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Are submitting the following Abstract:

Title: **Travel-Time Patterns Benefitting Health and Wellbeing**

Abstract: CAITR 2014

Research into quantifying the health benefits from active transport is still gathering momentum.

This paper illustrates an integrated land-use, transport and health model for the proposed East-West Link (EWL) in the Melbourne metropolitan ecological system. It draws in Spatial Data Infrastructure (SDI) applications which have gained significant traction over the last ten years.

Though the space-time activity-patterns proposed by Hägerstrand in the 1950s is the modelling starting point, SDI is applied to the fully operational stage-1 of the EWL in the hypothetical year 2021 and indicates the possibility of a significant net reduction of adverse health exposure time per annum. Comparing the 2011 health impact exposure rates with reduced 2021 rates, indicates private and public health burden of disease impact costs of the Melbourne metropolitan population are reduced.

Key assumptions in this paper include that in the E-W transport corridor:

- Motor vehicle generated air pollution is less by 2021 than for the case of no transport system changes, such as the EWL
- Road trauma rates are reduced
- Sedentary travel time is reduced
- The overall quality of the built and natural environment for PT, cyclists, walkers and many residents is improved
- Net therapeutic health benefit occurs after the EWL is operational compared to 2011.
- The EWL in itself will not generate significant new freight and people movement in the total metropolitan transport system, above normal growth.

It is acknowledged, as currently proposed the connecting elevated ramps from the tunnels into existing roads downgrades the present local and community environment. The negative wellbeing impact of the ramps is not addressed in this paper.

This paper begins to quantify the potential travel-time pattern SDI exposure rate changes attributable to the EWL tunnel reducing health management costs. The Foundation Source and Open Source geo-referenced and time-stamped relational data bases come from VATS and VISTA.