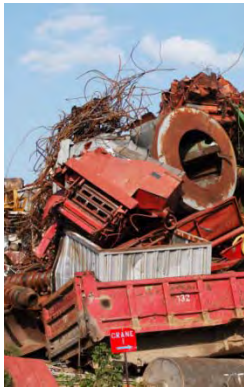





Understanding Costs and Value For Collection

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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?

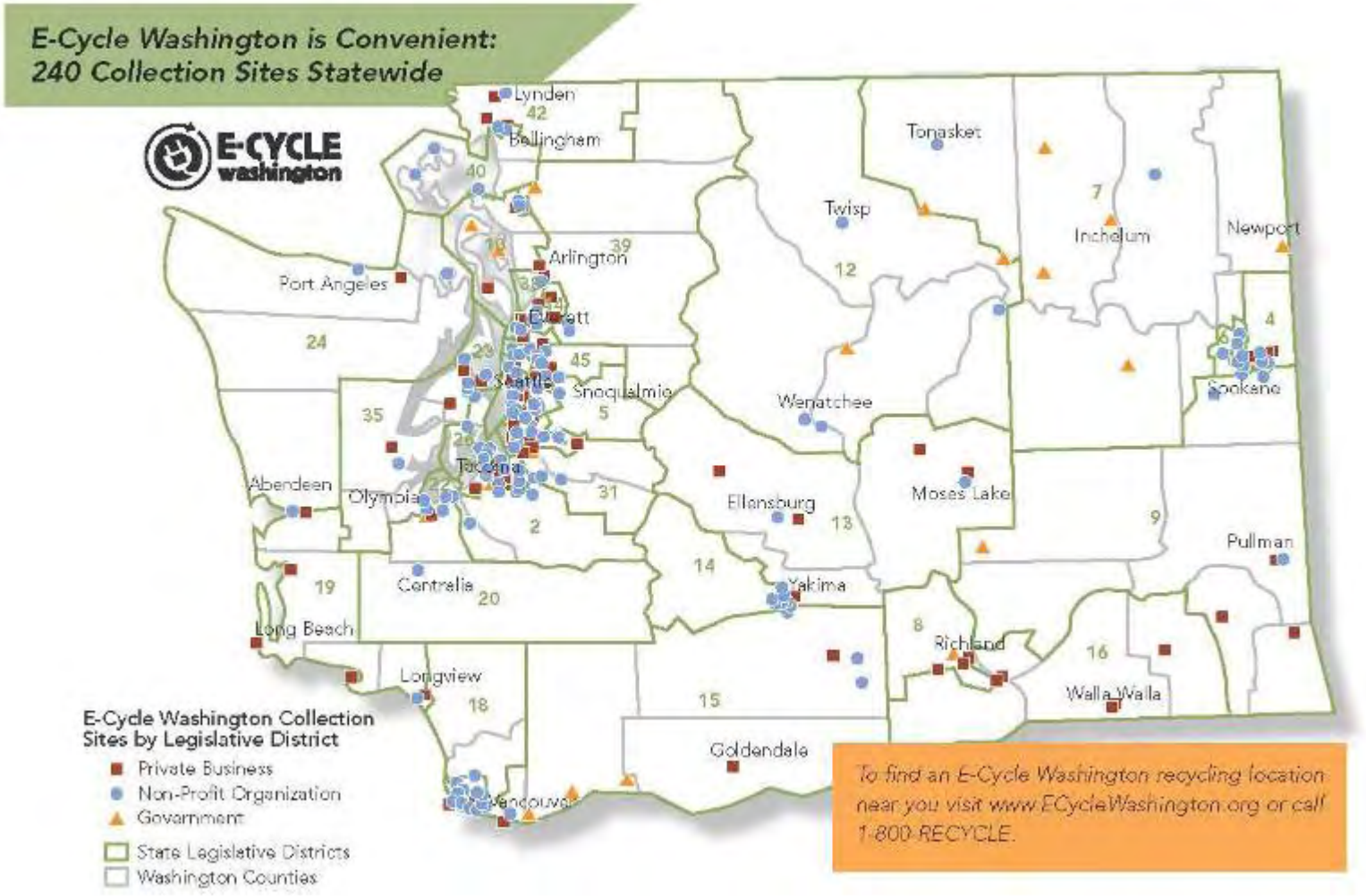
Washington Electronics as Example

