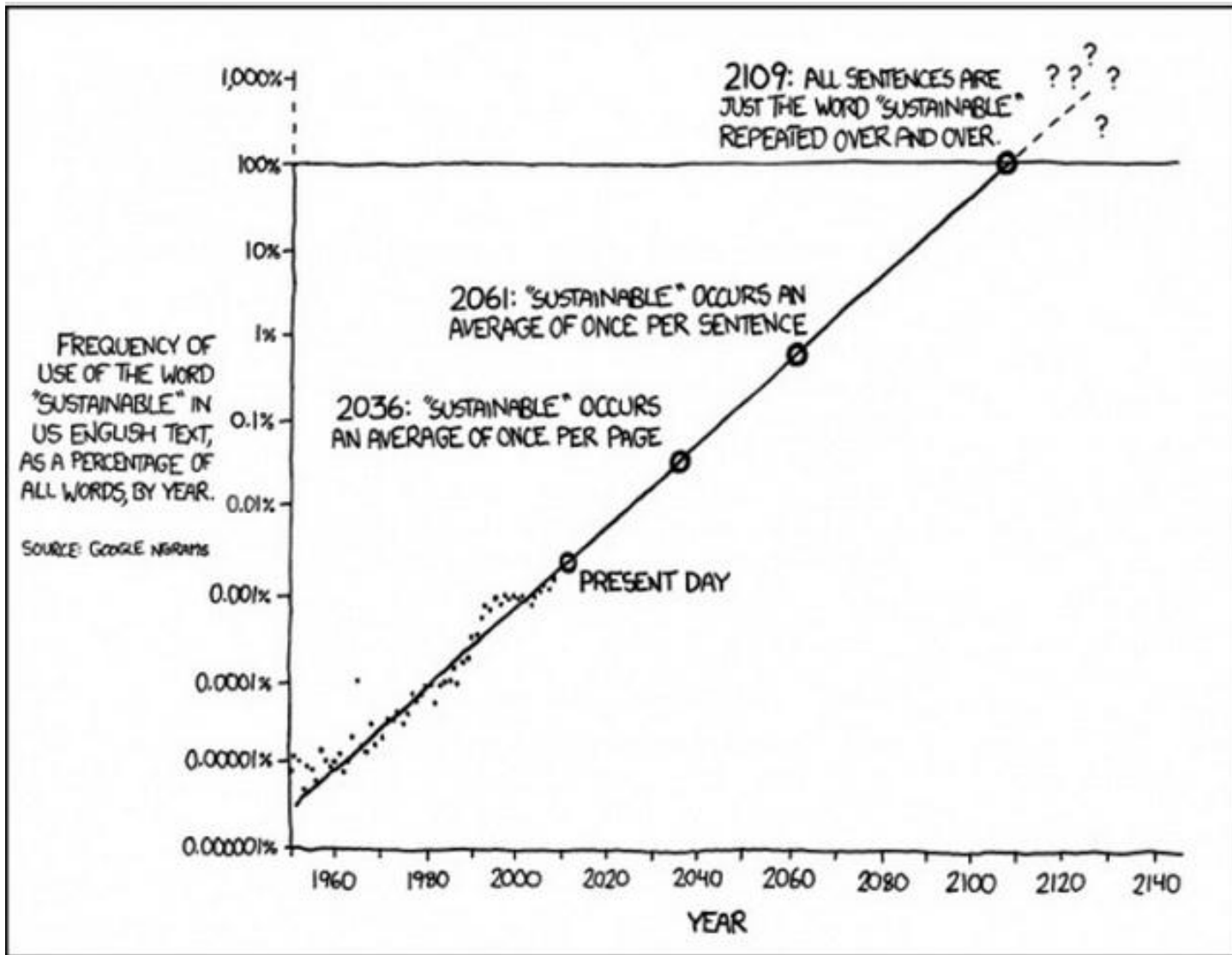


Recycling of Asphalt Pavements

Carl Christian Thodesen

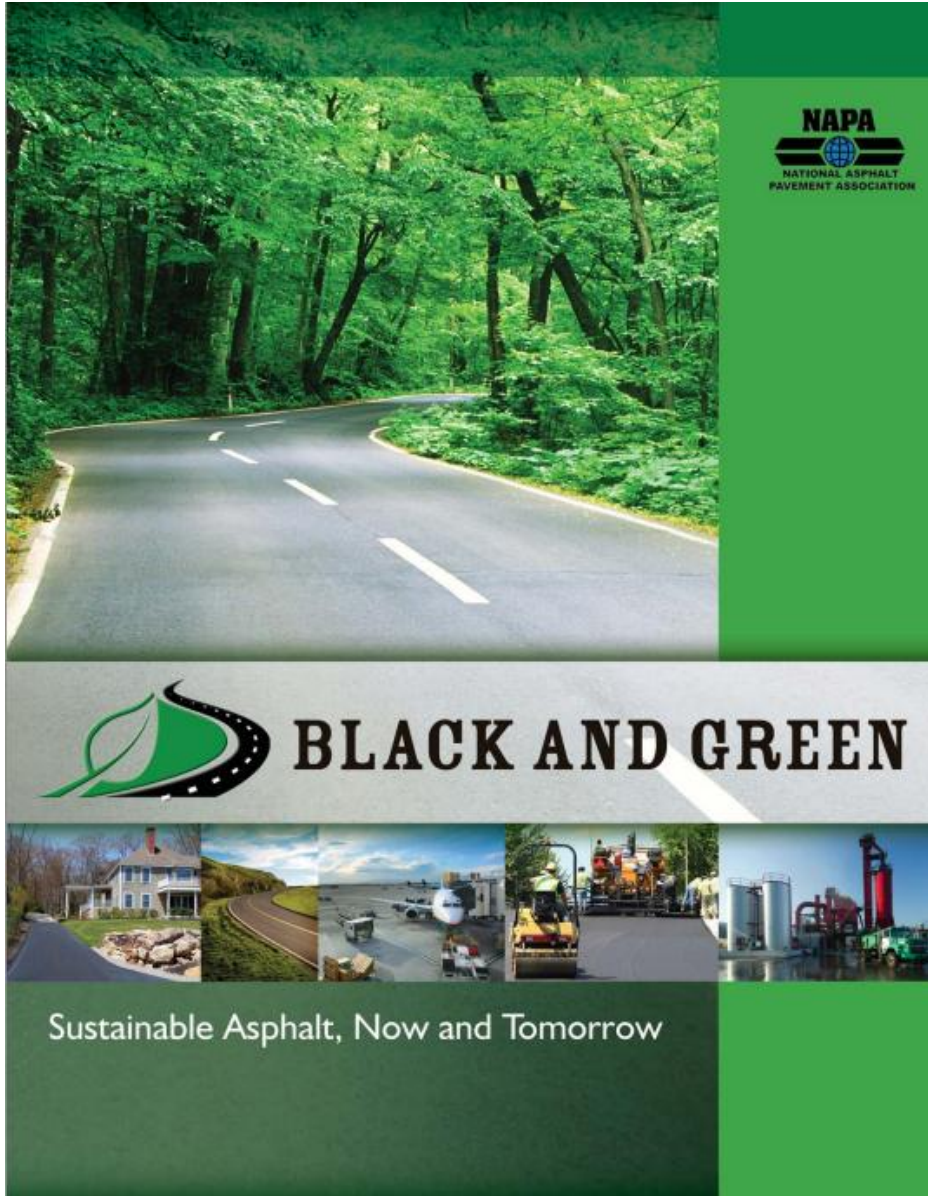


THE WORD "SUSTAINABLE" IS UNSUSTAINABLE.

PEOPLE

PROFIT

PLANET



1. Warm mix
2. Doubling reclaimed materials use
3. Increased use of porous pavements

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2. Doubling reclaimed materials use
3. Increased use of porous pavements

What are the three most important requirements of a pavement with RAP?

1. Cost effective
2. Environmentally responsible
3. Perform well

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2. Environmentally responsible
3. Perform well

Økonomi:

Hva er et tonn gjenbruksasfalt verdt:

Ett tonn gjenbruk asfalt består av ca 40 kg bindemiddel

- og 960 kg grus og filler.

