

Understanding Costs and Value For Collection

Sego Jackson

Chair, Policy Subcommittee

NW Product Stewardship Council

Principal Planner, Snohomish County

(425) 388-6490

sego.jackson@snoco.org

We Need To Understand...

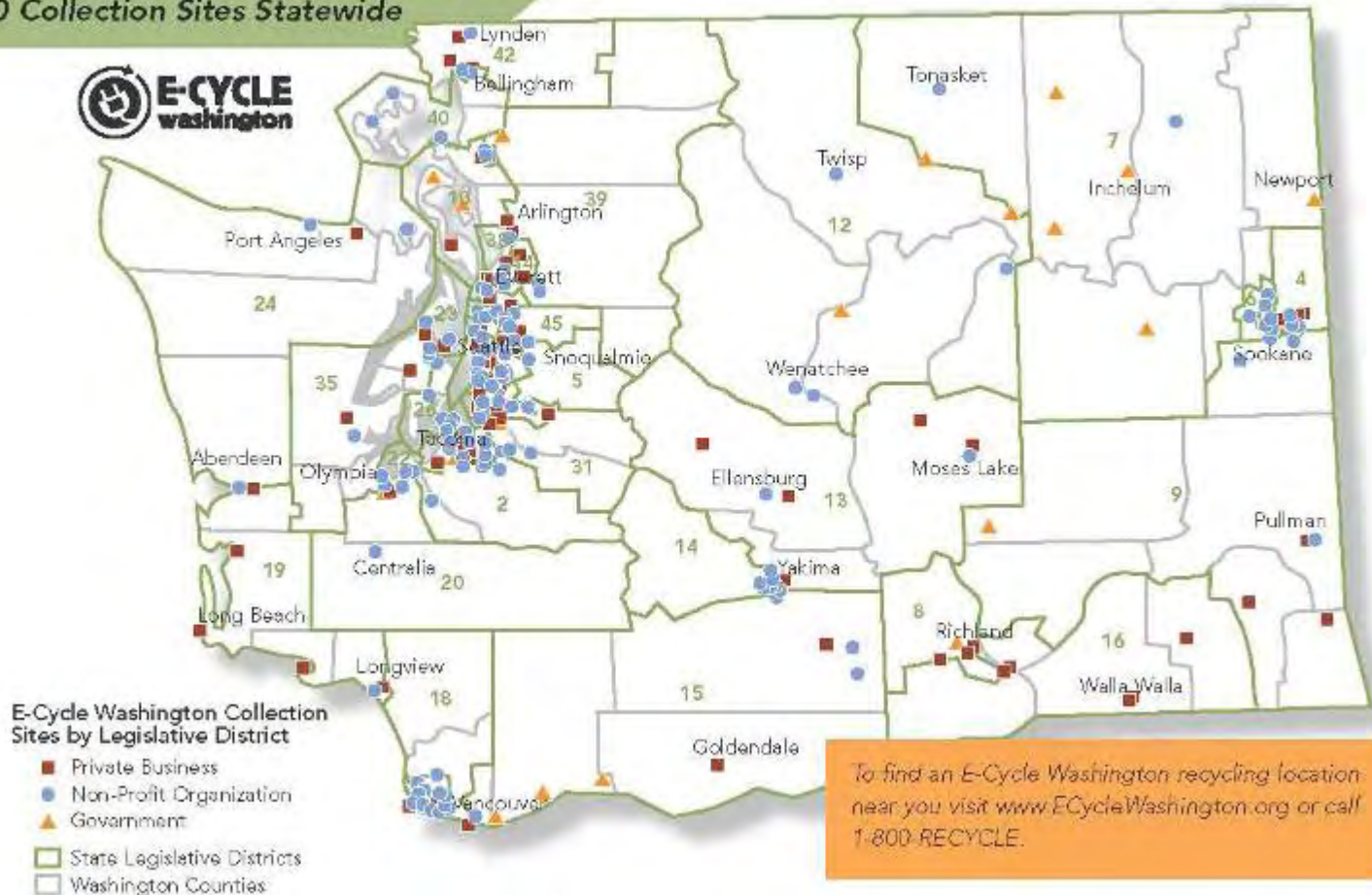
- ... the dynamics of systems and implications of covering all costs, including collection costs, or not.
 - Impact on who can and can't collect.
 - Impact on robustness or limits to collection system and convenience of that system.
- ... the costs of services we and others provide or might provide in future EPR systems.
 - What are the full costs of providing these services?
- ... the value of services we and others provide or might provide in future EPR systems.
 - Are the services needed, and at what cost?
 - What are the alternatives?
 - What level of cost coverage is justifiable?

