

## Waste Reduction and Diversion Benefits for Saskatoon

Waste reduction and diversion contribute to making Saskatoon a great place to live, work, learn, and play through several wide-ranging benefits:

**Improved quality of life:** Proper waste management keeps Saskatoon beautiful and clean. Having access to a full suite of waste services allows residents to make sustainable actions a part of their daily lives, whether at home, in the community, or at work.

**Improved environmental health:** Reducing waste generation and diverting waste away from landfills prevents pollution. Gains in both areas will result in lasting environmental benefits, such as reduced risks from the release of toxic and hazardous substances.

**Reduced greenhouse gas emissions:** When organic materials (food and yard waste) end up in the landfill, they are mixed with garbage and quickly buried in an airless environment. Because organics need air to decompose properly, they do not turn into soil or compost. Instead, they release methane gas and create garbage fluids, called leachate. Methane is a much more potent greenhouse gas than carbon dioxide, and leachate needs to be managed under strict environmental regulations. Only 23% of the methane produced by the Landfill is captured as landfill gas and converted into energy, while the remainder is released into our atmosphere.

**Reduced use of finite resources:** As waste is reduced and diverted the use of finite resources will be reduced, ensuring they are available for future generations.

**Economic diversity:** Diversion creates jobs. Organics and other recyclable material can add economic value by creating compost, energy, and new products. These valuable resources do not belong in a landfill. The circular economy model shows promise for adding new opportunities for our community.

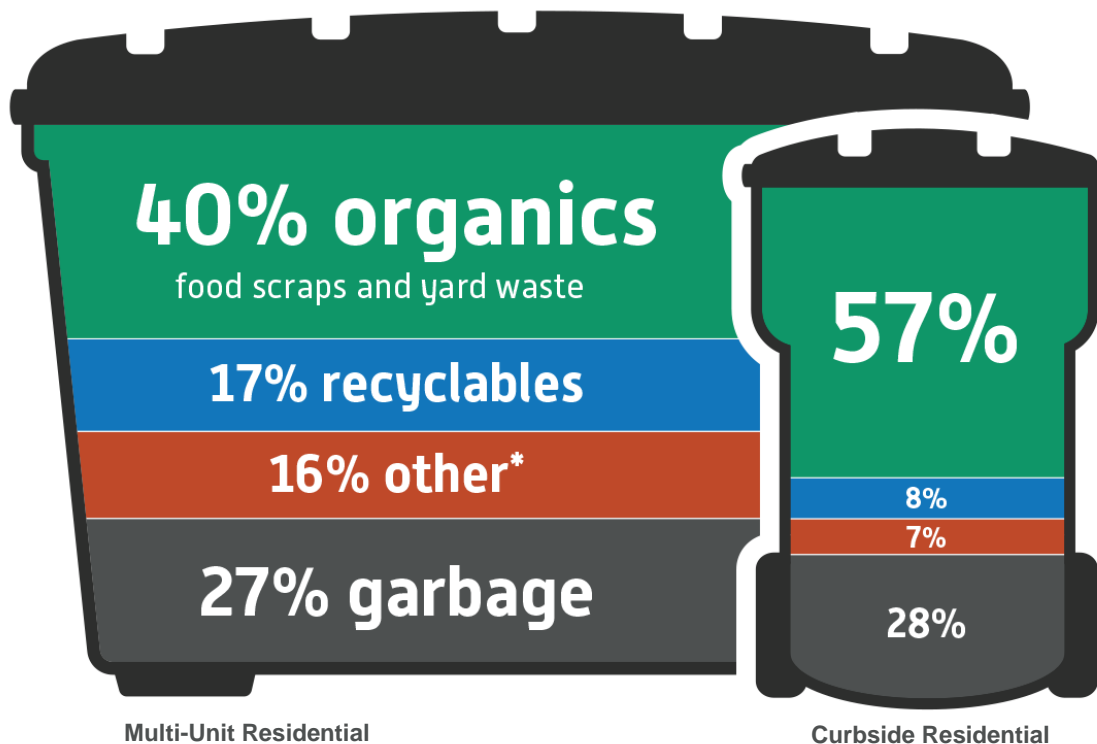
**Deferred infrastructure investment for solid waste management:** Changes made now can extend the life of the Landfill and help save or defer the future costs of siting a new landfill or having to haul waste long distances. In addition to the capital cost of developing a new landfill (estimated at \$100 million), a landfill located outside of city limits will increase costs for waste collection services. Longer haul distances will require more trucks, fuel, and operators to provide an equivalent level of service. Estimated impacts include \$5 million in capital investments to the garbage collection fleet, as well as annual operating increases of \$2.5 million, not including the longer haul distance.

The *Integrated Landfill Management Plan* (2011) identifies 8.7 million cubic metres of airspace remaining if all planned capital investments and operating targets are achieved. Depending on the annual amount of garbage disposed at the Landfill, this translates to 40 to 50 years of remaining landfill life. The more waste received, the faster that airspace is consumed. Conversely, successful waste reduction and diversion will increase landfill life.

