

Hamilton County  
R3Source

## CHaRM Study

December, 2021

Economic Environmental Solutions International

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## 1 BACKGROUND

The Hamilton County R3Source (R3Source) provides information and resources for reducing, reusing and recycling non-traditional materials such as electronics, latex paint, and batteries. R3Source also conducts one-day household hazardous waste (HHW) collection events each year.

To further progress the recovery of non-traditional materials, R3Source contracted with the team of Economic Environmental Solutions International and SCS Engineers (EESI Team) to assess the economic and operational viability of R3Source developing a center for hard to recycle materials (CHaRM). A CHaRM facility could provide numerous benefits to Hamilton County residents, business, and communities such as:

- Accepting a wider range of items than typical recycling
- Providing educational sessions about the importance of proper disposal of hard to recycle materials
- Keeping hazardous materials out of the air, water, and soil
- Decreasing HHW recovery

However, the establishment of a CHaRM facility may include capital expenditures (CAPEX) and operating and maintenance fees (O&M). Additionally, R3Source could assume some level of financial risk due to volatile markets for selling and processing recyclables.

## 2 APPROACH

When preparing our proposal, the EESI Team identified the following CHaRM facilities:

- Arvada and Denver, Colorado
- Athens-Clarke County, Georgia
- Atlanta, Georgia
- Auglaize County, Ohio
- Boulder County, Colorado
- El Cerrito, California
- Eureka, California
- Logan County, Ohio
- Saugus, Massachusetts

R3Source confirmed that the EESI Team should research these sites. During our research, the EESI Team added Cuyahoga County, Ohio to our list as we could not directly interview representatives from the Atlanta, Georgia CHaRM.

## FACILITY PROFILES

The first step in our research was to use the internet to create operating profiles of each targeted CHaRM facility. For each CHaRM Facility, the EESI Team inventoried:

- Location
- Operating hours
- Owner/Operator
- Materials accepted and pricing
- Partners

As shown in these profiles, the materials accepted and fees charge vary substantially amongst the CHaRM facilities.

## Arvada and Denver, CO

6240 W 54th Ave  
Arvada, CO 80002  
303.425.9226  
info@sustainability-  
recycling.com

1270 S. Bannock St.  
Denver, CO 80223  
303-424-1719  
info@sustainability-recycling.com  
Monday - Thursday: 9:00am - 4:00pm  
Friday - Saturday: 9:00am - 3:00pm  
Sunday: CLOSED

Operated by private company: Sustainability  
Recycling

### Materials and Pricing

There is a \$2 facility fee for every vehicle entering the CHaRM facility. This fee covers up to two trash bags worth of common recycling per visit and hard-to-recycle items. This fee also includes the following types of batteries:

- Rechargeable laptop batteries
- Sealed lead acid batteries
- APC/UPS battery backup units

This fee does not cover organics, electronics and paints<sup>1</sup>.

- Organics - Up to 5-gallons of compostable material: \$2

### Electronics (No Fee) –

- Computer towers
- Laptops
- Cell phones
- APC/UPS
- I-pods
- Ink & toner cartridges
- Loose cables/wires

<sup>1</sup> Website does not provide any pricing or delivery specifications for paint.

**Electronics (\$0.18 per pound) –**

- Keyboards
- Mice
- Radios/stereos
- Appliances
- Sewing machines
- VCR/DVD players
- Gaming systems
- Printers
- Scanners
- Fax machines
- Walkman/Discman
- Plastic speaker
- Flashlights
- PDA's
- Irons
- Toasters
- Clocks
- Electronic toys
- Microwaves
- Lamps
- Cameras
- Telephones
- Power tools

**Electronics (\$0.55 per pound) –**

- Flat screen computer monitors
- CRT computer monitors
- Televisions (flat screen & CRT)
- Projection TV's with plastic casing
- Loose bulbs + metal casing extracted from rear projection TV's

**Electronics (\$0.85 per pound) -**

- Projection TV's containing wood or particle board
- TV's housed in a wooden casing

**Partners**

Sony and Electronics Recyclers International (ERI).

**Athens-Clarke, GA**

1005 College Avenue

Athens, GA 30601

Tuesdays and Wednesdays (By Appointment Only)

10 AM - 7 PM. Closed for lunch from 1-2 PM

Operated by the public sector: Athens Clarke County Solid Waste Department/Recycling

Suki Janssen

Solid Waste Department Director

suki.janssen@accgov.com

Phone: 706-613-3512, ext. 7868

### Materials and Pricing

- \$2/trip facility fee for businesses and residents of Athens-Clarke County.
- \$5/trip facility fee for businesses and residents outside Athens-Clarke County.

Proof of residency can include government-issued identification, student ID or utility bill.

### No Facility Fees –

- Styrofoam (clean, no tape)
- Shredded paper
- Scrap metal
- Bags/wrap (plastic bags, stretch film, bubble wrap)
- Mixed recyclables (bottles, cans, printed paper, cardboard etc.)
- Food scraps (residential only)

### Materials Included in Facility Fees –

- |   |   |
|---|---|
| ▪ Appliances and tools                        | ▪ Helium, HVAC & camping-size propane tanks         |
| ▪ Automotive fluids (no fuels)                | ▪ Ink cartridges                                    |
| ▪ Balls (golf, tennis)                        | ▪ Media (CS, DVDs, VHS tapes, etc.)                 |
| ▪ Books (hardcover and paperback)             | ▪ Mercury-containing devices                        |
| ▪ Cell phones, tablets, gaming systems        | ▪ Mirrors   |
| ▪ Clothing and textiles                       | ▪ Motor oil filters                                 |
| ▪ Corks                                       | ▪ Musical instruments                               |
| ▪ Electronics and cords/cables                | ▪ Sharps/syringes (in a bleach or detergent bottle) |
| ▪ Expired/used gift cards                     | ▪ Shoes (wearable only)                             |
| ▪ Eyeglasses                                  | ▪ U.S. flags for patriotic retirement at VFW        |
| ▪ Fire extinguishers                          |   |
| ▪ Glass dishes, plates, beverage glass, Pyrex |   |
| ▪ Grease                                      |   |

