

## Solid Waste Work Group White Paper



## **Solid Waste Work Group**

The Solid Waste Work Group is one of eleven panels or work groups created to explore various topics for the Regional Plan for Sustainable Development. This white paper was drafted by TRPC staff and reviewed by staff from: Thurston County Public Works, Olympia Public Works, and the Thurston County Public Health and Social Services - Environmental Health Division.

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Results from this white paper will be forwarded to the Regional Plan for Sustainable Development – Task Force.

It is the role of the Task Force to blend the input from the various panels into a coordinated document for the entire region.

## ABOUT THE SUSTAINABLE THURSTON PROJECT

This community conversation comes at a time when the issues of economic resilience and efficiency are foremost in our minds. Our region – its households, governments, nonprofits and business are making the most of resources in order to maintain quality of life and build toward a more resilient economy, society and environment.

This region and its 29 public and private sector partners successfully competed for a Sustainable Communities Regional Planning Grant from Federal Housing and Urban Development, Department of Transportation, and the Environmental Protection Agency. Their interest in making these grants possible is to encourage regions to incorporate livability principles into sustainability plan discussions since these are proving to be essential to the creation of resilient communities.

The Sustainable Thurston Plan will build upon:

- 1) **Thurston Region Population Projections estimated to add 120,000 additional residents between 2010 and 2035**
- 2) **Existing state, regional and local plans** as the base scenario for plan discussion and analysis
- 3) **Livability Principles**
  - Provide more transportation choices
  - Promote equitable affordable housing
  - Enhance economic competitiveness
  - Support existing communities
  - Coordinate policies and leverage investment
  - Value communities and neighborhoods

About Sustainable Thurston Panels

The Sustainable Thurston Plan process begins with information development through a series of “white papers” produced by panels and work groups and reviewed by the Sustainable Thurston Task Force. This work will inform the three phase public process about a variety of elements that support our community and work together to enhance quality of life. These include:

- Economic Development
- Housing
- Water Infrastructure, Storm Water, Sewer
- Solid Waste
- Public Safety
- Schools and Transportation
- Health and Human Services
- Local Food Systems
- Land Use, Transportation, Climate Change
- Energy
- Public Outreach and Education

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# 1. EXECUTIVE SUMMARY

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Historically, the management of solid and hazardous waste in Thurston County has revolved around the issue of public health and the efficiencies of disposal. Today Thurston County includes another important aspect to the management of solid waste - sustainability. Long-range planning and adequate facilities are vital to encourage residents and businesses to achieve this vision. Some current successes, challenges and opportunities to improve solid waste and hazardous waste management are listed below.

## **What is Going Well?**

- All solid waste, destined for disposal, is processed by the Waste and Recovery Center (WARC) at Hawks Prairie.
- Solid waste and recycling volumes are tracked to identify trends in the data.
- There are very effective recycling and composting programs in place which have resulted in significant increases in solid waste diversions.
- Education and outreach efforts to residents, students, community groups and businesses have greatly expanded and focus on waste prevention rather than just recycling.
- Green building practices are gaining popularity and have been used for the new government facilities in Olympia and by Thurston County.
- The Thurston County Solid Waste Advisory Committee (SWAC) provides guidance for solid and hazardous waste planning.
- A state-of-the art *HazoHouse* opened in March of 2011 and WasteMobile events in rural areas allow hazardous waste to be safely collected from all parts of the county.

## **What are the Challenges?**

- WARC's lifespan is based on a design for capacity and accurate forecasts are necessary to meet the needs of the 2035 population.
- The WARC's location at Hawks Prairie may become less accessible to future population growth in the southern part of the county.
- Construction and demolition debris remains one of the largest parts of the waste stream.
- As recently as 2009, a high percent of recyclable materials can still be found in garbage.
- The City of Olympia estimated that the commercial waste generation rate per employee was twice that of a resident.
- Emergencies and disasters can cause disruption to the collection and disposal of solid and hazardous waste.
- The Thurston County Solid Waste Management Plan for 2009-13 needs to be formally adopted.

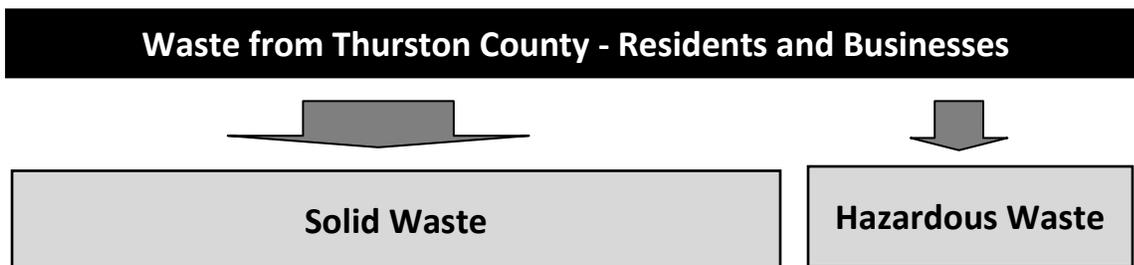
## **What are the Opportunities?**

- **Update the Solid and Hazardous Waste Plans** – Thurston County could formally adopt the current Solid Waste Management Plan and consider a new hazardous waste plan when it is available. These could address new priorities from the State and respond to emerging trends. They may include action initiatives for emergencies or disasters that disrupt the collection of solid and hazardous waste.
- **Expand Recycling and Compost Options** – Build upon past successes to increase recycling to reduce the waste stream through public and private partnerships.
- **Support Product Stewardship** – Thurston County could actively participate in the Northwest Product Stewardship Council efforts to work with stakeholders and pass legislation requiring manufacturers to be responsible for the waste they produce.
- **Evaluate New Collection Facilities** – While the Waste and Recovery Center (WARC) at Hawks Prairie can be expanded, other facilities may be considered to serve the projected population growth in the southwest and southeast portions of the county. These may be regional facilities which are coordinated with the adjacent jurisdictions. These facilities would address the needs of the Environmental Health Division and the Solid Waste Program.
- **Explore a Facility for Construction and Demolition Debris** – Even in the current economy, construction and demolition debris (C/D) account for a large part of the county waste stream. While 10-20 percent is recycled at the landfill, the vast majority is sent to the regional landfill. The county could explore the feasibility of a separate C/D facility for the south sound with other regional partners.
- **Continue Hazardous Waste Collections Efforts** –The WARC can process hazardous waste through the *HazoHouse*. Furthermore, the *WasteMobile* events bring hazardous waste collection to various parts of the county. Target different parts the hazardous waste stream with yearly emphasis efforts, and continue progress with the small quantity generators of hazardous waste.
- **Continue Education and Outreach Programs** – Education and outreach program are key techniques to change the behaviors of county residents and businesses. The focus should be on responsible purchasing, waste prevention and reuse, rather than just recycling.
- **Continue to Track Disposal and Recycling Rates** – The dramatic changes in waste disposal trends within the last decade indicates the importance of data collection. Continue to collect data that supports decision making and helps determine the success of various recycling programs.

## 2. INTRODUCTION

Every single day, residences and businesses in Thurston County purchase an enormous amount of products. Products that are not completely consumed may become waste after a nominal life-span. Packaging of products is normally discarded immediately. In 2008 packaging alone accounted for about 31 percent of all municipal solid waste in the country. When added together, discarded products and packaging becomes a stream of waste that requires management. Discarded products can be categorized in two ways: solid waste or hazardous waste. (Refer to Figure 1 below.)

**FIGURE 1: CONCEPTUAL WASTE STREAM FROM THURSTON COUNTY RESIDENTS AND BUSINESSES**



- **Solid Waste** refers to all wastes that are generated by residential, business, industrial, and institutional locations. (Also known as Municipal Solid Waste.)
- **Hazardous Wastes** refers to any waste or combination of wastes that are corrosive, ignitable, toxic, reactive, or persistent in the environment and may cause irreversible illness, an increase in mortality, or pose a substantial threat to human health or the environment.

### Confused?

Check out **Terms and Abbreviations - Appendix A.**



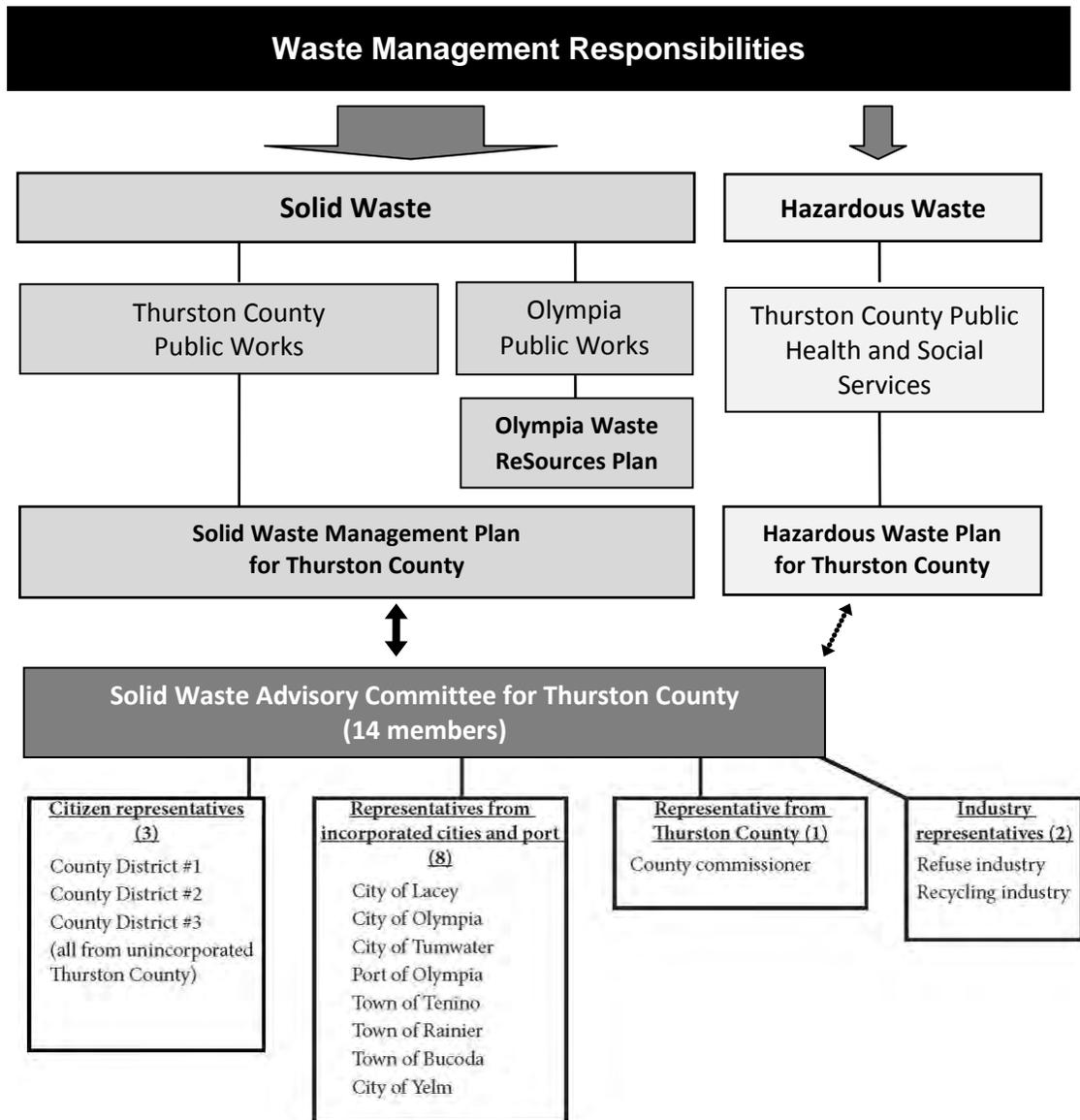
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### 3. SOLID WASTE MANAGEMENT

The management of solid waste is administered by two local governments. The City of Olympia handles those areas within its boundaries and the remaining areas are administered by Thurston County. Both Olympia and Thurston County prepare Solid Waste Management Plans (SWMP). The Thurston County plan is reviewed and approved by the Washington State Department of Ecology. Olympia’s plan focuses on strategic goals for the City; however Olympia remains a signator on the Thurston County plan. The management of hazardous waste is handled by Thurston County.

