Final
Household Hazardous Waste Management Plan
Coos County and Curry County, Oregon

Prepared for

Coos and Curry Counties
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Prepared by Kies Strategies, Tabor Consulting Group and Bell & Associates, Inc.

TABLES

APPENDIXES

1.0 INTRODUCTION AND EXECUTIVE SUMMARY

This Coos County and Curry County Household Hazardous Waste Management Plan (hereafter "HHW Plan" or "Plan") has been prepared by Kies Strategies, Tabor Consulting Group, and Bell & Associates, Inc. for consideration and review by Coos and Curry Counties and the Household Hazardous Waste Planning Committee (hereafter "Committee").

Household hazardous waste (HHW) is waste from households that, due to its hazardous nature, has the potential to cause significant harm to human health or the environment. HHW includes common household products that are poisonous, toxic, flammable, reactive, or corrosive. Examples include pesticides, herbicides, mercury and mercury thermometers, some types of batteries, gasoline, kerosene, motor oil, antifreeze, oil-based paint, paint thinner, turpentine, pool chemicals, drain cleaners, and a variety of other products commonly used in household cleaning, around the yard, or in hobbies, crafts, and auto maintenance. Although inappropriate disposal of these wastes may harm the environment, households are exempt from most federal, state, or local separation requirements governing hazardous wastes (one exception is a prohibition of disposal of "bulk liquids", such as large quantities of paint, in solid waste). Households are also exempt from liability under CERCLA ("Superfund").

This Final Draft HHW Plan identifies continuing and new services which Coos and Curry Counties intend to offer pending review and consideration by decision-makers. The Counties, working in partnership with the cities, waste haulers, and other interested parties, intend to address the management of HHW, as well as hazardous waste from certain County facilities and businesses that are "conditionally exempt small quantity generators" (CEGs). CEGs generate less than 220 pounds of hazardous waste per month. While it is understood that changes may occur during implementation, for the purposes of this Plan, Coos and Curry Counties and their partners may, depending on finances and other considerations:

- Continue to provide collection and recycling of used motor oil at the Beaver Hill Disposal Site and the West Coast Recycle and Transfer facility in Coos County and all five transfer stations in Curry County including the Brookings Transfer Station, Agness Transfer Station, Nesika Beach Transfer Station, Port Orford Transfer Station in Gold Beach and the Wridge Creek Transfer Station in Brookings. The franchised garbage haulers will continue to provide curbside collection of used motor oil in the cities of Coos Bay, North Bend, and Coquille, including parts of the urban growth areas. Curbside pickup is also provided in Bandon upon request for an additional fee.

- Continue to provide collection and recycling of antifreeze for a fee at all Curry County transfer stations including the Brookings Transfer Station, Agness Transfer Station, Nesika Beach Transfer Station, Port Orford Transfer Station in Gold Beach and the Wridge Creek Transfer Station in Brookings.

- Continue to accept lead-acid (automotive) batteries for recycling at the Beaver Hill Disposal Site and the West Coast Recycle and Transfer facility in Coos County and for a fee at all transfer stations in Curry County including the Brookings Transfer Station, Agness Transfer Station, Nesika Beach Transfer Station, Port Orford Transfer Station in Gold Beach and the Wridge Creek Transfer Station in Brookings. Support collection at several local retailers.

- Continue to provide collection and recycling of rechargeable batteries (nickel cadmium (ni-cd), lithium ion, etc.) for a fee at all Curry County transfer stations including the Brookings Transfer Station, Agness Transfer Station, Nesika Beach Transfer Station, Port Orford Transfer Station in Gold Beach and the Wridge Creek Transfer Station in Brookings. Support collection at local retailers in both Coos and Curry Counties.

- Expand promotion and public education program to promote proper disposal of used motor oil, antifreeze, lead-acid batteries, and other batteries through existing recycling opportunities.

- Launch a public education program targeted at the residential sector to promote properly disposing of unused latex paint as household garbage. Develop a system to transfer all non-hazardous latex paint (paint not containing lead and mercury) accepted at the permanent HHW facility or "satellite" collection events to the transfer stations for disposal as solid waste.

- Site a permanent HHW facility at the Beaver Hill Disposal Site that will be constructed and managed by Coos County. The facility will provide a secure, protected location for waste identification, packing, and temporary storage. Collection events will be held at the permanent facility 12 days a year (one day per month in 12 different months per year). In between events, the permanent HHW facility will also serve as a location where CEGs and residents unable to wait for the next event (primarily those selling and cleaning out their homes) can drop-off HHW, on an appointment-only basis. Waste collected at the facility will be transported by a contractor for final treatment, recycling or disposal.

- Provide a series of "satellite" HHW collection events for residents on a regular basis throughout Coos and Curry Counties. Once the program is established, approximately eight satellite events will be held per year, growing to more events or decreasing to fewer events as the budget allows. Satellite events may be held in Coos Bay, Coquille, Myrtle Point, Bandon, Gold Beach, Port Orford and Brookings. These satellite HHW collection events will be serviced by a contractor. Waste collected at the events will be transported out of the counties for final treatment, recycling or disposal. The satellite events will be managed by the Counties in partnership with the cities, waste haulers, and other interested parties.

- Establish an intergovernmental agreement (IGA) between the Counties and create a Steering Committee that will make decisions regarding certain operational details on an ongoing basis. The Steering Committee will consist of representatives of the two counties and the larger cities. The intergovernmental agreement will contain language to address the long term funding for the collection and disposal of HHW collected at the HHW satellite collection events and the permanent HHW facility. The IGA will also designate Coos County as the Lead Agency of this regional service.

These proposed services are similar to "Alternative C", described in the *Expanded Review of Alternatives*, Appendix B, of this Plan. The services described in Appendix B have been modified to include two additional satellite collection events and exclude the management of latex paint and motor oil at the permanent facility as HHW. This modification has also changed the pro forma cost estimate associated with the Alternative. According to the quantities of waste accepted at past DEQ HHW collection events, the amount of hazardous waste managed at the permanent HHW facility may decrease by 27% (latex paint 20% and motor oil 7%).

New HHW services as described in this Plan, excluding the expanded education program for used motor oil recycling and disposal of latex paint as household garbage, are projected to require approximately $313,124 in start-up capital costs after deducting potential DEQ grant funds. Start-up costs are shown in the first year of the 7-year budget projection (see Table 1). They include facility design, permitting, construction and equipment, plus a 10% contingency. Start-up costs also include one satellite collection event held in each County prior to opening the facility. These events are shifted from the following year so that six satellite collection events will be held during the first year of facility operation. The average annual costs during the first six years of operation are estimated at $185,587 per year (again, including contingency) after deducting potential revenue from CEGs for their disposal cost. The higher costs of the proposed collection system, relative to typical solid waste (garbage), reflects the dangerous characteristics

and special handling, storage, and disposal methods that are required for safe and proper management of hazardous waste.

Actual costs are highly dependent on program participation and volumes of wastes collected, and thus may be higher or lower than estimated. However, cost estimates contained in this Plan include a 10% contingency factor, so the Plan's cost estimates may be higher than what will actually be realized.

The Committee has identified two funding sources for the HHW collection services: (1) DEQ grants, and (2) the disposal fees charged on a per ton basis at the incinerator and transfer stations in the two counties. Approximately $100,000 in Tier I grant funds are potentially available from DEQ for a single permanent HHW facility that provides HHW collection services to all residents of both Coos and Curry Counties. Additional DEQ grant funds may also be available for waste prevention education.

An increase in the disposal tipping fee is viewed as an equitable method of funding this community service since almost all waste from Coos and Curry Counties goes to a disposal facility within one of the counties. An increase in the disposal rate also represents a long-term source of funding. This requires the rate-setting cities and counties to approve a rate increase at the incinerator and transfer stations and a pass-through of the increased tipping fees in residential and commercial collection rates.

Assuming the programs and cost estimates of this Plan as described in Table 2 (Initial Cost Estimate - Alternative C: Permanent Facility with Eight Contracted Collection Events), the tipping fees will increase by an average of approximately $3.27 per ton of waste disposed. The impact on collection rates will vary based on size of container and service levels, but would average approximately $0.28 per household per month or $3.40 per year. Commercial customers would pay approximately $0.39 per container yard.

DEQ HHW grants are the second source of funding. The DEQ Household Hazardous Waste Management Plan for 2005-2011 offers grants for two types of facilities, Tier I and Tier II. Grants for Tier I facilities are based primarily on a population-based formula. The basic formula is $40,000, plus $1.00 for each resident in the facility's service area; with a minimum of $40,000 and maximum of $100,000. Grants for Tier II facilities will cover costs up to $30,000. Tier II grants may also cover costs for mobile facilities or vehicles. Any Tier II permanent facilities must be located at least 20 miles from the Tier I facility.

It is assumed that the Counties will take a regional approach to funding the permanent facility. Using 2006 population estimates, Coos County has a population of 62,905 and Curry County has a population of 21,365 for a total population of 84,270 and so would be eligible for $100,000 in Tier I grant funds for a single permanent facility to serve both Counties.

If there are remaining funds after reimbursing costs for the permanent facility, they can be used for other costs associated with the HHW collection program such as disposal costs. In order to be eligible for grant funds, the facility must be publicly owned for at least the first 5 years. Additional DEQ grant funds may also be available for waste prevention education.

For the purposes of estimating program costs for this HHW Plan, it is assumed that residents that use the collection service of the permanent facility or satellite events will not be charged a fee for drop-off of HHW. It is assumed that CEGs that use the collection service of the permanent facility or satellite events will be charged for actual disposal costs of the wastes they deliver.

This HHW Plan also includes several efficiencies to reduce overall program costs. These include focusing collection activities on higher-hazard wastes; diverting certain items from the HHW waste stream such as latex paint and motor oil; using existing staff for certain low-hazard waste (i.e. motor oil,

latex paint) handling activities; considering re-using some wastes where appropriate and convenient at a later date; promoting waste prevention; and utilizing partnerships with other organizations to conduct promotion and education activities.

1.1 Overview of Planning Process

This Coos and Curry Counties Household Hazardous Waste Management Plan (hereafter "Plan") has been prepared by Kies Strategies, Tabor Consulting Group, and Bell & Associates, Inc.. It has been prepared following consideration and review by the HHW Planning Committee (hereafter "Committee"), made up of representatives of city and county government, waste companies and interested citizens in Coos and Curry Counties.

Members of the consultant team met with Coos County and the Committee on June 21, 2006 and September 13, 2006. In advance of these meetings, the consultant team prepared reading materials regarding HHW and possible service and funding alternatives for Coos County. During these two meetings, Coos County and the Committee discussed alternatives, costs and implementation issues.

Subsequently, DEQ awarded a HHW Planning Grant to Curry County to develop a joint HHW management plan with Coos County, and an intergovernmental agreement between Coos and Curry Counties for a joint HHW planning process was signed. Additional research was conducted and supplemental material was prepared by the Kies Team for Curry and Coos Counties and the Committee to consider in the context of a joint planning process. The Curry County Board of Commissioners was briefed on the planning process and alternatives on May 7, 2007. A third meeting of the Committee was held on May 8, 2007 to discuss alternatives, costs and implementation issues for a joint Coos and Curry Counties plan.

Decisions made in these meetings were reflected in a Draft Plan discussed at a meeting of the Curry County Solid Waste/Recycling Committee on June 26, 2007 and at a fourth meeting of the HHW Planning Committee on June 27, 2007. Comments from these meetings and additional comments from stakeholders were incorporated into a Preliminary Final Draft Plan for presentation to the Curry County Solid Waste/Recycling Committee on September 20, 2007 and to the HHW Planning Committee at their October 17 meeting. The Curry County Committee unanimously recommended approval of the Plan to the Curry County Board of Commissioners and cities at their meeting on September 20.

A Final Draft Plan was then prepared and discussed by the HHW Planning Committee on November 20, 2007. It was unanimously approved for sending to the Coos County Board of Commissioners, and subsequently the Curry County Board of Commissioners, to consider for adoption.

The programs, services and cost estimates in this Plan are based on the information available and the considered evaluation of the Counties and the Committee during the planning and adoption process. It is understood and expected that changes may occur as program details are determined and operations commence.

Companion documents to this Plan, *Briefing Paper* (Appendix A), *Expanded Review of Alternatives* (Appendix B), and *Supplemental Briefing Paper* (Appendix C) discuss the need for improved management of household hazardous wastes in Coos and Curry Counties, and evaluate in detail the selected alternative for HHW collection.

1.2 HHW Management Goals

The goal of the Counties and Committee for HHW management in Coos and Curry Counties is appropriate HHW collection, recycling and disposal to:

- Reduce the amount of household hazardous waste disposed of in the incinerator, landfill, sewerage systems, ground water, waterways (streams, rivers), the air, and illegally dumped.
- Reduce the risks of accidental poisonings and fires in homes, reduce the fuel load in homes caused by storage of flammable materials, and reduce the risk to fire safety workers associated with storage of hazardous materials.

This goal can be accomplished through education, collection, and focusing effort on waste types that pose a higher risk to the environment and health. Measures to achieve the goal include the following:

- Educate residents and promote the use of least hazardous products and approaches.
- Educate residents in the reduction, proper use, and proper storage of household hazardous waste.
- Provide regular, convenient, efficient and cost-effective service, considering both short-term and long-term costs.
- Focus efforts and resources on services which will achieve the greatest environmental and health benefit.
- Include Conditionally Exempt Small Quantity Generators (CEGs) in these efforts by identifying CEGs within the County, providing educational outreach, and encouraging/accommodating participation in proper handling, record keeping, storage and disposal.

The desired outcomes include the following:

- Minimize environmental and health impacts associated with HHW.
- Continue to build cooperative relationships among the cities, waste collection and disposal companies, the agricultural and natural resource communities, school districts, fire districts, poison control professionals, retailers, real estate agents, business groups, community organizations, the Oregon Department of Environmental Quality, and other State and Federal agencies.
- Emphasize proper end-of-life management of any hazardous wastes collected.
- Reduce regulatory liabilities for local governments.

1.3 Scope of HHW Management Plan

This Plan addresses hazardous waste generated by households located within Coos and Curry Counties, Oregon. To a lesser extent, it also addresses hazardous waste from CEGs in Coos and Curry Counties (see Section 2.7).

The planning and implementation horizon of this Plan begins with adoption of this Plan. It proceeds through the negotiation of a contract for provision of HHW collection services, and detailed design and preparation for these services, including the permitting and construction of a permanent HHW collection facility at the Beaver Hill Disposal Site.

The planning and implementation period continues for five years from the start of collection services at the permanent facility. Acceptance of a grant for facility funding from the DEQ by a local government requires operation of the funded HHW collection service for a period of five years. After five years of operation, the program partners may choose to continue providing hazardous waste collection services, even though their obligation to the DEQ under the facility grant(s) will have been completed. Alternatively, the collection services could be discontinued or scaled back. It is also important to note that the DEQ grant is for HHW only (not for CEG and agricultural pesticide collections), so non-HHW services can be adjusted more easily.

Specifically, the Plan is divided into two periods: short-term and medium-term.

- The short-term period includes negotiation of a contract for service provisions, and extends through design, permitting, and construction of the permanent facility, one satellite collection event in each County, and other work necessary to prepare for the services described later in this Plan. The short-term period is expected to last approximately one year.

- The medium-term planning period begins once the permanent facility is open for service, and continues throughout the first five years of services. After five years, the Counties will have met their grant obligations to the DEQ for facility operation.

2.0 HHW MANAGEMENT ACTIVITIES

Coos and Curry Counties and franchised solid waste companies will continue to provide the following, existing services, depending on finances and other considerations:

- Collection and recycling of used motor oil at the Beaver Hill Disposal Site and West Coast Recycle and Transfer facility in Coos County and all five transfer stations in Curry County including the Brookings Transfer Station, Agness Transfer Station, Nesika Beach Transfer Station, Port Orford Transfer Station in Gold Beach and the Wridge Creek Transfer Station in Brookings. Curbside collection of used motor oil in the cities of Coos Bay, North Bend, and Coquille, including parts of the urban growth areas by franchised haulers. Curbside pickup in Bandon upon request for an additional fee.

- Collection and recycling of antifreeze for a fee at all Curry County transfer stations including the Brookings Transfer Station, Agness Transfer Station, Nesika Beach Transfer Station, Port Orford Transfer Station in Gold Beach and the Wridge Creek Transfer Station in Brookings.

- Collection and recycling of lead-acid (automotive) batteries for recycling at the Beaver Hill Disposal Site and West Coast Recycle and Transfer facility in Coos County, and at all transfer stations in Curry County including, and the Brookings Transfer Station, Agness Transfer Station, Nesika Beach Transfer Station, Port Orford Transfer Station in Gold Beach and the Wridge Creek Transfer Station in Brookings.

- Continue to provide collection and recycling of rechargeable batteries (nickel cadmium (ni-cd), lithium ion, etc.) for a fee at all Curry County transfer stations including the Brookings Transfer Station, Agness Transfer Station, Nesika Beach Transfer Station, Port Orford Transfer Station in Gold Beach and the Wridge Creek Transfer Station in Brookings. Support collection at local retailers.

New activities to be implemented include the following, depending on finances and other considerations:

- Expand the education program to promote existing collection opportunities for used motor oil, antifreeze, lead-acid batteries and other batteries (See Section 2.2, below).
- Launch a public education program targeted at the residential sector to promote properly disposing of unused latex paint as household garbage. Develop a system to transfer all non-hazardous latex paint (paint not containing lead and mercury) accepted at the permanent HHW facility and satellite collection events to the transfer stations for disposal as solid waste. (See Section 2.3, below).
- Construct and operate a permanent HHW cabinet at the Beaver Hill Disposal Site (See Section 2.4, below). Facility will be open 12 days a year.
- Provide eight satellite HHW collection events for residents on a regular basis throughout the two Counties once the program is established (See Section 2.8, below).
- Establish an intergovernmental agreement (IGA) between the counties and create a Steering Committee that will make decisions regarding certain operational details on an ongoing basis (See Section 3.1, below).

2.1 Targeted and Accepted Wastes

Coos and Curry Counties' HHW collection program will place emphasis on collecting the most highly-hazardous wastes, as identified by DEQ. There will be a special focus on collection of the following waste types:

- **Poisons:** pesticides, herbicides, fungicides and other poisons.
- **Heavy Metals:** mercury and products containing elemental mercury (thermostats and thermometers, fluorescent light tubes, mercury batteries, automotive switches), nickel-cadmium (ni-cd) batteries, and lead-acid batteries.
- **Flammables:** solvents, gasoline, kerosene, other fuels, and flammable solids.
- **Corrosives:** acids, bases, and reactives (such as pool chemicals).

Wastes that will be accepted through the collection system include the following:

Paints, Stains, and Solvents

- Oil-based paint and stains
- Latex paint, water-based stains (only accepted if incidental to other HHW deliveries: see below)
- Aerosol paints
- Other paints (pool, marine, auto)
- Solvent-based cleaning fluids
- Water-based cleaners

Pesticides and Poisons

- Solid, non-flammable pesticides/herbicides
- Aerosol pesticides/herbicides
- Liquid pesticides/herbicides
- Solid, flammable pesticides/herbicides

Corrosives

- Acids
- Bases (drain cleaners, oven cleaners)
- Reactives
- Oxidizers (pool chemicals)

Other Automotive Products

- Motor oil (new and used; only accepted if incidental to other waste deliveries; see below)
- Contaminated, used motor oil
- Antifreeze (only accepted if incidental to other waste deliveries; see below)
- Vehicle batteries (only accepted if incidental to other waste deliveries; see below)
- Other automotive fluids

Other Household Products

- Consumer batteries, ni-cd, lithium, etc. (only accepted if incidental to other waste deliveries; see below)
- Polishes, waxes, soaps
- Thermometers
- Thermostats
- Fluorescent light bulbs and ballasts
- Ballasts

Latex paint, motor oil, antifreeze, vehicle batteries, and rechargeable batteries will be accepted at the permanent HHW facility and satellite events, but only if incidental to other waste deliveries. As part of event publicity, residents will be discouraged from bringing latex paint. Residents will be educated on how to dry unused latex paint so that it can be disposed of with solid waste. Used motor oil, antifreeze, and vehicle batteries are collected year-round at the Beaver Hill Disposal Site, transfer stations and local retailers. Residents will be encouraged to use these services rather than waiting for a special HHW event.

Wastes that will not be accepted at the HHW collection facility or satellite events include the following:

- Explosives. Few HHW programs accept any explosives but in some areas near waterways, there are few options to manage spent emergency flares (required in all boats over 16') and so some programs team up with fire departments to accept these and then let the fire departments manage them. Adding these wastes as an option will be explored at a later time.
- Radioactive materials (with one possible exception being if the selected Treatment, Storage and Disposal facility (TSDF) has a reasonably priced option to manage smoke detectors).
- Electronics (unless containing significant amounts of mercury). Existing alternatives are already provided.
- Compressed gas cylinders. Expensive; may be added at a later date if management costs decrease.
- Asbestos. Asbestos may only be accepted with special procedures and DEQ approval.
- Sharps (needles). An existing alternative for safely disposing of sharps is already provided in Coos and Curry Counties.

2.2 Expand Education Program for Used Motor Oil and Antifreeze Collection Programs

Enhance education regarding the proper disposal and recycling of used motor oil and antifreeze. Some residents may not be aware of the health and environmental risks posed by dumping motor oil and antifreeze on the ground. Statistics from other areas suggest that a fair amount of oil generated by Do-it-Yourself oil changers may be improperly disposed. This may be a significant source of drinking water contamination in some areas of Coos and Curry Counties. Opportunities to recycle motor oil are currently available at the Beaver Hill Disposal Site and West Coast Recycle and Transfer facility in Coos County and all five transfer stations in Curry County including the Brookings Transfer Station, Agness Transfer Station, Nesika Beach Transfer Station, Port Orford Transfer Station in Gold Beach, and the Wridge Creek Transfer Station in Brookings. Curbside collection is available in the cities of Coos Bay, North Bend, and Coquille, including parts of the urban growth areas by franchised haulers. It is also available in Bandon upon request for an additional fee. Antifreeze is collected for recycling for a fee at all Curry County transfer stations including the Brookings Transfer Station, Agness Transfer Station, Nesika Beach Transfer Station, Port Orford Transfer Station in Gold Beach and the Wridge Creek Transfer Station in Brookings.

Specific activities could include:

- Enhanced education using existing outreach activities (garbage bill inserts, water bill inserts, municipal newsletter, company websites, etc.)
- Retail point-of-purchase education (already required under ORS 459A.575)
- Education through drivers education classes and automotive technology classes
- Targeted direct mail or radio advertising
- The distribution of "draintainers" (special containers for Do-it-Yourself oil changers) and printed information to encourage recycling of used motor oil.

2.3 Education Program to Promote Proper Disposal of Leftover Latex Paint

To help reduce overall program costs, an effort will be made to eliminate leftover latex paint from the hazardous waste stream. Latex paint is considered a lower hazard waste by the DEQ. The effort will consist of a promotion program targeted at the residential sector to encourage the proper disposal of unused latex paint. The proper disposal method promoted will be to air dry leftover and unwanted latex paint in the can and dispose of it in household garbage for collection by the franchised garbage collectors. Alternatively, residents will be educated to add kitty litter, sawdust, or a commercially available drying agent until all liquid is absorbed and to discard solidified paint as described above. All education and promotional materials will inform residents that latex paint is not accepted at the permanent HHW facility or satellite collection events. The promotion program will include information about the following:

- Use the least hazardous paint to do the job
- Avoid paints that contain mercury or other heavy metals
- Safe use and storage procedures for paint
- Purchase only what is needed to help eliminate or minimize waste
- Give unused paint to someone who might use it up
- Proper method of disposal of unwanted latex paint in household garbage
- Latex paint is not acceptable at the permanent HHW facility or satellite collection events.

One element of the promotion program will include working with local paint retailers to launch a point-of-purchase education campaign. Other activities to promote this program are described in Section 3.6, Program Outreach.

Despite the education and promotion program, it is likely that some latex paint may be brought to the permanent HHW facility and satellite collection events. The staff at the permanent HHW facility and events will identify latex paint during the screening process. Initially the material will be accepted, but the staff will instruct the driver about the proper disposal of latex paint. The driver will also be provided with written information about safe use and storage procedures, and proper disposal methods.

All cans of latex paint will be reviewed against criteria provided by DEQ in order to determine if the paint is likely to be a hazardous waste. Unlabeled latex paint or paint that meets DEQ's criteria for being a likely hazardous waste will be packed and managed as HHW described in Section 2.5.

The non-hazardous latex paint will be poured into 55-gallon drums (or other secure, leak-proof containers), solidified with bentonite or cement, and transported to the incinerator or transfer stations to be disposed of as solid waste. The specific transportation method will be determined in coordination with the Counties.

The quantities of latex paint accepted at the permanent HHW facility and events will be tracked during the first year of operation. If large quantities of paint continue to be brought to the facility and events despite the educational efforts to inform the public that leftover paint is not accepted at the facility or events, the practice of taking the paint at the permanent HHW facility and events will be re-evaluated.

2.4 Permanent HHW Collection Facility

The permanent HHW facility serves four primary purposes: waste acceptance, waste identification, waste packing and waste storage.

Waste acceptance includes 12 collection events per year (1 day in each of twelve months of the year). The facility will be located at the Beaver Hill Disposal Site in Coos County. Special use of the facility will also be available on an appointment-only basis by individuals and CEGs. Appointment-based use of the facility will be limited to circumstances where the resident clearly cannot wait for the next time the facility is regularly scheduled to be open, such as a family that is selling their home, or are cleaning out the garage of a recently deceased parent.

Waste identification involves the classification of wastes into pre-determined categories so that compatible wastes are stored together and incompatible wastes are kept separate. Definitions of compatible and incompatible are a function of reactivity, safety, end-user (TSDF) requirements, economics, and available storage space.

Waste packing generally consists of three approaches:

- loose packing (wastes are kept in their original containers, and packed together into totes or drums);
- lab-packing (the same as loose packing, but with the addition of absorbent material around the containers, in order to protect containers during shipment and absorb any spilled liquids); and
- bulking (wastes are drained or emptied from their original containers into a bulk liquid "soup" of compatible wastes).

Bulking of liquid wastes may occur at the facility. Because of inhalation-related health concerns involved in bulking solvents and pesticides, the program operator will be careful to comply with all Occupational Health and Safety Administration (OSHA) and other safety regulations.

Finally, **waste storage** provides for the temporary storage of full- or partially-full containers prior to eventual removal of wastes from the facility and transport to a TSD facility located outside of the County.

For wastes brought by the public directly to the HHW facility, the facility provides a location for all four of these primary functions.

Wastes delivered to the facility by individuals and CEGs on an appointment basis will undergo preliminary identification at the time of delivery so that incompatible wastes are kept separate. Depending on the types of waste, the certainty of identification, and staff availability, these wastes may be packed in their final shipping containers at that time, or stored on shelves or in containment totes inside the cabinet for final identification and packing at a later date.

Thus, storage of wastes inside the facility is essentially of two types. The first type is wastes that have been identified and packed into their final shipping containers. The majority of waste stored on-site at any one time will be in this form. In most cases, the final shipping containers will be 55-gallon drums. In all cases, only Department of Transportation (DOT) approved shipping containers will be used.

The second type of storage will consist of relatively small amounts of wastes, in their original containers, stored on shelves inside the facility, or in containment pallets, totes or cabinets. Incompatible wastes will be stored in separate containment totes or cabinets. These wastes will be re-identified and packed into their final shipping containers no later than the next scheduled collection for transport to the TSDF. This

second type of storage is a temporary measure to allow for waste acceptance in between collections without requiring final waste identification, bulking, and/or lab-packing each time waste is brought to the facility. Also, in the event of inclement weather or higher than anticipated collection volumes at individual collection days, this temporary storage measure allows for final packing of wastes at a more measured and reasonable pace.

The facility will consist of a small building, a metal canopy, and sealed concrete flooring, surrounded by security fencing. The facility will be located partially- or fully underneath the canopy; at a minimum, the main entrance to the facility will be under cover. Waste acceptance and identification will occur underneath the canopy (but not inside the facility). The primary function of the facility is hazardous waste storage. A few types of collected wastes may be stored outside of the facility but underneath the canopy, in appropriate containers (55-gallon drums, etc.), if allowed by DEQ and the local land use permit. Examples of wastes that might be stored under the canopy include motor oil, antifreeze, lead-acid batteries, fluorescent light tubes, latex paint, and materials set aside for the reuse program (see Section 2.10). Storage space inside the facility will be at a premium, so the Counties will work with DEQ and the local permitting authority to identify those wastes that can be safely stored outside of the facility.

The storage building envisioned is a 3-compartment, pre-fabricated storage unit with 2-hour fire-rated steel construction. Each compartment will have its own door, passive ventilation, and containment sump. The facility will have the assurance of Factory Mutual Systems approval, UL classification, and state certification. It will be designed to comply with EPA, OSHA, Uniform Building & Fire Codes, BOCA National Building and Fire Codes and the National Electric Code for use in Group H (hazard-containing) occupancies.

The compartments will be used to keep labeled and dated drums or containers of incompatible materials separated. Drums will not be stacked, and compartments will be configured to provide for storage of drums in rows so that all drums can be accessed by aisles at least 3-feet in width.

The storage building will be equipped with explosion proof lights and exhaust fans, a chemical resistant sump liner, floor grating, emergency eye wash and shower, and a dry chemical fire suppression system. The emergency eye wash and shower and dry chemical fire suppression system will be located in close proximity to areas of sorting and storage. Compartments may all be the same size, or may be sized based on the anticipated need for storage capacity. Shelves above the drums can be used to store bins and individual items to be packed or consolidated into drums.

The canopy pad, where waste unloading, shipping, identification, and packing occurs, will be constructed of structurally reinforced concrete, and sealed with an epoxy coating or other solvent barrier. It will slope to a locking drain or sump for containment of spills. The entire canopy, pad and surrounding areas will be designed to minimize surface water run-on and runoff. Because the bottom of the doors of the storage building may be 9 to 12 inches above the base of the surface (in order to provide space below the building floor for containment sumps), a curb will be built across the canopy pad. The storage building will be placed on the lower surface, adjacent to the curb. When the front of the building is placed flush against the curb, the bottom of the doors will be level with the working surface of the canopy pad where waste packing occurs. The working surface of the canopy pad will slope slightly away from the curb, so that any accidental spills don't go underneath the storage building. This design will allow easy transfer of drums between the working area and the storage building, without the need for ramps into the facility.

Ideally, the pad, canopy, building, and fencing will be designed in such a manner as to allow flexibility and growth in the program. For example, it may be desirable in the future to add a second storage facility. Providing and reserving a small pad for potential expansion adjacent to the first facility will provide for future flexibility. Consideration of prevailing winds (and rain) should impact the placement of these structures relative to the canopy, so that the working area under the canopy is sheltered on the

windward side, if possible. On another side of the canopy, space should be reserved for vehicles to pull in next to the canopy so that wastes can be unloaded and directly placed on carts or tables underneath the canopy.

Additional details regarding facility design and operations will be resolved in the subsequent Engineering Plan and Operations Plan, which will be prepared prior to submitting a permit application to DEQ.

2.4.1 Facility Permit Requirements

2.4.1.1 Facility DEQ Permit Requirements

According to the DEQ, the facility will require a solid waste permit. If the facility is co-located at an incinerator, landfill, transfer station or other solid waste facility, permitting may be accomplished through a modification to the existing permit.

In addition, DEQ has "General Guidance" for the design and operations of HHW collection facilities. Until the DEQ prepares specific permit requirements for HHW facilities, applicants will need to refer to both permit requirements for the Transfer Station/Material Recovery Facility category, as well as the HHW General Guidance. Some of the permit requirements in the Transfer Station/Material Recovery Facility category will most likely be waived in this case, since no putrescible wastes will be accepted at the facility.

A full copy of the "DEQ HHW Collection Facility Design and Operations Guidance" is contained in Appendix D. The Guidance contains specific requirements related to all aspects of HHW facilities, including siting, security, emergency equipment, structural requirements, exterior secondary containment, drum storage, waste identification, waste sorting and storage, waste packaging, waste shipments, worker safety, facility inspections, spill prevention and emergency response, equipment, personnel training, and facility closure.

As part of the permit application, a facility Engineering Plan and a separate Operations Plan will need to be prepared. Again, requirements for these two plans are clearly outlined in Appendix D.

2.4.1.2 Local Permit Requirements

To expedite the opening of the facility, consideration of an appropriate location, including zoning, access, visibility, and the like will need to be made. Once preferred locations are determined, local permits may be needed and all local requirements will need to be complied with.

2.4.2 Facility Location and Siting

At this time, the Counties and Committee have not yet selected a site for the permanent facility, although the Beaver Hill Disposal Site has been identified as a potential site. It is assumed that Coos County will operate the facility. This location is relatively convenient for the public, has utility connections, and provides space for queuing vehicles waiting to use the facility. The site also has telephone and restroom access (for workers).