Washington Electronics as Example

- 260+ on-going collection sites/services
 - 12 public sector
- Service in all 39 counties
- Service in all cities with population greater than 10,000
- First year of operation – over 38.5 Million lbs.
- Second year of operation – over 39.5 Million lbs.
(= about 2,200 units per day)

92% of WA residents have an E-Cycle collection site within 10 miles of home

E-Cycle Washington is Convenient:
240 Collection Sites Statewide



What Is It Costing?

Before it was costing local governments **\$.35+ per lb. to collect and responsibly recycle.**

Now it is costing manufacturers **\$.25 per lb. to collect and responsibly recycle.**

If local governments/citizens paid for the 39.5 M lbs. collected at \$.35 per lb. = \$13.82 Million

Manufacturers = 39.5 M lbs. x \$.25 per lb. = \$9.88 Million

System Savings = \$3.94 M (29% less)

Are collection costs covered?

- Yes!
- Covering collection costs is the **ONLY** way this robust collection system could have been set up.
- For 39.5 M lbs. collected - if average cost of collection is \$.08 per lb (just for instance), then someone else would have been spending \$3.16 million to finance collection costs.

Who?

What Relevance Does This Have?

- Degree of covering collection costs may vary by product.
 - Electronics – retailers not interested in collecting.
 - No collection costs = no collectors
 - Paint – at least in OR currently, retailers are interested.
 - No collection costs = some (enough?) collectors
 - Paint not very hazardous, should it cover higher costs related to MRW facilities?
 - Mercury lighting – who will collect and at what cost?
 - Mercury is hazardous. Use of MRW facilities with more of facility costs included likely to be just.
 - Pesticides – Full MRW cost coverage?

Building a Cost Model

1. Identify the sources of costs.

- Labor time of employees
- Supplies used for the program
 - Containers: Gaylords/Cardboard boxes
 - Pallets
 - Plastic wrap
- Indirect cost of operating a facility
 - Rent (or amortized capital costs) and utilities
 - Facility maintenance
 - Support staff



Building a Cost Model (cont'd)

2. Calculate each cost.

- **Labor:**
 - Time & motion study—more later...
- **Supplies:**
 - How much do the program supplies cost?
 - Divide by # of units each supply accommodates to calculate a per-unit cost.
- **Indirect cost:**
 - How much does it cost to run the facility annually?
 - What portion of the cost is attributable to the program? (Pro-rata based on square footage or annual tonnages)
 - Divide by annual units collected to calculate a per-unit cost.



Building a Cost Model (cont'd)

3. Add it up.

The model will help you identify and calculate costs, and can be tailored to each facility's unique set up and needs.

Moderate Risk Waste Collection Cost Model

Paint Collection Cost

Labor Cost of Collection

Labor Cost per Hour	Seconds per Hour	Time per Unit (Seconds)	Labor Cost per Unit
\$35.16	3,600	30.25	\$0.2954
\$0.00	3,600	0.00	\$0.0000
		30.25	\$0.2954
		Total	Total

Technician Labor Cost: Enter the fully-loaded hourly labor cost (including benefits) for an MRW technician.

Supervisor

Sources of Labor Time Incl? or Time (Seconds) by Activity Labor Cost per Unit

Activity	Incl?	Time (Seconds)	Labor Cost per Unit
Unloading Time			
Technician	Y	18.12	\$0.1770
Supervisor	N	0.00	\$0.0000
Shared Movement Time			
Technician	Y	2.26	\$0.0221
Supervisor	N	0.00	\$0.0000
Direct Handling Time			
Technician	Y	4.01	\$0.0392
Supervisor	N	0.00	\$0.0000
Bulking and Packing			
Technician	Y	5.86	\$0.0572
Supervisor	N	0.00	\$0.0000
Paperwork Time			
Technician	N	0.00	\$0.0000
Supervisor	N	0.00	\$0.0000

Legend for Pie Chart:

- Unloading Time: 60%
- Shared Movement Time: 19%
- Direct Handling Time: 13%
- Bulking and Packing: 8%
- Paperwork Time: 0%

Supply Cost of Collection

List of Supplies	Incl?	Costs	Units	Supply Cost per Unit
Container	Y	\$20.52	127.58	\$0.1592
Supply #1		Cost per Container	Units per Container	Container per Unit

Navigation: Paint | Fluorescent Lamps | Other Materials

Time & Motion Study

- Used to determine the time spent performing various collection activities.
- Activities observed, timed, and aggregated to determine average time spent collecting each material.
- The methodology used in the cost model and time & motion study can be employed when studying collection for any material type.