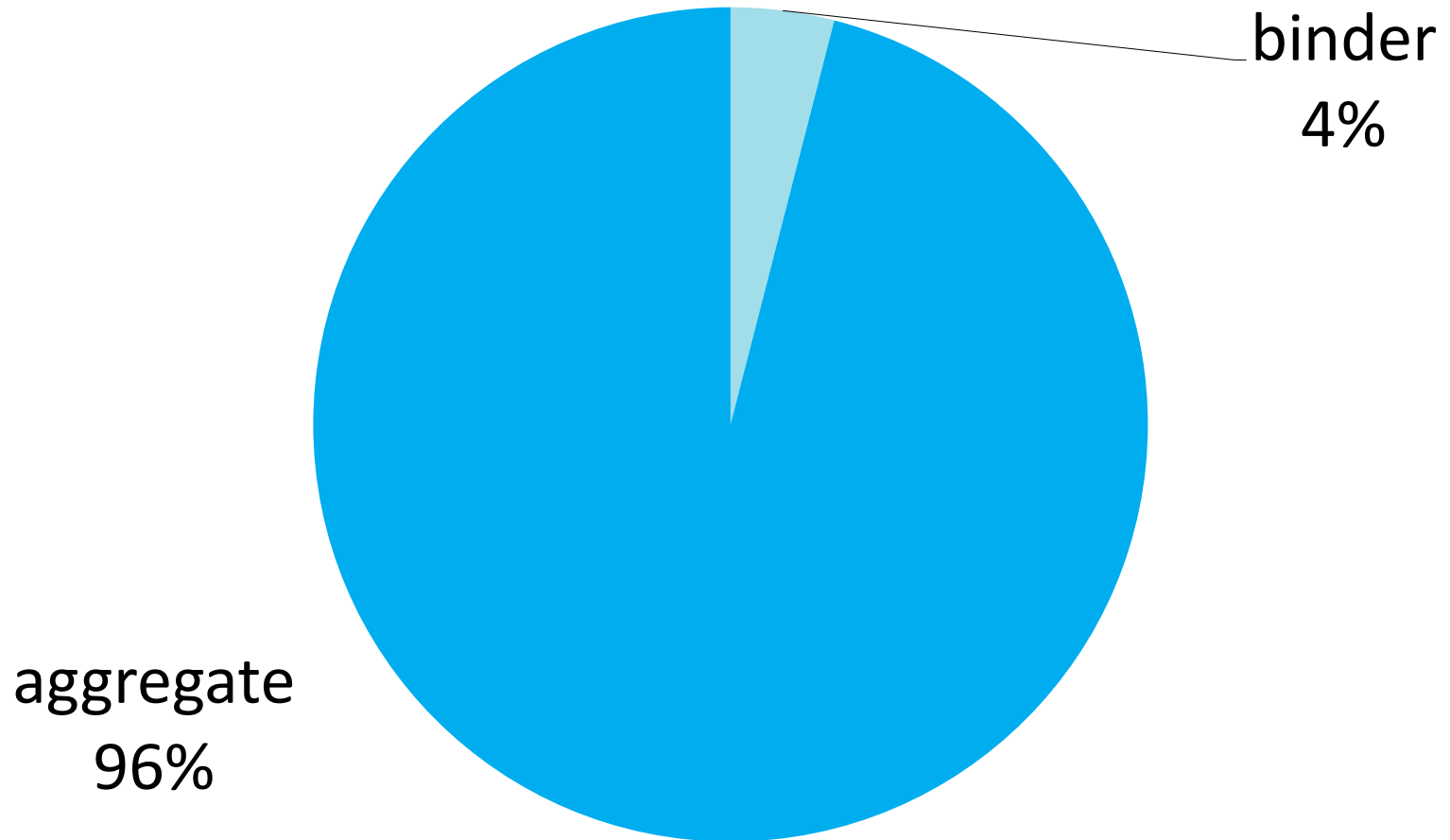
– 40 kg bindemiddel à kr. 4000.- pr. tonn = 160.-

