



Engineering and Public Works Department
155 South Seward Street
Juneau, Alaska 99801
Telephone: 586-0800 Facsimile: 586-4565

DATE: June 5, 2023

TO: Wade Bryson, Chair Public Works and Facilities Committee

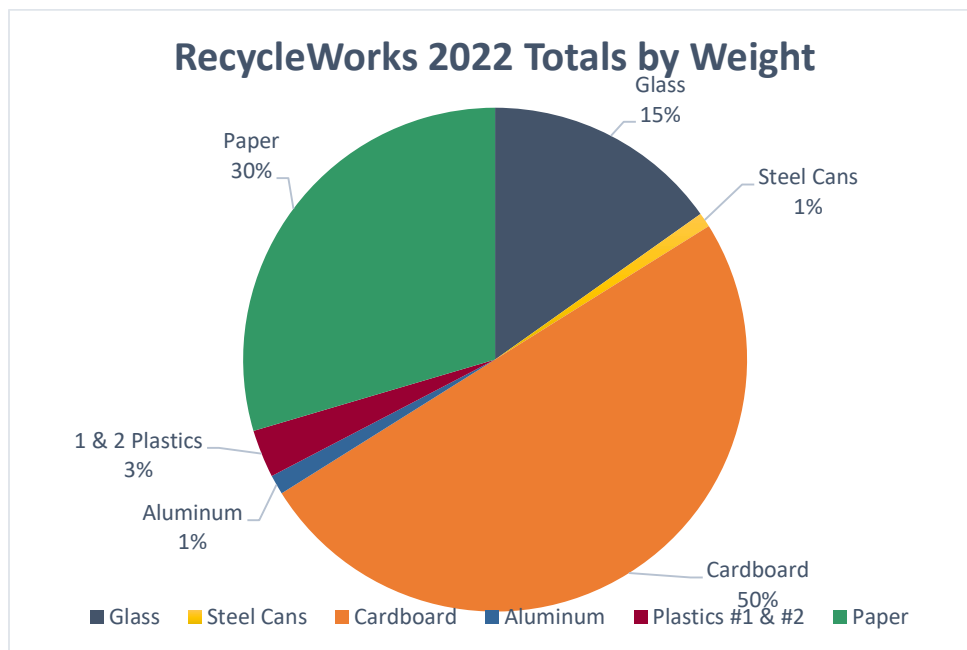
THROUGH: Katie Koester, Director Engineering and Public Works

FROM: Denise Koch, Deputy Director Engineering and Public Works

SUBJECT: Recycling: Equipment Solutions

PWFC has been interested in equipment solutions for recyclables. We have included some background on recycling in Juneau, information on items that you have requested, as well as staff suggestions.

Recycling Background



Cardboard and paper comprise the majority (80%) of recyclable materials that are collected at RecycleWorks. We estimate that much more cardboard and paper could be recycled.

Recycled Plastic Lumber/Brick Processing Equipment

Current Practice

We estimate that plastic comprises about 12% of the waste stream in Juneau and approximately 3% of our recyclables. In 2022, CBJ recycled 46 tons of #1 and #2 plastics for approximately \$10,000. All recycling goes to JMK Fibers in Tacoma, WA, where it is sorted and then sold as a commodity for eventual reuse.

Patrick Simpson with Alaska Plastic Recovery & PKS Consulting

- Uses #2, 4, and 5 plastics to create 2x4, 2x6, and 4x4 boards that are 8 feet long

- Alaska Plastic Recovery is willing to bring their mobile equipment to Juneau for a pilot project in 2024
 - o Pilot Cost: Between \$50,000-\$100,000 including shipping and labor
 - o Storage: CBJ would need to collect 50,000 lbs. (25 tons) of #2, 4, and 5 plastics (which would require ~1,000 cubic yards of storage space that we don't have).
 - o Cost to Purchase Equipment ourselves: \$200,000-\$500,000

Solid Waste Training Institute (SWTI)

- SWTI is coming to Juneau to set up their version of recycled plastic lumber processing equipment the week of July 1.
- Call Chet Hovey after July 1st at 801-918-5107 to set up an appointment to view a demonstration.

Recycled lumber or bricks are also not a standard accepted building material. They could likely only be used for non-structural items (e.g. picnic tables and fencing).

Using Crushed Glass in Concrete and Asphalt

Currently, glass cannot be added to comingled curbside recycling that is collected by Alaska Waste. Citizens can bring glass to the Recycling Center. The glass that is collected is used by Waste Management at the Capitol Disposal Landfill as temporary road mediation, fill, and other operations as a replacement for gravel.

We inquired about adding crushed glass into concrete or asphalt. Introducing glass into a concrete or asphalt mix produces a chemical reaction called Alkali-Silica Reaction (ASR). ASR makes the products less durable. To counteract that issue, a chemical compound needs to be added that makes the end product more expensive. The Aggpro Concrete Manager is, therefore, not interested in using glass in his concrete mix.

Industrial Grinder

Problem:

- Large industrial stump/tree/lumber grinder (non-treated)
 - o Create a sustainable avenue for stump and lumber disposal
 - o Material can be used in composting as a carbon source
- Vehicles, boats, and RVs
 - o Boat and RV disposal is very expensive to residents, but could be made much cheaper and easier if the items took up less volume

Refrigerant Appliance Disposal

Problem:

- Currently the landfill is the only option to dispose of appliances that contain refrigerant chemicals (refrigerators/freezers). They charge \$120+tax per item and have limited hours.

Potential Solution:

- Appliance would be dropped off at Household Hazardous Waste (HHW), refrigerant is removed, and disposed of via HHW contract. Appliance is then recycled as scrap metal. Public has greater access to HHW (Thursday – Sat; 8 a.m. – 4:30 p.m.)

Request: Staff believe that the refrigerant appliance disposal project is the option that would best meet community need and could be implemented in the shortest time frame. Staff requests committee support to further explore this option and come up with a cost proposal.