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A TRANSPORT NETWORK   WHAKATŪ/NELSON
FOR FUTURE GENERATIONS   9–12 JUNE. 2024

TRANSPORTATION
GROUP NEW ZEALAND

Title - Benchmarking RCAs' road network maintenance performance

Relevant sub-theme(s): (1) Papa Whenua, Pūtea & Te Taiao; (3) Mātauranga & Rangatiratanga

Please note: I am required to present this research at the 2024 conference as per the Tertiary Study Grant regulations, awarded to me in 2023. Every effort has been made to align the research abstract to relevant conference sub-themes above. The reviewing committee's favourable consideration would be greatly appreciated.

ABSTRACT:

A strong transport network is a pillar of a thriving nation. New Zealand, like the global community, grapples with pressing economic and environmental challenges as it endeavours towards sustainability and resilience in the Transport and Infrastructure sector. A pivotal aspect of this pursuit lies in optimizing road network maintenance and management practices across Road Controlling Authorities (RCAs) to bolster efficiency, sustainability, and lasting positive outcomes.

Performance benchmarking is known to be hugely successful across various industries in improving organisations' efficiency, resilience, and outcomes, in comparison to high performing peers. Such a practice has been previously explored within the transport and infrastructure sector using a highly popular, objective, data-based statistical technique known as Data Envelopment Analysis (DEA). The DEA technique considers selected critical performance data parameters across all RCAs and assigns efficiency rankings, highlighting which RCAs are efficient or inefficient within the sample group. This study has developed a robust, more specific DEA model to reflect New Zealand RCAs' maintenance performance with better accuracy, with individual focus on Urban and District RCAs.

Notably, this research holistically evaluates comparative RCA performance using DEA efficiency results, as well as current Asset Management Plan (AMP) assessment results from Te Ringa Maimoa (TRM) - Transport Excellence Partnership, and Waka Kotahi NZTA. This triangulated assessment offers insights into the degree of alignment between evaluations, offering a holistic appraisal of maintenance practices and identifying potential areas for improvement. Overall, this research contributes to advancing road network maintenance practices by improving the framework for effective performance benchmarking, as well as offering insights into optimising resource allocation and decision-making processes within the transport sector for lasting resilience and sustainability.

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