

C O N C L U S I O N

The thesis investigation has indicated that a low carbon intervention can be designed to provide a flexible urban and architectural framework to facilitate a more sustainably conscious society in future.

The proposed BRT terminal building at the Pretoria Main Station acts as a bridging structure that links the isolated Salvokop precinct to the city. Through the integration of the different transport systems on the site and reimagining the Station Square as a new functional green space the intervention acts as a catalyst between the two precincts contributing to its economic and social sustainability as well as ensuring this area regain its importance as a gateway into Tshwane,

The intervention responds to the urban context by adding complimentary functions to the existing that provide economic opportunity, while combating social problems caused by the isolation of these precincts. To mitigate climate change the design integrates the transport systems around the station promoting sustainable movement patterns within Tshwane. By developing a low carbon terminal building and prototypical BRT station the project also addresses the carbon footprint and embodied energy of public transport infrastructure within the city.

The Station Square is redeveloped as an urban green space which merges with the terminal building in an effort to provide a functional safe park that mitigates the heat island effect within the urban environment. The landscape also acts as an external skin to the building preventing unwanted glare inside.

Using sustainable principles, the design was generated through an analysis and response to the socio-cultural and historic context. It uses and enhances the existing character of the site while adding to its diversity with a new flexible intervention serving both the inhabitants of Salvokop and commuters alike.

Its impact on the environment during its construction phase is kept to the minimum by analysing the embodied energy and carbon footprint of construction materials and building technologies. This minimises the initial energy input for the structure.

Sustainable principles together with passive and active systems were utilised to lower the intervention's energy consumption during its functional phase. The terminal building is designed to allow high amounts of natural light into the building, while the vegetation around the building and screening devices are used to protect the interior spaces from direct sunlight and prevent heat build up. Natural ventilation is integrated with efficient mechanical ventilation systems to ensure a comfortable indoor environment. Available resources on site are harvested such as rainwater, solar thermal energy and photovoltaic energy.

Finally the following two significant points can be deduced:

To develop a sustainable built environment the building industry must collectively undertake a paradigm shift to have real and quantifiable effects. Isolated projects and interventions are too dependent on existing inefficient systems and processes leaving these projects stranded. Interaction between the different professions and disciplines is vital to achieve this.

The most effective immediate action that can be taken is to minimise built interventions and their effects, while increasing their efficiency in terms of material use, systems and functions. This should not be seen as a restrictive approach but rather a shift in our understanding of the role of new architectural solutions in our society.