

RE: COSTS ASSOCIATED WITH THE PLANTING OF TREES BY THE MUNICIPALITY

MUNICIPAL MANAGER'S RECOMMENDATION:

1. THAT the recommendation of the Director Recreation & Cultural Services be adopted.

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TO: Municipal Manager 1984 February 15
FROM: Director Recreation & Cultural Services
SUBJECT: Costs associated with the planting of trees by the Municipality

RECOMMENDATION:

1. THAT this report be received for information purposes.

REPORT

At their meeting of 1984 February 06, Council passed a motion whereby they requested staff to bring forward a report providing a breakdown of costs associated with the planting of trees by the municipality at locations throughout the municipality.

There are basically three types of tree planting carried on within the municipality:

1. Hastings Street - Kingsway - 6th Street
 - (a) Hastings Street: Large caliper (3") trees planted at grade in the sidewalk.

The cost of this planting includes cost of cutting the sidewalk, removing the concrete and unsuitable growing media, replacing with topsoil, tree purchase, suitable application at base of tree, including all labour \$435.00.

There are approximately 110 of these trees that were planted on Hastings Street as Burnaby Beautification projects.

- (b) Kingsway: Planted in planters

All of the above costs apply with the additional cost of the planters bringing the total to \$665.00. Four of these trees are planted, also as Burnaby Beautification project.

Attached is a report to Commission dated 83-11-02 regarding planters versus at grade planting.

1. (Continued)

(c) 6th Street: Four trees in planters

These four trees are the only other Corporation planter-installed street trees. The cost of this planting was shared with the store owner on 6th Street between 13th and 14th Aves., on request of the store owner.

2. Boulevard Tree Plantings

There are approximately 6,000 of these trees planted within the municipality. These are planted at grade, without the expense of costly cement cutting, installation of topsoil and special base treatment. This work is carried out by Parks staff for, and in conjunction with, Engineering and Planning & Building Inspection Departments. These trees, of several different varieties, are usually 1 3/4" - 2" caliper and cost an average of \$85.00 per tree to purchase and plant. The average annual maintenance per tree is approximately \$6.00.

3. Parks Tree Plantings

These are also trees planted at grade in parks without the added cost of the sidewalk plantings. These trees are purchased or propagated in our nursery and often are of native variety; used to supplement forest areas, as well as for shade and aesthetic reasons. The average cost to plant these trees is approximately \$40.00 each. Maintenance to these trees is considerably less than the boulevard trees and is carried out within Horticulture and Grounds Maintenance Operations budgets.

DMJ:ka
Attach.

Director Recreation & Cultural Services



ITEM 5
MANAGER'S REPORT NO. 17
COUNCIL MEETING 1984 03 05

ITEM 6
DIRECTOR'S REPORT NO. 21
COMMISSION MEETING 83-11-02

RE: STREET TREE PLANTING
PLANTERS VS. AT GRADE PLANTING

RECOMMENDATION:

1. THAT the Commission receive this report for information purposes.

REPORT

Arising out of the meeting between the Parks and Recreation Commission and the Burnaby Beautification Committee on 1983 October 05, Staff were requested to provide a comparison between the costs, rates of survival, advantages and disadvantages of planting street trees in containers versus planting in sidewalks.

Staff have been monitoring this situation since the installation of the Hastings Street trees, planted at grade, and the container planted trees on Kingsway and on 6th Street. The following report is based on data collected from these three sites.

PLANTING AT GRADE

This approach is commonly used in many major cities where large caliper boulevard trees are planted in sidewalks along commercial roadways. There are 110 boulevard trees along Hastings Street planted in this manner. The initial installation cost is lower than container planting (Table #1), obstructions within the sidewalk are minimized, the selection of useable trees is higher and the survival rate is generally good. There is no doubting the aesthetic benefits of installing boulevard trees in this manner.

On the negative side, however, at grade planting cannot be used if shallow underground utilities are present. Also, some shop owners complain that the tree canopy obstructs signs and windows. With pruning and through time the problem corrects itself as the tree grows taller. Using planters helps elevate the tree canopy to a more acceptable level.

The major problem Staff have encountered on Hastings Street is a high rate of vandalism and damage by vehicles. An average of five trees per year need to be replaced at an approximate cost of \$300.00 per tree. Part of this high cost is in the removal and replacement of the surfacing over the tree ball.