Site selection will occur following adoption of this Plan by the cities and the Board of Commissioners for each County. DEQ's General Guidance for HHW facilities (Appendix D) discusses siting requirements. These requirements include:

- Consult and comply with local zoning requirements.

- Consider the proximity to sensitive resources such as wetlands, streams, etc. and develop mitigating measures necessary for preventing their degradation.
- Comply with local setback requirements.
- Consult and comply with the fire code and building code for separation between property line and buildings and separation between buildings and construction requirements for flammable and/or reactive materials.
- Construct facility on a stable foundation.
- Provide adequate ingress and egress to major streets and/or highways.

2.5 Collection Service at the Permanent HHW Collection Facility

2.5.1 Number, Frequency, Location and Duration of Service

Coos and Curry Counties plan to hold 12 HHW collection events per year at the permanent facility. Events will be open to the public for 6 hours. Waste acceptance will always begin in the morning, in order to allow adequate daylight hours to complete waste sorting, packing and storage. Separate collection opportunities for CEGs are addressed in Section 2.7, below. To accommodate any "pent-up demand" for HHW collection service and reduce any initial overflow at the facility, one satellite collection event will be held in each County prior to opening the facility (see Section 2.8, below).

2.5.2 Out-of-County Participants

Because the hazardous waste collection program is a service of the two counties, and is funded primarily by residents and businesses in the counties, the collection services will be limited to residents and businesses of both Coos and Curry Counties. Proof of County residency (a driver's license) may be required at all collection services. All materials promoting the events will clearly state that they are "a service for residents and businesses of "Coos and Curry Counties only."

However, it is inevitable that some residents from outside of the counties will try to avail themselves of these services. Initially, should such wastes arrive at the collection facility or satellite collection events, they will be allowed in (although this won't be promoted). The number of out-of-county vehicles using each event will be tracked. The counties will re-evaluate this approach should out-of-county participation ever exceed 2% of the total participation.

2.5.3 Collection Protocols

The acceptance of waste at the facility will use the following basic series of steps:

1. **Set-Up**: Traffic cones will be distributed. The on-site spill containment equipment and safety equipment (safety shower, eye wash kit, and fire extinguishers) will be checked. Tables and carts will be moved into position for waste acceptance and sorting; drums and totes will be prepared for waste bulking and packing. Waste identification, sorting, and packing areas will be set-up under the canopy.

2. **Safety Training**: All staff and volunteers will review work procedures, traffic flow, and safety considerations. Personal protective equipment will be put on.

3. **Greeting:** When vehicles arrive at the host site, signs will be posted at the entrance or gatehouse to direct customers with HHW for drop-off. Marked traffic cones will further assist in directing vehicles to the staffed HHW facility. Vehicles will line up in the area designated by the traffic cones and wait for a staff person to greet them. The driver will be requested to open the trunk or storage area and

stay in the vehicle, and fill out a survey or questionnaire to determine the address of the resident and ask if the resident has used the service before. Additional questions to be asked may include how they heard about the service, the distance they traveled, and whether they represent one or more households.

4. **Unacceptable Waste Screening:** At the collection point, adjacent to the canopy, a staff person ("hazardous waste specialist") unloads the materials onto a cart. Any unacceptable materials or unknowns are discussed with the driver. Unknowns will generally be accepted but unacceptable materials will not be, unless the materials cannot be safely returned to the driver. For any rejected materials, the driver will be provided with a written set of suggestions as to alternative places to take the wastes. If any unknowns or unacceptable wastes are accepted, the name and address of the resident who brought them will be recorded and the material will be set aside.

5. **Acceptable Wastes:** Accepted wastes are generally sorted on a table into basic classifications according to DOT regulations and for safe handling. Incompatible materials will not be set next to each other. Separate areas will be designated for Flammables, Non-regulated Liquids, Oil-Based Paint/Paint related materials, Latex Paints, Poisons, Non-regulated Solids, Acids, Bases, Oxidizers, and waste needing special handling.

6. **Reusable Products:** At some point in the future, segregated materials may be reviewed for possible diversion to a reuse program. Reusable items must have intact containers, readable labels, no obvious contamination, and must be mostly full. Future handling of reusable products is discussed in greater detail in Section 2.10, below.

7. **Transfer of locally-managed wastes:** Latex paint, motor oil, antifreeze, rechargeable and other household batteries, and lead-acid batteries will be transferred to a second identification and packing area.

8. **Motor Oil, Antifreeze, Rechargeable and other Household Batteries, and Lead-Acid Battery Management:** These materials will be kept separate and removed to the nearest existing recycling collection point.

9. **Latex Paint:** All cans of latex paint will be reviewed against criteria provided by DEQ in order to determine if the paint is likely to be a hazardous waste. This determination is done by comparing information on the label against a list provided by DEQ. Unlabeled latex paint, or paint which meets DEQ's criteria for being a likely hazardous waste, are then transferred back to the first identification and packing area to be handled as HHW. The remaining non-hazardous latex paint will be poured into 55-gallon drums (or other secure, leak-proof containers), solidified with bentonite or cement, and transported to the incinerator or transfer stations for disposal as solid waste.

10. **Solid Waste:** Any solid waste (packing material such as corrugated cardboard boxes in which the materials were delivered or other non-hazardous waste products) will be removed to roll carts and/or dumpsters for recycling or disposal.

11. **Packing or consolidation:** Materials are sorted for either packaging or consolidation on the collection site. Flammable liquids will be consolidated into 55-gallon drums. Other materials will be bulk packaged or lab packed into appropriate shipping containers. Some wastes may be segregated and placed in containment pallets, totes or cabinets for re-packing at a later date. Containers will be closed between acceptance events. At the end of each day, all containers will be completely closed and labeled.

12. **Storage:** Containers will be returned to the appropriate section of the facility. Incompatible wastes will be stored in separate areas and each area will be marked with a placard to show the hazard class of items stored inside the facility.

2.6 Special (Appointment-Only) Collections at the Permanent HHW Facility

In addition to the regular collection events, the facility will also be available for special collections on an appointment basis. This service is intended for CEGs (see Section 2.7, below) and for larger quantities and special, extenuating circumstances where there is an immediate and time-sensitive need for HHW collection. Examples of this include people who are selling their home and have an immediate need to dispose of large quantities of garden, garage, and household chemicals, or a person who calls in with a large quantity of highly hazardous materials (such as elemental mercury). In these types of cases, County staff will make an appointment to meet the resident at the facility. The special wastes will be identified and either immediately packed into final shipping containers, or placed in containment pallets or totes for re-packing at a later date. These appointment-based visits to the facility will be scheduled, whenever possible, to maximize staffing efficiencies and reduce the disruption of staff opening up the facility for a single user. This may include only taking appointment-based visits on one day of the week (Tuesday afternoons, for example).

2.7 Services for CEGs and Agricultural Pesticide Generators

Conditionally exempt small quantity generators (CEGs) are businesses that generate less than 100 kilograms per month (about 220 pounds) of hazardous waste (or 1 kilogram/month of "acutely hazardous waste"), and accumulate less than 1,000 kilograms (about 2,200 pounds) of hazardous waste at any one time. Unlike larger generators of hazardous wastes, CEGs are <u>not</u> required to have an EPA identification number, use a manifest when shipping hazardous waste, properly package and label shipments of hazardous waste, or report to DEQ. CEGs are responsible for the treatment or disposal of their hazardous wastes; however, permitted municipal solid waste facilities are acceptable disposal sites for CEGs. Although disposal of CEG waste at the transfer stations may be legal, it can be less than desirable for the environment as well as worker safety (see Section 2.1).

Common types of CEGs (and common types of wastes they generate) include:

- Small printers (press cleaners and other solvents)
- Photography businesses (developers, bleaches, fixers)
- Small dry cleaners (perchloroethylene)
- Automobile services (spent solvents, antifreeze)
- Construction contractors (paint thinner, flammable paints, varnishes, stains)
- Farms, landscapers and horticultural businesses (pesticides, herbicides, fungicides, motor oil).

Because it is legal (though not environmentally preferable) for CEGs to dispose of their hazardous waste at permitted solid waste transfer stations and landfills (just like households), HHW collection programs often also include CEGs. In addition, many CEGs are concerned with future liability for the disposal of their hazardous waste at a solid waste facility and desire more environmentally protective management for their waste.

CEGs will be allowed to use the facility and satellite collection events, but to know what types and quantities of hazardous waste will be brought in, pre-registration will be required. DEQ will expect that CEGs be tracked and that their status as CEGs be confirmed. Written certification by the CEG indicating that they are familiar with the conditions of the generator exclusion and that they do not generate more than 220 pounds of hazardous waste per calendar month is usually acceptable.

Assuming this approach is taken, pre-registration will involve four basic steps:

1. The CEG completes an application form provided by the Contractor/County certifying that they are, in fact, a CEG. The State application form may be modified for this purpose. This form provides a screening method to prevent large and small quantity hazardous waste generators from disposing of hazardous waste at the facility or events. At the same time, the CEG completes a second form, identifying the types and volumes of wastes they desire to bring to the event.

2. The application is denied if the applicant is not a CEG.

3. The CEGs will be charged directly for disposal and recycling. The fee will cover the disposal costs for the types and volumes of waste to be handled. County staff will work with the Contractor to determine the exact fee structure.

4. The CEG will schedule an appointment time to bring their waste to the facility or a satellite collection event. Processing CEG waste requires additional time to verify the types and quantities of wastes and handle payments and receipts. Therefore, if CEGs do come to the facility or satellite event on the same day as an event, they will be scheduled immediately prior to opening to the general public, or immediately following the end of waste acceptance from the general public, if possible.

Most communities that include CEGs in their HHW collection events find that the amount of additional waste contributed by CEGs is not large. The primary factors that determine the use of the facility are cost and convenience. It can be challenging to encourage a business to accept that they should pay for disposal as hazardous waste items that they've usually thrown out in the solid waste for a fraction of the cost. The average amount of waste disposed by a CEG is approximately 100 pounds of waste, but no more than 20 CEGs per year may be expected initially. This represents less than 5% of total projected waste volumes. The HHW events in Coos County have served an average of 3 CEGs. The CEGs are charged for the cost of disposal of wastes they deliver.

Farmers and other agricultural interests that are CEGs may participate in these collection events. Further, because pesticides are recognized as a "Universal Waste" by the State of Oregon, the generation and accumulation limits do not apply to pesticides brought to an event. Thus, agricultural interests who have exceeded the accumulation limit (of 2.2 pounds acutely hazardous pesticide or 2,200 pounds hazardous pesticide) may still bring their pesticides to the event without any additional regulatory oversight by DEQ or EPA.

This service for CEGs will most likely be introduced after the HHW permanent facility and satellite events have been operational for a year, so that the operators can focus on providing the basic collection service to households first.

2.8 Satellite Collection Events

The proposed HHW satellite collection events consist of the following:

- The Counties will hold and sponsor eight HHW collection events a year for residents once the program is established. It is expected that events will accept waste from the public for a period of

four to six hours each. This allows sufficient time for waste packing and site clean-up after waste acceptance ends.

- The Counties will contract with a private hazardous waste contractor to run the events. The events will function in a similar manner to the events that DEQ has sponsored in the past, except that these events would be locally funded.

- Conditionally exempt generators (CEGs) will be allowed to use the collection events, but pre-registration and payment will be required to cover all additional (marginal) costs associated with providing this service (see Section 2.7). CEGs may be scheduled to deliver waste in the hour either immediately prior to the event opening to the public, or following the event being closed to the public. Alternatively, if the HHW event is scheduled for a Saturday, the CEGs may be allowed to deliver their waste on Friday afternoon, concurrent with site set-up.

- The events will be staffed by a private hazardous waste contractor. As a cost savings measure, county, city, and solid waste franchisee staff will assist with traffic control and packaging of certain less hazardous wastes (non-hazardous latex paint, whole lead-acid batteries, and motor oil).

- Waste at these events will be packed and consolidated at the event location. Wastes will be removed from the site by the private hazardous waste contractor and transported to an approved treatment, storage, and disposal facility.

- Latex paint, motor oil, antifreeze, rechargeable and household batteries, and lead-acid batteries, will be separated by County staff for transport to the proper reuse, recycling, or disposal location.

Elements of the satellite HHW collection events are explained in greater detail below.

2.8.1 Number, Frequency, Location and Duration of Events

Once the program is established, Coos and Curry Counties plan to hold eight HHW satellite collection events per year. The Counties will hold one satellite collection event in each County prior to opening the permanent HHW facility to help relieve any "pent-up demand" for HHW collection and promote the new facility and collection program. These events will be shifted from the following year so that six satellite collection events will be held the first year the facility is open. After this first year of operation, eight satellite collection events will be held per year. Events will alternate between Coos Bay, Coquille, Myrtle Point, Brookings, Gold Beach, Port Orford and Bandon. Events will be promoted to the residents of both counties, although the events will primarily target households within 20 miles of the event.

Events will be open to the public for between 4 and 6 hours, depending on the anticipated number of vehicles and size of the collection crew. Fewer participants allows for shorter events (and smaller crews). DEQ has sponsored nineteen events in Coos and Curry Counties since 1991. These events have averaged 278 participants with more participants in larger population areas and fewer in smaller population areas. Research at other events in Oregon and elsewhere indicates that the vast majority of participants live within 15 miles of the event location. More detailed data on previous collection events in Coos and Curry Counties is contained in Table 3 of the *Supplemental Briefing Paper,* Appendix C.

It is anticipated that the Coos Bay, Coquille, Myrtle Point, and Brookings events will be larger than the events held in Gold Beach, Port Orford and Bandon. Events will not attract as many households as past events sponsored by DEQ. This is because the permanent facility will be open once a month and satellite collection events will be held at each location at least once a year.

Waste acceptance will always begin in the morning, in order to allow adequate daylight hours (into the afternoon or early evening, for larger events) to complete waste sorting, packing and site demobilization. Separate collection opportunities for CEGs and agricultural pesticide generators are addressed in Section 2.7, above.

The satellite HHW collection events will be scheduled between April and October, when the weather is generally warmer and drier.

2.8.2 Out-of-County Participants

See Section 2.5.2.

2.8.3 Event Protocols

The satellite collection events will be served by a private hazardous waste contractor. Waste will be packed and consolidated at each event for transportation to an approved treatment, storage, and disposal facility (TSDF). The basic procedure for these events is similar to events held at the permanent facility (see Section 2.5.3) with a few additional steps. Generally speaking, the satellite collection events held will use the following basic series of steps:

1. **Set-Up:** Traffic cones will be distributed. Spill containment equipment and safety equipment (portable safety shower, eye wash kit, and fire extinguishers) will be set-up. Tables and carts will be readied for waste acceptance and sorting; drums and totes will be prepared for waste bulking and packing. Waste identification, sorting, and packing areas will be set-up under a canopy. A separate area for identification and packing of latex paint as well as consolidation of rechargeable and household batteries, used antifreeze, used motor oil and lead-acid batteries will also need to be set-up.
2. **Safety Training:** All staff and volunteers will review work procedures, traffic flow, and safety considerations. Personal protective equipment (PPE) will be put on. The levels of training and PPE required will be appropriate for the assigned tasks and the risks involved.
3. **Greeting:** Cars will line up in the parking area waiting their turn. A staff person or volunteer will ask the driver to fill out a short survey or questionnaire to determine the address of the resident and ask if the resident has used the service before. Additional questions to be asked may include how they heard about the event, the distance they traveled, and whether they represent one or more households. At the unloading area, a staff person or volunteer will greet them, request the driver open the trunk and stay in the car, and collect the survey.
4. **Unacceptable Waste Screening:** At the unloading area, under the canopy, a hazardous waste specialist unloads the materials onto a cart. Any unacceptable materials or unknowns are discussed with the driver. Unknowns will generally be accepted but unacceptable materials will not be, unless the materials cannot be safely returned to the driver. For any rejected materials, the driver will be provided with a written set of suggestions as to alternative places to take the wastes. If the field chemist accepts any unknowns or unacceptable wastes, they will take the name and address of the resident who brought them and set them aside.
5. **Acceptable Wastes:** Accepted wastes are generally sorted on a table into basic classifications according to DOT regulations and for safe handling. Incompatible materials will not be set next to each other. Separate areas will be designated for Flammables, Non-Regulated Liquids, Oil-Based Paint/Paint-related materials, Latex Paints, Poisons, Non-regulated Solids, Acids, Bases, Oxidizers, and waste needing special handling.
6. **Reusable Products:** At some point in the future, segregated materials may be reviewed for possible diversion to a reuse program. Reusable items must have intact containers, readable labels, no obvious

contamination, and must be mostly full. Future handling of reusable products is discussed in greater detail in Section 2.10, below.

7. **Transfer of locally-managed wastes:** Latex paint, rechargeable and household batteries, antifreeze, motor oil, and lead-acid batteries will be transferred to a second identification and packing area.
8. **Rechargeable and Household Battery, Antifreeze, Motor Oil, and Lead-Acid Battery Management:** These materials will be kept separate and removed to the appropriate existing recycling collection point.
9. **Latex Paint:** All cans of latex paint will be reviewed against criteria provided by DEQ in order to determine if the paint is likely to be a hazardous waste. This determination is done by comparing information on the label against a list provided by DEQ. Unlabeled latex paint, or paint which meets DEQ's criteria for being a likely hazardous waste are then transferred back to the main HHW canopy for packing by the hazardous waste specialist. The remaining non-hazardous latex paint will be consolidated and transferred to the incinerator or transfer stations for disposal as solid waste.
10. **Solid Waste:** Any solid waste (packing material such as corrugated cardboard boxes in which the materials were delivered or non-hazardous waste products) will be removed to roll carts and/or dumpsters for recycling or disposal.
11. **Packing or consolidation:** Other hazardous materials are sorted for either packaging or consolidation on the collection site. Flammable liquids will be consolidated into 55-gallon drums. Other materials will be bulk packaged or lab packed into appropriate shipping containers.
12. **Site clean-up and demobilization:** At the end of the event, all containers of hazardous waste will be completely closed, labeled, and loaded securely into the private hazardous waste contractor's vehicle for removal to an approved treatment, storage, and disposal facility. Canopies, tables, carts, tarps, etc. will be taken down and loaded into the vehicle for removal from the site.

2.9 Overview of Waste Management

A few wastes collected at the facility and satellite events will be managed locally. Latex paint that is likely to be non-hazardous (based on a review of the label and comparing it against DEQ criteria) will be solidified and transported to an appropriate facility for disposal. Any used motor oil, antifreeze, rechargeable or household battery, or lead-acid batteries accepted from households will be managed for recycling through the local systems. The two exceptions to this are motor oil that is suspected of being contaminated and lead-acid batteries that are leaking. Motor oil from CEGs will be managed by the contractor, unless it tests negative for chlorinated compounds or other contaminants.

Reusable materials meeting the established re-use criteria may be set-aside as part of a waste reuse program. This is discussed in greater detail in Section 2.10, below.

Even after local management and waste re-use, the majority of wastes will still require transport to a permitted treatment, storage, and disposal (TSD) facility. There, wastes may be recycled, disposed of in a hazardous waste landfill, burnt for fuel, or incinerated in a hazardous waste incinerator. Waste management options are driven by a variety of factors, including available technology, cost, policy (the waste management hierarchy), and risk.

The State of Oregon (acting on behalf of the DEQ) maintains a contract for waste management that may be used by local governments in Oregon through a "purchaser program". This allows Coos and Curry Counties to use the state's waste management contractor (and the security of the state's contract) without spending the time and resources to select a contractor and negotiate a contract independently.

Coos and Curry Counties will evaluate this contract and may choose to use it for any collected waste that can't be managed locally. If Coos and Curry Counties choose to participate in the purchaser program and use the state's waste management contractor, the Counties will not be able to choose where wastes are sent, but rather will be bound by the State's decisions regarding waste management options. Generally speaking, when choosing between disposal options, the DEQ uses environmental protection and reduced liability as its primary considerations, followed by cost. Under CERCLA (Superfund), the waste "generator" (whoever signs the waste manifests; typically this is the facility manager, such as the County) is responsible and could be found liable should hazardous waste from this program end up causing environmental damage. The generator is liable *even if this damage occurs outside of Coos and Curry Counties and/or is a consequence of poor management on the part of the County's contracted hazardous waste vendor (TSDF) or its agents.*

The liability associated with transportation and disposal of hazardous waste can never be totally eliminated, but it can be minimized through adequate contractual terms, and by ensuring that the TSDFs and the companies that own them have a history of compliance, relevant experience, staff trained at appropriate levels, a U.S.-based insurance policy with a reasonable deductible and from an insurance company with acceptable ratings (A- or better from AM Best, or A or better from Standard & Poors), adequate funding reserved for facility closure, and adequate overall financial strength. The insurance policies should cover vehicle liability, including MCS-90 (provides cash availability to pay for immediate clean-up in the event of spills), worker's compensation, general liability, pollution liability for at least the next three years, and umbrella liability (for all liability expenses not covered by other insurance). Using the State's contract eliminates the need for staff of either County to investigate all of these issues.

2.10 Re-Use Program

A program for collecting items that may be reused will be considered at the permanent HHW facility at a future time. While many wastes brought to the facility are not appropriate for re-use (or, from an environmental and public health perspective, should not have been used in the first place), some are. Diverting these items reduces disposal costs for the program, while reducing purchasing costs for whoever uses the material.

Initially, the Counties might work with other government agencies and large institutions, including schools and parks, to identify the types of materials that they may be interested in. Segregated materials in their original containers would be compared against this list during waste identification but prior to packing/consolidation at the facility. Reusable items must have intact containers, readable labels, no obvious contamination, and must be mostly full. Certain items should not be distributed for reuse regardless of what condition the packaging is in (such as banned pesticides). Potentially reusable items would be set aside in boxes and stored at the permanent HHW facility. The exact storage location (stored inside the facility on shelves, or a locker under the canopy outside the facility, or elsewhere) will be determined by DEQ. This entity then becomes the "owner" of the materials. Because the materials have been separated for re-use, they are not technically "waste" and so may not be covered under DEQ's permit for the facility.

The Counties would work with the interested agencies and institutions to "market" these reusable items to them. This might involve the County staff contacting the interested user and informing them of the availability of the materials and how to pick them up. Another approach might consist of a periodic inventory and product list distribution. Organizations interested in taking the item for reuse would make an appointment to come to the facility to collect the materials.

An alternative to this approach would be for the contracted chemist to identify any reusable materials during final collection. These materials would then be placed in a designated and staffed area and users

may "shop" at the area. All parties that accept items set aside for reuse would be required to sign a waiver form releasing the Counties from any liability. At this time, information about the cost of disposing of HHW and alternatives to hazardous products would also be distributed. There likely would be no charge for these products. If a product isn't taken by the end of the set period of time (as determined by the chemist), it would be packed with other wastes for removal and disposal.

Depending on the available resources and space, the Counties may expand the program into a full-service "drop and swap" with controlled public access. This would require a greater amount of space and retail-style shelving and organization. Many HHW programs throughout the U.S. operate these types of services, so staff can learn from and evaluate these other programs prior to implementing this idea in Coos and Curry Counties.

3.0 PROGRAM MANAGEMENT AND IMPLEMENTATION

This section describes a basic structure for intergovernmental coordination between the cities and counties in the planning area, roles and responsibilities of the counties and cities, and management of the contractors that will provide the hazardous waste collection services described in Section 2.0.

3.1 Intergovernmental Coordination

This collection program will be overseen by the two counties and interested cities, through the use of two legal agreements:

- An intergovernmental agreement (IGA) between the two counties and participating cities. This IGA will establish a Steering Committee and also designate a Lead Agency.
- Contract between the service providers (contractors) and the Lead Agency, acting on behalf of the Steering Committee.

Within the planning area, there are two county governments and 10 incorporated cities. It is not necessary that all 12 government entities enter into the IGA. At a minimum, the participants in the IGA should include the two counties and those cities with a population over a certain size or that host a HHW facility or satellite collection event.

Subsequent sections of this Plan refer to "IGA Participants". IGA Participants are assumed to include the two counties, plus the cities of Coos Bay, Coquille, Myrtle Point, Brookings, Gold Beach, Port Orford, Bandon, and possibly other cities in Coos and Curry Counties as interested.

3.1.1 Elements of Intergovernmental Agreement

The primary purpose of the IGA is for the provision of hazardous waste collection services, and the efficient coordination and oversight of those services.

Following Plan adoption, the IGA Participants will need to draft, revise, and adopt the IGA. Elements of this IGA will include the following:

- Definitions.
- A commitment by both Counties to implement a per-ton disposal fee on wastes disposed of at the incinerator and transfer stations in the two counties to cover the capital and operating costs of the HHW collection program (as discussed in Section 4.3). Money collected through this fee would be

deposited into a dedicated fund to be used only for implementation of regional activities described in this HHW Plan.
- The establishment of a Steering Committee, described in Section 3.1.2, below.
- The designation of a Lead Agency from among the IGA Participants (described in Section 3.1.3, below). For the purposes of this Plan, it is assumed Coos County will serve as the Lead Agency, as long as its reasonable administrative expenses are reimbursed, and a reasonable IGA can be negotiated.
- The authorization of the Lead Agency to enter into a contract (or contracts) for the provision of regional services described in this Plan, on behalf of all of the IGA Participants. These services include the construction of a permanent waste facility, as well as provision of satellite collection services.
- A description of the minimal requirements and standards of such contract(s), including:
  - that the contractor must indemnify all IGA Participants against liability;
  - waste management requirements (including use of the State's "Purchaser Agreement" for waste management options);
  - transporting and manifesting requirements;
  - insurance;
  - contractor identified as the waste "generator" (responsible for signing manifests); and
  - standards for accounting, billing, and compensation.
- A description of the responsibilities and obligations of the Lead Agency, and the responsibilities of the Steering Committee, as well as consultation and decision-making processes (Steering Committee voting procedures, etc.). This description will include a list of those activities which the Lead Agency is authorized to implement without consultation with the Steering Committee (such as paying contractor invoices), as well as those activities which the Lead Agency is required to obtain the approval of the Steering Committee (such as setting the annual budget). (These are discussed in Sections 3.1.2 and 3.1.3, below.)
- Sharing of liability (so that the Lead Agency isn't unfairly burdened with all liability with the - contractor).
- A method for compensating the Lead Agency for the additional staff time required to manage and oversee the contractor
- A discussion of equity between geographic areas of the service region, and a method for ensuring that geographic classes of users have access to service and benefit that is consistent with their contribution to program revenues. This could be accomplished through annual program budgeting and promotion, as discussed below.
- Term of agreement, termination, and withdrawal of IGA Participants. The IGA will be re-evaluated during the fifth year of collection service.
- Provision for financial audits.
- Method for dispute resolution.
- Other general IGA language (assignment, modification, severability, governing law, notification, etc.).

3.1.2 Composition and Responsibilities of Steering Committee

Composition of the Steering Committee will be determined by the Intergovernmental Agreement. At a minimum, it should include the two counties and possibly the cities of Coos Bay, Coquille, Myrtle Point, Brookings, Gold Beach, Port Orford and Bandon as potential sites for satellite collection events. If any cities are not included, it may be appropriate for the representatives of Coos and Curry Counties to be charged with being a liaison between the Committee and the other cities.

In addition to composition of the Steering Committee, the IGA will also need to establish:

- Quorum requirements.
- Voting procedures (for example, if decisions are made a simple majority of those present, a 2/3 majority, or require a consensus).
- The responsibilities of the Steering Committee.

Responsibilities of the Steering Committee could include:

- Participating in contractor selection, if required.
- Review of a draft(s) of the contract(s).
- Review and approval of the annual program budget. This could include decisions regarding how much money to maintain in reserve/contingency funds, as well as any limits on number of household, CEG, and/or agricultural pesticide users, if needed in order to control costs. Limits could also be provided if program evaluation reveals that certain categories of users are "over-using" the system and inequities (for example, between counties) are developing.
- Review and approval of decisions regarding pre-registration requirements (if implemented); scheduling of operating hours; and coordination of promotional activities.
- Review and approval of alternate waste management options (consistent, however, with the guidelines contained in Section 2.0).
- Review and approval of user fees (if any) charged to households who use the facilities outside of normal operating hours, as well as CEGs and agricultural pesticide generators.
- Review of the contractor's annual report and review/approval of reimbursement schedules.

Each City and County represented on the Steering Committee will need to formally designate a representative to the Committee. Ideally, each representative would be authorized to vote on all issues before the Committee, without requiring consultation with its City Council or County Board. If this is not amenable to the elected officials, it would be best if they authorized their representative to vote on their behalf on as many issues as possible, so as to allow effective administration of the program and timely decision-making.

3.1.3 Responsibilities of Lead Agency

The Lead Agency will be responsible for the following:

- Leading development of the IGA.
- Applying for and managing any DEQ facility grants received.
- Determining a process for selecting a contractor(s) and conducting a public procurement process.
- Negotiating a contract(s) for services (including both construction of facilities and operation of satellite collection events).
- Administering the contract(s) for services, including oversight of the contractor(s) to ensure full compliance.
- Reviewing contractor(s) invoices, paying the contractor(s), and settling any disagreements regarding compensation.
- Maintaining accounting records of expenses and funds available.
- Managing the development of an annual budget.
- Coordinating meetings of the Steering Committee and consulting with the Steering Committee on issues identified in Section 3.1.2.
- Coordinating the education and outreach activities either directly or overseeing the activities of the contractor.

3.2 Overview of Program Roles and Responsibilities

3.2.1 Education Efforts

Education/outreach activities will be conducted by the Lead Agency in cooperation with the Steering Committee, cities, solid waste franchisees, hazardous waste contractors, volunteers, and other entities.

3.2.2 HHW Permanent Facility and Satellite Collection Events

The Lead Agency will be the designated "generator" of wastes collected at the permanent HHW facility and satellite collection events. As the "generator", the Lead Agency will assume liability through CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act; also known as "Superfund") for proper transportation and management of the wastes. This HHW Plan assumes that the Lead Agency will use the State of Oregon's "purchaser program" under which the County can use DEQ's HHW contractor for final collection, removal and disposal of the HHW from the permanent HHW facility and satellite collection events to a TSD facility. By using the DEQ's contractor, the Lead Agency receives the same liability protection and level of oversight as the State.

Should the Lead Agency choose not to use DEQ's contractor, it will be essential to review and approve of any and all TSD facilities used by the contractor for adequate liability insurance, compliance history, and management systems, as described in Section 2.9.

The HHW contractor will be responsible for collecting waste from the permanent HHW facility and satellite collection events for removal to a permitted TSD facility for disposal. The Lead Agency will be responsible for all activities associated with accepting and managing waste at the permanent HHW facility and satellite collection events. This includes event set-up, management, and take-down, initial waste acceptance, sorting, packing, and manifesting to a TSD facility, as well as oversight of health and safety procedures. This HHW Plan assumes that Coos County will operate the permanent facility and the satellite collection events will be serviced by a hazardous waste contractor. Support for these activities may be provided by staff from the counties, cities, solid waste franchisees, or volunteers as appropriate.

3.2.3 Management Responsibilities

Lead Agency staff will provide management and oversight of the HHW program. Program budgeting, contracting, and reporting to DEQ will also be the responsibility of the Lead Agency. Basic management responsibilities include:

Program coordination and staffing responsibilities

- Schedule satellite collection events and facility service, guaranteeing availability of sites, trained staff and volunteers, and qualified contractors for each event
- Establish record-keeping system; evaluate program and prepare annual report
- Coordinate "on-call" appointment service for CEGs and individuals in special circumstances
- Develop job descriptions for facility staff
- Hire, train, maintain current training, and provide medical monitoring (baseline and ongoing) for facility staff

Program financial responsibilities

- Recommend annual budget
- Review and approve bills from contractor(s)
- Ensure adequately insured HHW contractor (if DEQ's contractor is not used)
- Maintain accounting records and adjust service levels if necessary to avoid budget over-runs

Program facility responsibilities

- Conduct periodic facility audits
- Purchase replacement equipment and supplies as needed
- Provide for routine maintenance of the facility
- Apply for any DEQ permit modifications and ensure that all permit requirements are met

Waste management responsibilities

- Establish waste handling protocols and management methods, including preparing and updating operations and emergency response plans
- Review and approve of TSD facilities, based on third-party environmental compliance audits (if DEQ's contractor is not used)
- Establish contract for transport and management by hazardous waste firms
- Establish contract(s) for operating satellite collection events
- Coordinate with hazardous waste contractor(s), cities, and solid waste franchisees to staff events with qualified personnel and volunteers as needed
- Establish system for transport of non-hazardous latex paint, used motor oil, antifreeze, rechargeable and other household batteries, and lead-acid batteries
- Establish contract for transport and management of solid waste and recyclables
- Sign and track manifests for drums shipped
- Establish inspection procedures, forms and oversee implementation
- Review waste handling protocols and management methods to assure compliance with regulatory requirements

Publicity and outreach responsibilities

- See Section 3.6

3.3 HHW Program Staffing

Program management and promotion will be conducted by the Lead Agency in conjunction with the Steering Committee. Promotion and outreach activities will also involve other cities, solid waste companies, the hazardous waste contractor, volunteers, and other entities.