### Additional Fees-

- Batteries: all types are \$0.36/pound; car batteries \$1 each
- Cleaners/chemicals/fertilizers: \$5/gallon
- Computer & television monitors/screens: \$5 each
- Documents for shredding: \$2/banker's box
- Glass - automotive, windows, glass doors: \$1/each
- Light bulbs/tubes: \$0.50 each
- Paint: \$2/gallon containers
- Propane tanks: 20# or larger \$5/each
- Tires : \$3/tire; \$10/oversize tire or on rim

### Partners

None identified

## Atlanta, GA

1110 Hill Street, SE  
Atlanta, Georgia 30315  
404-600-6386

Currently only available by appointment

Operated by a non-profit: Live Thrive  
Peggy Whitlow-Radcliffe, Executive Director  
pwhitlow@livethrive.org  
404-600-6386

### Materials and Pricing

#### Recyclable Items with No Fee -

- Plastics/clean, dry, empty plastic bags/ film packaging/grocery bags
- Plastic food containers #1-#2-#5, clean and dry
- Paper: magazines/office paper/newspaper/phone-books
- Glass bottles and jars (food grade only)
- Metal (steel, iron, brass, aluminum, or copper)
- Metal food cans(please wash)
- Aluminum cans
- Cardboard
- Ink Printer cartridges (no toner)
- Textiles
- Styrofoam (no black)
- Batteries (zinc carbon, button, lithium, rechargeable, car)
- Household fats/oil/grease
- Wine corks
- Toilets (seats and all hardware must be removed)

#### Items for ReUse (No Fee) -

- Books
- Musical instruments
- Sports equipment
- Bikes
- Textiles
- Usable household items
- Clothing

#### Items with Material Processing Fees -

- Household chemicals and Paint, both latex and oil based. First twenty five pounds are free each additional pound; 26lbs.-75lbs \$.25; 76lbs-200lbs \$.50; 201lbs + \$.75.



- Electronics no charge except for TV's and monitors, which are \$20 each. TV's must be intact. Electronics include all items that required electricity.
- Tires: first two no charge, each additional \$2 unless a council member event.
- Mattresses/Box Springs: \$15 each
- Propane Tanks: \$10
- Large Appliances, such as stoves, dishwashers, grills and ovens: \$10 each. No refrigerators, dehumidifiers, AC units or wine coolers
- Secure paper shredding : \$0.50 per pound
- Thermometers: \$5
- Smoke detectors: \$5
- Fluorescent bulbs: First two, 4ft and 6ft bulbs are free. Each additional or longer than 6ft is \$0.50.
- Compact fluorescent lightbulbs (CFL). First two are free and each additional is \$0.50.

**Business/University/Municipality Pricing -**

▪ Styrofoam		\$0.35 per pound
▪ Plastic film		\$0.35 per pound
▪ Electronics		\$0.55 per pound
▪ Paint/chemicals		\$0.75 per pound
▪ Bulbs (CFL, Fluorescent)		\$0.60 each
▪ Mattresses/box springs		\$15.00 each
▪ Propane tanks		\$10.00 each
▪ Smoke detectors		\$5.00 each
▪ Thermostats		\$5.00
▪ Fire extinguishers	Large	\$10.00
	Small	\$5.00
▪ Labor for sorting		\$18.50 per hour

**Items Not Accepted -**

- Packing peanuts
- Waxed cartons
- Coat hangers (plastic or wire, take to your dry cleaners)
- Alkaline batteries
- PVC pipes
- Furniture
- Scrap wood
- Carpet
- Building materials, wood, joint compound, adhesive, roofing materials
- Rear projection or console TVs

**On-Site Partners**

▪ FCS Ministries and Bearings Bike Shop	Bikes
▪ America's Thrift Store	Textiles
▪ Furniture Bank of Metro Atlanta	Mattresses

- Gift of Music Foundation Musical instruments

**Other Partners**

- Atlanta Dogwood Festival
- Atlanta Tool Bank
- Atlanta Recycles
- Captain Planet Foundation
- Habitat Restore
- Livable Buckhead
- Keep Atlanta Beautiful Commission
- Keep Chamblee Beautiful
- Keep Georgia Beautiful Foundation
- Georgia Recycling Coalition
- Pebble Tossers
- Re-loom
- Southface
- Trees Atlanta
- US Green Building Council
- Zoo Atlanta

**Auglaize County, OH**

15502 St. Marys River Road  
 St. Marys, Ohio 45885  
 419-394-1270  
 Monday through Friday 7am to 3pm  
 HHW by appointment

Operated by the Auglaize County Solid Waste Management District  
 Scot Cisco, District Coordinator  
[scisco@auglaizecounty.org](mailto:scisco@auglaizecounty.org)

**Materials and Pricing**

**No Fee –**

- Traditional recyclables
- Cooking oil/grease
- Plastic bags
- Motor oil

**Fee-**

- Lights \$1.00 per bulb
- Batteries \$1.00 per pound (one pound minimum)
- Tires
  - Passenger/Light \$ 5.00 per tire
  - Large \$10.00 per tire
  - Tractor \$40.00 per tire

- Paint \$1.00 per container up to one gallon. \$1.00 for each gallon
- HHW \$1.00 per pound
- Appliances w/Freon \$30 per appliance
- Mercury \$15 per pound (one pound minimum)
- Televisions \$ 1.00 per inch
- Flat-screen televisions \$10.00 each
- CRT monitors \$ 5.00 each

### Partners

City of St. Marys

## Boulder, CO

6400 Arapahoe Rd, Boulder, CO

Hours are Monday - Friday: 9 a.m. - 5 p.m.; Saturday: 9 a.m. - 5 p.m.; (Closed on Sundays)

CHaRM is an outdoor facility.

