D. Turning Food Waste into Compost or Energy

GOALs:

- **Reduce food waste and packaging materials entering landfill from schools, hospitals, restaurants and other institutions.**
- **Turn food waste into compost and/or energy.**

BACKGROUND:

- Food waste is one of the last remaining areas where a large volume of material can be diverted from the landfill. Currently it makes up 15,000-30,000 tons of Tacoma's commercial waste stream (www.**cityoftacoma**.org/File.ashx?cid=6493*)*
- Tacoma General Hospital and Mary Bridge Hospital (part of MultiCare Health System) with their associated retail operations estimate their daily food waste going to landfill at 400-500 lbs.

MEASURABLE objectives:

- Reduce a local facilities' food waste going to landfill to 0.
- Increase the number of organizations and businesses diverting food waste from landfill and using it to improve soils and/or generate energy.

Additional environmental health risks or benefits from action:

- Diverting food waste from landfills reduces methane production, a greenhouse gas 21 times more potent than carbon dioxide (EPA, Organic Materials Program, www.epa.gov/epawaste/conserve/materials/organics/food/index.htm).
- Reducing our waste stream reduces risks of contaminants entering water systems.
- Eliminating food and associated disposable products decreases the amount of land needed for garbage disposal
  - LA County claims that every participating restaurant that recycles food waste keeps 5 refuse truckloads of waste out of local landfills every year.
  - Department of Agriculture estimated in 1997 that 96.4 billion pounds of the 356 billion pounds of edible food in the U.S. was never eaten - an astounding 27 percent of food available for consumption is wasted and ends up in our landfills!
- Soils can be enriched with composted food waste without using chemical products.
- Food waste can be turned into energy, reducing our reliance on fossil fuels.

Risks associated with offsite composting (reduced by onsite composting):
Composting of hospital food waste has become the common practice in large King County Hospitals. Their food and other compostable materials are collected and trucked to Cedar Groves, a private composting facility in North Seattle. This requires large food dumpsters on-site at hospitals and these can pose a risk to storm water if not sealed and stored correctly. In addition, by delivering waste to Cedar Groves there is the added transportation burden to the environment. The distance from Tacoma to Cedar Groves is over 40 miles. LeMay Composting to the southeast of Tacoma is over 30 miles.

D. Turning Food Waste into Compost or Energy (continued)

Economic benefits:

- MultiCare Health System: Cost savings estimated at approximately $4000 in solid waste pick-ups. Savings from reduced water usage is not yet determined.
  - Cost avoidance of solid waste pick-ups and reduce impact on landfills (approximately 16 tons per year)
  - Decreased water supply and treatment costs from removing garbage disposals and moving to a pulper/dehydrator/mulcher unit
  - Cost saved by using fertilizer created from the food waste, instead of buying it
  - Possible cost savings to consumers and taxpayers?

Possible LEAD organization and individual(s):

- Start with one facility and move to other organizations and businesses – all who could have units that turn food waste into compost and/or energy.

Possible PARTNER organizations and individuals:

- Pierce County Solid Waste Advisory Committee.
- King Co and Pierce Co. Master Gardeners
- Washington State Dept of Ecology
- City of Tacoma Green Ribbon Task Force and Solid Waste committee.
- Health department, city environmental agencies, restaurant organizations, farmers, pea-patches, Dept. of Ecology, Puget Sound Clean Air Agency, waste management.

HOW? STRATEGIES and STEPS to reach goal **WHEN?** TIMELINE:

1. Learn more about best practices and other options for turning food waste into compost and into energy, on site. **June 2009 +**
   - Discuss and explore examples described below, starting on page 4.
   - Identify possible facilities to be a demonstrations site and best practices for other institutions and businesses in Pierce County.

2. Work with facility(s) to identify and site systems that turn food waste into compost and/or energy. **Jan - May 2010**
   - Order and install the system. Possibly a pulper unit and dehydrator-composter-mulcher unit to process solid food waste into mulch that can be used for gardening and landscaping purposes.
   - Measure environmental and economic benefits – reduced solid waste contribution, reduced water usage; money saved from reduced solid waste, reduced water usage, money and using own mulch
   - **Budget: Contribute $40,000 to cost of site appropriate food waste system(s), to help expedite use of food waste in Pierce County.**

D. Turning Food Waste into Compost or Energy (continued)

3. Use the facility as a demonstration site: invite elected officials, agency and community members to see how it works, hear the value, and identify other interested institutions and businesses. **June 2010 +**