The 14-member Thurston County Solid Waste Advisory Committee (SWAC) is made up of elected officials, citizens, and industry representatives as illustrated in Figure 2 below. Members are appointed by county commissioners and serve three-year terms. The SWAC advises Thurston County on its solid waste plan, and provides guidance regarding the hazardous waste plan.

**FIGURE 2: CONCEPTUAL WASTE MANAGEMENT RESPONSIBILITIES**



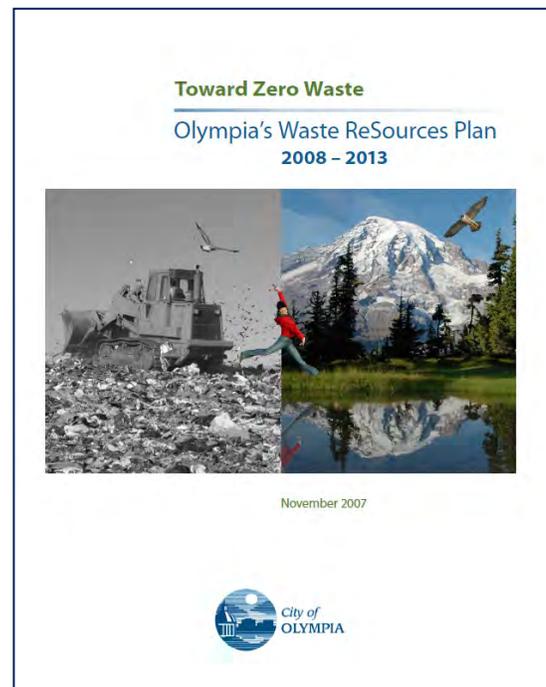
The Thurston County Solid Waste program (in the Public Works Department) is responsible for the overall administration of the County’s solid waste system. Each city in the county is responsible for providing solid waste services within its incorporated boundaries, but it may opt to administer its own solid waste and recycling program or defer to the county program. The City of Olympia administers its solid waste services through the Waste ReSources Utility (in the Public Works Department). The cities of Lacey and Tumwater receive collection services offered to unincorporated parts of the county, and so they defer to the County minimum service level ordinance. The cities of Yelm, Tenino, Bucoda, and Rainier have contracted with LeMay Enterprises (Waste Connections) for the collection of garbage, recyclables, and yard waste.

## GUIDING DOCUMENTS



Thurston County is administering the **Thurston County Solid Waste Management Plan** for 2009. It has not been formally adopted, but is being implemented none the less. The Plan covers the period of 2009 to 2013. Updates are required every 5 years by the Department of Ecology. It guides solid waste activities and program for all of Thurston County. It also provides the regional framework and guidance for the City of Olympia. Details for the plan were provided in a solid waste system assessment which was prepared in 2007.

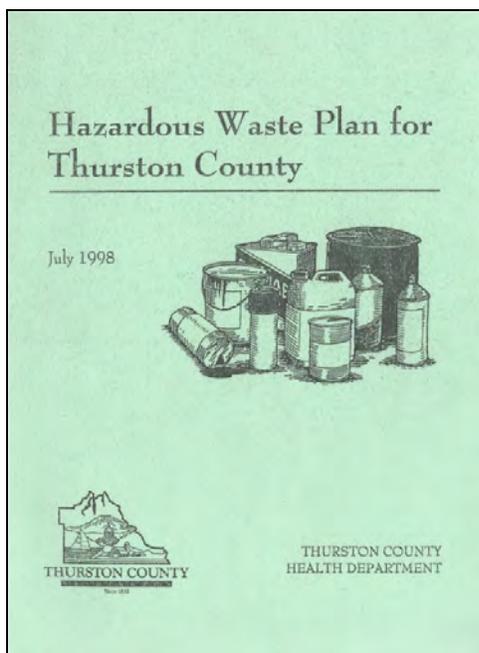
The City of Olympia adopted its current solid waste management plan in 2007. Entitled **Toward Zero Waste: Olympia's Waste ReSources Plan 2008 – 2013**, the plan will guide the utility over the next six years in moving toward the City's ultimate vision of Zero Waste.



## 4. HAZARDOUS WASTE MANAGEMENT

The management of hazardous waste throughout Thurston County is administered by the Solid and Hazardous Waste Section of the Environmental Health Division of the Thurston County Public Health and Social Services Department. Much like solid waste, the management of hazardous waste is guided by a management plan, which in this case, is adopted by the Thurston County Board of Health. The Thurston County Solid Waste Advisory Committee (SWAC) is also consulted regarding updates to that plan. (See Figure 2 on page 5.)

### GUIDING DOCUMENT



The current *Hazardous Waste Plan for Thurston County* was adopted in 1998. An update is in progress and is anticipated to be adopted in 2012. While the focus of the update will remain the same, it will reflect changes in the community, available facilities, and the types and qualities of hazardous materials since the mid-1990s. A major upgrade to the document will be addition of a section regarding integrated pest management (IPM) and a prescription take back program.

### HAZARDOUS WASTE

Many products used in home care and repair, gardening, and auto maintenance contain hazardous materials. When these pesticides, paints, cleaners, solvents, oils and other household chemicals are used and stored, they can harm health and the environment. When thrown away, they become household hazardous wastes.

Similarly, many industries, commercial businesses, public agencies, and institutions use hazardous products and produce hazardous wastes while doing business or conducting operations. Auto repair shops, printing, mining, painting, furniture repair, dry cleaning, medical offices, grounds keeping, and building maintenance are among the businesses and activities that are likely to produce these wastes.

Hazardous wastes originating from households are categorically exempt from regulation under the Hazardous Waste Management Act. Businesses and institutions producing and storing hazardous wastes in quantities below certain thresholds are conditionally exempt from full regulation under the same law.

Although the Hazardous Waste Management Act uses the term “Moderate Risk Waste” (MRW) to define the household and conditionally exempt hazardous waste streams, this term does not accurately express the degree of risk posed by these substances. These materials are considered hazardous since they contain chemicals that are toxic, corrosive, ignitable, reactive, or persistent. These materials contain the same risks as wastes that originate from large industries. The difference then, between moderate risk waste and regulated hazardous waste is one of scale, not one of intrinsic hazard.



**FIGURE 3: COMMON EXAMPLES OF HOUSEHOLD HAZARDOUS WASTES**

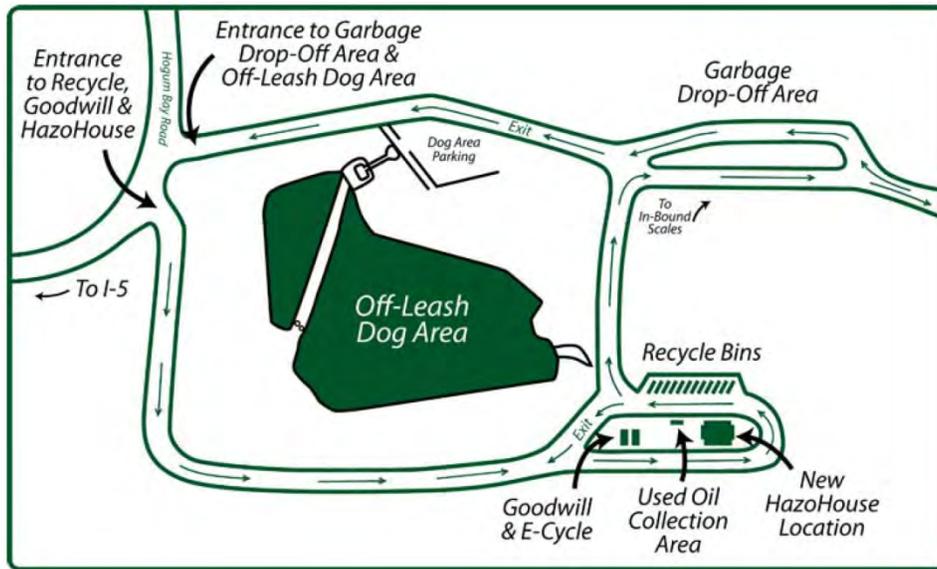
## 5. SOLID WASTE FACILITIES

While disposing of garbage (solid waste) may be an afterthought to most county residents and businesses, “solid waste management services” generally includes: garbage collection, recycling, composting, reuse, moderate risk waste, refuse disposal, education, and administration. Thurston County and the City of Olympia are required to comply with state and federal laws, along with maintaining and protecting human health. These entities are also responsible for estimating the future demands on the system, and describing actions or system improvements to address those needs.

**Waste and Recovery Center (WARC):** In Thurston County all residential and commercial solid waste is collected and delivered to the Thurston County Waste and Recovery Center (WARC) at Hawks Prairie. Historically know as the “Thurston County dump”, it was converted to a sanitary landfill in 1972, and then to a transfer station in 2000. All municipal solid waste (MSW) collected in Thurston County is required to be processed through the WARC.

The Waste and Recovery Center is now more than just a transfer station. (See Figure 4 on the following page.) Its transformation began in 1993 to its current configuration which includes the following services:

- Garbage Disposal: The garbage is trucked and transported by rail off-site to a regional landfill.
- Yard Waste Disposal: The waste is trucked off-site to be turned into compost at another location. At times, woody debris may be used as hog fuel for turning waste into energy.
- Recycling Blue Bins: Recycling bins are provided for glass, plastics, paper, cardboard, and metal.
- Toxic Waste Collection: The HazoHouse collects household hazardous wastes such as petroleum products, paints and solvents.
- Goodwill Industries: Goodwill Industries resells lightly used clothing and household products through its retail store outlets.
- Closed Loop Park: Its features include a walking trail, a demonstration garden of native plants, and a playground made from recycled materials.
- Off-Leash Dog Area: A 5-acre, fenced area where people and their dogs can exercise, play, relax, socialize and have fun in a safe, secure environment.



**FIGURE 4: MAP OF THE RECYCLING FACILITIES AT THE WASTE AND RECOVERY CENTER (WARC)**



**FIGURE 5: TOLL BOOTH AT THE WARC**



**FIGURE 6: TOLL BOOTH AT THE RAINIER DROP BOX**

**County Drop Boxes:** Thurston County also provides public drop-box facilities at Rochester and Rainier. Materials from these sites are transported to the WARC for processing.

**Recycling Facility:** Curbside recyclables collected in the county, as well as material recovered at the WARC, are taken to a local processing facility or transported to a regional facility. Recyclable materials are sent to SP Recycling at Fredrickson in Pierce County.

**Composting Facility:** Compostable materials are sent to the privately owned Silver Springs Organics facility near Rainier. Compostable materials generally include food scraps, paper products, and yard and garden debris. The facility is being upgraded to be a state-of-the-art covered organic waste composting facility. It will process yard

debris and other organics into stable, high quality soil amendments and other beneficial products. The covered processing and composting structure is designed to treat potentially odorous air emissions and help mitigate noise, dust and water impacts. (See Figure 9 on the following page.)

During construction, the site is under an interim permit which has temporarily ceased active composting. However, the following activities are continuing throughout the construction phase: 1) Receive and consolidate small food waste/yard waste loads; 2) Reloading of consolidated wastes for off-site transfer; 3) Receiving of wood waste for grinding; 4) Receiving of wood ash for land application; 5) Residual finished compost product sales; and 6) Further refinement and contaminates removal of finished product compost covers.

**Curbside Service:** While not a facility, residential curbside collection service is provided throughout most parts of Thurston County. Garbage and organics collected are processed through the WARC while curbside recycling is delivered to LeMay (Waste Connections) on Hogum Bay Road. These recyclable materials are placed in long-haul trailers and taken to SP Recycling.

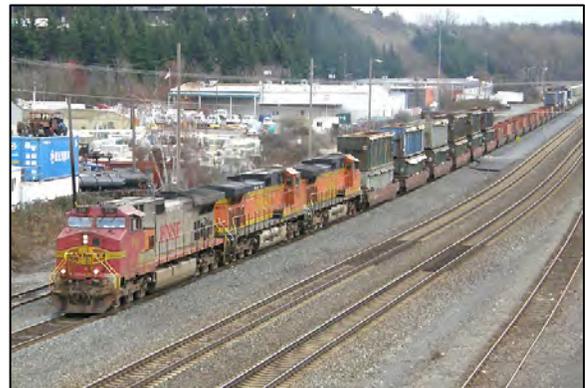
**Within Thurston County:** Curbside service is provided by LeMay Enterprises (Waste Connections). Currently, this is a weekly service for garbage with every two weeks for recycling and once per month for glass.