– 960 kg grus og filler à kr. 100.- pr. tonn = 96.-

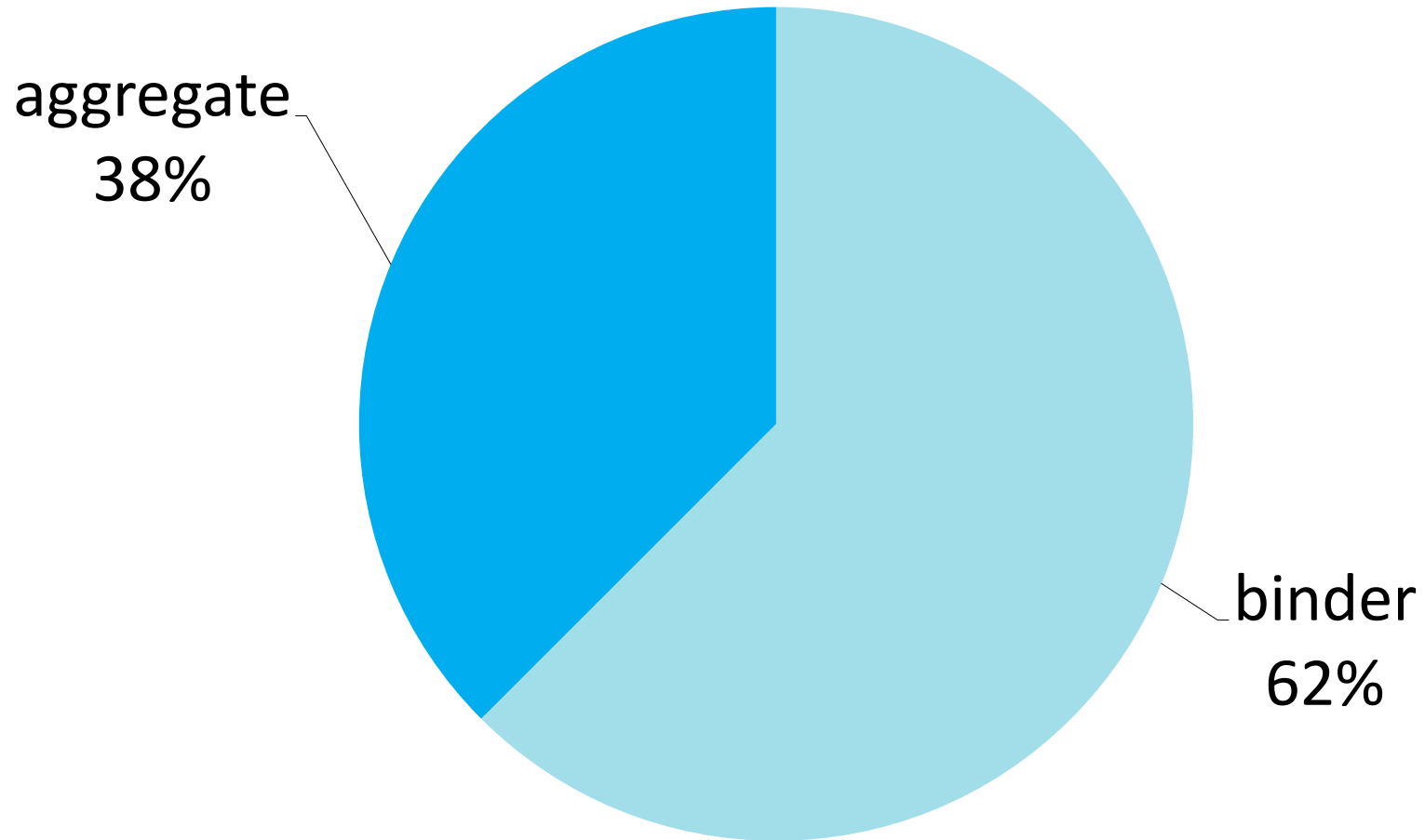
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– Sum teoretisk restverdi kr. pr. tonn = 256.-

