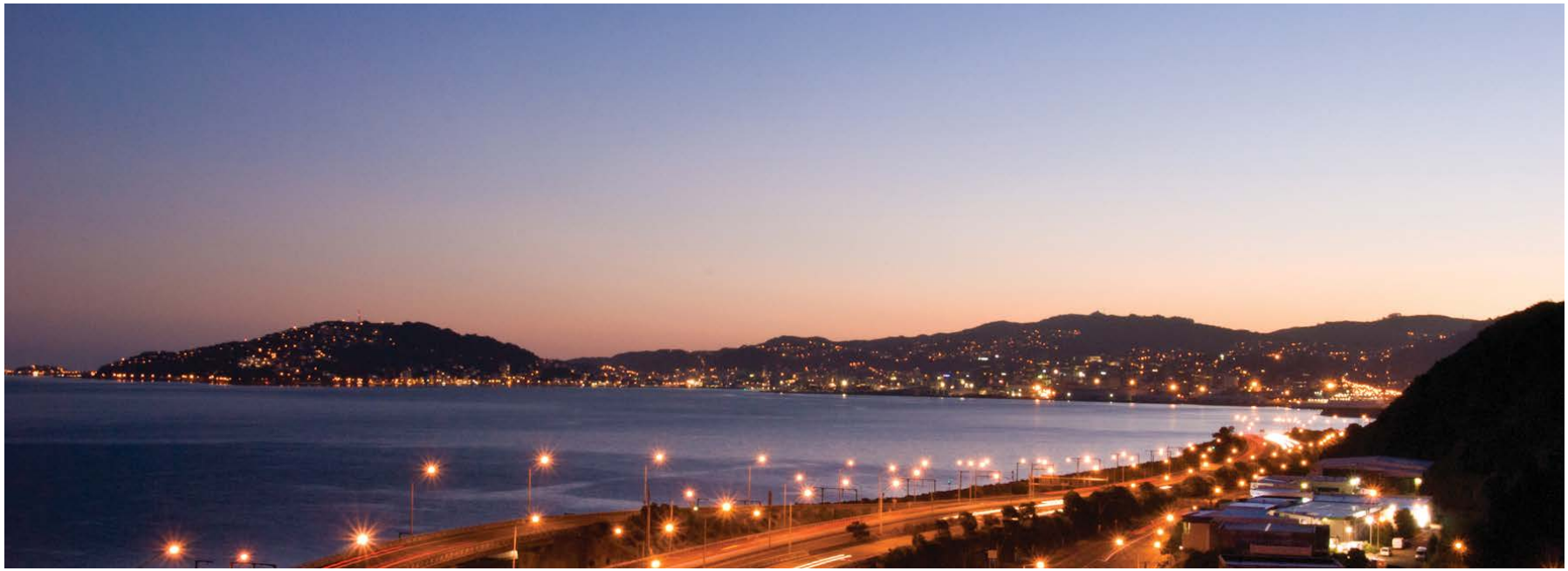
Lean roads and Greenroads®

Environment and Urban Design Team, NZ Transport Agency



NZ TRANSPORT AGENCY WAKA KOTAHI

New Zealand Government

An interesting journey…

SH73, Arthurs Pass

Resource efficiency

Achieving the best possible output for the least volume of materials and energy consumed while providing relevant levels of service.

We seek to responsibly manage our interactions with New Zealand's people, places and environment

The reality…

The story so far

Wellington's Ngauranga to Aotea Quay upgrade

RESOURCE EFFICIENCY CASE STUDY

August 2016

Repurposing unused bridge structure

Recycled and alternative materials currently allowed on Transport Agency projects

The list below of surface and pavement standards outlines the recycled materials currently allowed on Transport Agency projects. The list also provides limitations by volume of mass and relevant comments with regards to the material use.

