***‘That was too close’* – using AI to protect vulnerable road-users.**

Road users across Aotearoa should have equitable safety outcomes, however serious/fatal injuries of vulnerable road users are rising. Traditional safety indicators, speed/counts, provide limited insights into how safe roads, cyclepaths, school-zones, or shared spaces actually are. Crash data (CAS) remains the ultimate lag indicator and has well-documented shortfalls in capturing outcomes for active modes.

For decades industries have used Near-Miss monitoring as a reliable predictor of potential serious/fatal incidents. Applying this approach, VivaCity – with Waka Kotahi Hoe ki angitū (Innovation Fund) support – are refining their groundbreaking AI computer-vision to automatically identify, classify, and record near-misses between vulnerable road users and vehicles. This true lead-indicator data quantifies risk, justifies investment, and analyses performance of interventions; all without the need to wait for people to be injured.

Delivered in Aotearoa by SmartSense, VivaCity’s system is now being rolled out at key locations to provide anonymous classification and tracking of all active modes, and numerous classes of vehicles in 3-D to centimetre precision. Primary near-miss events detected include post-encroachment time (time between two items being in the same place), time to collision (trajectory analysis), and proximity (distance of cars to people).

The technology additionally captures valuable secondary safety and usage data such as speeds, classified counts, zonal occupation, and turning counts of traffic, scooters, cycles and pedestrians – a true one-stop-shop! A range of bespoke, high-quality reports and data is available in near-real time to assist roading professionals understand how environments are being utilised; and most importantly to root-cause dangerous behaviours; and the performance of interventions.

This collaboration between Waka Kotahi and two innovative companies is enabling the inequalities in safety equity to be measured with the objective of providing safer solutions across our rohe for vulnerable road users.