1 ton asphalt: by weight



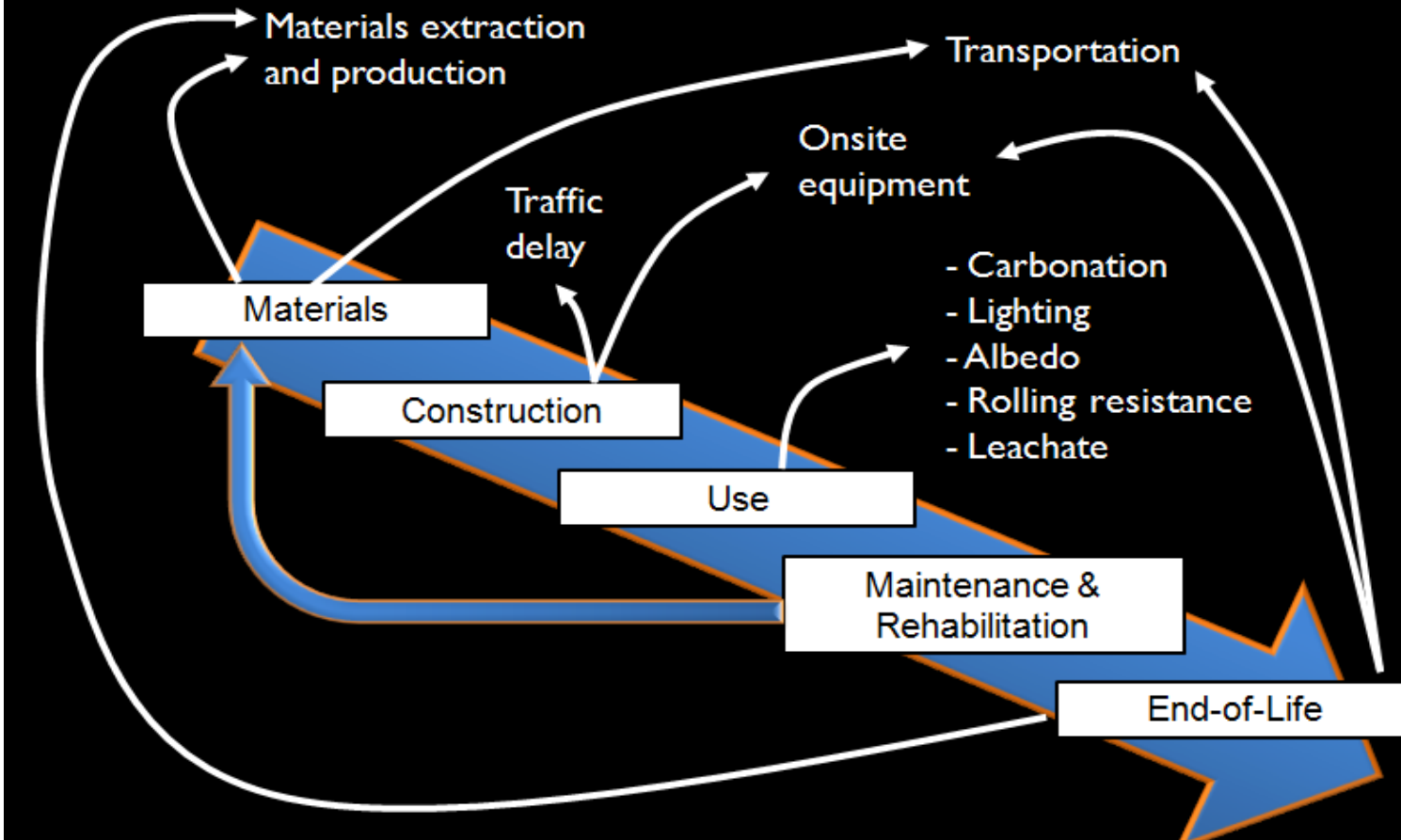
1 ton asphalt: by value



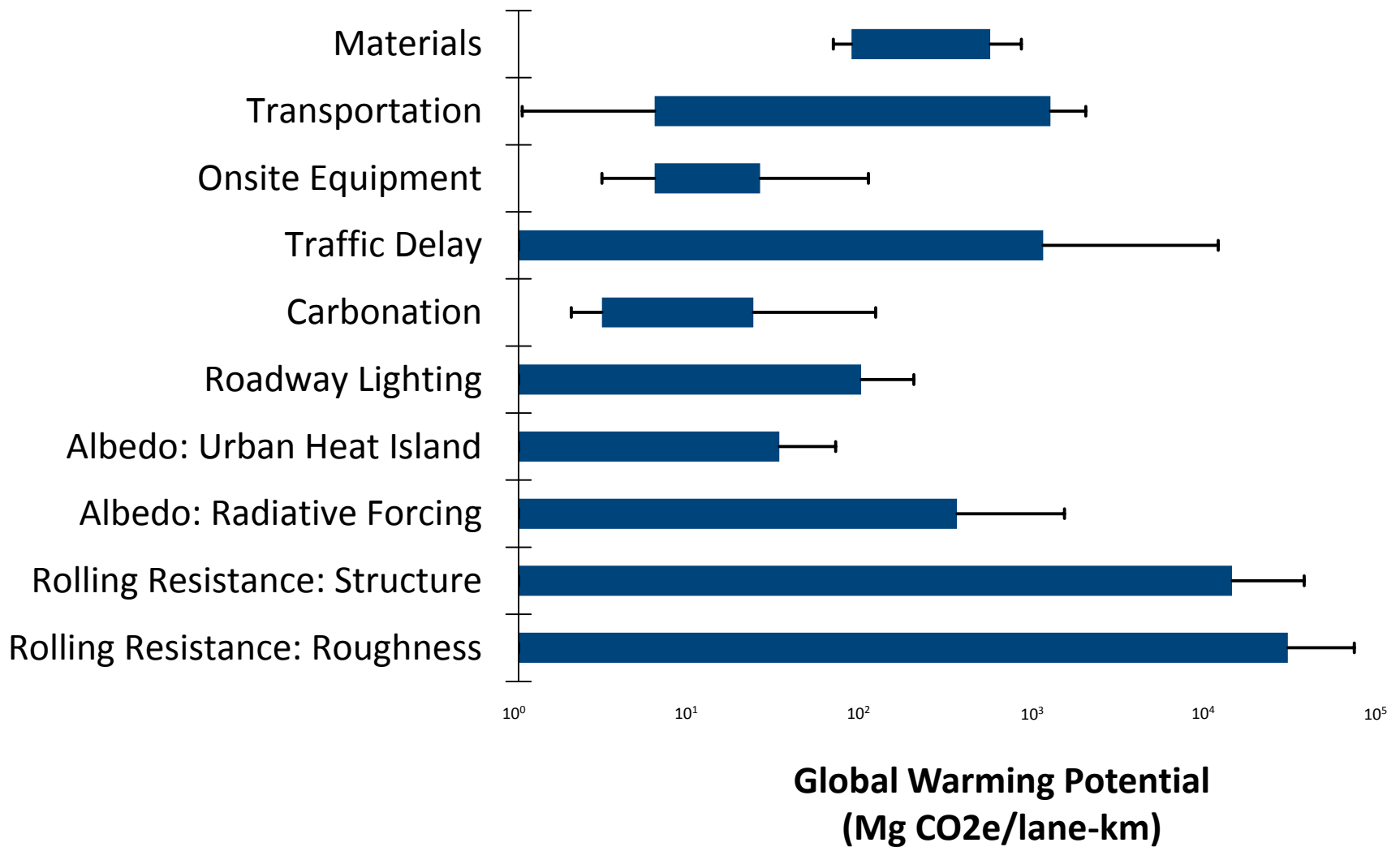
RAP is a valuable resource

1. Cost effective
2. Environmentally responsible
3. Perform well