Operated by non-profit: Eco-Cycle

Susan Jones, Executive Director

303-444-6634

### Materials and Pricing

There is a \$3 facility fee for every vehicle entering the CHaRM facility. People are encouraged to attend a U-Fixit Clinic before bringing items to the CHaRM facility.

#### Electronics -

- Computer towers (CPUs), laptops: no charge
- CRT (not flat screen) TVs, rear-projection TVs, Monitors: \$0.69/lb.  
NOTE: Broken CRT glass is classified by the EPA as hazardous waste, and requires extra handling and documentation. Price for broken CRT glass: \$1.00/lb.
- All other electronics, including flat screen TVs, audio equipment, mobile phones, fax machines or any other item with a battery or cord: \$0.59/lb.
- Optional hard-drive shredding service: \$12/hard drive

#### Printer Cartridges -

Ink Jet and Laser Jet: no charge

#### Plate Glass Windows and Doors -

Resource Central, which is co-located at 6400 Arapahoe Rd. with Boulder CHaRM, accepts some windows for reuse. Includes windows, patio doors, shower doors, picture frame glass, glass tabletops, glass block, tempered glass, insulated glass. Cracked and broken panes accepted.

- Plate glass without a frame or jamb: \$3 facility use fee only
- Window without jamb: \$3.00/unit
- Window with jamb: \$10/unit
- Patio door without jamb: \$12.00/unit
- Patio door with jamb: \$24/unit
- No glassware (drinking glass, dishes, etc.), mirrors, Pyrex (food containers, microwave dishes, measuring cups), canning jars, or bottles and jars.

#### Plastics -

- Plastic Bags & Bubble Wrap - Includes plastic shopping and newspaper bags, Ziploc bags, dry cleaner bags and bubble wrap: No charge. No plastic food wrap or packing peanuts
- Foam Packing Sheets - Accepted with plastic bags in plastic bag bin. Must be clean and dry. No packing peanuts, other foam. No shipping labels on foam, packing peanuts, "Styrofoam" (polystyrene) cups, "to-go" boxes, meat trays or any other food-grade Styrofoam, moisture or tape. No charge. Businesses are charged \$6 per cubic yard

#### Small Plastic Appliances -

- Electric and battery-powered appliances: \$0.59/lb. No vacuum bags, glass (coffee pots, blender carafes, etc.), or food/liquid residue

#### Large Durable #2 Plastics -

- Large plastics such as Big Wheels® and plastic play structures, plastic lawn furniture, plastic watering cans, laundry baskets, clean plastic buckets (no residue), crates, rigid backyard kiddie pools and plastic trash containers. Must be the size of a five-gallon bucket or larger but must also be less than 3 feet by 3 feet (can be cut to meet these dimensions). Does not accept flower pots without a #2, inflatable pools or other inflatable plastics, water beds, chew toys, CD jewel cases, small toys such as action figures or insulated plastic coolers. No charge for large, durable #2 plastics.

#### Mattresses and Box Springs -

- Mattresses (standard spring or futon mattress, any size) and box springs (any size): \$22.75  
100% foam mattress toppers, (any size): \$8.75. Mechanical bed: \$41.75
- They do not accept bed bug-infested mattresses, molded mattresses or box springs

#### Bicycles & Bike Parts -

- Any condition accepted. Includes integral parts such as seats, pedals, handlebars, wheels, etc. and metal accessories such as baskets and pannier racks. No other accessories or sporting goods
- Bicycle Tires & Tubes - \$.50 per bike tire or tube
- They do not accept automotive or other tires

**Scrap Metal -**

- Scrap Metal - Items at least 50% metal, including appliances. Items without Freon: no charge. Items with Freon: \$15
- Empty tanks and cylinders - Accepts helium tanks: no charge. Does not accept propane canisters or tanks with liquid or gas

**Single-Stream Recycling -**

- Single-stream recycling: no charge

**Organics -**

- Accepts food scraps, soiled paper and Zero Waste event supplies. Less than 5 gallons organics: free with a \$1 facility use fee. Less than 5 gallons of organics with other CHaRM materials. Organics are free with \$3 facility use fee. 5 gallons to 32 gallons (1/2 Toter) organics: \$6 + \$3 facility use fee. \$12 per 64 gallon Toter of organics: \$12 + \$3 facility. Cubic yard of organics: \$36 per cubic yard + \$3 facility use fee

