Position Snapshot

Making the case for investment in street trees and landscaping in urban environments

The Heart Foundation works towards creating healthy environments that encourage and support healthy active living.

While the aesthetic values of street trees are readily apparent, many of the other benefits they provide may be easily overlooked. Trees provide multiple functions and wide ranging benefits to street users including health, social, economic and environmental, compared with single purpose engineering infrastructure.

For all their myriad of benefits, trees are undervalued. They are seen as an afterthought to good design and development rather than an integral part of it. For some, concerns about root systems, drought tolerance or dropping leaves and fruits have meant a reluctance to invest in trees. We believe that the many benefits far outweigh these concerns.

Trees can transform a street more easily than any other physical improvement.

CALL TO ACTION

The Heart Foundation is calling on government and local governments to use tree planting and landscaping to contribute to the functionality of streets and open spaces, improve the microclimate and create attractive and legible routes and spaces that encourage active use.

The Heart Foundation encourages local governments to consider suitable spaces for planting productive street trees in parks, playgrounds and on school walking routes.

The Heart Foundation calls on residents to support the planting of trees on suburban verges.

For councils deciding on where to direct expenditure in order to improve a street, planting trees can give the best return as trees can transform a street more easily than any other physical improvement.

Calculating the value of trees

The environmental and property value cost benefits alone have been calculated at $3.81 for every $1.00 spent on tree planting and management.[1] In Adelaide a four year old tree was estimated to generate a gross annual benefit of $171/tree, consisting of energy savings, air quality improvements, stormwater management, aesthetics and other benefits. It has been suggested that this value is closer to $424/tree.[1]

Older larger trees can provide up to 60 times greater pollution reduction benefit than smaller trees through pollution reduction, the storm water control, the cooling effects through transpiration, the housing values and the street pavement stabilisation.[2]

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Trees deliver health and wellbeing benefits

- The presence of trees encourages people to walk for both exercise and transport and is associated with reduced incidence of heart attack and type 2 diabetes.[3]
- Trees planted along the kerb, especially if closely spaced; define a pedestrian zone separated from traffic, creating a sense of safety both physically and psychologically.
- The perception of safety is an important component of walkability, and there are safety aspects of tree planting in the verge between the footpath and roadway. This includes an increased perception of safety, by separating pedestrians and moving vehicles, and by creating a protective barrier which reduces the risk of being hit by a 'run-off-the-road' vehicle. [4, 5]
- Trees (low-allergen) absorb considerable quantities of airborne pollutants which has been shown to cut childhood asthma levels.[6]
- One function of trees is to contribute to the textural detail missing from architecture. Light filtered through trees gives life to space. Manipulation of light and shade transforms stone, asphalt and concrete into tapestries of sunlight and shadow.[7]

Trees make environmental contributions

Trees play important function in our cities during the hotter months by:

- Improving climate - probably the greatest benefit of tree planting in a built up area. Tree canopies can reduce the temperatures of the surfaces they shade by as much as 10-25^{0}C. [16,17]
- Helping to reduce the 'urban heat island effect' [18-22]
- Improving driver comfort by providing relief from sun and wind, and reducing cross-glare. [23]
- providing atmospheric cooling through evapotranspiration.[24]
- Reducing energy consumption, by reducing air temperatures, and by the direct shading of buildings.[20, 25]
- Reducing overall exposure to UV radiation, and associated skin cancer.[26-27]

Environments with trees are more robust and can assist in:

- reducing runoff volumes and delay the onset of peak flows from rainfall. Broadleaf evergreen trees provided the most annual rainfall interception of up to 60% of the rain falling on the tree
- increasing soil and groundwater recharge
- removing nutrients and heavy metals from storm water.

Trees have economic benefits

There are significant positive economic effects due to neighbourhood tree cover due to the shading and aesthetic quality of tree-lined streets.

The presence of trees has been found to increase the selling price of a residential unit from 1.9% - 7%.[9,10,11] In a study of Philadelphia's revitalised neighbourhoods, houses adjacent to street tree plantings were seen to gain a 9% premium.[12] In addition, neighbourhood commercial corridors in 'excellent' condition, including a green streetscape, were correlated with a 23% net rise in home values within a quarter mile of the corridor and an 11% rise within a half mile. The Real Estate Institute of Queensland found that the value of homes in leafy streets were up to 30% higher in the same suburb.[13]

Trees contribute to reducing stormwater management costs by reducing the need for constructing additional retention, detention and treatment capacity.[1]

Trees grow food

Productive street trees refer to trees that are planted along streets and in parks and produce fruit or nuts which can be picked eaten and shared by the public.

The idea is to supplement urban fresh food production (the Heart Foundation supports increasing fruit and vegetable intake), normalise the growing of food, educate the community about growing food, encourage people to grow their own food, to share and celebrate food and to enjoy the aesthetics as well.[28]

Productive street trees can provide cities and towns with a range of social, economic and environmental benefits such as building equitable food access[14], increased opportunities for social engagement and connection to nature, and decreasing 'food miles'.[15]

Trees contribute to driver safety

Roadside trees do not appear to comprise a significant risk to drivers. Traffic authorities have tended to severely restrict roadside tree planting by enforcing 'clear zones' to be kept free of rigid objects such as trees above a specified trunk diameter. As a consequence clear zones are seen as the largest impediment to roadside tree establishment on arterial roads. In 2007 in NSW tree crashes comprised only 4.4% of all crashes with a fatality rate of 3.1%.[29] Alcohol, speeding and driver fatigue were the biggest contributing factor to fatal crashes. The tree tends to be unfairly blamed as the cause of the accident, when in fact the tree collision is only the outcome of a run-off-the-roadway incident.

Street trees, if properly selected, adequately spaced and pruned to branch high, do not create major visibility problems for drivers entering intersections. In fact parked cars, especially large 4WD ones, create substantially more visibility problems.[30]

The many values of trees

Health and social benefits	Improves walkability Delivers a range of health benefits Therapeutic restorative effects Encourage sharing and celebration of food Food production Social Interaction
Economic benefits	Improves commercial vitality Increases residential property values Benefits of Adelaide street trees $424/tree Stormwater management Contributing indirectly to local economies
Climatic and environmental functions	Climate modification Reducing the urban heat island effect Cutting soil erosion Positive impact on water quality Shading pedestrians, cars, footpaths and buildings
Driver safety	Encourages lower speeds Used as traffic calming devices
Engineering functions	Stormwater runoff control and quality Erosion control Noise reduction

Further resources

Streets for People. Compendium for South Australian Practice

This resource represents a collaboration between the Heart Foundation, Department for Planning Transport and Infrastructure, the Urban Renewal Authority and SA Health. It will provides guidance on design principles for creating walking and cycling friendly streets.
http://www.saactivelivingcoalition.com.au

Food Sensitive Planning and Urban Design (FSPUD)

This framework aims to put food back into planning and wants planners to think and plan for the security of our urban food supply.
http://www.ecoinnovationlab.com

Landscapes Alive Plant Selector

A comprehensive, relevant and user-friendly online resource to help achieve more sustainable urban landscapes through improved plant selections.
http://www.environment.sa.gov.au

Green infrastructure

Street trees comprise a significant component of the wider urban forest (all public and private trees). These components are referred to as a city's green infrastructure. The concept of green infrastructure is based on the awareness that natural systems can perform a range of engineering, environmental and human functions. The key features of green infrastructure which distinguish it from grey infrastructure are multi-functionality and connectivity. That is, it can deliver multiple benefits from the urban space it occupies, compared with single purpose engineering infrastructure and it 'value adds' by linking and connecting existing green assets.[31]

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