It is assumed in the cost estimates for this Plan that management of the HHW program will require approximately 25% of a full time equivalent (FTE) on average. Oversight, management, and promotion of the facility are estimated to require 15% FTE and management, contracting, organizing, and promotion of the satellite collection events will require an additional 10% FTE. During program start-up, management requirements will be greater and may decrease over time.

Following are the projected staffing requirements for operating the permanent HHW facility and satellite collection events for staff and contractors based on similar programs. Further detail can be found in Table 2 (Initial Cost Estimate - Alternative C: Permanent Facility with Eight Contracted Collection Events) and Appendix B (*Expanded Review of Alternatives*).

Permanent HHW Facility

- Hazardous waste chemist (1)
- Hazardous waste specialist (1)
- General labor (1)
- Non-waste technician(s) (Existing staff and volunteers; no additional costs assumed.)

Satellite Collection Events

- Supervisor (1)
- Hazardous Waste Chemist (1)
- Hazardous Waste Specialist (2)
- Hazardous Waste Technician (1)

It is assumed that the Hazardous Waste Chemist will be a contracted individual who will oversee final segregation, packaging and shipping of household hazardous waste. This individual may be employed by a private hazardous waste firm (such as those maintained under the State of Oregon's "purchaser program") that is responsible for removal of waste from the facility and transportation to a permitted Treatment, Storage, and Disposal (TSD) facility for safe recycling, incineration or disposal.

It is assumed that the facility will be operated by Coos County or the Lead Agency and a hazardous waste contractor will operate the satellite collection events. At the facility, the Hazardous Waste Specialist and general labor will be Lead Agency or County staff and one will serve as the program manager at the facility site. Additional responsibilities include staff and volunteer oversight, record keeping, and coordinating efforts with the Hazardous Waste Chemist, who serves as the lead technical resource. Over time, and with sufficient experience, the Hazardous Waste Specialist may be able to assume some of the responsibilities of the Hazardous Waste Chemist. At some point in the future, the Lead Agency may also choose to use a trained County employee for this position or to assume some of these duties. At the

events, all staff will be provided by the hazardous waste contractor except for supporting staff from cities, solid waste companies, volunteers, and other entities.

The roles and responsibilities of each of these positions are described in detail below. All staff working with HHW and CEG waste must be on the payroll of the Lead Agency or some other entity, and adequate workers' compensation insurance must be provided. Depending on working conditions and locations, traffic control may be provided by trained volunteers (unpaid) who sign a waiver releasing the Lead Agency from liability.

3.3.1 Hazardous Waste Chemist

The Hazardous Waste Chemist will serve as the lead technical resource. The individual will have a basic science background or equivalent specialized training and experience. The individual will have a minimum of OSHA 40-hour training plus additional specialized training related to segregation, packaging, and shipping of household hazardous wastes. This person will have had extensive hands-on experience with household hazardous waste collection and will perform the following additional tasks:

a. Define each staff person's tasks and the appropriate personal protective equipment (PPE) for that task;

b. Review the operating procedures and ensure safe handling, segregation and packing;

c. Determine the site set-up for the collection;

d. Make any on-site determinations regarding unknown or unacceptable wastes;

e. Oversee the sorting, packing, and consolidation of wastes for final shipment to a TSD facility; and

f. Oversee the labeling and storage of drums and containers for final shipment to a TSD facility.

3.3.2 Hazardous Waste Specialist and Hazardous Waste Technician

The Hazardous Waste Specialist will manage the program and follow the Chemist's direction. The Specialist will have a minimum of OSHA 40-hour training (or a combination of OSHA 24-hour training and 16 hours of hands-on waste management training from the hazardous waste chemist or contractor), depending on the work expected from them. They will also receive specialized training in HHW management as well as hands-on training under the supervision of a Chemist. They will be provided with appropriate personal protective equipment suited to their tasks (gloves, aprons, cover-up suits, and visibility vests, for example). The hazardous waste specialist will perform the following types of tasks:

a. Staff the permanent facility;

b. Set-up site for all collection events;

c. Process waste from all collections at the facility;

d. Unload waste and segregate into basic groups;

e. Consolidate flammable liquids, based on direction of Hazardous Waste Chemist;

f. Lab pack wastes, based on direction of the Hazardous Waste Chemist;

g. Handle latex paint, antifreeze, motor oil, rechargeable and other household batteries, and lead-acid batteries (i.e., stacking containers onto pallets or into boxes or pouring into drums);

h. Move full drums; and

i. Remove solid waste or consolidate corrugated cardboard boxes for recycling.

3.3.3 General Labor and Non-Waste Technician(s)

The general labor and non-waste technician(s) will receive training in on-site procedures, emergency response procedures, and basic safety procedures. The general labor and non-waste technician(s) will perform the following types of tasks:

a. Direct traffic;

b. Ask survey questions;

c. Hand out informational materials to participants; and

d. Assist in handling latex paint, motor oil, lead-acid batteries and/or solid waste during days the facility is open and/or satellite collection events are held as trained and supervised by the Hazardous Waste Specialist.

3.3.4 Sources of Staff

It is assumed that the Hazardous Waste Chemist will be a contracted individual that has extensive experience with identification and management of HHW and CEG waste as a pre-requisite for this work. This individual may be employed by a private hazardous waste firm (such as those maintained under the State of Oregon's "purchaser program") or may be an individual who contracts with the HHW contractor or Lead Agency directly. HHW programs in Lane County, Marion County, and the Metro area may provide a pool of individuals from which to draw, as well as community college, university, or industry chemistry or laboratory specialists.

Lead Agency or County staff will be involved in operating the permanent facility, as Hazardous Waste Specialists, General Labor, or Non-Waste Technicians. Lead Agency or County staff will also serve as the HHW program manager. While the Hazardous Waste Chemist acts as the lead technical resource, the program manager will manage the facility and work closely with the chemist to ensure that all health and safety, record keeping, and other procedures are followed. Fire departments, public works agencies, and waste collection companies may be good sources of staff, as might employees from HHW programs in Marion County, Lane County or Portland Metro, who are already trained and experienced. Training requirements, particularly for the Hazardous Waste Specialist, are fairly extensive (and expensive), so the Counties should work to obtain long-term commitments from contracted staff.

A hazardous waste contractor will operate all satellite collection events. All staff will be provided by the hazardous waste contractor except for supporting staff from cities, solid waste companies, volunteers, and other entities.

Lead Agency and County staff and local volunteers serving as Non-Waste Technicians while the facility is open to the public will be trained and work under the oversight of the Hazardous Waste Specialist. Sources of volunteers include County employees, the cities, solid waste franchisees, and volunteers serving at pervious HHW collection events in the Counties.

3.4 Staff Training and Health & Safety

At the permanent facility and satellite collection events, the staff will follow standard operating procedures that will be reviewed at the outset of each collection day. If possible, all staff involved with HHW collection should be on payroll while performing this work, so as to minimize liability and provide for workers' compensation insurance in the event of an accident. The use of volunteers should be limited to traffic control or surveying participants. All volunteers should be required to sign a waiver releasing the event sponsor and property owner from liability.

Each staff person will be provided with appropriate personal protective equipment (PPE) for the tasks they are performing. The staff will be trained in emergency procedures such as how to limit and deal with minor spills, how and where to evacuate, and who to call in the case of major emergencies.

The establishment of health and safety policies and procedures will protect the workers and the general public from potential safety and health hazards posed at the site. The Lead Agency must also comply with Oregon and Federal OSHA requirements regarding worker safety. This involves implementing safety procedures regarding operations, personnel training, and personnel health monitoring.

3.4.1 Operational Safety Procedures

Standard operational safety procedures will be implemented by the Lead Agency. The correct level of personal protective equipment (PPE), such as respirators, gloves, boots, helmets, protective jumpsuits, and reflective traffic vests will be established to fit the level of hazard exposure. There will be a procedure for entering and exiting the waste handling areas. Safety equipment will be provided and stored in accessible areas, and checked prior to any events or waste handling. Animals and unauthorized people must be kept out of the active areas of the facility, which will have security fencing and locks on gates and doors. There will be an accessible facility drawing that shows fencing and signs, emergency equipment areas, storage areas for PPE and spill response equipment, and a shower and eyewash station.

3.4.2 Personnel Training

All employees working on-site will be trained and informed as to the hazards they may be exposed to and safe work practices. Hazardous Waste Specialists will attend a 40-hour hazardous waste personal protection and safety course and an annual 8-hour refresher course. Management staff will also receive up to 40 hours of off-site training depending upon the duties of the staff they are supervising. General labor regularly on-site and non-waste technicians will attend a 24-hour hazardous waste personal protection and safety course and an annual 8-hour refresher course (unless their role is limited to traffic control or surveying participants only). There will be a written training plan for each job description, which includes the type and amount of both introductory and continuing training for each position. The County will maintain training records and check that employees have met individual work task training requirements.

3.4.3 Personnel Health Monitoring

A medical evaluation program will be instituted for the following employees:

- Any employee who is or may be exposed to hazardous substances or health hazards at or above the Permissible Exposure Limits (PELs) or, if there is no Permissible Exposure Limit, above the published exposure levels for these substances, without regard to the use of respirators, for 30 days or more a year.

- Any employee who wears a respirator during part of a day.

- Employees exhibiting symptoms due to possible overexposure involving hazardous substances or health hazards from an emergency response or hazardous waste operation.

Medical examinations and consultations will be required of these employees prior to employment at the facility. A medical examination should also be performed as soon as possible upon notification by an employee either that the employee has developed signs or symptoms indicating possible overexposure to hazardous substances or health hazards, or that the employee has been injured or exposed above the Permissible Exposure Limits or published exposure levels in an emergency situation. Routine medical monitoring will occur at least annually, and an exit exam will be provided to all employees when they end employment.

3.5 Program Partnerships

The Counties will work with the following organizations and entities to develop partnerships to support the HHW program. Each of these entities has expertise to lend to the HHW program and/or an interest to be furthered by participating.

Cities. *Resources:* funding, newsletters, personnel, equipment. *Interests:* minimizing household hazardous waste in their sewage treatment systems, protecting public health and the environment, possible CEGs.

Incinerator, Transfer Stations, and Solid Waste Companies. *Resources:* personnel, equipment, facilities, outreach to customers. *Interests:* expanded service to customers, improved collection vehicle and facility safety, minimizing risk to workers during on-route collections, possible CEGs.

School Districts. *Resources:* educational outreach. *Interests:* Possible CEGs.

Fire Districts. *Resources:* equipment, facilities, trained staff and volunteers. *Interests:* minimizing fire threats, minimizing risk to firefighters and other emergency personnel, public health and safety, possible CEGs.

Poison Control Professionals. *Resources:* educational outreach. *Interests:* public health and safety.

Realtors. *Resources:* educational outreach. *Interests:* expanded service to customers by assisting with proper disposal of accumulated household hazardous waste at the time of home sale/purchase.

Retailers. *Resources:* appropriate handling, storage and disposal for products they sell, educational outreach. *Interests:* service to customers, expanded responsibility, possible CEGs.

DEQ. *Resources:* professional and financial support, statewide contract for HHW staff/transportation/waste management, educational outreach, regulatory knowledge. *Interests:* environmental protection.

Business and Agricultural Associations (including Chambers of Commerce, Watershed Advisory Committee, Natural Resources Conservation Service (originally called the Soil Conservation Service), and County Extensions). *Resources:* educational outreach. *Interests:* services for business/agricultural interests, environmental protection, and reduced liability for members.

Habitat for Humanity Re-Store. *Resources:* educational outreach and source for drop-off and resale of reusable goods. *Interests:* low-cost goods for community and avoiding disposal of usable items.

Neighboring Communities and Programs. (Lane and Marion Counties, Metro, etc.) *Resources:* experience, trained staff. *Interests:* possible cost efficiencies by coordinating efforts, possibility to improve services by coordinating efforts.

3.6 Program Outreach

The Lead Agency will work with the cities, incinerator and transfer station operators, waste collection companies, fire departments, poison control professionals, real estate agents, and other program partners to educate Coos and Curry Counties residents and businesses about safe management of hazardous waste. The outreach effort will focus on three separate areas: waste prevention, safe use and storage of products, and waste management opportunities (incinerator, transfer stations, facility and satellite collection events).

Elements of the outreach effort will include: used motor oil and antifreeze recycling (Section 2.2 of this Plan), latex paint disposal (Section 2.3 of this Plan), collection opportunities (Sections 2.5 and 2.8 of this Plan), special appointment collection at the permanent facility (Section 2.6 of this Plan), and services to CEGs (Section 2.7 of this plan). Outreach related to the HHW collection opportunities will include not only how to participate (time and location of the events), but also alternative management methods (proper disposal or recycling) for latex paint, motor oil, antifreeze, and lead-acid and other types of batteries. Reducing the quantity of wastes requiring handling at the time of each event is an important method to reduce overall costs.

Except for the staff time involved, many of these approaches are available to the Counties and its partners at little or no cost.

- Inserts into/notations on local utility bills such as from haulers and the cities.
- Press releases to local newspapers/radio stations.
- Interviews/call-ins on local radio stations.
- A booth at the Coos and Curry County Fairs and other public events.
- Presentations before community groups such as real estate agents, Chambers of Commerce, Rotary, and Kiwanis.
- Presentations in Coos and Curry Counties schools.
- Distribution of educational materials provided at no cost to the Counties by DEQ, such as the *Hazardless Home Handbook* and other information on alternatives to hazardous products.
- Fliers posted or handed out at the incinerator and transfer stations.
- Information on check stands at grocery stores and other retail outlets (particularly where hazardous materials are sold).
- Retail point-of-purchase education to promote the recycling programs and/or proper disposal.

Coos and Curry Counties may also consider applying for a DEQ grant for recycling and solid waste prevention or reduction projects. These annual grants are designed to encourage programs aimed at reducing and reusing solid waste including household hazardous waste. By law, the grants must go to local governments, but local governments may contract with community groups, private individuals, non-

profit organizations, schools, businesses, or chambers of commerce to implement grant-funded projects. Examples of eligible projects include:

- Developing business outreach and technical assistance programs for waste prevention
- Establishing and operating local waste exchanges and "swap" sites
- Developing a consumer education and awareness program about waste prevention and/or reuse and their impact on the environment.

3.7 Measurement of Program Success

Through records maintenance and short interviews of program users, the Lead Agency and Steering Committee will document the following measures of program effectiveness on an annual basis:

- Pounds of waste managed by type of waste
- Percent reused or recycled
- Cost per pound managed (labor, equipment and disposal costs)
- Number of households served per year
- Number of CEGs served per year
- Number of new users per year
- Number of household clean-outs (movers or those cleaning out for relatives) per year (% of all moves)
- Number of out-of-county residents served per year.

In the event that waste volumes and/or participation fail to meet the Counties' expectations, participation will be increased by evaluating the convenience (time and location) of the facility and satellite collection events, and increasing promotion and education of the community.

In the event that participation and waste volumes are higher than anticipated, and the program budget is inadequate to manage these waste volumes, methods for controlling and/or decreasing the amount of waste delivered include reducing the hours of operation at the facility, fewer satellite collection events, requiring pre-registration for drop-off, greater education on waste prevention practices, and/or reducing the promotion of the facility.

Alternatively, the Lead Agency and Steering Committee may decide in the future to expand storage capacity for hazardous wastes by expanding the facility. This would allow less frequent trips to the TSD facility, and would also allow for finer segregation of wastes, which could lead to lower per-pound disposal costs. Initial design of the facility should include consideration of this option.

4.0 PROGRAM BUDGET AND FUNDING

4.1 Budget Projection: Expanded Education Program for Used Motor Oil and Antifreeze Collection

Education programs to encourage used motor oil and antifreeze recycling could cost anywhere from $2,000 to $10,000, depending on the specific activities and frequency of efforts.

4.2 Budget Projection: Education Program to Dispose of Latex Paint

Education programs to promote proper disposal of leftover latex paint could cost anywhere from $2,000 to $10,000, depending on the specific activities and frequency of efforts.

4.3 Budget Projection: Permanent Household Hazardous Waste Facility and Satellite Collection Events

Table 1 portrays a 7-year budget for this HHW collection program. Key assumptions are noted. Additional detail is provided in Appendices A, B, and C. Key assumptions include the projections of participation and quantities of waste collected. These assumptions are based on previous events in Coos and Curry Counties, and the experience of other communities with HHW collection services. These planning-level cost estimates are not, however, engineering-level cost projections. A 10% contingency factor is added to all projected costs.

New HHW services as described in this Plan, excluding the expanded education program for used motor oil recycling and a program to promote the proper disposal of latex paint, are projected to require approximately $313,124 in start-up capital costs after deducting potential DEQ grant funds. Start-up costs are shown in the first year of the 7-year budget projection (see Table 1). They include facility design, permitting, construction, equipment, and a 10% contingency. Start-up costs also include one satellite collection event held in each County prior to opening the facility. These events are shifted from the following year so that six satellite collection events will be held during the first year of operation.

Average annual operating costs during the first five years of operation are estimated at $185,587 per year (again, including contingency) after deducting potential revenue from CEGs for their disposal cost. Additional cost information is shown in Table 2 (Initial Cost Estimate - Alternative C: Permanent Facility with Eight Contracted Collection Events). Actual costs are highly dependent on program participation and volumes of wastes collected, and thus may be higher or lower than estimated projections shown in Table 1.

Since program costs are largely driven by participation and waste quantities, the Lead Agency and Steering Committee will pay close attention to the program budget and adjust service accordingly. For example, if the program appears to have the potential to exceed the budget in any year, operating hours could be reduced, promotion efforts could be scaled back, or attendance could be limited through a pre-registration. Fortunately, demand for HHW collection can be divided into two categories. The first is residents who will seek out HHW collection regardless of how infrequent it is. As long as the Counties operate this service, it will need sufficient funds to provide for these residents. The second portion of program demand is more sensitive to the level of promotion and publicity, and the convenience and frequency of service, which are factors that can more readily be control. In this way, program costs can be controlled or limited from year to year.

The Lead Agency will fund the HHW program as a separate service with a dedicated budget. This will allow funds to be carried over from year to year. The Lead Agency will also attempt to build up a contingency reserve for the program. The presence of such a reserve fund will make management of the program more flexible and planning for facility services and events easier.

4.4 Program Funding

At this time, the Counties intend that the programs described in this Plan will be paid for through a combination of two funding sources:

- Increase in Disposal Rate: An increase in the per ton tipping fee for disposal at the incinerator and transfer stations in the two counties is a long-term source of funding. This requires the rate-setting cities and counties to approve a rate increase at the disposal facilities and a pass-through of the increased tipping fees in residential and commercial collection rates. Since almost all waste from Coos and Curry Counties goes to a disposal facility within one of the counties, an increase in the tipping fee is viewed as an equitable method of long-term funding for this community service. Assuming the programs and cost estimates of this Plan, the tipping fees will increase by an average of approximately $3.27 per ton of waste disposed. The impact on collection rates will vary based on size of container and service levels, but would average approximately $0.28 per household per month or $3.40 per year. Commercial customers would pay approximately $0.39 per container yard.

- DEQ Grants: Approximately $100,000 in Tier I grant funds is potentially available from DEQ for a permanent HHW facility that provides HHW collection services to all residents of both Coos and Curry Counties. Additional DEQ grant funds may also be available for waste prevention education.

In addition, the Counties intend to use CEG user fees to help pay for this program. CEGs will pay for all actual disposal costs for wastes they deliver.

There are many factors that could cause actual costs to be higher or lower than the projections shown in Table 1. From among these, some of the most significant factors are as follows:

- Construction, site selection and preparation, or permitting costs could be higher or lower depending on the final design and siting issues.
- Program participation may be higher or lower than forecasted. High participation could result in higher costs; lower participation could result in lower costs.
- Volumes of wastes delivered per participant may be higher or lower than forecast. Greater volumes of waste will increase cost; lower volumes of waste will result in lower cost.
- Many of the costs, including labor and waste management, are based on the State of Oregon's current contract. If the terms of this existing contract change or another contractor is selected, this may raise or lower unit costs.
- Inflation. All costs shown are in 2006 constant dollars. Over time, some costs are likely to rise due to inflation.

Revenue projections are sensitive to the volume of waste delivered to the incinerator and transfer stations. These projections, in turn, are tied to projections of population, waste generation, and recovery rates. If the disposal tonnage projections are too high, then not enough revenue may be available. In contrast, if the quantity of waste disposed is higher than the projection, then revenues will be higher than projected.

Throughout, the consultant has attempted to estimate costs based on reasonable, planning-level assumptions. The estimates are not, however, engineering-level cost projections. A 10% contingency has been added to the costs shown in Table 1.

5.0 IMPLEMENTATION PLAN AND TIMELINES

This Plan is divided into two periods: short-term and medium-term. The short-term period extends through design, permitting, and construction of the facility, one satellite collection event in each County, and other work necessary to prepare for the services described in this Plan. This short-term period is expected to last approximately one year.

The medium-term planning period begins once the permanent HHW facility is open for service and regular satellite collection events begin, and continues throughout the first five years of services at the permanent facility.

5.1 Short-Term (Year One)

This period commences with adoption of this Plan by the Coos and Curry Counties Boards of Commissioners. Major activities to be completed during this period are included in the following subsections.

5.1.1 Intergovernmental Coordination and Program Funding

- Prepare and submit application to DEQ for facility grants in 2008.
- Negotiate grant funding contracts with DEQ.
- Negotiation of an Intergovernmental Agreement.
- Concurrent approval of the Intergovernmental Agreement and tipping fee increases by the counties and cities. Each local government should adopt the IGA and the tipping fee increases together (at the same time). These resolutions could be written so that they do not take effect until a date after a certain number of local governments have passed similar resolutions.
- Designation of the representatives of the Steering Committee.
- Implement promotion program for latex paint disposal. Evaluate and make adjustments to program as necessary.

All subsequent activities are contingent upon the receipt of DEQ grants and the successful negotiation of the IGA.

- Select site for the facility. DEQ siting standards are contained in Appendix D.
- Convene meeting between DEQ and local agency(s) with permitting authority. Determine coordinated procedure for obtaining permits and exact sequence of permit applications.
- Prepare building/engineering plans, site plans, and operations plans. This may involve the services of a professional engineer or architect, who could be either a private contractor or County or city staff. General site design must also address access and traffic flow. If a pre-fabricated unit is used for storage of HHW, the exact model, design, and floor plan of the unit will need to be determined at this time. This may require the issuance of a request for bids or proposals to select the manufacturer and

unit. Alternatively, the Counties and incinerator operator(s) may choose to have the storage unit constructed on-site. This may increase storage capacity but will require significantly higher engineering and construction costs. Local requirements of the building/engineering and site plans will need to be determined. DEQ guidance regarding the contents of the engineering plan and operations plan is included in Appendix D.

- Submit permit applications to DEQ, local agencies. Participate in any hearings and permit review meetings.

5.1.2 Preparation for Service

These activities may be started at any time. Some may be required as part of the subsequent Engineering Plan and Operations Plan.

Staff/contractor hiring, training, and baseline medical monitoring should be done earlier in the process if interim collection events will be provided. This gives staff the opportunity to learn by being involved in the contractor-led events. If interim collection events are not provided, hiring, training, and baseline medical monitoring should be done closer to the start-up of services in the medium-term period.

- If the facilities (pad, building, storage area, canopy, etc.) are to be privately constructed, prepare bid documents. Issue request for bids. Select a contractor and negotiate contract. Alternatively, secure County or city public works construction resources.

- Prepare the sites, including access and any necessary utility improvements.

- Review State of Oregon contract for HHW services and investigate partnering opportunities with neighboring counties. Select contract mechanism(s) and negotiate agreement with appropriate agency(s). Ensure adequately insured contractor.

- Review and approve of TSD facilities, based on third-party environmental compliance audits (most should be already available).

- Establish record-keeping system.

- Prepare facility audit protocol and checklists.

- Establish waste handling protocols and management methods to assure compliance with regulatory requirement.

- Establish contract for transport and management of solid waste and recyclables.

- Hire facility staff/contractors.

- Train staff/contractors.

- Conduct baseline medical monitoring.

- Schedule facility service for the first year of the medium-term, guaranteeing availability of sites, trained staff, and negotiated contract with qualified hazardous waste contractors for satellite collection events.

- Plan, implement, and promote used motor oil and antifreeze recycling program.

- Plan and implement program to promote proper disposal of leftover latex paint.
- Prepare and begin to implement community education plan.

5.1.3 During and After Facility Construction

- Provide construction management.
- Post-construction inspection and approval.
- Procure and install equipment (fire extinguishers, safety shower, eye wash station, tables, carts, drums, drum dolly, containment pallets, totes, absorbent, spill kits, PPE, etc.).
- Procure and install signage.
- Complete any final facility permit inspections (District, DEQ, local agency) prior to opening.
- Continue to implement community education plan.
- Hold one satellite collection event in each County prior to opening the facility.

5.2 Medium-Term (Years Two through Seven)

The medium-term period begins with the first full year of the permanent facility in operation and satellite collection events accepting HHW from the public and CEGs. It is assumed that the first several years of the medium-term will be a time of dramatic growth in services, participation, and quantities of waste collected. The Lead Agency and Steering Committee will need to pay particular attention to program costs and revise services if needed in order to avoid exceeding the program's budget. Experience in other communities is that participation continues to increase after the first several years, although at a slower rate, eventually stabilizing (with only small fluctuations) after seven or more years of operation.

Activities to be completed during this period include the following:

- Begin operation of the permanent facility at the Beaver Hill Disposal Site.
- Begin satellite collection events.
- Begin services to CEGs in Year Two.
- Consider a waste re-use program. Evaluate and expand program, if appropriate.
- Evaluate and make adjustments to promotion for latex paint disposal program as necessary.
- All other on-going responsibilities included in Section 5.1, above.
- Any other activities required by DEQ or local permits.

Program monitoring and evaluation, as described in Section 3.7, above.

TABLES

Table 1.
Coos and Curry Counties
Household Hazardous Waste Management Planning Project
7-Year Cash Flow Projection

		Short-Term: Planning, Permitting and Construction	Medium-Term: Collection Operations							Notes
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Average	
Capital Costs										
Collection Facility at the Beaver Hill Disposal Site		$367,796								A
Annual Collection Facility Payments										
Operational Assumptions										
Facility scheduled days open to collect materials	12		12	12	12	12	12	12		
Pounds of HHW/vehicle	57		57	57	57	57	57	57		
Projected vehicles per year at the Facility	663		663	663	663	663	663	663		
Pounds of waste at the Facility	38,058		38,058	38,058	38,058	38,058	38,058	38,058		B See note below
Annual Collection Events	8		8	8	8	8	8	8		
Pounds of HHW/vehicle at the Collection Events	57		57	57	57	57	57	57		
Projected vehicles per year at the Events	703		703	703	703	703	703	703		
Pounds of waste Collected at the Events	40,325		40,325	40,325	40,325	40,325	40,325	40,325		B See note below
Special collection services										
Number of CEGs			10	10	12	12	15	17	13	CEG program starts in year 2
Pounds of HHW			1,700	1,700	2,040	2,040	2,550	2,890	2,153	C Assumes 170 pounds/CEG
Number of movers			5	7	9	11	13	14	9	
Pounds of waste, movers			750	1,050	1,350	1,650	1,950	2,100	900	D Assumes 150 pounds/mover
Total pounds of waste, all sources			80,833	81,133	81,773	82,073	82,883	83,373	82,011	E Sum of B + C + D
Operational Costs										
Facility Operational Costs (from Alt C)			$46,762	$48,165	$49,610	$51,098	$52,631	$54,210		F Adjusted for inflation at 3% in Yrs 2 to 7
Disposal Cost at the Facility			$34,932	$35,980	$37,059	$38,171	$39,316	$40,495		G Adjusted for inflation at 3% in Yrs 2 to 7
Collection Event Costs (2 events in Year 1, 6 in Year 2, 8 in Year 3)		$45,328	$84,853	$99,641	$102,631	$105,710	$108,881	$112,147		H Adjusted for inflation at 3% in Yrs 2 to 7
DEQ Annual Compliance Fee of $50			$50	$50	$50	$50	$50	$51		
Subtotal, all Costs										
Subtotal, all Costs		$413,124	$166,597	$183,836	$189,349	$195,028	$200,878	$206,903	$190,432	I Sum of Operational & Disposal Costs
Revenue										
DEQ Grant		-$100,000	$0	$0	$0	$0	$0	$0		J Assumes $64,900 DEQ grant available
CEG Payments		$0	-$3,825	-$3,825	-$4,590	-$4,590	-$5,738	-$6,503		K $2.25/pound charged for materials
		-$100,000	-$3,825	-$3,825	-$4,590	-$4,590	-$5,738	-$6,503		L Sum of J + K
Required County Funding		$313,124	$162,772	$180,011	$184,759	$190,438	$195,140	$200,401	$185,587	M Amount need to fund the program
Cost per pound			$ 2.01	$ 2.22	$ 2.26	$ 2.32	$ 2.35	$ 2.40		N Cost per pound lower from CEG Revenue
Program Cost per Solid Waste Ton		$ 4.54	$ 2.36	$ 2.61	$ 2.68	$ 2.76	$ 2.83	$ 2.90		O SW Tons in Coos: 46,433, Curry: 22,582

All dollar figures are in year 2006 dollars. All costs are estimates and projections only. Actual costs, participation, and pounds of waste collected may vary.