The Pavement Life Cycle

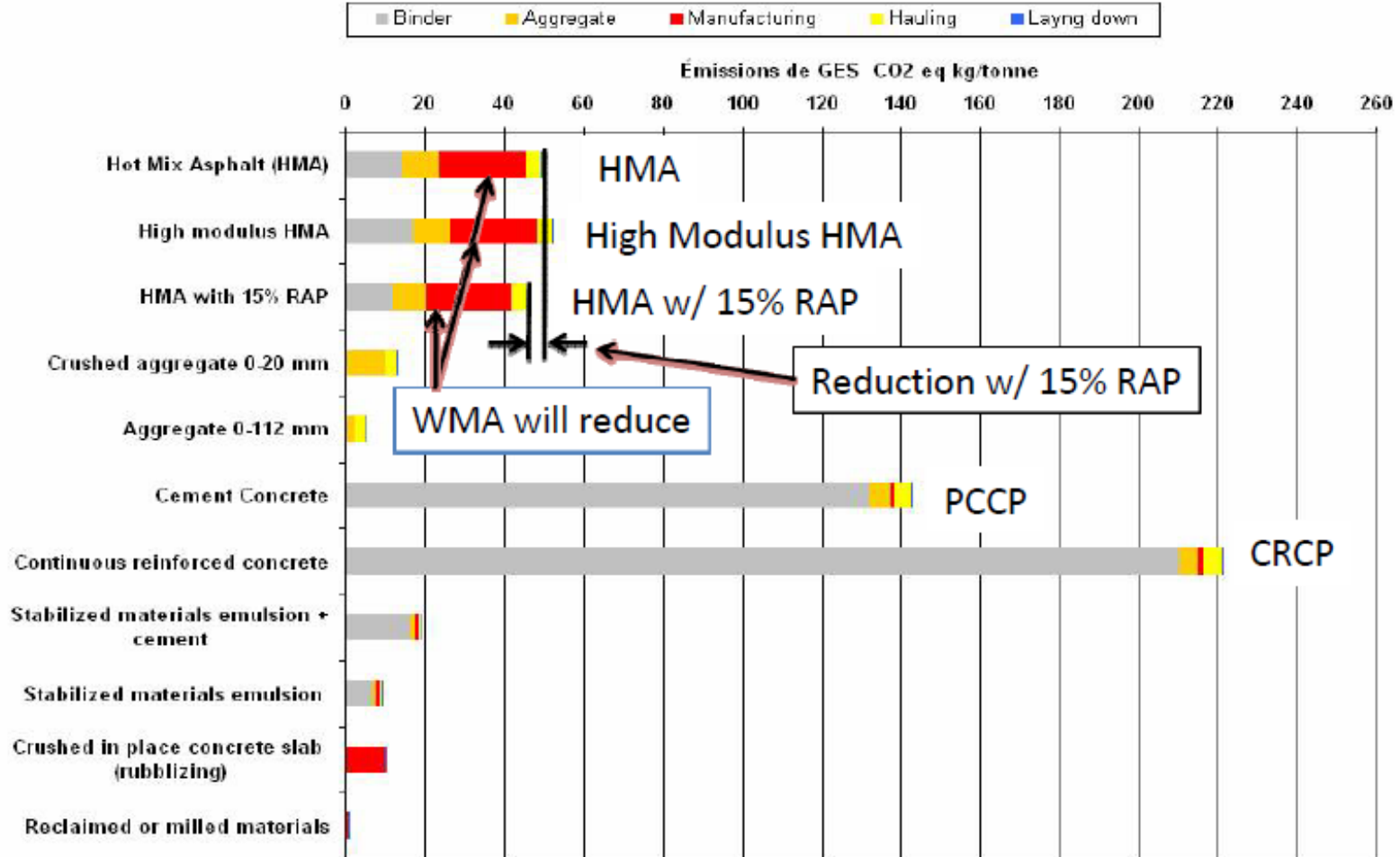


Santero, N., E. Masanet, and A. Horvath. 2011. "Life-Cycle Assessment of Pavements Part I: Critical Review." *Resources, Conservation, and Recycling*. 55(9–10):801–809.