**Miscellaneous -**

- Books & Manuals: No Fee. Includes computer and office manuals, hard-bound books and paperbacks
- Cooking Oil: No fee for residential quantities only (maximum 10 gallons). Includes canola, corn, vegetable, olive, and sesame oils: No fee. No motor oil or any oil used for purposes other than cooking.
- Fire Extinguishers: No fee for City of Boulder residents with ID. Residents outside City of Boulder: \$8
- Paper Shredding Service: \$10 per file box
- Toilets, Sinks, Urinals and other Ceramics - Toilet, porcelain only (all other non-porcelain materials removed): \$6.75/unit. Toilet, whole (other materials still attached): \$12.75/unit. Sink or urinal, porcelain only: \$3.50/unit. Sink or urinal, plumbing attached: \$6.50/unit. Porcelain with biohazards are not accepted.
- Other ceramics such as ceramic tile and pottery: \$0.07/lb. No glass, rebar, tile backing material, or other non-ceramics.
- Concrete: less than small pickup truck bed size: \$0.07/lb. Must be free of aggregate, metal, rocks and dirt
- Yoga Mats - Plastic foam, rubber foam and jute mats: \$1/each. No badly soiled or smelly mats. • No Tatami or other grass mats.
- Textiles - Clothing, towels, sheets, fabrics, paired reusable shoes. No underwear, bathing suits, or socks. No mud. Items may be stained or ripped, but they must be clean. Must be 12" square or larger. No facility fee if only dropping off shoes and textiles.

**Partners**

The Boulder CHaRM is financially subsidized by three entities, City of Boulder (trash tax dollars), Eco-Cycle and visitors. Eco-Cycle does offer a Frequent Recycler Card, which can be purchased virtually to provide

five trips for \$10, saving \$1 per visit. The card doesn't expire. Eco-Cycle also allows carpooling. Finally, Eco-Cycle does not charge bicyclists and all-electric vehicles a facility fee. (Fees to recycle specific materials, such as electronics, bike tires and porcelain, will still apply.)

## Cuyahoga County, OH

4750 E. 131<sup>st</sup> Street

Garfield Heights, OH 44205

Not open to the public. City service directors can bring HHW twice a month.

Operated by the Cuyahoga County Solid Waste Management District

Elizabeth Biggens-Ramer

[Ebiggens-ramers@cuyahogacounty.us](mailto:Ebiggens-ramers@cuyahogacounty.us)

216-443-3749

### Materials and Pricing

The Cuyahoga County Solid Waste District Program (Cuyahoga District) only accepts HHW from the 59 municipal service directors who deliver the material to the Cuyahoga

## El Cerrito, CA

7501 Schmidt Lane

El Cerrito, CA 94530

Tuesdays - Fridays: 8:30 AM to 4 PM

Saturdays: 9:00 AM to 4:45 PM

Operated by public sector: City El Cerrito Public Works

Yvetteh Ortiz

Public Works Director / City Engineer

[greenassistant@ci.el-cerrito.ca.us](mailto:greenassistant@ci.el-cerrito.ca.us)

510-215-4382

### Materials and Pricing

The El Cerrito facility charges either a general user fee or fees by material. The El Cerrito facility accepts materials for recycling and they also operate an exchange zone. The Recycling Center's Exchange Zone area promotes the exchange of re-useable items. Community members can take items as well as donate useable items for others to take home

### Recyclables -

- Automobile Batteries: lead-acid cell
- Batteries: Alkaline, NiCad, lithium, and auto batteries
- Bicycles: Bicycle and bicycle parts - bin for donations / exchange. No Salvage Permit necessary
- Books: Place in blue Discover Books containers.
- Corrugated cardboard

- Electronics:
- Exercise equipment
- Eyeglasses
- Fluorescent tubes and CFLs
- Food Donation Non-perishable, unopened donations for the Contra Costa Food Bank, within a year of listed date accepted. No glass containers.
- Glass bottles
- Home health equipment
- Mixed paper
- Scrap metals
- Sharps and syringes
- Pharmaceuticals
- Plastic bottles and beverage containers
- Textiles
- Used cooking oil: No solid grease
- Used motor oil and metal filters: 5-gallon container maximum. Metal oil filters only -- no paper filters
- White office paper

#### Exchange Zone -

- Art supplies
- Corks
- Garden pots - re-useable plastic and ceramic pots, planters.
- Hangers
- Houseware: plates, cups, utensils, small appliances.
- Media: Books, magazines and CDs
- Office Supplies: notebooks, paper, clips, pens, binders in good condition, etc.
- Reading glasses: Please bring glasses into the office.
- Sporting goods: no large equipment
- Small household items: lamps, small bookcases, trays. (no large furniture)
- Tools and hardware
- Toys and games

#### Not Accepted -

- Air conditioners
- Appliances - water heaters, stoves, dishwashers, etc.
- Appliances - plastic rich, non-electronics like coffee makers, vacuums etc.
- Audio cassette tapes
- Automotive tires
- Automotive fluids- coolant, gasoline
- Ballasts from electrical lighting fixtures
- Building materials
- Bricks, pavers, broken concrete, ceramics
- Calculators

- Carpeting, carpet padding, rugs
- Explosives
- Fiberglass
- Foam rubber
- Food-soiled paper, plastic, cardboard
- Furniture
- Garbage, construction debris - Take to Berkeley Transfer Station or Golden Bear Transfer Station
- Green waste: wood, grass, yard waste, dirt, food scraps
- Mattresses, box springs, futons
- Microwaves
- Mirrors
- Packaging peanuts
- Paint of any type
- Plate, sheet or tempered Glass
- Plastic Film and Hard Plastic - any kind of flexible plastic (like bags, bubble wrap etc.) or rigid plastic (PVC, stapler etc.)
- Plexiglas
- Pressurized tanks: propane, acetylene, helium, nitrous oxide, or aerosols
- Pyrex glass
- Smoke detectors
- Toilets
- Waxed paper or cardboard
- Wood: lumber, plywood, particle board, broken furniture
- Zip disks

