Influencing Infrastructure Design

LCANZ Workshop 12th May 2016

Downer

Relationships creating success

Outline

- Why Tarmac
- Tarmac's Approach
- Case Study
- Downer's Experience

Why Tarmac?

Tarmac's Approach

Tarmac's Approach

Industry recognised methodology

asphalt Pavement E

Sponsored By

HIGHWAYS AGENCY

mpa

rba REFINED BITUMEN ASSOCIATION

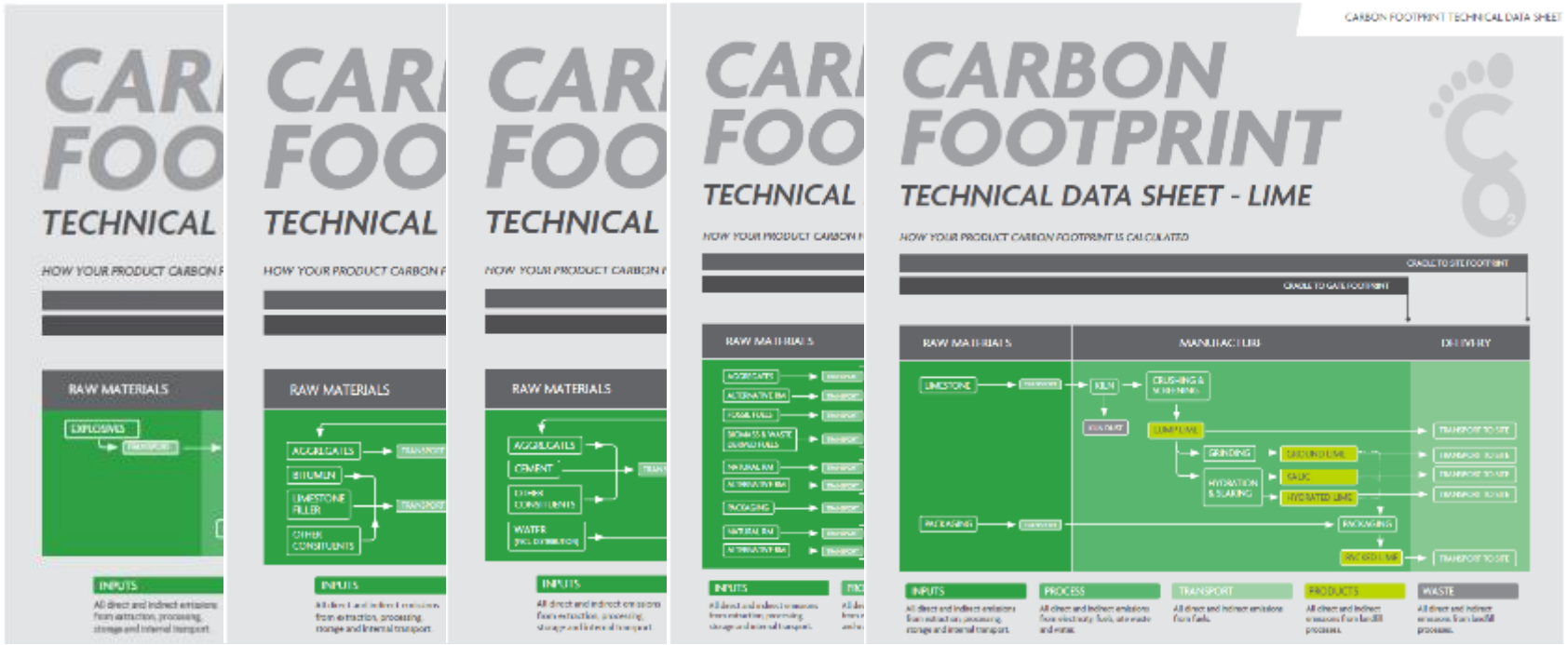
Supported By

wrap

ADEPT

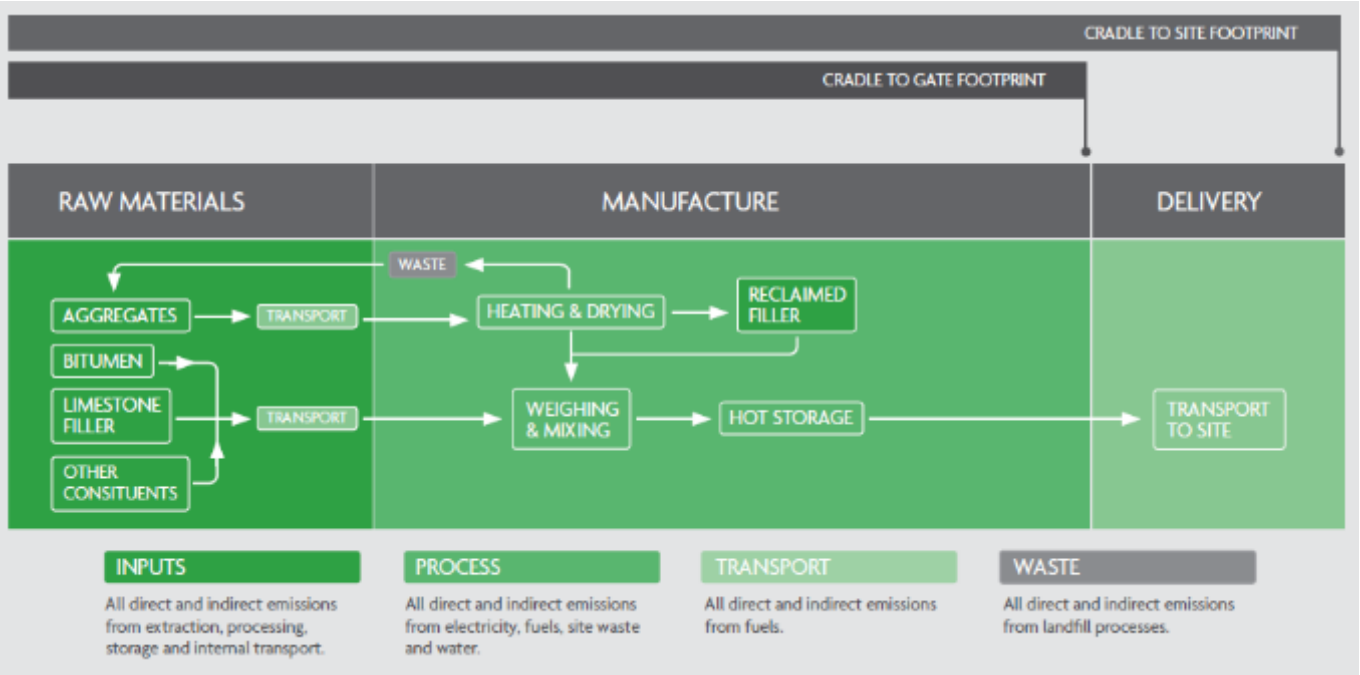
Tarmac's Approach