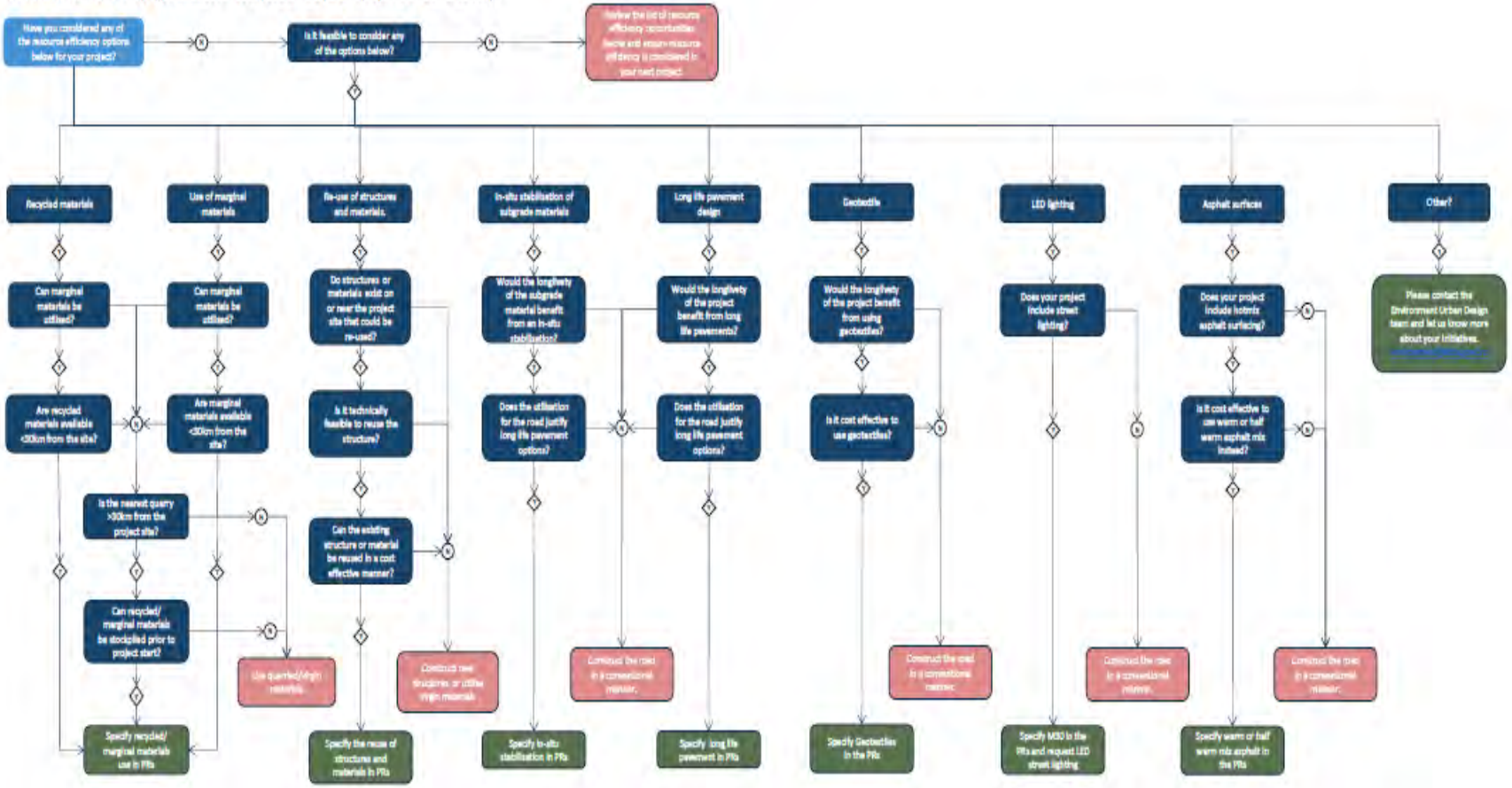
Overview of recycled materials allowed by the NZ Transport Agency

M4 - Basecourse aggregate

Material type	Allowed	% by mass	Comment
Recycled crushed concrete (RCC)	Yes	No restriction	RCC use must be approved by the appropriate regional council.
Glenbrook melter slag	Yes	No restriction	Slag use must be approved by the appropriate regional council.
Reclaimed glass	Yes	5%	Proportions of cullet in excess of 5% may be used at the discretion of the NZ Transport Agency National Pavements Manager, provided that the requirements of the T/15 specification have been satisfied.

https://www.nzta.govt.nz/roads-and-rail/highways-information-portal/technical-disciplines/resource-efficiency/standards-guidelines-and-specifications/recycled-and-alternative-materials/

Consider resource efficiency opportunities for each pavement layer and project section individually.