**Within Olympia:** Curbside service is provided by the Olympia Public Works Department. Currently this is a biweekly service for residential garbage, recycling and organics; and weekly service for commercial garbage and organics.

**Landfill Site:** Garbage and refuse from the county is loaded into trucks at the WARC and hauled to Centralia. There it is placed on rail cars, and transported by train to the Roosevelt Regional Landfill in Klickitat County (in eastern Washington), 250 miles away. The landfill is operated by Allied Waste, Inc. and serves municipalities in Washington, Oregon, Alaska, and British Columbia. It is estimated to have permitted capacity available for more than 40 years at the current disposal rate.



**FIGURE 7: ROOSEVELT REGIONAL LANDFILL**



**FIGURE 8: RABANCO GARBAGE TRAIN**

FIGURE 9: SILVER SPRINGS COMPOSTING FACILITY

**Silver Springs Composting Facility  
Rainier, WA**

\*\*\*\*\*

**Recycled Organics**

**FOOD SCRAPS**

- Meat and poultry
- Eggs and dairy products
- Table scraps and plate scrapings
- Fruits and Vegetables
- Bread, dough, pasta and grains
- Coffee grounds

**PAPER PRODUCTS**

- Paper take-out containers\*
- Paper plates and cups\*
- Wax cardboard and wax paper
- Napkins and kitchen paper towels
- Paper coffee filters and paper tea bags
- Take-out pizza boxes

*\*CAUTION: Paper food containers with a shiny or slick surface are prohibited because they have a thin plastic layer/lining (polycoat) on them. They do not compost.*

**YARD AND GARDEN WASTE**

- Grass clippings, yard prunings,
- Garden spoils, weeds
- Chipped/ground wood
- Limbs, small trees (under 8”in diameter)

**APPROVED COMPOSTABLE PRODUCTS**



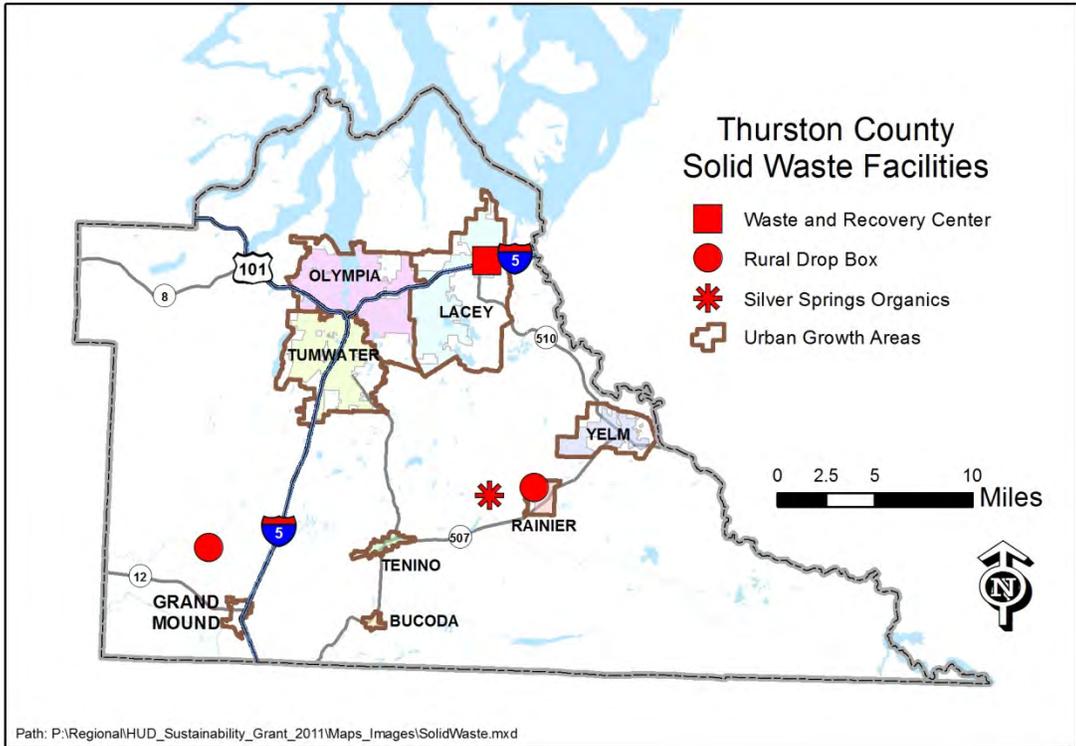
Completed Site Plan – Opening 2012



Truck Off-Loading

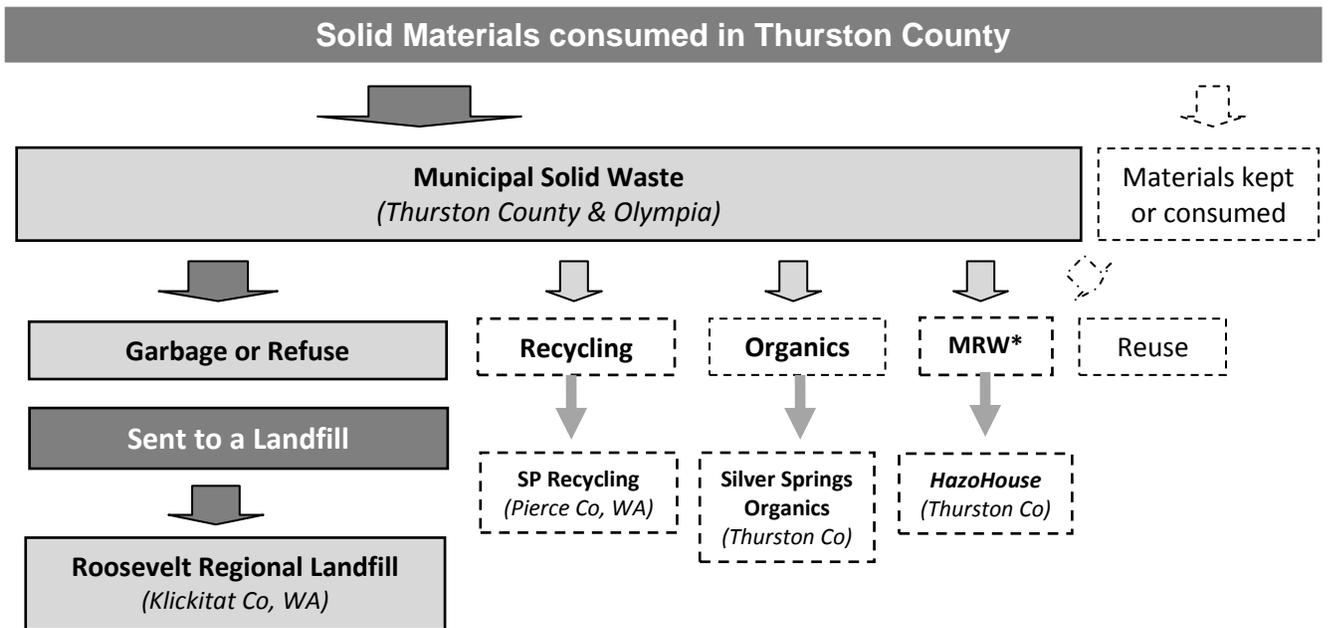


Compost Piles and Ducting



**FIGURE 10: THURSTON COUNTY SOLID AND HAZARDOUS WASTE FACILITIES**

**FIGURE 11: CONCEPTUAL SOLID WASTE STREAM TO LANDFILL**



\* = Moderate Risk Waste

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## 6. SOLID WASTE CHARACTERISTICS

### A. WASTE COMPOSITION

Municipal solid waste and recyclables are collected throughout the county by both private and public-sector haulers. To better understand waste disposal and recycling behavior, a waste characterization study (a waste sort) is regularly undertaken. (Moderate Risk Wastes are discussed in Section 7.) The most recent baseline study of solid waste within the county occurred in 2009. The refuse (which did not include materials for recycling) was sent to the WARC where its composition was determined. (See Figure 12 below.)

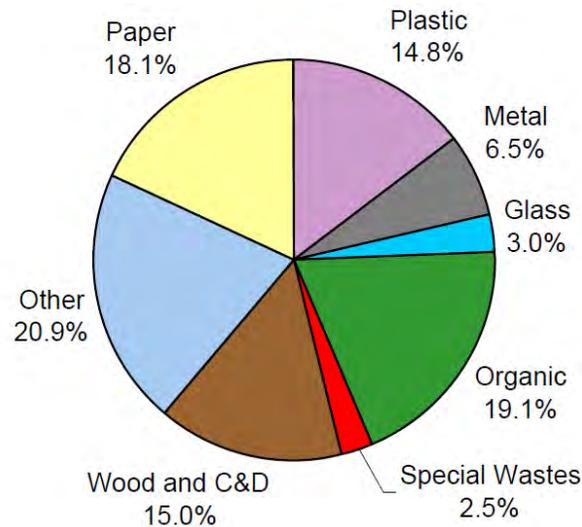
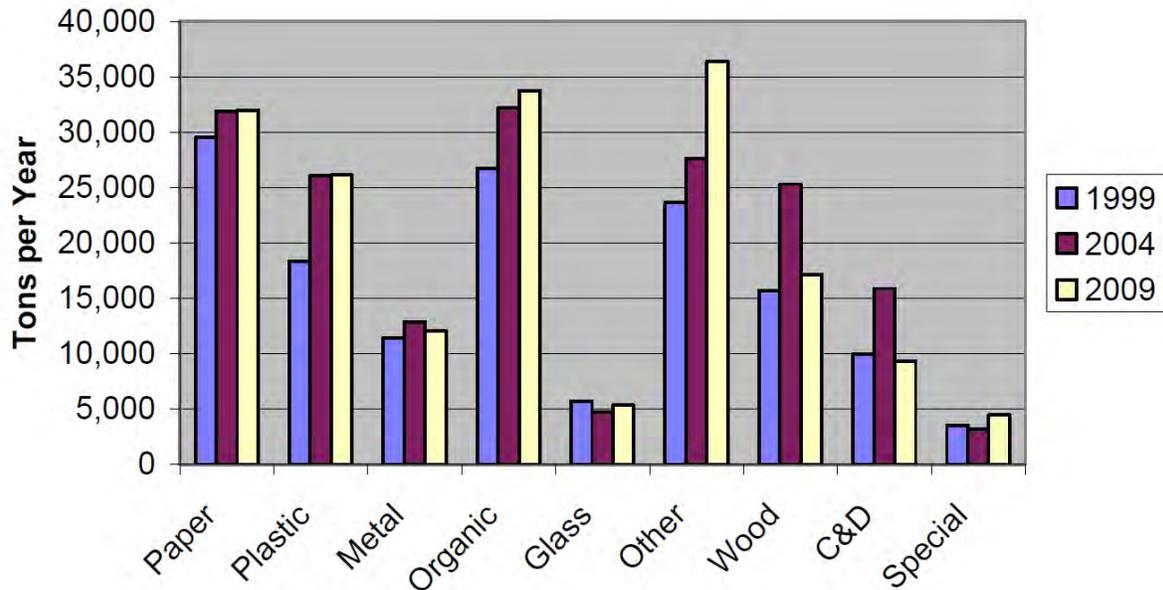


FIGURE 12: COMPOSITION OF THURSTON COUNTY REFUSE IN 2009

#### SUMMARY OF RESULTS:

<b>PAPER</b>	Newspaper	0.9%	<b>WOOD, C&amp;D</b>	Wood	9.7%	
	Cardboard	3.8%		Construction, Demolition	<u>5.3%</u>	
	Other Recyclable Paper	6.6%		Wood, C&D Subtotal	15.0%	
	Compostable Paper	5.5%		<b>SPECIAL WASTES</b>	Animal Excrement	1.9%
	Non-Recyclable Paper	<u>1.3%</u>			Other Special Wastes	<u>0.6%</u>
Paper Subtotal	18.1%	Special Waste Subtotal	2.5%			
<b>PLASTIC</b>	Plastic Bottles	1.6%	<b>ORGANIC</b>	Food Waste	16.7%	
	Film and Bags	5.2%		Yard Debris	<u>2.4%</u>	
	Other Plastic	<u>8.0%</u>		Organic Subtotal	19.1%	
	Plastic Subtotal	14.8%	<b>OTHER</b>	Disposable Diapers	2.3%	
<b>METAL</b>	Aluminum Cans	0.5%		Textiles	3.6%	
	Tin Cans	0.7%		Carpet and Padding	3.0%	
	Other Metals	<u>5.3%</u>		Miscellaneous (1)	<u>12.0%</u>	
	Metal Subtotal	6.5%		Other Subtotal	20.9%	
<b>GLASS</b>	Glass Bottles	2.1%				
	Other Glass	<u>0.9%</u>				
	Glass Subtotal	3.0%				