Entire Product Range



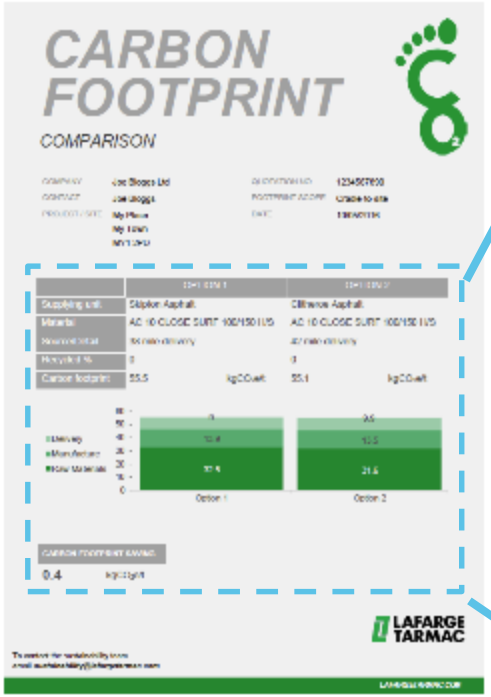
Tarmac's Approach

Embodied Carbon – Cradle to Gate; Site; Installation; or Grave



Tarmac's Approach

Plant & Product Specific


CARBON FOOTPRINT

COMPARISON

	OPTION 1	OPTION 2
Supplying unit	Skipton Asphalt	Clitheroe Asphalt
Material	AC 10 CLOSE SURF 100/150 H/S	AC 10 CLOSE SURF 100/150 H/S
Source/Detail	38 mile delivery	42 mile delivery
Recycled %	0	0
Carbon footprint	55.5 kgCO2e/t	55.1 kgCO2e/t

