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RESUME:

Transport infrastructure is one of the largest consumers of natural resources, and it is also one of the industries with the greatest share of GHGs emissions. Sustainable strategies have been adopted to mitigate these issues in pavement construction and rehabilitation, one being the use of Reclaimed asphalt Pavement, RAP. RAP is the term given to removed and/or reprocessed pavement material containing asphalt and aggregates, usually generated when asphalt pavements are removed for reconstruction or resurfacing. The benefit that can be achieved by using large amount of recycled material include reducing the use of natural resources, eliminating waste material that would usually be deposited in landfills, reducing energy and water consumption; and reducing greenhouse gas emissions. The objective of this study was to quantify and compare the environmental impacts caused during the construction of four (4) trial lanes with varying percentages of recycled material. The Life Cycle Analysis (LCA) focused on the environmental impacts during (1) material acquisition, considering both virgin material and the milling process to obtain RAP; (2) Production at asphalt mix plant and (3) the Construction phase. The methodology includes various steps for the analysis, beginning with a literature review of research articles to understand the past and current practices in the field, that was followed by an inventory analysis, which is essentially the gathering of local data for quantification, after the data was collected and analysed, an impact assessment was conducted. The preliminary results of the analysis indicate that incorporating larger quantities of RAP in pavement maintenance contribute to environmental impact reduction and conservation of raw materials, which is conducive with literature. The benefits illustrated in this study are expected to encourage the widespread adoption of RAP during maintenance practices in Brazil and encourage further studies, legislation, and sustainable innovations in the field.