemented at the various WARC facilities including the scale area, self-haul drop-off area, recycling area, HazoHouse, and the transfer building. A few of the areas currently in need of attention are described below.

Pick-Line: The Transfer Building at the WARC was originally designed with a pick-line to recover traditional recyclable materials from the mixed waste stream. A bucket loader pushed waste onto a series of conveyors where pickers manually removed various materials. The recovered materials such as paper and cardboard were often contaminated, however, resulting in lower prices. Due to these and other issues, the operation was modified to handle primarily construction and demolition (C&D) materials, diverting wood and metals, as well as cardboard and tires. Table 6-3 shows the amount of material recovered by the pick-line in 2013 and 2014, combined with the amounts of some materials like tires and appliances that customers separated from their trash and placed in designated areas at the WARC to be recycled.

The design of the pick-line was more suited to traditional recyclables than C&D. Ongoing problems included jamming of materials at the right-angle turn in the conveyor line; damage to the building structure by oversized materials; and damage to the conveyors by heavy and abrasive C&D materials. In 2014, the pick line was -

Table 6-2. Material Types Handled at the WARC				
Waste or Material	**2013**	**2014**	**2015**	**2016**
INBOUND TONNAGES TO WARC				
Municipal Solid Waste (excluding Rainier and Rochester Facilities)	134,949	138,958	142,659	152,714
Waste from Rainier Drop-Box Facility	1,363	1,782	2,003	2,391
Waste from Rochester Drop-Box Facility	1,765	1,861	1,990	2,176
Construction and Demolition Waste	19,449	19,932	22,736	26,287
Asbestos	47	41	52	56
Vactor/Grit Waste	392	258	435	564
Organics	24,839	26,229	25,295	26,549
TOTALS	**183,344**	**189,061**	**195,170**	**210,737**
OUTBOUND TONNAGES FROM WARC				
Municipal Solid Waste	152,163	158,844	168,928	179,733
Recyclable Materials:				
• Paper	423	409	386	389
• Cardboard (OCC)	641	707	610	665
• Glass	592	590	616	620
• Plastic (mixed)	69	48	54	54
• Cans (aluminum and tin)	28	25	26	27
• Comingled Recyclable Materials	3,146	--	--	--
• Scrap Metal	1,636	1,203	948	748
• Refrigerators (for recycling)	72	76	98	115
• Tires (for recycling)	123	131	128	118
Total Recycled Materials	6,730	3,189	2,866	2,736
Organics:				
• Hog Fuel	7,075	6,624	1,742	1
• Mulch	3,434	1,999	4,465	5,781
• Silver Springs	16,588	17,051	16,138	18,222
• Royal Organics	278	1,790	1,596	--
Total Organics	27,375	27,464	23,941	24,004
Total Moderate Risk Waste	244	295	118	148
TOTALS	**186,512**	**189,792**	**195,853**	**206,621**

shut down due to the need for equipment repairs that will cost an estimated $250,000. Options are currently being explored to address the future of this operation. Without the pick-line, labor costs have decreased for Waste Connections, but disposal costs have increased for Thurston County because less material is being diverted and more is being disposed.

Staff Facilities: A new stand-alone employee building at the WARC is being considered. This building will provide improved employee space compared to the trailers that currently house County staff at the WARC.

Table 6-3. Tonnages Recovered by the Pick-Line		
Recovered Material	**2013 tons**	**2014 tons**
Aluminum Cans	1.5	0.9
Appliances	72.2	76.0
Cardboard	284.1	178.5
Metal	1,392.4	1,172.4
Mixed Paper	33.0	1.8
Tires	123.5	131.5
Wood	3,415.9	1,616.9
TOTALS	**5,495.1**	**3,280.0**

Note: 2014 tonnages are only through October for most materials.

Recent Improvements: Signage has been improved throughout the WARC and on nearby roads in the past few years and will continue to be improved. Brochures are available at the WARC and can be provided to customers needing more information about what can be disposed or recycled, and other information. Additional recovery options (such as a Goodwill trailer) have been implemented. A new compactor was installed in January 2017.

A few improvements that were recommended by the previous solid waste management plan have not been made for various reasons. The previous plan recommended a separation of self-haul customers from commercial traffic at the WARC and modifications to the public tipping area to provide additional resource recovery capabilities. These steps were determined to be unnecessary due to the decrease in self-haul customers (which was caused by a combination of the recession and higher rates). Modifications to the tipping area were also considered but were not deemed cost-effective.

Rural Drop-box Facilities

The Rainier and Rochester drop-box facilities are located in the southeast and southwest part of Thurston County (see Figure 6-1). These facilities are staffed by County employees (a minimum of two staff during open hours). Customers drop waste into 40 cubic yard rail containers at these sites, which are then brought to the WARC to be emptied. The attendants at these sites determine the fee for customers based on a visual estimate of the volume (not weight) of the waste. The rate charged at these facilities is $18.00 per cubic yard, and there is a minimum fee of $18.00 per load. The two rural drop-box facilities have numerous collection containers for most of the same types of recyclables accepted at the WARC. Yard debris and other organics are not collected separately at the rural drop-box facilities.

A third rural drop-box facility in the Summit Lake area was closed in December 2011 because the cost of operating it was twice as high as the amount of revenue generated by the site. In addition, equipment at the site (a compactor unit) needed to be replaced, but the low volumes of material received at the facility did not justify this expense. The need of this facility was also significantly reduced because the waste hauler had increased their level of service in the area. The closure of this facility was discussed at public meetings and then approved by the Board of County Commissioners. There were concerns its closure would increase the amount of illegal dumping in the area, but this was only a temporary problem.

Assessment of Transfer System Status and Capacity

A review of the transfer and disposal system's capacity and status is conducted annually. The intent of this review is to identify and prioritize potential repair and improvement projects. Potential projects are identified based on compliance with the SWMP, the County's Comprehensive Plan (through the Capital Facilities Plan), regulatory requirements, health and safety factors, obsolescence, capacity and other issues. Projects that have been recently identified through this process and anticipated to be addressed in the near future include replacement of the compactor at the WARC; construction of a permanent building at the WARC for County staff (to replace the trailers currently housing staff); and repairs and maintenance of the roads at the WARC (a recurring need due to settlement issues).

6.3. TRANSFER SYSTEM PLANNING ISSUES

Issues identified for the transfer system include the following:

Lack of Long-Range Plan for the WARC

Over the years the WARC has evolved from a landfill to a multi-purpose facility that receives and transfers solid waste and collects recyclables, organics, and moderate-risk waste. Although the WARC provides a variety of critical public services, there are no contingency plans for many of these services, and the facility lacks a long-range plan that can be used to guide future developments at the site.

Transfer Building Improvements

Potential upgrades to the main receiving and processing facility at the WARC include:

- Expansion of the tipping floor could improve operational efficiency, increase the number of tipping stalls, and increase storage space for waste surges or rail interruptions.
- What, if anything, should be done to restore the pick-line at the WARC, and how should that line be used in the future? If replaced or significantly remodeled, consideration should be given to replacing the current conveyor with a different

conveyor configuration that drops materials onto the transfer building floor rather than dropping them directly into the compactor.

- What additional site improvements could be made to increase diversion, especially of materials like scrap metal and construction and demolition debris?

Transfer Station Operations Contract

The operations contract for the WARC (the Transfer Station Development and Service Agreement) expires in 2020 (although it can be extended) and the process to explore alternative options should begin in 2017. The Transfer Station Development and Service Agreement and amendments include the following components:

- Operation of the transfer building and self-haul customer area at the WARC
- Hauling of waste containers from the rural drop-box facilities to the WARC.
- Operation of the recycling center at the WARC.
- Service for recycling containers at the rural drop box facilities.

Having all of these services bundled together provides the convenience of a single point of contact for contract compliance, but may be less flexible in the long run compared to multiple contracts.

Rural Drop-box Facility Improvements

A number of opportunities exist currently with the rural drop-box facilities:

- The rural drop-box facilities could benefit from improved signage to clarify what materials go in what containers, and what similar-looking materials are not accepted. Signage could also emphasize the cost savings to the customer, as well as the benefit to the environment, of placing material in the recycling bins instead of mixing it in with garbage.
- Should Thurston County modify its transfer service in the south county? Several options are possible for this, including 1) siting a new transfer station near Grand Mound, an area of growing population and business activity; 2) expanding the Rochester drop-box facility into a full transfer station; and 3) developing an interlocal agreement with Lewis County that would allow waste from the Rochester drop-box facility to be hauled to the Lewis County transfer station in Centralia instead of to the WARC.
- Would it be cost-effective to fill larger containers at the rural sites and send those directly to the railhead in Lewis County?
- Are some customers paying less or paying more to dispose of material at the rural sites than customers with identical loads would pay at the WARC because the rural sites lack scales? Are customers with large, low-density loads subsidizing those with small-volume, high-density loads at these sites?

Adjustments to the Number and Location of the Rural Drop-box Facilities

Questions periodically arise about the need for additional rural sites. The need for new sites could be evaluated based on the amount of illegal dumping in an area, as well as service gaps for waste and recycling collections, and population changes. Conversely, questions also arise about the need for the existing sites and what the impacts might be of closing them. An evaluation process is needed to address these questions.

6.4. ALTERNATIVE TRANSFER SYSTEM STRATEGIES

A number of options for the transfer system in Thurston County could be considered and evaluated at this point. There are several options for the WARC, including modifications to the pick-line and tipping floor, but these options cannot be evaluated separately from each other since any changes caused by one option may have significant impacts on the other options. The same is true for the rural sites, although to a lesser extent. Any changes proposed for the rural sites have potential implications for their on-site operations, for operations at the WARC, as well as for local waste collection.

In order to properly evaluate the costs and benefits of the potential modifications to the WARC and to the rural facilities, conceptual designs and cost estimates based on those designs are needed. This is beyond the scope and timeline for this Solid Waste Management Plan. Hence, this chapter is concluding with a recommendation for that process to be conducted in the next year or two, and provides a recommended framework for that analysis.

6.5. TRANSFER SYSTEM RECOMMENDATIONS

T1) This Solid Waste Management Plan is recommending that a long term facility planning project be conducted to assess possible modifications to the WARC and to the Rainier and Rochester drop-box facilities.

There are two primary elements to the long term facility planning project:

1. Develop a Master Plan for the WARC, and
2. Consider modifications in the design and operation of the Rainier and Rochester drop-box facilities.

Part 1 – Develop Master Plan for the WARC

The WARC has evolved from an operating landfill to a multi-purpose facility that receives and transfers solid waste and collects recyclables, organics, and moderate-risk waste. Because the WARC's buildings and waste areas were developed based

on historical needs and conditions, it would be timely to take a step back and evaluate the efficiency of the current site layout. A Facility Master Plan can accomplish this. Such a plan should anticipate projected changes in population, demographics, types and quantities of waste and recyclables to be received, and economic cycles. It should envision new facilities or modifications to existing ones at the WARC that could address future needs resulting from these changes, while protecting the closed landfill and minimizing the interruption of the WARC's operations during construction. The plan would be coordinated with the County's Comprehensive Plan through the capital facilities process (CFP).

A Facility Master Plan for the WARC could include the following elements:

- Brief history of prior site uses and rationale for the current layout of facilities.
- General projections for changes in waste and recyclables generation and composition, and number and type of customers.
- Impacts of modifications to rules and regulations on the operation of the facility.
- Evaluation of alternatives for expanding the tipping floor in the transfer building.
- Evaluation of alternatives for modifying (or removing) the pick-line.
- Evaluation of alternatives for improvements to the organics handling area.
- Evaluation of alternatives for improvements to the recycling area.
- Evaluation of alternatives for improvements to the self-haul area.
- Evaluation of alternatives for improvements to the HazoHouse.
- Evaluation of options to expand educational opportunities at the WARC.
- Contracting methods, including single or multiple contracts for waste export, disposal, and for operation of various facilities.
- Evaluation of options for tipping fees for solid waste, organics and other materials.
- Disposal options, including export/landfilling.
- Evaluation of waste processing and hauling options for disposal.
- Evaluation of options to increase diversion including using conversion technologies such as anaerobic digestion, energy from waste (EfW)/incineration, gasification or pyrolysis.
- Contingency plans to address possible disruptions for all of the above services.

The Master Plan should consider the advantages and disadvantages of each alternative. The table below shows the possible elements that could be addressed in the Master Plan.

Table 6-4. Master Plan Alternatives						
Evaluation Factor	**Expanded Tipping Floor**	**Modified Pick-Line**	**Upgraded Organics Area**	**Upgraded Recycling**	**Upgraded Self-Haul**	**HazoHouse Improve-ments**
Advantages						
Better operating efficiency	X	X	X			
Increased safety	X	X			X	
Lower operating costs						X
Better traffic flow	X	X		X	X	
Higher recovery rate		X	X	X	X	X
Disadvantages						
Higher capital cost	X	X	X			
Increased complexity	X	X			X	X

Part 2 – Address Potential Modifications to Rural Facilities in Rainier and Rochester

This part of the long term facility planning project could include the following elements:

- Brief history of prior site uses and rationale for the current layout of facilities.
- General projections for changes in waste and recyclables generation and composition, and number and type of customers.
- Impacts of modifications to rules and regulations on the operation of the rural facilities.
- Evaluation of the advantages and disadvantages of installing scales at the rural facilities.
- Evaluation of alternative contracting methods for operating the rural facilities.
- Evaluation of methodology used to set disposal fees.
- Evaluation of options to address growth in the Grand Mound area. These options could include expanding or replacing the current Rochester site and/or entering into an interlocal agreement with Lewis County to use their transfer station.
- Evaluation of options to site another MRW facility in South County.
- Potential new sites or closure of existing sites.
- Contingency plans to address possible disruptions to rural facility operations.

The long term facility planning project should be implemented by Thurston County, and the County may wish to retain the services of a consulting company to facilitate this process. This study will need to take into account the other recommendations of this SWMP, but will also need to be completed before the process for re-bidding the disposal contract (which expires in 2020) can begin in 2017. Depending on the

detailed scope of work and which alternatives are included, the cost of such a study could range from about $150,000 to $200,000. Funds have already been allocated for this study in Thurston County's 2016 budget. The results of the study should be reviewed with the SWAC prior to implementing any of the recommended actions.

More details on the implementation of these and other recommendations are shown in the Implementation Plan (see Chapter 10).

CHAPTER 7

DISPOSAL SYSTEM

7.1. BACKGROUND FOR SOLID WASTE DISPOSAL

Introduction

This chapter addresses the solid waste disposal system in Thurston County. The current disposal system consists primarily of a "waste export" system that ships solid wastes to an out-of-county landfill. Other elements of the disposal system addressed in this chapter include old landfills that are located in the county and possible alternative disposal methods (such as incineration).

Regulations Concerning Waste Disposal

State laws and regulations concerning solid 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. The Thurston County Board of Health has further adopted the relevant portions of the WAC in Article V of their rules. The laws and rules that most directly apply to solid waste disposal include:

- Chapter 70.95 RCW, Solid Waste Management, contains several important provisions concerning solid waste disposal, including 70.95.020, which assigns primary responsibility for adequate solid waste handling to local government, and 70.95.165, which deals with the requirements for siting a landfill or other disposal facility.
- 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 70.95 RCW and sets minimum functional performance standards for the proper handling of solid wastes. Ch. 173-350 contains rules for a range of facilities (recycling, composting, land application, anaerobic digesters, intermediate solid waste handling, piles, MRW and limited purpose landfills), as well as providing rules for beneficial use permits, groundwater monitoring, financial assurance and other important activities.
- Chapter 173-351 WAC, Criteria for Municipal Solid Waste Landfills, provides minimum state-wide standards for solid waste landfills (not including inert or limited purpose landfills). Local jurisdictional health departments can enact ordinances equally as or more stringent than this regulation.
- 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 local

regulation governing the closed landfill cells at the WARC is Article V, Rules and Regulations of the Thurston County Board of Health Governing Solid Waste Handling, which is administered by Thurston County Public Health and Social Services. Similarly, Republic Services' Roosevelt Regional Landfill, where Thurston County's waste is currently disposed, is governed by the rules of Klickitat County 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.

Goals for the Solid Waste Disposal System

The following planning goals relate to the disposal system:

- In Thurston County it is easier and less costly for people to reduce, reuse, recycle, or compost their waste than it is to dispose of it.
- People in Thurston County act on the basis of their understanding of the societal, environmental, health, and financial impacts of their consumption and disposal choices. This includes their impact on climate change.
- Thurston County's solid waste system has a sustainable funding mechanism.
- In Thurston County, people and businesses make responsible choices about what they produce and consume, and what they generate as waste.
- Wastes are properly managed and waste facilities are operated in full compliance with appropriate rules and regulations.

7.2. EXISTING DISPOSAL ACTIVITIES

Hawks Prairie Landfill

Prior to its closure in April 2000, most of Thurston County's solid waste was disposed at the Hawks Prairie Landfill in Lacey. The landfill has been capped and is currently being monitored and controlled for groundwater, leachate and gas. The costs for these activities are covered by funds that have been set aside in a post-closure account.

The post-closure monitoring period is anticipated to continue for 30 years (until May 1, 2030), although this period can be shortened or extended based on contamination levels. Specific activities being conducted for post-closure monitoring include:

- Surface ground level settlement.
- Groundwater contamination, including leachate collection and disposal.
- Surface water management per National Pollutant Discharge Elimination System (NPDES) requirements.
- Methane gas collection, destruction and emission testing.

Current Waste Export Activities

Waste Export Contract: With the closure of the Hawks Prairie Landfill, Thurston County began exporting solid waste for final disposal about 240 miles away at the Roosevelt Regional Landfill in Klickitat County, Washington. In 1998, the County contracted with the Regional Disposal Company (now Republic Services) to accept waste that had been loaded into intermodal containers (sometimes called trailers) at the transfer building at the Waste and Recovery Center (WARC), and to transport that waste to the Roosevelt Regional Landfill. Republic Services' subcontractor, Waste Connections (formerly LeMay), hauls the containers to a Republic Services' intermodal yard in Centralia. There they are loaded onto a Burlington Northern Santa Fe (BNSF) train to be hauled by rail to Klickitat County. The Waste Export and Disposal Agreement (WEDA) was executed in 1998 for an initial ten-year term that began with the start of transfer station operations on May 1, 2000. The WEDA automatically renews for up to ten one-year extensions (i.e., through 2020) unless a one-year notice is provided otherwise, and the agreement can be extended beyond 20 years upon mutual agreement.

Current Disposal Site: The Roosevelt Regional Landfill began operations on November 1, 1990. It was developed based on a recommendation by the Klickitat County SWAC to solicit proposals to find a private company to permit, design, construct, and operate a state-of-the-art landfill to be sited within the county. In response to their request for proposals, Klickitat County chose the Rabanco Regional Landfill Company (now Republic Services) to build and operate the new landfill. The agreement between Klickitat County and Republic Services was amended in 2011 and currently commits both parties to continued operation through 2032 with three five-year extensions allowable. The agreement requires all waste to be subjected to recycling and also to removal of hazardous waste before it can be accepted at Roosevelt Regional Landfill. All generating locations must also have an approved Solid Waste Management Plan or the equivalent.

The Roosevelt Regional Landfill receives waste from Klickitat County and two-thirds of the other counties in Washington State. Waste is also received from sources outside of Washington (Alaska, Idaho, Oregon and Canada). As part of the agreement, most of the waste from Klickitat County is accepted at no charge at this landfill, saving the county's residents and businesses approximately $0.5 million annually. There is 193 million tons of permitted capacity remaining at this site, and the landfill currently receives about 2 million tons per year. The landfill site contains more than 2,000 acres in which additional capacity could potentially be permitted. A separate monofill at the landfill site is used for ash, and initial investigations are underway to explore extraction of metals from the ash in this monofill.

The Roosevelt Regional Landfill is a state-of-the-art operation with methane gas and leachate collection, litter controls, and groundwater monitoring. Leachate collected from the bottom of the landfill is re-injected into the waste to increase decomposition

and accelerate production of methane. Methane gas collected from the landfill is piped to onsite power plants operated by the Klickitat County PUD, which are currently generating sufficient power for about 17,000 homes.

Contingency Plans for the Waste Export System: The Waste Export and Disposal Agreement requires an Alternate Operating Plan (AOP) that will enable Republic Services to perform its obligations in the event that the Roosevelt Regional Landfill or the normal transportation system becomes unavailable for some reason. The AOP addresses alternative truck transportation routes, an alternative disposal facility (the Finley Buttes Landfill in Morrow County, Oregon), and an alternative intermodal facility in Tacoma that could be used if necessary. Per the conditional use permit for the Roosevelt Regional Landfill, transportation of waste by truck is not allowed through the Columbia River Gorge National Scenic Area (Highway 14 east from Vancouver, WA) or on Highway 97 through the Yakima Indian Reservation. Hence, the alternative truck transportation routes involve driving east on Highway 12 or I-90, then I-82 to the Tri-Cities area and then south on I-82 or Highway 221 to Highway 14 and then east to the landfill. The AOP also addresses procedures to be followed should a container of waste become damaged in transit.

Use of County Disposal Sites: Title 8 of the Thurston County Code prohibited out-of-county waste from being disposed at the Hawk's Prairie Landfill (Section 8.20.010). The landfill closed in 2000, and the code has not been amended to prohibit out-of-county waste from the County's transfer station and drop-box facilities.

Other Old Landfills and Disposal Sites

Besides the Hawks Prairie Landfill, there are 17 other historical disposal sites that have been identified in Thurston County. Most of these were used for mixed municipal solid wastes (MSW) and stopped operating in 1972 or earlier. Two of these sites were used for wood waste and were closed in 1990. One site was a lagoon used for septage, which closed in 1989. Another site was used for demolition waste and was closed in 1990.

There are no disposal facilities of any type (MSW landfill, inert landfill and limited purpose landfill) currently operating in Thurston County.

7.3. WASTE DISPOSAL PLANNING ISSUES

Transfer Station Agreement

The contract for waste disposal (WEDA) is closely tied to the Transfer Station Development and Service Agreement (TSDSA), which governs the operation of some of the facilities at the WARC and the rural drop-box facilities. The TSDSA has an initial term of 20 years and can be extended. Although closely tied together, the

WEDA and TSDSA are separate agreements and one could be terminated or extended separately from the other.

Alternative Disposal Methods

Thurston County is currently well-served by its waste export and disposal programs, although interest is occasionally expressed about additional methods of reducing the amount of waste being disposed. Conversion technologies are a way of converting the organic portion of solid waste into energy or useful products. They 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. The major categories of waste conversion are:

- **Pyrolysis**: Waste is broken down thermally in the absence of air, producing oil and synthetic gas (syngas) that can be burned in gas turbines or gas engines to generate electricity.
- **Gasification**: This process is similar to pyrolysis, but takes place under low-oxygen conditions (less than necessary for ordinary combustion) to produce a syngas that can be used to generate electricity.
- **Plasma gasification**: This process uses an electrical arc to break down organic parts of the waste into elemental gas which can then be burned in a gas turbine or engine to generate electricity.
- **Anaerobic digestion**: This tank-based system uses microbes to digest organic waste and produce methane gas, which then powers turbine or engine-generators to produce electricity. Sometimes the waste heat from the engines is reclaimed to heat the digester. The City of Tacoma is currently constructing facilities to grind food waste and add it to sewage for treatment at the City's wastewater plant. The methane from the anaerobic digesters at the wastewater treatment plant will be used to generate electricity.
- **Chemical production**: Chemical and/or biological processes are 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)**: This is a well-established technology for burning waste on a mechanically agitated bed and cleaning the flue gases using various types of scrubbing equipment. 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.

