

**Conclusions:** The reciprocal connections between Health, SWB and JS illustrate how intertwined these concepts are. Policymakers should take these results into account when considering policies on performance and productivity. The duration for active commuting does not seem to have great effects on Health, SWB and JS, although this should not be taken as a pessimistic sign because active commuting is perceived differently from recreational physical activities.

#2559

**THE IMPACTS OF PARKING SUPPLY RESTRICTION ON MODE SHIFT: OBSERVATIONS FOR THE QEII MEDICAL CENTRE, 2009-2018 (2ND HIGHEST SCORING PRACTITIONER ABSTRACT AWARD SPONSORED BY SWINBURNE UNIVERSITY OF TECHNOLOGY)**

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**Background:** The QEII Medical Centre (QEIMC) is the largest medical centre in the southern hemisphere. Redevelopment activities over the last 10 years have involved an amalgamation of several hospitals, specialist facilities and research organisations onto a single site. This redevelopment has been accompanied by a significant increase in transport infrastructure and supported through implementation of a best practice behaviour change program, TravelSmart. Throughout this redevelopment, changes relating to car parking supply have resulted in the ratio of bays to staff rising and falling over time.

**Purpose:** We compare the results from four Travel Plans which span a timeframe of 10 years to illustrate how mode shares have changed relative to development triggers.

**Results:** It was found that single occupancy vehicle mode share decreased from 75% in 2009 to 43% in 2012 following the implementation of the travel plan. Measures from the travel plan included the introduction of paid parking, parking permits, and a significant reduction in the parking bays during development, alongside incentive programs for employees to switch from the car to alternative modes. TravelSmart initiatives included the “TravelSmart Junction” information kiosk, “Green Commuter” permits, a car-pool scheme, end of trip facilities, subsidised bus fares and improvements to bus services. The 2017 Travel Survey coincided with the opening of the new multi-deck car park, prior to the occupancy of the new Perth Children’s Hospital (PCH). Single occupancy vehicle mode share increased back up to 62%, despite the continuation of TravelSmart initiatives. This resurgence of driving modes can be directly attributed to the increased availability of parking on-site. In 2018, the opening of PCH on the site (without additional staff parking) meant that the parking supply ratio was again reduced proportional to the number of staff, and mode share returned to the lower level of 48%.

**Conclusions:** This presentation provides a synopsis of the effect of a constrained parking supply on the travel behaviour of QEIMC staff. Through Travel Surveys, the impact of parking restrictions can be observed on the uptake of alternative transport modes, providing insights into employees’ revealed transport preferences. The restriction of parking supply has had an obvious effect on single occupancy vehicle mode share by reinforcing travel behaviour change by staff. When removed, this constraint provided justification for staff to drive to work once more. This Case Study shows the importance of including parking restraint as a means of achieving mode share in congested locations and activity centres.

#2563

**REDUCING CYCLIST CRASHES BY ASSESSING THE ROAD ENVIRONMENT: AN APPLICATION OF GOOGLE IMAGERY AND MACHINE LEARNING**

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**Background:** Cycling is an active and sustainable transportation mode, and is associated with health, environmental and societal benefits. Therefore, increasing the use of bicycles is being supported as a transport policy in many countries. However, despite these benefits, cyclists are vulnerable road users and are over-represented in traffic crash casualties compared to other modes of transport. The injury concern can discourage people from adopting cycling as a main transportation mode. Urban infrastructure that caters to cyclists’ safety can potentially reduce crashes and therefore, injury morbidity and mortality.

**Methods:** This research uses cyclist crashes recorded by the state road authority from 2010 to 2013 in Greater Melbourne. Exposure data used anonymised bicycle trips recorded by volunteer users of RiderLog smartphone application from 2010 to 2013. Crash locations and control sites were sampled from areas with high cycling exposure. Google Street View maps and satellite images at crash locations and control sites were downloaded to capture information of the road environments where cyclists crash and never crash. Deep learning methods using generative adversarial networks were applied to explore features of road environments associated with cyclist crashes.

**Results:** A number of unique observations were identified namely, that locations that have low crash risk had more green space (trees or grass), and median strips (that separate traffic from opposing lanes on divided roadways) also decreased a cyclist’s crash risk. Road environments with high-rise buildings casting shadows on the roadside are mostly seen in the environment in which crashes occurred. The experiments also identified factors that have been reported previously in the literature and statistical analysis, providing confidence in the presented methods. Such factors include tram tracks, intersections, on-road parking and off-road bicycle paths. Statistical analysis showed 52.6% of crash locations were within 5 metres of a tram line, while this percentage for control sites was 5.6%.

**Conclusions:** This research presents a method that takes advantage of the increasing availability of big datasets, computing power and the advances of deep learning techniques, to analyse the road environments of locations where cyclists crash from a new perspective. The findings give urban planners insights on how streetscapes might be reconstructed to improve safety situations for cyclists. The results also provide transportation engineers and cyclists with visual indications about what kind of streetscapes are safer.

#2567

**HOW DISTINCT ARE THE INATTENTION AMONG PROFESSIONAL AND NON-PROFESSIONAL DRIVERS?**

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