Greenroads Categories: Version 2

Category	Description	Points
Project Requirements (!)	12 minimum requirements for a Greenroad	0
Core Credits		
Environment & Water	Habitat, vegetation, soil, water, stormwater	30
Construction Activities	Construction equipment, processes, quality	20
Materials & Design	Material processing, transport, design	24
Utilities & Controls	Operational systems, mobility, maintenance	20
Access & Livability	Modal access, culture, aesthetics, safety	21
	Total Voluntary Credit Points	**115**
Creativity & Effort (★)	Local values, integrated teams, write your own	15
	Total Points	**130**

40-49 points

50-59 points

60-79 points

80+ points

Materials and Design Credits

MD-1	Preservation and Reuse	Encourage practices that preserve and reuse existing materials within the Project boundary.	Encourage practices that preserve and reuse existing materials within the Project boundary.	1-5
MD-2	Recycled and Recovered Content	Reduce or eliminate the Project's needs for the extraction and production of virgin materials.	Use recycled or recovered materials as a substitute for virgin materials. Keep track of materials records and mix tickets, and report the actual recycled content for the project at the end of construction according to one of four paths below.	1-5
MD-3	Environmental Product Declarations	Improve supply chain transparency of environmental impacts due to Project products and materials.	Provide a copy of any and all supplier's environmental product declaration (EPD) and corresponding product category rule (PCR) that exists for materials and products used for the Project.	2
MD-4	Health Product Declarations	Improve supply chain transparency of human health impacts due to Project products and materials.	Provide a copy of any and all supplier's health product declaration (HPD) that exists for materials and products used for the Project.	2
MD-5	Local Materials	Reduce impacts from transport of materials to the Project and stimulate local economies.	Make an itemized list of all materials, parts, components and products intended for permanent installation on the project including weights, total costs, shipping costs, and location of purchase and/or source of these materials. Using a spreadsheet or table is recommended for documentation of this credit. Show that your project meets the requirements of Option 1 (buy local) or Option 2 (reduced haul) below.	1-5
MD-6	Long Life Design	Encourage development of long-lasting Projects that reduce maintenance needs and lifecycle costs.	For this credit, "long-life" means at least 40 years design life with no more than routine maintenance needs expected.	1-5

Research projects

Rubber in roads

The Transport Sector Research Fund has approved and is funding a research project to identify the barriers to using tyre-derived crumb rubber in bitumen binder in NZ roads. This project also aims to understand the mechanisms to remove these barriers to create market demand for NZ waste tyre-derived products.

Internationally tyre-derived crumb rubber has become a common alternative additive to bituminous binders since the 1970s, addressing pavement performance issues as well as tackling the disposal problem of end-of-life tyres. While early trials of crumb rubber in both hot mixed asphalt (HMA) and chip seal pavements have resulted in mixed performances, technological advances and ongoing research and practices internationally have demonstrated that crumb rubber can be effectively incorporated into road surfacing.

In New Zealand, rubber has only been used in the form of natural rubber latex or styrene-butadiene-styrene block copolymer (SBS) from around the 1970s. Crumb rubber from waste tyres has not been used to any extent in normal road pavement maintenance or construction.

Recycled aggregate waste research

Together with local government, academia and industry partners, the Transport Agency is co-funding a research project into the use of recycled aggregate at the Centre for Infrastructure Research at the University of Auckland. The aim of this project is to determine the size of the Auckland recycled aggregate market, the type of materials available, and what recycled materials might be suitable for use as aggregates in roading.

There are two work streams associated with the project. The first stream is to understand the nature and engineering performance of current recycled aggregate within the Auckland market. The second stream focussed on guiding roading providers, consultants, contractors and suppliers to increase their uptake of recycled aggregate materials.

This research will help to create a better understanding of what recycled materials the market can actually supply. This will ultimately reduce the need for virgin use, transport of quarried materials and landfill disposal costs for recyclable materials.

What's next?

What might this mean for you?

- What is your view?
- What are the opportunities on your project?
- What is your experience ($, risks, contexts)?
- Can we promote your outcomes?
- Are you prepared?

Thank you

Environment and Urban Design Team