- MultiCare, through its Center for Healthy Living, has an active partnership with over 20 Pierce Co restaurants. An appropriate restaurant can be identified and recruited for the small business model.
- Encourage other institutions and companies to also site a unit that turns food waste into compost and/or energy.
- Pitch money saved: cost of waste/garbage disposal keeps going up, cost of connecting to a recycling/composting program is cheaper. It will become a regular business practice – mostly because of savings and long- and short-term benefits.
  - Start by working with hospitals, then restaurants
  - Create a certification with signage and an ad campaign for restaurants that recycle, similar to the EnviroStars program.
- Communicate and publish case study.
- Facilities should be encouraged to use bio-degradable food service containers that can be recycled with their food waste recycling.

CHALLENGES and BARRIERS:

- Getting individual and chain restaurants to see the value in recycling their waste but I think we can encourage them by showing the savings.
- One of the biggest challenges to successful composting/recycling is teaching users/consumers what can and can't go into the food waste stream (to keep the compost from being contaminated). Suggestion made by local restaurant cook to color-code the garbage bins to help workers – room is limited in kitchens and people are in a hurry, but they're trainable.
- Institutional kitchens may have limited space and limited staff time to set up recycling system and change old habits. Need to make it as simple, easy, and profitable as possible. (Children's Hospital in Seattle example – no room to prepare or process fresh fruits and vegetables at first, but had to set up separate area.)

ASSETS and RESOURCES: What do you HAVE to get this done?

- Others who are working on this locally to work with: Pierce County and Tacoma Solid Waste Programs, City of Tacoma Green Ribbon Climate Change Task Force, Washington State Dept. of Ecology, Puget Sound Clean Air Agency, Food Systems Coalition members.
- MultiCare Health System is an organizational member of Practice GreenHealth and Healthcare without Harm, both not-for-profit organizations that help healthcare

systems identify opportunities reducing the environmental footprint of organizations and their communities.

- MultiCare Health System has already switched to using compostable containers in the cafeteria, so these materials can go straight into the proposed equipment.
- Everyone wants to save money. Other programs have shown that restaurants and other organizations can save money and improve publicity by recycling food waste (see information below).
- Changing "green" attitudes: "green is the new red, white and blue" (Thomas Friedman, www.nytimes.com/2007/04/15/magazine/15green.t.html), and "green is the new black" (www.investopedia.com/articles/07/green-new-black.asp)

What do you NEED to get this done?
Additional funding, other businesses and institutions who want to reduce food waste.

Possible funding sources:
Dept. of Ecology Public Participation Grant Program and Terry Hussman awards

Information sources, references, best practices:

- Over a million tons of food waste was disposed of in Washington State in 2006 – less than 80,000 tons were recycled and diverted (Solid Waste in Washington State, http://www.ecy.wa.gov/pubs/0707048.pdf)
- Washington Department of Ecology's Solid Waste Program's compost webpage: http://www.ecy.wa.gov/programs/swfa/compost/. See "Managing Food Scraps at Institutions and Agencies.
- Children Hospital food waste is collected and composted off-site as part of its "Clean Green Initiative." So far the effort is diverting 1,400 pounds of waste per week from the landfill and it's estimated it will save Children's about 40 percent on their annual waste bill. See Health Care Without Harm: www.noharm.org, www.premierinc.com/quality-safety/tools-services/safety/green-link/green-corner/childrens-seattle-food-recycling.pdf www.resourceventure.org/case-studies/success-stories/archives/children2019s-hospital
- Microsoft cafeteria recycles 190 tons of food related waste, which saves our landfills.
- Starbucks uses to-go containers made from 15% recycled materials, which uses 45% fewer carbon emissions to make (starbucks.com/csr)
- Thurston County has a Food Plus Recycling program that makes it easy for businesses and schools to compost food (call LeMay Enterprises at 306-486-8606) Thurston County Solid Waste sends food waste to Silver Springs Organics (a state-licensed organic waste recycling center) to be ground up into smaller particles to produce compost. The finished product is safe to use on vegetable gardens. Silver Springs Organics receives 2,000 to 5,000 tons of organic waste a month.