### Partners

Contra Costa County HHW and Contra Costa County Food Bank

### Eureka, CA

1059 W. Hawthorne Street

Eureka, CA 95501

Monday through Saturday 8am to 4pm; Sunday 10am to 4pm

Operated by Humboldt Solid Waste Management Authority

Jill Duffy, Executive Director

707-268-8680

jduffy@hwma.net

### Materials and Pricing

#### No Charge -

- Traditional residential recyclables
- Clean scrap metal



**Appliances -**

- Appliances without Freon: No fee
- Freon Appliances, such as refrigerators, freezers, and air conditioners, with less than five pounds of Freon: \$20.00/each
- Appliances with five or more pounds of Freon; ammonia, sulfur dioxide or butane-based appliances: \$65.00/each

**Electronic Waste -**

- Televisions/computer monitors/laptops/tablets: \$2.00/each
- Other Electronic waste (microwaves, computer towers, VCR/DVD players): \$0.05/lb. for commercial e-waste; no charge for residential drop off

**Partners**

None identified

**Logan County, OH**

1100 S. Detroit Street  
 Bellefontaine, OH 43311  
 937-599-1253

April through September  
 First Saturday and Third Wednesday  
 Wednesday 4 to 7pm  
 Saturday 9am to noon

Operated by the Logan County Solid Waste Management District  
[angel@logancountyrecycles.com](mailto:angel@logancountyrecycles.com)

**Materials and Pricing****HHW-**

- Cleaning Products / Chemicals: \$0.25/lb. Includes bottled cleaning products, oven cleaners, degreasers, drain cleaners, bleach, ammonia, wood & metal polish, shoe polish, fingernail polish and polish remover, pool chemicals, auto waxes, auto cleaners, moth balls, artists supplies, photographic chemicals, acids, bases, and aerosol spray cans containing items listed above.
- Garden products: \$0.25/lb. Includes fertilizers, pesticides, herbicides, fungicides, plant food, lawn treatments, bug sprays, poisons for ants, rodents, insects, wasps, or arsenic, and aerosol spray cans containing items listed above.
- Health care products: \$0.25/lb. Includes hair treatments and fingernail polish remover accepted. Logan County CHaRM does not accept prescriptions, over-the-counter medications or pills.

**Electronics-**

- All televisions and computer monitors: \$10 each.
- Computers and equipment: No fee. Includes any kind (lap top or tower), servers, keyboard, mouse, speakers, cables, printer and printer/fax machines, scanners and copiers of any size, UPS and battery backup systems, DVD players, CD and DVD media, floppy discs, all phone equipment, pagers, all stereo equipment, cameras, camcorders, all Palm equipment, video game systems, video games, tape recorders, radios, toasters, microwave ovens, small electric hand tools, vacuum cleaners.
- Fluorescent lights: \$0.30 each. Includes fluorescent tubes up to eight feet, fluorescent U-tubes, circular tubes, and CFL (compact fluorescent light bulbs).
- The Logan CHaRM does not accept air conditions, dehumidifier or large appliances such as stoves, refrigerators or hot water heaters.

**Batteries -**

- No fee. Includes small button batteries, including all regular household flashlight batteries, boat, motorcycle and car batteries, to all rechargeable batteries.

**Scrap Tires -**

Residents may transport up to nine tires per load. Citizens may not transport more than nine tires without an Ohio transporter's license. Tires may be on or off rim.

- |                                       |              |
|---------------------------------------|--------------|
| ▪ Misc. small tires                   | \$1.50 each  |
| ▪ Passenger car                       | \$2.50 each  |
| ▪ Pick-up truck                       | \$3.50 each  |
| ▪ Semi-truck                          | \$9.00 each  |
| ▪ Farm tractor small front wheel:     | \$5.00 each  |
| ▪ Farm tractor medium rear wheel      | \$15.00 each |
| ▪ Farm tractor very large rear wheel: | \$25.00 each |

**Paints, Oils and Adhesives -**

- Oil-based paint: \$0.25/lb. Include spray paint, paints in cans, stain, varnish, shellac, turpentine, mineral spirits, linseed oil, water sealants
- Used motor oil: No fee. Includes used oil, brake fluid, antifreeze, and transmission fluid

The Logan CHaRM does not accept the following paints, oils or adhesives:

- Latex paint
- Drywall compound
- Putty and spackling compound
- Roofing compound
- Driveway sealant

**Electronics (No Fee) -**

- Fever thermometer
- Candy thermometer
- Barometer
- Farm thermometers
- Mercury switches
- Mercury-containing batteries

**Partners**

None identified

**Saugus, MA**

515 Main Street  
 Saugus, MA 01906  
 Wednesdays and Saturdays from 8am to 2 pm

Operated by Saugus Public Works  
 Lorna Cerbone  
 (781) 231-4036

**Materials accepted (no fee)-**

- Traditional recyclables
- Textiles/fabrics
- Electronics such as televisions
- Scrap metal items such as bed frames, siding, fixtures, and other items made from stainless steel, lead and cast iron

**3 SURVEYS AND SITE VISITS**

The EESI Team collaborated with R3Source to design a survey for querying the CHaRM facility about their development and operating costs, processing fees, annual material receipts and visits, markets, population served, challenges, and observations. Attachment A provides a copy of the survey. To increase the convenience of completing the survey, the EESI Team pre-populated it with any available information on the internet. The EESI Team sent the survey to the facility and requested a time to conduct an in-person site visit. Due to COVID-19, the EESI Team had to reschedule site visits and ask facilities to complete surveys multiple times. However, by October 2021, the EESI Team had connected with all facilities except the Atlanta CHaRM facility. Therefore, most of our information for this facility came from internet resources. Because we were unable to interview the Atlanta Charm or conduct a site visit, the EESI Team recommended including the Cuyahoga County Solid Waste District's satellite HHW system. In Cuyahoga the 58 municipalities host HHW drop off-events and then service directors bulk and transport the HHW to the District's permanent facility. The District's facility is open to the service directors twice a month.

