

Langtree Mall Tree Pits

Mildura Rural City Council
Langtree Avenue, Mildura, Victoria

Overview

The redesign of the Langtree Mall commenced in 2008 with the implementation of the Central Business District Plan. The project involved upgrading the main pedestrian mall providing an opportunity to incorporate Water Sensitive Urban Design (WSUD). The capture and use of water in this project was identified as a priority at the very early stages of the design process. The average rainfall in Mildura is less than 300mm/year – making it one of the driest areas in Victoria.

The 26 tree pits and approximately 12.6m² per tree of permeable paving installed into this busy streetscape provide amenity and additional shade to the overall design of the pedestrian mall. The tree pits allow for treatment of stormwater and passive irrigation to the root zones when it rains.

Organisations

- Mildura Rural City Council (Responsible Council)
- Hansen Partnerships (Landscape Architect)
- Aurecon (Design - Civil and Structural Engineering)

Cost

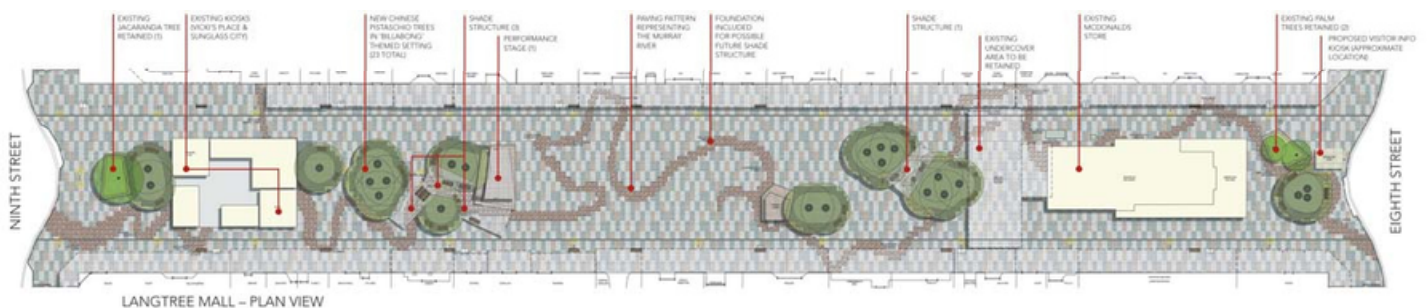
Tree pit cost – approximately \$700/m²
Total project – \$4.2M

Timeframe

The design phase commenced in early 2008.
Construction timeframe of 12 months, with the project completed in October 2011.

Objectives

To create an engaging multi-use space for the community that has the provision of shade, is low maintenance, addresses stormwater quality issues and uses water efficiently. Broad community engagement through the CBD planning process and the Mall Concept Design showed a desire for a new and improved pavement surface with existing streetscape clutter removed. The existing paving surface and design was poor quality creating an underutilized space.



Langtree mall concept plan

Outcomes

Community consultation early in the design process resulted in the mall not only achieving its sustainability objectives but created a multi-use space that is safe and flexible for community events including the Country Music Festival.

The installation of a significant number of advanced trees (mature trees approximately 5m tall and 80mm calliper) as well as an architecturally designed 'outdoor room' shade structure has contributed to the overall aesthetics and functionality of the mall.

Tree root zone design and tree selection (*Pistachia chenensis*) was of particular importance and contributed to the project being cost effective and low maintenance.

The inclusion of permeable paving into the design ensures that surface flows in a rain event are captured, allowing for passive irrigation of the trees through the root zone.

There are multiple benefits from this approach in terms of direct site benefits and benefits to the wider (river) catchment from improved water quality. The filtering of stormwater to remove particle sediments as well as Phosphorus and Nitrogen will reduce pollutants entering the Murray River.

This approach provides multiple benefits for the community, creating an engaging open space and improving stormwater management.

Lessons learnt

The process of discussion and consultation with the local community was undertaken early to understand the key issues important to them. This helped inform the design concepts of the mall.

The selection of advanced trees was important to the design of the Mall and Mallee environment. They require less watering and their canopy will establish quickly to provide shade.

There have been a number of permeable paving design techniques implemented in this project to help minimise the public risk to pedestrians. These include:

- use of a proprietary root cell modular system that directs the roots away from the surface which prevents future lifting of the pavers, and
- filling the spaces between the pavers with granular stones to minimise the uneven surfaces (note: this does make cleaning with a standard street sweeper challenging).

The design of the root cell was important for this project and has contributed to the health of the trees in their first season. The root cell area can hold additional stormwater runoff enabling increased uptake of nutrients, moisture and gases of the entire root cell zone, making the trees more resilient.



Excavation of one of the permeable tree pit sections



Root cell installation



Permeable tree pit section completed