



# City of Vancouver *Land Use and Development Policies and Guidelines*

Community Services, 453 W. 12th Ave Vancouver, BC V5Y 1V4 ☎ 604.873.7344 fax 873.7060  
planning@city.vancouver.bc.ca

## WEST GEORGIA STREET TREE AND SIDEWALK DESIGN GUIDELINES

*Approved by Council on May 14, 1998*



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## Related Documents

- West End Georgia/Alberni Guidelines (Planning)
- Street Tree Guidelines (Engineering Services)
- Street Tree By-law (Board of Parks and Recreation)

1.0 Introduction

These street tree and sidewalk design guidelines were adapted from the **Georgia Street - Second Century** Report completed by the Georgia Street Public Realm Advisory Committee in 1986. For a variety of reasons, the full report and attached guidelines were not brought forward to Council for formal approval. However, the street tree and sidewalk portions of the report were implemented as a standard practice for new development on West Georgia Street. In 1989, the **West End Georgia Street/Alberni** Guidelines that were subsequently adopted by Council governed the area between Chilco and Cardero Streets on the south side of the street. The sidewalk variation in this section of the West Georgia Street was a double row of trees and a grass boulevard. In 1992, Council further adopted a general policy to introduce grass boulevards in any high density residential areas in the Downtown where appropriate. Grass boulevard requirements now extend from Chilco to Bute Streets as a reflection of Council Policy.

Since 1986, approximately one third of the West Georgia Street tree and sidewalk treatment has been built or is currently under construction. A number of modifications have evolved recently including tree replacement, grass boulevards, and tree species substitution. These modifications further improve the quality of the sidewalk treatment and tree planting.

The objective of these design guidelines is to clearly state the current requirements for street tree and sidewalk treatment on West Georgia Street. It is important to note that users of this design manual should contact Engineering Services for further details regarding sidewalk treatments and the location of trees, and the Board of Parks and Recreation for final approval of the tree species. The goal of these guidelines is to create a distinctive and attractive sidewalk treatment befitting for one of Vancouver’s principal streets.

2.0 Street Trees

2.1 Objectives

The existing street trees on West Georgia Street vary considerably as to size, shape, form, age, species and varieties. There are no trees in some blocks, some blocks have mixed tree species, and in blocks where there are trees, they vary in age and size. The existing trees do not contribute to continuity objectives defined for the Street.

A number of objectives have been defined for street trees to significantly contribute to the visual continuity emphasis for the street.

The street trees shall:

- be a major element in creating strong visual continuity;
- assist in developing a distinct and attractive physical character;
- reinforce and emphasize the sub-area differences in the character of West Georgia Street;
- increase the awareness of the presence of nature in the urban environment; and
- provide a “natural” or ecological link to the larger open spaces such as Stanley Park located at the west end of Georgia Street.

2.2 Selection Criteria

Given the visual continuity objectives, a number of essential criteria have been established to assist in determining what tree species and their particular variety are appropriate for West Georgia Street.

The street trees shall:

- have reasonable root containment habits;
- attain and maintain, in street conditions, a mature size of 14 m (45 ft.) height with a 8 m to 9 m (25 to 30 ft.) branch spread;
- maintain a general uniform branch shape of either round or vertical oval in form
- leaf colour to be predominantly green;
- be capable, with pruning, of maintaining a 2 m (7 ft.) minimum clearance from sidewalk level to the underside of branches; and
- have longevity, be of a species less prone to disease as, well as being clean and generally easy to maintain.

In addition to the criteria considered essential to the choice of the street tree, the following criteria are also considered desirable:

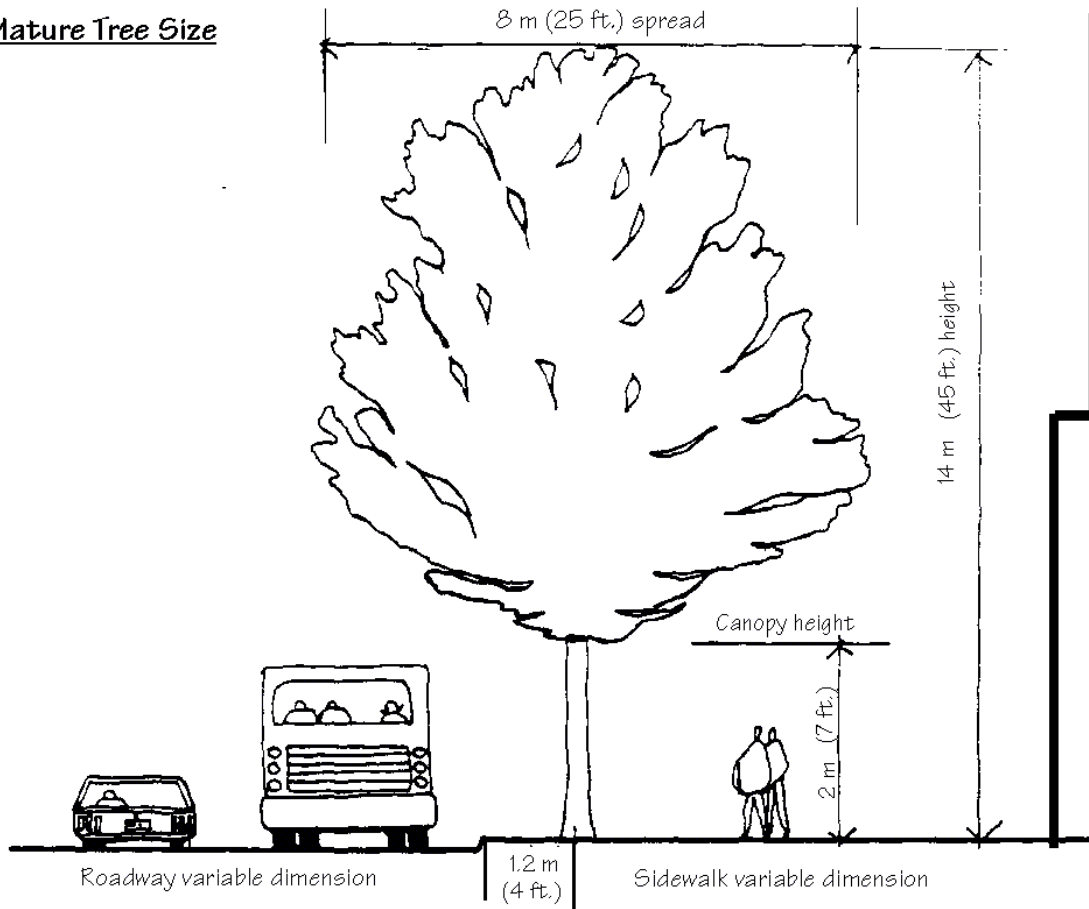
- the leaf life to be as long as possible, with a moderate leaf size to create a medium, not dense, foliage density;
- leaf colour to provide seasonal colour change; and
- the branch structure to provide a strong winter presence.

(See Figure 1 for an illustration of general street tree characteristics and street tree spacing)

# Figure 1: Street Trees

Mature Tree Size and Tree Spacing: Tree spacing and location will be in consultation with Engineering Services and Species/Soils in consultation with the Board of Parks and Recreation.

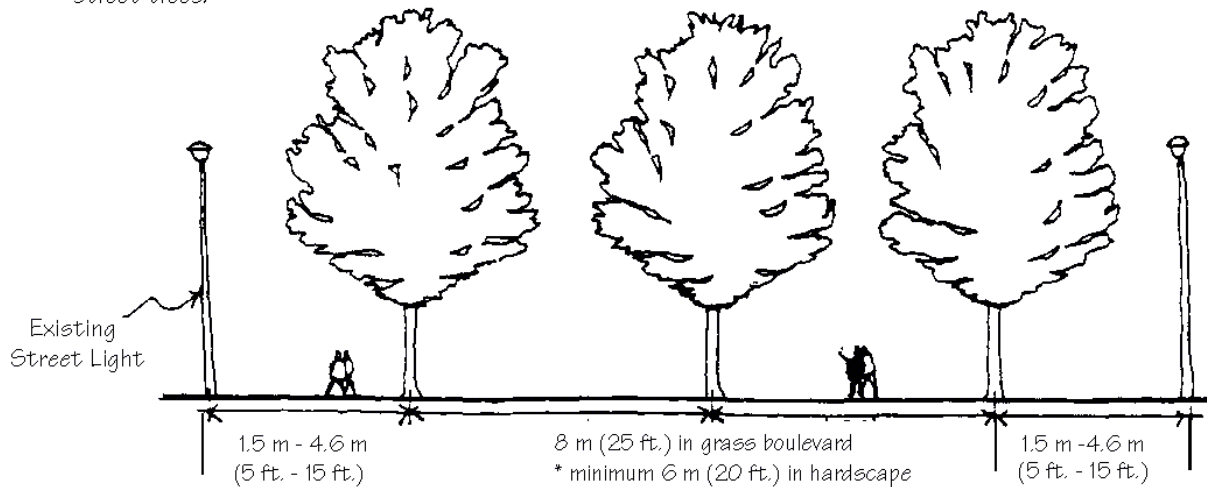
## 1. Mature Tree Size



TYPICAL CROSS-SECTION

## 2. Tree Spacing

\*The final tree spacing is to be coordinated with the perpendicular banding in the sidewalk. An 8 m (25 ft.) minimum standard is required for trees in a grass boulevard where there is a proposed single row of street trees.



TYPICAL SECTION ALONG THE STREET

### 2.3 Selected Tree Species And Varieties

Two trees have been selected as meeting the established criteria. In addition, these trees are known to succeed and flourish on Vancouver streets.

#### **Acer Rubrum ‘October Glory’**

\*(Substituted for the original “RED SUNSET” and “MORGAN” for continuity, hardiness and colour.) This Red Maple has a good growth rate, adapts well as a street tree, has early spring colour and bright crimson fall colours. The ‘October Glory’ has an upright growth habit.

#### **Acer Rubrum ‘Scanlon’**

A more upright type of Red Maple, less branch spread, and more dense growth habit for narrow sidewalk areas.

### 2.4 Street Tree Species and Variety Replacement Criteria

Generally, in development situations, where the existing trees will be replaced, the appropriate variety of Red Maple tree (in accordance with the sub-area) will replace the existing tree for a consistent and strong uniform image along the street. In specific situations, normally in non-development cases, when only one or two trees need replacement due to death or decline, and these trees are among a number of other healthy trees on the block, then the same tree will be replaced even though they do not match the required standard Red Maple tree. The long term plan is still to replace these trees consistent with the West Georgia Street Guidelines.