In recent years, conversion technology vendors have proposed various projects, but there is still limited experience in applying these technologies to solid waste in the

United States. Because solid waste is such a highly variable mix of materials, it is more difficult to process than more homogenous waste streams such as wood chips, agricultural waste, or certain industrial wastes. Conversion technologies (other than EfW) still 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.

7.4. ALTERNATIVE WASTE DISPOSAL STRATEGIES

No disposal alternatives are being examined in this Solid Waste Management Plan for a variety of reasons:

- The primary disposal options will be examined as part of the long-term facilities planning project recommended in Chapter 6, Section 6.5.
- Hawks Prairie Landfill will continue to be monitored according to current regulations, and there is not a significant opportunity to examine alternatives for that at this time.
- Old landfills will continue to be addressed as appropriate.
- Any future proposals for disposal facilities (such as inert waste landfills), incinerators and other waste conversion technologies can only be evaluated if and when they are proposed.

7.5. WASTE DISPOSAL RECOMMENDATIONS

The following recommendations are being made for waste disposal programs.

D1) The Waste and Recovery Center, the Rainier Drop-box and the Rochester Drop-box should comprise the designated disposal system for all solid wastes generated in Thurston County.

D2) Evaluate future disposal system options as outlined in the long-term facilities planning recommended in Chapter 6, Section 6.5.

D3) Proposals for disposal facilities, anaerobic digestion, incinerators and other waste conversion technologies that may be proposed in the future should be evaluated on a case-by-case basis for consistency with this Solid Waste Management Plan and according to other criteria appropriate to the proposed system.

More details on the implementation of these and other recommendations are shown in the Implementation Plan (Chapter 10).

CHAPTER 8

SPECIAL WASTES

8.1. INTRODUCTION

The purpose of this chapter is to review the generation, handling and disposal methods for special wastes in Thurston County. These wastes either 1) require special handling and disposal due to regulatory requirements, or 2) pose special issues or opportunities for recycling and other management methods.

The following special wastes are discussed in this chapter:

8.2. Asbestos
8.3. Asphalt Paving and Shingles
8.4. Biomedical Wastes
8.5. Carpet and Carpet Padding
8.6. Disaster Debris
8.7. Mattresses
8.8. Moderate-Risk Waste
8.9. Pharmaceuticals

These materials were chosen because they can pose disposal problems and/or are materials for which additional recycling opportunities may exist. For each of these wastes, the current handling practices are described, followed by recommendations as appropriate to improve current management methods, better protect the environment and public health, and/or to increase diversion.

Goals for Special Wastes

The following planning goals relate to the special wastes addressed in this chapter:

- People in Thurston County understand the societal, environmental, health, and financial impacts of their consumption and disposal choices. This includes their impact on climate change.
- In Thurston County, people and businesses make responsible choices about what they produce and consume, and what they generate as waste.
- Thurston County promotes and supports life cycle product stewardship and industry advancements in packaging standards that lead to less waste generation.
- Wastes are properly managed and waste facilities are operated in full compliance with rules and regulations.

8.2. ASBESTOS

Existing Management Practices for Asbestos

The harmful effects of microscopic airborne asbestos fibers have been recognized for many years. When inhaled, these fibers lodge in the lungs and can cause asbestosis, mesothelioma, and lung cancer up to 30 years later. These problems caused many uses of asbestos to be banned in the 1970's and 1990's, but some uses of asbestos are still allowed, particularly in construction materials. Hence, a building of any age might have asbestos-containing materials in it. Some of these materials are well-known (such as pipe insulation and "popcorn" ceiling material), but asbestos has been used in over 3,000 different construction materials and other products over the years and many of these products are not easily identified. The ongoing use of asbestos led to a new state law, effective January 1, 2014, that now requires labeling of asbestos-containing products.

The primary agency that regulates asbestos in Thurston County is the Olympic Region Clean Air Agency (ORCAA). The regulations adopted by ORCAA primarily focus on renovation and demolition projects.

Asbestos waste from Thurston County is delivered to and placed in a secured 40-yard container at the Waste and Recovery Center (WARC) and then shipped separately to the Roosevelt Regional Landfill for final disposal. To dispose of asbestos at the WARC, customers must call ahead to ensure there is staff available to safely receive and process the material. Over the past ten years (2005 to 2014), the amount of asbestos disposed through the WARC has varied from 18.4 tons to 47.0 tons, for an average of 34.1 tons per year. The number of customers in the past ten years has varied from 36 to 64, for an average of 53 customers per year.

Planning Issues for Asbestos

The current system to manage asbestos at the WARC is functioning well and adequately protecting human health and the environment.

Recommendations for Asbestos

The SWMP recommends no changes to the current system to manage asbestos at the WARC but does recommend that:

SW1) Explore opportunities to partner with Olympic Region Clean Air Agency (ORCAA) and other public agencies, such as building departments, to ensure that residents and contractors are aware of the risks associated with asbestos exposure, and are removing and disposing of asbestos-containing wastes safely and properly.

More details on the implementation of this recommendation are shown in the Implementation Plan (Chapter 10).

8.3. ASPHALT PAVING AND SHINGLES

Existing Management Practices for Asphalt Paving and Asphalt Shingles

Background: Asphalt paving and asphalt roofing shingles are highly recyclable. The Washington Asphalt Pavement Association estimates that over 95% of old asphalt pavement is reused or recycled. The most common recycling method for asphalt roofing shingles is to recycle them into asphalt pavement. Several studies by King County and in other areas have shown that recycling asphalt shingles into asphalt paving is a viable approach. In assessing their Shingles in Paving Demonstration Project, King County concluded that there is neither a positive nor a negative impact for mixing up to 3% shingles into asphalt pavement. Nationally, the use of asphalt shingles in asphalt pavement increased from 701,000 tons in 2009 to 1.86 million tons in 2012.

A survey of roofing contractors conducted in 2012 by Thurston County staff found that 83% of the contractors were using the WARC and other transfer stations for disposal of shingles, 9% were using a limited purpose landfill (Stafford Creek Landfill) in Aberdeen and another 9% were using either an "on-site graveyard" or "on-site recycling."

Current Markets for Asphalt Paving and Asphalt Shingles: Markets for asphalt paving are currently diverting all or almost all of the asphalt paving generated in Thurston County. Markets in and near Thurston County that currently handle asphalt paving include:

- Concrete Recyclers in Tumwater takes asphalt paving for $4.50 to $8.00 per ton (depending on how clean the material is), or for a $20.00 minimum charge. This facility also recycles concrete, glass, bricks and other materials.
- The Lakeside Industries facility in Centralia currently accepts asphalt pavement (with no concrete or dirt) for recycling at a fee of $10 per ton. Other Lakeside Industries facilities do as well (Kent, Seattle and Longview are the next closest plants), except for their facility in the Nisqually delta (this plant is not permitted or zoned for that activity).
- Miles Resources in Lakewood accepts clean asphalt paving for $4.00 per ton ($20.00 minimum charge).

Several other facilities in Pierce, Kitsap and King Counties also take asphalt paving for recycling.

The market for recycling asphalt shingles is currently limited by the lack of official approval for combining shingles with asphalt pavement. The Washington State Department of Transportation (WSDOT) has yet to fully approve of this process, but WSDOT has issued a "General Special Provision" that allows asphalt shingles to be used on state highways with additional testing and approvals. The use of asphalt

shingles in paving used for private roads and parking lots is not restricted in any way.

Facilities in the region that recycle asphalt shingles include:

- Miles Resources in Lakewood, WA is the closest facility to Thurston County that accepts asphalt shingles. They accept loads of asphalt shingles at $110 per ton (with a one ton minimum charge). Tar paper and nails are acceptable, but other types of materials (wood, metal flashing, etc.) are not allowed. They grind up the shingles and sell them as a base course used under asphalt and concrete pavement.
- United Recycling in Woodinville accepts and grinds asphalt shingles for use as base course and other applications. They report that they are able to market only as much material as they are currently receiving.

Current Disposed Amounts: The 2014 Waste Composition Study concluded that there are 2,795 tons of asphalt roofing materials disposed in Thurston County's waste stream each year. Non-residential self-haul customers (primarily roofing companies) dispose of most of this material (2,221 tons per year or almost 80% of the total), followed by commercial sources (233 tons per year) and residential self-haul customers (220 tons per year). Asphalt shingles in the commercial and residential self-haul loads were found in small amounts, but were mixed with other materials. This makes diversion difficult unless these loads were brought to a construction waste processing facility that could separate the shingles from other materials. For the non-residential self-haul customers, however, 60% of the loads contained 50% or more shingles (and 30% were 94% or more shingles), making diversion an easier matter. Based on this analysis, if non-residential self-haul customers could be encouraged to keep the shingles segregated from other materials then it might not be difficult to divert 670 to 1,110 tons per year of shingles.

The 2014 Waste Composition Study concluded that there are 50 tons of asphalt paving disposed in Thurston County's waste stream.

Planning Issues for Asphalt Paving and Shingles

The current system for asphalt paving is effectively diverting most of this material. Most asphalt shingles, however, are currently landfilled. This is a wasteful practice, especially given that the primary component of these shingles is a petroleum product.

Some concerns have been raised previously about the potential for asbestos in the asphalt shingles. Many years ago, a small amount of the roofing shingles produced contained asbestos, but virtually none of those shingles are still in use. Hence, asbestos testing is generally not required.

Recommendations for Asphalt Paving and Shingles

This SWMP recommends that:

SW2) Educate roofing contractors about the opportunity to bring clean loads of asphalt shingles to the available markets, while also exploring the possibility of segregating these types of loads at the WARC for transfer to other facilities.

SW3) Develop new outlets to recycle asphalt shingles, and encourage Washington State Department of Transportation (WSDOT) to finalize rules for including asphalt shingles in asphalt paving.

More details on the implementation of these and other recommendations are shown in the Implementation Plan (Chapter 10).

8.4. BIOMEDICAL WASTES

Existing Management Practices for Biomedical Wastes

The UTC regulates transporters of biomedical wastes and has issued statewide franchises to Waste Management and Stericycle. Their regulations also 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 (hospitals, clinics, etc.) can contract with the certified haulers to safely collect and dispose of these materials.

State law (Chapter 70.95K RCW) defines biomedical wastes to include:

> **Animal waste**: animal carcasses, body parts and 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**: biosafety level 4 disease waste is waste contaminated with blood, excretions, exudates, or secretions from humans or animals who are isolated to protect others from highly communicable infectious diseases that are identified as pathogenic organisms assigned to biosafety level 4 by the centers for disease control, National Institute of Health, biosafety in microbiological and biomedical laboratories, current edition.
>
> **Cultures and stocks**: wastes infectious to humans and includes specimen cultures, cultures and stocks of etiologic agents, wastes from production of biologicals and serums, discarded live and attenuated vaccines, and laboratory waste that has come into contact with cultures and stocks of etiologic agents or blood specimens. Such waste includes but is not limited to culture dishes, blood specimen tubes, and devices used to transfer, inoculate, and mix cultures.

Human blood and blood products: discarded waste human blood and blood components, and materials containing free flowing blood and blood products.

Pathological waste: human source biopsy materials, tissues, and anatomical parts that emanate from surgery, obstetrical procedures and autopsy. Does not include teeth, human corpses, remains and anatomical parts that are intended for interment or cremation.

Sharps: all hypodermic needles, syringes and IV tubing with needles attached, scalpel blades, and lancets that have been removed from the original sterile package.

Disposal of sharps from clinics, hospitals and agencies is regulated, but not sharps from individual residents. Residents may collect used hypodermic needles in either labeled sharps containers made for that purpose or in empty rigid plastic bottles (e.g. soda or detergent) that are properly labeled. Full containers can be disposed of in a household's regular trash. At the end of 2013, the County began a collection and disposal program for syringes through an unstaffed sharps collection box in one location in downtown Olympia to begin to address the problems associated with the improper disposal of sharps in public places. In the second quarter of 2015, 5,000 syringes were deposited in this box and use of the box has been steadily increasing over time. The box is located in the parking lot by Capital Recovery Center which also houses the Thurston County Syringe Exchange Program (SEP). This program provides education on proper disposal of sharps and blood borne pathogens protocols to local businesses, schools and other organizations. It trades used syringes for new syringes on a one for one exchange at this location and one mobile operation that serves southern Thurston County. The SEP collects about one million syringes annually, and through it the County Public Health & Social Services Department provides other assistance, including sharps containers to businesses and parks departments, to ensure safe collection and disposal.

Planning Issues for Biomedical Wastes

Most biomedical wastes generated in Thurston County are currently being handled properly, including sharps from residential locations that are generated from home health care for diabetes and other health problems. The primary issues and concerns are associated with the improper disposal of sharps in public places such as parks and alleys. Containers for used sharps are also sometimes improperly placed in the recycling system where they are a safety risk to the staff at the facilities that sort and process recyclables.

Biomedical Waste Management Recommendations

This Solid Waste Management Plan recommends support for the strategies to manage biomedical wastes as shown in the County's Hazardous Waste Management

Plan (July 2014). These include:

SW4) Expanding the number of sharps collection sites as needed, and as resources allow.

SW5) Arrange consistent and regular schedule for proper disposal of sharps collection container contents, ideally in partnership with local host jurisdictions.

SW6) Providing public education and outreach on the proper disposal of sharps and other biomedical wastes.

More details on the implementation of these and other recommendations are shown in the Implementation Plan (Chapter 10).

8.5. CARPET AND CARPET PADDING

Background

Recycling programs for carpet and carpet padding have received considerable attention over the past few decades. This attention is warranted by the large amounts of carpet and carpet padding that are disposed each year. In 2013, the amount of discarded carpet (not including carpet padding) in the U.S. was estimated by the Carpet America Recovery Effort (CARE) to be 1.9 million tons. The Product Stewardship Institute (PSI) estimate is much higher, at about 3.9 million tons per year of carpet and rugs. The recycling rate for carpet in 2013 was estimated by CARE to be about 5%, which is about the level of recycling that has existed for many years for carpet. Efforts to expand carpet recycling have been hampered by the variety of materials used for the face fibers (Nylon, Nylon 6,6, polypropylene, and polyester are the most common), backing systems (latex and PVC), the presence of large amounts of filler (calcium carbonate) in most types of carpet, and the difficulties in separating these materials.

Carpet padding is a much simpler material, generally consisting of urethane foam, and is much easier to recycle. There are currently no significant problems with recycling carpet padding.

Existing Management Practices for Carpet and Carpet Padding

Product Stewardship and Other Programs in Other Areas: Product stewardship efforts for carpet date back to 2000, when PSI developed a Draft Product Stewardship Action Plan for carpet with input from state and local government officials. In 2002, a consortium of carpet and fiber manufacturers and representatives from the Carpet and Rug Institute, state and local governments, non-governmental organizations and the U.S. EPA signed a voluntary agreement to achieve a 40% diversion rate by 2012. By 2010, the carpet recycling rate was only 4.5%.

California adopted a producer responsibility law (AB 2398) in 2010. The California law required the development of a carpet recycling plan to be approved by the state and CARE was chosen as the stewardship organization to develop this plan. That plan established a goal of "continuous meaningful improvement of diversion landfills." The program is funded by an assessment on the sale of new carpet ($0.10 per square yard). In 2014, this program collected 34% of the carpet for recycling and actually recycled about one-third of that (for a 12% statewide recycling rate). Product stewardship laws have also been proposed in Washington State (notably SB 6341 in 2012) and several other states (Delaware, Illinois, Minnesota and New York).

Existing Reuse and Recycling Activities: A significant amount of used carpet and carpet padding is generated each year in Thurston County. Most of these materials are disposed as solid waste, as there are only limited opportunities to recycle this material and none of the recycling options are located in Thurston County. A construction waste recycling facility in Tacoma, Recovery 1, has collected carpet and padding for recycling but has not been actively pursuing this material pending the start-up of a new processing system (see further discussion below). Other recycling opportunities include Again Co (Kent, WA) and Pacific Urethane Recycling (Kent, WA). Most of the current recycling of carpet and carpet padding is occurring through containers located at flooring stores, and drop-off by carpet installers.

A small amount of new and used carpet is handled through reuse in the county, including Habitat for Humanity (in Olympia and Yelm, larger pieces of new carpet only) and services such as 2Good2Toss, FreeCycle, and Craigslist.

A new system being developed by Recovery 1 will provide additional capacity to recycle carpet and carpet padding in this region. Their system is expected to be operational in the fall of 2015. This system will grind the backing and face fibers from the polypropylene backing, allowing options for recycling most parts of the carpet in a way that is much improved over current practices. This system will operate at a facility in Tacoma that will accept both carpet and carpet padding at an anticipated tipping fee of $65 per ton. This facility will not be able to accept carpet that is excessively dirty, worn out or contaminated.

Current Disposed Amounts: The 2014 Waste Composition Study concluded that there are currently 5,580 tons of carpet disposed in Thurston County's waste stream each year, and 1,560 tons of carpet padding. Commercial sources dispose of more of this material than other types of waste generators (57% of the total amount of carpet disposed), followed by non-residential self-haul customers (primarily construction companies) at 21% and residential self-haul customers at 15% of the total. Carpet padding follows a slightly different trend, indicating that installers (non-residential self-haul customers) might be doing a better job of using this material. Commercial sources still dispose of more carpet padding, at 56% of the total disposed, followed by residential self-haul customers at 28% and non-residential self-haul customers at

8% of the total amount disposed. Altogether, carpet and padding amount to 4.5% of Thurston County's waste stream (3.5% for carpet and 1.0% for carpet padding).

An examination of the waste composition results for individual samples tested in the 2014 Waste Composition Study shows that the carpet and carpet padding were found in very few samples and were often found together in loads that were relatively heavy in these two materials. In other words, there is the potential to divert loads of these materials without needing to remove significant amounts of other contaminants.

Planning Issues for Carpet and Carpet Padding

Carpet and carpet padding from demolition projects can be too dirty for recycling and sometimes raises concerns about asbestos and other contamination.

Much of the carpet and carpet padding being disposed currently is arriving at the WARC in relatively "pure" loads of just those materials and perhaps small amounts of other construction debris. These loads could be placed into a separate container and sent to a carpet recycler relatively easily (although the container would need to be placed in a covered area or be enclosed to prevent the carpet from getting wet and to meet stormwater standards). Residential self-haul customers are the exception to this rule, where their loads are often more mixed. Recovery of carpet and carpet padding from this source may require that it be sent to a construction and demolition debris processing facility or that it be processed by a system similar to the pick-line that used to operate at the WARC.

Recommendations for Carpet and Carpet Padding

This SWMP recommends that:

SW7) Track and support, as appropriate and feasible, the development of new opportunities to increase the diversion of carpet and carpet padding, including advocacy for the State to develop a product stewardship program for these materials.

More details on the implementation of these and other recommendations are shown in the Implementation Plan (Chapter 10).

8.6. DISASTER DEBRIS

Existing Management Practices for Disaster Debris

Potential disasters could include flooding, earthquake, drought, forest fire, severe weather, landslides, hazardous material incidents, and terrorism. Impacts of these types of disasters could include serious disruptions to the solid waste management system and the creation of very large quantities of wastes.

The County's Comprehensive Emergency Management Plan (CEMP) states that solid waste cleanup is an essential component to terminating emergency conditions and assigns responsibility for the coordination of emergency solid waste management to the County's Public Works, Public Health & Social Services - Environmental Health, Emergency Management, and other related support departments.

The CEMP describes the process of solid waste management related to an emergency or a disaster as one that is usually incremental and follows this sequence:

A. Solid waste debris removal from streets to provide access.
B. Removal of hazardous and/or moderate-risk waste.
C. Solid waste debris removal of damaged public structures.
D. Salvaging or recycling of solid waste.
E. Expediting the permits and inspections required for repairing, rebuilding, or demolition of damaged structures.

The CEMP also indicates that emergency workers and volunteers may need to be assigned to solid waste debris cleanup, and that these volunteers will be required to have proper equipment, safety gear, and training.

The County has no plan currently in place to implement the guidelines and steps outlined in the CEMP to manage solid waste in the event of an emergency or disaster. For that reason, disaster debris is currently managed on a case-by-case basis.

Planning Issues for Disaster Debris

Issues Identified by the CEMP: The CEMP includes a discussion of the following issues related to the management of disaster debris in Thurston County:

- In the aftermath of floods, fires, windstorms, or earthquakes, solid waste debris can impact emergency responders, delay repair and reconstruction, and pose a threat to the public health and safety, and the environment.
- Loss of landfill capacity resulting from a disaster may have an impact on the rates charged to customers. Rates may increase depending on how much debris waste is disposed of in the landfill.
- Debris removal may have environmental consequences including erosion or landslides, falling trees or structures, and the release of asbestos or other contaminants.
- County, state, and federal environmental regulations (air quality, landfill, solid waste handling, etc.) may severely limit options in solid waste removal and disposal.

Disaster Debris Management Plan: The Federal Emergency Management Agency (FEMA) encourages state and local governments, Tribal authorities and private non-profit organizations to develop disaster debris management plans. Communities with disaster debris management plans are in a better position to receive the full amount of assistance from FEMA and other agencies. Disaster debris management plans can identify those activities and wastes that are eligible for FEMA assistance and help ensure that proper documentation of disaster response activities occurs to allow the maximum amount of reimbursement and assistance.

Recommendations for Disaster Debris

This SWMP recommends that:

SW8) Prepare a Disaster Debris Management Plan to implement the elements in the County's Comprehensive Emergency Management Plan (CEMP) related to solid and hazardous waste clean-up, disposal, and management.

More details on the implementation of these and other recommendations are shown in the Implementation Plan (Chapter 10).

8.7. MATTRESSES

Background

Mattresses represent a fairly small part of the solid waste stream, but are problematic due to their bulk and size. Mattresses and box springs are also difficult to compact. Recycling of mattresses is possible and options for this material have increased in the past few years. In the Puget Sound region, for instance, the number of mattress recyclers has increased from one processor with two locations in 2011 to four processors with six locations in 2015. Most of the components of the mattresses (wood, metal, foam, plastic and fabric) can be recycled once the mattresses have been dismantled (which is generally done manually).

Existing Management Practices for Mattresses

Product Stewardship and Other Programs in Other Areas: Three states passed product stewardship laws in 2013 for mattresses: California, Connecticut, and Rhode Island. All three of these programs use a "recycling fee" assessed on the sale of a new mattresses to fund the mattress recycling programs. The fee is $9.00 per mattress in Connecticut and has yet to be determined in the other two states. A pilot program in Alameda County also uses a bounty system to pay $6 to $12 for individuals to bring in old mattresses dumped in alleys and other locations.

Reuse: A portion of the old mattresses can be reused. Spring Back Mattress Recycling (Tacoma, WA) handles 3,000 to 6,000 mattresses per month and 7 to 10% of these are provided to low-income families who are clients of an affiliated operation

(the Northwest Furniture Bank). Other furniture banks and charities also accept reusable mattresses, including Yelm Community Services (Yelm, WA). A survey by King County found that 20% of the individuals buying new mattresses sold or gave away their old mattresses (55% of the old mattresses were removed by the retailer, 10% were taken to the transfer station by the individuals, and 7.5% were removed by a waste hauler).

