

Halswell Road

Construction

Construction: 2023-2025

Bus lanes

New bus lanes, road widening, traffic light upgrades, new shared path/footpaths

	Units	Emissions Factor Unit	Sources and notes
Do Intervention			
Material Quantities Estimate			
Construction Fuel Use			
Diesel	70,620 L	0.0027 tCO2e/L	MfE 2020
Construction Materials			
Concrete	141 tonnes	0.11 tCO2e/tonne	AECOM derived factor (See assumptions below)
Steel	81 tonnes	2.85 tCO2e/tonne	MfE 2020
Road Surface			
Crushed rock or recycled material	- tonnes	0.0032 tCO2e/tonne	IS Calculator NZ v2.0
Gravel	- tonnes	0.0182 tCO2e/tonne	IS Calculator NZ v2.0
Bitumen	- tonnes	0.3966 tCO2e/tonne	IS Calculator NZ v2.0
Asphalt	15,097 tonnes	0.0542 tCO2e/tonne	IS Calculator NZ v2.0
Project Breakdown Total	1,255 tonnes of CO2e		
Calculated Emissions			
Best estimate of calculated emissions	1,255 tonnes of CO2e		

Assumptions

Emissions for construction have been calculated from data provided by Waka Kotahi for this project. When possible assumptions have been made in a consistent manner to ensure comparability between projects. Refer to construction schedule worksheet for indicative schedule of quantities of concrete, steel, aggregates, gravels and fuels used during construction.

Based on previous research for Waka Kotahi, only emissions from the largest emission sources from construction of infrastructure projects have been estimated (concrete, steel, aggregates, asphalt, and on-site fuel. Materials and works related to bridge abutments have been included where relevant.

Fuel used in the construction is assumed to be 2 litres of diesel for every m3 of earth works (AECOM derived fuel-use ratio).

The following were not included in the estimate: fuel used in quarrying activity; emissions from the transportation of construction materials to/from site.

Emission factors are sourced from MfE's 2020 Guide (see link below) where appropriate, or from the ISCA-IS Calculator v2.0.

<https://environment.govt.nz/publications/measuring-emissions-detailed-guide-2020/>

The ISCA-IS Calculator v2.0 is available for ISCA members at <https://www.isca.org.au/Tools-and-Resources>

The emission factor for concrete is based on MfE 2020 and ISCA guidance and is based on a standard concrete mix.



use).

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Halswell Road

Construction Schedule

Source: Halswell Road - DBE; WSP Memorandum 11 June 2021

Schedule of Prices				Material	Unit	Material	Unit	Material	Unit	Material	Unit	Material	Unit	
Code	Description	Unit	Quantity	Concrete	t or m3	Steel	t or m3	Asphalt	t or m3	Aggregates	t or m3	Fuel	l or kg	Assumptions/ Notes
	Risk Items													
	Coal Tar Disposal (RISK ITEM)													
	Excavate and remove existing coal tar contaminated material using approved methodology to Kate Valley	tonne	955.5											
	Heritage (RISK ITEM)													
	Archaeological inputs	hr	480											
	Pavement surfacing (RISK ITEM)													
	Milling out existing AC (50 mm depth) and disposal of spoil	m2	8960											
	Supply and place AC14 (55 mm nominal depth)	m2	8960											
	Pavement structure (RISK ITEM)													
	Milling out existing AC (50 mm depth) and disposal of spoil	m2	200											
	Supply and place AC14 (55 mm nominal depth)	m2	200											
	Remove existing kerb and channels to dump offsite	m	40											
	Construct new Kerb and Channel	m	40											
	Side Street Tie in (RISK ITEM)													
	Supply, place and compact AP65 sub base	m3	3570											
	Supply, place and compact M4 AP40 basecourse	m3	3570											
	Ground Conditions - Pavement (RISK ITEM)													
	Cut to waste offsite	m3	3750											
	Supply and place bulkfill	m3	3750											
	Total			141	t	81	t	15,097	t	-	t	70,820	l	

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