### 2.5 Street Tree Replacement Criteria

Tree replacement is a sensitive issue as mature and declining trees are removed and new trees, normally significantly smaller, are replaced. The Board of Parks and Recreation have a general policy to retain healthy street trees when possible. This is not always a straight forward decision along West Georgia Street as new sidewalk construction adds further stress to existing trees. There are also many opportunities to fill in new trees along West Georgia Street. Recently, at 1200 West Georgia Street, eight Cherry trees were replaced with 16 Red Maple trees. This is a good example of the general policy of replacing trees in decline and adding additional trees to fill in the gaps. In each case, the development or non-development site will be reviewed by the Park Board in consultation with Engineering Services and Planning to establish whether or not the existing trees should be replaced. The following criteria will be used as a reference guide to consider replacement, keeping in mind the general principle that healthy trees will be retained when possible and appropriate.

#### **Tree Replacement Criteria:**

1. the existing trees are in significant decline (less than 10 years of estimated life remaining); and/or
2. a significant number of existing vacant planting areas (greater than 50%); the majority of the existing trees are in decline (less than 10 years of estimated life remaining); and/or
3. the proposed new sidewalk construction could significantly damage the existing trees’ roots resulting in decline and death within 10 years.

### 2.6 Planting Patterns By Sub-Areas

A tree planting pattern is proposed to reflect, in part, the five sub-areas of the Georgia Street guidelines. (Figures 2 to 6 provide further details).

#### **Sub-Area 1: (Chilco to Cardero Street)**

In Sub-area 1 (double rows of trees with grass boulevards) the West Georgia/Alberni Guidelines, adopted by Council in 1989, provide the opportunity to encourage existing and potential developments adjacent to the street to provide setbacks from their street property lines. The guidelines for the south side of the street have also been adopted for the north side. These setbacks accommodate a wider pedestrian boulevard with a double row of tree planting. One row of these street trees is to be located in the sidewalk area and the other row located, with the owners approval, on the adjacent landscaping/boulevard area of the private developments. A grass boulevard is required along the curb edge. The tree selected for this sub-area is *Acer rubrum* ‘October Glory’. (October Glory Red Maple tree).

There is also the opportunity to provide an additional row of trees on the Georgia Street frontage of the Devonian Harbour Park in this sub-area. This additional row of trees would complement the existing planting along the edge of the park and extend the double row planting pattern from the Bayshore developments through to Stanley Park. These additional trees in front of the park should be subject to further detailed consideration by the Board of Parks and Recreation.

**Sub-Area 2: (Cardero to Bute Streets)**

Sub-area 2 accommodates the transition from the West End residential district to the Downtown commercial district. There is also a grade change in this sub-area with Georgia/Bute Street having a significantly higher elevation than Georgia/Cardero Street. A double row of trees may also be possible in sections of this sub-area with the second row being provided on the landscaped setback areas of private developments. No widened boulevard is planned for this sub-area on City property. In addition, a grass boulevard along the curb edge will be required in front of the residential developments, consistent with Council's policy for high density residential areas. For this Sub-area and continuity with sub-area 1, the tree selected is the *Acer rubrum* "**October Glory**" (October Glory Red Maple tree).

**Sub-Areas 3 and 4: (Bute to Seymour Streets)**

In sub-areas 3 and 4 there are a greater number of constraints for street tree planting. Apart from the form of existing developments, and the generally narrower width of sidewalks, there are also bus stop zones, loading zones, passenger zones and also building canopies extending over portions of the sidewalks. These space constraints restrict the type and number of trees that can be planted. The *Acer rubrum* "**Scanlon**" (Scanlon Red Maple tree) is the selected street tree in this sub-area since it is more columnar and dense in growth habit. Each tree will be somewhat more prominent, given the limited number that can be planted.