Recycling Programs in Thurston County: The Department of Corrections was operating a mattress recycling program at one point in Thurston County but this program was terminated due to concerns about competition with the private sector.

Current Disposed Amounts: The 2014 Waste Composition Study concluded that there are 570 tons of mattresses (0.36% of the waste stream) disposed in Thurston County's waste stream annually. The majority of these are disposed by residential self-haul customers, including self-haul customers at the WARC (360 tons per year) and at the rural drop-box facilities (100 tons per year). The remaining mattresses are disposed by non-residential self-haul customers (60 tons per year, likely from property cleanups) and from multi-family sources (50 tons per year). No mattresses were found in the single-family or commercial waste streams.

Planning Issues for Mattresses

There is increased interest and opportunities in recycling mattresses and box springs, although options are still limited for this.

The construction of a new mattress manufacturing plant in Thurston County raises the possibility for reuse of the wood "carcasses" and metal springs generated from dismantling old mattresses and box springs.

Recommendations for Mattresses

This SWMP recommends that:

SW9) Track and support, as appropriate and feasible, the development of new diversion opportunities for mattresses.

More details on the implementation of these and other recommendations are shown in the Implementation Plan (Chapter 10).

8.8. MODERATE-RISK WASTES

Introduction

Residents and businesses in Thurston County produce small amounts of hazardous wastes, such as used solvents or other chemicals and leftover amounts of products such as garden chemicals and paints. For most businesses and virtually all residents,

the amount of hazardous waste produced falls below the amount that is regulated and so is classified by Washington State law as a "moderate-risk waste" or MRW. Businesses that create larger amounts of these wastes are regulated as hazardous waste generators and are subject to stricter requirements.

Hazardous wastes as defined by State law (RCW 70.105.010) are excluded from the definition of solid waste, and so are not required to be addressed in a plan such as this. MRW generators are not required to retain the services of a hazardous waste disposal company as larger generators must do. In other words, solid waste systems must provide an alternative disposal method for MRW or by default these materials will end up in the wastes that are disposed in landfills. In recognition of this need, a State law (RCW 70.105.220) required local governments to produce a "local hazardous waste plan."

Thurston County has an adopted hazardous waste management plan that addresses the management of MRW in detail. This section on MRW is included in this Plan in recognition of the need for a solid waste system that provides a viable alternative for the proper disposal of these wastes.

Existing Management Practices for MRW

HazoHouse: The HazoHouse program was adopted in the County's 1987 Moderate Risk Waste Plan, and included in the 2014 Local Hazardous Waste Plan for Thurston County. It is a fixed collection and processing facility located at the WARC and is funded through solid waste disposal fees. HazoHouse was originally designed to protect the landfill by accepting household hazardous wastes (HHW) from the general public. Since 1996, business wastes from Small Quantity Generators (SQGs) have also been accepted for a fee. Washington Department of Ecology also uses the site to process and store hazardous wastes collected from illegal drug labs and abandoned hazardous waste from other parts of western Washington.

This facility offers residents the opportunity to safely dispose of their hazardous wastes at no cost. Eligible businesses can dispose of their wastes for a small fee. The facility also provides a materials exchange (Swap Shop) area where the general public may obtain still-usable materials free of charge. These materials include paint and household cleaners. Informational materials on recycling and proper waste disposal are made available in the Swap Shop.

The materials currently accepted at HazoHouse include auto products (motor oil, oil filters, antifreeze, car batteries, brake fluid), flammable solids and liquids, fluorescent light tubes and their ballasts, oil-based paints (no latex paint unless it was manufactured before 1989) and paint-related materials, pesticides and poisons, products containing mercury, thinners, solvents, and cleaning supplies. When possible, these wastes are refined or recycled, burned for energy, or neutralized. The remaining materials are incinerated or disposed of in hazardous waste landfills.

In 2014, the HazoHouse collected 295.3 tons of hazardous wastes from residential and commercial customers. Of this amount, 93.1% was brought in by residential customers and 6.9% by commercial customers (small quantity generators, or SQGs). By comparison, the 2014 Waste Composition Study concluded that 158 tons of hazardous wastes were disposed with solid waste, and that 41% of this amount was from residential sources and 59% was from non-residential sources.

In 2014, 15,372 residential customers dropped off 549,957 pounds of hazardous waste at HazoHouse, for an average of 35.8 pounds per visit for residential customers. The number of commercial customers in 2014 was 259, and these customers dropped off 40,711 pounds of hazardous waste, for an average of 157.2 pounds per visit.

Mobile Sites: Thurston County provides mobile collection events (WasteMobile) for residents who may have less convenient access to HazoHouse. Collection events are posted on the WasteMobile website so residents can plan in advance to drop off eligible household hazardous wastes. Event locations, based on a 1999 needs assessment, are selected to serve rural residents who live more than 12 miles from HazoHouse. Since the first event in 2000, through the most recent event which was held in 2012, the program has collected 226 tons of hazardous waste from 7,590 residents.

Planning Issues for MRW

In 2015, HazoHouse expanded its operating hours from five days to seven days a week. The primary issue facing HazoHouse in the future is how to meet the growing demand for this service as the population of the County increases. In addition, there are still some residents who do not know about how to safely dispose of MRW, or may have difficulty getting to HazoHouse or one of the County's mobile sites.

Recommendations for MRW

Many of these recommendations are already included in the County's 2014 Hazardous Waste Management Plan, and this SWMP recommends funding and support for the County's hazardous waste plan and the following:

SW10) Operate HazoHouse and the Swap Shop at the WARC.

SW11) Operate at least one mobile collection event for MRW each year for residents who have less convenient access to HazoHouse.

SW12) Enhance public education and outreach on reduction and proper disposal of MRW.

SW13) Evaluate options to site another MRW facility in southern Thurston County. This evaluation is included as part of the facility planning initiative recommended in Chapter 6, Section 6.5.

SW14) Continue to provide technical assistance for businesses to recycle, reduce or reuse to minimize the generation of hazardous wastes as defined in the 2014 Hazardous Waste Management Plan.

More details on the implementation of these and other recommendations are shown in the Implementation Plan (Chapter 10).

8.9. PHARMACEUTICALS

Existing Management Practices for Pharmaceuticals
The County supports a Medicine Return Program operated by local law enforcement agencies to provide residents a safe method for disposing of unwanted prescription medicines (also called pharmaceuticals in this discussion), including controlled substances. The program is an innovative example of interagency cooperation to solve a complex problem. The County coordinates and promotes the program, while law enforcement agencies provide secure drop-off locations and disposal.

The County has partnered with six agencies to operate the program including the Thurston County Sheriff's Office, Thurston County Coroner, Lacey Police Department, Rainier City Hall, Tenino Police Department, Tumwater Police Department, and Yelm Police Department. The Olympia Police Department does not participate but Olympia residents can use any drop-off box located in Thurston County.

Planning Issues for Pharmaceuticals
Improper disposal of pharmaceuticals poses a number of potential risks:

- Health risks due to use of discarded pharmaceuticals by individuals for whom they were not prescribed.
- Health risks from pharmaceuticals that dissolve and enter groundwater or surface water and bio-accumulate in the food chain.
- Long-term potential health risks as microorganisms gain resistance to various pharmaceuticals dispersed into the environment.

The major hurdles to management of discarded pharmaceuticals are the general public's lack of knowledge about the potential adverse impacts, and the inconvenience of proper disposal. Public service announcements included with utility bills and other types of education would help address the first concern. Increasing the number of places where unwanted pharmaceuticals can be safely returned would make proper disposal more convenient.

Recommendations for Pharmaceuticals

Many of these recommendations are already included in the County's 2014 Hazardous Waste Management Plan, and this SWMP recommends funding and support for the County's hazardous waste plan and the following:

SW15) Facilitate the collection of medicines, including controlled substances, from residents in partnership with law enforcement and Thurston County Public Health and Social Services.

SW16) Expand the number of collection sites where practical and feasible.

SW17) Enhance public education and outreach on the impacts of the improper disposal of pharmaceuticals on the environment and public health and on how to dispose of them safely and properly.

SW18) Explore opportunities to participate in larger statewide or regional medicine take-back programs if they develop.

SW19) Advocate a medicine take-back and disposal program fully funded by the pharmaceutical industry.

More details on the implementation of these and other recommendations are shown in the Implementation Plan (Chapter 10).

CHAPTER 9

ADMINISTRATION

9.1. BACKGROUND FOR ADMINISTRATION

Introduction

This chapter addresses some of the activities and programs undertaken to administer the solid waste system in Thurston County.

Goals for Administration of the Solid Waste System

The following planning goals related to administration and public education are ideally what the County's solid waste system would look like in 20 years:

- In Thurston County waste is managed as a resource to increase local job opportunities and support economic development.
- Thurston County's solid waste system has a sustainable funding mechanism.
- People in Thurston County act on the basis of their understanding of the societal, environmental, health, and financial impacts of their consumption and disposal choices. This includes their impact on climate change.
- In Thurston County, people and businesses make responsible choices about what they produce and consume, and what they generate as waste.
- Thurston County promotes and supports life cycle product stewardship and industry advancements in packaging standards that lead to less waste generation.
- Thurston County supports changes to federal and state regulations and policies that support increased recycling opportunities and waste diversion.
- Wastes are properly managed and waste facilities are operated in full compliance with appropriate rules and regulations.

9.2. EXISTING ADMINISTRATION PROGRAMS

At the federal and state levels, the primary regulatory authorities for solid waste management are the Environmental Protection Agency (EPA) and the Washington State Department of Ecology (Ecology), respectively. Thurston County is in the jurisdiction of the southwest regional office of Ecology, located in Lacey, Washington. At the local level, the responsibility for solid waste administration falls under the purview of Public Works, Solid Waste Division, and enforcement is the responsibility of the Public and Environmental Health Divisions of the County.

National Level

Federal Laws: At the federal level, the Resource Conservation and Recovery Act of 1976 (RCRA), as amended by the Solid Waste Disposal Act Amendments of 1980 (42 U.S.C. 6901-6987), is the primary body of legislation dealing with solid waste. Subtitle D of RCRA deals with non-hazardous solid waste disposal and requires the development of a state comprehensive solid waste management program that outlines the authorities of local, state and regional agencies. Subtitle D requires that the state program provides that all solid waste is disposed in an environmentally-sound manner.

There are no major federal installations in Thurston County that are directly involved in solid waste management. Solid wastes generated by the few federal offices in the County are handled through local services and programs.

Tribal Councils: As mentioned in Chapter 1, two Tribes are located in Thurston County (the Confederated Tribes of the Chehalis Reservation and the Nisqually Tribe). The Confederated Tribes of the Chehalis Reservation is governed by a five-member elected Business Committee. For the Nisqually Tribe, the General Council includes all tribal members who are at least 18 years of age, and an elected Tribal Council comprised of seven members conducts the day-to-day business affairs for the Tribe. Both Tribes are involved in solid waste issues on tribal lands and for tribal facilities.

State Level

State Laws: The main statute governing solid waste is Chapter 70.95 RCW, the Solid Waste Management Act. In 1984, an amendment added the waste management hierarchy, which placed waste reduction as the highest priority for managing waste, followed by recycling and then disposal. In 1989, Washington passed the "Waste Not Washington Act," which established a 50 percent recycling goal. A 2010 update of Chapter 70.95 RCW increased planning requirements for recyclable materials, construction and demolition debris, organic materials, reuse, and waste reduction strategies.

Chapter 70.95 RCW requires counties to prepare local solid waste plans. These plans are a critical element of Washington's solid waste system. Cities can choose to sign onto the county plans or they can create their own. Local plans must be complete and in good standing to receive grant money from Ecology's Coordinated Prevention Grant (CPG) program. These grants are an important part of local funding for planning and implementation of recycling, reduction, toxics prevention, and solid waste enforcement programs. The use of these grants is authorized in Chapter 70.95 RCW and Chapter 70.105 RCW – Hazardous Waste Management.

Other relevant state legislation includes Washington's Model Litter Control and Recycling Act. The Model Litter Control and Recycling Act (Chapter 70.93 RCW)

and associated state regulations (Chapter 173-310 WAC) generally prohibit the deposit of garbage on any property not properly designated as a disposal site. There is also a "litter fund" that has been created through a tax levied on wholesale and retail businesses, and the monies from this fund are being used for education, increased litter clean-up efforts by the state, and grants to counties for litter and illegal dump clean-up activities. The state conducts litter cleanups on interstate and state highways, while county efforts are focused on local roads.

State Solid and Hazardous Waste Plan: Additional state guidance on solid waste policies and programs can be found in The State Solid and Hazardous Waste Plan: Moving Washington Beyond Waste and Toxics. Ecology is required by state law (Chapters 70.95 RCW and 70.105 RCW) to periodically update this plan and it was most recently updated in June 2015. The state plan guides the future management of waste and materials in the state. If also gives direction to local governments as they develop local solid and hazardous waste plans. The updated plan adopts a sustainable materials management approach, which helps to shift the focus away from only managing discarded materials to also looking at materials in the production and use phases.

The 2015 state plan contains 53 goals and 177 supporting actions in five areas:

1. **Managing Hazardous Waste and Materials** - addresses regulated hazardous waste generators, pollution prevention plans, and moderate-risk waste.
2. **Managing Solid Waste and Materials** - deals with the scope of solid waste and materials work, including organic materials.
3. **Reducing Impacts of Materials and Products** - focuses on improving materials that eventually become components of products or waste, by focusing on what is used and produced.
4. **Measuring Progress** - addresses data needed for measuring progress.
5. **Providing Outreach and Information** - focuses on outreach and information.

The goals express the conditions that are desired in five years, and the actions are intended to serve as the steps that will achieve the goals. Most of the goals and actions are intended to be implemented by Ecology. A few can be only accomplished by entities other than Ecology. Therefore, the goals and actions are written broadly for applications to many audiences.

County Level

In Thurston County, the local agencies involved in solid waste management include the Department of Public Works, Thurston County Public Health and Social Services Department, Resource Stewardship Department, and various departments of the cities. Each entity has a particular area of operations, providing specific services to the residents within that area and enforcing specific rules and regulations. In addition, the Thurston County Solid Waste Advisory Committee (SWAC) plays an

important advisory role for the solid waste management system in Thurston County. Local rules that affect solid waste management include ordinances, land use plans, and zoning codes.

Thurston County Public Works, Solid Waste Division: The Solid Waste Division in the Department of Public Works is the agency primarily responsible for solid waste administration in Thurston County. The Solid Waste Division manages the operation of the County's solid waste facilities, including a solid waste transfer station, a closed landfill, a moderate-risk waste collection facility (the "HazoHouse"), and two satellite drop box facilities for trash and recycling. The Solid Waste Division also manages the County's long-haul transportation and export contract (see Chapter 7), and conducts the solid waste education and outreach program (see Chapter 3). Division personnel include a Solid Waste Manager, a Solid Waste Facilities Manager, a Recycling and Waste Reduction Supervisor, six Recycling and Waste Reduction Educators, a Tollhouse Manager, 12 tollhouse attendants, three HazoHouse employees, three environmental technicians, two buildings and grounds maintenance staff, and administrative support staff. The County's transfer station and associated operations are managed and operated on a day-to-day basis under contract to the County.

Thurston County utilizes an enterprise fund for the solid waste management system. The premise of this approach is that expenditures must be matched by revenues from service fees and other appropriate funding mechanisms. Total expenditures by Thurston County for solid waste activities in 2015 were $19,959,594. The revenues to pay for these expenses came primarily from tipping fees plus a small amount of grants and other funds. Grant funds are primarily from Ecology's Coordinated Prevention Grant (CPG) program, and these have been used in the past primarily for food waste prevention efforts and Environmental Health activities.

The revenues received by Thurston County for solid waste are used for a variety of expenses related to the operation of the solid waste system. Part of the revenues generated by tipping fees are transferred to other departments to fund solid waste enforcement, outreach, and diversion programs. The Solid Waste Division manages contracts for various operations and services. In addition to the contracts, there are also a few memorandum of understanding (MOU) agreements with both County and external agencies for solid waste-related activities. There is also a contract between Ecology and Thurston County Public Health and Social Services Department for enforcement funds.

Thurston County Solid Waste Advisory Committee: The Solid Waste Division provides administrative support to the Solid Waste Advisory Committee (SWAC) pursuant to state and county code. The SWAC assists with solid waste administration by providing a vehicle for public input and by serving as an advisory

body to the County Board of Commissioners (see Section 1.6 and Table 1.2 for more details).

Thurston County Public Health and Social Services Department (PHSS): PHSS is the local enforcement agency for County and state regulations regarding solid waste activities. PHSS is the responsible local authority (per RCW 70.95.160) for issuing permits for solid waste facilities and enforcing against illegal solid waste handling or disposal activities. The Thurston County Solid Waste Handling Ordinance (Article V of the Thurston County Sanitary Code) empowers PHSS to issue operating permits, conduct inspections, and carry out enforcement related to solid waste facilities such as landfills, transfer stations, moderate-risk waste and recycling facilities. Authority to investigate complaints of illegal garbage dumping is also defined in this local law. A special provision in this ordinance prohibits disposal of dangerous wastes and moderate-risk wastes in a solid waste facility unless the facility is permitted to accept such wastes. The ordinance also sets standards for screening waste before it is allowed to be disposed and before it is accepted at the Thurston County Waste and Recovery Center at Hawks Prairie. PHSS's solid waste activities are funded from several sources, including CPG and solid waste enforcement grants from the Department of Ecology, county tipping fees, and a permit and renewal fee for solid waste facilities

From 2012 to 2015, Public Works budgeted an average of $762,230 annually from tip fee revenues for PHSS for household and public education, technical assistance for small businesses, enforcement activities, used oil collections, and hazardous waste planning.

Thurston County Planning Department: The Planning Department is involved in solid waste management primarily through permitting and zoning activities. The Planning Department issues land use and building permits, conducts the State Environmental Policy Act (SEPA) and/or environmental impact statement (EIS) process where needed, and reviews critical area checklists. The Planning Department is also the lead agency for maintaining the County's Comprehensive Plan guiding land use. Interdepartmental cooperation between the various county and city departments dealing with land use and permitting issues helps ensure a cohesive approach to development within the County.

This SWMP must function within a framework created by other plans and programs, including policy documents and studies that deal with related matters. One of these guiding documents is the Thurston County Comprehensive Plan (adopted in 1995 and most recently amended in 2015 with the adoption of a new Capital Facilities Plan). The Comprehensive Plan provides guidance pertaining to land use issues and so can affect decisions such as siting of solid waste facilities. Several of the cities have also adopted land use plans that address similar issues within their boundaries. The Capital Facilities Plan, which is updated annually and provides guidance on

schedules and financing methods for public facilities such as the transfer stations, is one of the more important aspects of the Thurston County Comprehensive Plan.

Solid waste is specifically addressed in the Thurston County Comprehensive Plan in the chapters dealing with utilities (Chapter 7) and in the Capital Facilities Plan (Chapter 6). Relevant goals and policies from these chapters are shown in Table 9-1.

Thurston Regional Planning Council: The Thurston Regional Planning Council (TRPC) is a 21-member intergovernmental board made up of local governmental jurisdictions within Thurston County, plus the Confederated Tribes of the Chehalis Reservation and the Nisqually Indian Tribe. The council was established in 1967 under RCW 36.70.060, which authorized creation of regional planning councils.

TRPC's mission is to "provide visionary leadership on regional plans, policies, and issues." To support this mission, TRPC is involved with regional transportation planning, growth management, environmental quality, economic opportunity, and provides data to support local and regional decision making. TRPC recently developed a sustainability plan, Creating Places - Preserving Spaces: A Sustainable Development Plan for the Thurston Region. This plan was adopted in December 2013 and contains 12 priority goals and about 300 recommended actions. These goals include the solid waste specific guidance to "Plan and act toward zero waste in the region." The target for this broad goal, as listed on page 18 of the Creating Places sustainability plan, is to:

> "Reduce per capita landfill waste by 32% by 2035, to achieve no net increase in landfill waste compared to 2010 in Thurston County." The initial action steps to be taken towards this goal are to "Maintain a rate structure that will incentivize waste prevention, [and] implement policy and support programs." In addition, the interim target for meeting this goal, is to "Reduce per capita landfill waste by 15% by 2020."

City and Town Level

In Thurston County, the Public Works or Sanitation Departments for the cities of Lacey, Olympia, Rainier, Tenino, Tumwater, and Yelm and the Town of Bucoda are involved in solid waste management in several ways. These ways include operating collection systems for garbage and recycling (Olympia), contracting for these services (several other cities), and enforcing local ordinances for litter and "junk properties" in their jurisdictions. The local jurisdictions are also involved in the solid waste system through their participation in the Solid Waste Advisory Committee.

The City of Olympia's staff and equipment conduct most of the waste collection and curbside recycling activities in Olympia (see Chapter 5, Solid Waste Collection, for more details). These activities are conducted by the Waste ReSources Utility, a

Table 9-1. Relevant Goals and Policies from the Thurston County Comprehensive Plan	
Capital Facilities Plan, Chapter 6	
Solid Waste Goal	Provide for the management of solid waste and hazardous waste on a county-wide basis, including planning for facilities and services.
Policies	1. The county should require that handling and disposal of solid and hazardous waste be done in ways that minimize land, air and water pollution and protect public health. 2. The county should undertake strategies for dealing with solid wastes in the following order: waste reduction, recycling, energy recovery, and proper, safe disposal. 3. The county should continually explore new approaches for waste reduction, recycling, energy recovery, and methods of disposing of solid wastes. 4. The county should continue to implement programs recommended in the county's Moderate Risk Waste Plan to provide for safe disposal of household and small business hazardous wastes outside of landfills. 5. The county should seek practical solutions to problems of illegal dumping. 6. The county should require that dredging and disposal of sediments be done in a manner that does not pose serious health risk to humans or result in adverse effects to water and land resources, including biological organisms. 7. The county should require that all facilities which store, process or use hazardous materials or generate or treat hazardous wastes in their operations be sited in compliance with state and local laws, best management practices for the protection of groundwater, surface waters, and air quality and be periodically monitored for compliance with such laws and practices. 8. The county should implement and update the county Moderate Risk Waste Plan. 9. The county should maintain and update the county Solid Waste Management Plan. 10. The county should support and enhance waste reduction and recycling efforts. 11. The county should act as the coordinating entity in the upland disposal of clean and contaminated dredge sediments, under the authority of Article 5 of the Sanitary Code. 12. The county should revise the Zoning Code to ensure consistency with the adopted Moderate Risk Waste Plan, the Northern Thurston County Ground Water Management Plan, the Critical Areas Ordinance and the Comprehensive Plan's policies. 13. The county should encourage through education and technical assistance the use of safer, less hazardous products and the reduction of hazardous materials. 14. The county should consult with the appropriate regional transportation planning agencies and neighboring jurisdictions prior to establishing prohibitions for commercial hazardous materials.