Thurston County has conducted three waste sorts in the past ten years. Figure 13 compares the results from 1999, 2004 and 2009. (*Thurston County Waste Composition Study, 2009*)



**FIGURE 13: THURSTON COUNTY DISPOSAL TRENDS**

“Drawing firm conclusions from this data is difficult because several factors can influence these results, but the following general observations can be made:

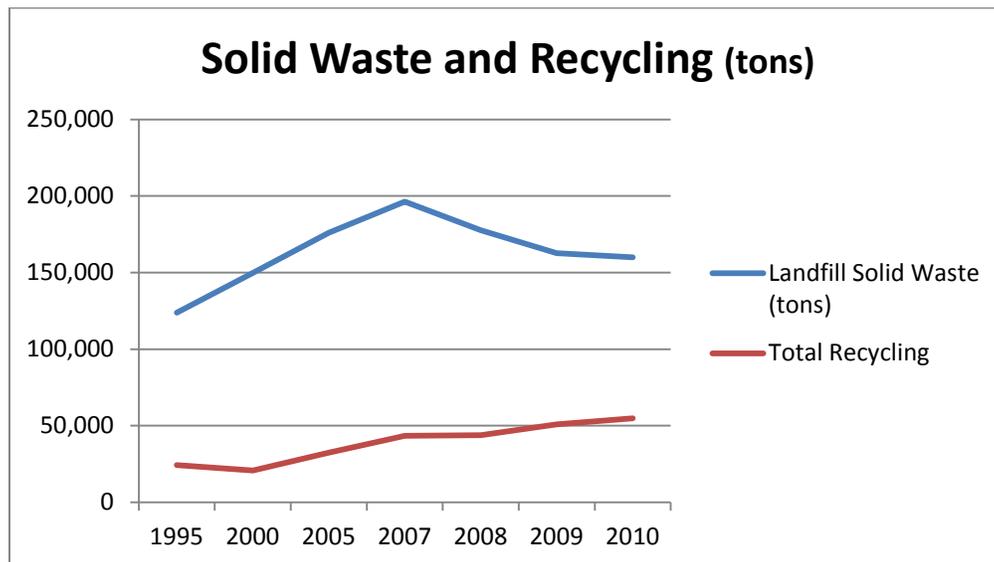
- **Paper:** The amount of newspaper in Thurston County’s waste stream shows a steady decline over the years, as can be expected from increased participation in recycling programs, but other paper grades first dropped and then increased again, both in terms of percentages and total tonnages.
- **Plastic:** The overall amount of plastic and most of the plastic categories have increased over the past ten years. This increase is most likely a reflection of the increasing popularity of plastics for packaging and other applications.
- **Metal:** The amount of metal in the waste stream shows a steady decline in percentages, but the tonnages have remained fairly steady over the past ten years. This is partly due to an increase in mixed metals offsetting lower amounts of other metals.
- **Food Waste:** The amount of food in Thurston County’s waste stream has varied on a percentage basis but the total tonnages show a steady increase. This increase is probably due to the increase in the County’s population.
- **Yard Debris:** The percentages and tonnages of yard debris in the County’s waste stream increased in the last study and then decreased in the current study.
- **Glass:** The amount of glass in the waste stream has varied over the years, probably due to changes in consumer packaging and in recycling levels.

- **Wood and Construction/Demolition (C&D) Wastes:** The percentage of wood and C&D wastes in the County’s waste stream shows a sharp decrease in the current study compared to five years ago, which is likely the result of less construction activity (due to the current economic downturn).” (*Thurston County Waste Composition Study, 2009*)

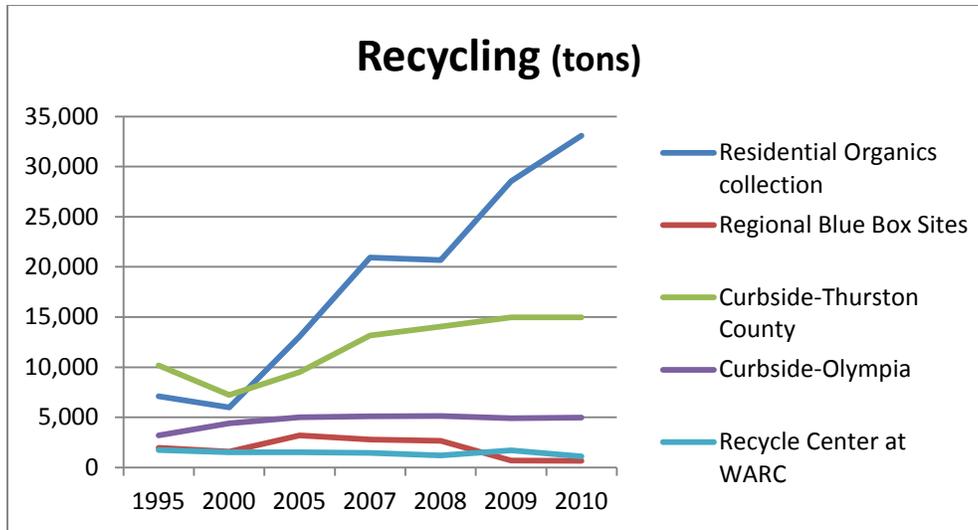
## B. WASTE REDUCTION

The volume of trash (refuse) generated by Thurston County residents and businesses has varied over time. Tables 1, 2 and 3 (on the following page) indicate the volume of refuse and recycling since 1995. Over the ten year period of 2000 to 2010, recycling was up 160 percent. One of the largest increases was in the residential organics collection which is up about 450 percent. This compares to an increase in curbside recycling of 107 percent in the County, and an increase of 12 percent in Olympia. (See page 23 for a discussion of changes to the recycling programs.)

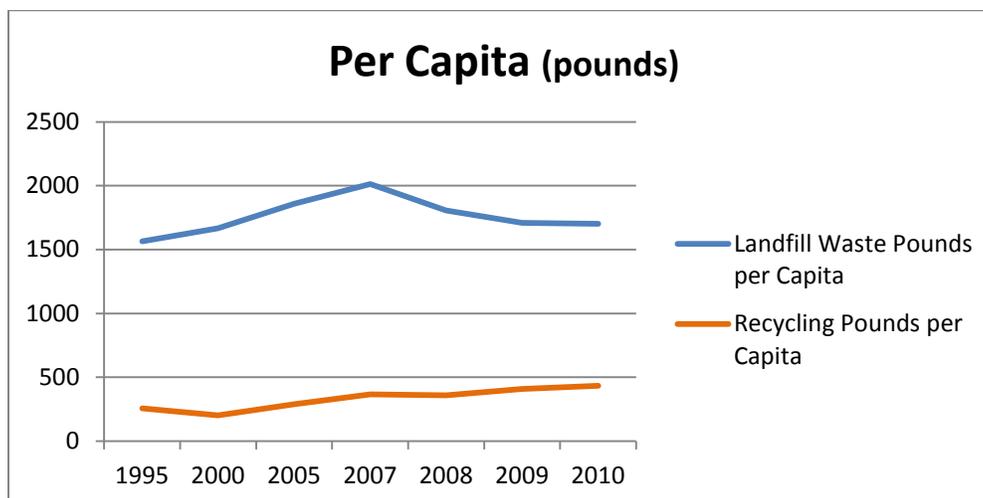
These increases offset some reductions of recycling at the WARC and the regional blue box sites, which were reduced from nine to four sites. Even though the county population grew by almost 48,000 people from 2000 to 2010, recycling was up by 232 pounds per person or 114 percent. During the same time, the amount of refuse sent to the landfill declined by 12 percent to about 1,270 pounds per person. (See Appendix B on page 46.)



**TABLE 1: TOTAL SOLID WASTE AND RECYCLING**



**TABLE 2: RECYCLING BY TYPE AND SOURCE**



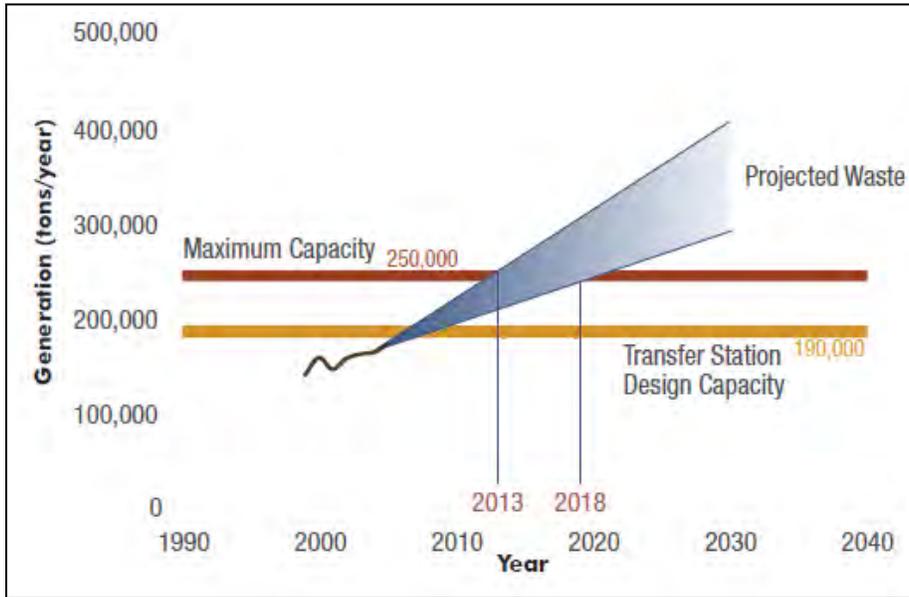
**TABLE 3: LANDFILL WASTE AND RECYCLING PER CAPITA**

### C. WASTE PROJECTIONS

The maximum capacity of the WARC is limited by the speed at which municipal solid waste can be loaded into trailers to be hauled to Centralia. The nominal design capacity of the transfer station is about 600 tons of waste per day, or 190,000 tons per year.

In 2006 and 2007, the WARC handled 200,000 and 205,000 tons of waste, respectively. In 2007 it was estimated that the capacity of the current facility would be reached by 2013 to 2018. (Refer to Table 4 on the following page.) If additional capacity was needed, this might be provided by increased recyclable recovery, additional disposal capacity, longer operating hours, or other means.

Since 2007, lower volumes of solid waste arriving at the WARC have helped to extend the life span of the current facility. Recalculating the future needs and capacity would be a part of a solid waste system assessment. This assessment would be a part of the solid waste management plan adoption process.



**TABLE 4: PROJECTED CAPACITY OF THE WASTE AND RECOVERY CENTER (2007)**

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## 7. SOLID WASTE DIVERSION PROGRAMS

### A. DIVERSION PROGRAMS

With the maximum capacity of the Waste and Recovery Center limited to about 600 tons of waste per day, the most cost effective way of responding to future population growth is to reduce the volume of waste in the county. The Thurston County Solid Waste program relies on three types of programs to reduce the amount of waste that is disposed of in a landfill.

- **Reduction** programs generally aim to reduce the amount of waste generated by residents and businesses, or to reduce the toxicity of the waste products. These programs often focus on educating the public about ways to avoid generating certain waste at all—for instance, by buying more durable or less toxic products, or purchasing products with less packaging.
- **Reuse** programs focus on educating the public and providing opportunities for reusing products by repairing, donating, or selling products that can still be used. Reusing products is more advantageous than recycling because items do not have to be reprocessed.
- **Recycling** is the process of collecting certain materials, sorting them into marketable commodities, and remanufacturing them into products with full or partially recycled content. Equally important in this process is increasing the demand for recycled products—to ensure that there is a financial incentive for current and proposed recycling programs and collection. Past programs have focused on easily recycled products such as plastic containers and films, metal products, and paper; however, new markets have begun to develop for many other materials, such as yard waste, food waste, and construction materials.