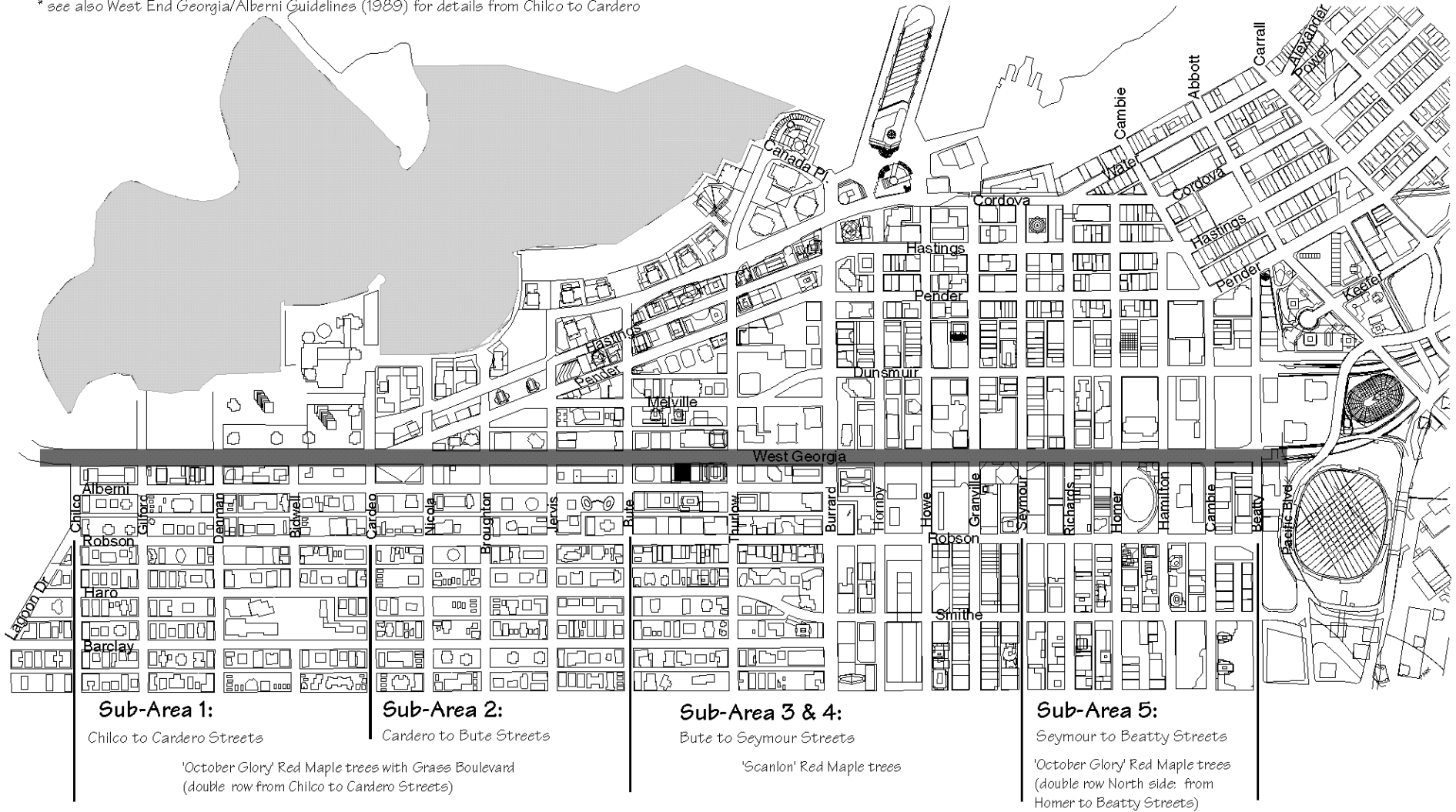
**Sub-Area 5: (Seymour to Beatty Streets)**

In Sub-area 5 an opportunity for a wider pedestrian boulevard is identified for the north side of Georgia Street in front of the Post Office, the Queen Elizabeth Theatre Plaza and the Larwill Park site. Given the opportunities and the general characteristics of this sub-area, and abiding by the principle of continuity, *Acer rubrum* "**October Glory**" (October Glory Red Maple tree) is the appropriate tree choice.

*Note: For specific guidance on the tree spacing with regard to City services, transit and other utilities, refer to the City of Vancouver **Street Tree Guidelines** available through Engineering Services.*

**Figure 2: Overall Map of West Georgia Street Sub-Areas**

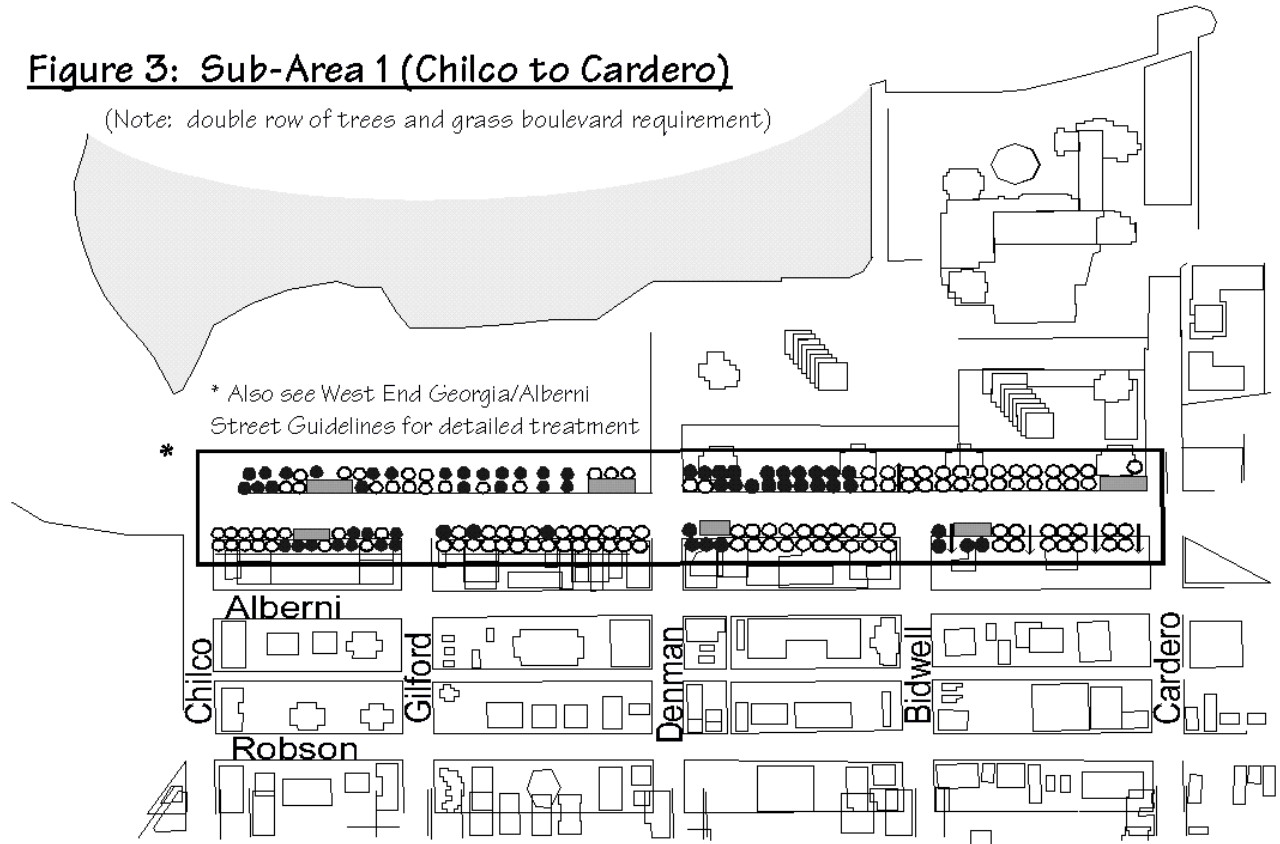
*\* see also West End Georgia/Alberni Guidelines (1989) for details from Chilco to Cardero*