Table 9-1, Relevant Goals and Policies from the Thurston County Comprehensive Plan, continued	
Utilities, Chapter 7	
Goal 3	Provide for the management of solid waste and hazardous waste on a county-wide basis, including planning for facilities and services.
Policies	1. The county should require that handling and disposal of solid and hazardous waste be done in ways that minimize land, air and water pollution and protect public health. 2. The county should undertake strategies for dealing with solid wastes in the following order: waste reduction, recycling, energy recovery, and disposal. 3. The county should continually explore new approaches for waste reduction, recycling, energy recovery, and methods of disposing of solid wastes. 4. The county should continue to implement programs recommended in the county's Moderate Risk Waste Plan to provide for safe disposal of household and small business hazardous wastes outside of landfills. 5. The county should seek practical solutions to problems of illegal dumping. 6. The county should require that dredging and disposal of sediments be done in a manner that does not pose serious health risk to humans or result in adverse effects to water and land resources, including biological organisms. 7. The county should require that all facilities which store, process or use hazardous materials or generate or treat hazardous wastes in their operations be sited in compliance with state and local laws, best management practices for the protection of groundwater, surface waters, and air quality and be periodically monitored for compliance with such laws and practices. 8. The county should implement and update the county Moderate Risk Waste Plan. 9. The county should maintain and update the county Solid Waste Management Plan. 10. The county should support and enhance all waste reduction and recycling efforts. 11. The county should continue to seek opportunities for better disposal or recycling of tires and better enforcement of illegal disposal of tires. 12. The county should act as the coordinating entity in the upland disposal of clean and contaminated dredge sediments, under the authority of Article 5 of the Sanitary Code. 13. The county should revise the Zoning Code to ensure consistency with the adopted Moderate Risk Waste Plan, the Northern Thurston County Ground Water Management Plan, the Critical Areas Ordinance and the Comprehensive Plan's policies. 14. The county should encourage through education and technical assistance the use of safer, less hazardous products and the reduction of hazardous materials. 15. The county should consult with the appropriate regional transportation planning agencies and neighboring jurisdictions prior to establishing prohibitions for commercial hazardous materials transport.

Source: From the Thurston County Comprehensive Plan and the Capital Facilities Plan.

division of the Public Works Department. Staffing for the Waste ReSources Utility in 2016 consisted of 28 full-time staff, including three administrative positions, 22 collections staff, and three waste prevention and program planning staff.

The City of Olympia adopted their own solid waste management plan in August 2015. This plan, the Olympia Waste ReSources Management Plan 2015 – 2020, replaced an earlier six-year plan adopted in 2008 and is based in large part on a zero waste resolution adopted by the city in 2006.

A limited amount of solid waste public education activities are conducted by the cities of Lacey, Rainier, Tenino, Tumwater, and Yelm and the Town of Bucoda, as these activities are generally handled by Thurston County and the private sector (see below). The cities and town are involved in enforcement of solid waste issues within their borders, such as the cleanup of junk properties, identifying junk vehicles, and related waste storage and handling issues. Many of the cities have code enforcement officers that handle these issues.

Private Sector

Private companies engaged in recycling or disposal of special materials in Thurston County provide varying degrees of publicity and promotion about their activities. As appropriate, these companies are also listed on the County's website at WhereDoITakeMy.org.

A number of public education and outreach activities are conducted by Waste Connections for the services and programs that they provide. A website that they maintain, http://thurston.lemayinc.com, provides information about these services and has links to other websites for additional information. The address for this website is shown on all customer statements and emails from Waste Connections staff. For residential customers, an annual letter is sent out explaining all of the services and providing a sampling of rates. New customers (and existing customers that move to a new address) are provided with a packet of information that includes a recycling calendar and brochure, a yard waste flyer, a Washington Utilities and Transportation Commission (UTC) guide, and other information. Commercial and multi-family customers receive a personal visit (at their request) during which the potential cost savings from recycling and organics diversion is explained. Businesses that need more in-depth analysis through a waste audit are referred to Thurston County Public Works staff.

9.3. ADMINISTRATION PLANNING ISSUES

Some administrative and planning issues are identified below.

Solid Waste System Capacity

The Department of Public Works is responsible for ensuring sufficient capacity in the solid waste system to manage the volume of solid waste generated in the County in a safe and efficient manner. A strategic approach to maintaining, renovating, and expanding solid waste infrastructure is required to ensure operational continuity into the future.

Public Education Issues

Within Thurston County, some of the challenges associated with solid waste education include consistent messaging, gaps and misconceptions in public understanding, communication methods, accessibility needs, and the ability to reach all people.

Funding Issues

The future funding of solid waste facilities and programs presents a conundrum for Thurston County and other counties due to the reliance on the tipping fees from a shrinking waste stream.

Enforcement Issues

Illegal dumping and nuisance properties are sometimes a problem in the County. Although illegal dumping and nuisance properties can be addressed through enforcement of state laws regarding solid waste disposal and County ordinance Article V Rules and Regulations of the Thurston County Board of Health Governing Solid Waste Handling, the existing enforcement process can be challenging for a number of reasons.

9.4. RECOMMENDATIONS FOR ADMINISTRATION

The following recommendations are being made for administrative activities in Thurston County.

General Recommendations

This SWMP recommends that the County:

A1) Develop Memorandums of Understanding with other departments and agencies that receive funds from solid waste tipping fees.

A2) Develop a strategy to address nuisance properties County-wide and identify a funding source.

Public Education Recommendations

This SWMP recommends that the County:

A3) Design education and outreach programs based on the waste hierarchy, and public needs.

A4) Ensure that programmatic efforts are based on data (i.e., increasing diversion rates) with reportable metrics, and develop reports as appropriate.

Funding Recommendations

This SWMP recommends that the County:

A5) Take appropriate measures 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.

A6) Take appropriate measures to assure sufficient funding needed to continue permitting, compliance, education and outreach.

A7) Continue to seek grant funding, as appropriate, to support County waste diversion and prevention programs and advocate for continuing grant funding.

Technical Assistance Recommendations

This SWMP recommends that the County:

A8) Continue to provide technical assistance for businesses to minimize the generation of hazardous wastes as defined in the 2014 Hazardous Waste Management Plan.

Data Collection Recommendations

This SWMP recommends that the County:

A9) Improve data collection and analysis methods to track waste generation and diversion rates.

Enforcement Recommendations

This SWMP recommends that the County:

A10) Review and consider changes to the Thurston County Sanitary Code in order to improve enforcement efforts and maintain consistency with state regulations.

More details on the implementation of these and other recommendations are shown in the Implementation Plan (Chapter 10).

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CHAPTER 10

IMPLEMENTATION PLAN

10.1. INTRODUCTION

This chapter lists all of the recommendations from previous chapters and presents a plan to implement the recommendations.

10.2. WASTE REDUCTION AND RECYCLING RECOMMENDATIONS

The following recommendations are being made for waste reduction and recycling programs (see Chapter 3 for more details):

Recovery Goal and Monitoring Progress

WRR1) Establish a goal to achieve a 49% recovery rate by 2020 as measured by the results of the collection programs currently being monitored by the County. Products collected for recycling that end up at a processor or manufacturer and are not recycled are waste and should not be counted as recovered materials. Progress should be evaluated in ways that acknowledge the impact of waste reduction programs and larger economic and societal changes on the amount and composition of the materials collected for recycling and disposal.

WRR2) Develop measures to more fully and accurately evaluate, track, and report on the environmental, economic, and social impacts of waste reduction and recycling programs and services.

WRR3) Evaluate options to increase participation in residential and commercial recycling and organics collection programs.

WRR4) Review the County's minimum service-level ordinance (Thurston County Ordinance 13696) for consistency with waste reduction goals and the recommendations in this Plan.

Wasted Food Prevention

WRR5) Work with community partners to enhance the countywide capacity of the food donation system in Thurston County to safely collect, process, store and distribute surplus edible food, especially fresh and prepared foods, that otherwise would have been landfilled or composted.

WRR6) Build on the success of the WasteLessFood program to translate community awareness of the negative financial, environmental, and social impacts of wasting food into behavior change at home, and advocacy for changes in the way food is managed by local businesses, institutions, and schools.

WRR7) Promote the expanded use of food waste prevention technologies into the County's organics management systems.

WRR8) Support policies and legislation that would make it easier and more cost-effective for businesses to safely donate food.

School Technical Assistance and Youth Outreach and Education

WRR9) Provide technical assistance to schools to establish cost-effective and sustainable waste reduction policies and programs for recyclables and organics, with an increased focus on waste prevention.

WRR10) Provide K-12 classroom presentations, and other youth outreach programs on waste prevention, recycling, materials management, and sustainable purchasing.

WRR11) Evaluate options to expand educational opportunities at the Waste and Recovery Center (WARC) (see Chapter 6 – Transfer System), including an exploration of the options and feasibility of developing an on-site education center, and resuming public and school tours.

WRR12) Partner with youth-oriented groups and organizations to incorporate waste reduction and recycling topics into their services and programming.

WRR13) Partner with school-related groups, (school boards, principals, teachers, parent-teacher associations, etc.) to promote County programs and services.

Business Technical Assistance

WRR14) Provide technical assistance to businesses to establish cost-effective and sustainable waste reduction and collection programs for recyclables and organics, based upon on the waste management hierarchy. In addition, continue to provide technical assistance for businesses to recycle, reduce or reuse to minimize the generation of hazardous wastes as defined in the 2014 Hazardous Waste Management Plan.

WRR15) Perform periodic business waste reduction and recycling surveys to gather data on business waste management activity, identify barriers and opportunities to increase diversion, promote business assistance programs, and develop new contacts in the business community.

Construction and Demolition Debris

WRR16) Promote the availability of existing facilities that accept used building materials for reuse and support the expansion of these services countywide.

WRR17) Promote the availability of existing construction and demolition (C&D) recycling facilities in the region and support the establishment of new facilities in Thurston County.

WRR18) Evaluate options to increase the recovery of C&D materials at the WARC.

WRR19) Collaborate with building and planning departments to explore options to increase the recovery of C&D materials.

Product Stewardship

WRR20) Promote existing product stewardship programs, such as for electronic wastes and fluorescent light bulbs.

WRR21) Support legislative work to pass new product stewardship laws,

System Financing and Market Development

WRR22) Establish set disposal rates that maintain adequate funding for the solid waste management system.

WRR23) Evaluate alternative funding models and strategies that reduce reliance on disposal fees and ensure the long-term viability of waste reduction and recycling programs.

WRR24) Identify and support the development of new or expanded markets for locally generated materials such as glass and mattresses.

WRR25) Promote sustainable procurement within Thurston County government.

General Recommendations

WRR26) Continue to identify materials that could potentially be recycled by the public.

WRR27) Provide a core set of general promotion and outreach services, based upon on the waste management hierarchy.

WRR28) Incorporate sustainability practices into education and outreach efforts for existing programs for businesses, schools, and the community.

WRR29) Promote waste reduction and recycling programs by strengthening partnerships with other county departments and other agencies.

WRR30) Coordinate messaging and materials with other jurisdictions and service providers.

WRR31) Evaluate options to more effectively provide education and outreach materials at the WARC and rural facilities.

10.3. ORGANICS RECOMMENDATIONS

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

O1) Evaluate options to increase participation in commercial and residential organics collection programs.

O2) Evaluate options to increase recovery of wood waste from land-clearing, construction, and demolition debris.

O3) Provide education and outreach to reduce contamination in organics.

O4) Reduce contamination in the mixed organics delivered to the WARC.

O5) Work together in partnership with the Washington State Department of Ecology (Ecology), haulers and processors, other public agencies, and the private sector to help develop and promote the use of compost and other end-products produced from organic wastes.

O6) Evaluate alternative technologies to divert organics from disposal.

10.4. SOLID WASTE COLLECTION RECOMMENDATIONS

There is one recommendation being made by this SWMP for the solid waste collection system:

WC1) Periodically evaluate waste collection options.

10.5. TRANSFER SYSTEM RECOMMENDATIONS

T1) This Solid Waste Management Plan is recommending that a long term facility planning project be conducted to assess possible modifications to the WARC and to the Rainier and Rochester drop-box facilities.

10.6. DISPOSAL SYSTEM RECOMMENDATIONS

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

D1) The Waste and Recovery Center, the Rainier drop-box facility, and the Rochester drop-box facility should comprise the designated disposal system for all solid wastes generated in Thurston County.

D2) Evaluate future disposal system options as outlined in the long-term facilities plan.

D3) Periodically evaluate alternative disposal options for feasibility and cost effectiveness.

10.7. SPECIAL WASTE RECOMMENDATIONS

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

Recommendations for Asbestos

SW1) Explore opportunities to partner with Olympic Region Clean Air Agency (ORCAA) and other public agencies, such as building departments, to ensure that residents and contractors are aware of the risks associated with asbestos exposure, and are removing and disposing of asbestos-containing wastes safely and properly.

Recommendations for Asphalt Paving and Shingles

SW2) Educate roofing contractors about the opportunity to bring clean loads of asphalt shingles to the available markets, while also exploring the possibility of segregating these types of loads at the WARC for transfer to other facilities.

SW3) Develop new outlets to recycle asphalt shingles, and encourage Washington State Department of Transportation (WSDOT) to finalize rules for including asphalt shingles in asphalt paving.

Biomedical Waste Management Recommendations

SW4) Expand the number of sharps collection sites, as needed, and as resources allow.

SW5) Arrange consistent and regular schedule for proper disposal of sharps collection container contents, ideally in partnership with local host jurisdictions.

SW6) Provide public education and outreach on the proper disposal of sharps and other biomedical wastes.

Recommendations for Carpet and Carpet Padding

SW7) Track and support, as appropriate and feasible, the development of new opportunities to increase the diversion of carpet and carpet padding, including advocacy for the State to develop a product stewardship program for these materials.

Recommendations for Disaster Debris

SW8) Prepare a Disaster Debris Management Plan to implement the elements in the County's Comprehensive Emergency Management Plan (CEMP) related to solid and hazardous waste clean-up, disposal, and management.

Recommendations for Mattresses

SW9) Track and support, as appropriate and feasible, the development of new diversion opportunities for mattresses.

Recommendations for Moderate-Risk Waste (MRW)

SW10) Operate HazoHouse and the Swap Shop at the WARC.

SW11) Operate at least one mobile collection event for MRW each year for residents who have less convenient access to HazoHouse.

SW12) Enhance public education and outreach on reduction and proper disposal of MRW.

SW13) Evaluate options to site another MRW facility in southern Thurston County. This evaluation is included as part of the facility planning initiative recommended in Chapter 6, Section 6.5.

SW14) Continue to provide technical assistance for businesses to recycle, reduce or reuse to minimize the generation of hazardous wastes as defined in the 2014 Hazardous Waste Management Plan.

Recommendations for Pharmaceuticals

SW15) Facilitate the collection of medicines, including controlled substances, from residents in partnership with law enforcement and Thurston County Public Health and Social Services.

SW16) Expand the number of collection sites where practical and feasible.

SW17) Enhance public education and outreach on the impacts of the improper disposal of pharmaceuticals on the environment and public health and on how to dispose of them safely and properly.

SW18) Explore opportunities to participate in larger statewide or regional medicine take-back programs if they develop.

SW19) Advocate a medicine take-back and disposal program fully funded by the pharmaceutical industry.

10.8. ADMINISTRATION RECOMMENDATIONS

The following recommendations are being made for administration programs (see Chapter 9 for more details):

General Recommendations

A1) Develop Memorandums of Understanding with other departments and agencies that receive funds from solid waste tipping fees.

A2) Develop a strategy to address nuisance properties County-wide and identify a funding source.

Public Education Recommendations

A3) Design education and outreach programs based on the waste hierarchy, and public needs.

A4) Ensure that programmatic efforts are based on data (i.e., increasing diversion rates) with reportable metrics, and develop reports as appropriate.

Funding Recommendations

A5) Take appropriate measures 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.

A6) Take appropriate measures to assure sufficient funding needed to continue permitting, compliance, education and outreach.

A7) Continue to seek grant funding, as appropriate, to support County waste diversion and prevention programs and to advocate for continuing grant funding.

Technical Assistance Recommendations

A8) Continue to provide technical assistance for businesses to minimize the generation of hazardous wastes as defined in the 2014 Hazardous Waste Management Plan.

Data Collection Recommendations

A9) Improve data collection and analysis methods to track waste generation and diversion rates.

Enforcement Recommendations

A10) Review and consider changes to the Thurston County Sanitary Code in order to improve enforcement efforts and maintain consistency with state regulations.

10.9. IMPLEMENTATION DETAILS

Table 10-1 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. Thurston County is primarily responsible for the recommendations made in this SWMP.

Table 10-1. Implementation Summary for Recommendations			
Recommendation	**Lead Agency**	**Priority**	**Cost**
Waste Reduction and Recycling			
WRR1) The goal is to achieve a 49% recovery rate by 2020	SW	Existing	Staff time
WRR2) Develop measures to evaluate and report on WRR impacts	SW	Existing	Staff time
WRR3) Evaluate options to increase recycling and organics program participation	SW	Existing	Staff time
WRR4) Review service-level ordinance for consistency with goals and this plan	SW	Existing	Staff time
WRR5) Enhance food donation capacity and system	SW	High	Staff time
WRR6) Build on the success of the WasteLessFood program	SW	Existing	Staff time
WRR7) Promote more food waste prevention	SW	Medium	Staff time
WRR8) Support policies and rules to help businesses donate food	SW	Medium	Staff time
WRR9) Assist schools with waste reduction and recycling	SW	Existing	Staff time
WRR10) Provide K-12 classroom presentations and other outreach	SW	Existing	Staff time
WRR11) Evaluate options for educational opportunities at WARC	SW	Low	Staff time
WRR12) Partner with youth-oriented groups and organizations	SW	Existing	Staff time
WRR13) Partner with school-related groups	SW	Existing	Staff time
WRR14) Provide technical assistance to businesses	PHSS, SW	Existing	Staff time
WRR15) Perform periodic business waste reduction and recycling surveys	SW	Existing	$20K to $30K
WRR16) Promote existing used building material facilities	SW	Medium	Staff time
WRR17) Promote existing and new C&D recycling facilities	SW	High	Staff time
WRR18) Evaluate options to increase C&D recovery at WARC	SW	High	Staff time
WRR19) Work with building departments to increase C&D recycling	SW	High	Staff time
WRR20) Promote existing product stewardship programs	PHSS, SW	Existing	Staff time
WRR21) Support legislation for new product stewardship laws	PHSS, SW	Existing	Staff time
WRR22) Establish disposal rates that maintain adequate funding	SW	Existing	Staff time
WRR23) Evaluate alternative funding models and strategies	SW	Low	Staff time
WRR24) Identify and support new or expanded markets	SW	Medium	Staff time
WRR25) Promote sustainable procurement within Thurston County gvt.	SW	Existing	Staff time
WRR26) Continue to identify materials that could be recycled by the public	SW	Existing	Staff time
WRR27) Provide a core set of promotion and outreach services	SW	Existing	Staff time & material costs
WRR28) Incorporate sustainability into tech. assistance and education	SW	Existing	Staff time

Notes: SW = Thurston County Solid Waste. PHSS = Public Health. NA = Not Applicable. K = $1,000's.
"Existing" for priority level denotes an activity that is already part of the workplan for Thurston County staff. Other priorities (High, Medium and Low) show priorities established by the SWAC on February 9, 2017 for future workplans.
Recommendations have been abbreviated to fit into this table.

Table 10-1. Implementation Summary for Recommendations, continued			
Recommendation	**Lead Agency**	**Priority**	**Cost**
Waste Reduction and Recycling, continued			
WRR29) Promote waste reduction and recycling by strengthening partnerships with other county departments and agencies	SW	Existing	Staff time
WRR30) Coordinate messaging and materials with others	SW	Existing	Staff time
WRR31) Evaluate options to effectively provide education at facilities	SW	Existing	Staff time
Organics			
O1) Evaluate options to increase participation in organics collections	SW	Existing	Staff time
O2) Evaluate options to increase recovery of wood waste	SW	High	Staff time
O3) Provide education to reduce contamination in organics	SW, Haulers	Existing	$20,000- $40,000
O4) Reduce contamination in the mixed organics delivered to the WARC	SW, Haulers	Existing	Staff time
O5) Partner with others to increase markets for organics	SW	High	Staff time
O6) Evaluate alternative technologies for organics	SW	High	Staff time
Waste Collection			
WC1) Periodically evaluate waste collection options.	SW	Medium	Staff time
Transfer System			
T1) Assess possible modifications to WARC and rural drop-box facilities	SW	Existing	$150,000
Disposal System			
D1) The WARC and drop-box facilities should comprise the designated disposal system for all solid wastes from Thurston County.	BoCC	Medium	Staff time
D2) Evaluate future disposal options	SW	Medium	Staff time
D3) Evaluate alternative disposal options as appropriate	SW	Medium	Staff time
Special Wastes			
SW1) Explore opportunities to partner with ORCAA and others to inform people of asbestos hazards and disposal options	PHSS	Medium	Staff time
SW2) Educate roofing contractors about recycling options for shingles	SW	Low	Staff time
SW3) Develop new recycling options for asphalt shingles and encourage better rules for use in paving	SW	High	Staff time
SW4) Expand sharps collection sites	PHSS	Low	$10,000 to $30,000
SW5) Arrange consistent handling of sharps collection containers	PHSS	Low	

Notes: SW = Thurston County Solid Waste. NA = Not Applicable. "Haulers" includes Waste Connections and City of Olympia. PHSS = Public Health.
"Existing" for priority level denotes an activity that is already part of the workplan for Thurston County staff. Other priorities (High, Medium and Low) show priorities established by the SWAC on February 9, 2017 for future workplans.
Recommendations have been abbreviated to fit into this table.

Table 10-1. Implementation Summary for Recommendations, continued			
Recommendation	**Lead Agency**	**Priority**	**Cost**
Special Wastes, continued			
SW6) Provide education for disposal of sharps, other biomedical wastes	PHSS	Low	$10,000 to $30,000
SW7) Monitor and support recycling options for carpet and padding	SW	Medium	Staff time
SW8) Prepare a disaster debris management plan	PHSS, SW	High	Up to $100,000
SW9) Monitor and support recycling options for mattresses	SW	Medium	Staff time
SW10) Continue operating HazoHouse and Swap Shop	SW	Existing	Existing
SW11) Conduct at least one mobile event for MRW	PHSS	Low	$20K to $30K
SW12) Enhance public education and outreach for MRW	PHSS, SW	Medium	$5K to $50K
SW13) Evaluate options for MRW facility in south County	SW	Medium	See T1
SW14) Continue to provide technical assistance for businesses to recycle, reduce or reuse hazardous wastes	PHSS	Existing	Staff time
SW15) Continue pharmaceuticals collection program	PHSS	High	Existing
SW16) Expand collection sites for pharmaceuticals if possible	PHSS	Medium	0 - $10,000
SW17) Enhance public education for pharmaceuticals	PHSS	High	$10K to $20K
SW18) Explore opportunities for statewide or regional program for pharm.	SW, PHSS	High	Staff time
SW19) Advocate for pharm. take-back program funded by industry	SW, PHSS	High	Staff time
Administration			
A1) Develop MOU's for shared funds from tipping fees	SW	Existing	Staff time
A2) Develop strategy and funding source for nuisance properties	PHSS	High	Staff time
A3) Design education programs based on hierarchy and public needs	PHSS, SW	Existing	Staff time
A4) Ensure programs are based on data	PHSS, SW	Existing	Staff time
A5) Ensure sufficient funding for solid waste infrastructure	SW	Existing	Staff time
A6) Ensure sufficient funding for permitting, compliance, education and outreach	PHSS, SW	Existing	Staff time
A7) Continue to seek grant funding for waste diversion programs and advocate for continuing grant funding	PHSS, SW	Existing	Staff time
A8) Continue to provide technical assistance for businesses to minimize the generation of hazardous wastes	PHSS	Existing	Staff time
A9) Improve data collection and analysis methods	SW	Existing	Staff time
A10) Consider changes to Sanitary Code to improve enforcement and maintain consistency with state regulations	PHSS	Existing	Staff time

Notes: SW = Thurston County Solid Waste. NA = Not Applicable. PHSS = Public Health. K = $1,000's.
"Existing" for priority level denotes an activity that is already part of the workplan for Thurston County staff. Other priorities (High, Medium and Low) show priorities established by the SWAC on February 9, 2017 for future workplans.
Recommendations have been abbreviated to fit into this table.

