

## ABSTRACT

The research explores alternative sustainable shared transport modes that can be integrated successfully to the University of Witwatersrand's (Wits) public transport solutions for commuting students and staff. This study aimed to explore, through successful adoption of the shared transport solution WITSIT at Wits, whether single occupant car use could be reduced and significantly improve the Wits transport solutions both economically and environmentally, while providing all student access to alternative commuting options. A survey was distributed to the survey participants via an interactive website to expose the survey respondents to the concept of WITSIT share transport solution, where they could access an online questionnaire. Although the questionnaire introduced the concept of a truly integrated solution, the study focused on the carpooling aspect of the shared transport solution, due to the level of maturity due to little or no exposure to share transport models. Using the data collected from the responses, coupled with specific parameters collected in the literature survey, the average land required per vehicle and the cost of that land the economic and environmental indices could be calculated for the worst case and five scenarios. The worst case scenario represents single occupant vehicle journeys. Four of the scenarios represent carpooling with one, two, three and four passengers respectively. The fifth scenario represented the most likely outcome based on the current carpooling trends. The scenarios also compared carbon emissions reduction target for South Africa's Transport sector, established at COP15, interpolated for Wits Commuters. The reduction target for Wits commuters for 2011 would come to 1 704 T CO<sub>2</sub> eqt, which equates to 1 539 journeys and parking bays. This equates to a land reduction of 53 859m<sup>2</sup> through saved parking bays, with a value of R 151.29 million. The analysis revealed that if Wits commuters carpooled with just one passenger, the current 4500 vehicles on campus could reduce by 2 250 vehicles (1.5 times more than the target), resulting in a reduction of 2 702 T CO<sub>2</sub> eqt. (1.6 times more than the target) equating to a land requirement savings of 78 750m<sup>2</sup> (24 891m<sup>2</sup> more than the target) to the value of R 221.21 million (R69.92 million more than the target). By implementing the proposed WITSIT carpooling solution significant environmental and economic benefits could be achieved with possible social spin-offs leading to more advanced shared transport solutions.