

**ITEM NO: 9****SUBJECT: TREE PLANTING IN LURLINE STREET, KATOOMBA****FILE NO: F02082 - 09/82341**

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**Recommendations:**

- 1. That the information provided in this report is received and noted;*
  - 2. That a study is undertaken to assess Lurline Street, Katoomba in relation to feasibility for street tree planting;*
  - 3. That the suitability and prioritisation of Lurline Street is considered in the context of the city wide Street Tree Masterplan currently underway; and*
  - 4. Subject to recommendations 2 and 3, potential funding sources are identified and investigated.*
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**Report by Group Manager, Community and Corporate****Reason for report**

At its ordinary meeting on 24 March the Council resolved:

*"That a report comes to Council detailing suitable trees for planting along Lurline Street, Katoomba."*

(Minute No.107, 24/04/09)

**Background**

Recent correspondence from a local resident strongly urged that the Council consider tree planting in Lurline Street, and pointed out the multiple benefits which would be provided by such a project.

**Street Tree Planting**

The upper mountains has traditionally had tree planting within roads. Surviving remnants can be seen on Megalong Street at Leura and Station Street at Katoomba. In more recent times, trees have been planted within the roadway in the commercial strip in Katoomba because of the limited space within the footpath and the presence of overhead awnings.

Successful urban street tree planting is achieved as a result of a variety of factors, not least of which is species selection. Suitable species for this location in Katoomba would include *Platanus* species (Plane Trees) or *Pyrus Chanticleer* "Glen's Form" (Flowering Pear) both of which are currently used within Katoomba. Note that the planting of Plane Trees associated with the Echo Point improvements are now a significant streetscape element from Echo Point to Forster Road intersection and this is the preferred species to continue further north along Lurline Street.

**Priority**

The Council is currently reviewing the city wide Street Tree Masterplan. This strategy, which is due for completion in the coming quarter, will provide a strategic context within which any proposals for Lurline Street can be assessed and prioritised against the rest of the Local Government Area.

The Echo Point Plan of Management (EDAW 1995) refers to “Develop...tree planting schemes and landscape treatments to achieve scale reduction and visual improvements...” as a strategy in relation to a number of major streets including Lurline Street.

**Technical Considerations**

There are numerous technical standards that need to be addressed for the establishment of a successful street tree program. Provision of adequately detailed planting pits will minimize issues such as initial failure to thrive on the part of the tree and the heaving of paths, roads and kerbs. Advances in tree science allow prediction of adequate root volumes which are frequently underestimated, for example a large specimen such as a Plane Tree will require approximately 28m<sup>3</sup> to attain its typical size and display a healthy crown.

Species selection is clearly a key factor in determining longevity, however tree growth and success is also subject to the following:

- Analysis of services in the street to determine canopy space available and the potential for conflict with other amenities e.g. driveways and signage;
- Analysis of footpath and roadway dimensions to determine the minimum clear path of travel and sightline requirements to road, side roads and driveways;
- The provision of adequate tree pits with appropriate soil, drainage, staking and pit surface treatment; and
- If trees are planted in roadway then protection from cars is required, e.g. bollards, kerb realignment or other.

The Council’s Traffic Engineer has identified the following further issues:

- Loss of parking due to plantings may be an issue for businesses;
- The need for clear areas at bus stops to allow clear access for double decked bus movements;
- Road shoulder plantings and planting beds need to allow for bicycle lanes;
- If non frangible trees (greater than 150mm trunk) are proposed then a road environment which controls traffic speeds to less than 40 kph would be desirable. This could be in the form of realigned kerbs with curvilinear or serpentine horizontal alignments or if a straight boulevard type characteristic is preferred then possibly provision of traffic calming devices at about 100 metre intervals (these could be sections of raised, feature pavement, pedestrian refuges, roundabouts at intersections, speed cushions, angled slow points or medians and shoulder blisters etc);
- Deciduous trees will require scheduling of street sweeping maintenance to keep roadway, footway, gutters and drainage pits and pipes clear of leaves and debris at the appropriate times of the year;
- Maintenance of street trees in the roadway will require additional resources for traffic control;
- Any planting bed will be a point of entry for stormwater to sub pavement of road and footpath with resultant acute or chronic deterioration unless properly designed, and built;

- Tree roots will also be a potential source of pavement lifting, trip points and pavement and kerb failure; and
- Additional assets and resultant effects on footpaths, roadways, kerbs, and drainage will require diversion of funds from other existing priority assets to service and renew. This may not be able to be supported as a priority on our Sustainable Assets Management Plan (SAM Plan).