Vandalism and damage by vehicles occurs at a much lower rate on Kingsway and 6th Street where tree planters have been used. To date, no trees have been lost. If replacement is necessary, the cost is estimated to be approximately \$200.00 per tree; provided of course that the container is not damaged. Therefore, while the initial installation costs are much lower for trees planted at grade than in containers, in the long run the higher rate of vandalism and higher replacement costs makes container planting a more practical economic approach. Other factors however, such as those outlined in Table #2 have to be considered.

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CONTAINER PLANTING

The approach used on Kingsway and on 6th Street was to use bottomless planters set in a hole excavated in the sidewalk. While the cost is more than enclosed containers, it allows for a higher rate of tree survival and a larger selection of boulevard trees that can be used. The tree roots can grow below the sidewalk, giving more access to moisture, while also allowing better drainage. Root damage by frost and drought is also lessened. Thus, maintenance costs for trees placed in bottomless containers is lower than if sealed containers were used.

Containers have their greatest benefit when underground utilities prevent planting the trees at grade. In fact, this is the reason why planters were used on both Kingsway and 6th Street. They are also more decorative, especially with an exposed aggregate surface. This can be further enhanced by planting bulbs, annuals, or low growing shrubs within the container.

The greatest disadvantage of using containers is the amount of extra space they occupy on the sidewalk. The tendency is to locate the container as close to the curb as possible, but this limits the width car doors can open. Damage may also result from cars attempting to parallel park. It is therefore necessary to locate the containers approximately one foot in from the curb. Comparable survival of the trees is assumed to be the same for either approach. Direct evidence is not yet available but from previous experience, Staff feel confident with this prediction.

In summary, container planting has traditionally been restricted to use in malls and plazas, while street side planting is usually accomplished by planting at grade. Initially, planting at grade is cheaper than container planting, but due to the high incidence of vandalism and damage by vehicles, maintenance cost of trees planted at grade is significantly higher. Comparative rates of survival, health and longevity are assumed to be the same for either planting method. Therefore, if sufficient sidewalk space is available, or if underground utilities prevent planting at grade, Staff would be in support of an increased use of containers for tree planting.

JWK:ka
Attach. (2)

cc: Director Engineering

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TABLE #1

COST COMPARISON

<u>ITEM</u>	<u>PLANTERS</u>	<u>AT GRADE</u>
Concrete Cutting	\$ 65	\$ 65
Remove concrete and excavate subsoil	20	50
Supply and install planters	275	N/A
Cement in planters	45	N/A
Supply and install soil	20	20
Supply and install large caliper trees	200	200
Supply and install base surfacing	N/A	100
Supply and install ornamental shrubs, annuals or groundcover	<u>40</u>	<u>N/A</u>
TOTAL PER TREE	<u>\$665</u>	<u>\$435</u>

ACTUAL COSTS:

Kingsway and 6th St.	\$675/tree	N/A
Hastings Street	N/A	\$440/tree

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TABLE #2

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ADVANTAGES AND DISADVANTAGES

CONTAINERS

AT GRADE

- | | | |
|-------------------------------------|---|--|
| 1. Installation Costs | Approximately \$665/tree. Initially higher by approximately \$230/tree. | Approximately \$435/tree |
| 2. Maintenance Costs | Approximately \$30/tree. Initially higher but becoming equal with time. | Approximately \$15/tree |
| 3. Vandalism and Death | Cost approximately \$175/tree - low rate of loss. | Cost approximately \$300/tree - higher rate of loss approximately 5 trees/year |
| 4. Tree health, vigor and longevity | Assumed to be the same | Assumed to be the same |
| 5. Tree Species | Selection somewhat restricted to smaller less aggressive species | Greater selection available |
| 6. Space Requirements | Occupies much greater sidewalk space, prevents car doors from opening, must be offset from curbs or cars will damage containers | Much less space required and less of a hindrance to pedestrian and vehicles |
| 7. Other considerations | Elevates the tree canopy higher so that shop signs and windows are not obstructed, therefore less pruning required.

Enables a tree to be planted over underground utilities that would prevent planting at grade.

Aesthetics can be enhanced by planting bulbs, annuals or shrubs within the container. | Collects less litter than do containers. |