Thurston County offers participants in food recycling: Hands-on staff training and signage, Kitchen recycling containers, Outdoor collection bins, Promotional materials

- Renton School District, Sierra Heights Elementary Food Waste Worm Composter – working with King County Solid Waste, Ecology, parent-teacher organization to develop pilot program: http://www.ecy.wa.gov/news/2008news/2008-058.html
- City of Los Angeles, (213) 485-2260, www.lacity.org/san
- LA helps restaurants (or any business) set-up food waste recycling and helps with technical assistance. Restaurants that participate in the restaurant food waste recycling get a drastic reduction in their garbage service as an incentive. LA claims that 76% of restaurant waste is organic and can be recycled. A single restaurant disposes of more than 50 tons of organic waste every year. LA County offers:
  *Cost savings by better management of disposal costs
  *Better for the environment-divert waste from landfills and turns organic waste into useful by-products, such as soil amendments (compost) and fertilizers
  *Assists the City of Los Angeles to meet the State's waste diversion requirements
  *Restaurants can recycle more than 76% of their waste by joining this program
  *Free assistance is offered to make your program a success
  *Free set-up of food waste recycling program to fit your specific needs (bins for inside and outside use, staff training, posters, training publications, newsletters, follow-ups and more
  *Help meet the City of Los Angeles' Fats, Oils and Grease (FOG)
- Biogas Energy Project digester in California – turns food waste into electricity: http://www-news.ucdavis.edu/search/news_detail.lasso?id=7915 http://www.onsitepowersystems.com
- Some jurisdictions use food waste by recycling it on farms. In Minnesota Second Harvest Farms, Inc. feeds food waste to livestock but is required to obtain a permit from the Minnesota Board of Animal Health.
- University of Minnesota: mntap.umn.edu/food/86-Thunderbird.htm.
- Restaurant food waste recycling for the City of Los Angeles: lacity.org/san
- Ithaca (reputedly one of the greenest small cities in America) and their food recycling compost program: news.cornell.edu/chronicle/99/4/8/99/compost.html. Cornell Students for Composting created technology to heat greenhouses (where they grow salad greens) with energy from the composting reaction (when carefully managed can reach 160 degrees).
- Will Allen (who won a Macarthur Foundation award of a cool half mil - and who was once a professional basketball player) uses food waste as compost and also to heat six greenhouses (http://growingpower.org/compost.htm) He also does vermicomposting (intensive composting of food waste with worms) Allen uses 80,000 of food waste per WEEK. He also has an anaerobic digester to produce energy from the farm's food waste.

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- Seattle Public Utilities Resource Venture: http://www.resourceventure.org/green-your-business/waste-prevention-recycling/food
- Styrophobia example, reducing use of polystyrene foam and other plastics in Hawaii: http://styrophobia.com/
- Individuals like Will Allen and his daughter are committed to "Growing food and justice for all." In Chicago they created the Chicago Food Policy Advisory Council, which we should look into for the Food Systems Coalition and our Coalition as well.

Let's show local institutions and restaurants what good green business can do for our area. We encourage people to eat locally now let's teach them to RECYCLE locally. We don't think about it much but even food casts a carbon foot print. In an interview with Terry Gross, Michael Pollan stated that the cost of producing fast un-nutritious food is a thing of the past because of all the energy it takes to produce the food. By recycling food waste we limit the carbon footprint because we are recycling food grown locally - in our own gardens hopefully.

Giant garbage hauler Waste Management Inc. (the nation's largest garbage hauler and landfill operator) is committed to spending hundreds of millions of dollars over the next dozen years to make its operations more environmentally friendly (TNT 10-11-07). They plan to double the amount of recyclable material it processes - so why not process more food waste into compost? Waste Management reported in 2006 revenue of $13.4 BILLION! Waste products are BIG business. By recycling food waste we can close the "nutrient loop" and would keep food from entering the waste stream to a landfill. If we want to encourage people to EAT LOCALLY we should also encourage people to COMPOST LOCALLY - why allow such an important asset go to waste?

According to the Seattle Times "Food waste accounts for roughly one-third of Seattle's garbage." The city's goal is to recycle 60% of food waste by 2010. Currently, Seattleites toss more than 200 MILLION pounds of food (to include wet garbage like paper and recyclable food containers) 70% is from commercial operations (like restaurants) and 30% from households. In Seattle, food waste is trucked to Cedar Grove Composting in Maple Valley where it is ground up and mixed with yard waste.