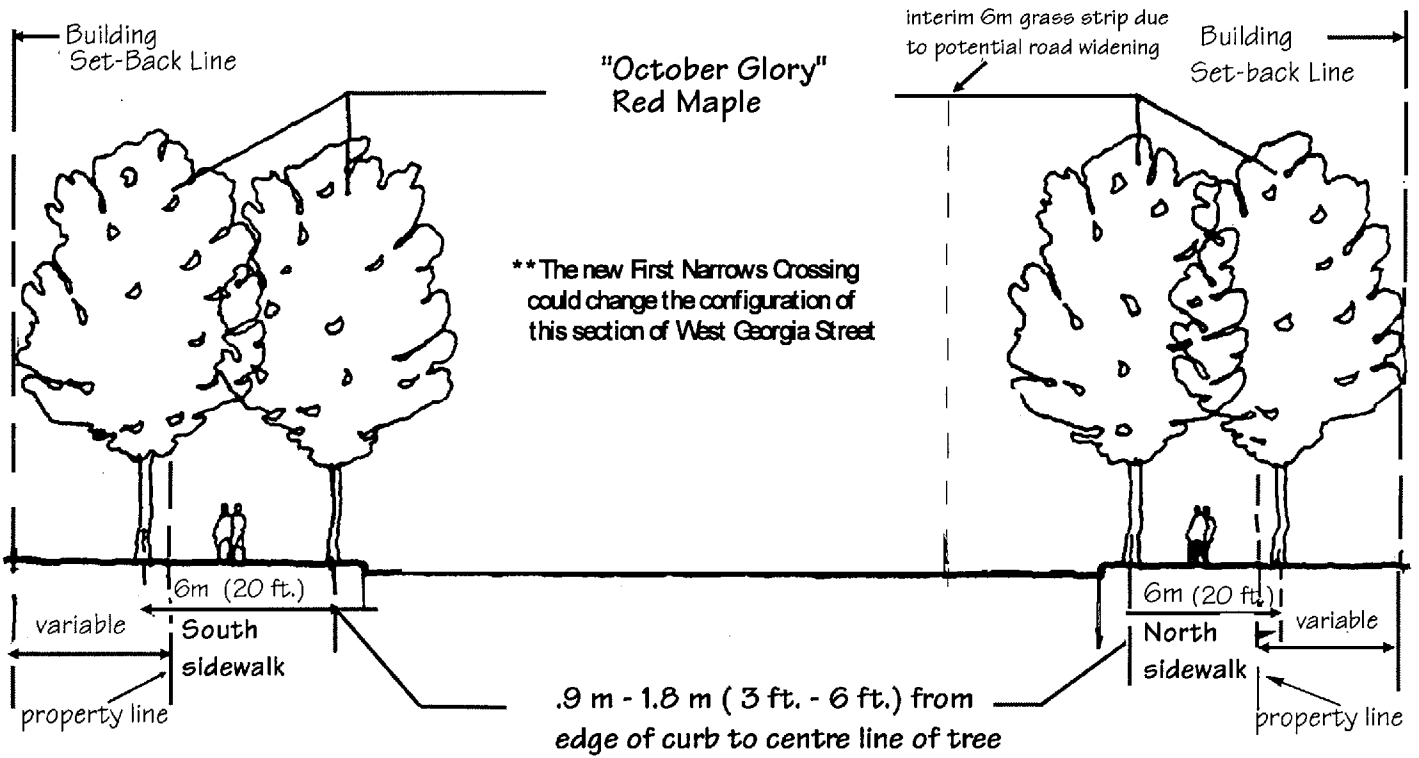
### Figure 3: Sub-Area 1 (Chilco to Cardero)