- 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



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

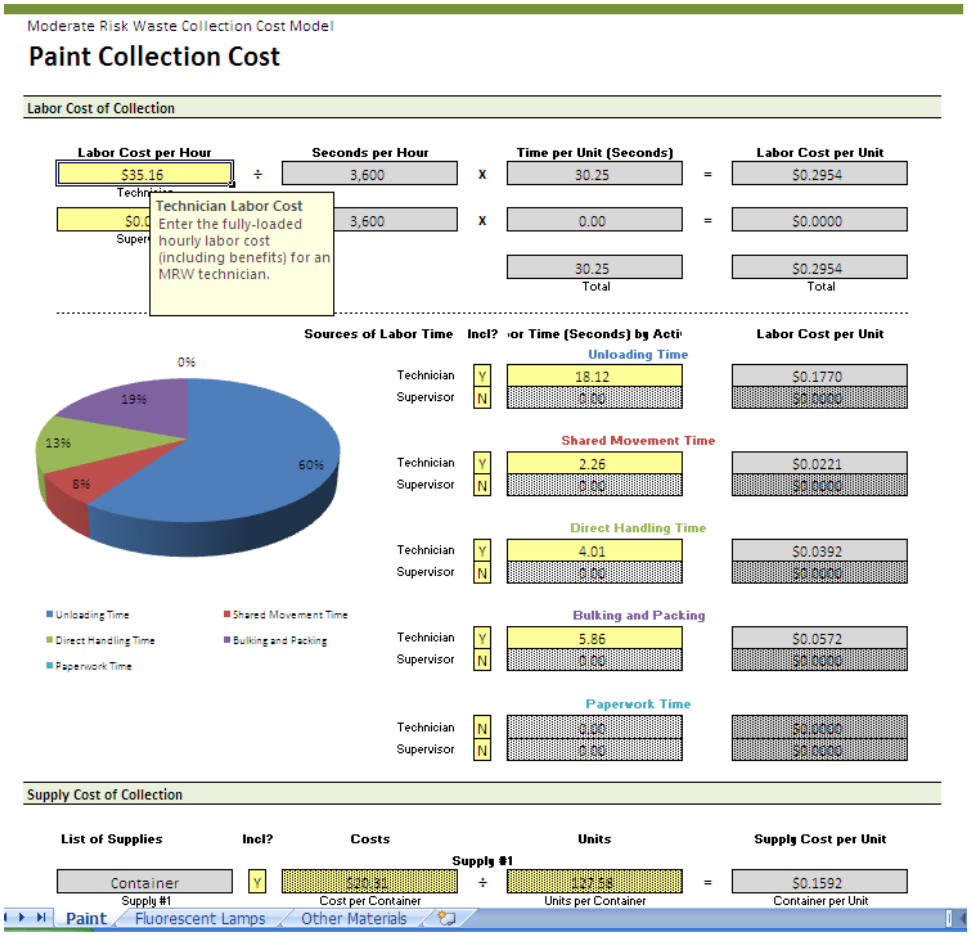
Building a Cost Model (cont'd)

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.