Notes

- **A** Capital costs over the DEQ funding will be paid for in year one.
- **B** Pounds of waste excludes latex paint (20%) and motor oil (7%). Percentages based on past events. Estimate 57 pounds of HHW/hhd.
- **C** Estimate 170 pounds/CEG. The average is 250 pounds/CEG.
- **D** Estimate 150 pounds/mover. The average is 150 pounds/mover.
- **E** Sum of B + C + D
- **F** Facility operational costs are adjusted for inflation at 3% in Yrs 2 to 7.
- **G** Facility Disposal costs are adjusted for inflation at 3% in Yrs 2 to 7.
- **H** Collection Event costs are adjusted for inflation at 3% in Yrs 2 to 7.
- **I** Sum of Operational & Disposal Costs.
- **J** Assumes $100,000 DEQ grant available.
- **K** Assuming average of $2.25/pound charged for delivered materials.
- **L** Sum of J + K
- **M** Approximate Amount needed to fund the program annually.
- **N** Cost per pound lower from CEG Revenue.
- **O** SW Tons disposed from the 2005 Material Recovery and Waste Generation Report from DEQ

TABLE 2.
Coos and Curry Counties Household Hazardous Waste Management Planning Project
Initial Cost Estimate

Alternative C: Permanent Facility with Eight Contracted Collection Events

Key Assumptions (Facility)		Key Assumptions (Collection Events)	
12	days open to public per year	8	events/year
663	vehicles/year (5% of area households plus 1% of near by cities and unincorporated areas)	703	vehicles/year
57	lbs/vehicle (90% avg past events w/o paint and motor oil due to frequent events)	57	lbs/vehicle (90% avg past events due to frequent events)

Capital Costs					cost	Note	
Collection Facility							
Land					$0		Land already available
Facility design and engineering					$25,000		Approximately 10% of build cost
Permit assistance, application fees					$10,000		Assumes assistance from City or County staff
Site development, utilities, access, paving, fencing					$100,000		Assumes utilities within 100 feet of site.
1600 sq. ft. steel building (40 x 40)	1	unit	@	$56,000	$56,000		Indoor work area, office, three-stall storage area
Concrete and epoxy paint	2400	s.f.	@	$25	$60,000		Building floor and drop off area
Protected Drop Off Area (20 x20)	1	unit	@	$8,000	$8,000		Roof over drop off area
Equipment, Supplies, shelves, tools, signage					$7,500		includes safety shower, eye wash, spill kits, etc
HHW Storage Cabinets (15' foot)	3	units	@	$22,620	$67,860		Each cabinets holds 16 55 gallon drums
Facility Subtotal					$334,360	A	Sum of Collection Facility line items
Contingency					$33,436	B	10% of sum total A
Facility Total					$367,796	C	A + B = C
Less DEQ Tier 1 Funding					-$100,000	D	Regional Facility Tier 1 DEQ Grant
Net Capital Funding					$267,796	E	C - D = E
Annualized Facility Cost over 7 years with 8% interest					$50,087	F	Annual Facility Payment @ 8% for 7 years

Facility Operational Costs					cost		
Facility							
Oversight, management, promotion	15%	FTE	@	$80,300	$12,045		County Staff (Fully loaded labor cost)
Printed promotional materials; ads; outreach to realtors					$1,000		Lump sum
Facility labor							Open 1 day a month, 8 hours/day
Hazardous waste specialist(s)	288	hours	@	$29	$8,410		Trained personnel (with taxes & benefits)
General Labor	288	hours	@	$22	$6,307		Trained personnel (with taxes & benefits)
40-hour safety training for hazardous waste specialists					$6,000		lump sum
Medical monitoring					$1,000		lump sum
General Upkeep per year					$5,000		lump sum
General Liability Insurance					$2,000		Annual Premium
Other equipment (replacement costs)					$5,000		Drums, totes, absorbent, lab test kits, Protection Gear
Total Operational Costs					$46,762	G	Sum of Operational Costs

Collection and disposal costs							
Facility							
Collection and packing (4 times a year)	96	hours	@	$37	$3,528		12 hours per collection for contractor staff
Contracted Chemist	64	hours	@	$37	$2,352		Chemist to assist with packing
Transport	99	drums	@	$35	$3,460		Cost are $35 per 55 gallon drum, $150 min charge
Waste management	38,058	pounds	@	$0.59	$22,416		Weighted average disposal cost of past events
Disposal Subtotal					$31,756	H	Sum of Collection and Disposal Costs
10% contingency					$3,176	I	10% of sum total H
Total C&D Costs					$34,932	J	H + I = J

Collection Events							
Management: contracting, organizing, promotion	10%	FTE	@	$80,300	$8,030		County Staff (Fully loaded labor cost)
Promotion: flyers, paid newspaper advertising					$5,000		Lump sum ($5,000 for events)
Event labor and set-up costs							**All costs below based on MSE contract with DEQ**
Equipment mobilization (carts, safety, etc.)	8	events	@	$525	$4,200		Weighted Average of 3 @ $525 (0-100 pp),
On-site labor (contractor) - smaller events	8	event	@	$672	$5,376		1 supervisor @ $47/hour, 1 chemist @ $37/hour,
	8	event	@	$588	$4,704		2 haz waste specialist @ $37/hour,
	8	event	@	$252	$2,016		1 haz tech @ $32/hour; 64 total hours per event
On-site labor (contractor) - small events Travel	8	event	@	$1,008	$8,064		8 hours travel: 5 contractor staff @ $25/hour
On-site labor (local)	8	events	@	$510	$4,080		10 hours per event average; 3 traffic control @ $17/hr.
Contractor per diem	8	events	@	$840	$6,720		Contractor staff 5 @ $84 each (2 nights per event)
Contractor PPE	8	events	@	$0	$0		Included in the hourly rate
Tent	8	events	@	$1,020	$8,160		1500 square feet @ $0.68/sf
Event waste disposal costs							
Waste transportation	8	events	@	$660	$5,282		504 round-trip miles from TSD @ $1.31/mile
Waste management	40,325	pounds	@	$0.59	$23,751		Based on average disposal cost for events
Subtotal					$85,383	K	Sum of Collection Event Costs
Contingency					$8,538	L	10% of sum total K
Total Collection Event Costs					$93,922	M	K + L = M

Total Operational & Disposal Costs per Year	$175,615	N	G + J + M = N
Annualized Capital Costs (amortized over 7 years)	$50,087	O	F

Total Costs per Year (Operational Costs + Annualized Capital)	**$ 225,702**	P	N + O = P
Cost per pound of collected HHW materials	$ 2.88	Q	$174,710 (P) / (38,058 + 40,325) pounds of materials
Cost per vehicle / participant	$ 165.24	R	=P / (663 + 703 vehicles)
Cost per household	$ 6.70	S	= P / 33,708
Per MSW ton (Assuming 69,000 annual solid waste tons)	$ 3.27	T	= P / 69,000 MSW tons

Appendix A
BRIEFING PAPER

Coos County
Household Hazardous Waste (HHW) Planning Project
Briefing Paper

Prepared for

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Coos County Courthouse
250 N. Baxter Street
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June 14, 2006

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Bell & Associates, Inc.
Troutdale, Oregon

Tabor Consulting Group
Portland, Oregon

And

Carolyn Dann
Andover, Massachusetts

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FIGURE

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DISTRIBUTION

1.0 INTRODUCTION AND PURPOSE

Household hazardous waste (HHW) includes a wide variety of household products that can be harmful to human health and the environment, either in their use and/or in their disposal. Examples include mercury and mercury-containing items (thermostats, thermometers, fluorescent bulbs), pesticides, herbicides, poisons, corrosives, solvents, fuels, some types of batteries, paints, certain cleaning products, motor oil, and antifreeze.

Coos County has received a planning grant from the Oregon Department of Environmental Quality (DEQ) to study options for reducing the health and environmental impacts of HHW. This Briefing Paper has been prepared by Kies Strategies, Tabor Consulting Group, Bell & Associates, Inc. and Carolyn Dann for Coos County (hereafter "County") and the Waste Advisory Board (hereafter "Committee") for three primary purposes:

- To list key policy and planning options for the Committee to consider at its upcoming meeting.
- To introduce and review background information that will help the Committee members make well-informed decisions and recommendations.
- To introduce and evaluate five alternatives for expanding the collection of HHW in Coos County.

2.0 OVERVIEW OF THE PLANNING PROCESS

Using funds from a HHW planning grant from the Oregon Department of Environmental Quality (DEQ), Coos County has retained the services of a consultant team, led by Kies Strategies. Under subcontract to Kies Strategies are Bell & Associates, Inc., Tabor Consulting Group and Carolyn Dann.

The proposed planning process for Coos County, as set forth in Kies Strategies' proposal, consists of five key tasks to be completed by March 2007:

Task Number	Description	Proposed Schedule*
Task 1:	Initial data collection; prepare descriptions of alternatives; first meeting with County and Committee; County and Committee indicate initial preferences	first meeting June 21, 2006
Task 2:	More detailed analysis of preferences	September 30, 2006
Task 3:	Prepare draft HHW Plan; second meeting with County and Committee	November 30, 2006
Task 4:	Revise HHW Plan; third meeting with County and Committee	January 31, 2007
Task 5:	Prepare final draft of HHW Plan; presentation to Board of Commissioners	February 28, 2007

*Subject to change based on Committee and Kies Strategies team members' availability and schedules.

The Kies Strategies team's roles are to:

- provide information and advice to the County and Committee members;
- facilitate discussions and encourage thorough evaluation of alternatives; and
- incorporate County and Committee input and prepare the draft(s) and final HHW Plan.

The County and Committee's roles are to:

- review materials (such as draft Plans) in advance of meetings;
- carefully discuss and consider alternatives;
- select and express their preferences;
- recommend a final HHW Plan to their respective decision-makers (Board of Commissioners, City Councils);
- support implementation of the final HHW Plan, if adopted by decision-makers.

3.0 KEY DECISION ISSUES FOR COOS COUNTY HHW PLANNING MEETING SCHEDULED FOR JUNE 21, 2006

Figure 1 presents a series of key questions for use by the Committee members at the first meeting. These questions are designed to help the Committee members think through the many issues involved in planning for and implementing a new HHW service.

4.0 ADDITIONAL BACKGROUND INFORMATION

Terminology: HHW and CESQGs

HHW refers to hazardous wastes that are generated by households. CESQG is an acronym for "conditionally exempt small quantity generators". CESQGs include most businesses and public facilities that generate less than 220 pounds of hazardous waste per month. Unlike businesses and public agencies that generate 220 pounds or more of hazardous waste per month, CESQGs are exempt from most State and Federal reporting and disposal requirements for the management of hazardous wastes. Like households, it is legal for CESQGs to dispose of hazardous waste with mixed garbage. The Coos County HHW Plan could address both HHW and hazardous waste from CESQGs.

Regulatory Overview

Both households and CESQGs are allowed to dispose of hazardous waste mixed with regular solid waste (garbage). The only exception to this is a federal regulatory prohibition on the disposal of bulk liquids. Most of the waste generated in Coos County is taken to the Beaver Hill Incinerator and Disposal Site where it is incinerated. Construction and demolition waste and other waste that cannot be incinerated at Beaver Hill is disposed of in Joe Ney Landfill or transferred to a facility out of the county. At the

incinerator, landfill and transfer station, loads are screened for liquids and hazardous materials. If found, the hauler must sort the load and take back the rejected materials.

Lead-acid batteries: Oregon law (ORS 459.422) requires that retailers take back the same type of battery that they sell. According to DEQ staff, most are willing to take back different brands of batteries as well, as long as the casing is intact and not leaking. Lead acid batteries taken back by retailers must be recycled. ORS 459.420 prohibits the landfill disposal of lead-acid batteries by any party (including households).

Motor oil: ORS 459A.575 requires retailers of motor oil to post signs informing the public of opportunities for proper disposal of used motor oil. ORS 459A.580 prohibits the disposal of used motor oil into sewers or waterways, as well as incineration other than for energy recovery purposes.

Endangered Species Act: The County and cities may be liable under the Endangered Species Act (ESA) for the release of hazardous waste into streams that negatively impact listed species. Under the ESA, populations of Salmon including Chinook, Chum, Coho and Sockeye, Steelhead and Bull Trout in many Oregon watersheds are listed as "threatened". Under Section 4(d) of the ESA, blanket rules protect the listed fish until tailor-made measures are approved and ready to take their place. These blanket restrictions are intended to reduce the "take" of listed species. The definition of "take" includes modifying or degrading habitat where it kills or injures a species by impairing its ability to breed, spawn, rear, migrate, feed or find shelter. For example, the National Marine Fisheries Service, in its list of activities that "could have a high risk of resulting in take", includes "discharging pollutants, such as oil, toxic chemicals, radioactivity, carcinogens, mutagens, teratogens or organic nutrient-laden water including sewage water into a listed species' habitat." Such discharge could be direct (spraying herbicides on a stream bank) or indirect (run-off of oil from streets into a stream through municipally-owned stormwater conveyance systems).

Why HHW and CESQG Waste is a Problem

Major hazards caused by use, storage, and improper disposal of HHW in Coos County include the following:

- Disposal of paint, antifreeze, motor oil, and other hazardous waste into storm drains by area residents contaminates creeks, streams, and other drainage areas.
- Illegal dumping of household garbage may include HHW.
- Backyard burning is legal in Coos County. HHW may be included in material that is burned by residents.
- The use of motor oil for dust suppression is strongly discouraged by DEQ due to soil and water contamination, but is still practiced by some property owners.
- Garages and basements of farms and older houses tend to contain large amounts of HHW, including wastes that are now banned (such as DDT). When these properties are sold, the buyer often inherits these hazardous wastes.
- Improperly stored products can result in accidental poisonings, especially among children. According to the American Journal of Emergency Medicine (September, 1999), there were almost one million exposures to non-pharmaceutical HHW reported to poison control centers in

1998, including 241 deaths and 3,027 "major impacts", which include comas, brain damage, and major burns, lung damage, and disfigurement.

- Storage of flammable products (solvents, fuels, oil-based paint) in homes may start fires, add to the fuel load of buildings, and endanger firefighter safety.

- Some households (and CESQGs) may opt to flush certain hazardous wastes into the sewer. Some types of HHW can damage drain lines, leak into surrounding soil, and damage on-site septic systems. HHW disposed of in on-site drain fields can contaminate groundwater down gradient. Drinking water in shallow aquifers is easily contaminated by the improper dumping of HHW on the ground or disposal in on-site septic tanks or drain fields.

- Mercury disposed with regular garbage can evaporate (volatilize). Volatized mercury eventually re-enters aquatic environments in the form of methyl mercury, where it accumulates at increasing concentrations in the fatty tissues of fish, wildlife, and humans, causing neurologic and other damage.

- The Beaver Hill Incinerator is an additional factor in the management of HHW. Mercury and other heavy metals do not break down well in an incinerator. The heavy metals remain in the fly ash. The ash is regularly tested and the results have shown that it is not hazardous according to EPA standards. However, the County may consider removing the sources of mercury and heavy metals from the waste stream through collection of batteries and mercury thermometers.

The ash residue from burning at Beaver Hill is placed in a lined landfill cell located at the incinerator. This landfill cell is estimated to reach capacity in 2012. The County has recently completed the process of preparing a Solid Waste Management Plan (SWMP). This SWMP provides recommendations for long-term disposal services including the construction of a new landfill cell to facilitate the continuation of burning operations, transporting waste to landfills outside Coos County, or other methods for long-term disposal of solid waste. It is the intent to develop the HHW plan in coordination with the SWMP to ensure consistency and minimize duplication of effort.

Types and Volumes of Waste

Little reliable data is available regarding the volumes of HHW and CESQG waste. Oregon regularly conducts a statewide solid waste composition study as required by state law (Oregon Revised Statute 459A.035). During these studies, incoming waste at disposal sites are sorted into different categories and weighed. As of the date of this briefing paper, the most recent completed study was conducted in 2002. This study indicates that hazardous wastes and their packaging (not including latex paint, and not including empty packaging) comprise approximately 0.6% (a little over half of one percent) of solid waste entering landfills in Oregon. However, because many of these wastes are in a liquid form, and may absorb into other wastes in the collection vehicle (such as paper), the DEQ studies may tend to undercount HHW. Further, some HHW never enters the solid waste system at all, and so is not included in DEQ's study.

Data is available from previous DEQ-sponsored HHW and CESQG collection events in Coos County. Data from collection events held in 1991, 1992, 1995, 1996, 1997, 1998, 2000, and 2001 is portrayed in Table 1 (HHW) and Table 2 (CESQG). Both tables also show the average composition of all HHW and CESQG waste collected in all DEQ-sponsored events throughout Oregon in 1998, which is the last year that more than 10 events were held in the State. Coos County generally follows statewide trends for HHW, with the greatest variation for lead-acid batteries and paint. Collection events in the County for

HHW have tended to collect a lower percentage of lead-acid batteries and latex paint and a higher percentage of oil-based paint.

Tables 1 and 2 include used motor oil and lead-acid (automotive) batteries collected during events. However, since used motor oil is also collected at the transfer station and lead-acid batteries are collected at retailers, the total amount of these materials collected is much higher than shown in Tables 1 and 2.

One important consideration is that not all types of HHW are equally hazardous. For example, many HHW programs throughout the nation collect latex (water-based) paints as part of HHW. Latex paint - particularly old paint - may contain fungicides, mercury, lead, or other heavy metals. However, since most of these materials are no longer added to latex paint manufactured in the U.S., new latex paint is not a hazardous waste. Samples of old latex paint collected at HHW collection events and facilities in various locations in North America show that old latex paint is typically not a hazardous waste, except in California (which has more stringent definitions of hazardous waste), unless a large batch of particularly old and "potent" paint is dropped off. As we move into the future, and these old stocks of latex paint are used up, disposed, or collected, the level of hazardous constituents in collected latex paint is expected to continue to drop.

Recognizing that not all HHW is equally hazardous, DEQ's HHW program has begun placing emphasis on "high hazard" wastes. These are wastes that have higher environmental or health impacts, and are generally divided into four categories:

- Poisons: pesticides, herbicides, fungicides and other poisons.
- Heavy Metals: mercury and products containing elemental mercury (thermostats and thermometers), nickel-cadmium (ni-cad) batteries, and lead-acid batteries.
- Flammables: solvents, gasoline, kerosene, other fuels, and oil-based paint.
- Corrosives: acids, bases, and reactives (such as pool chemicals).

While most HHW programs traditionally accept a broad range of HHW, one option is to target specific types of waste (such as pesticides and heavy metals) based on their impacts and focus collection on those waste types. A growing number of HHW programs are considering ways to minimize the collection of lower-hazard wastes such as latex paint.

Existing Collection Systems

As part of their solid waste permit requirements, all transfer stations and landfills in Oregon are required to provide drop-off recycling of used motor oil and lead-acid batteries (among other items). The West Coast Recycle and Transfer facility is the only transfer station in Coos County. It is owned and operated by Les' Sanitation, a division of Waste Connections. The transfer station accepts garbage and recyclables from franchised haulers and the general public. Motor oil is accepted at the transfer station for recycling.

The franchised garbage haulers provide curbside collection of used motor oil in the cities of Coos Bay, North Bend, and Coquille, including parts of the urban growth areas. Curbside pickup is also provided in Bandon upon request for an additional fee. Several local retailers also accept lead-acid batteries.

Trends in Coos County recycling practices over the last five years as reported by DEQ's Annual Material Recovery Surveys show a decline in the recycling rate for used motor oil and lead-acid batteries. According to the *Final Solid Waste Management Plan Coos County* prepared by URS and dated February 2006, used motor oil recycling decreased to 557 tons in 2003 from a high of 1,289 tons in 2002. Lead

acid battery recycling also decreased sharply in 2003. There were 93 tons of lead-acid batteries recovered in 2003, as compared to 277 tons in 2001 and 297 tons in 2002

It is assumed that most of the motor oil collected at the transfer stations and through curbside routes is a result of "do-it-yourself" (DIY) oil changes. Research in Washington, Oregon, California, and elsewhere indicates that a significant amount of DIY waste oil may be released inappropriately to the environment, causing significant pollution of soils, and ground and surface water. In fact, reducing groundwater contamination from motor oil has been identified by DEQ drinking water staff as a top priority, particularly in areas with shallow drinking water aquifers below residential neighborhoods. Providing convenient collection opportunities for DIY'ers to safely manage motor oil, such as curbside recycling, is a critical public service from an environmental perspective. What is not well understood at this time is what percentage of the waste motor oil is being collected through these systems, and how much is still being disposed of inappropriately.

DEQ Services

DEQ has provided 13 one-day HHW collection events in Coos County from 1991 through 2001. Each DEQ event has involved local partners (such as waste haulers, cities, county) who provided a location for the event, provided staff (including volunteers) for traffic control, and provided local promotion of the event. DEQ paid a hazardous waste contractor to set-up, staff the site, accept wastes, remove them, and ultimately pay for safe recycling or disposal of the wastes.

Table 3 provides a summary of statistics for past DEQ events such as the number of participants and the pounds of waste collected. The HHW events have averaged 320 vehicles (participants) bringing 89 pounds of HHW each, at an average cost of $94 per vehicle. On average, the waste collected at the CESQG events represents 2% of the total waste collected.

Due to funding constraints, DEQ is shifting resources away from providing these types of collection events, and towards supporting local community solutions. Grants are now available to support local planning efforts, waste prevention education, permanent collection facilities, and alternative collection approaches such as curbside collection and motor oil collection tanks. Due to statutory limitations, grant funds must be spent on HHW activities. While CESQG wastes can be collected as an adjunct activity, DEQ grant funds cannot be spent for programs that exclusively target CESQGs. Typically, a CESQG will bring in over 100 pounds of waste, but the number that actually uses an event or facility is so small that CESQG waste is generally only about 2% of total waste volumes.

DEQ's HHW Management Plan for Oregon

DEQ prepared a five-year *Household Hazardous Waste Management Plan for Oregon* in 1999. Prior to the development of this plan, DEQ's HHW program focused resources on providing collection services for HHW and educational materials. The focus of the 1999-2005 HHW Plan was to create the capacity of local governments to meet the needs of their own residents for HHW services. The Plan recognized the inherent limitations in continuing DEQ-funded collection events. While popular with some households, the events collect only a fraction of the HHW that is generated. The number of households participating in events was tending to increase, which meant that events were becoming more expensive. Higher costs translate into fewer events (given a fixed budget). At the same time, more cities were requesting events, so DEQ's resources were being spread even thinner.

To facilitate the management of HHW on a local level, DEQ expanded grants to local governments for planning and facility development and decreased the number of state-funded collection events. By 2006, permanent HHW facilities will serve about two-thirds of the state's population, and less than one in five

residents will lack HHW service through facilities or local events. The state recently updated the HHW Plan to set direction and activities for DEQ's HHW program over the next six years, beginning in late 2005 and ending in June 2011.

DEQ's HHW Program is funded every two years by the Legislature, and is currently funded at $800,000 per biennium. It is assumed that the funding level will remain constant.

Under the 2005-2011 Plan, DEQ continues to provide the following services:

- The "purchaser program", which allows local governments to use the state's contractor (currently MSE Environmental) for HHW collection, thus avoiding the administrative requirements of bidding and administering a new contract.

- Planning grants for local governments that have not developed a plan. For local governments that have already planned, the grant program will be expanded to help develop specialized plans that address high-risk situations or materials and to update existing plans as needed.

- Facility grants to support the development of local HHW collection facilities.

- Fund local collection events. However, event locations will be based on DEQ-determined risks, needs, and priorities, rather than applications from local event sponsors. DEQ will not fund collection events in counties that have established HHW collection services or facilities.

- Limited reimbursement to counties with permanent facilities to accept out-of-county waste in order to provide ongoing HHW collection opportunities to residents in areas without local collection service.

- Waste prevention and education grants with priority given to those that address the highest-risk situations and that support local waste prevention efforts.

- Technical assistance, publications, and a statewide HHW hotline.

The plan also details a number of planning, monitoring and evaluation activities including the completion of a Priority Assessment study during the first year of the program to guide DEQ in determining where to focus resources to meet the overall goals of the HHW Plan and program. In addition, support will be provided to facilitate HHW-related training of local government representatives and DEQ Technical Assistants.

The 2005-2011 HHW Plan provides grants to local governments to fund the development of permanent local HHW collection facilities. Within this category, grants are available for two types of facilities:

- Tier I facilities provide new permanent HHW collection opportunities in areas without existing facilities; and

- Tier II facilities, including mobile facilities or vehicles, provide supplemental collection opportunities for areas already served but located significant distances from Tier I facilities.

Grants for Tier I facilities are based primarily on a population-based formula. The basic formula is $40,000, plus $1.00 for each resident in the facility's service area; with a minimum of $40,000 and maximum of $100,000. Grants for Tier II facilities will cover costs up to $30,000. Tier II grants may also cover costs for mobile facilities or vehicles. Any Tier II permanent facilities must be located at least 20 miles form the county's Tier I facility.

Both types of grant funds may be used for facility engineering, construction, materials and equipment. They may also be used to cover up to half of first-year disposal costs, if desired, provided the facility uses DEQ's purchaser program. Every county and city is eligible to request funding for facilities, but a maximum of one Tier I grant and Tier II grant will be funded in each county.

Using 2003 population estimates, Coos County has a population of 63,000 and so would be eligible for $100,000 in Tier I grant funds for a single permanent facility. If the County chooses to build a second smaller facility or purchase a mobile facility or vehicle, an additional $30,000 in Tier II grant funds may be available.

To qualify for grant funding, each facility must meet certain conditions as defined by DEQ including being open to the public at least 8 days a year, being available by appointment (at least once a week) for special/unusual circumstances, and being permitted by DEQ. In addition, any Tier II permanent facility must be located at least 20 miles from the county's Tier I facility. Acceptance of a HHW facility grant obligates the local government to provide HHW collection services for at least five years.

Nevertheless, grant applications for permanent facilities require submittal of a HHW Plan. The Plan must include:

- List of wastes to be accepted at the facility
- Local management options for wastes not accepted at the facility (if any)
- Conceptual design of the facility and description of facility operation (but not architectural drawings)
- Estimate of number of days/hours open per year
- A general site plan and indication of local acceptance
- Discussion of service area (who can use the facility)
- Discussion of optional services to CESQGs
- Projection of waste volumes and plan in case volumes exceed (or do not meet) projections
- Community education and publicity plan
- 5-year projection of costs
- 5-year projection of funding
- Permitting/design/construction schedule and cash flow schedule

DEQ's funding for local governments is limited (by the Legislature) to address hazardous waste from households, but not CESQGs. Any CESQG services covered by a local Plan must be considered as an "addition" to HHW services.

Proposed HHW Management Goals

Following are proposed HHW management goals for Coos County:

- Minimize environmental and health impacts associated with HHW.
- Educate residents and promote the use of least hazardous products and approaches.
- Educate residents in the reduction, proper use, and proper storage of household hazardous waste.
- Reduce the amount of household hazardous waste disposed of in the Beaver Hill Incinerator, landfill, sewerage systems, ground water, waterways (streams, rivers), the air, and illegally dumped. Accomplish this through education, collection, and focusing effort on waste types that pose a higher risk to the environment and health.
- Reduce the risks of accidental poisonings and fires in homes. Reduce the fuel load in homes caused by storage of flammable materials, and reduce the risk to fire safety workers associated with storage of hazardous materials.
- Continue to build cooperative relationships among the cities, waste collection and disposal companies, the agricultural and natural resource communities, school districts, fire districts, poison control professionals, retailers, real estate agents, business groups, community organizations, the Oregon Department of Environmental Quality, and other State and Federal agencies.
- Provide regular, convenient, efficient and cost-effective service, considering both short-term and long-term costs.
- Focus efforts and resources on services which will achieve the greatest environmental and health benefit.
- Emphasize proper end-of-life management of any hazardous wastes collected.
- Reduce regulatory liabilities for local governments.
- Include agricultural, natural resource, and other Conditionally Exempt Small Quantity Generators (CESQGs) in these efforts by identifying CESQGs within the County, providing educational outreach, and encouraging/accommodating participation in proper handling, record keeping, storage and disposal.

5.0 COLLECTION APPROACHES

While there are many different methods to collect HHW, the two basic approaches are collection events (which typically last no more than four to six hours) and permanent facilities (which may be open anywhere from 4 to 365 days a year). For Coos County, this briefing paper has identified the following five options: (1) collection events, (2) permanent facility with no other services, (3) permanent facility with satellite collection events in other cities, (4) permanent facility with satellite collection events serviced by a HHW collection vehicle, and (5) permanent facility with satellite collection cabinets serviced by a collection vehicle.

The 2005-2011 HHW Plan includes a limited facility reimbursement program for out-of-area wastes. This program allows residents outside jurisdictions with full depots or high hazard depots to take their waste there free of charge. DEQ negotiates a price for the HHW brought to a full depot from outside the region and reimburses the facility on a regular basis based on the amount of HHW received. Reimbursements will have a cap, but DEQ may consider creating an exemption on the cap amount for high-risk wastes, depending on the results of the Priority Assessment. DEQ will also work with county governments to develop a mechanism and accounting system for counties to reimburse each other on an ongoing basis for management of out-of-county wastes.

Alternative A: Collection Events

The cities, County, waste companies, or other organizations would sponsor a series of HHW collection events around the area. There may be one to four events per year. Presumably, events could be held in different locations such as Coos Bay, Coquille, Bandon, Myrtle Point, and Lakeside or Powers, with higher-population areas receiving more frequent service. The events would function similar to the events that DEQ has sponsored in the past, except that these events would be locally funded. The events could use a combination of County, City, solid waste collection company, and/or contractor staff. This approach has been taken by Tillamook, Benton, and Jackson Counties, among others.

Key Variables for Success:

- Frequency – A regular pattern of events, publicized broadly will bring in greater participation.
- Location(s) – It is crucial to find well-known, accessible locations.
- Staff – Events could be operated by city/county staff, waste collection company(s), volunteers or a private contractor.
- Cost – This will depend on local government budgets, participation, cost structure, and any support from private haulers or other businesses. Need to examine options such as flexible staffing levels by the contractor, providing some staff from local/municipal sources, providing alternative management options (instead of the costs of disposal as hazardous waste) for common items such as motor oil and for reusable products.
- Cost structure – A high set-up cost will make it expensive to offer several collections per year. A cost structure with a lower set-up cost will allow for more events.
- Could be open to residents only, or also CESQGs (conditionally exempt small quantity generators).

Major Advantages:

- No special facility requirements or construction costs.
- Easier siting for temporary events than permanent facilities.
- Flexible – can serve different areas.

Major Disadvantages:

- Difficult to control access (and thus costs).

- Not very convenient; residents must wait for the next event.
- No funding available from DEQ.
- Does not adequately serve home sellers (or others needing immediate service), a significant source of HHW.

Alternative B: Permanent Facility with No Other Services

The cities, County, waste companies, or other organizations would sponsor the siting and operation of a permanent facility to accept HHW from the public. A variety of facility designs and sizes exist, ranging from small and simple to large, complex, and expensive. The facility might consist of a pre-fabricated storage building, with ventilation, spill containment, and fire suppression features. The building would be covered by a pole-barn style roof, with controlled, covered areas for accepting waste from the public, and consolidating/repacking wastes for storage and shipment. A separate cabinet might provide limited storage space for a "HHW exchange", where good-quality, reusable items (paints, cleaners) could be stored for others to take and use.

Access to the facility would be controlled. It could be located at or adjacent to a transfer station, fire station, public works yard, wastewater treatment plant, or other similarly zoned land. The facility would require a permit from DEQ.

The facility would be open to the public anywhere from eight to 150 (or more) days per year. Vehicles would queue up to use the facility. Users may be required to pre-register in order to control costs and reduce waits. Wastes would be removed from vehicles in order (just like at a collection event) and set-aside for identification and packing. Some wastes may be "lab packed" into larger drums in their original containers, while others might be drained and mixed together. Waste drums would be segregated in different bays of the storage unit. When several drums are full, or at least every 90 days, the facility operator would arrange for removal by a licensed contractor.

While the facility may be open on a set schedule (for example, the first Saturday of every month), a service improvement would be to allow additional waste acceptance by appointment. For example, if somebody calls a waste company and says they're moving and have a box full of HHW, and can't wait for the next regularly scheduled collection day, facility staff might be able to arrange a special waste collection by appointment.

In Oregon, Lane, Marion and Columbia Counties have implemented this approach. Deschutes, Hood River, and Wasco Counties are in the process of implementing this approach.

Key Variables for Success:

- Staffing – The program can be staffed solely or by some combination of a hazardous waste contractor, local solid waste collection company, and/or City or County staff.
- Siting – It should be convenient to the greatest number of residents possible.
- Schedule – Collections should be available on a regular schedule, at least once/month most months of the year.

- Education/Publicity - Effective publicity is needed to inform residents about what materials can be brought to the facility and what to do with the other non-acceptable materials.

Major Advantages:

- Provides more frequent opportunities than collection events for residents to safely dispose of HHW.
- Consistent location and schedule will enhance participation, especially for nearby residents.
- Ongoing operational costs can be reduced compared to events with the ability to store partially full drums, consolidate like wastes, and divert reusable items.
- Permanent facilities typically result in lower per-car or per-participant costs than collection events, if participation is high enough and local staff (as opposed to a hazardous waste contractor) conduct at least some of the facility operations (such as waste acceptance and some bulking and identification).
- Allows for "use by appointment", both for home sellers (a major targeted population) and as a method to control access and cost.

- Partial funding currently available from DEQ ($100,000).
- Provides on-going opportunity for HHW reuse, which can lower management costs.
- Provides opportunity to serve CESQGs that can also lower per-pound HHW costs.

Major Disadvantages:

- A fixed location will be inaccessible to some and accessible to others.
- Costs may exceed capital grant from DEQ.
- Finding an appropriate site that is also accessible can be challenging.
- Requires permit from DEQ.
- Accepting DEQ grant funds requires a commitment to continue operation and meet minimum performance standards for at least 5 years.

Alternative C: Permanent Facility with Satellite Collection Events in Other Cities

This alternative includes the same type of facility as described in Alternative B. However, it would expand collection service in other parts of the service area through the use of smaller satellite events. The events would function as described in Alternative A. They could use a combination of County, City, solid waste company, volunteer, and/or contractor staff. Wastes would be consolidated and removed from the site the day of the event by a licensed contractor. There may be one to three events per year. Presumably, events could be held in different locations, with higher-population areas, such as Coquille, Myrtle Point, Bandon and Lakeside or Powers receiving more frequent service.

In Oregon, this type of service is provided by Metro, the regional government of the Portland area. Metro operates two large HHW facilities (in Oregon City and Northwest Portland), and provides collection events in neighborhoods distant from those facilities. The Lincoln County Solid Waste Advisory Council has also recommended such an approach to the County Board of Commissioners.

Key Variables for Success:

- Staffing – The same as for Alternative B (permanent collection facility) but staff would have additional responsibilities for collection events. The program can be staffed solely or by some combination of a hazardous waste contractor, local solid waste company, and/or City or County staff.

- Schedule – Either collections or scheduled events should be available on a regular basis, at least once/month most months of the year.

- Access - For the events, consistent locations and schedule will enhance participation, especially for nearby residents, even if the "hub" is located at a more remote site.

Major Advantages:

- The location of the permanent facility is less critical due to the addition of the satellite collection events. The permanent facility should be convenient to the greatest number of residents possible but if no ideal site is available, the events can provide improved accessibility.

- More convenient for the public compared to events alone or a permanent facility alone due to the ability to offer collections in various locations as well as on a regular schedule at the permanent facility.

- The collection events provide a good opportunity for publicity and should enhance awareness of both the events and the facility. The publicity should inform residents about what materials can be brought to the events and to the facility and what to do with the other materials.

- Wastes accepted at the permanent facilities will typically result in lower per-car or per-participant costs than collection events, if participation is high enough and local staff (as opposed to a hazardous waste contractor) conduct at least some of the facility operations (such as waste acceptance and some bulking and identification).

- Partial funding currently available from DEQ ($100,000).

Major Disadvantages:

- The fixed location of the permanent facility will be inconvenient to some and accessible to others but the events will offset that problem to some extent.

- Costs of a permanent facility may exceed capital grant from DEQ.

- Finding an appropriate site for the permanent facility that is also accessible can be challenging, though it does not have to be as conveniently located for the public if there are events in addition.

- Operational costs will be slightly higher than a permanent facility alone due to additional costs of events.