## Most items placed in the Garbage are Divertible

A comprehensive waste characterization study is conducted every several years to understand opportunities for program improvement and new program development. The 2019 *Waste Characterization Study* confirmed the need to develop diversion services to address residential organic waste, ICI recycling and organics, and construction and demolition waste. The study also quantified the amount of recyclable material in garbage carts and contamination of recycling carts with garbage, which demonstrates the importance of ongoing education programs and the further development of behaviour change tools.

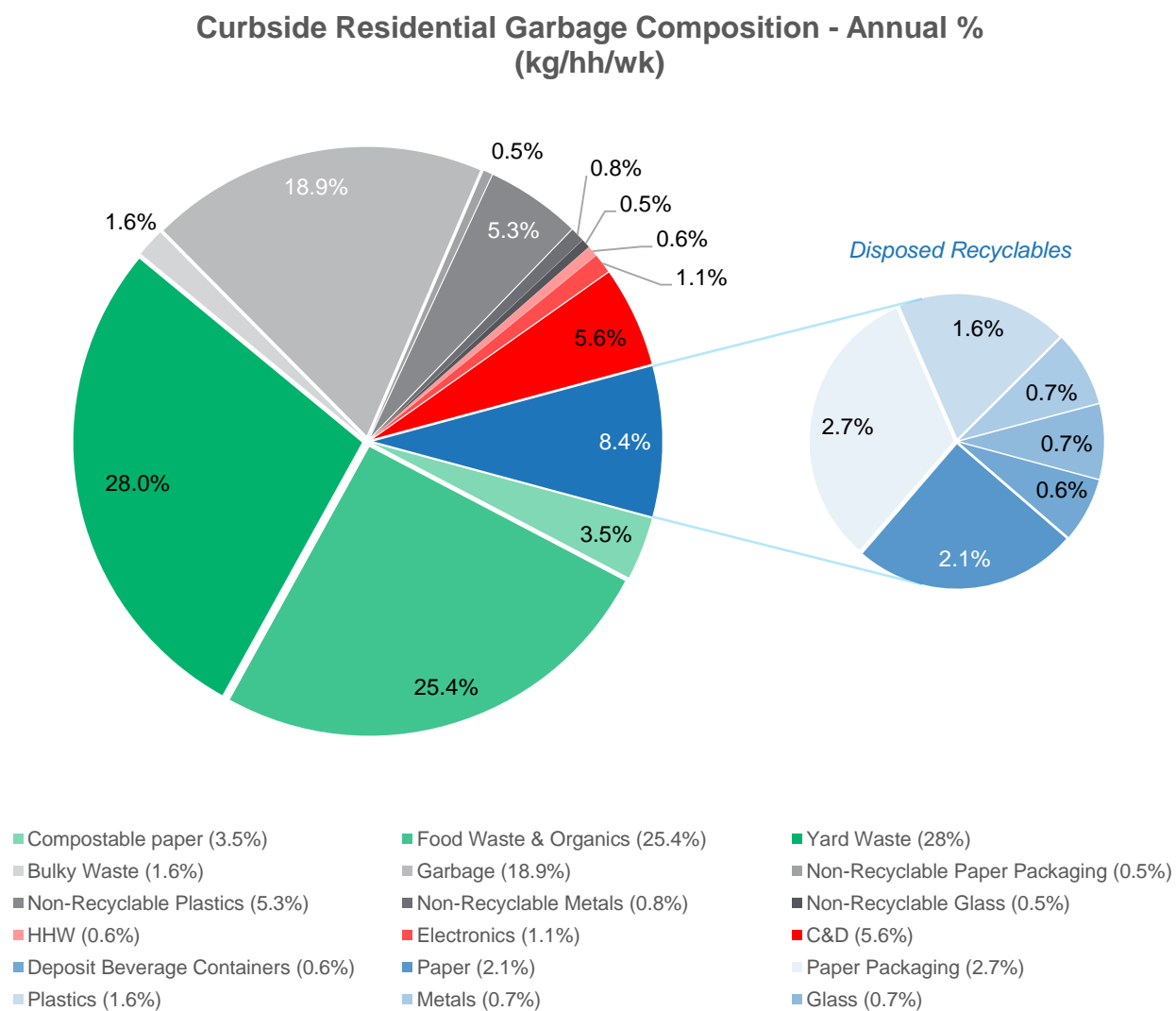
Figure 1 Multi-Unit Residential Garbage Bin and Curbside Residential Garbage Cart Composition (2019)



\*hazardous waste, electronics, construction waste

Curbside residential households produce 18.2 kilograms of waste per week (or 946 kilograms per year). When considering all the garbage, recycling, and organics disposed of, this is equivalent to nearly 6,300 litres or 17.5 roll-out carts full of waste each year<sup>9</sup>. As shown in Figure 2, over 65% of what went to the Landfill from curbside residential households in 2019 could have been diverted.

Figure 2 Curbside Residential Garbage Composition



<sup>9</sup> Material densities reported by the EPA (2016) "Volume-to-Weight Conversion Factors for Waste" were assumed to apply to uncompact municipal solid waste, residential/commercial/institutional, 250 lbs/cubic yard or 0.15 kg/litre.