All of these factors will need to be considered and many of them will have a profound impact on the number and location of trees that can be planted.

### **Stormwater Treatment**

In the implementation of potentially major works within the street environment, serious consideration should be given to the delivery of a stormwater treatment package. If stormwater polishing and/or harvesting is also required, then low maintenance permeable surfacing, either paving material or garden bed surface will be necessary. In this case, there may be an opportunity to coordinate with stormwater services and provide 'polishing' (removal of nutrients) to runoff by channeling through tree pits and structural soil into subsurface drainage. Whilst adding to the technical requirements, this aspect is worthy of investigation as it may provide access to 'Water Sensitive Urban Design' grant funding.

### **Options**

Three options are assessed:

#### 1. Do Nothing:

Lurline Street remains as is, with limited public domain vegetation between Waratah Street and Echo Point. Decline of existing street tree stock continues, with attendant decline in amenity and visual values.

#### 2. Plant Trees in pits (no stormwater polishing):

Individual tree pits are installed either in footpath or road (as per BMCC Technical Manual). This will include a large pit, (8m<sup>3</sup>) imported soils, drainage, protection devices for the tree, and an appropriate surface for the pit, comprising of mulch and possibly a protective grate. The cost of this will be approximately \$4000/tree plus the tree grate (\$1000). It is estimated that a minimum of thirty (30) trees will be required (\$150,000).

#### 3. Tree Planting With Stormwater Polishing:

This option involves the installation of major drainage and soil trenches, downstream stormwater treatment and/or storage and the excavation and replacement of road and footpath surfaces, some of which may be reinstated with a permeable surface, and include garden beds with mass planting. This option would involve some temporary disruption to traffic and residential amenity in the Street during the construction period. Costs of delivering such a comprehensive scheme are currently unknown; it is likely to be significant and such a scheme would be dependent on securing significant grant funds (which are potentially available for such initiatives).

**Sustainability Assessment (Triple Bottom Line Reporting)**

Option 1:

<b>Effects</b>	<b>Positive</b>	<b>Negative</b>
Environmental	Nil	<ul style="list-style-type: none"> <li>Continued deterioration of existing tree stock</li> <li>Continuing &amp; increasing impacts of climate change on ridgetop location</li> </ul>
Social	Nil	<ul style="list-style-type: none"> <li>Decline of visual amenity to road approach to Echo Point</li> </ul>
Economic	<ul style="list-style-type: none"> <li>No capital allocation required</li> <li>No increased maintenance costs</li> </ul>	Nil

Option 2:

<b>Effects</b>	<b>Positive</b>	<b>Negative</b>
Environmental	<ul style="list-style-type: none"> <li>Deciduous canopy provides significant microclimate benefits including summer shade &amp; winter sun</li> <li>Carbon capture likely to be significant over time</li> <li>Habitat extension especially for small and medium sized birds</li> </ul>	Nil
Social	<ul style="list-style-type: none"> <li>Adds considerably to liveability of this major street, especially in summer.</li> <li>Will contribute to the amenity of Lurline street as a pedestrian boulevard</li> </ul>	<ul style="list-style-type: none"> <li>Some sightline issues – minimised through competent site assessment in analysis stage</li> </ul>
Economic	<ul style="list-style-type: none"> <li>Real estate value increase for adjacent houses when trees reach maturity</li> <li>Impact on visual amenity and tourist “perception” especially as an approach to the major tourist destination of the Mountains</li> </ul>	<ul style="list-style-type: none"> <li>Capital allocation required (likely to be in order of \$5000/tree for full implementation of infrastructure).</li> <li>Increased maintenance costs</li> </ul>

