Green Vision
Reclaim. Recycle. Repurpose.

Downer
Relationships creating success

Recycled crushed concrete compared to natural aggregates

Green Vision specialises in the recycling and repurposing of infrastructure materials within the wider Auckland region.

This calculation has been compiled specifically for Auckland Council.

The efficient use of recycled materials in Auckland's infrastructure will help to better protect and manage our finite natural resources while improving the whole of life cost to our city. Green Vision is committed to providing sustainable, high quality recycling components for use in infrastructure and construction.

Benefits of recycled crushed concrete compared to natural aggregates

The use of recycled materials helps to reduce tippage and freight costs, source better pricing solutions, reduce greenhouse gas emissions, pressure on landfill and natural resources (while also assisting with sustainable long term solutions for our local communities).

An example:
Comparison of the aggregate required for the construction of 1 kilometre of road pavement, with two lanes in either direction. (Similar to main road access around the Auckland CBD and inner city suburbs)

Based on current market rates, the use of recycled crushed concrete would save 18% or $55,000 per kilometre versus using natural aggregate sourced from within the Auckland region. In addition, the use of recycled materials would remove approximately 13,428 tonnes of concrete from clean or managed fill.

Using the ISCA rating method the carbon reduction in CO_2 is also significant. The use of Green Vision recycled crushed concrete would equate to a carbon reduction of 104.5 tonne of CO_2 emissions, the equivalent of a 55% reduction compared to aggregates from one of Auckland's major quarries.

A commitment to a consistent pipeline

The design modelling prepared by Downer's Transport Services technical team assumes 100% use of either recycled crushed aggregate or natural aggregate, not a combination of products.

While use of recycled aggregates is increasing across the region, the volume required for 1 kilometre of road construction alone would use a signficant proportion of available supply.

As a result, any change in design and procurement practices by asset owners to specify recycled aggregates would need to include detailed consultation with the sector to ensure a viable sustainable supply chain for market.

	Option 1: Natural aggregate **Gap 65: 6800m^3** **Gap 40: 2400m^3** **Transport from natural aggregate quarry, Drury: 40.7km**	Option 2: Recycled Crushed Concrete **Recycled crushed concrete: 9200m^3** **Transport from Green Vision, Onehunga: 14.1km**	**% Reduction**
Material emissions (tCO2e)	49.9	43.5	13%
Transport emissions (tCO2e)	141.3	43.2	69%
TOTAL (tCO2e)	**191.2**	**86.7**	**55%**
TOTAL (kCO2e/m^3)	**20.8**	**9.4**	**55%**

Green Vision is a Downer company.