## FINDINGS

The CHaRM facilities surveyed and interviewed had the following characteristics

- **Population/Material Receipts-** With the exception of Cuyahoga County, existing CHaRM facilities are located in communities with substantially smaller populations than Hamilton County's 821,529 (2021 estimate). Atlanta, GA has a population just under 500,000 but the next largest population is Boulder County, CO at 326,196. There is no clear pattern on the material throughput and size of operation.
- **Year Established** - Seven of the nine facilities began operation between 2009 and 2015. El Cerrito began operation in 1977, Auglaize in 1992 and Boulder in 2001.
- **Ownership** – With the exception of Arvada, which is operated on leased property, all CHaRM facilities are owned. Three facilities (Arvada, Atlanta, and Boulder) are privately owned; whereas the remaining are publicly owned.
- **Infrastructure** – All facilities have a combination of unsheltered concrete or asphalt paved area in addition to some sheltered office space and material storage. CHaRM facilities in Atlanta and Saugus utilize trailers and sheds for office space and material storage. Facilities in Arvada and El Cerrito have smaller sized buildings of 2,500 and 2,130 square feet, respectively. Facilities in Athens-Clarke, Auglaize, Boulder, Cuyahoga, and Eureka all have buildings between 10,000 and 13,940 square feet.
- **Materials Accepted** – As shown in the Facility Profiles, the types of materials accepted at the CHaRM facilities varies significantly. Some facilities only accept hard to recycle materials while others also receive traditional recyclables. The Boulder facility accepts the widest range of materials, while Cuyahoga only accepts HHW. Concerning organics, the Boulder facility accepts food scraps and solid paper. None of the facilities accept yard waste.
- **Quantity Accepted** – Seven facilities were able to report the quantity of material accepted in 2019 which ranged from 55 tons in Logan County; 211 tons in Cuyahoga; 335 tons in Athens-Clarke; 648 tons in Auglaize; 1,100 tons in Arvada; 2,200 tons in Boulder; and 2,334 tons in Eureka. This represents 0.3 pounds per capita (Cuyahoga), 2 pounds per capita (Logan), 5 pounds per capita (Athens-Clarke), 13 pounds per capita (Boulder), 18 pounds per capita (Arvada), 28 pounds per capita (Auglaize), and 35 pounds per capita (Eureka). It should be noted that Cuyahoga is the only facility that just accepts HHW.
- **Number of Visitors** – Five facilities were able to report the number of visitors in 2019 which ranged from 404 in Logan, 7,200 in Athens-Clarke, 13,000 in Atlanta, 29,000 in Boulder, and 31,200 in Arvada. This represents between 1% (Logan) and 9% (Boulder) of the population of the communities that house the CHaRM facility.
- **Staffing** – Most CHaRM facilities utilize a blend of full time and part time staffing. Staffing for the Cuyahoga CHaRM is the lowest among reporting facilities with only 20% of one staff person. However, it should be noted that that services directors from each of the county's political subdivisions spend time bulking and transporting the HHW delivered to their

communities. Logan County is the next lowest with 30% of a staff person and help from the sheriff's office. Athens-Clark CHaRM is the third lowest at one full-time position and two part time positions, and highest is Boulder (four full time, 36 part time). Three facilities (Arvada, Atlanta, and Auglaize) also utilize volunteers.

- **Development Costs** - Most facilities were unable to report CHaRM site development costs. Atlanta and Saugus had lower development costs (around \$200,000) that focused on concrete pads and purchase of trailers and/or sheds. Boulder's development cost of \$3.8M included a 13,940 sf building whereas El Cerrito's development costs of \$2.8M included a much smaller building (2,130 sf). Eureka reported development costs of \$7.7M but this figure included a transfer station. Arvada CHaRM, the only leased site, pays a monthly rent of \$4,000 for 2,500 sf building
- **Funding Sources** - In addition to user fees, funding for a CHaRM facility came from a variety of sources:
  - Atlanta - Grant funds and sponsors
  - Athens-Clarke – Special Purpose Local Option Sales Tax (SPLOST)
  - Auglaize – Grant funds and district fees
  - Boulder- Hauling CHaRM materials
  - Cuyahoga – District fees (No user fees)
  - El Cerrito – Enterprise fund
  - Eureka – Tipping fees and long-term debt
  - Logan – District fees
  - Saugus – State fine of a local waste-to-energy facility
- **O&M Costs** – Annual O&M costs are lowest at the Cuyahoga and Athens-Clarke CHaRM facilities at \$263,263 and \$337,000 respectively. Lower O&M costs are most likely the result of lower staffing (less than one full time staff to one full time staff and two part time staff) and lower quantities received (211 and 335 tons received in 2019). Higher annual O&M costs were reported by Atlanta (\$935K) and Boulder (\$2.3M). Higher costs are most likely related to higher staffing levels and greater quantities of materials received and managed. Both small and large facilities operate between \$1,000 and \$1,250 per ton.

## CHARM OPTIONS FOR HAMILTON COUNTY

Hamilton County may choose a variety of ways to develop and operate a CHaRM facility. As discussed, the facilities the EESI Team inventoried were all owned and operated by the same entity. Thus, for Hamilton County, EESI developed a general cost estimate for a CHaRM facility in Hamilton County for two scenarios where the facility is owned and operated by Hamilton County:

- 1) **Simple Operation** - includes a concrete pad and trailer/sheds for office space and material storage, and
- 2) **Comprehensive Operation** - includes a concrete pad and building for office space and material storage.

