

Appendix I - Health and the Built Environment - Opportunities in Transportation and Road Safety

Health Economic Assessment Tool (HEAT) Results, Assumptions and Limitations

HEAT Results: Sustainable Transportation Strategy (using HEAT v 5.2.0, July 12, 2023)

	Average results	Low fatality estimates for sensitivity analysis	High fatality estimates for sensitivity analysis
Premature deaths /yr (over 30 yrs)	69 deaths prevented/yr (2085/30 years)	78 deaths prevented/yr (2354/30 yrs)	60 deaths prevented/yr (1811/30 yrs)
Economic value per year	\$319,000,000/yr	\$360,000,000/yr	\$277,000,000/yr
Economic value over 30 yrs	\$9,570,000,000/30 yrs	\$10,800,000,000/30 yrs	\$8,320,000,000/30 yrs
Adjusted value over 30 yrs (discounted ¹)	\$7,970,000,000 /30 yrs	\$9,040,000,000\$/30 yrs	\$6,890,000,000\$/30 yrs
¹ The economic value after the discounting rate has been applied to reflect the net present value			

Limitations and Assumptions

The WHO HEAT provides a harmonized method for estimating economic impacts and premature mortality as a result of replacing motorized trips with walking and cycling. Since these types of calculations are often complex, the tool was based on the best available evidence and international expert consensus at the time of its development (2017) and updates have been applied thereafter. Although this is a useful tool for estimating economic costs and benefits, as with any modelling tool, it is important to recognize the results are based on a number of limitations and assumptions, and therefore liable to some level of uncertainty or margin of error. A sensitivity analysis was completed using a high and low estimate of crash risk to provide a range of results that mitigates these limitations.

The limitations and assumptions include but are not limited to:

- HEAT is only applicable to the adult population (ages 20-64 for walking and ages 20-74 for cycling), focuses only on all-cause mortality (excludes morbidity) for walking and cycling, and does not consider differences or changes in exposure to motorized traffic or injuries from road collisions.
- To address technical limitations in the tool related to carbon emissions and exposure to air pollution, the health and economic effects related to these have been excluded from our estimates.
- The quality of economic appraisal generated by HEAT highly depends on the validity and reliability of the walking and cycling data used.
 - Mode share (%) was adjusted to reflect travel modes focused on in the STS (cycling, walking, car, carpooling and transit) and exclude “other” modes, which mainly reflect school bus trips.
 - “AM peak period trips” from the STS (2011, 2041) were converted to “total trips within 24 hrs” based on the relative proportion of “AM peak period trips” to “total trips within 24 hours” from TTS 2016 data.

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- Although more recent Transportation for Tomorrow Survey data is available, 2011 data and 2041 targets were chosen for this simulation in alignment with the Region of Peel's most recent STS transportation demand modelling.
 - Limitations of TTS data include self-reported travel behaviours, the 50% sampling frame means not all residents have the opportunity to participate, only captures travel behaviours in the previous 24 hours and therefore may not reflect long-term consistent travel behaviours, responses could be affected by seasonality and therefore may underestimate or overestimate annual means.
- Despite these limitations, TTS is the most appropriate Peel specific data on mode share available. Furthermore, the use of TTS data is in alignment with what is widely used to estimate mode share by our transportation partners.