CARBON FOOTPRINT SAVING

0.4 kgCO2e/t

LAFARGE TARMAC

Tarmac's Approach

Health Warnings & Whole Life Performance

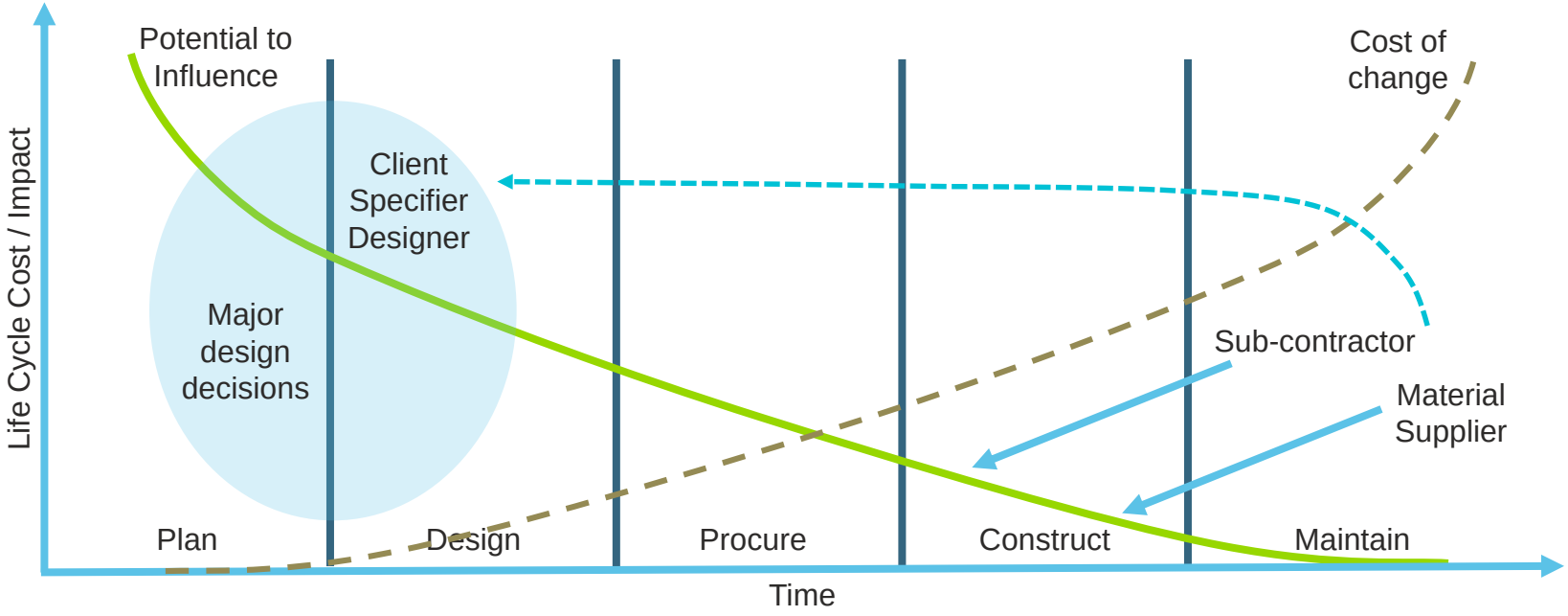
DISCLAIMER

Whilst every effort has been made to adhere to the requirements of PAS 2050 in producing this calculation, Lafarge Tarmac cannot guarantee conformance to the specification. The views of an independent auditor sh n is provided as an estimate based on the plants, materials and quantities provided in the materials quotation. The sou due to plant availability. Where this occurs it is likely to impact on the carbon footprint quoted.

The Carbon Footprint informati on fferent suppliers' carbon footprints will be very difficult due to differen nat arge Tarmac Sustainability Department.

