

Resource Efficiency & Waste Minimisation (REWM) Boundary Reporting Guide

REWM Key Performance Indicator Measure

12 September 2022

Introduction

KPI Measure 3.1.7 Resource Efficiency and Waste Minimisation¹ states that a Carbon Footprint report is required by each Network Outcomes Contract (NOC). This report will contain information regarding the development of the supplier's carbon footprint including boundary definitions.

This guide is intended to provide clarification to Network Outcome Contract (NOC) suppliers regarding the reporting of carbon boundary definitions within the Carbon Footprint report. Note that this guide does not cover other necessary parts of a Carbon Footprint report such as data source definition, collection methodology and data reliability.

A data collection spreadsheet, the Waka Kotahi Resource Efficiency and Waste Minimisation Reporting Form (REWM Form)², has been developed to support the Resource Efficiency Policy and the Resource Efficiency & Waste Minimisation (REWM) Key Performance Indicator measure, under the July 2022 Waka Kotahi KRA Performance Framework Guidelines.

The REWM Form contains open text fields (Data Source and Notes) that can be used to describe the boundary inclusions/exclusions for each of the named Emissions Groups and Sources (See appendix 1 for a full list of Emission Group and Emission Sources). It is expected for each Emission Group, that it is made clear what the boundary inclusion/exclusions are as well as a justification for each given exclusion.

However, since these definitions rarely change between reporting months it is strongly recommended for suppliers to refer each emission source cell to the relevant boundary definition section of the Carbon Footprint report instead of filling the spreadsheet with large volumes of text.

Below is a sample structure of the Boundary Definition section of a Carbon Footprint report:

1. Organisational Context
2. Operational Boundary Inclusions/Exclusions
 - a) Energy
 - b) Transport
 - c) Water
 - d) Waste
 - e) Steel
 - f) Aluminium
 - g) Concrete
 - h) Pavement

¹ Section 3.1.7 of the KRA Performance Framework Guidelines-V6.06 July 2022 [KRA Performance Framework Guidelines v6.06 - 1 July 2022 \(nzta.govt.nz\)](#)

² [Tools, standards and specifications | Waka Kotahi NZ Transport Agency \(nzta.govt.nz\)](#)

3. Operational Boundary Exclusion Justification

The following sections cover these above 3 aspects in more detail.

1 Organisational Context

This section will cover the organisation and include:

- The contract the organisation is operating under
- An overview of the activities and services conducted by the organisation
- A list of sub organisations who are included within the operational boundary
- A list of sub organisations excluded from the operational boundary

2 Operational Boundary Inclusions/Exclusions

This section contains details on the boundary inclusions and exclusions for each Emissions Group, there should be 8 sub-sections related to the 8 emissions groups highlighted by the REWM Form (see Appendix 1 for list of Emission Groups). Note that if an Emissions Group is being excluded from the boundary it will be noted in this section and further justified in section 3 below.

If different boundaries are in place for each Emission Sub-Group and Emission Source within the Emission Groups, it may be necessary to add additional sub-sections.

Sample boundary inclusions/exclusions are laid out below (note only Emissions Groups 1,2,5 and 9 have been shown in this example):

2.1 Energy

This consists of scope 2 indirect emissions from purchased electricity used across various offices and depots. Excludes electricity involved with traffic assets such as streetlights, variable signs, and loops.

2.2 Transport

This consists of scope 1 direct emissions of owned and operated vehicles (tail pipe emissions). Excludes subcontractor and rental car use. Excludes scope 3 employee commute.

2.3 Steel

2.3.1 Poles

Scope 3 embodied emissions relating to the renewal of streetlight and sign poles.

2.3.2 Railings

Scope 3 embodied emissions relating to the renewal of steel railings. Excludes embodied emissions relating to terminals.

2.3.3 Steel other

No additional inclusions. Excludes scope 3 embodied emissions relating to gantry installation, steel joints, handrails, and other forms of fencing.

2.4 Pavement

2.4.1 Aggregates, Asphalt, Bitumen

Scope 3 embodied emissions for pavement rehab and resurfacing activities involving aggregates, asphalt, and chip seal. Excludes bandage seals, cold mix maintenance items and pothole filling.

2.4.2 Pavement Stabilisation

Excludes pavement stabilisation.

2.4.3 Other Emissions

No other inclusions.

3 Operational Boundary Exclusion Justification

This section contains notes and justification for the exclusions highlighted in section 2. This section provides the opportunity to highlight the issues around data availability, methodology development and reporting that have prevented the capture of operational emissions data.

Table 3.1 shows an example on how to summarize the exclusions highlighted in section 2.

Table 3.1: Exclusion Justification Example

Emission Group	Exclusion	Justification
Energy	Traffic asset operations	Data unavailable as Waka Kotahi directly pay operations bill
Transport	Rental Car	Data unavailable as entities do not capture fuel card data
Transport	Sub-contractor vehicles	Data unavailable as entities do not capture fuel card data
Transport	Employee Commute	Data unavailable as entities do not capture fuel card data
Steel	Terminals	Methodology under development to convert terminal type to steel equivalent
Steel	Gantries	Data collection and methodology under development to capture steel involved in gantry installations
Steel	Steel Joints	Minimal amounts on network
Steel	Handrails/fencing	Minimal amounts on network
Pavement	Bandage seals, cold mix, pothole maintenance	Sub-contractor data unavailable, methodology to utilise spray sheets underway
Pavement	Pavement Stabilisation	Subcontractor data unavailable, methodology to capture renewals using RAMM data underway

Appendix 1

Shows the list of Emission Group, Emission Sub-Group and Emission Sources as defined by the REWM Form.