(Note: double row of trees and grass boulevard requirement)



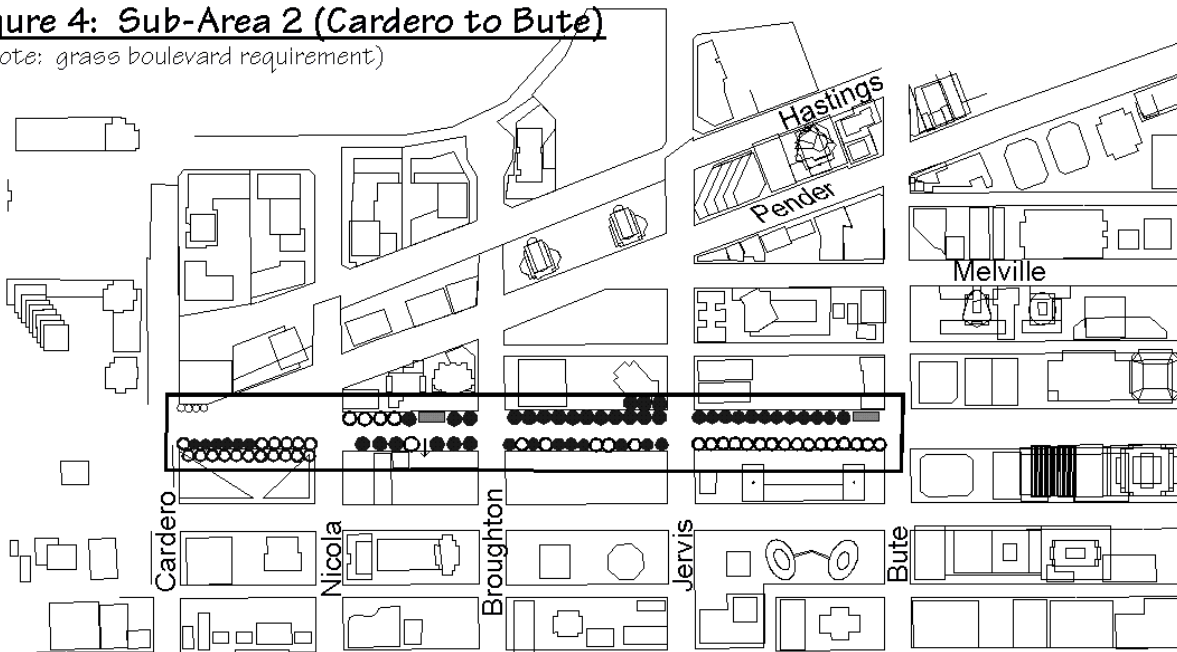
### Sub-Area 1 - (Chilco to Cardero) Existing and Proposed Street Tree Layout

- existing street trees (61 trees - 34%)
  - proposed street trees (121 trees - 66%)
  - ↓ access point
  - bus stop or drop off
- = Total Potential: (182 trees - 100%)



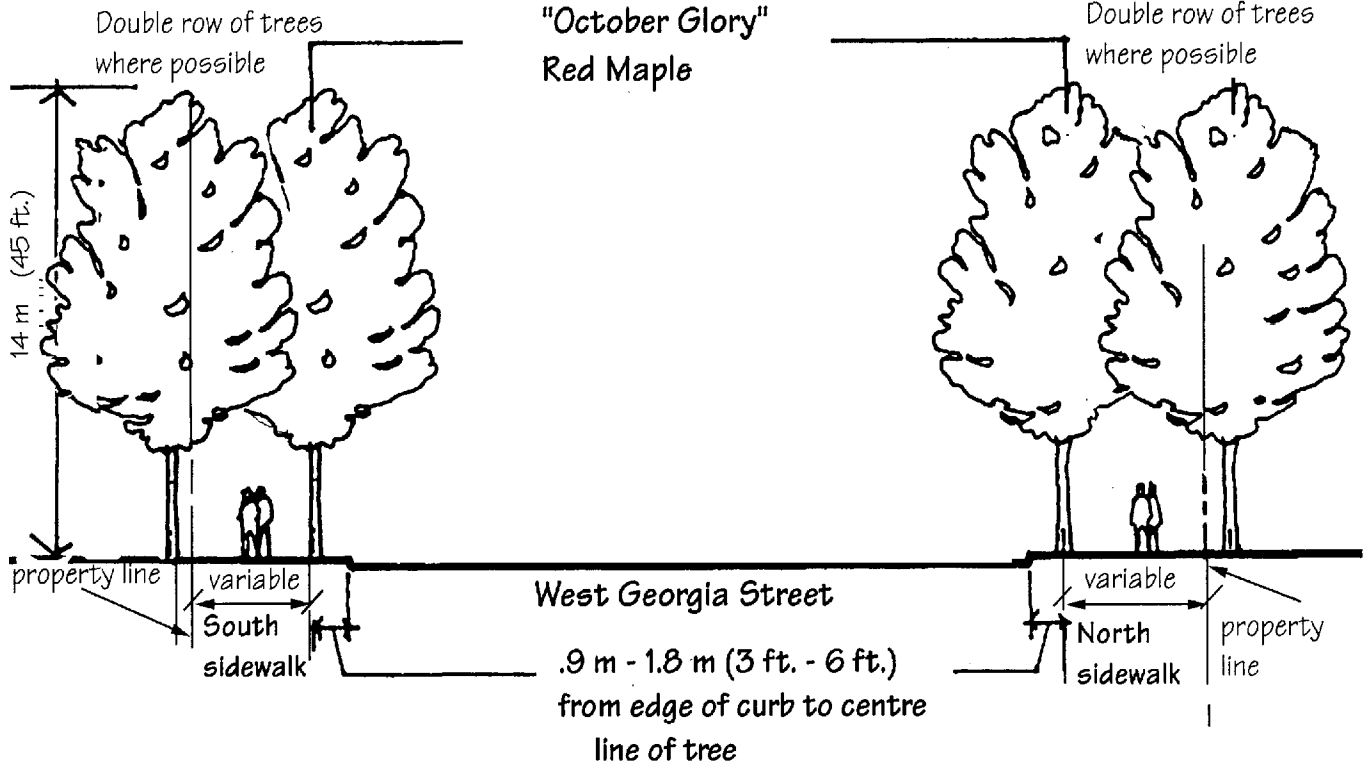
**Figure 4: Sub-Area 2 (Cardero to Bute)**