Alternative D: Permanent "Hub" Facility with Satellite Collection Events in Other Cities Serviced by a Collection Vehicle

This alternative depends on Coos County making the decision to purchase a vehicle designed to collect and transport HHW. Assuming the vehicle is purchased, this alternative includes the same type of events as described in Alternative A. However, it would expand collection service by offering more frequent, but smaller events. The events would be serviced by the HHW collection vehicle. The vehicle would be owned by Coos County. It may be a trailer or truck, specially designed for collection and transport of HHW.

Waste collected at the events could be loaded into the truck or trailer for transport to a permanent collection facility as described in Alternative B. There the wastes would be further sorted and packed for eventual removal. The County would promote events to residents prior to each event. The events could use a combination of County, cities, solid waste collection company, volunteer and/or contractor staff. Wastes would be consolidated and removed from the site the day of the event by the HHW collection vehicle. There may be two to six small events per year. Presumably, events could be held in different locations, with higher-population areas receiving more frequent service.

In Oregon, this type of service is provided by Metro, the regional government of the Portland area and Polk and Yamhill Counties, for example. Metro operates two large HHW facilities (in Oregon City and Northwest Portland), and provides collection events in neighborhoods distant from those facilities. Polk and Yamhill Counties have an agreement with Marion County to collect and manage HHW in each County. Marion County staff or their contractors use a HHW collection vehicle owned by each County to operate satellite collection events in the Counties. Polk and Yamhill Counties are responsible for all event coordination and promotion. HHW collected at the events is transported to the permanent HHW facility in Marion County for aggregation and storage prior to shipping for final disposal.

Key Variables for Success:

- Frequency – A regular pattern of events, publicized broadly will bring in greater participation.
- Location(s) – It is crucial to find well-known, accessible locations.
- Staff – Events could be operated by city/county staff, waste collection company(s), volunteers or a private contractor.
- Cost – This will depend on local government budgets, participation, cost structure, and any support from private haulers or other businesses. Need to examine options such as flexible staffing levels by the contractor, providing some staff from local/municipal sources, providing alternative management options (instead of the costs of disposal as hazardous waste) for common items such as motor oil and for reusable products.
- Transportation – Wastes collected at the events needs to be safely but efficiently transported back to the "hub" (a permanent facility) where it can be processed and packed for transport to its final destination. It may require a trailer or truck retrofit with safety equipment and will involve some double handling of the collected materials.
- Could be open to residents only, or also CESQGs (conditionally exempt small quantity generators).

Major Advantages:

- Provides more convenient opportunities than a permanent facility alone for residents to safely dispose of HHW.
- Consistent location and schedule of permanent facility will enhance participation, especially for nearby residents.
- Permanent facilities typically result in lower per-car or per-participant costs than collection events, if participation is high enough and local staff (as opposed to a hazardous waste contractor) conduct at least some of the facility operations (such as waste acceptance and some bulking and identification).
- Flexible – the collection vehicle provides more flexibility in terms of locations and number of events.
- Events serviced by a collection vehicle that hauls waste back to a permanent facility have the advantage of reducing waste management costs compared to events alone as a result of the ability to store partially full drums, consolidate like wastes, and divert reusable items.
- Set up costs may be lower for events serviced by a HHW collection vehicle.
- Allows for "use by appointment", both for home sellers (a major targeted population) and as a method to control access and cost.
- Partial funding currently available from DEQ ($130,000 - Tier I grant of $100,000 plus a Tier II grant of $30,000).
- Provides on-going opportunity for HHW reuse, which can lower management costs.
- Provides opportunity to serve CESQGs that can also lower per-pound HHW costs.

Major Disadvantages:

- Added initial costs and maintenance required for transport vehicle or trailer.
- Costs may exceed Tier I and Tier II grants from DEQ.
- Finding an appropriate site for the permanent facility that is also accessible can be challenging.
- Requires permit from DEQ.
- Accepting DEQ grant funds requires a commitment to continue operation and meet minimum performance standards for at least 5 years.

Alternative E: Permanent "Hub" Facility with Smaller Satellite Facilities/Cabinets Serviced by a HHW Collection Vehicle

In addition to the permanent facility of Alternative B, this alternative would add several "hazardous waste cabinets" or other smaller, satellite facilities in population centers that aren't well serviced by the main permanent facility. For example, if a permanent facility (as in Alternative B) were constructed at the transfer station in Coos Bay, hazardous waste cabinets or hybrid facilities (more than a cabinet but less

than a full facility) might be installed at the recycling depots, public works yards or fire stations in Coquille, Myrtle Point and/or Bandon. The cabinets or storage buildings would be located in areas with controlled access. Larger satellite facilities might require more extensive environmental protections, akin to what might be required of the "hub" facility. The public could bring hazardous waste to the satellite sites on a regular basis. Staff at the host sites (recycling depot, public works yard, fire stations, etc.) would need to be trained in basic hazardous waste identification and segregation, to avoid accepting and storing incompatible wastes together. Wastes would be placed in the satellite cabinets/facilities by the host site staff, for regular removal by the HHW collection vehicle. Waste would be transported from the satellites back to the 'hub" facility for further sorting and packing and eventual transport out of the area.

While this approach has been used in communities outside of Oregon, it is a new approach in Oregon. At this time, it is unknown what kind of permitting requirements DEQ would require of satellite hazardous waste cabinets/facilities. It is likely that the cabinets/facilities would require some kind of permit from DEQ. Developing a standard "off-the-shelf" mini-facility or high hazard locker design for installation at transfer stations or other solid waste facilities is proposed as a component of the updated *Household Hazardous Waste Management Plan for Oregon*. Funding for these mini-facilities would be supported by DEQ grants.

Key Variables for Success:

- Location(s) – It is crucial to find well-known, accessible locations.

- Cost – This will depend on local government budgets, participation, cost structure, and any support from private haulers or other businesses. Need to examine options such as flexible staffing levels by the contractor, providing some staff from local/municipal sources, providing alternative management options (instead of the costs of disposal as hazardous waste) for common items such as motor oil and for reusable products.

- Staffing – The staff from the permanent "hub" facility would drive the truck and collect material, with additional training required for staff at the satellite collection cabinets/facilities. The program can be staffed solely or by some combination of a hazardous waste contractor, local solid waste collection company, and/or City/County staff.

- Training – The on-site staff at the satellite cabinets/facilities must be trained in safe acceptance, sorting and storage procedures.

- Schedule – The cabinets/facilities should be open to the public on a regular basis, at least once/month most months of the year.

- Access – The cabinets/facilities can provide convenient access, especially for nearby residents.

- Transportation – Waste collected at the satellite cabinets/facilities needs to be safely but efficiently transported back to the "hub" (a permanent facility) where it can be processed and packed for transport to its final destination. It may require a trailer or truck retrofit with safety equipment and will involve some double handling of the collected materials.

Major Advantages:

- Greater convenience for the public compared to events alone, permanent facility alone, or events plus a permanent facility due to the ability to offer at least partial waste collection in various satellite locations.

- Satellite cabinets/facilities in combination with a permanent facility have the advantage of reducing waste management costs compared to satellite collection events with a permanent facility (Alternative C) as a result of the ability to store partially full drums, consolidate like wastes, and divert reusable items.

- Satellite cabinets/facilities may be the most convenient to residents, if co-located at the recycling depots, public works yards, fire stations or other regularly staffed sites.

- Funding currently available from DEQ ($130,000 - Tier I grant of $100,000 plus a Tier II grant of $30,000) as long as cabinets are more than 20 miles from permanent facility.

Major Disadvantages:

- The fixed location of the satellite cabinets/facilities will be inaccessible to some and accessible to others.

- Finding an appropriate site for the satellite cabinets/facilities that is also accessible could be challenging.

- Operational costs will be slightly higher than events alone due to additional costs of training staff and maintaining the cabinets/facilities and costs associated with double-handling of wastes and transporting wastes collected at the satellite cabinets/facilities to the permanent facility.

- Added initial purchase costs and maintenance required for transport vehicle or trailer.

- Publicity needs to be geared towards long-term education and awareness without events to generate short-term media attention.

- Satellite cabinets/facilities may also require permits from DEQ.

- Most demand on local staff.

- Accepting DEQ grant requires a commitment to continue service for five years.

6.0 EVALUATION OF ALTERNATIVES

Table 4 provides a qualitative summary of the major advantages and disadvantages of the five alternatives.

To further evaluate the financial impact of the five alternatives, the Kies Strategies team has prepared order-of-magnitude pro forma cost estimates for each alternative. Please note that these are rough estimates only, and are only intended to show the estimated magnitude of costs of each alternative and to compare relative costs between each alternative. In order to prepare cost estimates, certain assumptions have been made regarding each alternative. Key assumptions and findings are presented in Table 5. Full assumptions and calculations are shown in Tables 6 through 10.

7.0 FUNDING OPTIONS

The following have been identified as possible funding sources for new HHW services. Several of these funding options could be blended together to provide a comprehensive funding package. Douglas County completed the process of developing a HHW management plan in 2002. Curry County is currently applying for a HHW planning grant this year and is expected to have their plan completed in 2007. As the planning process proceeds, it may become apparent that there are advantages to a joint partnership with one or both of these two Counties. It is assumed that any regional (multi-jurisdiction) program will require some kind of intergovernmental agreement to equitably share in the costs of any new HHW programs that serve residents of both jurisdictions. The participating jurisdictions may use the same funding mechanisms, or they may utilize different funding mechanisms. Regardless, the following options might be used to provide local funding for any new HHW services:

1. User fees. Those who use the event or facility would pay at the time of drop-off. However, charging anywhere near the full cost of service would discourage all but the most devoted residents. Most jurisdictions in the United States do not impose user fees for residents, but do charge CESQGs at least the cost of waste disposal (and sometimes an additional handling charge).

2. Tipping Fee. The primary source of revenue to fund recycling, waste collection and disposal services is the tipping fees collected at County facilities -- currently $79.00 per ton at the Beaver Hill Disposal Site and $18.00 per loose cubic yard at the Joe Ney Landfill. This fee could be increased to cover the cost of the HHW program.

3. Solid waste system surcharge on waste generated in the County. A surcharge could be levied against all solid waste generated in the County. This may be done using the County's franchising authority for transfer stations, landfills, and the Beaver Hill Incinerator. All residents and businesses in the service area would pay relative to the amount of solid waste disposed. In 2003, the County disposed of 43,520 tons of solid waste. A uniform tipping fee surcharge of $2.00 per ton (hypothetical) would generate $87,040 in revenues.

4. Increased Collection Franchise Fees. There are seven private waste haulers in Coos County. Each of them has a franchise agreement with the County to provide collection service. Most of these same companies also have franchise agreements with the cities or towns they serve. Currently, the County charges a franchise fee equal to a certain percentage of gross receipts. These franchise fees are used to support franchise administration and some recycling and education activities. The franchise fees could be increased or re-distributed with the funds dedicated to the HHW program. A comparable increase in collection franchise fees by the cities could generate additional revenues.

5. HHW Fee in Garbage Rates. In some areas of the State, the garbage haulers sponsor HHW collection events. The haulers are responsible for all costs associated with the events including promotion, management, disposal, and overhead. The haulers estimate the cost of holding yearly events and request a rate increase to cover the costs of the events. Households and businesses with garbage service would see their rates increase based on the cost of the events.

6. General Budget. Currently revenue from tipping fees at the transfer stations, the Beaver Hill Incinerator, and franchise fees from the haulers goes into the general budget. A portion of this budget could be allocated to fund HHW collection.

7. Advance disposal fee on the sale of hazardous materials. Washington State partially funds its HHW programs by a surcharge on the sale of certain hazardous materials. Such an approach may be difficult to replicate on the level of an individual county, or even a group of counties.

8. DEQ Grants. Approximately $100,000 in Tier I grant funds are available from DEQ for a single permanent facility that provides HHW collection services to all residents of the County. Another $30,000 in Tier II grant funds are available for additional service to supplement Tier I facilities, which may include mobile facilities or vehicles. Additional grant funds may also be available for programs to improve motor oil management and waste prevention education. DEQ facility grants require a commitment to operate the facility for a period of at least five years.

9. Supplemental Environmental Programs. Facilities or companies fined by DEQ sometimes have the option to propose a supplemental environmental program (SEP). Under such a program, money that would have been spent on fines to DEQ is instead directed to local environmental initiatives. DEQ does not suggest SEPs; it is up to the fined entity to initiate a request for a SEP. Usually, the SEP must directly address the impact of the discharge on which the fine was based.

10. Wastewater Surcharge. Some communities, such as King County, Washington for example, choose to partially fund their HHW and CESQG programs through surcharges on the wastewater bills. The rationale behind this approach is that reducing the improper disposal of HHW benefits wastewater treatment systems, and so users of these systems should help pay for proper treatment.

11. Real Estate Transaction Fee. Some observers of HHW programs believe that one of the greatest benefits of permanent collection opportunities is for people who are buying or selling a home, or cleaning out the home of a recently deceased family member. At that time, all of the hazardous materials accumulated over years or even decades of home ownership, typically need to be disposed. Thus, some have proposed a real estate transaction fee (on the sale of residential properties) as a partial funding source for HHW programs. The consultant team knows of no programs in North America that are actually funded this way, at this time.

DISTRIBUTION

Coos County
Household Hazardous Waste (HHW) Planning Project
Briefing Paper

November 21, 2007

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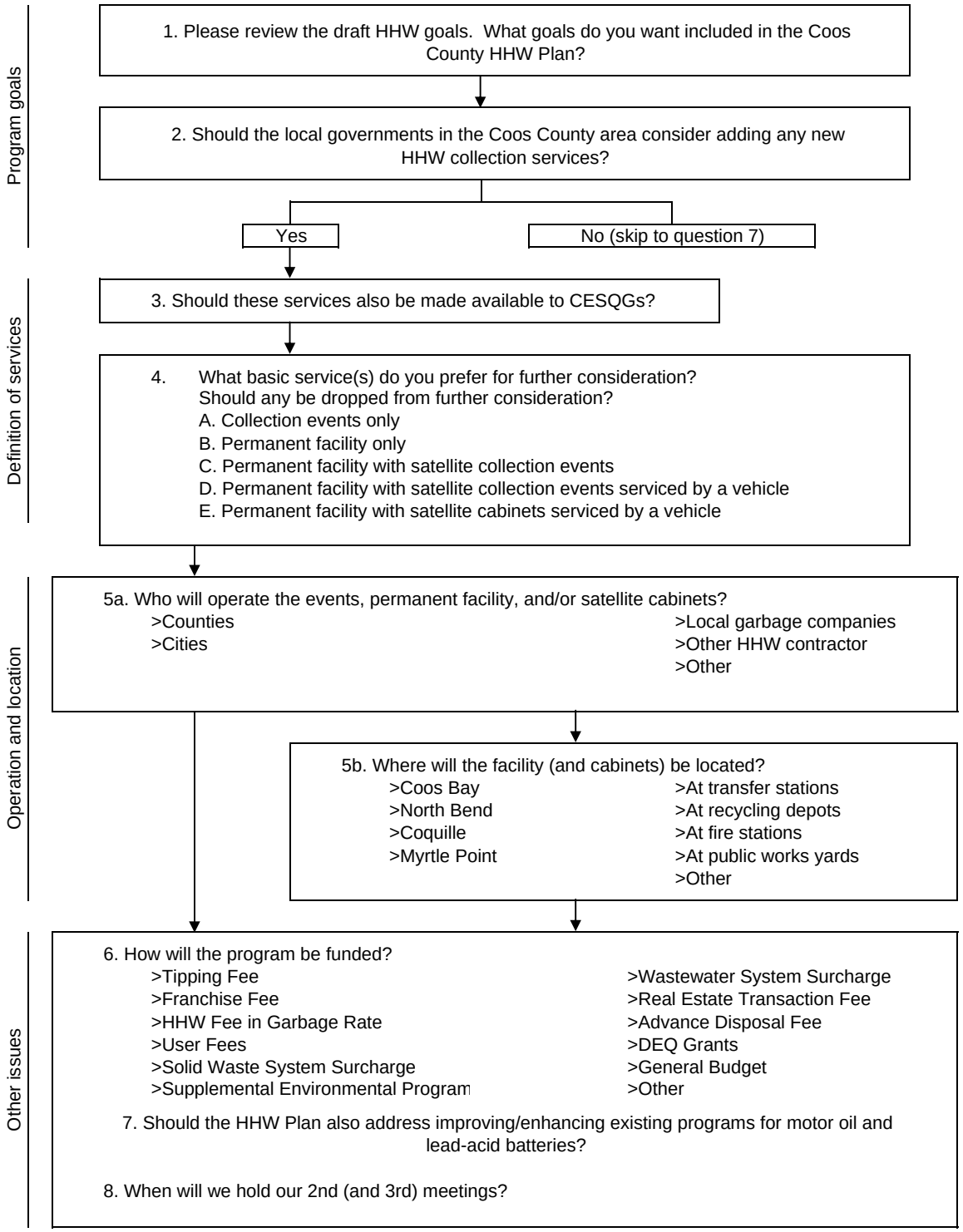
FIGURES

Figure 1.
Decision Tree for Coos County Waste Advisory Board
Household Hazardous Waste Planning Meeting #1 -- June 21, 2006



TABLES

Table 1.
Quantities of HHW Collected (pounds) by Waste Type for Coos County, Oregon

year:	1991	1992	1995	1995	1995	1996	1997	1997	1997	1997	1998	2000	2001	2001	**all events**		Comparison: All DEQ-sponsored HHW events in Oregon, 1998
location:	Coos Bay	Coquille	Myrtle Point	Powers	North Bend	Coquille	Coquille	Myrtle Point	Lakeside	Bandon	Coos Bay	Coquille	Bandon	Myrtle Point	**pounds**	**%**	
Acids/bases	1320	465	180	30	796	2300	750	300	550	900	1500	1200	850	535	**11676**	**3%**	3%
Aerosols (except pesticides)	880	455	200	15	550	1600	810	200	500	1800	2800	1400	1600	800	**13610**	**3%**	2%
Antifreeze	200	210	300		440	500	200		300	400	1200	400	450	450	**5050**	**1%**	1%
Automotive oil	1760	2750				1530	2800	800	600	2150	5900	4950	4150	1300	**28690**	**7%**	7%
Batteries - alkaline		35				70	60			120	300	205	500	164	**1454**	**0%**	0%
Batteries - NiCd							10			21	25	19	26	36	**137**	**0%**	0%
Batteries - automotive	100	1400				4500	2200	400	1500	3800	12800	3000	5000	3500	**38200**	**9%**	14%
Flammable liquids		1675				4000	800	800	600	1600	6000	6300	2800	4400	**28975**	**7%**	7%
Flammable solids		5				20	10			50	15	8	7	5	**120**	**0%**	0%
Latex paint	440	3825	1400	250	6050	8200	5600	1400	4200	8400	18100	14100	2350	5050	**79365**	**20%**	23%
Oil-based paint	3520	4500	1980	200	7075	21250	8200	1800	4800	15000	43700	23750	11200	8800	**155775**	**38%**	34%
Oxidizers, reactives		15	10		5	270	150		150	150	500		264	30	**1544**	**0%**	0%
Pesticides/poisons	411	1510	315	50	918	3850	1545	300	500	2200	4450	3000	4184	1493	**24726**	**6%**	6%
Aerosols - pesticides					100	200	200		100	200	400	200	350	200	**1950**	**0%**	0%
Solvents	440		900		1436										**2776**	**1%**	0%
PPE/crushed containers						300	600	300		200			150		**1550**	**0%**	0%
Other	376	425	60	20	1400	2820	201	300	200	318	877	1575	1055	854	**10481**	**3%**	1%
Total	9447	17270	5345	565	18770	51410	24136	6600	14000	37309	98567	60107	34936	27617	**406079**		100%

Totals may not sum exactly due to rounding.

Table 2.
Quantities of CESQG Hazardous Waste Collected (pounds) by Waste Type for Coos County, Oregon

	year:	1998	all events		Comparison: All DEQ-sponsored CESQG events in Oregon, 1998	
	location:	Coos Bay	**pounds**	**%**		
Acids/bases		300	**300**	**7%**	9%	3925
Aerosols (except pesticides)				**0%**	3%	1208
Antifreeze				**0%**	0%	
Automotive oil				**0%**	3%	1280
Batteries - alkaline				**0%**	0%	
Batteries - NiCd				**0%**	0%	
Batteries - automotive				**0%**	0%	200
Flammable liquids		800	**800**	**20%**	28%	12495
Flammable solids				**0%**	0%	
Latex paint				**0%**	2%	1000
Oil-based paint		1950	**1950**	**48%**	30%	13535
Oxidizers, reactives				**0%**	0%	65
Pesticides/poisons				**0%**	13%	5980
Aerosols - pesticides				**0%**	0%	10
PPE/crushed containers				**0%**	0%	
Solvents						
Non-RCRA Liquid/Solid		1000	**1000**			
Other*				**0%**	13%	5728
Total		4050	**4050**	**100%**		45426

Totals may not sum exactly due to rounding.

*In 1998, "other" wastes collected throughout Oregon at CESQG events included lithium batteries, PCB light ballasts, fluorescent lamps, and petroleum-contaminated soil.

Table 3.
Summary of Previous HHW and CESQG Collection Events for Coos County, Oregon

	1991 Coos Bay	1992 Coquille	1995 Myrtle Point	1995 Powers	1995 North Bend	1996 Coquille	1997 Coquille	1997 Lakeside	1997 Myrtle Point	1998 Coos Bay	2000 Coquille	2001 Bandon	2001 Myrtle Point	Average (HHW)
Lbs. Collected	9,447	17270	5,345	565	18,770	51,410	24,136	14,000	6,600	98,592	60,107	34,936	27,617	28,369
Number of Participants	101	157	75	9	319	401	307	136	75	1,208	462	688	227	320
Total Cost $	32,508	28,557	9,113	1,228	27,882	42,518	32,256	14,318	9,475	80,257	43,973	47,596	22,847	30,194
Labor & Equipment Costs	N/A	15,098	5,649	835	13,073	16,766	18,582	6,588	5,490	27,482	15,701	20,966	8,899	12,927
Disposal Costs	N/A	13,459	3,464	393	14,809	25,752	13,674	7,731	3,985	52,776	28,272	26,630	13,948	17,074
Lbs. Per Participant	94	110	71	63	59	128	79	103	88	82	130	51	122	89
Total Cost Per Participant	$ 322	$ 182	$ 122	$ 136	$ 87	$ 106	$ 105	$ 105	$ 126	$ 66	$ 95	$ 69	$ 101	$ 94
Total Cost Per Pound	$ 3.44	$ 1.65	$ 1.70	$ 2.17	$ 1.49	$ 0.83	$ 1.34	$ 1.02	$ 1.44	$ 0.81	$ 0.73	$ 1.36	$ 0.83	$ 1.06
Disposal Cost Per Pound	N/A	$ 0.78	$ 0.65	$ 0.70	$ 0.79	$ 0.50	$ 0.57	$ 0.55	$ 0.60	$ 0.54	$ 0.47	$ 0.76	$ 0.51	$ 0.60

	1998 Coos Bay (CESQG)	Average (CESQG)
Lbs. Collected	4,050	4,050
Number of Participants	3	3
Total Cost $	NA	N/A
Labor & Equipment Costs	N/A	N/A
Disposal Costs	N/A	N/A
Lbs. Per Participant	1,350	1,350
Total Cost Per Participant	NA	N/A
Total Cost Per Pound	NA	N/A
Disposal Cost Per Pound	N/A	N/A

Note: All costs, except "cost(s) per pound" are rounded to the nearest dollar.

Source: DEQ

Table 4.
Qualitative Evaluation of Alternatives

	Alternative A: Collection Events	Alternative B: Permanent Facility; No Other Services	Alternative C: Permanent Facility with Satellite Events	Alternative D: Permanent Facility with Satellite Events Serviced by Vehicle	Alternative E: Permanent Facility with Satellite Cabinets Serviced by Vehicle
Major Advantages	• No facility siting or construction requirements. • Easier to site temporary events than a permanent facility. • Flexible – can serve different areas.	• Provides more frequent opportunities for residents to safely dispose of HHW than events. • Allows for "use by appointment", both for home sellers (a major targeted population) and as a method to control access and cost. • Partial funding available from DEQ ($100,000). • Provides opportunity for HHW re-use, which can lower management costs. • Provides opportunity to serve CESQGs that can also lower per-pound HHW costs.	• All of the advantages of Alternative B. • Provides broader, more convenient service in more areas of the County.	• All of the advantages of Alternative C. • The collection vehicle provides more flexibility in terms of locations and number of events. • Provides broader, more convenient service in more areas of the County. • May qualify for DEQ Tier II grant for additional $30,000.	• All of the advantages of Alternative B. • Provides broader, more convenient service in more areas of the County. • HHW cabinets may be the most convenient to residents, if co-located at fire stations or other regularly staffed and frequented sites. • Reduced waste management costs due to ability to consolidate and store waste. • May qualify for DEQ Tier II grant for additional $30,000.
Major Disadvantages	• Difficult to control access (and thus costs). • Not very convenient; residents must wait for the next event. • No funding available from DEQ. • Does not adequately serve home sellers, a significant source of HHW.	• Fixed location may be inaccessible to some and accessible to others. • Siting may be a challenge. • Requires permit from DEQ.	• Permanent facility requires permit from DEQ. • More expensive than Alternatives A or B.	• Difficult to control access (and thus costs). • Double handling of material may increase costs. • More demand on local staff.	• Permanent facility requires permit from DEQ; cabinets may also require permits. • May be most expensive option. • Most demand on local staff.

Table 5. Key Assumptions and Summary of Cost Estimates
Coos County HHW Alternatives

	Alternative A: Collection Events	Alternative B: Permanent Facility, No Other Services	Alternative C: Permanent Facility with Satellite Events	Alternative D: Permanent Facility with Satellite Events Serviced by Vehicle	Alternative E: Permanent Facility with Satellite Cabinets Serviced by Vehicle
Vehicles/Year	481	656	864	864	1,059
Pounds of HHW Collected/Year	42,633	52,303	68,885	68,885	84,403
Other Key Assumptions	4 events per year Events operated by contractor staff with County assistance	Facility located in Coos Bay Facility partially funded by DEQ grant	Facility located in Coos Bay Facility partially funded by DEQ grant 3 Events a year in Coquille, Myrtle Point, and Bandon Collection events operated by County / Facility staff and local volunteers	Facility located in Coos Bay Facility partially funded by DEQ grant 3 Events a year in Coquille, Myrtle Point, and Bandon Collection events operated by County / Facility staff and local volunteers Collection vehicle funded by DEQ grant	Facility located in Coos Bay Facility partially funded by DEQ grant 2 collection cabinets located in Bandon and Myrtle Point Cabinets serviced by facility staff with County collection vehicle Collection cabinets and vehicle funded by DEQ grant
Capital Cost (after DEQ grant)*	$0	$ 173,030 $ 73,030	$ 173,030 $ 73,030	$ 203,030 $ 73,030	$ 247,423 $ 117,423
Total Operating Cost per year	$ 54,893	$ 86,018	$ 116,337	$ 140,075	$ 184,899
Average cost per participant	$ 114.01	$ 131	$ 135	$ 162.05	$ 175
Average cost per pound	$ 1.29	$ 1.64	$ 1.69	$ 2.03	$ 2.19

* Coos County is eligible for $100,000 in Tier I DEQ grant funds and $30,000 in Tier II DEQ grant funds.

Coos County
Household Hazardous Waste Management Planning Project
Initial Cost Estimate

Table 6. Alternative A: Collection Events

Key Assumptions

4	events/year
25,200	Coos County Households
481	vehicles/year (assume 3% of population in each area including surrounding cities and adjusting for population in unincorporated areas
335	Coos Bay / North Bend
88	Coquille / Bandon
59	Myrtle Point / Powers
89	pounds of HHW/vehicle (average of past DEQ events)

							Note	
Capital Costs						cost		
None								
Operational Costs						cost		
Management: contracting, organizing, promotion	10%	FTE	@	$50,000		$5,000		
Promotion: flyers, paid newspaper advertising						$5,000		Lump sum
Event labor and set-up costs								
								All costs below based on MSE contract with DEQ
Equipment mobilization (carts, safety, etc.)	4	events	@	$656		$2,625		Weighted Average of 1 @ $1,050 (100-500 pp), 3 @ $525 (0-100 pp),
On-site labor (contractor) - larger event (Coos Bay-N. Bend)	1	event	@	$672		$672		1 supervisor @ $47/hour, 1 chemist @ $37/hour,
	1	event	@	$588		$588		2 haz waste specialists @ $37/hour,
	1	event	@	$504		$504		2 haz techs @ $32/hour; 48 hours total
On-site labor (contractor) - larger event **Travel**	1	event	@	$1,210		$1,210		8 hours travel: 6 contractor staff @ $25/hour
On-site labor (contractor) - 3 smaller events	3	event	@	$1,218		$3,654		1 supervisor @ $47/hour, 1 chemist @ $37/hour,
	3	event	@	$294		$882		1 haz waste specialist @ $37/hour,
	3	event	@	$252		$756		1 haz tech @ $32/hour; 64 total hours per event
On-site labor (contractor) - 3 smaller events **Travel**	3	event	@	$806		$2,419		8 hours travel: 4 contractor staff @ $25/hour
On-site labor (local)	4	events	@	$255		$1,020		5 hours per event average; 3 traffic control @ $17/hour
Contractor per diem	4	events	@	$756		$3,024		Contractor staff @ $84 each (2 nights per event)
Contractor PPE	4	events	@	$0		$0		Included in the hourly rate
Tent	4	events	@	$1,020		$4,080		1500 square feet @ $0.68/sf
Event waste disposal costs								
Waste transportation	4	events	@	$660		$2,641		504 round-trip miles from TSD @ $1.31/mile
Waste management	42,633	pounds	@	$0.37		$15,828		Based on average disposal cost for events
Subtotal						$49,903	A	Sum of collection event costs
Contingency						$4,990	B	B = 10% of A
Total Operational Costs per Year						**$ 54,893**	C	A + B = C
Cost per vehicle						$ 114.01	D	= C / 481 vehicles
Cost per pound of collected material						$ 1.29	E	= C / 42,633 pounds
Cost per household						$ 2.18	F	= C / 25,200 households

Coos County
Household Hazardous Waste Management Planning Project
Initial Cost Estimate

Table 7. Alternative B: Permanent Facility

Key Assumptions (Facility)

50 days open to public per year (1 day a week, 50 weeks a yr)
656 vehicles/year (5% of area households plus 1% of near by cities and unincorporated areas)
80 lbs/vehicle

Capital Costs					cost	Note	
Collection Facility							
Land					$0		Land already available
Facility design and engineering					$10,000		Lump sum
Permit assistance, application fees					$3,000		Assumes assistance from City or County staff
Site development, utilities, access, paving, fencing					$20,000		Assumes utilities within 100 feet of site.
1600 sq. ft. steel building (40 x 40)	1	unit	@	$56,000	$56,000		Indoor work area, office, three-stall storage area
Concrete and epoxy paint	2400	s.f.	@	$22	$52,800		Building floor and drop off area
Protected Drop Off Area (20 x20)	1	unit	@	$8,000	$8,000		Roof over drop off area
Equipment, Supplies, shelves, tools, signage					$7,500		includes safety shower, eye wash, spill kits, etc
HHW Storage Cabinets (15' foot)	3	units	@	$20,735	$62,205		Each cabinets holds 16 55 gallon drums
Facility Subtotal					$157,300	A	Sum of Collection Facility line items
Contingency					$15,730	B	10% of sum total A
Facility Total					$173,030	C	A + B = C
Less DEQ Tier 1 Funding					-$100,000	D	Regional Facility Tier 1 DEQ Grant
Net Capital Funding					$73,030	E	C - D = E
Annualized Facility Cost over 7 years with 8% interest					$13,659	F	Annual Facility Payment @ 8% for 7 years

Operational Costs					cost		
Facility							
Oversight, management, promotion	15%	FTE	@	$65,000	$9,750		County staff
Printed promotional materials; ads; outreach to realtors					$1,000		Lump sum
Facility labor							Open 1 days a week, 8hours/day
Hazardous waste specialist(s)	520	hours	@	$20	$10,400		Trained personnel
General Labor	312	hours	@	$15	$4,680		Trained personnel
40-hour safety training for hazardous waste specialists					$6,000		lump sum
Medical monitoring					$1,000		lump sum
General Upkeep per year					$5,000		lump sum
General Liability Insurance					$1,000		Annual Premium
Other equipment (replacement costs)					$5,000		Drums, totes, absorbent, lab test kits, Protection Gear
Total Operational Costs					$43,830	G	Sum of Operational Costs
Collection and disposal costs							
Collection and packing (4 times a year)	96	hours	@	$37	$3,528		12 hours per collection for contractor staff (2 people)
Transport	136	drums	@	$35	$4,755		Costs are $35 per 55 gallon drum, $150 min charge
Waste management	52,303	pounds	@	$0.34	$17,653		Weighted average disposal cost of past events
Subtotal					$25,936	H	Sum of Collection and Disposal Costs
10% contingency					$2,594	I	10% of sum total G
Total C&D Costs					$28,529	J	H + I = J
Total Operational & Disposal Costs per Year					$72,359	K	G + J = K
Annualized Capital Costs (amortized over 7 years)					$13,659	L	E
Total Costs per Year (Operational Costs + Annualized Capital)					**$ 86,018**	M	K + L = M
Cost per pound of collected HHW materials					$ 1.64	N	$84,018 (L) / 52,303 pounds of materials
Cost per vehicle / participant					$ 131.06	O	= M / 656 vehicles
Cost per household					$ 3.41	P	= M / 25,200