### B. RECYCLING - Organics

Organic material (yard debris and food waste) along with compostable paper makes up 24.6% percent of the county waste stream headed for the landfill. This does not include the organic material composted at home, diverted to composting through curbside collection, and directly delivered to yard waste collection areas. Organic materials have a significant potential for diversion. As such, new programs could increase organics recycling, and increase participation in existing recycling programs.

- Thurston County Solid Waste currently subsidizes the sale of two types of compost bins that are available to residents through the Master Gardener Foundation and Master Recycler Composter program housed at Washington State University Extension. This program also provides composting courses free to the public and is regularly advertised in the TCSW quarterly *Talkin' Trash* newsletter, which is mailed to residents.
- Composting programs are in place at several schools and commercial organizations in the county. The *Food to Flowers* program assists schools to compost food waste and eliminate disposable products and is currently in 28 schools within Thurston County. (See page 23.)
- Thurston County Solid Waste also funds a compost demonstration garden at the WARC. This and two other demonstration gardens in the county are maintained by the Master Gardeners and

Master Recycler/Composters. One of the gardens, *Dirt Works*, is located on City property at Yauger Park and is partially supported by City of Olympia.

- Curbside organics collection is available in most of the county. The exceptions are small pockets in rural areas where there is a lack of demand. Areas without current access can request service through their hauler, who will offer service as demand builds.
- Residents of Olympia can also bring their yard waste to the City of Olympia Saturday Drop-Off site, which also accepts scrap metal.
- All county residents can also dispose of yard waste by bringing it to Silver Springs Organics or the WARC where it is sorted and sent out for composting or energy recovery, as fuel in wood fired boilers.
- The residential curbside organics collection program was enhanced in 2008 with the addition of food waste.

### **C. RECYCLING – Construction and Demolition Waste**

The demolition and construction of structures generates an enormous amount of waste which includes: concrete, lumber, metal, brick, windows and shingles. In 2009 this construction and demolition waste accounted for 15 percent of the county’s waste stream, down from 23 percent in 2004. Monitoring of this waste at the WARC showed significant increase during the construction boom of 2004 to 2007, with a rapid decrease since then due to a weak housing market. Nevertheless, reducing construction and demolition (C&D) waste will be an important part of reducing waste per capita. (See Table 3, page 18.)

- The key methods to recover, reuse, and recycle construction and demolition waste focus on voluntary efforts to encourage the building community to consider reusing and/or recycling before disposal. It is equally important for the building community to consider ways to improve the design processes that prevent waste at the source while incorporating recycled materials into new construction projects. Some of the most “green” building is retrofitting existing buildings and saving resources and structures already standing.
- Implementing changes to the waste-recycling practices in the construction industry should be a priority. A focus on sustainable processes has resulted in a higher demand for “green building” construction practices in both residential and commercial markets. This makes builders more receptive to recycling construction and demolition waste. Likewise, this approach supports both the State of Washington’s Beyond Waste goals and those described in the City of Olympia’s *Waste ReSources Plan*.
- Recycling construction and demolition waste at job sites can be as simple as ordering recycling bins. Private C&D recycling facilities typically accept certain types of material, depending on their primary business (e.g., recycled concrete to aggregate manufacturers). Separating and transporting C&D materials to the different processors in the county can be time-consuming and a hurdle to large-scale acceptance in the building community. The closest C&D recycling facility to accept mixed loads is Recovery 1 in Tacoma. Customers can order bins for the worksite and specify the hauler take it for recycling, as long as loads do not contain trash.

- On-site separation of recyclable materials also requires dedicating space to accumulate different materials, space that may be hard to find on a smaller parcel.

## **D. RECYCLING – Paper, Plastic, Metals and Glass**

In 2009 paper (excluding compostable paper), plastic, metal, and glass, which are the traditional materials collected in the curbside recycling programs, make up 36 percent of the Thurston County solid waste stream. Unfortunately, once these products are contaminated by common refuse, they no longer have value for recycling.

- Paper, plastic, metals, and glass (materials that are easily recyclable) made up 51% percent of commercial garbage. By actively promoting business recycling programs and providing assistance, it may be possible to recycle an additional 10 to 20 percent from the garbage stream. Such a reduction could extend the capacity of the WARC for many years.
- In 2007, LeMay Enterprises (Waste Connections) rolled out a new Certified Green recycling program for businesses and schools. The bundled program, offered for one low rate (which includes food waste), has made recycling cost effective and saves most businesses a significant amount of money compared with just trash service. The program is available countywide, including in Olympia. Additionally, both the City of Olympia and the county offer business assistance programs to help organizations green their purchasing and reduce their waste stream.
- In 2007, a new commingled curbside recycling program replaced the 3-bin system in areas of the county serviced by LeMay (Waste Connections). The system is more convenient and simple to use for residents. All residents that have LeMay curbside trash service are provided with a recycling cart. Residents in these areas may also subscribe to “recycle only” service without trash service. Glass must be in a separate bin because broken glass in the commingled materials greatly reduces their value and increases recycling costs.
- Olympia serves as its own hauler and started curbside recycling in 1988. The City converted to an all cart system in 1998 and in 2003 was one of the first cities in Washington to implement single stream recycling.
- Glass collected in Thurston County is not recycled into new glass but is used for glass aggregate. This material is a cost effective alternative to sand and pea gravel in many construction applications. Information about the product is not widely known and, combined with the recent construction downturn. Thurston County is currently producing more glass aggregate than is being used. To "close the loop" Thurston County held a Glass Summit in October 2011 to increase awareness of the product, which was attended by over 70 professionals from the solid waste, construction and permitting community. Similar future events are planned.

## **E. RECYCLING – Education and Outreach**

Since the recycling habits of residents and businesses vary based upon their past experience with recycling and the cost to dispose of those products, education can play a key role to increase recycling. Many of the programs are designed with training, mentoring and follow-up to ensure behavior change.

Current education and outreach programs include the following:

- **Website Outreach** – providing resources on local recycling and reuse opportunities through [www.WhereDoITakeMy.org](http://www.WhereDoITakeMy.org) and [www.2good2toss.com](http://www.2good2toss.com).
- **Building Community** – encouraging discussion, sharing resources, and helping others connect. [www.Facebook.com/ThurstonSolidWaste](http://www.Facebook.com/ThurstonSolidWaste); @SolidWasteThuCo; and [www.YouTube.com/ThurstonSolidWaste](http://www.YouTube.com/ThurstonSolidWaste)
- **Business Waste Reduction Assistance** – improving recycling and smart purchasing efforts.
- **Public Outreach** – providing resources tailored to each community’s needs through news publications and social media.
- **Green Building**—working with local utilities, contractors and builders to understand how to integrate waste prevention into restoration, design, building and demolition. Encouraging builders to save and retrofit features and structures that already have embodied energy and carbon without wasting them such as historic wood windows.
- **Youth Outreach**—providing presentations on topics from composting to recycling and helping schools become Washington Green Schools. (See page 26) The City of Olympia has a robust 3<sup>rd</sup> grade education program called RRR-U-Ready. The City and County have collaborated on developing a middle school program.
- **Master Recycler Composter Program**—offering training and volunteer opportunities.
- **Event Recycling Bin Loans**—offering free collection bins including composting to groups and individuals.
- **Community Presentations**—educating homeowners associations and community groups.

## F. Product Stewardship

An emerging area in both solid and hazardous waste management is “Product Stewardship” or Extended Producer Responsibility. Local government traditionally bears the financial responsibility of dealing with the waste and packaging from the products that manufacturers have profited from. Producer responsibility means manufacturers take responsibility for what they make, which extends to the post-consumer management of that product and its packaging.

Common in Europe, Asia, Australia and Canada, it is just starting to take hold in the US. Since most industries do not willing take on this responsibility, legislation is often required and there are now over 60 laws in the US. Most deal with hazardous products since those are the most difficult and expensive to manage. Washington has passed two laws: electronics which has been very successfully implemented and mercury lighting, which will take effect in 2013. While product stewardship laws are most effective at the state and federal level, local government needs to play a key role in supporting legislation by drafting bills, working with stakeholders, locating endorsing organizations and lobbying.



## ***Food to Flowers Program - School Waste Reduction Technical Assistance***

- **More than 70% of what the average school throws away is stuff that can be composted or recycled.**

Through the *Food to Flowers* (F2F) program, Thurston County Solid Waste (TCSW) helps schools keep a lot of that stuff out of the landfill. Schools are provided with the support they need to set up systems to prevent waste and to compost and recycle as much of what's left as possible. TCSW's primary focus is on assisting schools to eliminate specific kinds of products and packaging. For example, schools have replaced disposable plastic utensils with "real" silverware, eliminated the use of straws, and replaced condiment packets and milk cartons with bulk dispensers. These programs also help school districts save money on their garbage and recycling collection costs. On average, F2F schools have reduced these costs by 15 to 20 percent.

The biggest challenges and barriers are institutional and bureaucratic. For example, school districts, like many organizations, operate in "silos." This creates challenges in getting people to work together across departments and divisions and makes it difficult for school district staff to calculate the full financial and other benefits of the program. TCSW's helps the schools to "bust" these silos and to develop the kind of cross-departmental teams required to launch successful school waste reduction programs.

These efforts are making a difference. The data below is as of June, 2011 and includes information from the Olympia schools that are supported by the City of Olympia and the Olympia School District.

- **28** – Number of schools with organics composting programs in Thurston County
- **700,000** – Estimated number of total pounds of food and soiled paper collected from all schools with organics composting programs in Thurston County. 700,000 pounds is 350 tons.
- **14,500** – Total number of students participating in an organics composting program in Thurston County.
- **85%** -the average percentage of lunchroom waste collected for composting from schools with organics collection programs in Thurston County.
- **\$6,500** – the estimated annual savings in total garbage and recycling collection costs for the Tenino School District after launching an organics composting program.
- **950,000** – the estimated # of plastic spoons and plastic straws eliminated from the waste stream each school year by F2F schools that switched back to using durable flatware.

The future plans of TCSW include expanding these efforts to help schools prevent waste before it happens. For example, additional assistance will be provided to schools to install milk dispensers and eliminate the use of milk cartons. Other initiatives in the works include programs to help schools reduce the amount of food waste generated in their kitchens and from their salad bars and to promote the safe "rescue" of food to be re-served or donated to local food banks.

More information about the F2F program can be found at <http://www.co.thurston.wa.us/solidwaste/food-flowers/f2f-home.htm>



Two proud *Food to Flowers* student sort-line monitors

## Youth Outreach

Thurston County Solid Waste (TCSW) provides presentations for K-6<sup>th</sup> grade classrooms. They strive to empower the youth of Thurston County to make proper decisions regarding what they produce and consume. In 2007, TCSW provided 30 presentations to area classrooms. Since then the number of presentations has grown to average approximately 75 every school year, reaching almost 1,800 students per year. Some challenges in the past have been teachers not realizing the availability of free presentations. Therefore, an increase in outreach to elementary teachers is in order to increase the number of presentations and the number of students reached. New methods of reaching students were implemented in 2011.



TCSW provided eight elementary school assemblies on “The Magic of Recycling” this past fall, which reached almost 3,000 students. In addition, they started providing a quarterly “Trash Talk” newsletter written for 4<sup>th</sup> and 5<sup>th</sup> grade students. Currently the newsletter reaches almost 1,500 students, yet this number is anticipated to grow throughout the school year.

“The Magic of Recycling” Assembly

In 2012, TCSW also plans on advertising newly designed middle school presentations to offer to both science and social studies teachers, increasing outreach to scout and other “out-of-the-classroom” youth groups, and working closely with schools to become certified as Washington Green Schools.



