

# Colorado's Regulatory Framework for E-waste Recycling and Disposal

Electronic Device Recycling Taskforce

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# Colorado's Regulatory Framework for E-waste Recycling and Disposal

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1. Hazardous Waste Regulations  
(Universal Waste Rules)
2. Solid Waste Regulations



# When do the regulations apply?

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- When the Electronic devices and components become waste:
  1. when the electronic devices will not be (or cannot be) repaired, refurbished or reused
    - i.e., the devices and/or components will no longer be used for their intended purpose
  2. the electronic devices are discarded

“Electronic device” - computer monitors, mice, keyboards, televisions, central processing units (CPUs), laptops, printers, mainframes, cell phones and telephone switching equipment.

“Electronic component” - subassemblies, components, or other parts of electronic devices



# When do the regulations apply?

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- Computers and some electronics may not be useful to original generator, but can still be used by someone else for intended purpose
- Who makes the waste determination?
  - If generator sends electronics for disposal
    - Then generator has made waste determination and regulations apply to generator (if commercial) and all subsequent handlers
  - If generator sends electronics to a recycler
    - Then recycler decides if reused or recycled
    - If reused, then not a waste and regulations do not apply
    - If recycled, then regulations apply to recycler

# When do the regulations apply?

Yes!



Maybe Yes; Maybe No





# Which regulations apply?

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- Commercially-generated E-waste: Hazardous Waste/Universal Waste regulations
  - Exempt: Residential E-waste (unless mixed with commercial)
- Residentially-generated E-waste: Solid Waste regulations

## Commercial E-waste



Universal hazardous  
waste

Solid waste landfilling  
prohibited

Recycled

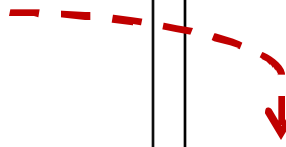
## Residential E-waste



Solid waste

Solid waste  
landfilling  
allowed

Recycled





# Commercially-generated E-waste

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- Almost all commercially-generated E-waste is hazardous waste
  - due to toxicity of metals content (primarily lead in glass and lead on circuit boards)
- E-waste is designated as a “Universal Waste” under the hazardous waste regulations
  - due to its wide-spread occurrence and straight-forward storage.
- Requirements for Universal Waste are lesser than for normal hazardous waste, but apply to generators, transporters, and recyclers (cradle to grave)
  - Less labeling, longer accumulation times, less employee training, less stringent containerization, etc.
    - Incentivize recycling and proper disposal
  - **Disposal in solid waste landfill is prohibited!!**





# Residentially-generated E-waste

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- All residentially-generated E-waste is exempt from hazardous waste regulations (unless it gets mixed with commercially-generated E-waste)
- Therefore, it is solid waste
- Generators (you and me) are not regulated
- Transporters and collectors are not regulated
  - Drop-off sites; collection sites
  - Unless “storage” becomes “disposal”
- Destination facilities are regulated (end-point only)
  - Landfills
  - Recycling facilities



# Current SW Recycling Regulations

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- We only regulate recycling facilities:
  - “A facility where recyclable materials may be separated from other materials for further processing or marketing”
  - E-waste processors and disassemblers
- Requirements for recycling facilities:
  - Notify CDPHE upon opening, no permit required
  - Submit Annual Recycling Facility Report on or before May 1<sup>st</sup> of each year
    - Document that at least 75% of material collected is recycled based on a 3 year rolling average
    - Document amount of each recyclable material collected or processed
  - Operated to minimize potential for releases of contamination
  - Adequately fenced and secured

