

Carbon Footprints

2022

CHALLENGE

New Zealand's commitment to the Paris Agreement includes a 30% reduction in greenhouse gas (GHG) emissions by 2030, with the majority of the reduction coming from the energy and transport sectors. As an environmentally conscious organisation, Downer already reports on our GHG emissions, measured as carbon dioxide equivalents (CO₂e), and has started to assess its CO₂e emissions for road maintenance activities to understand their carbon footprint over the life cycle of each treatment method. The calculation of these carbon footprints is reliant on accurate data. The project's aim was to validate the data collected through our financial systems using field data capture, to assess whether it could be relied on to quantify the carbon footprint of maintenance activities. Recognition of the whole-life costs and impacts of different maintenance types are used encourage better decision making around strategy and treatment selection. This will enable Downer to support its clients to reduce the impact of infrastructure maintenance on climate change.

SOLUTION

The expected life of the maintenance activity is required to understand its full life cycle impacts, in the same way as life cycle costing is taken into account. The expected life forms part of the productivity measure, because it reflects the total impact required to maintain a road over its life. Much of the data required for the calculation of maintenance footprints is available in Downer's business systems. This project focused on validating the data through field data capture and analysis to ensure the business systems provide a full set of data suitable for life cycle assessment studies.

OUTCOMES

Several of the maintenance activities reviewed resulted in a wide range of carbon footprint results. Understanding the emissions associated with maintenance activities has a range of benefits. Some of these have been used to reflect the Life cycle Cost Analysis of treatment types with pavement strength enabling AE's to choose the right treatment to fit with the FWP strategy. Further benefits will be towards modelling the the network and optimising the FWP based on carbon emissions rather than budget to meet target requirements.

PHILLIPA O'SHEA

Phillipa.o'shea@downer.co.nz
027 5115728

EXAMPLE CHART OF CARBON INTENSITY BY ACTIVITY