The Simple Operation reflects data and information provided by Athens-Clark and Atlanta, and assumes a lower throughput of material consistent with these facilities. The EESI Team did not include Cuyahoga County to estimate the amount of material a Hamilton County CHaRM facility would receive because they only accept HHW. Because Hamilton County is much larger than the surveyed communities with an existing CHaRM facility, service levels were scaled up to reflect Hamilton County’s population of 821,529.

The Comprehensive Operation reflects Hamilton County customers in similar proportions to Arvada, Boulder, and Eureka. These sites also tend to have a building around 10,000 sf or more in addition to a concrete or asphalt pad. A Comprehensive Operation reflects higher staffing also. O&M costs include employee salaries and benefits, public outreach and education, research of available markets, transportation costs to markets, and periodic maintenance of the facility.

Table 1 presents approximate costs for the two types of CHaRM facilities that may be developed in Hamilton County that reflect information provided by existing CHaRM facilities surveyed. Because Hamilton County may not own the facility, Table 1 shows annual O&M costs both with and without annual debt.

Table 1. Hamilton County Estimates

Characteristic	Simple Operation		Comprehensive Operation	
	Estimate	Basis	Estimate	Basis
<b>Service Level</b>				
Percent of Population Served	4%	Athens-Clark and Atlanta	17%	Arvada and Boulder
Annual Number of Visitors	34,000	Above applied to Hamilton Co	139,500	Above applied to Hamilton Co
Pounds per Capita	5.3	Athens-Clark	22.0	Arvada, Boulder, and Eureka
Annual Tons	2,200	Above applied to Hamilton Co	9,000	Above applied to Hamilton Co
<b>Development Costs</b>				
Capital Cost	\$400,000	Concrete pad & trailer	\$5,000,000	Concrete Pad & 12,000 sf bldg
Annual Debt Service	\$49,000	See Note 1 below	\$607,000	See Note 1 below
<b>O&amp;M Costs</b>				
Staffing				
Full Time	1	Athens-Clark & Cuyahoga	4	Atlanta, Auglaize, and Boulder
Part Time	1	Athens-Clark & Cuyahoga	24	Atlanta, Auglaize, and Boulder
Annual O&M Cost -Including Debt	\$2,467,411	See Note 2 below	\$10,093,955	See Note 2 below
- Without Debt	\$819,002	See Note 3 below	\$3,350,464	See Note 3 below

Notes

- <sup>1</sup> Annual cost based on amortizing capital expenses over 10 years at an annual interest rate of 4%
- <sup>2</sup> Assumes average cost per ton (including debt service) of \$1,122, which is an average of cost per ton for Athens-Clarke (\$1,006), Boulder (\$1,051), and Cuyahoga (\$1,308).
- <sup>3</sup> Assumes average cost per ton (without debt service) of \$372, which is based on experience of Logan County.

As expected, a simple operation consisting of a concrete/asphalt pad with a trailer or series of sheds has much smaller development costs when compared to a comprehensive operation with a 10,000 sf building. (\$49K vs \$607K when amortizing capital expenses over 10 years at 4%). Land costs are not included.

As discussed, Table 1 shows potential costs to Hamilton County both with and without debt. Table 2 further explores these O&M cost on a per ton basis from the CHaRM facilities with both financing options, and the EESI Team received data on O&M costs and annual tonnage.

Table 2. O&amp;M with Debt Considerations

Site	Annual O&M	Annual Tons Managed	Cost/Ton	Remarks
<b>Debt Included in Annual O&amp;M</b>				
Athens-Clark	\$337,000	335	\$1,006	Includes 10,000 sf building
Boulder	\$2,312,000	2,200	\$1,051	Includes 13,940 building
Average			\$1,028	
<b>Debt NOT Included in Annual O&amp;M</b>				
Cuyahoga	\$276,263	211	\$1,308	HHW only. Includes 20% of a staff person time.
Logan	\$20,500	55	\$372	Labor subsidized by health department and sherrif. Services contracted to Veolia.
Average			\$840	

Advice from Boulder about implementing a CHaRM operation was to start small and work up as the number of reliable markets for hard to recycle items is established. The best location to establish a CHaRM facility in Hamilton County is one that could start small with a simple operation but have the space and flexibility to become more comprehensive operation as the CHaRM program matures.

Many of the CHaRM facilities surveyed for this study were also co-located with other recycling operations such as drop-offs and material recovery facilities (MRFs). Co-locating a CHaRM facility with established recycling drop-off locations or MRFs would allow R3Source flexibility and offers some operational economies as employees could be cross-trained. Additionally, R3Source could start operations of the CHaRM facility by being open once or twice weekly but increase the time the facility is open as visitors and material delivered increase.

O&M costs include material acceptance, organization, and storage; transportation of material to final market, staffing, and site maintenance. O&M costs were estimated to be \$1,122 per ton or \$2.5M for a Simple Operation that collects 2,200 tons of material annually up to \$10.1M for a comprehensive operation that collects up to 9,000 tons of material annually.



## Recycling and Solid Waste Questions

1. What year did your facility begin operation?
2. Who is the owner and operator of your facility?
3. Do you own or lease the building?
4. If you own, how much did it cost to develop?
5. If you lease, what is your monthly rent?
6. What is the square footage of the building?
7. Did you face any challenges siting and developing your recycling facility?
8. How was the development of your facility funded?
9. What is the geographic service area of your facility?
10. How many visitors did you have in 2019?
11. How is your facility advertised/promoted?
12. Please provide the quantity of each material your facility received in 2019.