Coos County
Household Hazardous Waste Management Planning Project
Initial Cost Estimate

Table 8. Alternative C: Permanent Facility with Three Collection Events

Key Assumptions (Facility)		Key Assumptions (Collection Events)	
50	days open to public per year	3	events/year
656	vehicles/year (5% of area households plus 1% of near by cities and unincorporated areas)	208	vehicles/year (same as collection events in Alt A)
80	lbs/vehicle (90% avg past events due to frequent events)	80	lbs/vehicle (90% avg past events due to frequent events)

Capital Costs					cost	Note	
Collection Facility							
Land					$0		Land already available
Facility design and engineering					$10,000		Lump sum
Permit assistance, application fees					$3,000		Assumes assistance from City or County staff
Site development, utilities, access, paving, fencing					$20,000		Assumes utilities within 100 feet of site.
1600 sq. ft. steel building (40 x 40)	1	unit	@	$56,000	$56,000		Indoor work area, office, three-stall storage area
Concrete and epoxy paint	2400	s.f.	@	$22	$52,800		Building floor and drop off area
Protected Drop Off Area (20 x20)	1	unit	@	$8,000	$8,000		Roof over drop off area
Equipment, Supplies, shelves, tools, signage					$7,500		includes safety shower, eye wash, spill kits, etc
HHW Storage Cabinets (15' foot)	3	units	@	$20,735	$62,205		Each cabinets holds 16 55 gallon drums
Facility Subtotal					$157,300	A	Sum of Collection Facility line items
Contingency					$15,730	B	10% of sum total A
Facility Total					$173,030	C	A + B = C
Less DEQ Tier 1 Funding					-$100,000	D	Regional Facility Tier 1 DEQ Grant
Net Capital Funding					$73,030	E	C - D = E
Annualized Facility Cost over 7 years with 8% interest					$13,659	F	Annual Facility Payment @ 8% for 7 years

Facility Operational Costs					cost		
Facility							
Oversight, management, promotion	15%	FTE	@	$65,000	$9,750		County Staff
Printed promotional materials; ads; outreach to realtors					$1,000		Lump sum
Facility labor							Open 1 days a week, 8hours/day
Hazardous waste specialist(s)	520	hours	@	$20	$10,400		Trained personnel
General Labor	312	hours	@	$15	$4,680		Trained personnel
40-hour safety training for hazardous waste specialists					$6,000		lump sum
Medical monitoring					$1,000		lump sum
General Upkeep per year					$5,000		lump sum
General Liability Insurance					$1,000		Annual Premium
Other equipment (replacement costs)					$5,000		Drums, totes, absorbent, lab test kits, Protection Gear
Total Operational Costs					$43,830	G	Sum of Operational Costs
Collection and disposal costs							
Facility							
Collection and packing (4 times a year)	96	hours	@	$37	$3,528		12 hours per collection for contractor staff
Transport	136	drums	@	$35	$4,755		Cost are $35 per 55 gallon drum, $150 min charge
Waste management	52,303	pounds	@	$0.34	$17,653		Weighted average disposal cost of past events
Disposal Subtotal					$25,936	H	Sum of Collection and Disposal Costs
10% contingency					$2,594	I	10% of sum total H
Total C&D Costs					$28,529	J	H + I = J
Collection Events							
Management: contracting, organizing, promotion	10%	FTE	@	$50,000	$5,000		
Promotion: flyers, paid newspaper advertising					$2,000		Lump sum ($5,000 for events)
Event labor and set-up costs							**All costs below based on MSE contract with DEQ**
Equipment mobilization (carts, safety, etc.)	3	events	@	$525	$1,575		Weighted Average of 3 @ $525 (0-100 pp),
On-site labor (contractor) - 3 smaller events	3	event	@	$672	$2,016		1 supervisor @ $47/hour, 1 chemist @ $37/hour,
	3	event	@	$294	$882		1 haz waste specialist @ $37/hour,
	3	event	@	$252	$756		1 haz tech @ $32/hour; 64 total hours per event
On-site labor (contractor) - 3 smaller events **Trav**	3	event	@	$806	$2,419		8 hours travel: 4 contractor staff @ $25/hour
On-site labor (local)	3	events	@	$255	$765		5 hours per event average; 3 traffic control @ $17/hour
Contractor per diem	3	events	@	$504	$1,512		Contractor staff @ $84 each (2 nights per event)
Contractor PPE	3	events	@	$0	$0		Included in the hourly rate
Tent	3	events	@	$1,020	$3,060		1500 square feet @ $0.68/sf
Event waste disposal costs							
Waste transportation	3	events	@	$660	$1,981		504 round-trip miles from TSD @ $1.31/mile
Waste management	16,582	pounds	@	$0.34	$5,597		Based on average disposal cost for events
Subtotal					$27,563	K	Sum of Collection Event Costs
Contingency					$2,756	L	10% of sum total K
Total Collection Event Costs					$30,319	M	K + L = M
Total Operational & Disposal Costs per Year					$102,678	N	G + J + M = N
Annualized Capital Costs (amortized over 7 years)					$13,659	O	F
Total Costs per Year (Operational Costs + Annualized Capital)					**$ 116,337**	P	N + O = P
Cost per pound of collected HHW materials					$ 1.69	Q	$141,480 (P) / (52,303 + 16,582) pounds of materials
Cost per vehicle / participant					$ 134.59	R	=P / (656 + 208 vehicles)
Cost per household					$ 4.62	S	= P / 25,200

Coos County
Household Hazardous Waste Management Planning Project
Initial Cost Estimate

Table 9. Alternative D: Permanent Facility with Three Collection Events Serviced by Facility Staff and Collection Vehicle

Key Assumptions (Facility)		**Key Assumptions (Collection Events)**	
50	days open to public per year	3	events/year
656	vehicles/year (5% of area households plus 1% of near by cities and unincorporated areas)	208	vehicles/year (same as collection events in Alt A)
80	lbs/vehicle (90% avg past events due to frequent events)	80	lbs/vehicle (90% avg past events due to frequent events)

Capital Costs					cost	Note	
Collection Facility							
Land					$0		Land already available
Facility design and engineering					$10,000		Lump sum
Permit assistance, application fees					$3,000		Assumes assistance from City or County staff
Site development, utilities, access, paving, fencing					$20,000		Assumes utilities within 100 feet of site.
1600 sq. ft. steel building (40 x 40)	1	unit	@	$56,000	$56,000		Indoor work area, office, three-stall storage area
Concrete and epoxy paint	2400	s.f.	@	$22	$52,800		Building floor and drop off area
Protected Drop Off Area (20 x20)	1	unit	@	$8,000	$8,000		Roof over drop off area
Equipment, Supplies, shelves, tools, signage					$7,500		includes safety shower, eye wash, spill kits, etc
HHW Storage Cabinets (15' foot)	3	units	@	$20,735	$62,205		Each cabinets holds 16 55 gallon drums
Facility Subtotal					$157,300	A	Sum of Collection Facility line items
Contingency					$15,730	B	10% of sum total A
Facility Total					$173,030	C	A + B = C
Less DEQ Tier 1 Funding					-$100,000	D	Regional Facility Tier 1 DEQ Grant
Net Capital Funding					$73,030	E	C - D = E
Annualized Facility Cost over 7 years with 8% interest					$13,659	F	Annual Facility Payment @ 8% for 7 years
Collection & Transport Trailer							
Dual Axle Cargo Trailer (7 x 16)	1		@	$10,000	$10,000		Upgrade floor to fiberglass for spillage with drain
Retrofit Trailer to haul HHW	1		@	$10,000	$10,000		Add separation wall and brackets to secure materials
Event Equipment	1		@	$7,273	$7,273		Tent, tables, signs, containers, and other materials
Trailer & Equipment Subtotal					$27,273	G	Sum of Collection Trailer line items
Contingency					$2,727	H	10% of sum total K
Total Transport Capital Cost					$30,000	I	K + L = M
Less DEQ Tier 2 Funding					-$30,000	J	M less DEQ Grant
Net Capital Funding					$0		

Facility Operational Costs					cost		
Facility							
Oversight, management, promotion	15%	FTE	@	$65,000	$9,750		County Staff
Printed promotional materials; ads; outreach to realtors					$1,000		Lump sum
Facility labor							Open 1 days a week, 8hours/day
Hazardous waste specialist(s)	2080	hours	@	$20	$41,600		Full Time trained personnel to run facility and events
General Labor	832	hours	@	$15	$12,480		Trained County personnel
40-hour safety training for hazardous waste specialists					$6,000		lump sum
Medical monitoring					$1,000		lump sum
General Upkeep per year					$5,000		lump sum
General Liability Insurance					$1,000		Annual Premium
Other equipment (replacement costs)					$5,000		Drums, totes, absorbent, lab test kits, Protection Gear
Total Operational Costs					$82,830	K	Sum of Operational Costs
Collection Events							
Promotion: flyers, paid newspaper advertising					$2,000		
Event labor and set-up costs	3	events	@	$500	$1,500		Mileage and general expense to set up events
On-site labor (local)	3	events	@	$340	$1,020		5 hours per event average; 3 traffic control @ $17/hour
PPE for events	3	events	@	$100	$300		Personal Protection Equipment
Subtotal					$4,820	L	Sum of Collection Event Costs
Contingency					$482	M	10% of sum total K
Total Collection Event Costs					$5,302	N	K + L = M
Collection and Disposal costs							
Facility							
Collection and packing (6 times a year)	144	hours	@	$37	$5,292		12 hours per collection for contractor staff
Transport	179	drums	@	$35	$6,262		Cost are $35 per 55 gallon drum, $150 min charge
Waste management	68,885	pounds	@	$0.34	$23,249		Weighted average disposal cost of past events
Disposal Subtotal					$34,804	O	Sum of Collection and Disposal Costs
10% contingency					$3,480	P	10% of sum total H
Total C&D Costs					$38,284	Q	H + I = J
Total Operational & Disposal Costs per Year					$126,416	R	K + N + Q = R
Annualized Capital Costs (amortized over 7 years)					$13,659	S	F
Total Costs per Year (Operational Costs + Annualized Capital)					**$ 140,075**	T	R + S = T
Cost per pound of collected HHW materials					$ 2.03	U	$138,075 (T) / 68,885 pounds of materials
Cost per vehicle / participant					$ 162.05	V	= T / (656 + 208 vehicles)
Cost per household					$ 5.56	W	= P / 25,200

Coos County
Household Hazardous Waste Management Planning Project
Initial Cost Estimate
Table 10.
Alternative F: Permanent Facility in Coos Bay with Satellite Cabinets in Bandon and Myrtle Point Serviced by Collection Vehicle

Key Assumptions (Facility)		**Key Assumptions (Two Cabinets)**	
50	days open to public per year (5 days a week, 50 weeks a yr)	100	days open (1 days/wk, 50 wks/yr)
546	vehicles/year (5% of area households plus 1% of near by cities and unincorporated areas)	513	vehicles/year
80	lbs/vehicle (90% avg past events due to more frequent events)	80	lbs/vehicle (90% avg past events due to more frequent events)

Capital Costs					cost	Note	
Collection Facility							
Land					$0		Land already available at the City Garbage T/S
Facility design and engineering					$10,000		Lump sum
Permit assistance, application fees					$3,000		Assumes assistance from City or County staff
Site development, utilities, access, paving, fencing					$20,000		Assumes utilities within 100 feet of site.
1600 sq. ft. steel building (40 x 40)	1	unit	@	$56,000	$56,000		Indoor work area, office, three-stall storage area
Concrete and epoxy paint	2400	s.f.	@	$22	$52,800		Building floor and drop off area
Protected Drop Off Area (20 x20)	1	unit	@	$8,000	$8,000		Roof over drop off area
Equipment, Supplies, shelves, tools, signage					$7,500		includes safety shower, eye wash, spill kits, etc
HHW Storage Cabinets (15' foot)	3	units	@	$20,735	$62,205		Each cabinets holds 16 55 gallon drums
Facility Subtotal					$157,300	A	Sum of Collection Facility line items
Contingency					$15,730	B	10% of sum total A
Facility Total					$173,030	C	A + B = C
Less DEQ Tier 1 Funding					-$100,000	D	Regional Facility Tier 1 DEQ Grant
Net Capital Funding					$73,030	E	C - D = E
Annualized Facility Cost over 7 years with 8% interest					$13,659	F	Annual Facility Payment @ 8% for 7 years
Collection Cabinets (Bandon and Myrtle Point)							
Land					$0		Assume land already available if sited appropriately
Cabinets (7 x 15' with two doors / sections)	2		@	$21,065	$42,130		See Quote
Paving/Concrete pad (10'x20' x 8" at each site)	400	s.f.	@	$20	$8,000		
Facility design and engineering	2	sites	@	$1,000	$2,000		
Permit assistance, application fees	2	sites	@	$750	$1,500		
Cabinet Subtotal					$53,630	G	Sum of Collection Cabinet line items
Collection & Transport Trailer							
Dual Axle Cargo Trailer (7 x 16)	1		@	$7,000	$7,000		Upgrade floor to fiberglass for spillage with drain
Retrofit Trailer to haul HHW	1		@	$7,000	$7,000		Add separation wall and brackets to secure materials
Trailer Subtotal					$14,000	H	Sum of Collection Trailer line items
Contingency					$6,763	I	10% of (G + H)
Total Cabinet and Transport Capital Cost					$74,393	J	G + H + I = J
Less DEQ Tier 2 Grant Funding					-$30,000	K	DEQ Tier II Grant
Net Capital Funding					$44,393	L	J less DEQ Tier II Grant
Annualized Cabinet and Transportation Cost over 7 years with 8% interest					$8,303	M	Annual Cabinet & Trailer Payment @ 8% for 7 years

Operational Costs					cost		
Facility							
Oversight, management, promotion	15%	FTE	@	$65,000	$9,750		City Garbage GM
Printed promotional materials; ads; outreach to realtors					$1,000		Lump sum
Facility labor							Open 5 days a week, 8hours/day
Hazardous waste specialist(s)	2080	hours	@	$20	$41,600		Trained T/S personnel
General Labor	832	hours	@	$15	$12,480		T/S personnel
40-hour safety training for hazardous waste specialists					$6,000		lump sum
Medical monitoring					$1,000		lump sum
General Upkeep per year					$5,000		lump sum
General Liability Insurance					$1,000		Annual Premium
Other equipment (replacement costs)					$5,000		Drums, totes, absorbent, lab test kits, Protection Gear
Total Facility Operational Costs					$82,830	N	Sum of Facility Operational Costs
Cabinets ***Assumes trained personnel staffing the cabinets will be in charge of collecting the HHW***							
Facility labor							Each cabinet open 1 days a week, 50 weeks a year
Hazardous waste specialist	800	hours	@	$15	$12,000		Personnel @ 8 hrs/week at each cabinet
General Labor	800	hours	@	$10	$8,000		Site personnel to assist
Transportation Labor (transport every 6 weeks at 8 hours per trip)							
Hazardous waste specialist	128	hours	@	$15	$1,920		
General Labor	128	hours	@	$10	$1,280		
40-hour safety training for hazardous waste specialists					$6,000		lump sum
Medical monitoring					$2,000		lump sum
General Upkeep per year					$3,000		lump sum ($1,500 for each area)
General Liability Insurance					$1,200		Annual Premium
Other equipment (replacement costs)					$600		Drums, totes, absorbent, lab test kits
Truck mileage (collection from cabinets to facility every 6 weeks)							
From Bandon to Coos Bay (24 miles one way)	288	miles	@	$216.00	$216		24 miles to Bandon (6 round trips @ $.75 per mile)
From Myrtle Point to Coos Bay (26 miles one way)	312	miles	@	$234.00	$234		26 miles to Myrtle Point (6 round trips @ $.75 per mile)
Total Facility Operational Costs					$36,450	O	Sum of Cabinet Operational Costs
Collection and disposal costs							
Collection and packing (4 times a year @ 2 people)	96	hours	@	$37	$3,528		12 hours per collection for contractor staff
Transport	219	drums	@	$35	$7,673		Costs are $35 per 55 gallon drum, $150 min charge
Waste management	84,403	pounds	@	$0.34	$28,487		Weighted average disposal cost of past events
Subtotal					$39,688	P	Sum of Collection & Disposal Cost line items
10% contingency					$3,969	Q	10% of sum total P
Total C&D Costs					$43,657	R	O + P = Q
Total Operational & Disposal Costs per Year					$162,937	S	N + O + R = S
Annualized Capital Costs (amortized over 7 years)					$21,962	T	F + M = T
Total Costs per Year (Operational Costs + Annualized Capital)					**$ 184,899**	U	S + T = U
Cost per pound of collected HHW materials					$ 2.19	V	$182,899 (U) / 84,403 pounds of materials
Cost per vehicle / participant					$ 174.58	W	= T / 1,059 vehicles
Cost per household					$ 7.34	X	= P / 25,200

Appendix B
EXPANDED REVIEW OF ALTERNATIVES

Coos and Curry Counties Household Hazardous Waste (HHW) Planning Project
Expanded Review of Alternatives

Prepared for Coos and Curry Counties, the Committee and Stakeholders
by Kies Strategies, Bell & Associates, Inc., and Tabor Consulting Group
April 30, 2007

Introduction and Overview

At its first household hazardous waste (HHW) planning meeting held June 21st, 2006, Coos County, the Waste Advisory Committee and Stakeholders reviewed an evaluation of five alternatives for collecting and processing HHW. The evaluation addressed both qualitative and quantitative factors. The quantitative factors focused on order-of-magnitude cost models ("cost projections") for each of the alternatives.

These five alternatives were:

- "Alternative A": four collection events per year. The cost projection assumed that four events per year would be held in a major population center (Coos Bay, Coquille, Bandon, Myrtle Point, and Lakeside or Powers), staffed by city/county staff, waste collection company(s), volunteers or a private contractor, with a combined participation of 481 vehicles.
- "Alternative B": a permanent facility to accept HHW from the public. The cost projection assumed the facility would be open a total of 50 days per year (one day a week, 50 weeks a year) serving 656 vehicles and staffed using existing personnel from the incinerator and transfer stations that have been trained to accept, identify, sort and pack hazardous waste.
- "Alternative C": the same as Alternative B, supplemented with three annual satellite collection events per year would be held in major population centers (Coos Bay, Coquille, Myrtle Point, Bandon, Lakeside or Powers). The cost projection assumed that the permanent facility would serve 656 vehicles and the three satellite events would serve an additional 208 vehicles for a combined participation of 864 vehicles.
- "Alternative D": the same as Alternative B, supplemented with three annual satellite collection events serviced by a collection vehicle owned and operated by the County. Waste collected at the events would be loaded into the collection vehicle for transport to the permanent "hub" facility. The cost projection assumed that the permanent facility would serve 656 vehicles and the three satellite events would serve an additional 208 vehicles for a combined participation of 864 vehicles.
- "Alternative E": the same as Alternative B, supplemented with two smaller satellite collection cabinets located in Bandon and Myrtle Point. The cabinets would be serviced by a collection vehicle owned and operated by the County. Waste from the cabinets would be transported back to the permanent "hub" facility. The cost projection assumed that the permanent facility would serve 546 vehicles per year and the two satellite cabinets would be open a combined total of 100 days per year (one day a week, 50 weeks a year) and serve an additional 513 vehicles per year for a total of 1059 vehicles.

By consensus, the County, Committee and Stakeholders selected Alternative C, Alternative D, and Alternative E as the preferred alternatives for further analysis. Subsequently, the Oregon Department of Environmental Quality (DEQ) awarded a HHW Planning Grant to Curry County to develop a joint HHW management plan with Coos County. A second Coos County HHW Planning Meeting was held on September 13, 2006. At this meeting, a joint planning process with Curry County was discussed. Preferred alternatives for HHW services selected during the previous meeting were further defined in the context of a joint planning process.

Preferred Alternatives

By consensus, Coos and Curry Counties, Committee and Stakeholders selected Alternative C, Alternative D, and Alternative E as the preferred alternatives for further analysis. The Kies Team conducted more detailed evaluation of the alternatives "short-listed" and further discussed at the September 13th meeting to include key issues, needs, opportunities, and types and quantities of HHW that may be collected for Curry County. These preferences have been developed into 3 alternatives for analysis. The Beaver Hill Incinerator is the site that will be considered as the location of the permanent HHW facility for all three alternatives. The permanent facility would be open one day a month in eight different months per year (8 days a year) and by appointment for all alternatives. Alternative C, permanent facility and satellite collection events, would include 6 events per year in both Coos and Curry Counties for a total of 6 events. Alternative D, permanent facility and satellite collection events serviced by a collection vehicle owned and operated by one or both Counties, would include 4 events per year in each of Coos and Curry Counties for a total of 8 events. Alternative E, permanent facility, satellite collection cabinets, and satellite collection events, would include 2 cabinets, one in each County. The cabinets and events would be serviced by a collection vehicle.

The service features of each of the three preferred alternatives are compared in Table 1.

Table 1. Basic Service Features: Alternatives C, D, and E

	Collection Events	**Collection Cabinets**	**Collection Vehicle**
BASE CASE			
Alternative C Permanent Facility + 6 Events	YES. 6 events total, 3 in each County serviced by a contractor.	NO.	NO.
Alternative D Permanent Facility + 8 Events + Collection Vehicle	YES. 8 events total, 4 in each County serviced by collection vehicle.	NO.	YES. Trailer/container used to service collection events and transport HHW to permanent "hub" facility.
Alternative E Permanent Facility + 8 Events + 2 Cabinets + Collection Vehicle	YES. 8 events total, 4 in each County serviced by collection vehicle.	YES. 2 cabinets. One in Coos County and one in Curry County. Open one day a month (12 days a year) and by appointment.	YES. Trailer/container used to collect and transport HHW from cabinets to the permanent "hub" facility. Trailer/container also used to service collection events and transport HHW to permanent "hub" facility.

Results of Cost Projections for Alternatives C, D, and E

Table 2 shows the summary results of cost estimates for Alternatives C, D, and E. Cost estimates include a 10% contingency.

Full cost projection assumptions and calculations are included at the end of this document in Appendix A.

Table 2. Summary of Annual Cost Estimates

Base Case	Days Open	# of Vehicles/ Participants	Pounds of HHW	Capital Cost (After DEQ Gran	Operating Cost	Annualized Total $	Total $/Participan	Total $/Pound
C: Permanent Facility + 6 Events	14	1026	82,629	$80,73	$150,55	$165,65	$16	$2.0
D: Permanent Facility + 8 Events + Collection Vehicle	16	1026	82,629	$80,73	$164,94	$180,04	$17	$2.1
E: Permanent Facility + 8 Events + 2 Cabinets + Collection Vehicle	40	1647	122,844	$83,54	$218,84	$234,46	$14	$1.9

Evaluation of Alternatives C, D, and E

This section compares and contrasts preferred Alternatives C, D and E.

Comparison of Capital Costs

The capital cost of Alternative C is $180,730 for the permanent facility. Alternative D includes a collection vehicle/trailer ($30,000) to service the events for a total capital cost of $210,730. Alternative E includes two cabinets ($64,178) and a collection vehicle/trailer ($30,000) to service the cabinets and event for a total capital cost of $274,908. It is assumed that the Counties already own vehicles suitable for pulling a trailer or a drop box retrofitted for HHW. The Oregon Department of Environmental Quality (DEQ) Household Hazardous Waste Management Plan for 2005-2011 offers grants for two types of facilities, Tier I and Tier II. It is assumed that each County will be eligible for a Tier I facility grant to help fund the "hub" facility in Coos County and a cabinet in Curry County for a total of $161,365. It is further assumed that the collection vehicle/trailer or mobile cabinet will be eligible for a Tier II mobile unit or vehicle grant for a total of $30,000. If there are remaining funds they can be used for other costs associated with the HHW collection program such as disposal costs. The requirements for the vehicle or mobile unit are the same as for using grant funds for a permanent facility. The vehicle must be used for HHW collection at least 8 days per year (at

year (at least 4 hours per day) in at least four different months of the year. It must provide service to residents at least 20 miles from the Tier I facility. It must be available by appointment for special/unusual circumstances.

All of the alternatives supplement the facility and cabinets with 6 or 8 events respectively. In Alternative C a contractor would run the events, similar to the events currently held in the Counties. Waste from the events would not be taken to the permanent facility for consolidation, but would be transported out of the County for final disposal. No additional capital costs are required. In Alternatives D and E, the trailer/container would service the events and transport material to the "hub" facility for consolidation. For ease of comparison, the total capital costs are shown as annual payments based on an amortization schedule assuming 7 years and 8% interest.

After subtracting the DEQ grants, the capital cost for Alternative C is $80,730, Alternative D is $80,730, and Alternative E is $83,543.

Comparison of Operational Costs

Operational costs for all the alternatives are highly dependent on the levels of participation and quantities of wastes delivered. The cost projections have assumed that alternatives offering greater convenience will attract greater participation. The cost projections also assume that alternatives with a more regular schedule will generate slightly lower amounts of HHW per participant because the residents will not feel a need to empty out all possible waste materials if they know there will be additional collections nearby within a year or that a facility is available to them several days throughout the year.

Alternative C includes a permanent facility and six contractor-run events. It is assumed that the events would function in a similar manner to the DEQ sponsored events that have been held in the Counties. The Counties would either use the state's hazardous waste management contractor through the "purchaser program" or contract directly for HHW collection, transportation and disposal services. Event coordination, promotion, and volunteers for the events would be provided by the Counties. The wastes would be consolidated and removed from the site that day; there would be no consolidation or storage of materials at the permanent facility.

Alternative C has the lowest annual operating cost and annual total cost. It is also the lowest on a per participant and per pound basis. However, it offers the lowest level of service in terms of days of access to HHW and convenience for residents. It is also the least flexible in terms of controlling the staffing, mobilization, and waste handling costs of events. As the number of events increases, the cost increases by the same amount. If the number of events is increased to 8 per year, the costs are nearly equal to Alternative D.

Alternative D assumes the Counties would operate the collection events using a trailer or container to collect and transport the materials back to the permanent facility for consolidation and storage. Alternative D offers cost efficiencies compared to Alternative C due to the ability to handle and store waste at the permanent "hub" facility rather that having a contractor take the event waste directly to a treatment, storage and disposal (TSD) facility. Handling the waste at the "hub" facility offers the ability to better segregate waste, make sure drums are full before shipment, and reuse more materials. It may also provide the opportunity to competitively bid for waste disposal. In addition, the permanent "hub" facility and events run by the Counties offer efficiencies in staffing as compared to events run by a contractor.

Alternative E offers the greatest level of service in terms of days of access to HHW and convenience for residents with a total of 8 events (4 in each County) and two cabinets (1 in each County) open 12 days a year. It is the most costly Alternative in terms of operating costs. However, Alternative E is the least costly on a per participant and per pound basis. This is because it is the most convenient and therefore it is assumed that more people will participate in the program as compared to Alternatives C and D.

Alternatives D and E also offer efficiencies in staffing and set-up due to County-run events serviced by a County-owned vehicle.

Due to the differing levels of participation assumed, the summary of annual costs in Table 2 provides a cost per participant and a cost per pound.

Comparison of Participation Costs

Alternatives C and D assume that 1026 households (hhlds) in the two Counties will use the permanent facility and participate in the events. Alternative E assumes the participation will increase to 1647 households because of the added convenience of the two cabinets open on a regular basis. These assumptions are based on population and the average percentage of households that participate in HHW programs. It is assumed that 5% of area households plus 1% of nearby cities and unincorporated areas will use a permanent facility such as the "hub" facility or a cabinet. An additional 3% of area households plus 1% of nearby cities and unincorporated areas will participate in annual collection events.

Alternative E is the most cost effective on a per participant and per pound basis compared to Alternatives C and D. This is because it offers the greatest convenience and access to service and therefore it is assumed that more people will participate.

There are no capital costs for Alternative C beyond the permanent facility because it does not require a collection vehicle, however this savings is eroded by the contractor travel time and staffing requirements.

Comparison of Staffing Costs

The staffing requirements differ in each alternative. A comparison of staffing assumptions is portrayed in Table 3.

All the Alternatives assume that existing staff will operate the permanent "hub" facility. Alternative C assumes that a contractor will be hired to run the events. Alternatives D and E assume that existing staff will operate the collection vehicle and the cabinets and run the events. The "hub" facility and the cabinets would be co-located with existing solid waste and recycling facilities to utilize existing staff. Existing personnel that complete the required training to handle HHW would be assigned.

- All three alternatives include 15% of a full-time person to provide oversight, manage the permanent facility and promote the HHW services and an additional 10% of a full-time person to provide oversight, management and promotion for the collection events.
- Alternative C assumes facility labor at the permanent facility includes 25% of a full-time person to serve as the hazardous waste specialist and 15% of a full-time person as general labor. Alternatives D and E assume facility labor at the permanent "hub" facility includes 60% of a full-time person to serve as the

hazardous waste specialist and 40% of a full-time person as general labor. This will allow staff to participate in the collection events and consolidate event materials.

- The cabinets in Coos County and in Curry County each assume 10% of a full-time person to serve as the hazardous waste specialist and 10% of a full-time person for general labor.
- For all three alternatives it is assumed that existing personnel would complete the required training to handle HHW. For Alternatives C and D, it is assumed that a total of 2 people would require training for the permanent "hub" facility at an annual cost of $6,000. For Alternative E a total of 6 people would require training for the permanent "hub" facility and both cabinets at an annual cost of $12,000 ($6,000 for the facility staff and $6,000 for staff for both cabinets).

- In Alternative E, waste from each cabinet would be transported to the permanent "hub" facility every 12 weeks. These trips would require eight hours of labor for two people to load, travel and unload/pack at the permanent "hub" facility.
- All three alternatives require a contracted chemist to assist in waste identification and packing for each event at the permanent facility and collection event.
- Alternatives D and E include 3 additional local staff people to operate each event. It is estimated that each event requires $500 in labor costs for set-up, operation, takedown, transportation, and offloading/packing.
- All three alternatives include $1,000 in cost for promotional materials. An additional $3,000 is included for promotional materials for the collection events.

Table 3.
Staffing Assumptions by Full-Time Equivalent (FTE): Alternatives C, D and E

	Facility and Cabinets Staffing	**Collection Events Staffing**
Alternative C Permanent Facility + 6 Events	Operations = 1 x 25% FTE 1 x 15% FTE Administration = 1 x 15% 1 x 10%	Staffed by a contractor, waste management companies, County personnel and volunteers.
Alternative D Permanent Facility + 8 Events + Collection Vehicle	Operations = 1 x 60% FTE 1 x 40% FTE Administration = 1 x 15% 1 x 10%	Staffed by waste management companies, County personnel and volunteers.
Alternative E Permanent Facility + 8 Events + 2 Cabinets + Collection Vehicle	Operations = 1 x 60% FTE 1 x 40% FTE 4 x 10% FTE Administration = 1 x 15% 1 x 10%	Staffed by waste management companies, County personnel and volunteers.

Qualitative Criteria

It has been widely observed that residents use HHW programs if they are located conveniently, such as along highway corridors or close to population centers or at locations they have to visit for other reasons (transfer stations or recycling centers, for example). In terms of convenient locations, Alternative E with one permanent "hub" facility, 8 collection events (4 in each County), and 2 cabinets (1 in each County) is the most convenient.

Programs with more days of access are more likely to serve a group of residents who have a high need for HHW services – those who are moving or cleaning out the home of a relative who is moving. They often need to discard large amounts of HHW within a limited period of time. Alternative E also offers the highest number of days of access to HHW collection opportunities of all the alternatives.

Table 4 provides a summary comparison of qualitative and quantitative factors for Alternatives C, D and E.