Santero, N., E. Masanet, and A. Horvath. 2011. "Life-Cycle Assessment of Pavements Part I: Critical Review." *Resources, Conservation, and Recycling*. 55(9–10):801–809.

CO₂ eq kg/tonne



Ref: Analysis of energy consumption and greenhouse gas emissions, Pierre T. Dorchie, M.Sc., P.Eng, Michel Chappat, Julian Bilal

RAP is environmentally
friendly

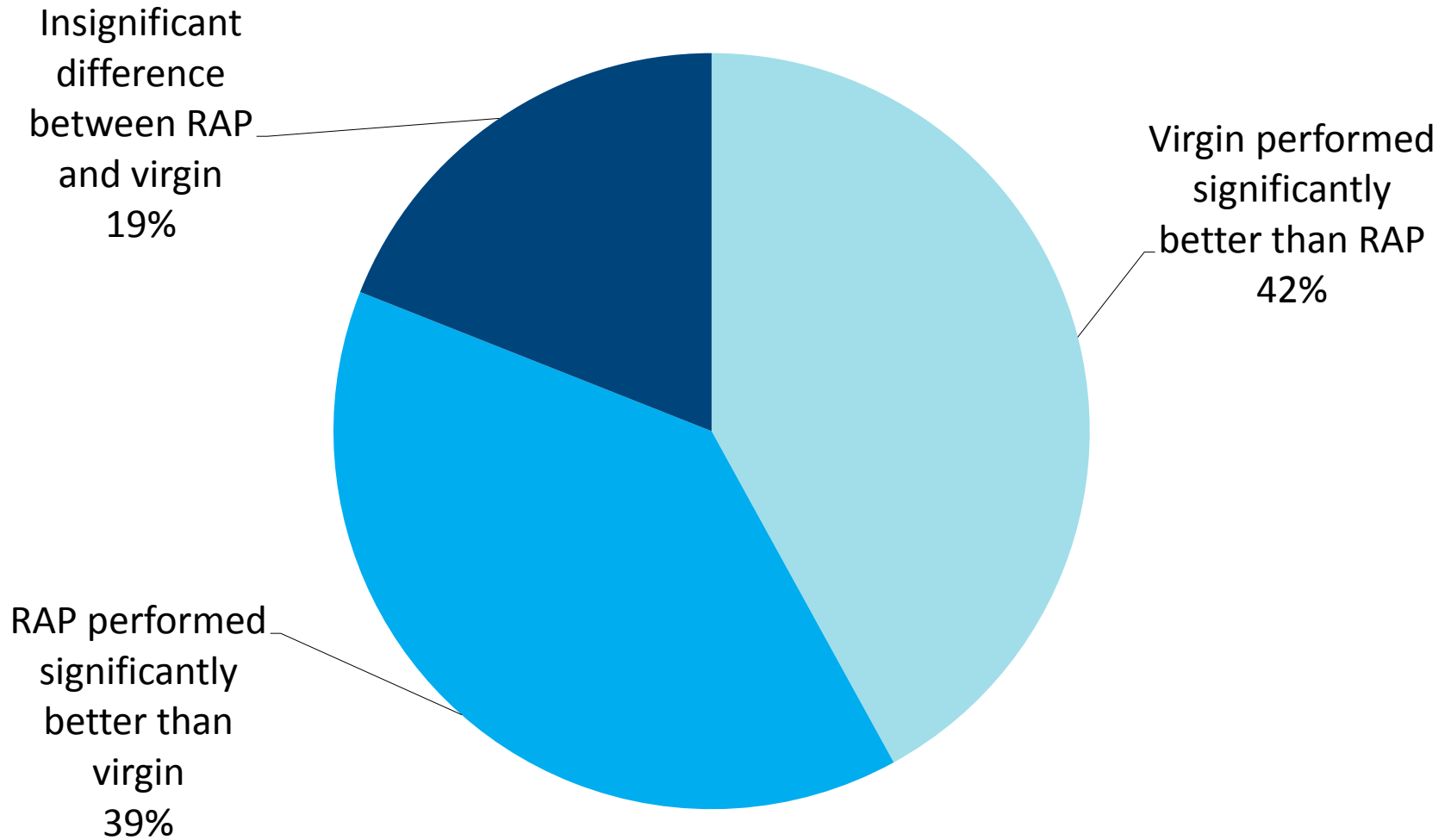
1. Cost effective
2. Environmentally responsible
3. Perform well