10.10. FUNDING STRATEGY

The recommendations presented in Table 10-1 will be funded through garbage rates, tipping fees, other user fees, and grant funds. Tipping fees will be used to fund recommended waste reduction, transfer, transport and disposal, household hazardous waste, administration and regulation. Special user fees will fund small quantity generator and other special waste programs. Grant funds, when available, will be used to supplement education and other programs. Specific costs for each recommendation have not been calculated at this time and will instead be determined through annual budgets and workplans.

10.11. SIX-YEAR CONSTRUCTION AND CAPITAL ACQUISITION PLAN

State law (RCW 70.95.110 [1]) 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).

Table 10-1 addresses the implementation schedule for the recommendations of this SWMP for the next six years and beyond by establishing priorities for annual budgets and workplans. In addition, the Capital Facilities Plan provides a six-year schedule of improvements for Thurston County's solid waste facilities (see additional details in Section 9.2). The Capital Facilities Plan (hereby incorporated by reference) is updated annually and is considered to provide the primary direction for the schedule of construction and capital acquisition expenses for Thurston County. In other words, the Capital Facilities Plan both supersedes and updates the SWMP.

10.12. LONG-RANGE SOLID WASTE FACILITIES NEEDS

State law (RCW 70.95.110 [1]) requires solid waste plans to address solid waste facility needs for twenty years into the future. The improvements addressed in this SWMP include the Solid Waste Facilities Condition Assessments, and Capital Planning project, completion of which is anticipated in December 2017, and which will result in a 20-year schedule of improvements for WARC, and the two rural drop-box facilities. Changes will likely occur in local, statewide and national solid waste conditions, and should any of these changes require an amendment or revision to this SWMP, then the steps described in the next section can be taken to address those.

10.13. PROCEDURES FOR AMENDING THE PLAN

The Solid Waste Management-Reduction and Recycling Act (Chapter 70.95 RCW) requires local governments to maintain their solid waste plans in current condition. Plans must be reviewed every five years and revised if necessary. Assuming a timely adoption process for this plan, with the process completed in early 2018, this plan should be reviewed for necessary updates in 2022.

Individuals or organizations wishing to propose plan amendments before the scheduled review must petition the Thurston County Solid Waste Division Manager in writing. The petition should describe the proposed amendment, its specific objectives, and should explain why action is needed prior to the next scheduled review. The Solid Waste Division Manager will investigate the basis for the petition and prepare a recommendation for the Director of the Public Works Department as appropriate.

If the Director of the Public Works Department decides that the petition warrants further consideration, the petition will be referred to the Solid Waste Advisory Committee for review and recommendations. The Solid Waste Division Manager will draft the proposed amendment together with the Solid Waste Advisory Committee. This process will also be used if County staff decide to amend the plan. The proposed amendment must be submitted to the legislative bodies of all participating jurisdictions for review and comment. The proposed amendment should also be concurrently reviewed by Ecology and the Washington State Department of Agriculture. As an amendment, an updated Washington State Utilities and Transportation Commission (UTC) Cost Assessment Questionnaire or State Environmental Policy Act (SEPA) Checklist will likely not be required, but the appropriate agencies (the UTC and the Thurston County Planning Department) should confirm. The comments received will be reviewed with the SWAC to solicit their input before submitting the amended plan for local adoption. Adoption of the proposed amendment will require the concurrence of all affected jurisdictions, with a final review and approval by Ecology after that.

The Director of the Public Works Department may develop reasonable rules for submitting and processing proposed plan amendments, and may establish reasonable fees to investigate and process such petitions. All administrative rulings of the Director may be appealed to the Thurston County Board of Commissioners.

Minor changes that may occur in the solid waste management system, whether due to internal decisions or external factors, can be adopted without the need to go through a formal amendment process. If a question should exist as to whether or not a change is "minor," then it should be discussed by the SWAC and a decision made based on the consensus of that committee.

Implicit in the development and adoption of this plan is the understanding that emergency actions may need to be taken by the County in the future for various reasons, and that these actions can be undertaken without needing to amend this plan beforehand. In this case, Thurston County staff will endeavor to inform the SWAC and other key stakeholders as soon as is feasible, but not necessarily before new actions are implemented. If the emergency results in permanent and significant changes to the Thurston County solid waste system, an amendment to this plan will be prepared. If, however, the emergency actions are only undertaken on a temporary or short-term basis, an amendment will not be considered necessary.

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GLOSSARY

The following definitions are provided for terms used in this SWMP:

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

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

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 collected separately from garbage by the generator, but the recyclable materials have been mixed together in the same container (see also source-separated).

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. Centralized composting refers to either drop-off or processing locations operated by a municipality or a business.

Conditionally-exempt small-quantity generator (CESQG): 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.

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

Curbside recycling: the act of collecting recyclable materials from residential generators, usually after the materials have been placed in a cart at the curb.

Dimensional lumber: wood products used in construction for framing and related purposes, including 2x4's, 2x6's, etc.

Drywall: a paper-covered panel of compressed gypsum used as an interior wall covering. Also known as wallboard or gypsum board.

E-waste: electronic waste. As defined under Ch. 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").

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

Fluorescent lights: a term used to indicate mercury-containing light bulbs regulated by Chapter 173-910 WAC, including fluorescent tubes, compact fluorescent lights and high intensity discharge lamps.

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

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

Household hazardous waste: wastes that would be classified as hazardous due to their nature or characteristics, except that the waste is generated by households and so is exempt. Includes aerosol cans, solvents, oil-based paints, cleaners, pesticides, herbicides, oil, other petroleum products, car batteries and other materials.

Industrial waste: solid waste generated by manufacturing companies. Does not include hazardous wastes generated by these industries.

Inert wastes: includes wastes that are inert in nature, such as glass, concrete, and bricks (see WAC 173-350-990).

Interlocal agreement: a formal agreement between two or more public agencies to work cooperatively (see also RCW 70.95.080 and RCW 39.34.030).

Mixed organics: a term used to indicate mixtures of yard debris, food waste and possibly other organics such as compostable paper and wood.

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 wastes except the amount of waste produced falls below regulatory limits (see CESQG).

MSW: municipal solid waste (see also "solid waste").

Mulching: 1) leaving grass clippings on the lawn when mowing; 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.

ORCAA: the Olympic Region Clean Air Agency; an agency with regulatory and enforcement authority for air pollution issues in Clallam, Grays Harbor, Jefferson, Mason, Pacific and Thurston Counties.

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.

PHSS: the Thurston County Public Health and Social Services Department.

Pick-line: A sorting system used at the WARC that employed a conveyor belt and manual labor to recover recyclable materials from the incoming wastes.

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

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.

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

Sharps: in this SWMP, refers to used syringes and similar items.

Solid waste: all putrescible and nonputrescible solid and semisolid wastes, including, but not limited to, garbage, rubbish, ashes, industrial wastes, swill, demolition and construction wastes, septage, abandoned vehicles or parts thereof, waste tires, contaminated soils and contaminated dredged material, and recyclable materials.

Solid Waste Advisory Committee (SWAC): an advisory group that assisted Thurston County with the development of this solid 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. This may or may not include keeping different types of recyclable materials separate from each other (see also "commingled" and "single steam").

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

Styrofoam: as used in this document, styrofoam is intended to include all types of expanded polystyrene. In other words, the term is assumed to have passed into common usage and is not treated as the name for a product manufactured by a specific company.

Sustainable: meeting the needs of the present without compromising the ability of future generations to meet their needs.

SWAC: see Solid Waste Advisory Committee.

SWMP: Solid Waste Management Plan.

Tipping fee: The rate charged by transfer and disposal facilities, generally 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. Note that the State's definition for a transfer station requires acceptance of waste from garbage collection trucks, which the Rainier and Rochester sites do not.

UTC: Washington Utilities and Transportation Commission.

Vactor waste: named after the brand name of the type of truck commonly used for this, vactor waste is the mix of liquids and solids (sand, trash, etc.) pumped out of storm drains (or catch basins).

WAC: Washington Administrative Code.

WARC: Thurston County Waste and Recovery Center.

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

Yard debris: includes leaves, grass clippings, brush and branches.

See also Thurston County Code 8.24.010, the Thurston County Solid Waste Handling Ordinance (Article V of the Thurston County Sanitary Code) and WAC 173-350-100 for additional definitions related to solid waste management. In the case of any inconsistencies, Thurston County Code and State law will take precedence over the above definitions.

APPENDIX A

INTERLOCAL AGREEMENTS

INTRODUCTION

The current interlocal agreements between Thurston County and the seven cities and towns are shown in the following pages.

DISCUSSION

The interlocal agreements shown in the following pages were adopted by the municipalities in 2013. The duration of these agreements is intended to continue until replaced by another such agreement. The primary intent of these agreements is to guide the involvement of the cities, towns and counties in preparing a solid waste management plan and to address implementation activities. These agreements also address the financing of the system, through an enterprise fund managed by Thurston County.

INTERGOVERNMENTAL AGREEMENT FOR THE
THURSTON COUNTY
SOLID WASTE MANAGEMENT PLAN AND THE HAZARDOUS
WASTE PLAN UPDATES

THIS AGREEMENT, made and entered into this 11th day of December 2012 by and between Thurston County, Washington, and the incorporated municipality of Bucoda which is organized under the laws of the State of Washington and are herein collectively referred to as the "Participating Municipality;"

WHEREAS, the Participating Municipality agreed, pursuant to the Solid Waste Management Act, Chapter 70.95 RCW, and the Hazardous Waste Management Act, Chapter 70.105 RCW, to participate in preparing the 2013 Thurston County Comprehensive Solid Waste Management Plan and the Local Hazardous Waste Plan, hereinafter referred to as the "Plans;" and

WHEREAS, it is to the mutual advantage of the Participating Municipality and their citizens to contract pursuant to Chapter 39.34 RCW for the purpose of providing joint county-municipality integrated solid waste and hazardous waste management programs; and

WHEREAS, that Intergovernmental Agreement and the plans identify that the Plans shall be reviewed and revised by the Participating Municipality once every five (5) years; and

WHEREAS, the Participating Municipality have the opportunity to reaffirm their inclusion in the joint Plans;

NOW THEREFORE, for and in consideration of the mutual promises and covenants contained herein, it is agreed by the Participating Municipality hereto as follows:

1. PURPOSE OF AGREEMENT

The purpose of this Agreement is to allow the county and the participating municipality to jointly prepare and ultimately adopt an update to the joint Comprehensive Solid Waste Management Plan, pursuant to Chapter 70.95 RCW, for waste reduction, recycling, collection, transfer and disposal of solid waste generated within the boundaries of the Participating Municipality and Thurston County. This agreement also includes ultimately adopting an update to the Hazardous Waste Plan for Thurston County.

2. SOLID WASTE and HAZARDOUS WASTE MANAGEMENT

After adoption of the Plans by Participating Municipality, Thurston County will be the designated agent for the Participating Municipality for the administration of the Plans within Thurston County and shall have full authority to implement solid and hazardous waste management programs and services consistent with the Plans, for the Participating Municipality and the residents within the boundaries of the Participating Municipality, excluding the manner of collection and transfer of solid waste refuse within the corporate limits of those cities and towns which are the Participating Municipality. Such management shall be conducted in conformance with all state and federal laws and regulations. Included with such management shall be the carrying of public liability insurance with limits in accordance with standard practice. Thurston County shall indemnify and hold harmless the other Participating Municipalities and shall defend against any claims for personal injury or property damage arising out of Thurston County's management and operations of the solid waste programs set out under the Plan. Thurston County shall not indemnify, hold harmless, or defend any claims arising out of the actions of a Participating Municipality or any activities under a Participating Municipality's control.

Plans administration and government processes shall be set forth in more detail in the Plans as adopted.

3. FINANCING, FUNDS AND BUDGET

a. The costs of the Plans administration and implementation shall be administered through the County Solid Waste Fund. The fund shall be established and maintained through user fees, grants, gifts, loans and other lawful funding sources as outlined in the Plans and agreed upon between the Participating Municipality.

b. Thurston County shall continue to maintain a Solid Waste Fund as a dedicated enterprise fund within the County budget. All revenues and expenditures in connection with the Plans subject to this Agreement shall be budgeted and accounted for through this fund.

4. ACCOUNTING

Thurston County shall maintain accounts for the solid waste management program and the hazardous waste program in accordance with the requirements of the Washington State Auditor. Authorized representatives of any party hereto shall have the right to inspect the accounting concerning the solid and hazardous waste management programs at any reasonable time.

5. PROPERTY RIGHTS

Title to all property acquired with funds from the Solid Waste Fund shall vest in Thurston County. In the event of sale of any property acquired using the Solid Waste Fund, the proceeds from the sale shall be deposited in the Solid Waste Fund unless otherwise required by law, regulation, grant or contract.

6. ADMISSION OF NEW PARTIES

Additional municipal entities may be added to this Agreement upon such terms and conditions as the Participating Municipalities and the new party agree upon in writing.

7. EFFECT ON PRECEDING CONTRACT

This Agreement, upon its execution by all parties, supersedes prior Intergovernmental Agreement for the Thurston County Comprehensive Solid Waste Management Plan.

8. DURATION

This Agreement shall remain in effect for five (5) years from the effective date; or until replaced by a new intergovernmental agreement.

9. PLAN ADOPTION

The final Plan shall be adopted through Resolution of the Participating Municipality and the County. The Plan shall be reviewed and revised by the Plan Participants at least once every five (5) years following approval of the Plan by the Washington State Department of Ecology (Ecology). Any necessary revisions or amendments to the Plan will be accomplished through a process defined in the Plan.

10. EFFECTIVE DATE

This Agreement shall be effective following its execution by the Board of Thurston County Commissioners after execution by the Participating Municipality; and following the recording of this Agreement with the Thurston County Auditor, as required by RCW 39.34.

11. TERMINATION

After the Plan has been prepared and submitted to Ecology for final review, any Participating Municipality may terminate its involvement in this Agreement within 30 days following the 45 day final review period by Ecology. Should any Participating Municipality not agree to adoption of the Plan, the Participating Municipality will not adopt the Plan and shall immediately begin preparing its own Municipal Solid Waste Management Plan for approval by Ecology in full accordance with all Plan regulations and guidelines.

This Agreement has been executed by each party on the date set forth below.

THURSTON COUNTY

Chairman, Board of County Commissioners

Date: April 9, 2013

ATTEST:

Clerk of the Board

CITY OF Bucoda

Mayor, Alan Carr

Date: 12/11/2012

ATTEST:

City Clerk

APPROVED AS TO FORM:
JON TUNHEIM
PROSECUTING ATTORNEY

By: _____
Rick Peters
Deputy Prosecuting Attorney

INTERGOVERNMENTAL AGREEMENT FOR THE
THURSTON COUNTY
SOLID WASTE MANAGEMENT PLAN AND THE HAZARDOUS
WASTE PLAN UPDATES

THIS AGREEMENT, made and entered into this 16TH day of NOVEMBER, 2012 by and between Thurston County, Washington, and the incorporated municipality of the City of Lacey which is organized under the laws of the State of Washington and are herein collectively referred to as the "Participating Municipality;"

WHEREAS, the Participating Municipality agreed, pursuant to the Solid Waste Management Act, Chapter 70.95 RCW, and the Hazardous Waste Management Act, Chapter 70.105 RCW, to participate in preparing the 2013 Thurston County Comprehensive Solid Waste Management Plan and the Local Hazardous Waste Plan, hereinafter referred to as the "Plans;" and

WHEREAS, it is to the mutual advantage of the Participating Municipality and their citizens to contract pursuant to Chapter 39.34 RCW for the purpose of providing joint county-municipality integrated solid waste and hazardous waste management programs; and

WHEREAS, that Intergovernmental Agreement and the plans identify that the Plans shall be reviewed and revised by the Participating Municipality once every five (5) years; and

WHEREAS, the Participating Municipality have the opportunity to reaffirm their inclusion in the joint Plans;

NOW THEREFORE, for and in consideration of the mutual promises and covenants contained herein, it is agreed by the Participating Municipality hereto as follows:

1. PURPOSE OF AGREEMENT

The purpose of this Agreement is to allow the county and the participating municipality to jointly prepare and ultimately adopt an update to the joint Comprehensive Solid Waste Management Plan, pursuant to Chapter 70.95 RCW, for waste reduction, recycling, collection, transfer and disposal of solid waste generated within the boundaries of the Participating Municipality and Thurston County. This agreement also includes ultimately adopting an update to the Hazardous Waste Plan for Thurston County.

2. SOLID WASTE and HAZARDOUS WASTE MANAGEMENT

After adoption of the Plans by Participating Municipality, Thurston County will be the designated agent for the Participating Municipality for the administration of the Plans

within Thurston County and shall have full authority to implement solid and hazardous waste management programs and services consistent with the Plans, for the Participating Municipality and the residents within the boundaries of the Participating Municipality, excluding the manner of collection and transfer of solid waste refuse within the corporate limits of those cities and towns which are the Participating Municipality. Such management shall be conducted in conformance with all state and federal laws and regulations. Included with such management shall be the carrying of public liability insurance with limits in accordance with standard practice. Thurston County shall indemnify and hold harmless the other Participating Municipalities and shall defend against any claims for personal injury or property damage arising out of Thurston County's management and operations of the solid waste programs set out under the Plan. Thurston County shall not indemnify, hold harmless, or defend any claims arising out of the actions of a Participating Municipality or any activities under a Participating Municipality's control.

Plans administration and government processes shall be set forth in more detail in the Plans as adopted.

3. FINANCING, FUNDS AND BUDGET

a. The costs of the Plans administration and implementation shall be administered through the County Solid Waste Fund. The fund shall be established and maintained through user fees, grants, gifts, loans and other lawful funding sources as outlined in the Plans and agreed upon between the Participating Municipality.

b. Thurston County shall continue to maintain a Solid Waste Fund as a dedicated enterprise fund within the County budget. All revenues and expenditures in connection with the Plans subject to this Agreement shall be budgeted and accounted for through this fund.

4. ACCOUNTING

Thurston County shall maintain accounts for the solid waste management program and the hazardous waste program in accordance with the requirements of the Washington State Auditor. Authorized representatives of any party hereto shall have the right to inspect the accounting concerning the solid and hazardous waste management programs at any reasonable time.

5. PROPERTY RIGHTS

Title to all property acquired with funds from the Solid Waste Fund shall vest in Thurston County. In the event of sale of any property acquired using the Solid Waste Fund, the proceeds from the sale shall be deposited in the Solid Waste Fund unless otherwise required by law, regulation, grant or contract.

6. ADMISSION OF NEW PARTIES

Additional municipal entities may be added to this Agreement upon such terms and conditions as the Participating Municipalities and the new party agree upon in writing.

7. EFFECT ON PRECEDING CONTRACT

This Agreement, upon its execution by all parties, supersedes prior Intergovernmental Agreement for the Thurston County Comprehensive Solid Waste Management Plan.

8. DURATION

This Agreement shall remain in effect for five (5) years from the effective date; or until replaced by a new intergovernmental agreement.

9. PLAN ADOPTION

The final Plan shall be adopted through Resolution of the Participating Municipality and the County. The Plan shall be reviewed and revised by the Plan Participants at least once every five (5) years following approval of the Plan by the Washington State Department of Ecology (Ecology). Any necessary revisions or amendments to the Plan will be accomplished through a process defined in the Plan.

10. EFFECTIVE DATE

This Agreement shall be effective following its execution by the Board of Thurston County Commissioners after execution by the Participating Municipality; and following the recording of this Agreement with the Thurston County Auditor, as required by RCW 39.34.

11. TERMINATION

After the Plan has been prepared and submitted to Ecology for final review, any Participating Municipality may terminate its involvement in this Agreement within 30 days following the 45 day final review period by Ecology. Should any Participating Municipality not agree to adoption of the Plan, the Participating Municipality will not adopt the Plan and shall immediately begin preparing its own Municipal Solid Waste Management Plan for approval by Ecology in full accordance with all Plan regulations and guidelines.

This Agreement has been executed by each party on the date set forth below.

THURSTON COUNTY

Chairman, Board of County Commissioners

Date: April 9, 2013

ATTEST:

Clerk of the Board

APPROVED AS TO FORM:
JON TUNHEIM
PROSECUTING ATTORNEY

By: _____
Rick Peters
Deputy Prosecuting Attorney

CITY OF LACEY

By: _____
Scott Spence, City Manager

Date: _____

ATTEST:

City Clerk

APPROVED AS TO FORM:

City Attorney

INTERGOVERNMENTAL AGREEMENT FOR THE
THURSTON COUNTY
SOLID WASTE MANAGEMENT PLAN AND THE HAZARDOUS
WASTE PLAN UPDATES

THIS AGREEMENT, made and entered into this 11th day of December 2012 by and between Thurston County, Washington, and the incorporated municipality of Olympia which is organized under the laws of the State of Washington and are herein collectively referred to as the "Participating Municipality;"

WHEREAS, the Participating Municipality agreed, pursuant to the Solid Waste Management Act, Chapter 70.95 RCW, and the Hazardous Waste Management Act, Chapter 70.105 RCW, to participate in preparing the 2013 Thurston County Comprehensive Solid Waste Management Plan and the Local Hazardous Waste Plan, hereinafter referred to as the "Plans;" and

WHEREAS, it is to the mutual advantage of the Participating Municipality and their citizens to contract pursuant to Chapter 39.34 RCW for the purpose of providing joint county-municipality integrated solid waste and hazardous waste management programs; and

WHEREAS, that Intergovernmental Agreement and the plans identify that the Plans shall be reviewed and revised by the Participating Municipality once every five (5) years; and

WHEREAS, the Participating Municipality have the opportunity to reaffirm their inclusion in the joint Plans;

NOW THEREFORE, for and in consideration of the mutual promises and covenants contained herein, it is agreed by the Participating Municipality hereto as follows:

1. PURPOSE OF AGREEMENT

The purpose of this Agreement is to allow the county and the participating municipality to jointly prepare and ultimately adopt an update to the joint Comprehensive Solid Waste Management Plan, pursuant to Chapter 70.95 RCW, for waste reduction, recycling, collection, transfer and disposal of solid waste generated within the boundaries of the Participating Municipality and Thurston County. This agreement also includes ultimately adopting an update to the Hazardous Waste Plan for Thurston County.