(Note: grass boulevard requirement)

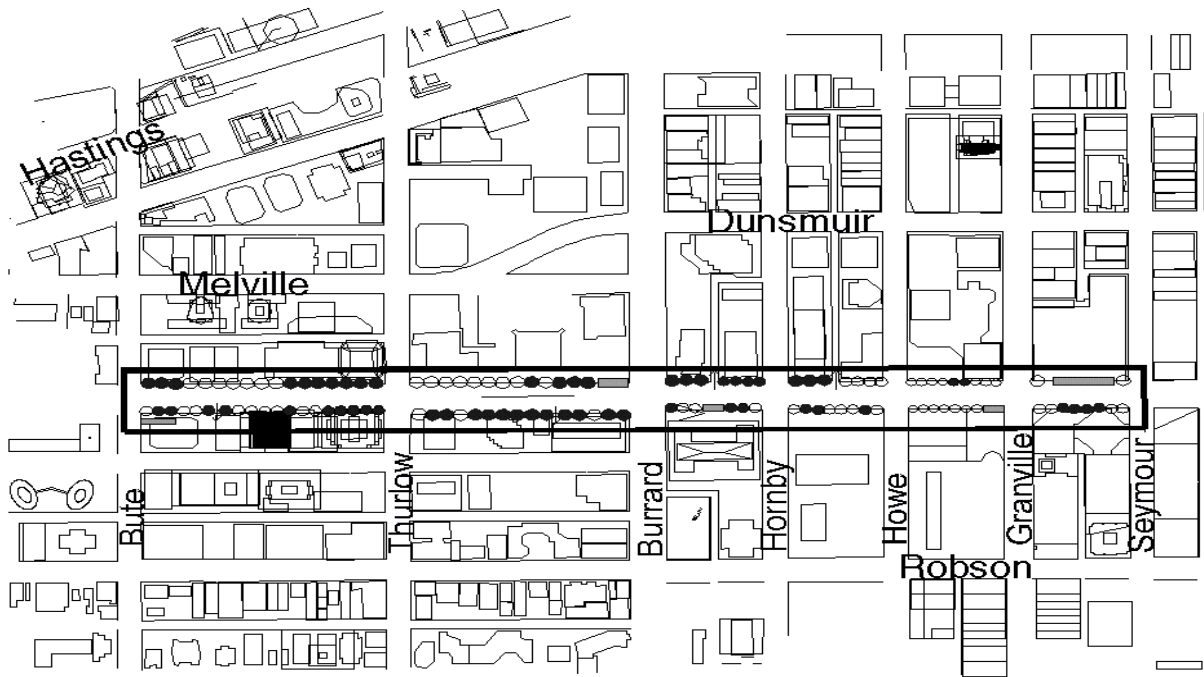


**Sub Area 2 - ( Cardero to Bute) - Proposed Street Tree Layout**

- existing street trees (49 trees - 51%)
  - proposed street trees (47 trees - 49%)
  - ↓ access point
  - bus stop or drop off
- = Total Potential (96 trees - 100%)