Table 4. Qualitative and Quantitative Comparison: Alternatives C, D and E

	Alternative C: Permanent Facility and Collection Events Serviced By a Contractor	Alternative D: Permanent "Hub" Facility with Collection Events Serviced by Collection Vehicle	Alternative E: Permanent "Hub" Facility, Collection Events and Cabinets Serviced by a Collection Vehicle
Convenience to the Public	• Less convenient to the public. • Less convenient for home sellers (a major target population) or others needing more immediate service.	• Less convenient to the public. • Less convenient for home sellers (a major target population) or others needing more immediate service.	• More convenient to the public with greater access to permanent facility and cabinets. • Better serves home sellers (a major target population) because cabinets are accessible more often and allow for "use by appointment."
Impact to County Resources	• Lowest impact to County resources. It is assumed that the County would continue coordinating and promoting events. • Lower capital costs after DEQ grant.	• Potentially higher impact to County resources depending on staffing. Lower impact to County resources if assumed that the existing transfer station, incinerator and waste hauling company staff would manage permanent facility and run events with assistance from County personnel and volunteers. County may have more administrative tasks. It is assumed that the County would continue coordinating and promoting events. • Lower capital costs after DEQ grant.	• Potentially higher impact to County resources depending on staffing. Lower impact to County resources if assumed that the existing transfer station, incinerator and waste hauling company staff would manage permanent facility, cabinets and run events with assistance from County personnel and volunteers. County may have more administrative tasks. It is assumed that the County would continue coordinating and promoting events. • Higher capital costs after DEQ grant.
Flexibility	• Least flexibility.	• Moderate flexibility.	• Moderate flexibility.
Quantitative Comparison	• Total Annual Cost and Annual Operating Costs are lowest. Cost per participant and per pound are the lowest.	• Total Annualized Cost and Annual Operating Costs higher due to increased number of events.	• Annual Operating Costs and Total Annual Cost are highest. Cost per participant and cost per pound are the lowest because increased participation offsets the increased capital cost.
Cost Sensitivity	• As participation in contractor-run events increases, costs for events will increase by an almost equal amount because of staffing and travel costs of contractors.	• County- run events offer staffing efficiencies. Transporting waste to a "hub" facility increases efficiencies due to ability to store waste, fill drums and reuse materials. At certain participation levels, County-run events become more cost effective than contractor-run events.	• As participation at cabinet sites increases, there are increased efficiencies compared to events due to the ability to store waste, fill drums and reuse materials at the cabinet sites. There is also efficiency in staffing and in hours of access. At a certain participation level, cabinets become more cost effective than events.

Appendix A
Expanded Review Cost Models and Assumptions for Alternatives C, D and E

Coos and Curry Counties
Household Hazardous Waste Management Planning Project
Initial Cost Estimate

Alternative C: Permanent Facility with Six Contracted Collection Events

Key Assumptions (Facility)		Key Assumptions (Collection Events)	
8	days open to public per year	6	events/year
663	vehicles/year (5% of area households plus 1% of near by cities and unincorporated areas)	363	vehicles/year
81	lbs/vehicle (90% avg past events due to frequent events)	81	lbs/vehicle (90% avg past events due to frequent events)

Capital Costs					cost	Note	
Collection Facility							
Land					$0		Land already available
Facility design and engineering					$15,000		Lump sum
Permit assistance, application fees					$5,000		Assumes assistance from City or County staff
Site development, utilities, access, paving, fencing					$20,000		Assumes utilities within 100 feet of site.
1600 sq. ft. steel building (40 x 40)	1	unit	@	$56,000	$56,000		Indoor work area, office, three-stall storage area
Concrete and epoxy paint	2400	s.f.	@	$22	$52,800		Building floor and drop off area
Protected Drop Off Area (20 x20)	1	unit	@	$8,000	$8,000		Roof over drop off area
Equipment, Supplies, shelves, tools, signage					$7,500		includes safety shower, eye wash, spill kits, etc
HHW Storage Cabinets (15' foot)	3	units	@	$22,620	$67,860		Each cabinets holds 16 55 gallon drums
Facility Subtotal					$164,300	A	Sum of Collection Facility line items
Contingency					$16,430	B	10% of sum total A
Facility Total					$180,730	C	A + B = C
Less DEQ Tier 1 Funding					-$100,000	D	Regional Facility Tier 1 DEQ Grant
Net Capital Funding					$80,730	E	C - D = E
Annualized Facility Cost over 7 years with 8% interest					$15,099	F	Annual Facility Payment @ 8% for 7 years

Facility Operational Costs					cost		
Facility							
Oversight, management, promotion	15%	FTE	@	$80,300	$12,045		County Staff (Fully loaded labor cost)
Printed promotional materials; ads; outreach to realtors					$1,000		Lump sum
Facility labor							Open 1 days a week, 8hours/day
Hazardous waste specialist(s)	520	hours	@	$29	$15,184		Trained personnel (with taxes & benefits)
General Labor	312	hours	@	$22	$6,833		Trained personnel (with taxes & benefits)
40-hour safety training for hazardous waste specialists					$6,000		lump sum
Medical monitoring					$1,000		lump sum
General Upkeep per year					$5,000		lump sum
General Liability Insurance					$2,000		Annual Premium
Other equipment (replacement costs)					$5,000		Drums, totes, absorbent, lab test kits, Protection Gear
Total Operational Costs					$54,062	G	Sum of Operational Costs
Collection and disposal costs							
Facility							
Collection and packing (4 times a year)	96	hours	@	$37	$3,528		12 hours per collection for contractor staff
Contracted Chemist	64	hours	@	$37			Chemist to assist with packing
Transport	139	drums	@	$35	$4,854		Cost are $35 per 55 gallon drum, $150 min charge
Waste management	53,395	pounds	@	$0.53	$28,422		Weighted average disposal cost of past events
Disposal Subtotal					$36,804	H	Sum of Collection and Disposal Costs
10% contingency					$3,680	I	10% of sum total H
Total C&D Costs					$40,485	J	H + I = J
Collection Events							
Management: contracting, organizing, promotion	10%	FTE	@	$80,300	$8,030		County Staff (Fully loaded labor cost)
Promotion: flyers, paid newspaper advertising					$3,000		
Event labor and set-up costs							**All costs below based on MSE contract with DEQ**
Equipment mobilization (carts, safety, etc.)	6	events	@	$525	$3,150		Weighted Average of 3 @ $525 (0-100 pp),
On-site labor (contractor) - 3 smaller events	6	event	@	$672	$4,032		1 supervisor @ $47/hour, 1 chemist @ $37/hour,
	6	event	@	$294	$1,764		1 haz waste specialist @ $37/hour,
	6	event	@	$252	$1,512		1 haz tech @ $32/hour; 64 total hours per event
On-site labor (contractor) - 3 small events Travel	6	event	@	$806	$4,838		8 hours travel: 4 contractor staff @ $25/hour
On-site labor (local)	6	events	@	$255	$1,530		5 hours per event average; 3 traffic control @ $17/hour
Contractor per diem	6	events	@	$504	$3,024		Contractor staff @ $84 each (2 nights per event)
Contractor PPE	6	events	@	$0	$0		Included in the hourly rate
Tent	6	events	@	$1,020	$6,120		1500 square feet @ $0.68/sf
Event waste disposal costs							
Waste transportation	6	events	@	$660	$3,961		504 round-trip miles from TSD @ $1.31/mile
Waste management	29,234	pounds	@	$0.34	$9,867		Based on average disposal cost for events
Subtotal					$50,828	K	Sum of Collection Event Costs
Contingency					$5,083	L	10% of sum total K
Total Collection Event Costs					$55,911	M	K + L = M
Total Operational & Disposal Costs per Year					$150,458	N	G + J + M = N
Annualized Capital Costs (amortized over 7 years)					$15,099	O	F
Total Costs per Year (Operational Costs + Annualized Capital)					**$ 165,557**	P	N + O = P
Cost per pound of collected HHW materials					$ 2.00	Q	$163,814 (P) / (53,395 + 29,234) pounds of materials
Cost per vehicle / participant					$ 161.31	R	=P / (656 + 363 vehicles)
Cost per household					$ 4.91	S	= P / 33,708

Coos and Curry Counties
Household Hazardous Waste Management Planning Project
Initial Cost Estimate

Alternative D: Permanent Facility with Eight Collection Events Served by Facility Staff and Collection Vehicle

Key Assumptions (Facility)		Key Assumptions (Collection Events)	
8	days open to public per year	8	events/year
663	vehicles/year (5% of area households plus 1% of near by cities and unincorporated areas)	363	vehicles/year (same as collection events in Alt A)
81	lbs/vehicle (90% avg past events due to frequent events)	81	lbs/vehicle (90% avg past events due to frequent events)

Capital Costs					cost	Note	
Collection Facility							
Land					$0		Land already available
Facility design and engineering					$15,000		Lump sum
Permit assistance, application fees					$5,000		Assumes assistance from City or County staff
Site development, utilities, access, paving, fencing					$20,000		Assumes utilities within 100 feet of site.
1600 sq. ft. steel building (40 x 40)	1	unit	@	$56,000	$56,000		Indoor work area, office, three-stall storage area
Concrete and epoxy paint	2400	s.f.	@	$22	$52,800		Building floor and drop off area
Protected Drop Off Area (20 x20)	1	unit	@	$8,000	$8,000		Roof over drop off area
Equipment, Supplies, shelves, tools, signage					$7,500		includes safety shower, eye wash, spill kits, etc
HHW Storage Cabinets (15' foot)	3	units	@	$22,620	$67,860		Each cabinets holds 16 55 gallon drums
Facility Subtotal					$164,300	A	Sum of Collection Facility line items
Contingency					$16,430	B	10% of sum total A
Facility Total					$180,730	C	A + B = C
Less DEQ Tier 1 Funding					-$100,000	D	Regional Facility Tier 1 DEQ Grant
Net Capital Funding					$80,730	E	C - D = E
Annualized Facility Cost over 7 years with 8% interest					$15,099	F	Annual Facility Payment @ 8% for 7 years
Collection & Transport Trailer							
Update and overhaul County trailer	1		@	$10,000	$10,000		Upgrade floor to fiberglass for spillage with drain
Retrofit Trailer to haul HHW	1		@	$10,000	$10,000		Add separation wall and brackets to secure materials
Event Equipment	1		@	$7,273	$7,273		Tent, tables, signs, containers, and other materials
Trailer & Equipment Subtotal					$27,273	G	Sum of Collection Trailer line items
Contingency					$2,727	H	10% of sum total K
Total Transport Capital Cost					$30,000	I	K + L = M
Less DEQ Tier 2 Funding					-$30,000	J	M less DEQ Grant
Net Capital Funding					$0		

Facility Operational Costs					cost		
Facility							
Oversight, management, promotion	15%	FTE	@	$80,300	$12,045		County Staff (Fully loaded labor cost)
Printed promotional materials; ads; outreach to realtors					$1,000		Lump sum
Facility labor							Open 1 days a week, 8hours/day
Hazardous waste specialist(s)	1248	hours	@	$29	$36,442		Full Time (60% FTE) trained personnel to run facility
General Labor	832	hours	@	$22	$18,221		Trained County personnel
40-hour safety training for hazardous waste specialists					$6,000		lump sum
Medical monitoring					$1,000		lump sum
General Upkeep per year					$5,000		lump sum
General Liability Insurance					$2,000		Annual Premium
Other equipment (replacement costs)					$5,000		Drums, totes, absorbent, lab test kits, Protection Gear
Total Operational Costs					$86,707	K	Sum of Operational Costs
Collection Events							
Oversight, management, promotion	10%	FTE	@	$80,300	$8,030		County Staff (Fully loaded labor cost)
Promotion: flyers, paid newspaper advertising					$3,000		
Event labor and set-up costs	8	events	@	$500	$4,000		Mileage and general expense to set up events
On-site labor (local)	8	events	@	$340	$2,720		5 hours per event average; 3 traffic control @ $17/hour
PPE for events	8	events	@	$100	$800		Personal Protection Equipment
Subtotal					$10,520	L	Sum of Collection Event Costs
Contingency					$1,052	M	10% of sum total K
Total Collection Event Costs					$11,572	N	K + L = M
Collection and Disposal costs							
Facility							
Collection and packing (6 times a year)	144	hours	@	$37	$5,292		12 hours per collection for contractor staff
Contracted Chemist	104	hours	@	$37	$3,822		Chemist to assist with packing
Transport	215	drums	@	$35	$7,512		Cost are $35 per 55 gallon drum, $150 min charge
Waste management	82,629	pounds	@	$0.53	$43,983		Weighted average disposal cost of past events
Disposal Subtotal					$60,609	O	Sum of Collection and Disposal Costs
10% contingency					$6,061	P	10% of sum total H
Total C&D Costs					$66,670	Q	H + I = J
Total Operational & Disposal Costs per Year					$164,949	R	K + N + Q = R
Annualized Capital Costs (amortized over 7 years)					$15,099	S	F
Total Costs per Year (Operational Costs + Annualized Capital)					**$ 180,048**	T	R + S = T
Cost per pound of collected HHW materials					$ 2.18	U	$180,048 (T) / 82,629 pounds of materials
Cost per vehicle / participant					$ 175.43	V	= T / (663 + 363 vehicles)
Cost per household					$ 5.34	W	= P / 33,708

Coos and Curry Counties
Household Hazardous Waste Management Planning Project
Initial Cost Estimate

Alternative E: Permanent Regional Facility at Beaver Hill with Eight Satellite Events and Two Satellite Cabinets
Cabinets Located in Coos Bay and Brookings

Key Assumptions (Facility)

8	days open to public per year (5 days a week, 50 weeks a yr)
554	vehicles/year (5% of area households plus 1% of near by cities and unincorporated areas)
81	lbs/vehicle (90% avg past events due to more frequent events)

Key Assumptions (Two Cabinets)

24	days open (1 day a month)
730	vehicles/year
72	lbs/vehicle (80% avg past events due to more frequent events)

Key Assumptions (Collection Events)

8	events/year
363	vehicles/year
72	lbs/vehicle (80% avg past events due to frequent events)

Capital Costs					cost	Note	
Collection Facility							
Land					$0		Land already available
Facility design and engineering					$15,000		Lump sum
Permit assistance, application fees					$5,000		Assumes assistance from City or County staff
Site development, utilities, access, paving, fencing					$20,000		Assumes utilities within 100 feet of site.
1600 sq. ft. steel building (40 x 40)	1	unit	@	$56,000	$56,000		Indoor work area, office, three-stall storage area
Concrete and epoxy paint	2400	s.f.	@	$22	$52,800		Building floor and drop off area
Protected Drop Off Area (20 x20)	1	unit	@	$8,000	$8,000		Roof over drop off area
Equipment, Supplies, shelves, tools, signage					$7,500		includes safety shower, eye wash, spill kits, etc
HHW Storage Cabinets (15' foot)	3	units	@	$22,620	$67,860		Each cabinets holds 16 55 gallon drums
Facility Subtotal					$164,300	A	Sum of Collection Facility line items
Contingency					$16,430	B	10% of sum total A
Facility Total					$180,730	C	A + B = C
Less DEQ Tier 1 Funding					-$100,000	D	Regional Facility Tier 1 DEQ Grant
Net Capital Funding					$80,730	E	C - D = E
Annualized Facility Cost over 7 years with 8% interest					$15,099	F	Annual Facility Payment @ 8% for 7 years
Collection Cabinets							
Land					$0		Assume land already available if sited appropriately
Cabinets (7 x 15' with two doors / sections)	2		@	$23,172	$46,343		See Quote (inflated by 10%)
Paving/Concrete pad (10'x20' x 8" at each site)	400	s.f.	@	$20	$8,000		
Facility design and engineering	2	sites	@	$1,000	$2,000		
Permit assistance, application fees	2	sites	@	$1,000	$2,000		
Cabinet Subtotal					$58,343	G	Sum of Collection Cabinet line items
Contingency					$5,834		
Cabinet Total					$64,178		
Less DEQ Tier 1 Grant Funding					-$61,365		Regional Facility Tier 1 DEQ Grant
Net Capital Funding					$2,813	H	
Annualized Cabinet and Transportation Cost over 7 years with 8% interest					$526	I	Annual Cabinet & Trailer Payment @ 8% for 7 years
Collection & Transport Trailer							
Update and overhaul County trailer	1		@	$10,000	$10,000		Upgrade floor to fiberglass for spillage with drain
Retrofit Trailer to haul HHW	1		@	$10,000	$10,000		Add separation wall and brackets to secure materials
Event Equipment	1		@	$7,273	$7,273		Add separation wall and brackets to secure materials
Trailer Subtotal					$27,273		Sum of Collection Trailer line items
Contingency					$2,727		10% of Trailer subtotal
Total Cabinet and Transport Capital Cost					$30,000	J	G + H + I = J
Less DEQ Tier 2 Grant Funding					-$30,000	K	DEQ Tier II Grant
Net Capital Funding					$0	L	J less DEQ Tier II Grant

Operational Costs					cost		
Facility							
Oversight, management, promotion	15%	FTE	@	$80,300	$12,045		County Staff (10% FTE)
Printed promotional materials; ads; outreach to realtors					$1,000		Lump sum
Facility labor							Open 5 days a week, 8hours/day
Hazardous waste specialist(s)	1248	hours	@	$29	$36,442		Full Time (60% FTE) trained personnel to run facility
General Labor	832	hours	@	$22	$18,221		Trained County personnel
40-hour safety training for hazardous waste specialists					$6,000		lump sum
Medical monitoring					$1,000		lump sum
General Upkeep per year					$5,000		lump sum
General Liability Insurance					$2,000		Annual Premium
Other equipment (replacement costs)					$5,000		Drums, totes, absorbent, lab test kits, Protection Gear
Total Facility Operational Costs					$86,707	M	Sum of Facility Operational Costs
Collection Events							
Oversight, management, promotion	10%	FTE	@	$80,300	$8,030		County Staff (Fully loaded labor cost)
Promotion: flyers, paid newspaper advertising					$3,000		
Contracted Chemist	40	hours	@	$37	$1,470		Chemist to assist with packing
Event labor and set-up costs	8	events	@	$500	$4,000		Mileage and general expense to set up events
On-site labor (local)	8	events	@	$300	$2,400		5 hours per event average; 3 traffic control @ $17/hour
PPE for events	8	events	@	$100	$800		Personal Protection Equipment
Subtotal					$19,700		Sum of Collection Event Costs
Contingency					$1,970		10% of event cost
Total Collection Event Costs					$21,670	N	Sum of Event Costs
Cabinets *Assumes trained personnel staffing the cabinets will be in charge of collecting the HHW*							
Facility labor							Each cabinet open 1 days a month
Hazardous waste specialist	192	hours	@	$15	$2,880		Personnel @ 8 hrs/week at each cabinet
General Labor	192	hours	@	$10	$1,920		Site personnel to assist
Transportation Labor (transport every 12 weeks at 8 hours per trip)							
Hazardous waste specialist	64	hours	@	$15	$960		1 trip to Brookings
General Labor	64	hours	@	$10	$640		
40-hour safety training for hazardous waste specialists					$6,000		lump sum
Medical monitoring	2	sites	@	$1,000	$2,000		lump sum
General Upkeep per year	2	sites	@	$1,500	$3,000		lump sum
General Liability Insurance	2	sites	@	$600	$1,200		Annual Premium @ $600 each
Other equipment (replacement costs)					$1,200		Drums, totes, absorbent, lab test kits
Truck mileage (collection from cabinets to facility every 12 weeks)							
From Brookings to Coos Bay (107 miles one way)	856	miles	@	$642.00	$642		Gold Beach and Brookings on same trip
Total Facility Operational Costs					$20,442	O	Sum of Cabinet Operational Costs
Collection and disposal costs							
Collection and packing (6 times a year @ 2 people)	144	hours	@	$37	$5,292		12 hours per collection for contractor staff
Contracted Chemist	64	hours	@	$37	$2,352		Chemist to assist with packing
Transport	252	drums	@	$35	$8,805		Costs are $35 per 55 gallon drum, $150 min charge
Waste management	122,844	pounds	@	$0.53	$65,389		Weighted average disposal cost of past events
Subtotal					$81,839		Sum of Collection & Disposal Cost line items
10% contingency					$8,184		10% of sum total P
Total C&D Costs					$90,022	P	O + P = Q
Total Operational & Disposal Costs per Year					$218,842	Q	M + N + O + P = Q
Annualized Capital Costs (amortized over 7 years)					$15,625	R	F + I + L = R
Total Costs per Year (Operational Costs + Annualized Capital)					**$ 234,467**	S	Q + R = S
Cost per pound of collected HHW materials					$ 1.91	T	$233,324 (S) / 114,671 pounds of materials
Cost per vehicle / participant					$ 142.33	U	= S / 1,533 vehicles
Cost per household					$ 6.96	V	= S / 33,708

Appendix C
SUPPLEMENTAL BRIEFING PAPER

Coos and Curry Counties
Household Hazardous Waste (HHW) Planning Project
Supplemental Briefing Paper

Prepared for

Coos and Curry Counties, Oregon
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April 30, 2007

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In Conjunction With:

Bell & Associates, Inc.
Troutdale, Oregon

And

Tabor Consulting Group
Portland, Oregon

CONTENTS

TABLES

1.0 INTRODUCTION AND PURPOSE

Household hazardous waste (HHW) includes a wide variety of household products that can be harmful to human health and the environment, either in their use and/or in their disposal. Examples include mercury and mercury-containing items (thermostats, thermometers, fluorescent bulbs), pesticides, herbicides, poisons, corrosives, solvents, fuels, some types of batteries, paints, certain cleaning products, motor oil, and antifreeze.

Coos County has received a planning grant from the Oregon Department of Environmental Quality (DEQ) to study options for reducing the health and environmental impacts of HHW. Initial research has been conducted for Coos County, including identification of key issues, needs and opportunities, and estimates of the types and quantities of HHW that may be collected. A Briefing Paper, including descriptions of 5 alternatives for consideration and associated cost assumptions and calculations, was prepared by Kies Strategies, Tabor Consulting Group, and Bell & Associates, Inc. and submitted to Coos County and the Household Hazardous Waste Planning Committee (hereafter "Committee") on June 14, 2006. A Coos County Household Hazardous Waste Planning Meeting was held on June 21, 2006 and initial preferences for services were selected for further analysis.

Subsequently, the DEQ awarded a HHW Planning Grant to Curry County to develop a joint HHW management plan with Coos County, and a draft intergovernmental agreement between Coos and Curry Counties for a joint HHW planning process was submitted. This Supplemental Briefing Paper has been prepared by the Kies Team for Curry and Coos Counties and the Committee to identify key issues, needs, and opportunities and estimates of types and quantities of HHW that may be collected for Curry County. This information will be used to further define the preferred alternatives for HHW services selected during the June 21, 2006 meeting in the context of a joint planning process.

2.0 ADDITIONAL BACKGROUND INFORMATION

Terminology: HHW and CEGs

HHW refers to hazardous wastes that are generated by households. CEG is an acronym for "conditionally exempt small quantity generators". CEGs include most businesses and public facilities that generate less than 220 pounds of hazardous waste per month. Unlike businesses and public agencies that generate 220 pounds or more of hazardous waste per month, CEGs are exempt from most State and Federal reporting and disposal requirements for the management of hazardous wastes. Like households, it is legal for CEGs to dispose of hazardous waste with mixed garbage. The Coos and Curry Counties HHW Plan could address both HHW and hazardous waste from CEGs.

Regulatory Overview

Both households and CEGs are allowed to dispose of hazardous waste mixed with regular solid waste (garbage). The only exception to this is a federal regulatory prohibition on the disposal of bulk liquids. The waste generated in Curry County is taken to one of five transfer stations where it is reloaded and taken to the Dry Creek Landfill in Medford, Oregon for disposal. The majority of waste is taken to the Brookings Transfer Station in Brookings. The other transfer stations include Agness Transfer Station, Nesika Beach Transfer Station, and Port Orford Transfer Station in Gold Beach and Wridge Creek Transfer Station in Brookings. At the landfill and transfer stations, loads are screened for liquids and hazardous materials. If found, the hauler must sort the load and take back the rejected materials.

Lead-acid batteries: Oregon law (ORS 459.422) requires that retailers take back the same type of battery that they sell. According to DEQ staff, most are willing to take back different brands of batteries as well, as long as the casing is intact and not leaking. Lead acid batteries taken back by retailers must be recycled. ORS 459.420 prohibits the landfill disposal of lead-acid batteries by any party (including households).

Motor oil: ORS 459A.575 requires retailers of motor oil to post signs informing the public of opportunities for proper disposal of used motor oil. ORS 459A.580 prohibits the disposal of used motor oil into sewers or waterways, as well as incineration other than for energy recovery purposes.

Endangered Species Act: The County and cities may be liable under the Endangered Species Act (ESA) for the release of hazardous waste into streams that negatively impact listed species. Under the ESA, populations of Salmon including Chinook, Chum, Coho and Sockeye, Steelhead and Bull Trout in many Oregon watersheds are listed as "threatened". Under Section 4(d) of the ESA, blanket rules protect the listed fish until tailor-made measures are approved and ready to take their place. These blanket restrictions are intended to reduce the "take" of listed species. The definition of "take" includes modifying or degrading habitat where it kills or injures a species by impairing its ability to breed, spawn, rear, migrate, feed or find shelter. For example, the National Marine Fisheries Service, in its list of activities that "could have a high risk of resulting in take", includes "discharging pollutants, such as oil, toxic chemicals, radioactivity, carcinogens, mutagens, teratogens or organic nutrient-laden water including sewage water into a listed species' habitat." Such discharge could be direct (spraying herbicides on a stream bank) or indirect (run-off of oil from streets into a stream through municipally-owned stormwater conveyance systems).

Why HHW and CEG Waste is a Problem

Major hazards caused by use, storage, and improper disposal of HHW in Curry County include the following:

- Disposal of paint, antifreeze, motor oil, and other hazardous waste into storm drains by area residents contaminates creeks, streams, and other drainage areas.

- Illegal dumping of household garbage may include HHW.

- Backyard burning is legal in most of Curry County. The city of Brookings passed a ban on backyard burning in 2006. HHW may be included in material that is burned by residents.

- The use of motor oil for dust suppression is strongly discouraged by DEQ due to soil and water contamination, but is still practiced by some property owners.

- Garages and basements of farms and older houses tend to contain large amounts of HHW, including wastes that are now banned (such as DDT). When these properties are sold, the buyer often inherits these hazardous wastes.

- Improperly stored products can result in accidental poisonings, especially among children. According to the American Journal of Emergency Medicine (September, 1999), there were almost one million exposures to non-pharmaceutical HHW reported to poison control centers in 1998, including 241 deaths and 3,027 "major impacts", which include comas, brain damage, and major burns, lung damage, and disfigurement.

- Storage of flammable products (solvents, fuels, oil-based paint) in homes may start fires, add to the fuel load of buildings, and endanger firefighter safety.

- Some households (and CEGs) may opt to flush certain hazardous wastes into the sewer. Some types of HHW can damage drain lines, leak into surrounding soil, and damage on-site septic systems. HHW disposed of in on-site drain fields can contaminate groundwater down gradient. Drinking water in shallow aquifers is easily contaminated by the improper dumping of HHW on the ground or disposal in on-site septic tanks or drain fields.

- Mercury disposed with regular garbage can evaporate (volatilize). Volatized mercury eventually re-enters aquatic environments in the form of methyl mercury, where it accumulates at increasing concentrations in the fatty tissues of fish, wildlife, and humans, causing neurologic and other damage.

Types and Volumes of Waste

Little reliable data is available regarding the volumes of HHW and CEG waste. Oregon regularly conducts a statewide solid waste composition study as required by state law (Oregon Revised Statute 459A.035). During these studies, incoming waste at disposal sites are sorted into different categories and weighed. As of the date of this briefing paper, the most recent completed study was conducted in 2002. This study indicates that hazardous wastes and their packaging (not including latex paint, and not including empty packaging) comprise approximately 0.6% (a little over half of one percent) of solid waste entering landfills in Oregon. However, because many of these wastes are in a liquid form, and may absorb into other wastes in the collection vehicle (such as paper), the DEQ studies may tend to undercount HHW. Further, some HHW never enters the solid waste system at all, and so is not included in DEQ's study.

Data is available from previous DEQ-sponsored HHW and CEG collection events in Curry County. Data from collection events held in Curry County in 1993, 1995, 1996, and 1998 and events held in Coos County in 1991, 1992, 1995, 1996, 1997, 1998, 2000, and 2001 is portrayed in Table 1 (HHW) and Table 2 (CEG). Both tables also show the average composition of all HHW and CEG waste collected in all DEQ-sponsored events throughout Oregon in 1998, which is the last year that more than 10 events were held in the State. Coos and Curry Counties generally follow statewide trends for HHW, with the greatest variation for lead-acid batteries and paint. Collection events in the County for HHW have tended to collect a lower percentage of lead-acid batteries and latex paint and a higher percentage of oil-based paint.

Tables 1 and 2 include used motor oil and lead-acid (automotive) batteries collected during events. However, since used motor oil is also collected at the transfer station and lead-acid batteries are collected at retailers, the total amount of these materials collected is much higher than shown in Tables 1 and 2.

One important consideration is that not all types of HHW are equally hazardous. For example, many HHW programs throughout the nation collect latex (water-based) paints as part of HHW. Latex paint - particularly old paint - may contain fungicides, mercury, lead, or other heavy metals. However, since most of these materials are no longer added to latex paint manufactured in the U.S., new latex paint is not a hazardous waste. Samples of old latex paint collected at HHW collection events and facilities in various locations in North America show that old latex paint is typically <u>not</u> a hazardous waste, except in California (which has more stringent definitions of hazardous waste), unless a large batch of particularly old and "potent" paint is dropped off. As we move into the future, and these old stocks of latex paint are used up, disposed, or collected, the level of hazardous constituents in collected latex paint is expected to continue to drop.

Recognizing that not all HHW is equally hazardous, DEQ's HHW program has begun placing emphasis on "high hazard" wastes. These are wastes that have higher environmental or health impacts, and are generally divided into four categories:

- Poisons: pesticides, herbicides, fungicides and other poisons.
- Heavy Metals: mercury and products containing elemental mercury (thermostats and thermometers), nickel-cadmium (ni-cad) batteries, and lead-acid batteries.
- Flammables: solvents, gasoline, kerosene, other fuels, and oil-based paint.
- Corrosives: acids, bases, and reactives (such as pool chemicals).

While most HHW programs traditionally accept a broad range of HHW, one option is to target specific types of waste (such as pesticides and heavy metals) based on their impacts and focus collection on those waste types. A growing number of HHW programs are considering ways to minimize the collection of lower-hazard wastes such as latex paint.

Existing Collection Systems

As part of their solid waste permit requirements, all transfer stations and landfills in Oregon are required to provide drop-off recycling of used motor oil and lead-acid batteries. The Brookings Transfer Station is the main transfer station in Curry County. It is owned and operated by Curry Transfer and Recycling, Inc., a division of Waste Connections. This transfer station accepts garbage and recyclables from franchised haulers and the general public. Motor oil and lead-acid batteries are accepted at this transfer station for recycling and at the four other smaller transfer stations in the County. These include the Agness Transfer Station, Nesika Beach Transfer Station, and Port Orford Transfer Station in Gold Beach and the Wridge Creek Transfer Station in Brookings.

Curry Transfer and Recycling, Inc. is the franchised garbage hauler for the unincorporated areas and the cities in Curry County. Curbside pickup of used motor oil is currently not provided. The Les Schwab Tire Center in Brookings also accepts lead-acid batteries.

It is assumed that most of the motor oil collected at the transfer station is the result of "do-it-yourself" (DIY) oil changes. Research in Washington, Oregon, California, and elsewhere indicates that a significant amount of DIY waste oil may be released inappropriately to the environment, causing significant pollution of soils, and ground and surface water. In fact, reducing groundwater contamination from motor oil has been identified by DEQ drinking water staff as a top priority, particularly in areas with shallow drinking water aquifers below residential neighborhoods. Providing convenient collection opportunities for DIY'ers to safely manage motor oil, such as curbside recycling, is a critical public service from an environmental perspective. What is not well understood at this time is what percentage of the waste motor oil is being collected through these systems, and how much is still being disposed of inappropriately.

DEQ Services

DEQ has provided 5 one-day HHW collection events in Curry County from 1993 through 1999. An additional 14 events were held in Coos County from 1991 through 2001 for a total of 19 events in both Counties. Each DEQ event has involved local partners (such as waste haulers, cities, county) who provided a location for the event, provided staff (including volunteers) for traffic control, and provided local promotion of the event. DEQ paid a hazardous waste contractor to set-up, staff the site, accept wastes, remove them, and ultimately pay for safe recycling or disposal of the wastes.

Table 3 provides a summary of statistics for past DEQ events in both Curry and Coos Counties including the number of participants and the pounds of waste collected. The HHW events in both Counties have

averaged 278 vehicles (participants) bringing 89 pounds of HHW each, at an average cost of $97 per vehicle. On average, the waste collected at the CEG events represents 2% of the total waste collected.

Due to funding constraints, DEQ is shifting resources away from providing these types of collection events, and towards supporting local community solutions. Grants are now available to support local planning efforts, waste prevention education, permanent collection facilities, and alternative collection approaches such as curbside collection and motor oil collection tanks. Due to statutory limitations, grant funds must be spent on HHW activities. While CEG wastes can be collected as an adjunct activity, DEQ grant funds cannot be spent for programs that exclusively target CEGs. Typically, a CEG will bring in over 100 pounds of waste, but the number that actually uses an event or facility is so small that CEG waste is generally only about 2% of total waste volumes.

