Case Study: Game changer - the development of a transfer station at Cessnock Waste Management Centre

Overview
The transfer station at the Cessnock Waste Management Centre maximises resource recovery by directing customers past a series of drop-off points for various recoverable materials. A series of weighbridges accurately accounts for resource recovery drop-offs and rewards this behaviour with a significant price reduction.

Background
The current landfill has been operating since 1974 and is approaching its approved capacity. To secure waste management options for the future, Council resolved to extend the landfill. Consultation highlighted that greater opportunities for recycling and resource recovery were high priorities for the community.

The key objective of the project was to develop a waste transfer station that would lead to an increase in resource recovery and recycling by:
- providing a convenient system to encourage customers to actively separate materials for recycling
- providing a mechanism for a differential pricing structure to further encourage source separation at the facility
- providing opportunities to accommodate additional recovery streams as they become available in the future
- improve safety and amenity for staff and customers.

Implementation
Planning for the landfill extension project included the preparation of an Environmental Impact Statement and development application. A dedicated and multidisciplinary Project Control Group (PCG) was established to coordinate the project and included staff from waste services, project management and financial services areas of Council and the asset manager.

The design of the waste transfer station was undertaken by SMEC Australia Pty Ltd and commenced in 2014. A key consideration for the design was an attractive appearance based on the principle that if it looks well-managed customers are more likely to appreciate and follow the site management requirements. The design pushes customers past each of the drop off areas, including a Community Recycling Centre to encourage source separation before attending a mixed-waste push-pit, which allows a final point of recovery by staff.

The inclusion of a third weighbridge within the transfer station is a key innovation to encourage source separation of recoverable materials at the site and allows the differential pricing structure at the site to be implemented in a convenient way. The weight recorded at the internal
The internal weighbridge accurately accounts for resource recovery drop off and rewards the behaviour with a significant price reduction. The remaining load destined for landfill is calculated at the completion of the transaction at full price rates.

Construction of the waste transfer station was undertaken by Daracon Group from January to September 2017. The construction of the facility cost over $4 million. This included the construction of extensive sealed areas to improve safety and convenience. The facility, including the Community Recycling Centre, was officially opened on 13 November 2017.

**Outcomes**

The first nine months of transfer station operation have been incredibly successful. Waste data at the site indicates an increase of 690 tonnes of materials separated for resource recovery. This is an increase of 40% of materials separated by customers at the site and resulting in $280,000 annual savings in the waste levy and $400,000 in landfill space savings. Visitation data shows a higher than anticipated use of the resource recovery component with 25% of customers attending the site to only use the recycling centre.

Several additional waste streams, particularly household problem wastes such as paints, oils and gas cylinders can now be accepted at the site. Since opening in November 2017, over 30 tonnes of this material has been received at the transfer station, removing it from landfill.

Environmental sustainability was a key consideration and the site includes solar panels and rainwater tanks. Four 10,000 litre tanks capture rainfall from the roof of the mixed waste push pit, which also has the benefit of reducing stormwater management on site. A 25 kilowatt solar panel system accounts for 90% of power consumption on the site. Increased safety has also been achieved by removing the need for customers to attend the active tip face and reducing the interaction between small vehicles and heavy machinery.

**Key Learnings**

A critical component in the long term success of the waste transfer station was to have the design encourage resource recovery. This included the layout of the facility which pushes customers past each of these drop off areas and the introduction of the internal weighbridge to provide a convenient method to implement the differential pricing strategy. These aspects of the design ensure that the benefits are ongoing, and it is anticipated that the benefits will continue to grow as users become more familiar with the facility and education continues with the community.

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This project was the 2018 winner of the Resource Recovery Award at the LGNSW Excellence in the Environment Awards.