Option 3:

<b>Effects</b>	<b>Positive</b>	<b>Negative</b>
Environmental	<ul style="list-style-type: none"> <li>All of the above environmental benefits</li> </ul> <p>PLUS</p> <ul style="list-style-type: none"> <li>Best practise street tree planting with adequate root volumes which will allow full tree canopy development</li> <li>Capture of nutrients and pollutants</li> </ul>	<ul style="list-style-type: none"> <li>Still experimental, there may be unforeseen consequences</li> </ul>

	<p>in stormwater runoff before they enter the National Park – enhanced ‘duty of care’ in regard to World Heritage listing and Sydney’s water catchment</p> <ul style="list-style-type: none"> <li>• Limits ability of weed ‘plumes’ to spread (limiting opportunistic use of foreign nutrient along watercourses)</li> <li>• More available water for use in cliff-top parks around Echo Point</li> </ul>	
Social	<ul style="list-style-type: none"> <li>• Demonstrates best practise and integrates several functions – Stormwater harvesting, microclimate modification, footpath and road design.</li> <li>• Improves amenity to street which has significant number of tourist attractions</li> <li>• Has the capability to stimulate “ownership” of the street by immediate stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>• Some sightline issues (as above)</li> </ul>
Economic	<ul style="list-style-type: none"> <li>• Less investment required in long term weed management</li> <li>• May harvest water for use in cliff-top parks such as Lilianfels and Echo Point</li> <li>• Reduces maintenance and increases longevity of sediment collection systems</li> <li>• Puts escapee nutrients in root zones of trees which need them – reducing need for fertilizing</li> <li>• Increased concurrent opportunity for BMCC to renew road infrastructure in high-use area</li> <li>• Economies of scale: a chance to implement a suite of improvements which would otherwise be considerably more expensive.</li> </ul>	<ul style="list-style-type: none"> <li>• Increased maintenance costs</li> <li>• Increased management costs (especially in regard to maintaining permeable surfaces and/or garden beds)</li> </ul>

**Financial implications for the Council**

The introduction of new street tree planting would involve significant costs in order for a successful scheme to be established. BMCC currently spends in the order of \$1.4 to \$1.6m annually on the maintenance, replacement and general care associated with trees within the local government area. A nominal element of the budget is set aside for new tree planting and no funding has been allocated to this program at present.

The Council may choose to do nothing and incur no increased costs, but will forego considerable potential benefits. Presently in BMCC budget planning there is only a relatively small amount of money available for street tree planting and significantly more funds would need to be allocated to meet Option 2. There is currently no allocation for Water Sensitive Urban Design. In order to implement Option 3, considerable technical analysis and design decisions will be required to realistically assess costs in order that the Council can make the appropriate allocation and apply for grants.

**Grants available**

The current Federal Government grant program for stormwater harvesting and reuse has allocated \$200 million, available on a dollar for dollar basis, with a minimum \$4 million project size and grant round submission dates due June 30 and Dec 11. Advice from WSROC indicates that there is potential for a joint regional project to be submitted, based on a number of individual projects by member councils. This raises the possibility of a WSROC regional project involving works that have been scheduled (and some of which have funds allocated) for 2009 – 2013 that requires further investigation.

**Legal and risk management issues for the Council**

Risk management issues would be addressed with a competent site analysis especially in regard to tree placement and traffic.

**External consultation**

Consultation will be required if the Council decides to proceed with either of the two planting options, but has not occurred to date.

**Conclusion**

The re-establishment of Lurline Street as a tree lined boulevard which introduces visitors to Echo Point would be a superb urban design achievement, but does require a realistic appraisal of the feasibility and costs involved in allowing it to achieve its full potential. Species selection is relatively straightforward and two species are put forward.

A range of standards (traffic, drainage, access, etc.) would need to be met in the design and implementation for both planting options, and this requires a substantial dollar commitment for capital works on the part of the Council that is currently not available. In order for any scheme to progress, further work on funding and grant sources needs to be undertaken.

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