2. SOLID WASTE and HAZARDOUS WASTE MANAGEMENT

After adoption of the Plans by Participating Municipality, Thurston County will be the designated agent for the Participating Municipality for the administration of the Plans within Thurston County and shall have full authority to implement solid and hazardous waste management programs and services consistent with the Plans, for the Participating Municipality and the residents within the boundaries of the Participating Municipality, excluding the manner of collection and transfer of solid waste refuse within the corporate limits of those cities and towns which are the Participating Municipality. Such management shall be conducted in conformance with all state and federal laws and regulations. Included with such management shall be the carrying of public liability insurance with limits in accordance with standard practice. Thurston County shall indemnify and hold harmless the other Participating Municipalities and shall defend against any claims for personal injury or property damage arising out of Thurston County's management and operations of the solid waste programs set out under the Plan. Thurston County shall not indemnify, hold harmless, or defend any claims arising out of the actions of a Participating Municipality or any activities under a Participating Municipality's control.

Plans administration and government processes shall be set forth in more detail in the Plans as adopted.

3. FINANCING, FUNDS AND BUDGET

a. The costs of the Plans administration and implementation shall be administered through the County Solid Waste Fund. The fund shall be established and maintained through user fees, grants, gifts, loans and other lawful funding sources as outlined in the Plans and agreed upon between the Participating Municipality.

b. Thurston County shall continue to maintain a Solid Waste Fund as a dedicated enterprise fund within the County budget. All revenues and expenditures in connection with the Plans subject to this Agreement shall be budgeted and accounted for through this fund.

4. ACCOUNTING

Thurston County shall maintain accounts for the solid waste management program and the hazardous waste program in accordance with the requirements of the Washington State Auditor. Authorized representatives of any party hereto shall have the right to inspect the accounting concerning the solid and hazardous waste management programs at any reasonable time.

5. PROPERTY RIGHTS

Title to all property acquired with funds from the Solid Waste Fund shall vest in Thurston County. In the event of sale of any property acquired using the Solid Waste Fund, the proceeds from the sale shall be deposited in the Solid Waste Fund unless otherwise required by law, regulation, grant or contract.

6. ADMISSION OF NEW PARTIES

Additional municipal entities may be added to this Agreement upon such terms and conditions as the Participating Municipalities and the new party agree upon in writing.

7. EFFECT ON PRECEDING CONTRACT

This Agreement, upon its execution by all parties, supersedes prior Intergovernmental Agreement for the Thurston County Comprehensive Solid Waste Management Plan.

8. DURATION

This Agreement shall remain in effect for five (5) years from the effective date; or until replaced by a new intergovernmental agreement.

9. PLAN ADOPTION

The final Plan shall be adopted through Resolution of the Participating Municipality and the County. The Plan shall be reviewed and revised by the Plan Participants at least once every five (5) years following approval of the Plan by the Washington State Department of Ecology (Ecology). Any necessary revisions or amendments to the Plan will be accomplished through a process defined in the Plan.

10. EFFECTIVE DATE

This Agreement shall be effective following its execution by the Board of Thurston County Commissioners after execution by the Participating Municipality; and following the recording of this Agreement with the Thurston County Auditor, as required by RCW 39.34.

11. TERMINATION

After the Plan has been prepared and submitted to Ecology for final review, any Participating Municipality may terminate its involvement in this Agreement within 30 days following the 45 day final review period by Ecology. Should any Participating Municipality not agree to adoption of the Plan, the Participating Municipality will not adopt the Plan and shall immediately begin preparing its own Municipal Solid Waste Management Plan for approval by Ecology in full accordance with all Plan regulations and guidelines.

This Agreement has been executed by each party on the date set forth below.

THURSTON COUNTY

Sandra Romero
Chairman, Board of County Commissioners

Date: April 9, 2013

ATTEST:

LaBonita A. Bowman
Clerk of the Board

APPROVED AS TO FORM:
JON TUNHEIM
PROSECUTING ATTORNEY

By: _____
Rick Peters
Deputy Prosecuting Attorney

CITY OF OLYMPIA

_____
Mayor

Date: 12-11-12

ATTEST:

Debbie Krumpol
City Clerk

APPROVED AS TO FORM:

Darre Nienaber DCA
City Attorney

INTERGOVERNMENTAL AGREEMENT FOR THE THURSTON COUNTY SOLID WASTE MANAGEMENT PLAN AND THE HAZARDOUS WASTE PLAN UPDATES

THIS AGREEMENT, made and entered into this 25th day of September by and between Thurston County, Washington, and the incorporated municipality of Rainier which is organized under the laws of the State of Washington and are herein collectively referred to as the "Participating Municipality;"

WHEREAS, the Participating Municipality agreed, pursuant to the Solid Waste Management Act, Chapter 70.95 RCW, and the Hazardous Waste Management Act, Chapter 70.105 RCW, to participate in preparing the 2013 Thurston County Comprehensive Solid Waste Management Plan and the Local Hazardous Waste Plan, hereinafter referred to as the "Plans;" and

WHEREAS, it is to the mutual advantage of the Participating Municipality and their citizens to contract pursuant to Chapter 39.34 RCW for the purpose of providing joint county-municipality integrated solid waste and hazardous waste management programs; and

WHEREAS, that Intergovernmental Agreement and the plans identify that the Plans shall be reviewed and revised by the Participating Municipality once every five (5) years; and

WHEREAS, the Participating Municipality have the opportunity to reaffirm their inclusion in the joint Plans;

NOW THEREFORE, for and in consideration of the mutual promises and covenants contained herein, it is agreed by the Participating Municipality hereto as follows:

1. PURPOSE OF AGREEMENT

The purpose of this Agreement is to allow the county and the participating municipality to jointly prepare and ultimately adopt an update to the joint Comprehensive Solid Waste Management Plan, pursuant to Chapter 70.95 RCW, for waste reduction, recycling, collection, transfer and disposal of solid waste generated within the boundaries of the Participating Municipality and Thurston County. This agreement also includes ultimately adopting an update to the Hazardous Waste Plan for Thurston County.

2. SOLID WASTE and HAZARDOUS WASTE MANAGEMENT

After adoption of the Plans by Participating Municipality, Thurston County will be the designated agent for the Participating Municipality for the administration of the Plans within Thurston County and shall have full authority to implement solid and hazardous waste

management programs and services consistent with the Plans, for the Participating Municipality and the residents within the boundaries of the Participating Municipality, excluding the manner of collection and transfer of solid waste refuse within the corporate limits of those cities and towns which are the Participating Municipality. Such management shall be conducted in conformance with all state and federal laws and regulations. Included with such management shall be the carrying of public liability insurance with limits in accordance with standard practice. Thurston County shall indemnify and hold harmless the other Participating Municipalities and shall defend against any claims for personal injury or property damage arising out of Thurston County's management and operations of the solid waste programs set out under the Plan. Thurston County shall not indemnify, hold harmless, or defend any claims arising out of the actions of a Participating Municipality or any activities under a Participating Municipality's control.

Plans administration and government processes shall be set forth in more detail in the Plans as adopted.

3. FINANCING, FUNDS AND BUDGET

a. The costs of the Plans administration and implementation shall be administered through the County Solid Waste Fund. The fund shall be established and maintained through user fees, grants, gifts, loans and other lawful funding sources as outlined in the Plans and agreed upon between the Participating Municipality.

b. Thurston County shall continue to maintain a Solid Waste Fund as a dedicated enterprise fund within the County budget. All revenues and expenditures in connection with the Plans subject to this Agreement shall be budgeted and accounted for through this fund.

4. ACCOUNTING

Thurston County shall maintain accounts for the solid waste management program and the hazardous waste program in accordance with the requirements of the Washington State Auditor. Authorized representatives of any party hereto shall have the right to inspect the accounting concerning the solid and hazardous waste management programs at any reasonable time.

5. PROPERTY RIGHTS

Title to all property acquired with funds from the Solid Waste Fund shall vest in Thurston County. In the event of sale of any property acquired using the Solid Waste Fund, the proceeds from the sale shall be deposited in the Solid Waste Fund unless otherwise required by law, regulation, grant or contract.

6. ADMISSION OF NEW PARTIES

Additional municipal entities may be added to this Agreement upon such terms and conditions as the Participating Municipalities and the new party agree upon in writing.

7. EFFECT ON PRECEDING CONTRACT

This Agreement, upon its execution by all parties, supersedes prior Intergovernmental Agreement for the Thurston County Comprehensive Solid Waste Management Plan.

8. DURATION

This Agreement shall remain in effect for five (5) years from the effective date; or until replaced by a new intergovernmental agreement.

9. PLAN ADOPTION

The final Plan shall be adopted through Resolution of the Participating Municipality and the County. The Plan shall be reviewed and revised by the Plan Participants at least once every five (5) years following approval of the Plan by the Washington State Department of Ecology (Ecology). Any necessary revisions or amendments to the Plan will be accomplished through a process defined in the Plan.

10. EFFECTIVE DATE

This Agreement shall be effective following its execution by the Board of Thurston County Commissioners after execution by the Participating Municipality; and following the recording of this Agreement with the Thurston County Auditor, as required by RCW 39.34.

11. TERMINATION

After the Plan has been prepared and submitted to Ecology for final review, any Participating Municipality may terminate its involvement in this Agreement within 30 days following the 45 day final review period by Ecology. Should any Participating Municipality not agree to adoption of the Plan, the Participating Municipality will not adopt the Plan and shall immediately begin preparing its own Municipal Solid Waste Management Plan for approval by Ecology in full accordance with all Plan regulations and guidelines.

This Agreement has been executed by each party on the date set forth below.

THURSTON COUNTY

Chairman, Board of County Commissioners

Date: April 9, 2013

ATTEST:

Clerk of the Board

CITY OF Rainier

Mayor

Date: 9-25-2012

ATTEST:

Charmayne S. Garrison
City Clerk

APPROVED AS TO FORM:
JON TUNHEIM
PROSECUTING ATTORNEY

By: _____
Rick Peters
Deputy Prosecuting Attorney

INTERGOVERNMENTAL AGREEMENT FOR THE
THURSTON COUNTY
SOLID WASTE MANAGEMENT PLAN AND THE HAZARDOUS
WASTE PLAN UPDATES

THIS AGREEMENT, made and entered into this 21 day of November by and between Thurston County, Washington, and the incorporated municipality of Tenino which is organized under the laws of the State of Washington and are herein collectively referred to as the "Participating Municipality;"

WHEREAS, the Participating Municipality agreed, pursuant to the Solid Waste Management Act, Chapter 70.95 RCW, and the Hazardous Waste Management Act, Chapter 70.105 RCW, to participate in preparing the 2013 Thurston County Comprehensive Solid Waste Management Plan and the Local Hazardous Waste Plan, hereinafter referred to as the "Plans;" and

WHEREAS, it is to the mutual advantage of the Participating Municipality and their citizens to contract pursuant to Chapter 39.34 RCW for the purpose of providing joint county-municipality integrated solid waste and hazardous waste management programs; and

WHEREAS, that Intergovernmental Agreement and the plans identify that the Plans shall be reviewed and revised by the Participating Municipality once every five (5) years; and

WHEREAS, the Participating Municipality have the opportunity to reaffirm their inclusion in the joint Plans;

NOW THEREFORE, for and in consideration of the mutual promises and covenants contained herein, it is agreed by the Participating Municipality hereto as follows:

1. PURPOSE OF AGREEMENT

The purpose of this Agreement is to allow the county and the participating municipality to jointly prepare and ultimately adopt an update to the joint Comprehensive Solid Waste Management Plan, pursuant to Chapter 70.95 RCW, for waste reduction, recycling, collection, transfer and disposal of solid waste generated within the boundaries of the Participating Municipality and Thurston County. This agreement also includes ultimately adopting an update to the Hazardous Waste Plan for Thurston County.

2. SOLID WASTE and HAZARDOUS WASTE MANAGEMENT

After adoption of the Plans by Participating Municipality, Thurston County will be the designated agent for the Participating Municipality for the administration of the Plans within Thurston County and shall have full authority to implement solid and hazardous waste management programs and services consistent with the Plans, for the Participating Municipality and the residents within the boundaries of the Participating Municipality, excluding the manner of collection and transfer of solid waste refuse within the corporate limits of those cities and towns which are the Participating Municipality. Such management shall be conducted in conformance with all state and federal laws and regulations. Included with such management shall be the carrying of public liability insurance with limits in accordance with standard practice. Thurston County shall indemnify and hold harmless the other Participating Municipalities and shall defend against any claims for personal injury or property damage arising out of Thurston County's management and operations of the solid waste programs set out under the Plan. Thurston County shall not indemnify, hold harmless, or defend any claims arising out of the actions of a Participating Municipality or any activities under a Participating Municipality's control.

Plans administration and government processes shall be set forth in more detail in the Plans as adopted.

3. FINANCING, FUNDS AND BUDGET

a. The costs of the Plans administration and implementation shall be administered through the County Solid Waste Fund. The fund shall be established and maintained through user fees, grants, gifts, loans and other lawful funding sources as outlined in the Plans and agreed upon between the Participating Municipality.

b. Thurston County shall continue to maintain a Solid Waste Fund as a dedicated enterprise fund within the County budget. All revenues and expenditures in connection with the Plans subject to this Agreement shall be budgeted and accounted for through this fund.

4. ACCOUNTING

Thurston County shall maintain accounts for the solid waste management program and the hazardous waste program in accordance with the requirements of the Washington State Auditor. Authorized representatives of any party hereto shall have the right to inspect the accounting concerning the solid and hazardous waste management programs at any reasonable time.

5. PROPERTY RIGHTS

Title to all property acquired with funds from the Solid Waste Fund shall vest in Thurston County. In the event of sale of any property acquired using the Solid Waste Fund, the proceeds from the sale shall be deposited in the Solid Waste Fund unless otherwise required by law, regulation, grant or contract.

6. ADMISSION OF NEW PARTIES

Additional municipal entities may be added to this Agreement upon such terms and conditions as the Participating Municipalities and the new party agree upon in writing.

7. EFFECT ON PRECEDING CONTRACT

This Agreement, upon its execution by all parties, supersedes prior Intergovernmental Agreement for the Thurston County Comprehensive Solid Waste Management Plan.

8. DURATION

This Agreement shall remain in effect for five (5) years from the effective date; or until replaced by a new intergovernmental agreement.

9. PLAN ADOPTION

The final Plan shall be adopted through Resolution of the Participating Municipality and the County. The Plan shall be reviewed and revised by the Plan Participants at least once every five (5) years following approval of the Plan by the Washington State Department of Ecology (Ecology). Any necessary revisions or amendments to the Plan will be accomplished through a process defined in the Plan.

10. EFFECTIVE DATE

This Agreement shall be effective following its execution by the Board of Thurston County Commissioners after execution by the Participating Municipality; and following the recording of this Agreement with the Thurston County Auditor, as required by RCW 39.34.

11. TERMINATION

After the Plan has been prepared and submitted to Ecology for final review, any Participating Municipality may terminate its involvement in this Agreement within 30 days following the 45 day final review period by Ecology. Should any Participating Municipality not agree to adoption of the Plan, the Participating Municipality will not adopt the Plan and shall immediately begin preparing its own Municipal Solid Waste Management Plan for approval by Ecology in full accordance with all Plan regulations and guidelines.

This Agreement has been executed by each party on the date set forth below.

THURSTON COUNTY

Sandra Romero
Chairman, Board of County Commissioners

Date: April 9, 2013

ATTEST:

LaBonita J. Bowman
Clerk of the Board

CITY OF Tenino

Mayor

Date: NOV. 27, 2012

ATTEST:

City Clerk

APPROVED AS TO FORM:
JON TUNHEIM
PROSECUTING ATTORNEY

By: _____
Rick Peters
Deputy Prosecuting Attorney

INTERGOVERNMENTAL AGREEMENT BETWEEN THE
CITY OF TUMWATER AND THURSTON COUNTY
FOR THE THURSTON COUNTY
SOLID WASTE MANAGEMENT PLAN AND THE HAZARDOUS
WASTE PLAN UPDATES

THIS AGREEMENT made and entered into this 16th day of October 2012 by and between Thurston County, a municipal corporation, hereinafter referred to as "COUNTY" and the City of Tumwater, a municipal corporation, hereinafter referred to as "CITY".

WHEREAS, the COUNTY and CITY agreed, pursuant to the Solid Waste Management Act, Chapter 70.95 RCW, and the Hazardous Waste Management Act, Chapter 70.105 RCW, to participate in preparing the 2013 Thurston County Comprehensive Solid Waste Management Plan and the Local Hazardous Waste Plan, hereinafter referred to as the "Plans;" and

WHEREAS, it is to the mutual advantage of the COUNTY and CITY and their citizens to contract pursuant to Chapter 39.34 RCW for the purpose of providing joint county-municipality integrated solid waste and hazardous waste management programs; and

WHEREAS, that Intergovernmental Agreement and the plans identify that the Plans shall be reviewed and revised by the COUNTY and CITY once every five (5) years; and

WHEREAS, the COUNTY and CITY have the opportunity to reaffirm their inclusion in the joint Plans;

NOW THEREFORE, for and in consideration of the mutual promises and covenants contained herein, it is agreed by the COUNTY and CITY hereto as follows:

1. PURPOSE OF AGREEMENT

The purpose of this Agreement is to allow the COUNTY and CITY to jointly prepare and ultimately adopt an update to the joint Comprehensive Solid Waste Management Plan, pursuant to Chapter 70.95 RCW, for waste reduction, recycling, collection, transfer and disposal of solid waste generated within the boundaries of the COUNTY and CITY. This agreement also includes ultimately adopting an update to the Hazardous Waste Plan for Thurston County.

2. SOLID WASTE and HAZARDOUS WASTE MANAGEMENT

After adoption of the Plans by the CITY, Thurston County will be the designated agent for the CITY for the administration of the Plans within Thurston County and shall have full authority to implement solid and hazardous waste management programs and

services consistent with the Plans, for the CITY and the residents within the boundaries of the CITY, excluding the manner of collection and transfer of solid waste refuse within the corporate limits of the CITY. Such management shall be conducted in conformance with all state and federal laws and regulations. Included with such management shall be the carrying of public liability insurance with limits in accordance with standard practice. Thurston County shall indemnify and hold harmless the CITY and shall defend against any claims for personal injury or property damage arising out of COUNTY's management and operations of the solid waste programs set out under the Plan. COUNTY shall not indemnify, hold harmless, or defend any claims arising out of the actions of the CITY or any activities under the CITY's control.

Plans administration and government processes shall be set forth in more detail in the Plans as adopted.

3. FINANCING, FUNDS AND BUDGET

a. The costs of the Plans administration and implementation shall be administered through the County Solid Waste Fund. The fund shall be established and maintained through user fees, grants, gifts, loans and other lawful funding sources as outlined in the Plans and agreed upon between the COUNTY and CITY.

b. COUNTY shall continue to maintain a Solid Waste Fund as a dedicated enterprise fund within the County budget. All revenues and expenditures in connection with the Plans subject to this Agreement shall be budgeted and accounted for through this fund.

4. ACCOUNTING

COUNTY shall maintain accounts for the solid waste management program and the hazardous waste program in accordance with the requirements of the Washington State Auditor. Authorized representatives of any party hereto shall have the right to inspect the accounting concerning the solid and hazardous waste management programs at any reasonable time.

5. PROPERTY RIGHTS

Title to all property acquired with funds from the Solid Waste Fund shall vest in COUNTY. In the event of sale of any property acquired using the Solid Waste Fund, the proceeds from the sale shall be deposited in the Solid Waste Fund unless otherwise required by law, regulation, grant or contract.

6. ADMISSION OF NEW PARTIES

Additional municipal entities may be added to this Agreement upon such terms and conditions as the COUNTY and CITY and the new party agree upon in writing.

7. EFFECT ON PRECEDING CONTRACT

This Agreement, upon its execution by all parties, supersedes the prior Intergovernmental Agreement for the Thurston County Comprehensive Solid Waste Management Plan.

8. DURATION

This Agreement shall remain in effect for five (5) years from the effective date; or until replaced by a new intergovernmental agreement.

9. PLAN ADOPTION

The final Plan shall be adopted through Resolution of the CITY and the COUNTY. The Plan shall be reviewed and revised by the Plan Participants at least once every five (5) years following approval of the Plan by the Washington State Department of Ecology (Ecology). Any necessary revisions or amendments to the Plan will be accomplished through a process defined in the Plan.

10. EFFECTIVE DATE

This Agreement shall be effective following its execution by the Board of Thurston County Commissioners after execution by the CITY; and following the recording of this Agreement with the Thurston County Auditor, as required by RCW 39.34.

11. TERMINATION

After the Plan has been prepared and submitted to Ecology for final review, either party may terminate its involvement in this Agreement within 30 days following the 45 day final review period by Ecology. Should either party not agree to adoption of the Plan, the CITY shall immediately begin preparing its own Municipal Solid Waste Management Plan for approval by Ecology in full accordance with all Plan regulations and guidelines.

This Agreement between Thurston County and the City of Tumwater for the Thurston County Solid Waste Management Plan and the Hazardous Waste Plan Updates has been executed by each party on the date set forth below.

THURSTON COUNTY

Chairman, Board of County Commissioners

Date: April 9, 2013

ATTEST:

Clerk of the Board

APPROVED AS TO FORM:
JON TUNHEIM
PROSECUTING ATTORNEY

By: _____
Rick Peters
Deputy Prosecuting Attorney

CITY OF TUMWATER

Pete Kmet, Mayor

Date: 10/16/2012

ATTEST:

Melody Valiant, City Clerk

APPROVED AS TO FORM:

Karen Kirkpatrick, City Attorney

INTERGOVERNMENTAL AGREEMENT FOR THE
THURSTON COUNTY
SOLID WASTE MANAGEMENT PLAN AND THE HAZARDOUS
WASTE PLAN UPDATES

THIS AGREEMENT, made and entered into this11th day of December by and between Thurston County, Washington, and the incorporated municipality of City of Yelm which is organized under the laws of the State of Washington and are herein collectively referred to as the "Participating Municipality;"

WHEREAS, the Participating Municipality agreed, pursuant to the Solid Waste Management Act, Chapter 70.95 RCW, and the Hazardous Waste Management Act, Chapter 70.105 RCW, to participate in preparing the 2013 Thurston County Comprehensive Solid Waste Management Plan and the Local Hazardous Waste Plan, hereinafter referred to as the "Plans;" and

WHEREAS, it is to the mutual advantage of the Participating Municipality and their citizens to contract pursuant to Chapter 39.34 RCW for the purpose of providing joint county-municipality integrated solid waste and hazardous waste management programs; and

WHEREAS, that Intergovernmental Agreement and the plans identify that the Plans shall be reviewed and revised by the Participating Municipality once every five (5) years; and

WHEREAS, the Participating Municipality have the opportunity to reaffirm their inclusion in the joint Plans;

NOW THEREFORE, for and in consideration of the mutual promises and covenants contained herein, it is agreed by the Participating Municipality hereto as follows:

1. PURPOSE OF AGREEMENT

   The purpose of this Agreement is to allow the county and the participating municipality to jointly prepare and ultimately adopt an update to the joint Comprehensive Solid Waste Management Plan, pursuant to Chapter 70.95 RCW, for waste reduction, recycling, collection, transfer and disposal of solid waste generated within the boundaries of the Participating Municipality and Thurston County. This agreement also includes ultimately adopting an update to the Hazardous Waste Plan for Thurston County.

