

Benchmarking the value of resources in the household bulky waste stream

COUNCIL NAME

Illawarra Shoalhaven
Joint Organisation

WEB ADDRESS

isjo.org.au

SIZE

5,800 km²

POPULATION

404,000

Overview

Household bulky waste services are delivered by the majority of NSW councils. Bulky waste collections are complex in terms of material composition, are relatively small in volume compared to other waste services and economic drivers mean that these items are more difficult to divert from landfill. The Illawarra Shoalhaven Joint Organisation (ISJO) wanted to broaden the understanding of the movement and collection of these items to identify opportunities to divert resources from landfill.

Background

The 2017 – 2021 ISJO Regional Waste Strategy highlighted an opportunity to align council household bulky waste services. Each council in the ISJO region operates a different system for collection of household bulky waste. This in turn has clear impacts on diversion rates of waste from landfill. Additionally, there is a community expectation for the continuation of existing collection services. Further investigation was required to provide a case for change.

Despite growing attention to economies of reuse and recycling for a range of household goods and materials, there is little consideration of collection systems which support bulky kerbside collections or the conditions under which bulky waste materials enter landfill. The character of materials in the household bulky waste stream exhibit varied challenges, requiring different collection approaches, equipment and facilities. As most of these materials currently have a relatively low market (re)value, they are also problematic for councils in both cost of recovery and volume occupied in landfill.

As the name suggests, materials in the household bulky waste stream are often large in volume and lower in weight. Given that waste management metrics are predominantly weight based, ISJO evaluated existing reports to provide a dollar value for landfill space. Conservatively, this can be estimated at \$330 per cubic metre. Three of four ISJO councils own and manage landfills, an asset which this value can be applied to. With ISJO's largest council by population collecting approximately 33,000m³ of household bulky waste annually, it is worth further exploration to divert this waste stream from landfill. Bulky household waste material remains underexploited in terms of reuse, repurpose and recycling value. This project highlights some of these tensions, and charts positive benefits that can be derived from rethinking bulky waste collection schemes.

Implementation

ISJO partnered with researchers at the University of Wollongong to undertake an evidence-based approach to investigating household bulky waste services. Research was undertaken between September 2019 and May 2020 and was progressed through a competitively funded research partnership with the University of Wollongong, Global Challenges Program – Making Future Industries. The project used a mix of statistical and social research methods across two phases of research.

The first phase of the research involved a literature review of national and global models for collection and processing of household bulky waste. To understand the volume and conditions under which household bulky waste was entering landfill, the team analysed and modelled available ISJO council audit data; conducted in-field observations of materials presented as well as collection models and work practices; and qualitative research with council waste managers, contract managers, operations staff, collection contractors and truck drivers.



Tonnage of materials collected by current service models used by councils across NSW was compared to seek examples of leading practice resource recovery. This research provided insight into the operational effectiveness of collection models in relation to resources disposed to landfill; and variables for weight to volume conversion costings and landfill impact.

The second phase of research consulted with communities using the collection services, tip shops, charitable recyclers and social enterprises involved in reuse and reprocessing to identify:

- Challenges, limitation and possibilities of collection schemes;
- Key aspects of relationships between householders and councils; and
- Opportunities for diversion from landfill and potential capacity of networks for resource recovery from kerbside to develop local circular economies.

Outcomes

This collaborative research project has produced a benchmark of leading practice for collection and processing services for household bulky waste services and identified opportunities for improved practice and resource recovery. Recommendations provided to ISJO councils have mapped the social and environmental implications of current service delivery. The research provided councils independent insights into the perception of the service by their community, contractors and council staff. Statistical analysis and modelling of landfill and diversion data both regionally and across NSW councils, broadly defined the generation and diversion of waste for different collection models on a per capita basis. This provided cost, weight and volume (landfill space) metrics, allowing for assessment by councils across several variables. This modelling has both regional and state-wide impacts for informing future waste strategies.

Key Learnings

This project has found that there is not one solution that will fit every community that councils can adopt as a 'fix all' for household bulky waste. However, there is a generic process path:

- The household – what do they know about the service, what can and can't be disposed of, what does it cost, how do they book, what else might they do with this material?
- Collection and transport – how does the model, vehicle type, contracted vs. council run service influence resource recovery?
- Sorting – is this done at the kerb, at the transfer station, by the householder or the collection service, which will impact the cleanliness of the stream enabling improved resource recovery?
- End of life – landfill, recycled (e.g. metals, mattresses, tyres), reused or repurposed?

This research has indicated that there is no current model of best practice for the household bulky waste services, either nationally or globally. There are of course regulatory drivers, tax incentives and product stewardship schemes which encourage and promote recovery of resources from household bulky items. Based on this information and our research carried out to date, ISJO will develop a 'leading practice checklist' for councils to consider when reviewing bulky waste services.

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This project was the 2020 winner of the Community Waste Services Award at the LGNSW Excellence in the Environment Awards