Material	Pounds or Units
Glass	
Cans and Foil	
Cardboard	
Mixed Paper	



Attachment A  
Survey



Economic Environmental  
Solutions International

Material	Pounds or Units
PET	
HDPE	
Cooking Oil	
Holiday Lights	
Bags	
Vinyl Siding	
Batteries	
Tires	
E-Waste	
Motor Oil	
Paint	
Chemicals, Herbicides, Cleaners Pesticides	
Light Bulbs	
Appliances with Freon	
Mercury	
Televisions	

13. How much to you charge customers for these materials?

Material	Price
Glass	
Cans and Foil	
Cardboard	
Mixed Paper	
PET	

# Attachment A Survey



Economic Environmental  
Solutions International

Material	Price
HDPE	
Cooking Oil	
Holiday Lights	
Bags	
Vinyl Siding	
Batteries	
Tires	
E-Waste	
Motor Oil	
Paint	
Chemicals, Herbicides, Cleaners Pesticides	
Light Bulbs	
Appliances with Freon	
Mercury	
Televisions	

14. What were you operating and maintenance costs in 2019?
15. Beyond revenue from user fees, how is your facility funded?
16. What operating challenges have you faced?
17. How is you facility promoted/advertised?

## Attachment B Summary of Site Descriptions Related to Cost

	Arvada	Athens-Clarke	Atlanta	Auglaize	Boulder	Cuyahoga	El Cerrito	Eureka	Logan	Saugus
<b>Site Description</b>										
Operation Began	2010	2015	2010	1992	2001	2010	1977	2009	2011	2013
Facility Owner	Melissa Kragj and Scott Parker	Solid Waste Dept	Thrive	Auglaize County	Eco-Cycle	Cuyahoga County Solid Waste Mgmt District	The City of El Cerrito	Humboldt Waste Mgmt Authority (HWMA)	Logan County	Town of Saugus, Public Works
Own or Lease	Lease	Own	Own	Own Building, Lease Land	Own	Own	Own	Own	Own	Own
Square Footage (Building)	2,500	10,864	Trailer	12,000	13,940	10,000	2,130	95,000	Unknown	Shed
Population Served	124,402	126,913 <sup>C</sup>	498,715	45,656	326,196 <sup>E</sup>	1,235,000	25,962	134,872	46,352	28,619
Number of visitors (annual)	31,200	7,200	13,000	Not Tracked	29,000	Not Tracked	Not Disclosed	Not Tracked	404	Not Tracked
Tons of Material Received in 2019	1,110	335	Not Disclosed	648	2,200	211	Not Disclosed	2,334	55	Not Tracked
Staffing										
Full Time	Not Disclosed	1	0	7	4		Not Disclosed	Not Disclosed	1	0
Part Time	Not Disclosed	2	6	1	36	20% of 1 staff person	Not Disclosed	Not Disclosed	Labor from County Jail and contract HHW Vendor	3
Use of Volunteers	Yes	No	Yes	Yes	No	Indiv. cities collect & deliver HHW	Not Disclosed	Not Disclosed	No	No

Note

<sup>A</sup> Development cost includes expansion of the Transfer Station by 6,000 sf, a main office, scale house with three scales, and \$200,000 for HHW Facility.

<sup>B</sup> Includes \$300,000 for HHW Facility

<sup>C</sup> Population is only for Athens-Clarke County - Facility serves NE Georgia

<sup>D</sup> Response indicates they bring in materials from throughout Colorado. Population is Boulder County

<sup>E</sup> Includes common recyclables, appliances, latex paint, and HHW

## Attachment C Summary of Funding

	Arvada	Athens-Clarke	Atlanta	Auglaize	Boulder	Cuyahoga	El Cerrito	Eureka	Logan	Saugus
<b>Funding</b>										
How was the facility funded?	NA	Special Purpose Local Option Sales Tax (SPLOST)	Not Disclosed	Grant Funds	Not Disclosed	District Fees	Enterprise Fund	Tipping Fees and Long Term Debt	District Funds	State split WTEFine with Town
Development Cost	Not Disclosed	Unknown	\$199,566	Not Disclosed	\$3,800,000	Not Able To Determine	\$2,800,000	\$7,700,000 <sup>A</sup>	Not Disclosed	\$200,000
Monthly Rent	\$4,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2019 Operating and Maintenance Costs?	Not Disclosed	\$337,000	\$935,000 <sup>B</sup>	Unknown	\$2,312,034	\$276,263	Not Disclosed	\$14,522,031	Not Disclosed	Unknown
Salaries										
Director			\$88,000		\$80,898					
Deputy Director					\$81,078					
Accounting Director					\$80,573					
MRF Director					\$113,911					
Employees			\$140,000		\$1,144,986	\$13,000				
How is it funded beyond revenue from fees?	Medicaid (supervise individuals with intellectual and/or develop. disabilities)	Enterprise Fund / General Fund	Fundraising/ Gifts/ Grants/ Program Income	Parcel Taxes, Recycling Revenue	Fundraising/ Gifts/ Grants/ Program Income	District Fees	Not Disclosed	Waste Mgmt Fees	District Funds	General Tax Revenue
Revenue										
Fundraising			\$7,000		\$7,626					
Gifts/Grants			\$149,600		\$616,766					
Program Income			\$248,800		\$7,236,299					

Note

<sup>A</sup> Development cost includes expansion of the Transfer Station by 6,000 sf, a main office, scale house with three scales, and \$200,000 for HHW Facility.

<sup>B</sup> Includes \$300,000 for HHW Facility