2. SOLID WASTE and HAZARDOUS WASTE MANAGEMENT

After adoption of the Plans by Participating Municipality, Thurston County will be the designated agent for the Participating Municipality for the administration of the Plans within Thurston County and shall have full authority to implement solid and hazardous waste management programs and services consistent with the Plans, for the Participating Municipality and the residents within the boundaries of the Participating Municipality, excluding the manner of collection and transfer of solid waste refuse within the corporate limits of those cities and towns which are the Participating Municipality. Such management shall be conducted in conformance with all state and federal laws and regulations. Included with such management shall be the carrying of public liability insurance with limits in accordance with standard practice. Thurston County shall indemnify and hold harmless the other Participating Municipalities and shall defend against any claims for personal injury or property damage arising out of Thurston County's management and operations of the solid waste programs set out under the Plan. Thurston County shall not indemnify, hold harmless, or defend any claims arising out of the actions of a Participating Municipality or any activities under a Participating Municipality's control.

Plans administration and government processes shall be set forth in more detail in the Plans as adopted.

3. FINANCING, FUNDS AND BUDGET

a. The costs of the Plans administration and implementation shall be administered through the County Solid Waste Fund. The fund shall be established and maintained through user fees, grants, gifts, loans and other lawful funding sources as outlined in the Plans and agreed upon between the Participating Municipality.

b. Thurston County shall continue to maintain a Solid Waste Fund as a dedicated enterprise fund within the County budget. All revenues and expenditures in connection with the Plans subject to this Agreement shall be budgeted and accounted for through this fund.

4. ACCOUNTING

Thurston County shall maintain accounts for the solid waste management program and the hazardous waste program in accordance with the requirements of the Washington State Auditor. Authorized representatives of any party hereto shall have the right to inspect the accounting concerning the solid and hazardous waste management programs at any reasonable time.

5. PROPERTY RIGHTS

Title to all property acquired with funds from the Solid Waste Fund shall vest in Thurston County. In the event of sale of any property acquired using the Solid Waste Fund, the proceeds from the sale shall be deposited in the Solid Waste Fund unless otherwise required by law, regulation, grant or contract.

6. ADMISSION OF NEW PARTIES

Additional municipal entities may be added to this Agreement upon such terms and conditions as the Participating Municipalities and the new party agree upon in writing.

7. EFFECT ON PRECEDING CONTRACT

This Agreement, upon its execution by all parties, supersedes prior Intergovernmental Agreement for the Thurston County Comprehensive Solid Waste Management Plan.

8. DURATION

This Agreement shall remain in effect for five (5) years from the effective date; or until replaced by a new intergovernmental agreement.

9. PLAN ADOPTION

The final Plan shall be adopted through Resolution of the Participating Municipality and the County. The Plan shall be reviewed and revised by the Plan Participants at least once every five (5) years following approval of the Plan by the Washington State Department of Ecology (Ecology). Any necessary revisions or amendments to the Plan will be accomplished through a process defined in the Plan.

10. EFFECTIVE DATE

This Agreement shall be effective following its execution by the Board of Thurston County Commissioners after execution by the Participating Municipality; and following the recording of this Agreement with the Thurston County Auditor, as required by RCW 39.34.

11. TERMINATION

After the Plan has been prepared and submitted to Ecology for final review, any Participating Municipality may terminate its involvement in this Agreement within 30 days following the 45 day final review period by Ecology. Should any participating Municipality not agree to adoption of the Plan, the Participating Municipality will not adopt the Plan and shall immediately begin preparing its own Municipal Solid Waste Management Plan for approval by Ecology in full accordance with all Plan regulations and guidelines.

This Agreement has been executed by each party on the date set forth below.

THURSTON COUNTY

Chairman, Board of County Commissioners

Date: April 9, 2013

CITY OF Yelm

Mayor

Date: 12/11/12

ATTEST:

Clerk of the Board

ATTEST:

City Clerk

APPROVED AS TO FORM:
BRENT DILLE

By: _____
Attorney

Approved: December 11, 2012
Effective Date: December 26, 2012

Thurston County
Prosecuting Attorney

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APPENDIX B

SITING FACTORS

INTRODUCTION

By State law, solid waste management plans are required to contain the following information to provide guidance for siting new solid waste disposal facilities. This requirement refers specifically to disposal facilities (landfills and incinerators). There are no plans to construct a new landfill or incinerator in Thurston County, but these criteria could also be considered in the siting of other solid waste facilities. It should be noted that part of the information shown below is from the Thurston County Comprehensive Plan.

SOLID WASTE FACILITY SITING FACTORS

RCW 70.95.090(9) and RCW 70.95.165 require that solid waste plans contain a review of the following factors that may affect the siting of disposal facilities:

(a) Geology
(b) Groundwater
(c) Soil
(d) Flooding
(e) Surface water
(f) Slope
(g) Cover material
(h) Capacity
(i) Climatic factors
(j) Land use
(k) Toxic air emissions
(l) Other factors as determined by Ecology

Geology, Soils and Slopes

The native soils and underlying geology are important considerations for solid waste management facilities. The appropriate type of soil differs depending on the type of facility, but any building or other structure must be built upon a stable foundation. Given the complicated nature of the soils in Thurston County, detailed studies will be necessary to evaluate potential sites for any future solid waste disposal facilities.

The major geologic hazards existing in Thurston County include the occurrence of seismic, landslide, and erosion events and processes. Seismic events are a normal occurrence in the Puget Sound Region and Thurston County has historically

experienced many earthquakes. In 2001, the county was shaken violently by a 6.8 earthquake centered near the mouth of the Nisqually River. While most of the county escaped with only minor damage, structures located on poorly consolidated fill and soils subject to liquefaction were severely damaged.

Erosion and landslides are other geologic hazards. Erosion is caused by the actions of wind, rain, and surface water on soils. Landslides can be caused in several ways including earthquakes, erosion, rain-saturated soils, and gravity. Although soil erosion and landslides are naturally occurring processes, they are aggravated when vegetation is removed, topography is modified, and surface water runoff is uncontrolled. These events are more pronounced in areas with steep slopes. Steep slopes and bluffs pose risk of landslides, especially where springs or stormwater undermine their stability. Areas with significant potential for landslides include marine bluffs, steep slopes and bluffs along streams, and steep slopes in Black Hills and Bald Hills. Steep slopes and unstable soils occupy about 13% of the county, and these are particularly subject to erosion, slippage, or settling in the event of earthquakes, rain saturation, or improper building practices. Maps of landslide hazard areas are available online through the county's GeoData Center.

For solid waste facilities, slopes pose problems for site development and for future access. Solid waste facilities could be located in areas that have significant slopes but these sites are more difficult to engineer and more costly to build on, in addition to the greater potential for erosion and landslides to occur, and so are generally avoided.

Groundwater

The distance to groundwater, measured in feet or in terms of the time that it takes for water to travel from the surface to the groundwater level, is an important factor for the siting of solid waste facilities. Shallow bodies of groundwater and/or fast travel times are a problem due to the risks associated with spills and contaminated runoff from waste facilities. Other factors such as the existing and potential beneficial uses of the groundwater are important factors to consider, especially if the groundwater is or could be used for drinking water. Agricultural uses (irrigation) depend on a relatively clean source of groundwater. Groundwater must be considered when siting or designing solid waste facilities because shallow groundwater can result in higher construction and maintenance costs, interfere with excavation, and require special foundations.

Most Thurston County residents rely on groundwater for their drinking water. Groundwater also provides almost all of the water used by industry and agriculture. In addition, during the dry season, groundwater sustains stream flows and dependent fish, aquatic life, and other wildlife.

Nearly all of the groundwater in Thurston County starts as rain that falls within the county. For the most part, the county's soils, even sloping and clay-rich soils, allow

rainfall to infiltrate into the local aquifers (i.e., layers of subsurface material with voids where the groundwater collects). However, the various parts of the county have very different aquifers. The northern and southeastern portions of Thurston County generally are underlain by four major aquifers stacked on top of each other with clay-rich confining layers between them. McAllister and Allison springs flow from these aquifers and serve as major water sources for the north county public water system. Much of southwestern Thurston County, however, is underlain by a single shallow aquifer with no confining layers, making it susceptible to contamination. Aquifers in the vicinity of Black Hills, Bald Hills, the Maytown uplands near Tenino, and Michigan Hill in the southwestern portion of the county are not reliable sources of potable water.

In some places, small ponds and streams are dry for significant portions of the year due to lowering of the groundwater levels in the upper aquifer. Deschutes River, Chehalis River, Yelm Creek, and Scatter Creek are all influenced to some degree by groundwater withdrawals. Population growth may require additional groundwater withdrawals to serve new residents. Care must be taken to ensure that these withdrawals do not result in reduced summer stream flows or elevated water temperatures that jeopardize the survival of fish or other aquatic life.

Groundwater in the county is of generally high quality, with some exceptions. Scattered leaks and spills of fuels and solvents have contaminated small areas of some aquifers. In several areas, wells have been contaminated by pesticides or nitrates, forcing their abandonment. A few areas in the county have nitrate levels that are significantly above background levels.

During wet winters, surfacing groundwater inundates substantial portions of the county, particularly in the Salmon Creek Basin south of the City of Tumwater. The county has adopted regulations to regulate development in proximity to these flood hazard areas to avoid property damage and groundwater contamination.

Flooding

Areas known to have experienced flooding are generally not acceptable sites for solid waste facilities. Solid waste facilities often entail risks not associated with other types of development, such as the potential to create contaminated runoff. Solid waste facilities must also remain operational during and after natural disasters such as floods in order to handle the large amount of debris that may be created.

Approximately 41.7 square miles of the county (about 7% of the unincorporated area) lie within 100-year floodplains (areas with a 1 in 100 chance of being flooded each year). Winter storms in 1996 and early 1997 produced flooding that destroyed more than two dozen homes in the county and inundated approximately 200 others, contaminated about 200 wells, caused numerous septic system failures, and closed 300 road segments. Losses totaled in excess of forty million dollars. In 1999, Thurston County adopted the Thurston County Flood Hazard Management Plan to establish

countywide management strategies to minimize the risks to life and property from flooding. In 2000, the county enrolled in the Community Rating System (CRS) through the National Flood Insurance Program. The CRS provides a framework for flood hazard mitigation and other activities to reduce the county's risk of flood damage. The county's current rating (2003) is Class 5, one of the highest ratings for a county in the nation. This rating enables residents and property owners within the unincorporated county to receive a 25% reduction in flood insurance rates.

Surface Water

Numerous rivers, creeks and small lakes are present throughout Thurston County. These bodies of water pose a serious constraint for locating solid waste facilities, since the facilities frequently present a possible risk of contamination for surface water. Regulatory standards (WAC 173-351-140) require that disposal facilities be located more than 200 feet from surface waters, which eliminates a substantial amount of land for a water-rich area such as Thurston County.

The county's water resources include four marine inlets (Budd, Eld, Henderson, and Totten) and the Nisqually Reach, all of which support shellfish beds, anadromous fish and a variety of other marine life and birds. The county also contains 108 lakes totaling approximately 6,343 acres. Alder Lake, a 1,117-acre reservoir on the Nisqually River, is the largest of the county's lakes. Black Lake, which spans 576 acres, is the county's largest natural lake. In addition, the county contains several rivers and numerous small streams, many of which support anadromous and resident fish. Most of Thurston County is located within three major drainage basins. The largest drains the southwest portion of the county through the Black, Skookumchuck, and Chehalis rivers, which eventually flow to the Pacific Ocean. The Deschutes River drains the central portion of the county before flowing through Capitol Lake to Puget Sound. The Nisqually River drains a narrow area along the county's eastern boundary enroute to the Nisqually Reach of Puget Sound. Several small streams, including Woodland, Kennedy, Woodard, Green Cove, Perry and McLane creeks, flow directly to Puget Sound.

Wetlands comprise nearly 10% of the county and perform the important functions of cleansing and slowly releasing stormwater, thereby improving water quality and moderating stream flows.

The county contains approximately 128 miles of marine shoreline along four peninsulas jutting into Puget Sound. This shoreline includes high bluffs, beaches, spits, points, barrier berms, and a delta at the mouth of the Nisqually River.

Cover Material

Cover and liner materials are important because their presence on-site at landfills and other disposal facilities will reduce the cost of construction, operation and maintenance. Cover materials are required to ensure that waste materials are

securely buried and to prevent gas and odors from being released in an uncontrolled fashion, while liners are needed below the landfill to contain the leachate that is created by the wastes in the landfill. Silt and clay can be used for liners and cover, while coarser materials (sand and gravel) can be used for gas venting, leachate collection and road construction. A variety of materials can be used for intermediate cover. In the absence of naturally-occurring materials, however, synthetic materials can be used instead.

Capacity

The intended capacity of a waste disposal facility will affect the number of potential locations that can be used for it. It is generally easier to find an acceptable parcel of land for smaller facilities. Conversely, there are significant economies of scale for all waste disposal facilities, and the base cost per ton for waste brought to a small facility will be much higher than for a larger facility.

Climatic Factors

Climatic factors can have a number of impacts on the operation of a solid waste facility. Violent wind storms, the amount of rain and snowfall, extreme heat and other factors will influence the design and preferred locations for waste disposal facilities. The general area that Thurston County is located in receives little snow but does receive significant amounts of rainfall annually, making the area generally less desirable for landfill siting than drier areas in eastern Washington and Oregon. The area also receives an occasional wind storm or freezing rain that could potentially disrupt solid waste facility operations.

Land Use

The cities and Tribes also have land use plans, zoning codes and other policies and regulations that may affect land use and development. Other special considerations may apply to specific sites and/or specific types of facilities. The Federal Aviation Administration has stipulated that landfills cannot be located within 6 miles of an airport unless a waiver is obtained. Because birds that are attracted to landfills pose a hazard to aircraft, the granting of this waiver is dependent upon the magnitude of the anticipated bird population. Areas designated as critical habitat by responsible agencies (i.e., the U.S. Fish and Wildlife Service and Washington State Department of Wildlife) are considered regulatory exclusions for landfill siting. Information concerning such areas is available from the appropriate State and Federal wildlife management agencies.

Significant portions of the county have been set aside as open space and recreation areas, and thus would not be easily available for a solid waste facility. The Growth Management Act requires that the Thurston County Comprehensive Plan identify "open space corridors within and between urban areas." These open space corridors are to include "lands useful for recreation, wildlife habitats, trails, and connection of critical areas." Planning Goal 9 of the Act states "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 addition, the County-wide Planning Policies call for the county to: "Maintain significant wildlife habitat and corridors" and "provide for parks and open spaces." The Important Greenspaces Map (M-31) in the Thurston County Comprehensive Plan identifies areas important for recreation, water quality protection, trails, open space and resource use (i.e., long term forestry and agriculture) within and adjacent to the county.

Air Emissions and Air Quality

Siting and operating a new landfill or other solid waste facility could impact air quality. Dust, gases, odors, particulates and vehicle emissions are all potentially increased by landfills and other disposal operations. In certain cases, however, the centralization of such emissions may be preferable to the impacts caused by other options. Any proposal would need to be examined for the net impact on air quality.

The county's air quality is generally good due to climate, physiography, and the limited number of particulate producing industries.

Other Factors as Determined by Ecology

There are no additional factors that have been requested by Ecology to be addressed.

Summary of Siting Factors

Based on the above discussion of siting factors, it can be concluded that only limited portions of Thurston County would be available for siting a new solid waste disposal facility such as a landfill or incinerator. A more detailed analysis of siting factors is not being provided at this time because there are no plans to site a new solid waste disposal facility in Thurston County. Any new facilities developed in the future will need to meet the State and local standards current at that time.

APPENDIX C

UTC RESIDENTIAL GARBAGE AND RECYCLING CONSUMER GUIDE

INTRODUCTION

The following consumer guide was published by the Washington Utilities and Transportation Commission (UTC). It is being included here to provide supplemental information about the garbage and recycling system that is used in much of Thurston County.

Consumer Guide
Residential Garbage and Recycling

WASHINGTON
UTC
UTILITIES AND TRANSPORTATION COMMISSION

Garbage and Recycling

This guide contains answers to the most frequently asked questions from customers of garbage and recycling companies regulated by the Utilities and Transportation Commission (commission).

In Washington, solid waste and recycling collection is a regulated "monopoly" industry. Prior to 1961, these companies were regulated as trucking companies. As a result, they could pick the most lucrative markets, leaving some unincorporated counties without solid waste collection services, or charging much higher rates for county customers to receive garbage service.

The state Legislature, by law, created exclusive solid waste territories so that all customers would receive basic solid waste services. There were two reasons for this decision: to create universal garbage service for all customers; and to enhance safety by limiting the number of garbage trucks driving in residential areas and on the roads.

The commission regulates the rates and services of privately-owned garbage and recycling companies.

If your service is provided by city employees or by a company under contract with a city or county, these answers do not apply. Instead, you should contact your city or county's solid waste department for assistance.

For a list of regulated companies in Washington please visit www.utc.wa.gov/solidwaste.

Questions and Answers About Your Services

Can a solid waste company refuse to provide me service?

Yes. A solid waste company may refuse to provide service for any of the following reasons:

- Noncompliance with state, county or municipal laws concerning solid waste services, i.e., not using a proper solid waste container.
- The company decides that conditions are hazardous or impractical to provide service due to inclement weather, disasters or the truck cannot drive down certain roads due to the weight of the truck or rough roads.

- Your payment is overdue with the company for the same type of service at the same or a different address.
- Someone else currently living with you has an overdue bill with the company; has not made satisfactory arrangements for payment of the overdue bill; and the company has objective evidence that you are helping the prior customer to avoid payment.
- You deceptively obtained service.
- The company determines there are unsafe conditions that prevents it from safely collecting the garbage. This may include a dangerous animal being loose, or hazardous road conditions.
- Garbage containers are not accessible from the street, alley or road.
- The company judges that driveways or roads are not maintained; turnarounds are too small for the garbage truck to safely negotiate; or there are other unsafe conditions.
- Garbage cans exceed capacity or weight limits set forth in the company's tariff.

A company cannot refuse service if the former occupant has an unpaid bill.

Can the company skip a pickup due to poor weather conditions?
Yes. A pickup may be missed due to hazardous weather or road conditions. You can set the missed garbage out for the next regularly scheduled pick up at no extra cost.

Does the company have the right to discontinue my service if I don't pay my bill on time?
Yes. You may lose service if you fail to pay your bill or make payment arrangements, or if you have violated the rules or service agreements agreed upon at the time you began service.

Will I receive notice before discontinuance of my garbage service?
The company must mail or personally deliver a written notice to your address before it can discontinue garbage or recycling pickup. The company must wait eight business days following the mailing before stopping service if the notice was mailed from within Washington, 11 business days if mailed from outside Washington. If the company personally delivers the notice, it may discontinue service after one full business day following delivery. Before discontinuing service, the company must make at least one additional attempt to reach you either in person or at least twice by telephone. The company may also put a notice on your garbage can, container or drop box. This notice is in addition to the first written notice and must be made at least 24 hours before service is discontinued. If you don't feel you were properly notified, ask to speak with a supervisor at the company. If you are still not satisfied, call the commission's Consumer Protection Help Line toll-free at 1-888-333-WUTC (9882).

How do I make a complaint against my garbage company?
Contact the company first and attempt to resolve the complaint. If the company representative is unable to resolve your dispute, ask to speak with a supervisor. If, after speaking with the supervisor, you are still dissatisfied; call the commission. You may file a complaint by calling the commission's toll-free Consumer Help Line at 1-888-333-WUTC (9882) or consumer@utc.wa.gov. Consumer Protection staff will contact the company on your behalf and work with the company to attempt to resolve your dispute.

Do I have to pay a deposit for solid waste collection service?

Homeowners and customers with good credit records will not have to pay a deposit. Customers without a satisfactory credit rating might be required to pay a deposit before service begins. The following examples are conditions that may require a deposit:

- You owe an unpaid, overdue balance to another garbage collection company.
- You received two or more delinquent notices from your prior company in the previous twelve months.
- Another occupant at your address has an overdue bill owed to the company.
- You lost garbage service within the last 12 months for failure to pay.

How much can I expect the deposit to be?

The amount of deposit depends on the type of service you have and whether the company bills monthly, every other month, or quarterly. Example: You sign up for one-can weekly service. If the company's billed monthly rate for service is $10, your deposit will be $20.

The deposit schedule is:

- If the company bills monthly, your deposit is two months estimated service cost.
- If the company bills every other month, your deposit is three months of estimated service cost.
- If the company bills quarterly, your deposit is four months of estimated service cost.

When will I get my deposit back?

After prompt payment of your bill for 12 consecutive months, you will receive repayment of the deposit by a refund or applying the amount of the deposit to your account balance plus interest. Prompt payment means you cannot have received more than two past-due notices in the previous twelve months.

What if I am unable to pay a deposit?

Your company must make payment arrangements with you for the deposit. The company must allow the option of paying one-half of the deposit prior to receiving service, and paying the remaining balance of your deposit in two equal payments over a two month period.

Rates

How can I learn more about the rates my company charges?

Commission approved rates are kept in a company's tariff. A tariff is a document that outlines the rates, services, terms and conditions of service. The commission's Web site, www.utc.wa.gov, has companies' tariffs online or you may contact your company and they will send you a copy of their tariff upon request. You can also view a company's tariff at their office.

How is my garbage rate determined?

Many factors contribute to the cost of garbage services, including: disposal fees; equipment costs; drivers' wages; taxes; compliance with local regulations; and administrative expenses. If any of these costs change, your company must seek approval from the commission to change rates and you will receive a notice of the company's intent to increase rates. You will be asked to comment on the proposed increase, which is your opportunity to be involved in the commission's decision-making process.

How can I get more information about a pending rate increase?

Call the commission toll-free at 1-888-333-WUTC (9882) for information about participating in the commission's rate-setting process and information about a specific rate case. Commission staff can place you on a mailing list that will automatically notify you of a public meeting regarding the proposed increase.

How does the commission decide whether to approve a rate change?

Commission staff examines all rate change proposals to determine whether the request is fair, just, reasonable and sufficient. This review includes an audit of the company's expenses, and consideration of public comments. Following this review, staff makes a recommendation to the three-member commission at a public meeting at which customers may also speak about the proposal. The commission may approve changes proposed by the company, grant lower rates or postpone the rate increase for further investigation.

What information should be on my bill?

All solid waste bills must show:

- The billing period;
- The mailing date, due date and when the bill becomes delinquent;
- The company name, address and telephone number;
- The amount and percentage of each tax or fee;
- Each service listed as a separate line item;
- The total amount due; and
- A late payment fee, if applicable.

Can the company assess a late payment charge?

Yes, if the company has a late payment charge in its tariff.

How can I lower my garbage bill?

Contact your company to determine what service level options are available. By recycling, you may be able to reduce your garbage amount and move to a smaller container. To find out more about recycling options, contact your company or you may call the Washington State Department of Ecology at 1-800-RECYCLE (1-800-732-9253).

How can I get rid of household hazardous waste?

Contact your county for assistance. Many times they will accept solvents, unused paint, concrete and acids at different disposal sites. Do not put hazardous waste in with your regular garbage. There are special handling standards for the collection and disposal of these materials in federal, state and local rules.