Tarmac's Approach

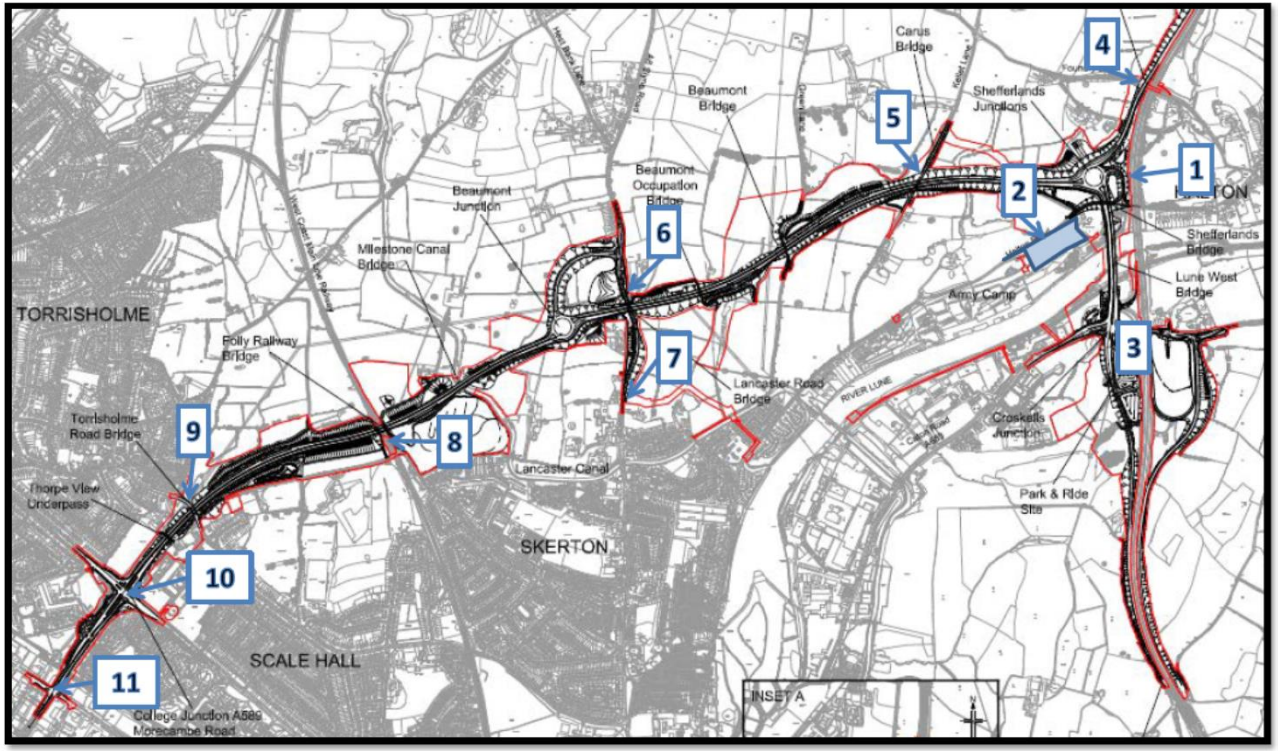
Influencing Infrastructure Design



Case Study

Heysham 2 M6 Link Road

Case Study



Case Study

Heysham M6 Link

Original Aggregate Requirement

Material	Volume kt
Type 1	330
6N	102
Type B	22
6F5	79
6I	16
10mm	5
14mm	2
20mm	12
Total	**580**

Value Engineered Design Proposal

Material	Volume (tonnes)	$kgCO_2e/t$ (average)	Tonnes CO_2e
Type 1 Sub-Base	332,000	4.42	1,465.94
4/10mm Pipe Bedding	5,000	5.90	29.52
6/14mm Pipe Bedding	2,400	5.90	14.17
10/20mm Pipe Bedding	12,200	5.90	72.03
Type B Filter Media	22,000	4.59	101.05
6F5 Capping	79,500	3.05	242.08
6N Granular Fill	102,000	4.42	451.25
Class 6I	16,800	4.31	72.49
6B Granular Fill	63,000	2.69	169.66
0/4mm Dust	13,000	3.32	43.10
Concrete Aggregate 20:5	38,000	4.61	175.17
Total	685,900	4.14	2836.46