Students conduct an experiment on a household hazardous product and a safer alternative



Presentation to a class at the Waste and Recovery Center

## 8. HAZARDOUS WASTE FACILITIES

### A. HAZARDOUS MATERIALS

Placing hazardous products in the trash or down the drain is harmful and illegal. Moderate Risk Waste (MRW) is comprised of chemical materials that are - poisonous, toxic, flammable, reactive, or corrosive. These products include but are not limited to:

- Pesticides,
- Herbicides,
- Mercury and mercury thermometers,
- Fluorescent light tubes,
- Some types of batteries,
- Gasoline,
- Kerosene,
- Used motor oil,
- Propane tanks,
- Antifreeze,
- Oil-based paint,
- Glues and adhesives
- Paint thinner,
- Turpentine,
- Pool and hobby chemicals, and
- Drain cleaners.

### B. LOCAL HAZARDOUS WASTE FACILITIES

**HazoHouse:** Opened in 1987, *HazoHouse* is located on the recycling loop, prior to the toll booth at the Waste and Recovery Center. (See Figure 4 on page 10.) It is adjacent to the Recycle Center and the electronic waste collection station.

**WasteMobile:** *WasteMobile* events are intended to serve a range of locations throughout the county to collect household hazardous waste. Materials collected in community events are sorted, recycled, and/or disposed of.



#### Did you know?

The first event to collect household hazardous waste was held in 1985! This transformed into “Hazo Day” events. These became so successful that the first County hazardous waste facility was opened in 1987.



FIGURE 14: WASTE COLLECTION AT *HAZOHOUSE*



FIGURE 15: *WASTEMOBILE* CLEAN UP EVENT

### C. HAZARDOUS WASTE PROJECTIONS

As with solid waste, diversion and recycling are key strategies for handling hazardous wastes. In 1997 it was estimated that 28 percent of household hazardous waste and small quantity generators of hazardous waste was not showing up in the hazardous waste collection systems designed to safely manage these waste. Table 5 below shows the recycling rates for residential customers (*HazoHouse* and *WasteMobile*) and the rates for small quantity generators. Since 2002 the rates for residential recycling has gone up but varies widely from year to year based upon the program emphasis. However, the recovery from small quantity generators has remained relatively constant. In 2009, latex paint was no longer collected as hazardous waste and may be partially responsible for the decline in collections thereafter. Future projections of hazardous waste production are not available, however it is anticipated that the quantity of hazardous materials recovered will increase over-time along with population increases.

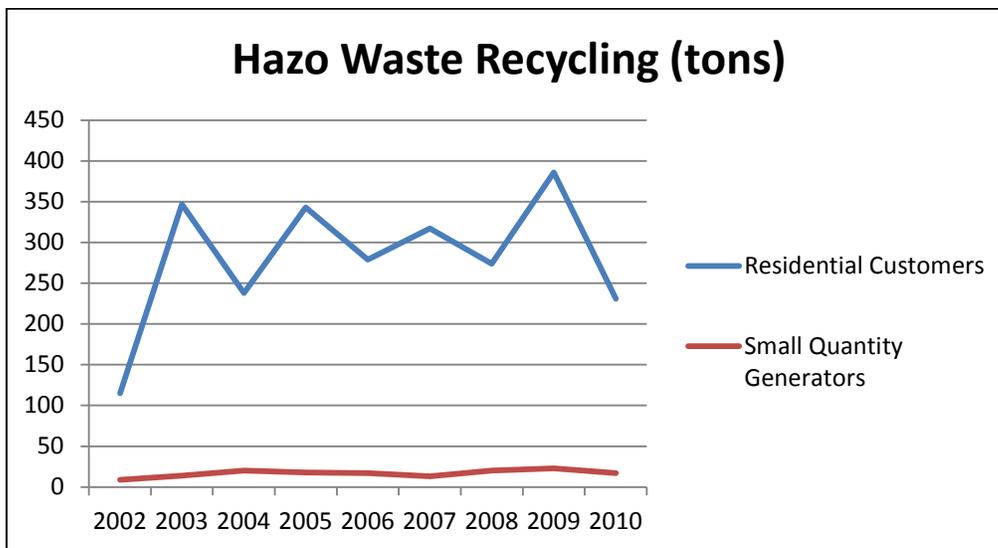


TABLE 5: HAZARDOUS WASTE RECYCLING - 2002 TO 2010

## **9. HAZARDOUS WASTE PROGRAMS**

Moderate Risk Wastes are divided into two categories:

- Household Hazardous Waste, and
- Small Quantity Generator (of Hazardous Waste).

### **A. HOUSEHOLD HAZARDOUS WASTE**

Residents can safely dispose of unwanted household hazardous products for FREE at the *HazoHouse*, located at the Waste and Recovery Center. Products that are still useable and are in their original container are put into the swap shop and made available for reuse. Wastes that are not put into the reuse program are sorted, packaged, and labeled according to their hazard classification.

The county ships wastes to hazardous waste recycling and disposal companies under contract to provide final recycling or disposal. Several contractors, such as those who recycle lead-acid batteries and motor oil, collect wastes directly from the facility. Thus the county's household hazardous waste facility serves as a temporary storage site until a large enough shipment of hazardous waste can be accumulated and shipped to a more sophisticated facility.

### **B. SMALL QUANTITY GENERATOR HAZARDOUS WASTE**

Hazardous wastes from small quantity generators are collected mostly by private sector companies who service the South Puget Sound region. Small businesses sign up for regular recycling or disposal service with the company of their choice. All wastes must be profiled (identified and labeled correctly) before a hazardous waste company can accept the waste. Hazardous waste manifests or other documentation to collection companies certify who is taking the waste. Hazardous waste collection companies transport the wastes to facilities permitted to recycle, neutralize, treat, or burn the wastes or place them in a hazardous waste landfill.

In 1996, Thurston County began operating a collection service for eligible small businesses. This service charges a disposal fee. Operations are similar to the way household hazardous waste is collected, sorted, labeled, and packaged. All wastes are shipped off site to licensed hazardous waste management companies for final management.

### **C. HAZARDOUS WASTE PROGRAMS**

To promote the proper disposal of hazardous waste and to reduce the overall generation of garbage sent to the WARC, the Thurston County Solid Waste Program and the Thurston County Public Health and Social Services Department - Environmental Health Division (TCEH) staff jointly support many programs for hazardous materials. Examples of hazardous waste programs include the following:

## **Solid Waste Permitting**

Continuing Program. TCEH monitors compliance with state and local regulations regarding the handling of solid and hazardous waste. It also reviews new or renewal permits for solid waste facilities and submit permits to Ecology. TCEH will provide technical assistance about the proper handling and disposal of solid waste, and about the permitting of solid waste handling facilities and activities.

## **Solid and Hazardous Waste Complaints**

Continuing Program. TCEH responds to and investigates illegal dumps, solid and hazardous waste complaints. As a result, it also assists in the proper handling of abandoned or illegally stored junk vehicles. Violations of the local solid and hazardous waste ordinance are enforced by issuing Notice of Violation letters. TCEH also provides education material about solid and hazardous waste regulations and how to prevent violations.

## **Small Business Technical Assistance**

Continuing Program. This technical assistance campaign identifies small quantity generator businesses by industry type, geographical, or by waste stream, (including pesticides) and conducts one-on-one non-regulatory technical assistance site visits to ensure proper handling, storage and disposal of hazardous wastes and materials. Businesses are encouraged to implement Best Management Practices that will ensure compliance with Thurston County's Non Point Source Pollution regulations.

## **Used Motor Oil Collection**

Continuing Program. This program maintains a system of used oil collection tanks throughout the county for do-it-yourself oil changes. TCEH is responsible for the maintenance of used oil collection tank sites and managing the oil collection contract. There are currently eight (8) county sponsored locations. The County collects the used oil from each site and sends the oil for re-refining into new lubricant stock and adds new locations as the opportunity and/or need arises.

## **Education and Outreach**

Continuing Program. The focus of this program is to reduce residential use of hazardous products by raising awareness of their human and environmental health risks, and highlighting available alternatives. The second priority is education on safe storage and disposal methods. TCEH conducts school programs, community workshops, retail garden center and childcare center staff training, outreach at community events and distributes educational materials throughout the county. A new Healthy Homes volunteer program will enable residents and child care centers to request in-home environmental health assessments. Outreach topics and audiences are prioritized based on the hazard level of the material and the risk of exposure or risk of contamination. For 2012-2013, an example of a special emphasis is intensive retail staff training about lower hazard pesticides and fertilizers made at a large home and garden center located near several city wellhead protection areas.

## **Integrated Pest Management**

Continuing Program. Thurston County believes that effective pest control should begin with a very good understanding of the pest (habitat, life cycle, diet, reproduction, etc.) and why it is a problem. We have researched many pests to better understand what types of environmental

factors promote them and what combination of control methods will keep them at tolerable levels. We then develop prescriptions (fact sheets) that provide information about the pest and the procedures that will be used to monitor and control it. Each prescription contains a description of the pest or vegetation problem, its negative impacts, a monitoring process, non-chemical control strategies, chemical control strategy, and the timing for these events.

Many of these prescriptions follow the same methods that Thurston County departments use; some have been developed specifically for homeowners and land managers in Washington State. The information that is provided may be useful to people in other regions, but the chemicals that have been reviewed for use within these prescriptions are registered for use in the state of Washington and may not be available or be registered for use in other states.

### **Prescription Take Back Program**

New Program. Unwanted and outdated pharmaceuticals pose serious safety and environmental threats ranging from child poisonings, illegal use, and contamination of our streams and drinking water. Unwanted pharmaceuticals should not be poured down the sink or flushed down the toilet. Conventional wastewater treatment is not effective at eliminating the majority of pharmaceutical compounds, whether passed through the body or flushed down the toilet as a disposal technique. As a result, pharmaceuticals are now found at very low levels in surface waters, streams, septic tanks, tap water and waste water effluent. These levels are unable to induce acute effects in humans as of yet, i.e., they're far below the recommended prescription dose, but have been found to affect aquatic ecosystems.

Prescription drugs, non prescription drugs and supplements are involved in more than half of unintentional child poisoning incidents. Prescription drug abuse is a serious and growing problem in our communities. To provide county residents with a free, easy, secure and responsible way to properly and securely dispose of unwanted drugs, law enforcement agencies and other partners have established 6 prescription drug drop-off locations throughout Thurston County. These law enforcement locations accept narcotics and prescribed controlled substances, as well as other medications.

### **D. HAZARDOUS WASTE COLLECTIONS - 2011**

- Garbage from enforcement actions – 105 tons
- Garbage from Voucher Program – 24.8 tons (13 vouchers cost less than \$3,000)
- Used prescriptions – 3,783 pounds from 6 drop box sites
- Use motor oil - 27,175 gallons from 8 sites
- Boat waste - 2,114 pounds from 3 sites (e.g. bilge water, used oil, antifreeze, and paints)
- Used batteries - 1,500 pounds
- Used cooking oil – 211 pounds (program just initiated)



**FIGURE 16: HAZARDOUS WASTE BOOTH AT A COMMUNITY EVENT**

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## 10. WHAT IS WORKING WELL FOR SOLID AND HAZARDOUS WASTE?

### A. SOLID WASTE

The following list was summarized from Chapter 7, the proposed *Thurston County Solid Waste Management Plan* (2009), and Olympia's plan entitled *Toward Zero Waste: Olympia's Waste ReSources Plan 2008 – 2013*.

- **Solid Waste Diversion Programs** – Since 2007 there have been a number of new diversion and recycling programs initiated. A food debris curbside collection service has been implemented with the opening of Silver Springs Organics which is located within the County. Refer to Chapter 7 for an in-depth summary of the various solid waste diversion programs.
- **Tracking Solid Waste and Recycling Volumes** – Thurston County and Olympia both track the volumes of wastes which they handle. This allows them to discover new trends and evaluate the success of new diversion programs.
- **High Volume of Recycled Materials** – There has been a significant increase in recycled materials from 2000 to 2010. (See Table 2 on page 16.) Also, the number of customers using traditional recycling has increased with the introduction of the comingled residential curbside recycling program.
- **County Sustainability Policy and Plan** - In 2007 Thurston County adopted a Sustainability Policy which was followed in 2009 with an adopted Sustainability Report. While the report provided a number of waste reduction and recycling options, it also focuses on responsible purchasing and operations and practices. This approach could reduce wastes by altering the ways which the county makes purchasing and operation decisions.
- **Olympia's Toward Zero Waste Plan** – In 2007 the City of Olympia adopted its own *Toward Zero Waste Plan*. While the Thurston County Solid Waste Management Plan provides the umbrella document for the entire County, Olympia adopted its own plan to focus attention on some key local issues and address their unique position of being their own hauler and educator.
- **Green Building Practices** – The idea of “Being Green” is gaining momentum in the construction industry and with policy makers. In 2010-11 the City of Olympia was able to utilize a number of green building practices and used some recycled materials in the construction of its new city hall. Also, in 2012 Thurston County Public Works will complete two new buildings which will be LEED certified.