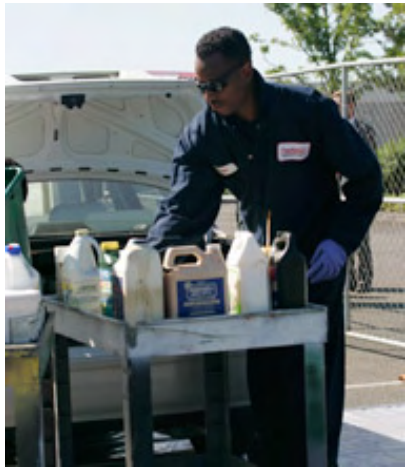


Time & Motion Study

- 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





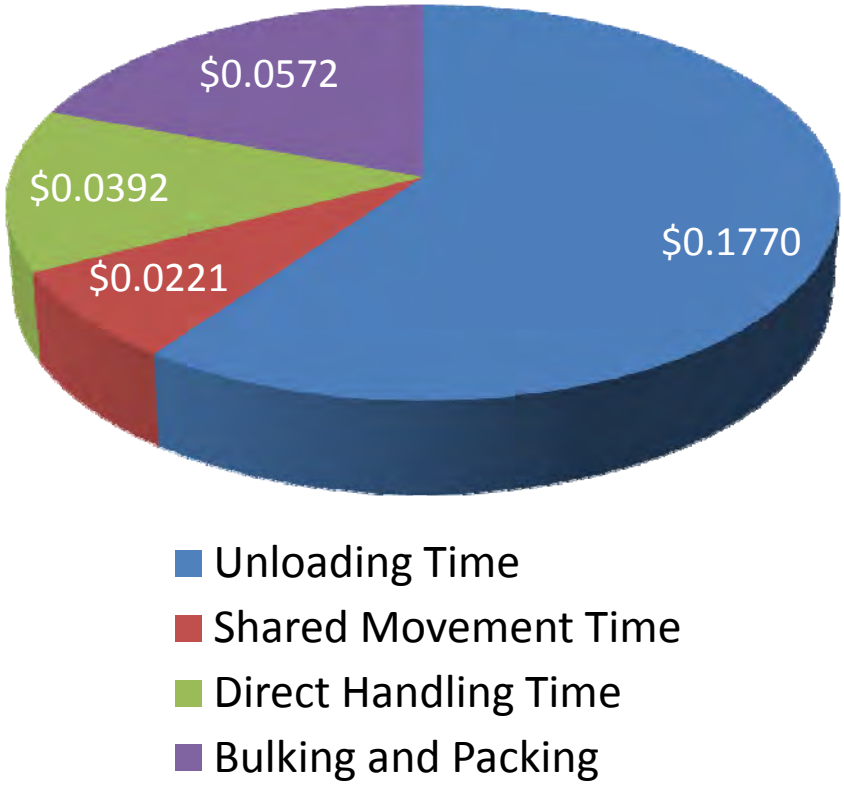
Results: Paint Collection

Costs per Unit Collected

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

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

Labor Cost by Activity



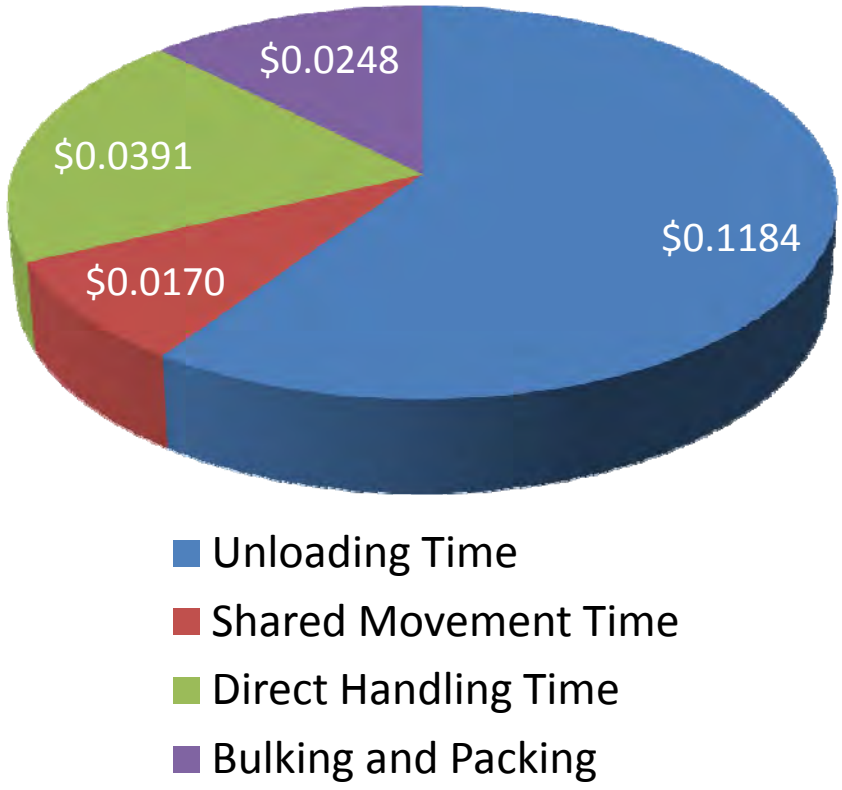
Results: Mercury Lamp Collection

Costs per Unit Collected

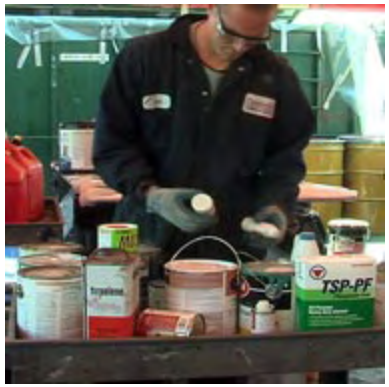
- **Labor: $0.20**
- Supplies: $0.37
- Indirect: TBD*

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

Labor Cost by Activity



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:

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