

# **INFRASTRUCTURE DEVELOPMENT: BICYCLE-BASED TRANSIT-ORIENTED-DEVELOPMENT (TOD)**

**S COOKE**

University of Cape Town/UNEP

## **ABSTRACT**

The financial sustainability of the South African urban public transport systems has been brought into question. The primary determinant of non-viability is the unique spatial structure of South African cities and the associated lack of public transport supportive land use environments. Transit Oriented Development (TOD) is being mooted as a potential method to improve inefficient urban forms and the viability of the public transport systems. Prior studies on density articulation have illustrated that the ability of TOD to decrease feeder service reliance has a significant positive impact on the viability of the public transport system as a whole. However, TOD is confined to the Station Influence Area (SIA) of each trunk service station. Therefore, the reach of TOD and its effect on public transport viability is dependent upon the population density within each SIA and the size of the SIAs. Conventionally, an SIA is measured as the walking catchment area of a station. If sufficient cycling infrastructure is provided, bicycle-based TOD (B-TOD) could develop a considerably larger SIA, however, with all the associated benefits of conventional pedestrian-based TOD. This presentation will illustrate that the positive effects of B-TOD on the viability of a public transport service, through decreased feeder service reliance, could far outweigh the costs of the cycling infrastructure. The study utilises a simplified public transport corridor operating cost model to test the effects of varying degrees of B-TOD in a generic South African urban context.