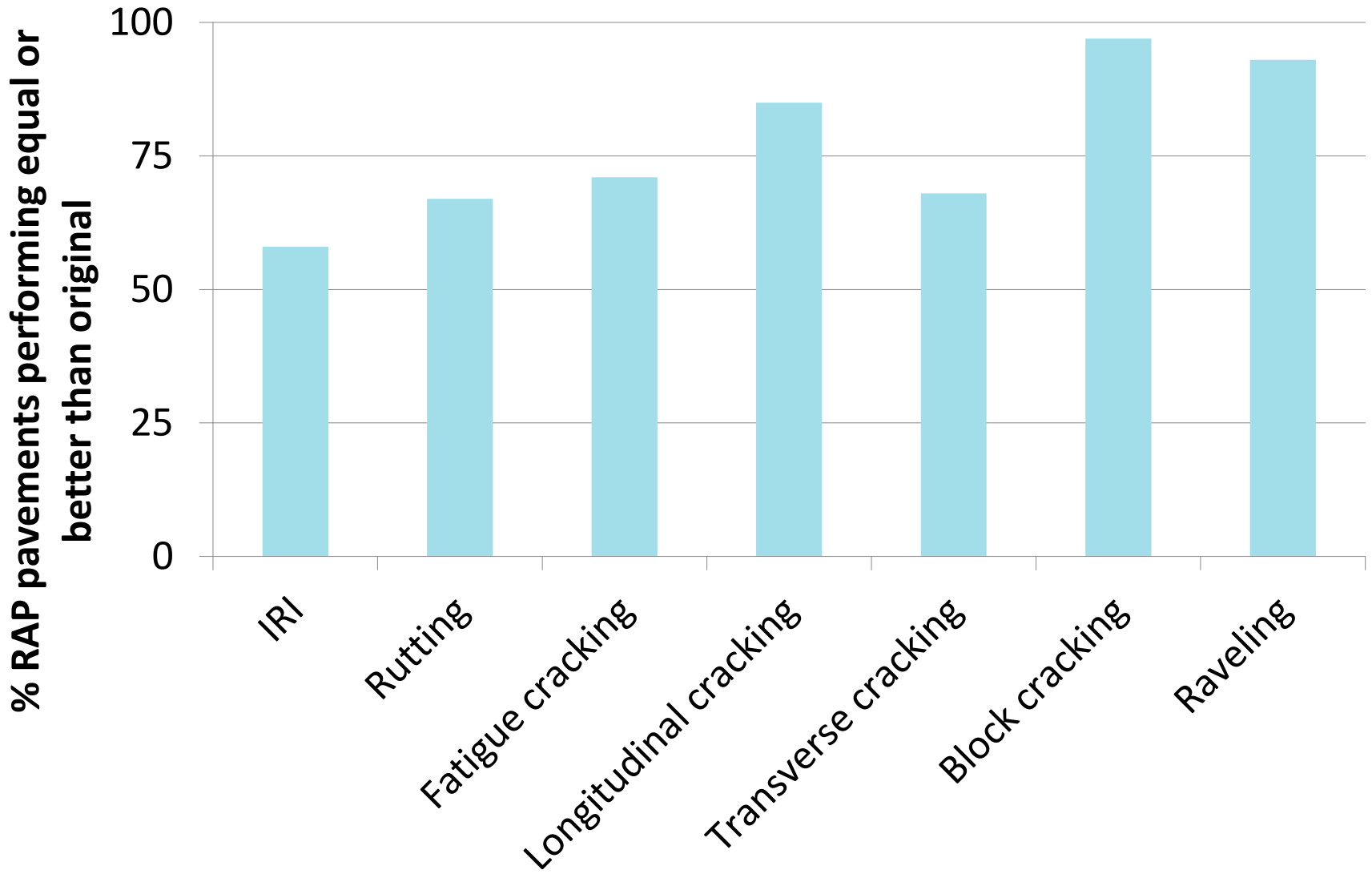
- Statistical Comparison of pavements
- 35% RAP pavements vs. virgin pavements
- Data from 5 test sections
- Pavement sections from 6 -17 years old

Hong, F., et al. (2010). "Long-Term Performance Evaluation of Recycled Asphalt Pavement Results from Texas: Pavement Studies Category 5 Sections from the Long-Term Pavement Performance Program," Transportation Research Record 2180, Transportation Research Board, Washington, DC.

- IRI
- Rutting
- Fatigue cracking
- Longitudinal cracking
- Transverse cracking
- Block cracking
- Raveling

IRI





RAP pavements can perform

What is holding us back?

- Specification limitations
- Lack of processing
- Lack of RAP availability
- Past experiences

Summary

- RAP is a valuable resource
- RAP is environmentally friendly
- RAP pavements can perform



Technology for a better society