Contact the Commission

Consumer Help Line
1-888-333-WUTC (9882) toll free
consumer@utc.wa.gov

General Information
(360) 664-1160
info@utc.wa.gov

www.utc.wa.gov

1300 S. Evergreen Park Drive SW
P.O. Box 47250
Olympia, WA 98504-7250

To request availability of commission publications in alternate formats call: (360) 664-1133 or TTY: 1-800-416-5289 (toll free)

Consumer Help Line
1-888-333-WUTC (9882)

PO Box 47250
1300 S Evergreen Park Dr SW
Olympia, WA 98504

(360) 664-1160
(360) 586-1150 Fax
consumer@utc.wa.gov
www.utc.wa.gov

APPENDIX D
UTC COST ASSESSMENT QUESTIONNAIRE

INTRODUCTION

By State law (RCW 70.95.090), solid waste management plans are required to include:

> "an assessment of the plan's impact on the costs of solid waste collection. The assessment shall be prepared in conformance with guidelines established by the Utilities and Transportation Commission. The Commission shall cooperate with the Washington State Association of Counties and the Association of Washington Cities in establishing such guidelines."

The following cost assessment has been prepared in accordance with the guidelines developed by the Utilities and Transportation Commission (UTC). The purpose of this cost assessment is to allow an assessment of the impact of proposed activities on current garbage collection and disposal rates, and also to allow projections of future rate impacts as well. The UTC needs this information to review the potential impact of this Solid Waste Management Plan (SWMP) to the certificated waste haulers that it regulates. For these haulers, UTC is responsible for setting collection rates and approving proposed rate changes. Hence, the UTC will review the following cost assessment to determine if it provides adequate information for rate-setting purposes, and will advise Thurston County as to the possible collection rate impacts of proposed programs. Consistent with this purpose, the cost assessment focuses primarily on those programs with potential rate impacts.

COST ASSESSMENT QUESTIONNAIRE

PLAN PREPARED FOR: Thurston County

PREPARED BY: Rick Hlavka, Green Solutions

CONTACT TELEPHONE: 360-897-9533

DATE: June 26, 2017

DEFINITIONS

These definitions as used in the Solid Waste Management Plan and the Cost Assessment Questionnaire.

Throughout this document:
YR.1 shall refer to 2018.
YR.3 shall refer to 2020.
YR.6 shall refer to 2023.

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

1. DEMOGRAPHICS:

1.1 Population

1.1.1 What is the **total** population of your County?

YR.1: 279,450 YR.3: 288,265 YR.6: 300,060

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

YR.1: 279,450 YR.3: 288,265 YR.6: 300,060

1.2 References and Assumptions

Population figures are taken from Table 2-2 of the Thurston County Solid Waste Management Plan, Preliminary Draft, June 2016.

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

2.1 Tonnage Recycled

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

YR.1: 122,420 YR.3: 126,080 YR.6: 131,580

2.2 Tonnage Disposed

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

YR.1: 230,240 YR.3: 237,130 YR.6: 247,460

2.3 References and Assumptions

All recycling and disposal tonnages are projected, and are from Table 2-11 of the Thurston County Solid Waste Management Plan, Preliminary Draft, June 2017. Disposed tonnages are projected based on the 2006 disposal rate.

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

3.1 Waste Reduction Programs

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

IMPLEMENTED

Various existing activities are already being conducted for waste reduction, see Chapter 3 for details.

PROPOSED

Additional waste reduction activities proposed in the plan include:

- develop measures to more fully evaluate the impacts of waste reduction.
- review the County's minimum service-level ordinance for consistency with waste reduction goals.
- work with community partners to enhance the countywide capacity of the food donation system in Thurston County.
- build on the success of the WasteLessFood program to translate awareness of the negative impacts of wasting food into behavior change at home, and advocate for changes in the way food is managed by local businesses, institutions, and schools.
- promote the expanded use of food waste prevention technologies.
- support policies and legislation that would make it easier for businesses to safely donate food.
- provide technical assistance to schools for waste reduction policies, with an increased focus on waste prevention.
- provide K-12 classroom presentations, and other youth outreach programs on waste prevention and other issues.
- partner with youth-oriented groups and organizations to incorporate waste reduction into their services and programming.
- provide technical assistance to businesses for waste reduction and continue to provide technical assistance for businesses to minimize the generation of hazardous wastes.
- perform periodic business waste reduction and recycling surveys.
- promote the availability of existing facilities that accept used building materials for reuse and support the expansion of these services.
- evaluate alternative funding strategies that reduce reliance on disposal fees and ensure the long-term viability of waste reduction and recycling programs.
- promote waste reduction and recycling programs by strengthening partnerships with other county departments and other agencies.

3.1.2 What are the costs, capital costs and operating costs for waste reduction programs implemented and proposed?

IMPLEMENTED

YR.1: NA YR.3: NA YR.6: NA
Budget figures specific to waste reduction activities are not available.

PROPOSED

YR.1: NA YR.3: NA YR.6: NA
Additional costs for new activities will largely consist of existing staff and other expenses to be determined annually.

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

Implemented		
Year 1	Year 3	Year 6
Tipping Fees and CPG Funds	Tipping Fees and CPG Funds	Tipping Fees and CPG Funds
Proposed		
Year 1	Year 3	Year 6
Tipping Fees and CPG Funds	Tipping Fees and CPG Funds	Tipping Fees and CPG Funds

3.2 Recycling and Organics Programs

3.2.1 Proposed or implemented recycling and organics programs:

IMPLEMENTED

Existing recycling and organics programs are extensive and are managed by several different parties, see Chapters 3 and 4 for more details.

PROPOSED (see Sections 3.6 and 4.5)

Additional recycling and organics activities proposed in the plan include:

- achieve a 49% recovery rate by 2020.
- develop measures to more fully evaluate the impacts of recycling.
- evaluate options to increase participation in recycling and organics collection programs.
- provide technical assistance to schools for recyclables and organics.
- evaluate options to expand educational opportunities at the Waste and Recovery Center (WARC).
- partner with school-related groups to promote County programs and services.
- provide technical assistance to businesses to establish cost-effective and sustainable collection programs for recyclables and organics.
- promote the availability of existing C&D recycling facilities.
- evaluate options to increase the recovery of C&D materials at the WARC.
- collaborate with building and planning departments to explore options to increase the recovery of C&D materials.
- promote existing product stewardship programs, such as for electronic wastes and fluorescent light bulbs.
- support legislative work to pass new product stewardship laws,
- identify and support the development of new or expanded markets for locally generated materials such as glass and mattresses.

- promote sustainable procurement within Thurston County government.
- continue to identify materials that could potentially be recycled.
- provide a core set of general promotion and outreach services, based upon on the waste management hierarchy.
- incorporate sustainability practices into education and outreach efforts.
- coordinate messaging with other jurisdictions and service providers.
- evaluate options to more effectively provide education and outreach materials at the WARC and rural facilities.
- evaluate options to increase recovery of wood waste.
- provide education and outreach to reduce contamination in organics.
- reduce contamination in the mixed organics delivered to the WARC.
- work with Ecology, haulers and processors, public agencies, and the private sector to help develop and promote the use of compost and other end-products produced from organic wastes.
- evaluate alternative technologies to divert organics from disposal.

3.2.2 Costs for recycling and organics programs implemented and proposed.

IMPLEMENTED

The costs for existing recycling and organics programs are incurred by a variety of parties. The County's expenses are included in the operating costs for the transfer facilities plus administration expenses (staffing). Other costs are incurred by residential and commercial customers.

PROPOSED

Additional costs for new activities will largely consist of existing staff and other expenses to be determined annually.

3.2.3 Funding mechanism(s) that will pay the cost of the programs in 3.2.2.

Implemented		
Year 1	Year 3	Year 6
Garbage Rates, Other User Fees, Grants and Tipping Fees	Garbage Rates, Other User Fees, Grants and Tipping Fees	Garbage Rates, Other User Fees, Grants and Tipping Fees
Proposed		
Year 1	Year 3	Year 6
Garbage Rates, Other User Fees, Grants and Tipping Fees	Garbage Rates, Other User Fees, Grants and Tipping Fees	Garbage Rates, Other User Fees, Grants and Tipping Fees

3.3 Solid Waste Collection Programs

3.3.1 Regulated Solid Waste Collection Programs

UTC Regulated Hauler Name Waste Connections (dba LeMay Enterprises, Pacific Disposal, Joe's Refuse, Butlers Cove Refuse and Rural Refuse)
G-permit # G-98

	YR. 1	YR. 3	YR. 6
RESIDENTIAL			
- # of Customers	56,290	57,970	60,470
- Tonnage Collected	49,100	50,600	52,800
COMMERCIAL			
- # of Customers	3,340	3,440	3,590
- Tonnage Collected	45,900	47,300	49,300

3.3.2 Other (non-regulated) Solid Waste Collection Programs

Hauler Name City of Olympia

	YR. 1	YR. 3	YR. 6
RESIDENTIAL (includes Multi-Family)			
- # of Customers	14,950	15,400	16,100
- Tonnage Collected	11,100	11,400	11,900
COMMERCIAL			
- # of Customers	1,460	1,510	1,580
- Tonnage Collected	16,500	17,000	17,800

3.4 Energy Recovery & Incineration (ER&I) Programs

NA, no such facilities.

3.5 Land Disposal Program

NA, no such facilities.

3.6 Administration Program

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

Budgeted Cost

YR.1: $3,200,000 YR.3: $3,200,000 YR.6: $3,200,000

Funding Source

YR.1: tipping fees YR.3: tipping fees YR.6: tipping fees

3.6.2 Which cost components are included in these estimates?

Expenses that are included under administration costs include staffing, insurance, consultants, health department support, and other support.

3.6.3 Please describe the funding mechanism(s) that will recover the cost of each component.

Tipping fees.

3.7 Other Programs

For each program in effect or planned which does not readily fall into one of the previously described categories please answer the following questions.

NA, no such programs.

3.8 References and Assumptions (attach additional sheets as necessary)

For Section 3.3, the number of customers for the waste collection systems have been projected based on the number of customers in 2015 (see Tables 5-3, 5-4 and 5-5 of the Thurston County Solid Waste Management Plan, Preliminary Draft, June 2016) and escalated based on population growth. Population growth for the City of Olympia was projected assuming a 1.5% annual increase (per the City's solid waste plan), with the population in the rest of the county projected based on the overall county growth (see Table 2-2 of the Thurston County Solid Waste Management Plan, Preliminary Draft, June 2016) minus the City of Olympia's growth. Tonnages are based on the 2014 Waste Composition Study and are projected based on population growth.

For Section 3.6.1, the cost for administration is based on the 2018 budget and are assumed to remain the same because future budgets have not been determined yet.

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

4.1 Funding Mechanisms (Summary by Facility)

The following tables provide information on funding sources for programs and activities.

Table 4.1.1 Facility Inventory

Facility Name	Type of Facility	Tip Fee per Ton	Transfer Cost	Transfer Station Location	Final Disposal Location	Total Tons Disposed (2014)	Total Revenue Generated (2016 figures)
Waste and Recovery Center (WARC)	Transfer Station	$119.00	Transfer to railhead for waste export system included in operating costs	2420 Hogum Bay Road, Lacey	Waste export system to Roosevelt Landfill	155,200	$22,954,393
Rainier Drop-box	Drop box	$18.00 per yard	Short haul expense is included in operating costs	13010 Rainier Acres Road SE, Rainier	Transferred to WARC, then exported to Roosevelt Landfill	1,782	$266,835
Rochester Drop-box	Drop box	$18.00 per yard	Short haul expense is included in operating costs	16500 Sargent Road, Rochester	Transferred to WARC, then exported to Roosevelt Landfill	1,861	$282,639

Table 4.1.2 Tip Fee Components

Tip Fee by Facility	Sur-charge	City Tax	County Tax	Transportation Cost	Operational Cost	Administration Cost	Closure Costs
Waste and Recovery Center (WARC)	0	0	0	see op. cost	$15,979,345	see below	see below
Rainier Drop-box	0	0	0	see op. cost	$167,918	see below	see below
Rochester Drop-box	0	0	0	see op. cost	$190,149	see below	see below
All sites together	0	0	0	see op. cost		$1,432,309	$1,682,145

Table 4.1.3 Funding Mechanism

Name of Program Funding Mechanism will defray costs	Bond Name	Total Bond Debt	Bond Rate	Bond Due Date	Grant Name	Grant Amount	Tip Fee	Taxes	Other	Surcharge
Waste and Recovery Center (WARC)	NA				CPG	$187,200	$22,954,393		$27,00	
Rainier Drop-box							$266,835			
Rochester Drop-box							$282,639			

Table 4.1.4 Tip Fee Forecast

Tip Fee per Ton by Facility	2018	2019	2020	2021	2022	2023
Waste and Recovery Center (WARC)	$119.00	TBD	TBD	TBD	TBD	TBD
Rainier Drop-box	$18.00 per yard	TBD	TBD	TBD	TBD	TBD
Rochester Drop-box	$18.00 per yard	TBD	TBD	TBD	TBD	TBD

4.2 Funding Mechanisms

The following tables provide information on the anticipated source of funds (by percentage) for various activities for the next six years.

Table 4.2.1 Funding Mechanism by Percentage - Year One

Component	Tip Fee %	Grant %	Bond %	Collection Tax %	Rates and Charges %	Other %	Total
Waste Reduction	75	25					100%
Recycling	5				95		100%
Collection					100		100%
ER&I							NA
Transfer/Export	100						100%
Land Disposal	100						100%
Administration	100						100%
Litter Cleanup	100						100%
HHW Facility	95				5		100%

Table 4.2.2 Funding Mechanism by Percentage - Year Three

Component	Tip Fee %	Grant %	Bond %	Collection Tax %	Rates and Charges %	Other %	Total
Waste Reduction	75	25					100%
Recycling	5				95		100%
Collection					100		100%
ER&I							NA
Transfer/Export	100						100%
Land Disposal	100						100%
Administration	100						100%
Litter Cleanup	100						100%
HHW Facility	95				5		100%

Table 4.2.3 Funding Mechanism by Percentage - Year Six

Component	Tip Fee %	Grant %	Bond %	Collection Tax %	Rates and Charges %	Other %	Total
Waste Reduction	75	25					100%
Recycling	5				95		100%
Collection					100		100%
ER&I							NA
Transfer/Export	100						100%
Land Disposal	100						100%
Administration	100						100%
Litter Cleanup	100						100%
HHW Facility	95				5		100%

4.3 References and Assumptions

In Table 4.1.1, the tip fees shown are current as of mid-2016. Tonnage figures are form 2014. Revenues are budgeted 2016 figures.

Data in Table 4.1.2 is based on the 2016 budget.

For Table 4.1.4, information on future tipping fees is not available at this time and hence are shown as TBD (to be determined).

For Tables 4.2.1 through 4.2.3, the programs included under waste reduction are primarily the activities conducted by Thurston County, including general public education expenses. For recycling, activities include curbside programs and publicly-supported drop-off programs. For land disposal expenses, there are no public facilities currently operating in the county but a small amount of expenses are still being incurred for closure and monitoring of old landfills. Expenses for future years are assumed to remain the same as in the current year.

4.4 Surplus Funds

The solid waste enterprise fund has experienced a surplus of about $1,500,000 per year for the past three years.

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APPENDIX E

SEPA CHECKLIST

INTRODUCTION

This appendix contains the environmental checklist required by the State Environmental Policy Act (SEPA). The purpose of the checklist is to provide information on the environmental impacts of the activities proposed by this Solid Waste Management Plan (SWMP). Much of this checklist addresses only the general concerns related to the County's solid waste system, but specific actions proposed by this SWMP are addressed as appropriate. One or more of the activities discussed in the SWMP may require separate SEPA processes when implementation plans are more fully developed.

THURSTON COUNTY
RESOURCE STEWARDSHIP
ENVIRONMENTAL CHECKLIST

"USE BLACK INK ONLY"

*** * * * OFFICIAL USE ONLY * * * ***

Folder Sequence # _____

Project # : _____

Related Cases: _____

Date Received: _____ By: _____

*** * * * OFFICIAL USE ONLY * * * ***

1. Applicant: Thurston County Public Works
   Address: 9605 Tilley Road S STE C
   Phone: _____
   Cell: _____
   E-Mail Address: _____

2. Point of Contact: Trevin Taylor
   Address: 9605 Tilley Road STE C
   Phone: (360) 867-2328
   Cell: (360) 545-7422
   E-Mail Address: taylort@co.thurston.wa.us

3. Owner: N/A
   Address: _____
   Phone: _____
   Cell: _____
   E-Mail Address: _____

4. Property Address or location:

   N/A

5. Quarter/Quarter Section/Township/Range: County Wide

6. Tax Parcel #: _____

7. Total Acres: _____

8. Permit Type: _____

9. Zoning: _____

10. Shoreline Environment: _____

11. Water Body: _____

12. Brief Description of the Proposal and Project Name:

    Thurston County has written a Solid Waste Management Plan (SWMP). This document was developed in response to the Solid Waste Management Act, State Law (RCW 70.95.094)

13. Did you attend a presubmission conference for this project? ☐ Yes ☒ No

    If yes, when? _____

14. Estimated Project Completion Date: 2018 DOE will provide final approval

15. List of all Permits, Licenses or Government Approvals Required for the Proposal (federal, state and local--including rezones):

    The SWMP Report was written to meet compliance with Solid Wate Managment Act RCW 70.95.094

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

    This SEPA application is for the review of a long range solid waste managment and disposal plan/written report. This SEPA process is part of the SWMP Report's formal public outreach and notification.

17. Do you know of any plans by others which may affect the property covered by your proposal? If yes, explain:

    N/A

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

    The SWMP will go through public review starting with the State Environmental Policy Act (SEPA). The first phase of the SEPA review is a 30 day public review followed by a 14 day review period for the determination of significance. 45 days is the expected time period for this phase of the SWMP Report's review. Washington Department of Ecology (DOE) will provide the final approval in 2018.

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

    The SWMP report is a stand alone document.

THURSTON COUNTY
RESOURCE STEWARDSHIP

ENVIRONMENTAL ELEMENTS

To be Completed by Applicant

Evaluation for Agency Use Only

1. **Earth**

   a. General description of the site (check one):

   - ☐ Flat
   - ☐ Rolling
   - ☐ Hilly
   - ☐ Steep Slopes
   - ☐ Mountainous
   - ☒ Other: This is a written report no land is under construction

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

   N/A

   c. What general types of soils are found on the site (for example, clay, sand gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

   N/A

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

   N/A

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

   N/A

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

   N/A

To be Completed by Applicant

Evaluation for Agency Use Only

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

N/A

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

N/A

2. **Air**

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

Recommendations within the SWMP do not lead to significant change to air emissions.

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

N/A

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

N/A

3. **Water**

a. Surface

(1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

N/A

To be Completed by Applicant

Evaluation for Agency Use Only

(2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

N/A

(3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

N/A

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

N/A

(5) Does the proposal lie within a 100-year flood plain? If so, note location on the site plan.

N/A

(6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

N/A

b. Ground

(1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximately quantities if known.

N/A

To be Completed by Applicant

Evaluation for Agency Use Only

(2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: domestic sewage; industrial, containing the following chemicals; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

N/A

c. Water Run-off (including stormwater)

(1) Describe the source of runoff (including stormwater) and method of collection and disposal, if any (include quantities, in known). Where will this water flow? Will this water flow into other waters? If so, describe.

N/A

(2) Could waste materials enter ground or surface waters? If so, generally describe

N/A

(3) Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

N/A

4. **Plants**

a. Check the types of vegetation found on the site:

☒ **Deciduous tree:** ☒ alder ☒ maple ☒ aspen ☐ other _____

☒ **Evergreen tree:** ☒ fir ☒ cedar ☒ pine ☐ other _____

☒ **Shrubs**

☒ **Grass**

☒ **Pasture**

☒ **Crop or grain**

☒ **Wet soil plants:** ☒ cattail ☒ buttercup ☒ bulrush ☒ skunk cabbage other _____

☒ **Water plants:** ☒ water lily ☒ eelgrass ☒ milfoil ☒ other

Other types of vegetation _____

To be Completed by Applicant

Evaluation for Agency Use Only

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

N/A

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

N/A

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

N/A

5. **Animals**

a. Check any birds and animals which have been observed on or near the site or are known to be on or near the site:

☒ **Birds:** ☒ hawk, ☒ heron, ☒ eagle, ☒ songbirds,
☐ other: _____

☒ **Mammals** ☒ deer, ☒ bear, ☒ elk, ☒ beaver,
☐ other: _____

☒ **Fish:** ☒ **bass,** ☐ **salmon,** ☒ **trout,** ☒ **herring,** ☒ **shellfish,**
☐ other: _____

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

N/A

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

N/A

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

N/A

To be Completed by Applicant

Evaluation for Agency Use Only

6. **Energy and Natural Resources**

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

The report's recommendations will result in a minor amount of additional electrical power use.

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

N/A

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any

N/A

7. **Environmental Health**

a. Are there are any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

The SWMP recommendations reduce exposure to toxic materials and health hazards.

(1) Describe special emergency services that might be required.

N/A

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

N/A

To be Completed by Applicant

Evaluation for Agency Use Only

b. Noise

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

N/A

(2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

N/A

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

N/A

8. **Land and Shoreline Use**

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

N/A

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

N/A

c. Describe any structures on the site.

N/A

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

N/A

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

N/A

To be Completed by Applicant

Evaluation for Agency Use Only

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

N/A

g. If applicable, what is the current Shoreline Master Program designation of the site?

N/A

h. Has any part of the site been classified an "environmentally sensitive" area? If so, specify.

N/A

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

N/A

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

N/A

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

N/A

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

N/A

9. **Housing**

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

N/A

To be Completed by Applicant

Evaluation for Agency Use Only

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

N/A

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

N/A

10. **Aesthetics**

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

N/A

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

N/A

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

N/A

11. **Light and Glare**

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

N/A

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

N/A

To be Completed by Applicant

Evaluation for Agency Use Only

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

N/A

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

N/A

12. **Recreation**

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

N/A

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

N/A

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

N/A

13. **Historic and Cultural Preservation**

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

N/A

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

N/A

To be Completed by Applicant

Evaluation for Agency Use Only

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

N/A

14. **Transportation**

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

N/A

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

N/A

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

N/A

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

N/A

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

N/A

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

N/A

To be Completed by Applicant

Evaluation for Agency Use Only

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

N/A

15. **Public Services**

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

N/A

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

N/A, does not apply to any specific work site within this plan.

16. **Utilities**

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

N/A, does not apply to any specific work site within this plan.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

N/A, does not apply to any specific work site within this plan.

17. **Signature**

a. The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Print Name _____

Date Submitted _____ Signature: _____

THURSTON COUNTY
SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS
(Do not use this sheet for project actions)

Non-project proposals are those which are not tied to a specific site, such as adoption of plans, policies, or ordinances.

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment. When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

To be Completed by Applicant

Evaluation for Agency Use Only

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

   The SWMP makes recommendations to decrease: discharge to water,air and the handling of toxic/hazardous substances. No substantial change in regard to noise is a result of this report.

   Proposed measures to avoid or reduce such increases are:

   N/A

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

   No significant impacts to plant, animal, fish, or marine life as result of this report.

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

   N/A

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

   A small amount of electrical energy will be used to implement the SWMP.

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

   N/A

To be Completed by Applicant

Evaluation for Agency Use Only

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

   No substantial impacts to environmentally sensitive or other protected areas will result from the recommendations in the SWMP.

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

   N/A

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

   No substantial impacts to land and shoreline use result from the recommendations in the SWMP.

   Proposed measures to avoid or reduce shoreline and land use impacts are

   N/A

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

   Minor changes are proposed for public services and to several aspects of the waste collection system.

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

   None

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

   The SWMP is meant to comply with State requirements for the proper management of solid waste. The SWMP will comply with applicable local, state and federal laws in regard to environmental protection.