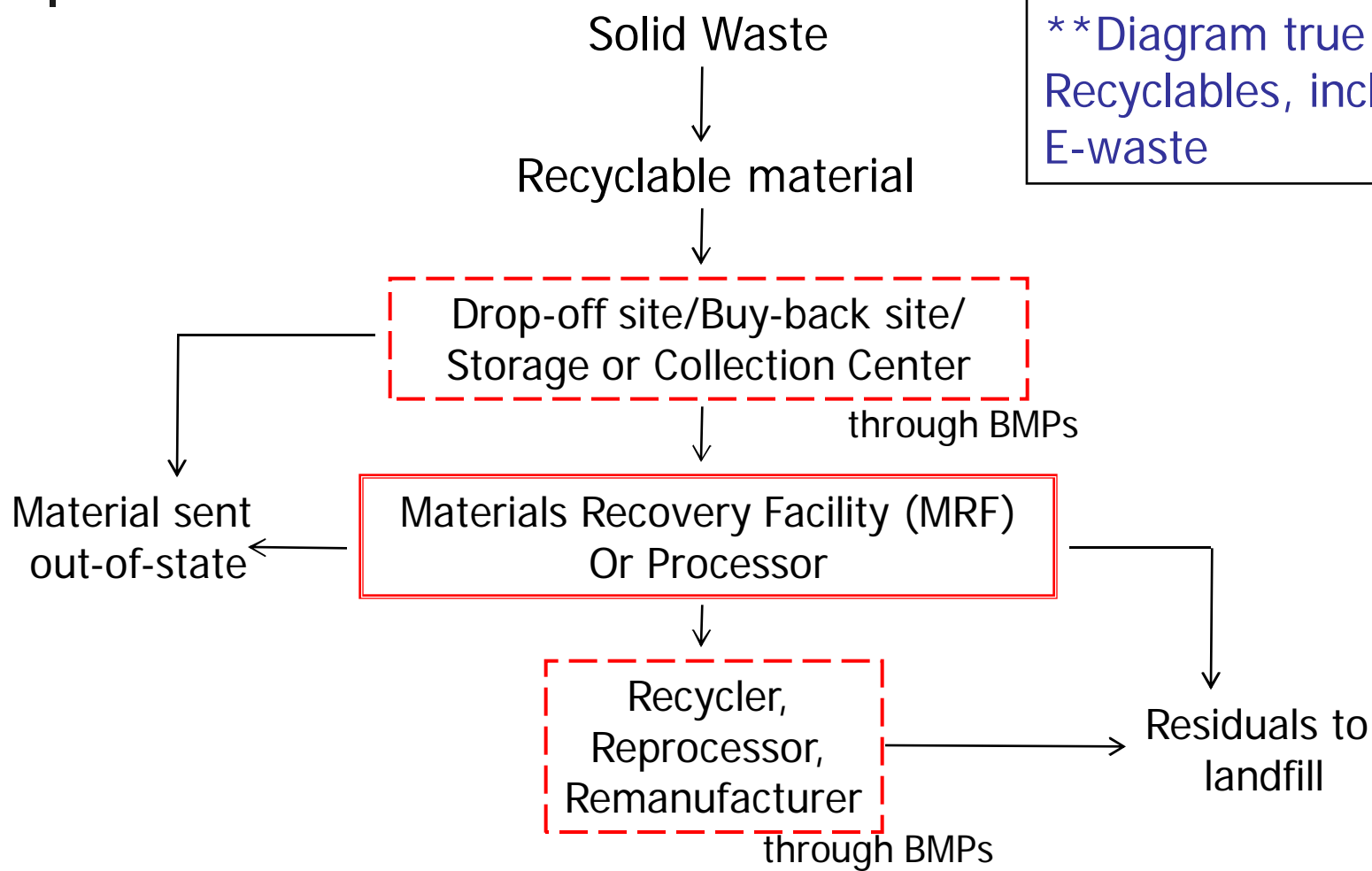


# Current SW Recycling Regulations

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- Exempt from solid waste regulations:
  - Drop-off locations
  - Buy-back locations
  - Storage locations
  - On-site recycling locations
  - Scrap metal
  - Shredded circuit boards

# Concept for New Solid Waste Recycling Regulations



\*\* Diagram true for all Recyclables, including E-waste



# Beyond the regulations

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- Generator liability
  - Legitimate recyclers vs consolidators (drop-off sites; collection sites)
- International shipments
  - Universal waste handlers and consolidators can send E-waste overseas for “recycling”



# What do we know about E-waste recycling in Colorado?

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- 2007

- 9 recycling facilities reported processing a total of 6,809 tons of E-waste for the year
- 22 recycling facilities reported handling E-waste

- 2008

- 14 recycling facilities reported processing a total of 8,029 tons of E-waste for the year
- 27 recycling facilities reported handling E-waste
- We know of 55 entities collecting E-waste
  - Many with multiple locations (Best Buy, Staples, etc.)



# What do we know?

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- 2008
  - 4 large recycling facilities differentiated residentially and commercially-generated E-waste
    - 1,090 tons residentially generated (27%)
    - 2,920 tons commercially generated (73%)

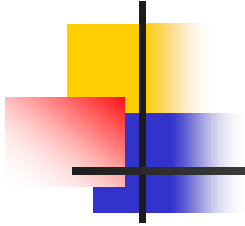


# CDPHE Concerns

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- Current lack of data/information
  - State-wide/Regional E-waste generation rates
  - State-wide/Regional E-waste recycling capacity
  - State-wide/Regional E-waste recycling rates
  - Urban/Suburban vs Rural
- E-waste recycling needs to be incentivized
  - One way: Reduce or eliminate drop-off fees paid by public at collection centers or events
- Recycling capacity might need to be expanded
  - Before a landfill ban implemented





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