DEQ's HHW Management Plan for Oregon

DEQ prepared a five-year *Household Hazardous Waste Management Plan for Oregon* in 1999. Prior to the development of this plan, DEQ's HHW program focused resources on providing collection services for HHW and educational materials. The focus of the 1999-2005 HHW Plan was to create the capacity of local governments to meet the needs of their own residents for HHW services. The Plan recognized the inherent limitations in continuing DEQ-funded collection events. While popular with some households, the events collect only a fraction of the HHW that is generated. The number of households participating in events was tending to increase, which meant that events were becoming more expensive. Higher costs translate into fewer events (given a fixed budget). At the same time, more cities were requesting events, so DEQ's resources were being spread even thinner.

To facilitate the management of HHW on a local level, DEQ expanded grants to local governments for planning and facility development and decreased the number of state-funded collection events. By 2006, permanent HHW facilities will serve about two-thirds of the state's population, and less than one in five residents will lack HHW service through facilities or local events. The state recently updated the HHW Plan to set direction and activities for DEQ's HHW program over the next six years, beginning in late 2005 and ending in June 2011.

DEQ's HHW Program is funded every two years by the Legislature, and is currently funded at $800,000 per biennium. It is assumed that the funding level will remain constant.

Under the 2005-2011 Plan, DEQ continues to provide the following services:

- The "purchaser program", which allows local governments to use the state's contractor (currently MSE Environmental) for HHW collection, thus avoiding the administrative requirements of bidding and administering a new contract.

- Planning grants for local governments that have not developed a plan. For local governments that have already planned, the grant program will be expanded to help develop specialized plans that address high-risk situations or materials and to update existing plans as needed.

- Facility grants to support the development of local HHW collection facilities.

- Fund local collection events. However, event locations will be based on DEQ-determined risks, needs, and priorities, rather than applications from local event sponsors. DEQ will not fund collection events in counties that have established HHW collection services or facilities.

- Limited reimbursement to counties with permanent facilities to accept out-of-county waste in order to provide ongoing HHW collection opportunities to residents in areas without local collection service.

- Waste prevention and education grants with priority given to those that address the highest-risk situations and that support local waste prevention efforts.

- Technical assistance, publications, and a statewide HHW hotline.

The plan also details a number of planning, monitoring and evaluation activities including the completion of a Priority Assessment study during the first year of the program to guide DEQ in determining where to focus resources to meet the overall goals of the HHW Plan and program. In addition, support will be provided to facilitate HHW-related training of local government representatives and DEQ Technical Assistants.

The 2005-2011 HHW Plan provides grants to local governments to fund the development of permanent local HHW collection facilities. Within this category, grants are available for two types of facilities:

- Tier I facilities provide new permanent HHW collection opportunities in areas without existing facilities; and

- Tier II facilities, including mobile facilities or vehicles, provide supplemental collection opportunities for areas already served but located significant distances from Tier I facilities.

Grants for Tier I facilities are based primarily on a population-based formula. The basic formula is $40,000, plus $1.00 for each resident in the facility's service area; with a minimum of $40,000 and maximum of $100,000. Grants for Tier II facilities will cover costs up to $30,000. Tier II grants may also cover costs for mobile facilities or vehicles. Any Tier II permanent facilities must be located at least 20 miles form the county's Tier I facility.

Both types of grant funds may be used for facility engineering, construction, materials and equipment. They may also be used to cover up to half of first-year disposal costs, if desired, provided the facility uses DEQ's purchaser program. Every county and city is eligible to request funding for facilities, but a maximum of one Tier I grant and Tier II grants totally up to $30,000 will be funded in each county.

Using 2006 population estimates, Coos County has a population of 62,905 and Curry County has a population of 21,365 for a total population of 84,270 and so would be eligible for $100,000 in Tier I grant funds for a single permanent facility to serve both Counties. If each County chooses to build a second smaller facility or purchase a mobile facility or vehicle, an additional $30,000 in Tier II grant funds may be available for each County for a total of $160,000 in grant funds.

The Counties may choose to build a Tier I facility in each County. In this case Coos County would be eligible for $100,000 in Tier I funding and Curry County would be eligible for $61,365. Each County may still be eligible for an additional $30,000 Tier II grant if they build a second small facility or purchase a mobile facility or vehicle.

To qualify for grant funding, each facility must meet certain conditions as defined by DEQ including being open to the public at least 8 days a year, being available by appointment (at least once a week) for special/unusual circumstances, and being permitted by DEQ. In addition, any Tier II permanent facility must be located at least 20 miles from the county's Tier I facility. Acceptance of a HHW facility grant obligates the local government to provide HHW collection services for at least five years.

Nevertheless, grant applications for permanent facilities require submittal of a HHW Plan. The Plan must include:

- List of wastes to be accepted at the facility
- Local management options for wastes not accepted at the facility (if any)
- Conceptual design of the facility and description of facility operation (but not architectural drawings)
- Estimate of number of days/hours open per year
- A general site plan and indication of local acceptance
- Discussion of service area (who can use the facility)
- Discussion of optional services to CEGs
- Projection of waste volumes and plan in case volumes exceed (or do not meet) projections
- Community education and publicity plan
- 5-year projection of costs
- 5-year projection of funding
- Permitting/design/construction schedule and cash flow schedule

DEQ's funding for local governments is limited (by the Legislature) to address hazardous waste from households, but not CEGs. Any CEG services covered by a local Plan must be considered as an "addition" to HHW services.

Proposed HHW Management Goals

Following are proposed HHW management goals for Curry County:

- Minimize environmental and health impacts associated with HHW.
- Educate residents and promote the use of least hazardous products and approaches.
- Educate residents in the reduction, proper use, and proper storage of household hazardous waste.
- Reduce the amount of household hazardous waste disposed of in the landfill, sewerage systems, ground water, waterways (streams, rivers), the air, and illegally dumped. Accomplish this through education, collection, and focusing effort on waste types that pose a higher risk to the environment and health.
- Reduce the risks of accidental poisonings and fires in homes. Reduce the fuel load in homes caused by storage of flammable materials, and reduce the risk to fire safety workers associated with storage of hazardous materials.

- Continue to build cooperative relationships among the cities, waste collection and disposal companies, the agricultural and natural resource communities, school districts, fire districts, poison control professionals, retailers, real estate agents, business groups, community organizations, the Oregon Department of Environmental Quality, and other State and Federal agencies.

- Provide regular, convenient, efficient and cost-effective service, considering both short-term and long-term costs.

- Focus efforts and resources on services which will achieve the greatest environmental and health benefit.

- Emphasize proper end-of-life management of any hazardous wastes collected.

- Reduce regulatory liabilities for local governments.

- Include agricultural, natural resource, and other Conditionally Exempt Small Quantity Generators (CEGs) in these efforts by identifying CEGs within the County, providing educational outreach, and encouraging/accommodating participation in proper handling, record keeping, storage and disposal.

3.0 FUNDING OPTIONS

The following have been identified as possible funding sources for new HHW services. Several of these funding options could be blended together to provide a comprehensive funding package. Curry County and Coos County have entered into an intergovernmental agreement to develop a joint HHW management plan and equitably share in the costs of any new HHW programs that serve residents of both jurisdictions. Douglas County completed the process of developing a HHW management plan in 2002. As the planning process proceeds, it may become apparent that there are advantages to a joint partnership with Douglas County as well. The participating jurisdictions may use the same funding mechanisms, or they may utilize different funding mechanisms. Regardless, the following options might be used to provide local funding for any new HHW services:

1. User fees. Those who use the event or facility would pay at the time of drop-off. However, charging anywhere near the full cost of service would discourage all but the most devoted residents. Most jurisdictions in the United States do not impose user fees for residents, but do charge CEGs at least the cost of waste disposal (and sometimes an additional handling charge).

2. Tipping Fee. The primary source of revenue to fund recycling, waste collection and disposal services is the tipping fees collected at County facilities. This fee could be increased to cover the cost of the HHW program.

3. Solid waste system surcharge on waste generated in the County. A surcharge could be levied against all solid waste generated in the County. This may be done using the County's franchising authority for transfer stations. All residents and businesses in the service area would pay relative to the amount of solid waste disposed. In 2004, the County disposed of 20,791 tons of solid waste. A uniform tipping fee surcharge of $2.00 per ton (hypothetical) would generate $41,582 in revenues.

4. Increased Collection Franchise Fees. There is one private waste hauler in Curry County. This company has a franchise agreement with the County to provide collection service. This company also

has a franchise agreement with the cities or towns they serve. Currently, the County charges a franchise fee equal to a certain percentage of gross receipts. These franchise fees are used to support franchise administration and some recycling and education activities. The franchise fees could be increased or re-distributed with the funds dedicated to the HHW program. A comparable increase in collection franchise fees by the cities could generate additional revenues.

5. HHW Fee in Garbage Rates. In some areas of the State, the garbage haulers sponsor HHW collection events. The haulers are responsible for all costs associated with the events including promotion, management, disposal, and overhead. The haulers estimate the cost of holding yearly events and request a rate increase to cover the costs of the events. Households and businesses with garbage service would see their rates increase based on the cost of the events.

6. General Budget. Currently revenue from tipping fees at the transfer stations and franchise fees from the hauler go into the general budget. A portion of this budget could be allocated to fund HHW collection.

7. Advance disposal fee on the sale of hazardous materials. Washington State partially funds its HHW programs by a surcharge on the sale of certain hazardous materials. Such an approach may be difficult to replicate on the level of an individual county, or even a group of counties.

8. DEQ Grants. Approximately $100,000 in Tier I grant funds are available from DEQ for a single permanent facility that provides HHW collection services to all residents of the County. Another $30,000 in Tier II grant funds are available for additional service to supplement Tier I facilities, which may include mobile facilities or vehicles. Additional grant funds may also be available for programs to improve waste prevention education. DEQ facility grants require a commitment to operate the facility for a period of at least five years.

9. Supplemental Environmental Programs. Facilities or companies fined by DEQ sometimes have the option to propose a supplemental environmental program (SEP). Under such a program, money that would have been spent on fines to DEQ is instead directed to local environmental initiatives. DEQ does not suggest SEPs; it is up to the fined entity to initiate a request for a SEP. Usually, the SEP must directly address the impact of the discharge on which the fine was based.

10. Wastewater Surcharge. Some communities, such as King County, Washington for example, choose to partially fund their HHW and CEG programs through surcharges on the wastewater bills. The rationale behind this approach is that reducing the improper disposal of HHW benefits wastewater treatment systems, and so users of these systems should help pay for proper treatment.

11. Real Estate Transaction Fee. Some observers of HHW programs believe that one of the greatest benefits of permanent collection opportunities is for people who are buying or selling a home, or cleaning out the home of a recently deceased family member. At that time, all of the hazardous materials accumulated over years or even decades of home ownership, typically need to be disposed. Thus, some have proposed a real estate transaction fee (on the sale of residential properties) as a partial funding source for HHW programs. The consultant team knows of no programs in North America that are actually funded this way, at this time.

TABLES

Table 1.
Quantities of HHW Collected (pounds) by Waste Type for Coos and Curry Counties, Oregon

year:	1991	1992	1993	1995	1995	1995	1995	1995	1996	1996	1997
location:	Coos Bay	Coquille	Brookings	Myrtle Point	Brookings	Gold Beach	Powers	North Bend	Port Orford	Coquille	Coquille
Acids/bases	1320	465	170	180	402	100	30	796		2300	750
Aerosols (except pesticides)	880	455	450	200	300	200	15	550	300	1600	810
Antifreeze	200	210	400	300		125		440		500	200
Automotive oil	1760	2750	1000		840	250			400	1530	2800
Batteries - alkaline		35	20							70	60
Batteries - NiCd											10
Batteries - automotive	100	1400	800		2025	1200			1200	4500	2200
Flammable liquids		1675							1200	4000	800
Flammable solids		5								20	10
Latex paint	440	3825	3740	1400	4120	3000	250	6050	2450	8200	5600
Oil-based paint	3520	4500	10700	1980	6200	4500	200	7075	3850	21250	8200
Oxidizers, reactives		15	85	10	10	10		5		270	150
Pesticides/poisons	411	1510	626	315	907	420	50	918	950	3850	1545
Aerosols - pesticides			300		150	150		100		200	200
Solvents	440		725	900	840	250		1436			
PPE/crushed containers					500					300	600
Other	376	425	12	60	60		20	1400		2820	201
Total	9447	17270	19028	5345	16354	10205	565	18770	10350	51410	24136

year:	1997	1997	1997	1998	1999	2000	2001	2001	**all events**		Comparison: All DEQ-sponsored HHW events in Oregon, 1998
location:	Myrtle Point	Lakeside	Bandon	Coos Bay	Gold Beach	Coquille	Bandon	Myrtle Point	**pounds**	**%**	
Acids/bases	300	550	900	1500	500	1200	850	535	**12848**	**3%**	3%
Aerosols (except pesticides)	200	500	1800	2800	300	1400	1600	800	**15160**	**3%**	2%
Antifreeze		300	400	1200	150	400	450	450	**5725**	**1%**	1%
Automotive oil	800	600	2150	5900	500	4950	4150	1300	**31680**	**7%**	7%
Batteries - alkaline			120	300	100	205	500	164	**1574**	**0%**	0%
Batteries - NiCd			21	25	8	19	26	36	**145**	**0%**	0%
Batteries - automotive	400	1500	3800	12800	1200	3000	5000	3500	**44625**	**9%**	14%
Flammable liquids	800	600	1600	6000	550	6300	2800	4400	**30725**	**7%**	7%
Flammable solids			50	15	6	8	7	5	**126**	**0%**	0%
Latex paint	1400	4200	8400	18100	1200	14100	2350	5050	**93875**	**20%**	23%
Oil-based paint	1800	4800	15000	43700	4000	23750	11200	8800	**185025**	**39%**	34%
Oxidizers, reactives		150	150	500	50		264	30	**1699**	**0%**	0%
Pesticides/poisons	300	500	2200	4450	1500	3000	4184	1493	**29129**	**6%**	6%
Aerosols - pesticides		100	200	400	75	200	350	200	**2625**	**1%**	0%
Solvents									**4591**	**1%**	0%
PPE/crushed containers	300		200				150		**2050**	**0%**	0%
Other	300	200	318	877	140	1575	1055	854	**10693**	**2%**	1%
Total	6600	14000	37309	98567	10279	60107	34936	27617	**472295**		100%

Table 2.
Quantities of CEG Hazardous Waste Collected (pounds) by Waste Type for Coos and Curry Counties

	year:	1998	all events		Comparison: All DEQ-sponsored ESQ. events in Oregon, 1998	
	location:	Coos Bay	**pounds**	**%**		
Acids/bases		300	**300**	**7%**	9%	3925
Aerosols (except pesticides)				**0%**	3%	1208
Antifreeze				**0%**	0%	
Automotive oil				**0%**	3%	1280
Batteries - alkaline				**0%**	0%	
Batteries - NiCd				**0%**	0%	
Batteries - automotive				**0%**	0%	200
Flammable liquids		800	**800**	**20%**	28%	12495
Flammable solids				**0%**	0%	
Latex paint				**0%**	2%	1000
Oil-based paint		1950	**1950**	**48%**	30%	13535
Oxidizers, reactives				**0%**	0%	65
Pesticides/poisons				**0%**	13%	5980
Aerosols - pesticides				**0%**	0%	10
PPE/crushed containers				**0%**	0%	
Solvents						
Non-RCRA Liquid/Solid		1000	**1000**			
Other*				**0%**	13%	5728
Total		4050	**4050**	**100%**		45426

Totals may not sum exactly due to rounding.
*In 1998, "other" wastes collected throughout Oregon at ESQ. events included lithium batteries, PCB light ballasts, fluorescent lamps, and petroleum-contaminated soil.

Table 3.
Summary of Previous HHW and CEG Collection Events for Coos and Curry Counties, Oregon

	1991 Coos Bay	1992 Coquille	1993 Brookings	1995 Brookings	1995 Gold Beach	1995 Myrtle Point	1995 Powers	1995 North Bend	1996 Port Orford	1996 Coquille	1997 Coquille	1997 Lakeside
Lbs. Collected	9,447	17270	19028	16354	10205	5,345	565	18,770	10,350	51,410	24,136	14,000
Number of Participants	101	157	146	196	86	75	9	319	155	401	307	136
Total Cost $	32,508	28,557	30,584	21,952	10,147	9,113	1,228	27,882	11,617	42,518	32,256	14,318
Labor & Equipment Costs	N/A	15,098	15,376	11,045	4,532	5,649	835	13,073	5,609	16,766	18,582	6,588
Disposal Costs	N/A	13,459	15,208	10,907	5,615	3,464	393	14,809	6,008	25,752	13,674	7,731
Lbs. Per Participant	94	110	130	83	119	71	63	59	67	128	79	103
Total Cost Per Participant	$ 322	$ 182	$ 209	$ 112	$ 118	$ 122	$ 136	$ 87	$ 75	$ 106	$ 105	$ 105
Total Cost Per Pound	$ 3.44	$ 1.65	$ 1.61	$ 1.34	$ 0.99	$ 1.70	$ 2.17	$ 1.49	$ 1.12	$ 0.83	$ 1.34	$ 1.02
Disposal Cost Per Pound	N/A	$ 0.78	$ 0.80	$ 0.67	$ 0.55	$ 0.65	$ 0.70	$ 0.79	$ 0.58	$ 0.50	$ 0.57	$ 0.55

	1997 Myrtle Point	1997 Bandon	1998 Coos Bay	1999 Gold Beach	2000 Coquille	2001 Bandon	2001 Myrtle Point	Average (HHW)	1998 Coos Bay (CEG)	Average (CEG)
Lbs. Collected	6,600	37309	98,592	10,279	60,107	34,936	27,617	24,859	4,050	4,050
Number of Participants	75	405	1,208	127	462	688	227	278	3	3
Total Cost $	9,475	33201	80,257	14,440	43,973	47,596	22,847	27,077	NA	N/A
Labor & Equipment Costs	5,490	11518	27,482	6,985	15,701	20,966	8,899	11,063	N/A	N/A
Disposal Costs	3,985	21683	52,776	7,455	28,272	26,630	13,948	14,304	N/A	N/A
Lbs. Per Participant	88	92	82	81	130	51	122	89	1,350	1,350
Total Cost Per Participant	$ 126	$ 82	$ 66	$ 114	$ 95	$ 69	$ 101	$ 97	NA	N/A
Total Cost Per Pound	$ 1.44	$ 0.89	$ 0.81	$ 1.40	$ 0.73	$ 1.36	$ 0.83	$ 1.09	NA	N/A
Disposal Cost Per Pound	$ 0.60	$ 0.58	$ 0.54	$ 0.73	$ 0.47	$ 0.76	$ 0.51	$ 0.58	N/A	N/A

Note: All costs, except "cost(s) per pound" are rounded to the nearest dollar.

Source: DEQ

Appendix D
DEQ HHW COLLECTION FACILITY DESIGN AND OPERATIONS GUIDANCE

Land Quality Division

Household Hazardous Waste Collection Facility Design and Operations Guidance

June 2004

State of Oregon
Department of
Environmental
Quality

Household Hazardous Waste Collection Facility Design and Operations Guidance

I. DESIGN

The design and construction of a Household Hazardous Waste (HHW) facility must incorporate measures to prevent degradation of groundwater, surface water, air quality, and endangerment of public or employee health.

A. SITING

Requirements:

- Consult and comply with local zoning requirements.
- Determine the proximity to flood plains and sensitive resources and protect/mitigate as needed.
- Consult and comply with the fire code and building code for separation between property line and buildings, separation between buildings and construction requirements for flammable and/or reactive materials.
- Construct facility on a stable foundation.
- Provide adequate ingress and egress to major streets and/or highways.

Information to be submitted in Design Plan:

- Description of applicable local zoning and setback requirements.
- Description of flood plains and sensitive resources within proximity of site.
- Description of mitigating measures necessary for preventing degradation of sensitive resources and protecting from floods.
- Description of fire code and building code requirements for building locations.
- Scale drawings of the facility that show the layout of the property and all the physical features of the facility and cross-section drawing of foundation soils.

B. SECURITY AND EMERGENCY EQUIPMENT STATIONS

Requirements:

- Surround the facility with security fencing with security locks on gates and doors.
- Post warning signs with a legend, such as "Danger-Unauthorized Personnel Keep Out" at each entrance to the facility and at other locations in sufficient numbers to be seen from any approach to the facility.
- Establish fire suppression equipment stations in an accessible location.
- Install emergency shower, eye wash station(s), and telephone equipment.
- Establish storage area(s) for personal protection and spill response equipment in accessible locations.

Information to be submitted in Design Plan:

- Scale drawings that show fencing and signs, fire suppression equipment stations, storage areas for personal protection and spill response equipment, and shower and eye wash station(s).

C. STRUCTURAL REQUIREMENTS

Requirements:

- Comply with Uniform Building Code, Uniform Fire Code, Electrical Code, and other applicable codes.
- Facility floor construction must be liquid-tight, constructed of steel-reinforced concrete, and sloped for containment and drainage. Alternative floor construction that is liquid-tight and provides equivalent protection is acceptable.

- Drains within the facility must have a slope of at least 1%. Drains must be constructed of materials that are compatible with the stored wastes. Drains must be designed to keep incompatible materials separated.
- Secondary containment must be built into the facility to contain accidental spills of hazardous materials. Secondary containment must have the capacity for containing 10% of the total waste storage capacity. If a sprinkler system is installed at the facility, secondary containment must have the capacity to contain the sprinkler system flow rate for 20 minutes. If rainwater can enter the area, the secondary containment must have the capacity to contain a 24-hour, 25-year storm.
- All waste storage areas must have a roof with sufficient overhang to prevent precipitation from contacting waste.
- Ventilation, via natural or mechanical means, must be built into the facility. If natural ventilation is provided by exterior openings, there must be openings equivalent to 1/20 of the total floor area.
- Lighting, via natural or artificial means, must be provided in work areas.
- Incompatible waste must be separated or protected from other materials by means of a dike, berm, wall or other device, in compliance with Fire Codes and 40 CFR Ch. 1,264.177.
- Waste unloading and shipping areas must be constructed of structurally reinforced concrete, with sealed joints. Alternative construction that provides equivalent protection is acceptable.
- Waste unloading and shipping areas must have a slope of at least 1% to a locking drain or sump for containment of spills.
- Surface water run-on and runoff must be minimized in unloading and shipping areas to prevent contamination of surface and groundwater.
- Waste water must not be discharged to public waters except in accordance with a permit from the Department issued under ORS 468B.050.

Information to be submitted in Design Plan:

- Description and scale drawings of facility design features that address the above requirements.

II. OPERATIONS PLAN AND WASTE HANDLING

A HHW facility must have a solid waste permit with a DEQ approved operations plan prior to accepting any waste. The operations plan must contain the information described below.

A. WASTE ACCEPTANCE

Requirements:

- Establish protocol to reject and redirect regulated hazardous waste and any excluded waste. Accept only household hazardous waste. CEG and Universal waste may also be accepted with DEQ approval. Asbestos may only be accepted with DEQ approval.
- Accept waste only if there are disposal arrangements for that specific material and the material can be stored safely pending disposal.
- Prevent wastes that are delivered in leaking or corroded containers from further leaking. Repack such containers in leak-proof containers.
- Prevent mixing of incompatible wastes. Prevent hazardous waste from being placed in an unwashed container that previously held an incompatible waste or material.
- Establish hours of operation must be established to control the flow of people and materials at the facility.

Information to be submitted in Operations Plan:

- Types and anticipated quantities of waste to be accepted during an average month.
- Methods for identifying unknown wastes, including types of chemical analyses to be performed and procedures for handling unknown wastes.
- Methods for recording receipt of waste.
- Methods for ensuring incompatible wastes are kept separated.
- Procedures for responding to deliveries of suspected or actual regulated hazardous waste.
- Procedures for handling wastes that are received in corroded or leaking containers.

- Procedures for handling wastes, which pose special hazards, such as explosives, pressure or heat sensitive wastes, home chemistry lab wastes, etc.
- Hours of operation.
- Procedures for acceptance of CEG, Universal waste, or asbestos, if applicable.

B. WASTE SORTING AND STORAGE

Requirements:

- Handle and store each waste in a manner appropriate to its characteristics and hazards.
- Sort each waste into its appropriate Department of Transportation (DOT) hazard class immediately after the waste is unloaded.
- Adequately delineate and mark the storage areas.
- Establish limits for the maximum quantity of drums and other waste containers to be stored in each area.
- Establish criteria for products to be included in a materials exchange program such as label and container integrity and no banned products.
- Close all containers holding hazardous waste during storage except when it is necessary to add or remove waste.
- Maintain minimum of 24 inches between rows of drums for aisle spaces in all storage areas.
- Establish a dedicated storage area for each hazard class.
- Drums or other sealed storage containers may be stacked no more than 2 high. Only compatible waste may be stacked.
- Waste may be stored no longer than 180 days or, for materials being accumulated for a feasible means of being recycled, no greater than 1 year.
- Protect storage containers from weather and temperature extremes.

Information to be submitted in Operations Plan:

- Description of waste sorting protocol.
- Location where each hazard class of waste will be stored.
- Drawing of drum storage pattern that will be used.
- Maximum quantity of drums and other waste containers to be stored in each waste storage location.
- Maximum length of time that filled drums will be stored before being shipped for recycling, treatment or disposal.
- Materials exchange criteria and location of materials exchange storage area, if applicable.

C. WASTE PACKING

Requirements:

- Use containers that are made of, or lined with, materials which will not react with the waste to be stored.
- Package incompatible wastes separately.
- Label containers with the appropriate hazard classification stickers. Label containers as "Hazardous Waste" or "Household Hazardous Waste" and record the dates when waste accumulation begins and ends.
- Maintain individual waste inventory sheets for each lab pack drum in the operating records. Include the chemical constituents on the log sheets. The inventory sheets will be used in completing the shipping manifest.

Information to be submitted in Operations Plan:

- Description of containers and liners.
- Procedures lab packing, loose packing and liquid bulk packing. Indicate how each acceptable waste will be packaged.
- Methods for moving full containers.
- Procedures for inventory tracking.

D. WASTE MANAGEMENT AND SHIPPING

Requirements:

- Package, label, and manifest all wastes according to DOT requirements.
- Obtain a State/EPA identification number to be used in filling out the shipping manifest. To obtain an application for an identification number, contact the Department of Environmental Quality (DEQ) at (503) 229-6511.
- Send all household hazardous wastes that cannot be reused or recycled to a permitted hazardous waste treatment, storage, or disposal facility (including contaminated latex paint). Any other waste disposal practices must be identified in the operating permit or reviewed and approved by DEQ before they are implemented.
- Transport wastes from the facility according to DOT standards.
- Manage solid wastes which are not household hazardous wastes or CEG wastes according to applicable local, State and Federal solid waste laws.
- Maintain shipping manifests in the operating records, with individual waste inventory sheets for each drum, for at least 3 years.

Information to be submitted in Operations Plan:

- Procedures for manifesting and shipping wastes.
- State/EPA identification number.
- Anticipated recyclers and treatment, storage, and disposal facilities to be used.
- A plan to manage all waste streams collected.

E. INSPECTIONS

Requirements:

- Inspect the facility at least once a week for inadequacies and deterioration, and for practices which may be causing (or may lead to) release of waste constituents to the environment or a threat to human health.
- Develop a written inspection schedule for monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment (such as dikes and sump pumps) that are important to prevent, detect, or respond to, environmental or human health hazards. Include the condition of storage containers and the condition of the containment system in each inspection.
- Repair any deterioration or malfunction of equipment or structures which inspection reveals.
- Record inspections in an inspection log. Include in the log the date and time of the inspection, the name of the inspector, and a notation of the observations made, and the date and nature of any repairs or other remedial actions taken.
- Record any facility or equipment maintenance or follow-up actions taken pursuant to inspections.
- Perform an inspection of the entire secondary containment system, at least once per year.

Information to be submitted in Operations Plan:

- Inspection log forms.
- Written inspection schedule that includes locations where inspector will check for leaks or deterioration.
- Criteria for identifying deterioration.
- Follow-up action initiated in the event an inspection reveals leakage, deterioration, or other damage to containers, equipment, or facility.

F. WORKER SAFETY

Requirements:

- Establish safety procedures for entering and leaving the waste handling areas.
- Establish the level of safety protection needed to perform different activities at the facility.
- Provide safety equipment and accessible storage areas for safety equipment.

- Comply with OSHA (Oregon and Federal) requirements for training, medical monitoring, equipment use, etc (see section V).

Information to be submitted in Operations Plan:

- Description of personal protective clothing and equipment that will be used for each activity.
- Description of how owner/operator will comply with OSHA requirements.
- Description of safety procedures for entering and leaving waste handling areas.
- Decontamination procedures for leaving waste handling areas.
- List of personal protective and safety equipment and clothing that will be used.

G. PERSONNEL TRAINING

Requirements:

- Prior to beginning work, all personnel must receive training to reduce the potential for accidents and protect worker health.
- Train workers about all emergency procedures.
- Prior to beginning work, train workers to understand the mechanics of performing all facility operations why each operation must be performed as indicated in the operations plan.
- Train workers in implementing the inspections, spill response and contingency plans.
- Include in the training program the various types of hazardous wastes and household hazardous wastes and their characteristics, handling precautions, and worker safety.
- Send all employees who will handle wastes must attend a 24-hour hazardous waste personnel protection and safety training course or an equivalent 24-hour hazardous waste training program, in accordance with OSHA requirements. Send these workers to an 8-hour health and safety refresher course once a year.
- Maintain training plans and records for each employee in the operating records.
- Document in the operating records that the required training has been completed by facility personnel.

Information to be submitted in Operations Plan:

- Training plan.
- Written description of training for each position, including the requisite skill, education, or other qualifications of employees assigned to each position, and duties of each position.
- Written training plan for each job description, which includes the type and amount of both introductory and continuing training for each position, including facility-wide emergency/evacuation drills.

H. FACILITY CLOSURE

Requirements:

- Prepare a closure plan that identifies the steps necessary to close the facility at the end of its intended operating life and describe how the closure will be funded.
- A description of how and when the facility will be partially closed, if applicable, and closed.
- A description of how all waste stored will be removed from the facility.
- A description of the steps needed to decontaminate facility equipment during closure.
- An estimate of the expected year of closure.
- Notify DEQ 180 days prior to closure.

Information to be submitted in Operations Plan:

- Closure plan.

III. EMERGENCY RESPONSE PLAN

The HHW facility must have a solid waste permit with a DEQ approved emergency response plan prior to accepting any waste. The plan must contain the information described below.

A. SPILL PREVENTION AND EMERGENCY RESPONSE

Requirements:

- Adopt a written spill prevention and control plan to minimize the risk of environmental contamination from accidental releases.
- Maintain copies of the preparedness and emergency response plan at the facility.
- Familiarize police, fire departments, and emergency response teams with the layout of the facility, properties of the waste handled at the facility and evacuation routes.
- Plan to be submitted and agreement maintained with all local police and fire departments, hospitals, state and local emergency response teams, which may be called upon to provide emergency services and the appropriate DEQ regional office.

Information to be submitted in the Emergency Response Plan:

- Procedures to minimize the occurrence of spills when handling.
- Description of secondary containment in storage and shipping areas.
- Description of engineered barriers that separate the facility from the surrounding environment.
- List of emergency equipment at the facility, the equipment locations, and a brief description of equipment capabilities.
- The names and telephone numbers of all persons qualified to act as emergency coordinators, and of individuals to be contacted 24 hours a day in the event of an emergency.
- List of emergency cleanup contractors available on a 24-hour standby basis to be used in the event of an emergency.
- Evacuation procedures and routes for the public and employees in the event of an emergency.
- Procedures for removing spilled or leaked waste and accumulated precipitation from the sump or collection area in as timely a manner as possible, and decontamination procedures.
- Description of appropriate emergency equipment and locations.
- System to keep records of any spills or incidents requiring implementation of spill prevention or emergency response plan, along with follow-up actions.

B. EQUIPMENT

Requirements:

Facilities must be equipped with the following equipment:

- An alarm, air horn, or other signal system that will alert personnel to a spill.
- A device, such as a telephone or hand-held two-way radio, capable of summoning emergency assistance.
- Portable fire extinguishers; fire control equipment, including special extinguishing equipment such as that using foam, inert gas, or dry chemicals that are compatible with the categories of hazardous substances stored at the facility; spill control equipment; and, decontamination equipment.
- Water at adequate volume and pressure to supply safety showers, eye wash stations, water hoses, foam producing equipment, automatic sprinklers, or water spray systems. Water systems must be freeze protected.
- Eye wash, emergency shower, first aid or other safety equipment necessary to prevent or provide initial treatment of injury to personnel who handle wastes.

Information to be submitted in Emergency Response Plan:

- A list of all safety and emergency equipment on-site, with a description of the capability of each device.
- Schedule describing equipment testing and maintenance procedures.
- System to document regular inspections, testing and maintenance of the facility's communication and/or alarm systems, fire protection equipment, spill control equipment, and decontamination equipment in the operating records.