Thurston County is also working very closely with the building community to promote green practices. Two examples are the 2011 Glass Summit to increase the use of glass aggregate, and the 2010 & 2011 sponsorship of the EcoBuilding Guild Green Tour. The county's plans for 2012-2013 include completion of a code innovation database of new techniques and materials that can be used by permitting agencies and builders; a series of eight symposiums to address green building issues and barriers with the goal of moving from vision to reality; and continued sponsorship of the Green Tour.

- **Solid Waste Advisory Committee** - The Thurston County Solid Waste Advisory Committee (SWAC) advises the Solid Waste Program on its solid waste plan. The SWAC also provides guidance to the Thurston County Environmental Health Division regarding the hazardous waste plan. It is made up of elected officials, citizens, and industry representatives.

## B. HAZARDOUS WASTE

The following list was summarized from Chapter 8, and the *Hazardous Waste Plan for Thurston County* (1998).

- **New HazoHouse** - A new *HazoHouse* opened in March 2011 at the WARC. It is now a state-of-the-art facility and should serve the county for years to come.
- **WasteMobile Events** – *WasteMobile* events allows hazardous waste to be safely collected from all parts of the county. Then those wastes can be safely sorted, recycled, and /or disposed of.
- **Hazardous Waste Programs** – Since 1998 there have been a number of new diversion and recycling program initiated. Refer to Chapter 9 for an in-depth summary of the various hazardous waste diversion programs.
- **High Volume of Recycled Materials** – There has been a significant increase in hazardous materials collected at the *HazoHouse* and by *WasteMobile* events from 2000 to 2010. (See Table 5 on page 28.) The yearly volume of recycled hazardous waste varied bases upon the product emphasis for that year, as well as the part of the county being targeted.

## 11. WHAT ARE THE CHALLENGES FOR SOLID AND HAZARDOUS WASTE?

### A. SOLID WASTE

The following list was summarized from the proposed *Thurston County Solid Waste Management Plan* (2009) and Olympia's plan entitled *Toward Zero Waste: Olympia's Waste ReSources Plan 2008 – 2013*.

- **Management Plan Adoption** – Thurston County's adopted Solid Waste Management Plan (SWMP) is from 2001. Solid Waste Management Plans are to be provided to the Washington State Department of Ecology every 5 years. The proposed 2009 plan has not been formally adopted, but is being implemented.
- **Changing Disposal and Recycling Rates** – The 2009 SWMP estimated solid waste generation and recycling rates were based on data from 1999 to 2005. Since 2007, the trend of increasing volumes of solid waste has shifted to a period of declining volumes. In contrast, a comingled residential recycling program was initiated in 2007 which has increased the volume of recycling. Since the lifespan of the Waste and Recovery Center (WARC) is based upon its design capacity, accurate forecasts will be the basis for meeting the needs of the 2040 population.
- **WARC Capacity** – The existing Transfer Station design capacity is approximately 190,000 tons per year. However, the Hawks Prairie site could be expanded to handle up to 250,000 tons. Prior estimates for 2030 suggest that the county waste stream would have consisted of 360,000 tons of garbage for disposal, and 320,000 tons of materials to be recycled. However, beginning in 2008 and continuing through 2011, Thurston County and the rest of the nation slid into a recession. The recession has led to a significant reduction in waste generation and disposal, reducing disposal volumes up to 20%. With this decreased volume the need for capacity development has reduced for the foreseeable future. The *Thurston County Capital Facilities Plan* for 2012 to 2017 anticipates expenditures of \$8,950,000 for six projects at the WARC. These projects and future projects will be evaluated as to their need. Current forecast of waste collection and disposal indicate a continuance of a declining waste stream due to the lingering recession and county waste reduction efforts through 2015 with a slight increase beginning in 2016. The need for additional disposal capacity will be identified through reviews of annual waste disposal and evaluating projected trend indicators.
- **Population Growth in South County** – Currently, all solid wastes are processed through the WARC at Hawks Prairie. While the site lies in close proximity to north county communities and Interstate 5, it is somewhat remote for residents in southern Thurston County. Greater population growth by 2040 further from the WARC will increase the vehicle miles driven for commercial haulers.
- **Data Collection for Disposal and Recycling** – Disposal and recycling data collected before 1999 is difficult to use. In 2007 it was suggested that the current recycling data was of limited usefulness in understanding the impacts of new waste reduction and recycling programs.

Accurate data collection makes forecasting possible and determines if diversion projects are successful.

- **Increasing Waste Generation** – From 1995 to 2010 the total waste generation (garbage and recycling) increased by 137 pounds per person. While the amount of garbage actually decreased by 4 percent, recycling increased by 69 percent or 178 pounds per person. Increased waste generation per capita could reduce the lifespan of the existing WARC. (See Appendix B)
- **High Rates of C&D in the Garbage** – At the WARC one of the largest waste streams is for construction waste and debris which makes up about 15 percent. During a period of higher construction activity (2005) this averaged about 100 tons per day. It is estimated that only 10 to 20 percent of these wastes are diverted at the WARC. In Tacoma, Recovery 1, a facility designed for construction waste and debris, achieves a 99 percent diversion rate. This is the closest designated C&D facility to Thurston County. It can be cost prohibitive to haul small loads to Recover 1. There are no permitting requirements that encourage salvage from demolition or recycling from construction such as there are in San Diego County, CA.
- **High Rate of Organics in the Garbage** – In 2009 Thurston County found that its garbage contained 24.6 percent organic materials. These compostable materials generally include food scraps, paper products, and yard & garden debris. It is sometimes difficult to find ways to reach all 55,000 residential and commercial customers to encourage recycling of compostables.
- **Increased Waste Generation by Businesses and Commercial Uses** – For 2005 the City of Olympia estimated that the waste generation rate per commercial employee was twice that of a resident. The commercial waste generation rate of 5 pounds per day per employee was up by 46 percent in ten years. The commercial sector accounts for about 60% of Thurston County’s waste stream. Growth in the commercial sector will increase waste generation proportionally.
- **Unregulated Commercial Recycling** – Haulers (LeMay and Olympia) have an exclusive right to the residential garbage and recyclables. However, commercial recycling collection and transportation are not regulated and are subject to open market forces.
- **Definition of “Recyclable”** – In the past, there have been differences in what materials were considered “recyclable” between Thurston County and Olympia. There have also been difficulties with materials being diverted to the composting facility, which the facility was not permitted to handle.
- **Contingency Plans for Solid Waste** – The railhead for the garbage train is approximately 32 miles from the WARC in neighboring Lewis County. Floods have closed Interstate 5 at Centralia multiple times in the past few decades. Landslides are another potential threat to rail service on the 250 mile journey to the landfill. The county currently lacks any action initiatives to deal with disruption to this service in the *Natural Hazards Mitigation Plan for the Thurston Region* (2009).
- **Reliance on the Private Sector** – Thurston County and Olympia rely partly or entirely on private companies for collection, processing and disposal of waste. Two private companies, LeMay Enterprises (Waste Connections) and Allied Waste Services, and their subsidiaries are hired to operate the transfer station, manage recyclables, and handle garbage transfer, recyclables

processing and disposal to the regional landfill. Waste Connections, Inc. owns Silver Springs Organics, which is the only commercial compost facility within our region. What the facility accepts is subject to change due to market forces and profit motives. Changes in collection that are too frequent can confuse the customer and undo education and outreach efforts.

- **Solid Waste Collection:** The best recycling rates occur in single-family homes where it is easy for residents to recycle and compost. However, it is generally the least efficient collection method. Efforts to be more efficient in collection have resulted in larger trucks with robotic arms for picking up waste. These trucks can be less maneuverable. As density increases and there is more demand for low impact development, a conflict appears in providing enough space for waste storage and access by solid waste collection equipment.

## B. HAZARDOUS WASTE

The following list was summarized from the *Hazardous Waste Plan for Thurston County* (1998).

- **Unaccounted for Hazardous Waste** – It is estimated that 28 percent of household hazardous waste and small quantity generators of hazardous wastes were not showing up in the hazardous waste collection systems designed to safely manage these wastes. While there is no data suggesting where this waste has gone, it seems reasonable to suggest that it is winding up in the trash, down the drain, on the ground, or in storage. For 1997 Thurston County this would have been 288 tons (based on 1990 and 1994 data from the City of Seattle). A more accurate method for determining the types and quantities of hazardous waste within Thurston County is needed.
- **Unequal Access for Hazardous Waste Recycling** – Not all residents in the county have equal access for recycling hazardous waste. Residents who live more than 10 miles from the facility do not feel they have equitable access to safe disposal of their household hazardous wastes.\* Residents who do not own or drive an automobile do not have equitable access to safe disposal. Residents that are non-English speaking do not have equitable access to services since information is only printed in English. Public demand for collection of target wastes such as paint or antifreeze at transfer stations is not being met.

*\* = A 1993 telephone survey indicated that four out of five respondents think there should be more convenient opportunities for the disposal of hazardous waste. Surveys from household hazardous waste collection events showed that the majority of participants were within 10 miles of the collection site.*

- **Education Funding and Programs** - There is a lack of methodical, targeted advertising of the household hazardous waste facility. Few resources are devoted to researching customer needs, behaviors, obstacles to change, and motivations. Insufficient resources are devoted to measuring effectiveness of programs. Inadequate resources are available to carry out effective media campaigns. The fragmentation of the many resource protection plans blocks a natural and dynamic merging of hazardous waste education with other resource protection education. More testing and refinement of geographic campaigns is necessary, particularly for campaigns targeting wellhead protection areas.

- **Integrate and Update Regulations** – There are some barriers associated with the Thurston County Nonpoint Ordinance. Updates are needed to address the definitions of “hazardous materials” and “hazardous waste” to be equivalent to the definitions in the state hazardous waste regulations for “hazardous substances” and “hazardous waste.” The ordinance needs to allow the use of civil penalties. This would allow the County to retain collected penalties rather than losing them to the state and courts system. The authority of the ordinance to require clean-up of a contaminated site needs to be clarified.
- **Contingency Plans for Hazardous Waste** – The County lacks a plan for collecting of household hazardous waste and small quantity generators during emergencies or natural disasters. As well, the County currently lacks any action initiatives to deal with such emergencies in the current *Natural Hazards Mitigation Plan for the Thurston Region (2009)*.
- **New and Emerging Chemicals of Concern** – The term “chemicals of emerging concern” has come to characterize the increasing awareness of the presence in the environment of many chemicals used by society, and the risk that these chemicals may pose to humans and ecosystems. These include newly formulated chemicals and extremely tiny materials used in cosmetics, paints, electronics and other products, as well as chemicals used every day by households, farms, businesses or industry, such as fragrances, disinfectants, pharmaceuticals and pesticides. In the United States and Canada very few of these compounds have regulations governing their release into the environment and discharges from wastewater treatment plants

Of concern is the uncertainty of potential adverse effects on wildlife and humans due to chronic exposure to low concentrations of chemicals of emerging concern. Studies show evidence that some of these chemicals are accumulating in sediments, birds, and aquatic life, as well as in humans. They rarely occur in isolation, so studying their effects is difficult. Scientists are especially concerned with learning more about how long the chemicals stay in the environment, the extent to which they accumulate in a body, their toxicity at low doses and how consistently they are released into the environment.

- **Education Funding and Programs** – Many hazardous materials are widely available on store shelves and throughout the community. Consumers assume if it is purchased in the store it must be safe. The influence of product manufacturers is overwhelming – they establish what people will consume and what impact it will have on environmental health. There is a strong realization that local government programs alone cannot significantly affect consumer behavior, which is driven by much stronger forces than local government programs! Certain products that are ubiquitous are now being shown to be hazardous. For example, cosmetics and other products contain phthalates and heavy metals. A challenge is implementing policies and programs that help stem the generation and use of the products in the first place to protect public health.