Food Service Warehouse (www.foodservicewarehouse.com) has these tips about starting a restaurant recycling program: (all side comments are Rose's)
*Reduce and reuse
*Know local laws (in some cities meats and fats are allowed in food recycling)
*Conduct a waste audit
*Contact your waste handler to see how to participate
*Cost is key-most recycling programs are cheaper than regular pick-ups
*Gain employee involvement (you are doomed without their support)

*Use labeled bins for each type of waste
*Save used cooking oil (for Biodiesel)
*Talk to local growers (some greenhouses are heated with food waste!)
*Tell your customers! (going green is good for business)

FSW also states
*Recycling is good for business, as it will increase customer loyalty and customer involvement
*Cheaper trash fees
*Cash incentives for participation ($20-50 les per ton than conventional pick up)
*Reduce purchasing cost-less disposable items are purchased
*Avoid extra costs of disposing of restaurant waste by recycling fryer oil, steal and aluminum cans, cardboard, glass and/or plastic

If we encourage food recycling (or even make it mandatory) then participants are more likely to recycle EVERYTHING! Now everyone wins.

Restaurant concerns-
*How often are food scraps picked up?
*How much kitchen space is sacrificed to collecting food waste?
*How much training is available?
*How much extra labor is involved?
Success depends on daily management of the recycling area and support of employees
*How sanitary is this practice?
*Is it efficient and cost effective?
*Most restaurant diners will support recycling efforts-it shows that the joint care about more than just profits and this can lead to a better public image and increased guest traffic-in fact there should be some kind of certification that restaurants can EARN which they can then advertise on their menus as well.
*The Washington Restaurant Association (Barbara Smith) said "It could reduce costs to our members. If you can get things out of the waste stream it's obviously an incentive to business." (Seattle Times 12/30/03)

- From Stephanie Leisle (Pierce County Public Works):

Alison Ruppenthal, Thurston County Solid Waste, manages the Earth Tub project with the two elementary schools in Olympia. She is happy to share her insights/learnings with using Earth Tubs to compost food waste at schools, and can be reached at (360) 754-3355 ext.7676. Here are just a few of her suggestions from our conversation:
1) anyone interested in using Earth Tubs should do lots of research by talking with many people who are using/have used this system; 2) this system needs daily care; 3) it works best when recycling/composting and waste reduction are embraced by the whole school and is part of the culture; and 4) need to have two Earth Tubs.

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Pierce County has been working with Michael Knaack and several teachers in the Bethel School District on implementing recycling and waste reduction at Spanaway Elementary and Jr. High.

As for onsite composting, Thurston Co. was piloting Earth Tubs (same system that Dept. of Ecology uses) last year. The county received a grant, and they purchased the Earth Tubs and paid for the installation on school property. The Resource Conservation Manager for the Olympia School District just left so the best people to talk to about how these are working out would be the principals Boston Harbor Elementary, Michael Havens (360) 596-6250, Garfield Elementary, Bob Hodges (360) 596-6905

Others food composting either on-site or paying for hauling services:
Pacific Lutheran University - hauling it (I'm not sure where)
University of Puget Sound - worm composting on-site next to the University Center – but looking into a composter/mulcher
Islandwood – Bainbridge Island school outdoor school uses Earth Tubs
City of Eugene schools - using Earth Tubs: www.eugene-or.gov/portal/server.pt/gateway/PTARGS_0_2_13467_0_0_18/4J%20Earth%20Tub%20BPM.pdf Earth Tubs: www.gmt-organic.com/EarthTub/et-info.php

- From Dave Bosch (TPCHD Solid Waste):

Useful information is on Washington Department of Ecology's Solid Waste Program's compost webpage: http://www.ecy.wa.gov/programs/swfa/compost/. See "Managing Food Scraps at Institutions and Agencies."

Solid waste regulations (WAC 173-350-220) may require a permit for facilities that compost solid waste, depending on the type of compost facility (e.g. vermicomposting or worm composting), types of feedstocks, quantities of compost and compost product.

Another method in Pierce County is for the institution to work with their local refuse hauler to haul the compost feedstocks directly to a compost facility. Currently, the LRI Compost Factory is accepting food scraps from McNeil Island Correctional Facility, UPS special events, Taste of Tacoma, Tacoma Convention Center, a few grocery stores, and probably others. Carrie Gregory, Compost Quality Manager of the LRI Compost Factory, reviews all new feedstock sources (in corroboration with the Health Department). She may be contacted at (253) 875-2104.

BUDGET:

Contribute $40,000 to cost of site appropriate food waste system(s), to help expedite turning food waste into compost or energy in Pierce County.