- This Demonstration of Value leaves 0% wastage

Downer

Case Study

Heysham M6 Link

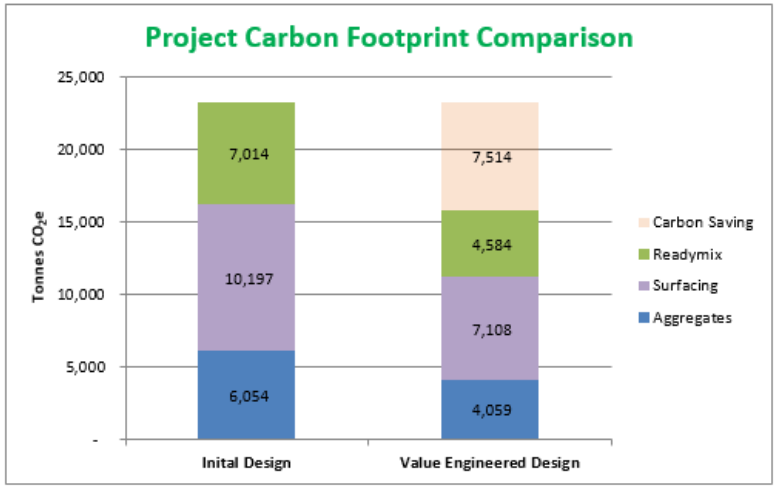
Project Carbon Footprint Comparison

Costain Initial Design Estimate - Permanent Works

Material	Aggregates	Readymix	Asphalt	Total
Design Quantity (tonnes or m^3)	893,751	34,204	191,414	
Cradle-to-gate CO_2e (tonnes)	4,427	6,321	9,586	20,333
Delivery CO_2e (tonnes)	1,627	693	612	2,932
Cradle-to-site CO_2e (tonnes)	6,054	7,014	10,197	23,265

Lafarge Tarmac Value Engineered Design - Permanent Works

Material	Aggregates	Readymix	Asphalt	Total
Design Quantity (tonnes or m^3)	681,013	25,393	171,228	
Cradle-to-gate CO_2e (tonnes)	2,819	4,416	6,687	7,235
Delivery CO_2e (tonnes)	1,240	168	421	1,408
Cradle-to-site CO_2e (tonnes)	4,059	4,584	7,108	8,643



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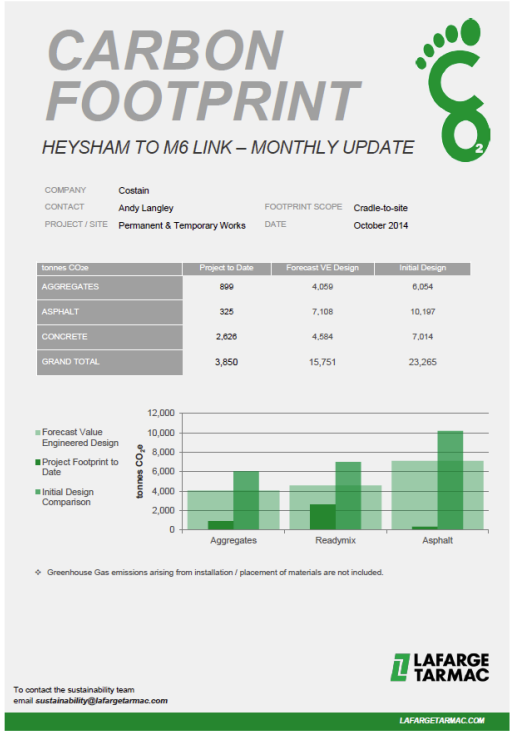
Case Study

Heysham M6 Link



CARBON FOOTPRINT

HEYSHAM TO M6 LINK – MONTHLY UPDATE

COMPANY	Costain		
CONTACT	Andy Langley	FOOTPRINT SCOPE	Cradle-to-site
PROJECT / SITE	Permanent & Temporary Works	DATE	October 2014

tonnes CO2e	Project to Date	Forecast VE Design	Initial Design
AGGREGATES	899	4,059	6,054
ASPHALT	325	7,108	10,197
CONCRETE	2,626	4,584	7,014
GRAND TOTAL	3,850	15,751	23,265

✧ Greenhouse Gas emissions arising from installation / placement of materials are not included.

LAFARGE TARMAC

To contact the sustainability team
email *sustainability@lafargetarmac.com*

LAFARGETARMAC.COM

Next Steps

EPD

Downer Experience

Emulsion vs Hot Cutback Bitumen

Downer's Experience