Table 3.2 Emission Definitions:

Emission Group	Emission Sub-Group	Emission Source	Units		
1	1.1	1.1.1	Diesel	L	
		1.1.2	Biodiesel	L	
		1.1.3	Unleaded Petrol	L	
	1.2	Gas Fuel	1.2.1	LPG	kg
			1.2.2	Natural Gas	kWh
	1.3	Electricity	1.3.1	On network	kWh
			1.3.2	Compounds, Depots, Offices	kWh
1.4	Other Emissions	1.4.1	Other Emissions	kgCO ₂ e	
2	2.1	Transport	2.1.1	Diesel	L
			2.1.2	Biodiesel	L
			2.1.3	Unleaded Petrol	L
			2.1.4	Approximate total	tkm
	2.2	Other Emissions	2.2.1	Other Emissions	kgCO ₂ e
3	3.1	Water	3.1.1	Potable water	L
			3.1.2	Non-Potable water	L
4	4.1	Landfill	4.1.1	Asphalt	t
			4.1.2	Concrete	t
			4.1.3	Other materials	t
			4.1.4	Roadside litter	t
			4.1.5	Office/Depot	t
	4.2	Clean fill	4.2.1	Clean fill	t
	4.3	Managed fill	4.3.1	Managed fill	t
	4.4	Reuse / Recycle	4.4.1	Aluminium	t
			4.4.2	Steel	t
			4.4.3	Asphalt	t
			4.4.4	Concrete	t
4.5	Other Emissions	4.5.1	Other Emissions	kgCO ₂ e	

Emission Group	Emission Sub-Group	Emission Source	Units
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5	Steel	5.1	Steel poles	5.1.1	Light poles	m
				5.1.2	ITS / Signs poles	m
		5.2	Steel Railings	5.2.2	W beam barrier	m
				5.2.3	Wire rope barrier	m
		5.3	Steel Other	5.3.1	Steel	t
5.4	Other Emissions	5.4.1	Other Emissions	kgCO ₂ e		
6	Aluminium	6.1	Aluminium Signs	6.1.1	Signs	m ²
		6.2	Aluminium Poles	6.2.1	Light poles	m
				6.2.2	ITS / Signs poles	m
		6.3	Aluminium Other	6.3.1	Aluminium	t
6.4	Other Emissions	6.4.1	Other Emissions	kgCO ₂ e		
7	Concrete	7.1	Concrete Barriers	7.1.1	Concrete barrier	m
		7.2	Concrete Culverts	7.2.1	Culvert DN 300	m
				7.2.2	Culvert DN 600	m
				7.2.3	Culvert DN 900	m
				7.2.4	Culvert DN 1200	m
				7.2.5	Culvert DN >1200	m
		7.3	Concrete Manhole	7.3.1	Depth range <2m	each
				7.3.2	Depth range 2-4m	each
				7.3.3	Depth range 4-6m	each
				7.3.4	Depth range 6-8m	each
				7.3.5	Depth range >8m	each
		7.4	Concrete Mix 1	7.4.1	Mix Type	Lookup
				7.4.2	Concrete Mass	t
		7.5	Concrete Mix 2	7.5.1	Mix Type	Lookup
				7.5.2	Concrete Mass	t
		7.6	Concrete Mix 3	7.6.1	Mix Type	Lookup
				7.6.2	Concrete Mass	t
		7.7	Concrete Mix 4	7.7.1	Mix Type	Lookup
				7.7.2	Concrete Mass	t
		7.8	Other Emissions	7.8.1	Other Emissions	kgCO ₂ e

Emission Group

Emission Sub-Group

Emission Source

Units

Emission Group	Emission Sub-Group	Emission Source	Units
8 Pavement	8.1 Aggregates	8.1.1 Crushed Rock	t
		8.1.2 Crushed blast furnace slag	t
		8.1.3 Crushed concrete	t
		8.1.4 Crushed Limestone	t
	8.2 Pavement Stabilisation	8.2.1 Foam Bitumen	t
		8.2.2 Lime	t
		8.2.3 Cement	t
	8.3 Asphalt Mix 1	8.3.1 Asphalt	m3
		8.3.2 Emulsified Bitumen	y/n
		8.3.3 RAP content	%
	8.4 Asphalt Mix 2	8.4.1 Asphalt	m3
		8.4.2 Emulsified Bitumen	y/n
		8.4.3 RAP content	%
	8.5 Asphalt Mix 3	8.5.1 Asphalt	m3
		8.5.2 Emulsified Bitumen	y/n
		8.5.3 RAP content	%
	8.6 Asphalt Mix 4	8.6.1 Asphalt	m3
		8.6.2 Emulsified Bitumen	y/n
		8.6.3 RAP content	%
	8.7 Asphalt Cold Mix	8.7.1 Asphalt Cold Mix	m3
8.8 Bitumen	8.8.1 Bitumen	t	
8.9 Other Emissions	8.9.1 Other Emissions	kgCO ₂ e	