Time & Motion Study (cont'd)

- Material collection segregated into five categories:
 - Unloading (car to cart)
 - Shared movement (between stations)
 - Direct handling (from cart to container)
 - Bulking & Packing
 - Paperwork—Not reviewed during our study

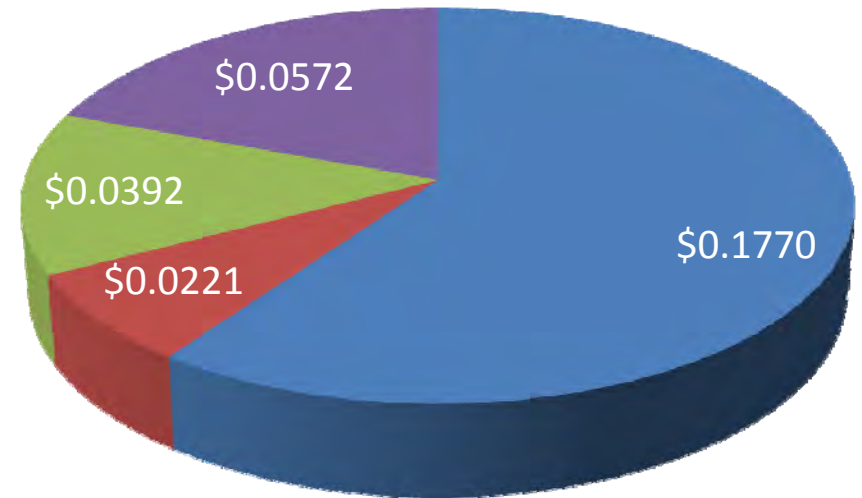


Results: Paint Collection

Costs per Unit Collected

- **Labor:** \$0.30
- Supplies: \$0.16
- Indirect: TBD*

Labor Cost by Activity



** The indirect cost of operating the facility will likely be the greatest of these costs.*

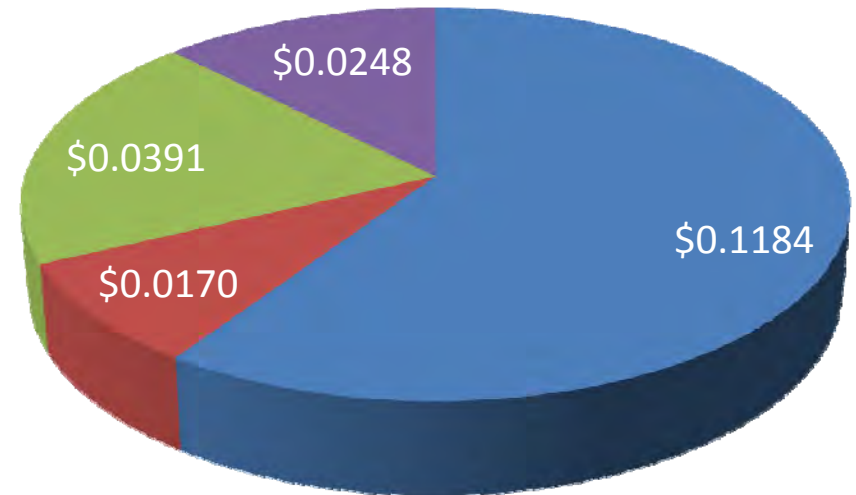
- Unloading Time
- Shared Movement Time
- Direct Handling Time
- Bulking and Packing

Results: Mercury Lamp Collection

Costs per Unit Collected

- **Labor:** \$0.20
- **Supplies:** \$0.37
- **Indirect:** TBD*

Labor Cost by Activity



** The indirect cost of operating the facility will likely be the greatest of these costs.*

- Unloading Time
- Shared Movement Time
- Direct Handling Time
- Bulking and Packing

Other Information



- Paint data collected to date is based on:
 - 65 total observations, 1 day each at 2 facilities: Snohomish County, Kitsap County.
- Data can be highly variable:
 - If you make a limited number of observations.
 - Depending on facility layout and handling processes.
- Perform your own study to calculate costs specific to your facility.

For more information, please contact:

Sego Jackson

Snohomish County, WA

NW Product Stewardship Council

Chair, Policy Subcommittee

(425) 388-6490

sego.jackson@snoco.org

Francis Icasiano

Cascadia Consulting Group

(206) 449-1119

francis@cascadiaconsulting.com