## 12. WHAT ARE THE OPPORTUNITIES TO GET AROUND THE CHALLENGES FOR SOLID AND HAZARDOUS WASTE?

### A. SOLID WASTE

The following list was summarized from the proposed *Thurston County Solid Waste Management Plan* (2009) and Olympia's plan entitled *Toward Zero Waste: Olympia's Waste ReSources Plan 2008 – 2013*.

- **Update the Solid Waste Management Plan** – Thurston County is required to have a current Solid Waste Management Plan (SWMP). Thurston County could work with the Solid Waste Advisory Committee (SWAC) to draft and revise this plan. Coordination with Thurston County Environmental Health would be advisable regarding the recycling of hazardous materials. This would insure that the SWMP can be kept up to date.
- **Expand the WARC** – Increasing recycling and reducing the waste stream through the Waste and Recovery Center (WARC) is a way to extend the life of the existing facility. Thurston County is in the planning stage for expansion to the WARC. The *Thurston County Capital Facilities Plan* anticipates expenditures of \$8,950,000 for six projects at the WARC from 2012 thru 2017.
- **Evaluate a New Facility in Southern Thurston County** – Undertaking a facility needs analysis is a normal procedure for a SWMP update. Using the proposed 2040 population projections, it is likely that there may be a sizable population growth near Grand Mound and in the City of Yelm. The proposed Solid Waste Management Plan (2009) suggests exploring the feasibility of using the Centralia Transfer Station or a jointly developed new facility to provide additional waste and recycling capacity in southwest Thurston County. A similar facility may also be needed for the southeastern portion of the county. This may be a collaborative project with Pierce County.
- **Update Disposal and Recycling Rates** – The continued growth of waste generated indicates that more needs to be done to prevent waste in the first place. The link between waste and climate change is becoming more obvious.
  - 9,750 tons more waste recycled or composted = 29,250 fewer tons of CO<sup>2</sup> emissions
  - Every ton of municipal solid waste that is recycled instead of going to the landfill means about three fewer tons of CO<sup>2</sup> entering the atmosphere (EPA, 2007).
- **Continue to Expand Organic Recycling** – In 2012 Silver Spring Organics will be complete with its state-of-the-art facility upgrade. This facility could accommodate greater diversion of organic materials such as food debris and compostable paper, if markets allow. Its location within the county is a benefit to south county residents who could travel to this facility rather than the WARC.
- **Evaluate a Construction Debris Recycling Facility** – In 2009 there continued to be a significant amount of construction and demolition debris (C&D) in the garbage – 1,470 tons from single and multi family residential and 6,820 tons from commercial waste. Some metals, concrete and brick can sometimes be recycled locally, but other materials must be hauled to the Tacoma area. It is uncertain whether the South Sound area can generate enough volume to make a

local C&D recycling facility economically feasible. The county may want to meet with builder's organizations in the construction market to discuss this concept and identify other ways to decrease C&D waste. Another possibility would be to partner with Recovery 1 to have a collection station at the WARC.

- **Increase Product Stewardship** – Making manufacturers partially responsible for the disposal of their product is one way to close the recycling or disposal loop. For example, local programs for collecting used medicines could be expanded if drug manufacturers accepted a stewardship responsibility and financially helped with collection efforts, or state laws were passed to do the same. As with “Green” construction movement, it is hoped that the level of product stewardship will increase over time. Other statewide product stewardship and legislative efforts include - packaging, beverage containers, carpet, paint, and electronics accessories.
- **Target Multi-Family Recycling Rates** – In the next thirty years, there may be an increased number of multi-family households. This changing demographic may affect the county's and Olympia's collection and recycling programs. It may require additional resources and new strategies to increase the recycling rate for these households.
- **Expand Recycling to New Product Areas** - Markets exist in Washington for other materials such as carpet and padding, various kinds of textiles, other plastics, such as plastic bags and plastic film, and electronic waste. Thurston County and Olympia could help increase recycling of these additional materials through a variety of means, ranging from collecting materials at curbside or drop-off points, to providing information to businesses about how to access these markets.
- **Expand Commercial Recycling** - Commercial recycling collection is provided by the private sector. Olympia does not have information about the level of participation or availability and cost of recycling services. However, this represents a major opportunity for Olympia to increase diversion from the landfill.
- **Develop an Emergency Plan** – During the next update of the current Solid Waste Management Plan and the *Natural Hazards Mitigation Plan for the Thurston Region*, Thurston County could develop action initiatives for those times when the garbage train is disrupted. This could be coordinated with the County Environmental Health Division regarding the collection of hazardous waste, as well.

## B. HAZARDOUS WASTE

The following list was summarized from the *Hazardous Waste Plan for Thurston County* (1998) and other sources.

- **Continued Hazardous Collections Efforts** – In the battle against hazardous waste, Thurston County has two major assets. The first is a collection facility at the WARC (*HazaoHouse*), and the other is *WasteMobile* events. Combined they provide a flexible approach to reach out and collect hazardous materials throughout the county. These should serve the county for years to come.

- **Continue Technical Assistance to Small Business** – While the *HazoHouse* and *WasteMobile* events serve the needs of the residential customer, additional emphasis is needed for small quantity generators of hazardous waste. With recycling volume from small quantity generators being flat for the past ten years, small businesses are seen as a key to increased recycling rates.
- **Continue Education and Outreach Programs** – Education and outreach program are key techniques to change the behaviors of county residents and businesses regarding recycling options and the correct way to dispose of hazardous materials. By 2040 a large segment of the population will be new residents, who could benefit from this information. Changing the focus or campaign on a yearly basis is a means to target both – emerging issues and different parts of the county.
- **Evaluate New Collection Facilities** – It will be important for the Environmental Health Division to collaborate with the Solid Waste Program as the county explores new solid waste facilities in southern Thurston County. With 2040 population growth near Grand Mound and Yelm, new hazardous waste collection facilities may be needed to adequately serve those areas.
- **Adopt an Emergency Plan** – During the next update of the current *Hazardous Waste Plan for Thurston County* and the *Natural Hazards Mitigation Plan for the Thurston Region*, Thurston County could develop action initiatives for those times when emergencies or disasters would disrupt the collection of hazardous waste. This could be coordinated with the Thurston County Solid Waste Program regarding their contingency plans for solid waste disposal.

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## Appendix A

### Abbreviations and Commonly Used Terms

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<b>C&amp;D</b>	Construction and Demolition Waste
<b>County</b>	Thurston County
<b>Ecology</b>	Washington State Department of Ecology
<b>IPM</b>	Integrated Pest Management
<b>LeMay</b>	LeMay Enterprises, Inc. (Waste Connections)
<b>MRW</b>	Moderate Risk Waste
<b>MSW</b>	Municipal Solid Waste
<b>Olympia</b>	City of Olympia
<b>SWAC</b>	Solid Waste Advisory Committee
<b>SWMP</b>	Solid Waste Management Plan
<b>TCSW</b>	Thurston County Solid Waste
<b>TCEH</b>	Thurston County Environmental Health
<b>UGA</b>	Urban Growth Area
<b>WARC</b>	Waste and Recovery Center

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#### **Composting:**

The controlled biological decomposition of organic solid waste materials, which produces a relatively stable mixture that can be used as a soil conditioner.

#### **Construction and Demolition Waste:**

Those wastes that are typically associated with the construction industry and considered 'recyclable C&D' include stone, concrete, brick, windows, metal, lumber, and shingles.

#### **Diversion:**

The process of removing waste materials from the solid waste stream through reuse or recycling.

#### **Garbage or Refuse:**

Solid waste disposed of in a landfill or other nonproductive use. For the purposes of this report, garbage means materials that are transported to the Roosevelt Landfill for disposal.

#### **Hazardous Materials:**

Those chemicals or substances that are physical hazards or health hazards as defined and classified in Article 80 of the Uniform Fire Code whether the materials are in useable or waste condition.

**Household Hazardous Waste:**

Hazardous wastes generated by households (including single and multiple residences, rather than by businesses or institutions).

**Hazardous Waste:**

Any waste or combination of wastes that are corrosive, ignitable, toxic, reactive, or persistent in the environment and may cause irreversible illness, an increase in mortality, or pose a substantial threat to human health or the environment.

**Municipal Solid Waste (MSW):**

All wastes that are generated by residential, business, industrial, and institutional locations.

**Moderate Risk Waste (MRW):**

Moderate risk waste means: (a) any waste that exhibits any of the properties of hazardous waste but is exempt from regulations under Chapter 70.05 RCW Hazardous Waste Management solely because the waste is generated in quantities below the threshold for regulation, and (b) any household waste which are generated from the disposal of substances identified by the Washington Department of Ecology as hazardous household substances.

**Per Capita Generation:**

The average amount of waste or recyclables generated by a single person in a year. The rate is calculated by dividing the total waste or recyclables by the total population for that area.

**Recycling:**

Separating a given waste material from the waste stream and processing it so that it may be used again as a useful material for products that may or may not be similar to the original. Ecology's definition of recyclable materials generally includes paper, metal, glass, plastic and organics.

**Recovery:**

Refers to material removed from the waste stream for the purpose of recycling and/or composting.

**Small Quantity Generator of Hazardous Waste (SQG):**

A type of business or institution that produces hazardous waste in quantities less than 220 pounds (100 Kg) per month, less than 2.2 pounds (1 Kg) of acute hazardous waste per month, and never accumulates more than 2,200 pounds of hazardous waste.

**Solid Waste:**

Refers to garbage, rubbish, refuse, swill, ashes, industrial wastes, sewage sludge, demolition and construction wastes, abandoned vehicles or parts of abandoned vehicles.

**Solid Waste Management System:**

The infrastructure to pick up, move, and process solid waste which may include recyclables, compost, or refuse.

**Transfer Station:**

A facility where wastes are transferred from smaller vehicles (cars, pickup trucks, contractor trucks, and collection vehicles) into larger transport trailers prior to movement to the landfill for disposal.

**Waste Reduction:**

The act of consuming and discarding less material by redesigning products to use fewer raw materials in production have a longer life, or so they can be used again after original use.

**Waste Prevention:**

The act of substituting durable goods and materials for disposables or less durable materials. Looking for new ways to reuse goods.

**Yard Debris:**

This means plant material commonly created in the course of maintaining yards and gardens and through horticulture, gardening, landscaping or similar activities. Yard debris includes, but is not limited to, grass clippings, leaves, branches, brush, weeds, flowers, roots, windfall fruit, and vegetable garden debris.



## Appendix B

### Solid Waste in Thurston County – 1995 to 2010

	1995	2000 <sup>1</sup>	2005	2007	2008	2009	2010
<b>Recycling (tons)</b>							
Residential Organics collection	7,102	6,000	13,079	20,947	20,693	28,545	33,085
Regional Blue Box Sites	1,972	1,585	3,194	2,791	2,669	675	670
Curbside - Thurston County	10,172	7,225	9,508	13,169	14,041	14,957	14,974
Curbside - Olympia	3,194	4,400	4,989	5,115	5,128	4,900	4,961
Recycle Center at transfer station	1,736	1,500	1,504	1,438	1,200	1,713	1,090
<b>Total Recycling<sup>2</sup></b>	<b>24,176</b>	<b>20,710</b>	<b>32,274</b>	<b>43,460</b>	<b>43,731</b>	<b>50,790</b>	<b>54,780</b>
<b>Landfill Solid Waste (tons)</b>	123,771	149,842	175,945	196,221	177,660	162,701	159,933
<b>Population</b>	189,201	204,700	224,100	238,000	245,300	249,800	252,400
<b>Recycling Pounds per Capita</b>	<b>256</b>	<b>202</b>	<b>288</b>	<b>365</b>	<b>357</b>	<b>407</b>	<b>434</b>
<b>Landfill Waste Pounds per Capita</b>	<b>1,308</b>	<b>1,464</b>	<b>1,570</b>	<b>1,649</b>	<b>1,449</b>	<b>1,303</b>	<b>1,267</b>

Source: Thurston County Solid Waste.

Explanations: <sup>1</sup>Some 2000 data are estimated.

<sup>2</sup>Does not include business recycling, backyard composting or self-haulers that take recyclables to Pacific Disposal or other locations.

Notes: Several Regional Blue Boxes closed Jan 1, 2009. Recycling figures do not include business recycling, backyard composting or self-haulers that take recyclables to Pacific Disposal or other locations.