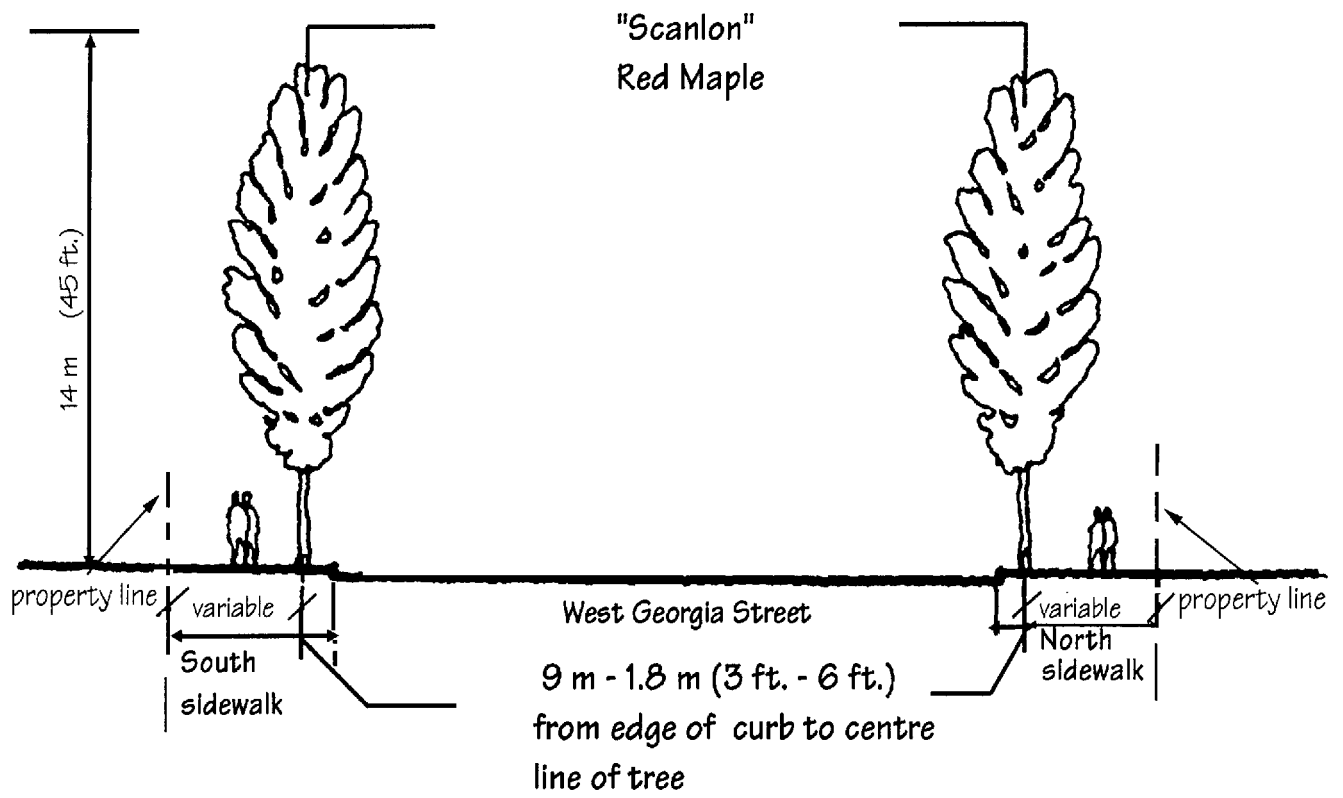


**Figure 5: Sub-Areas 3 & 4 (Bute to Seymour)**



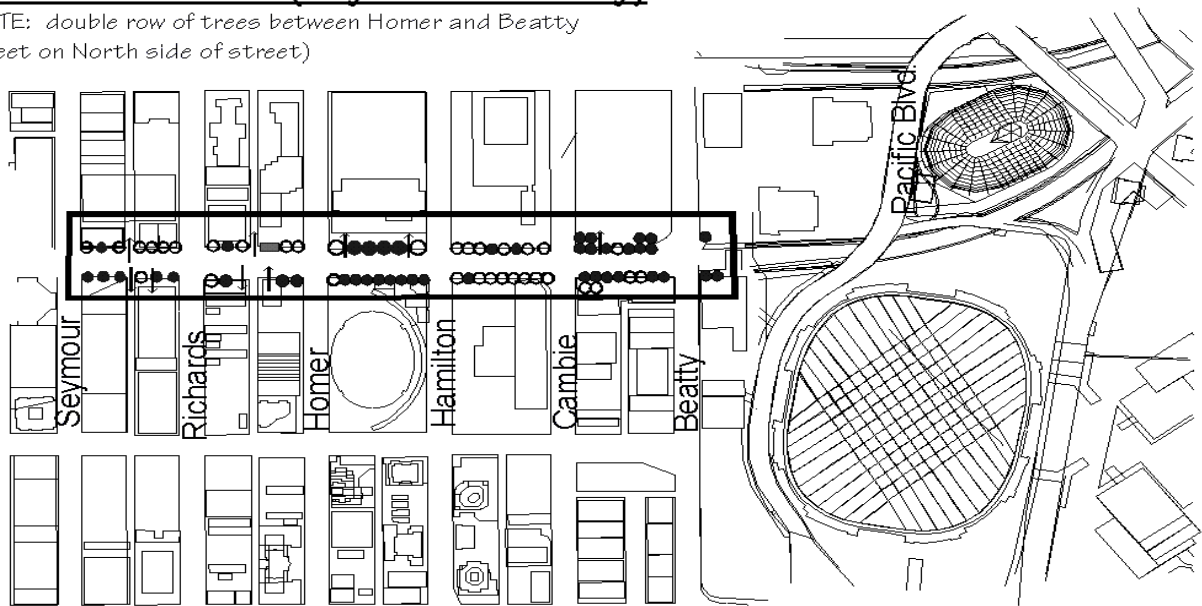
**Sub-Areas 3 & 4 - (Bute to Seymour) Existing and Proposed Street Tree Layout**

- existing street trees (58 trees - 49%)
- proposed street trees (60 trees - 51%)
- ↓ access point
- ▬ bus stop or drop off
- = Total Potential (118 trees - 100%)



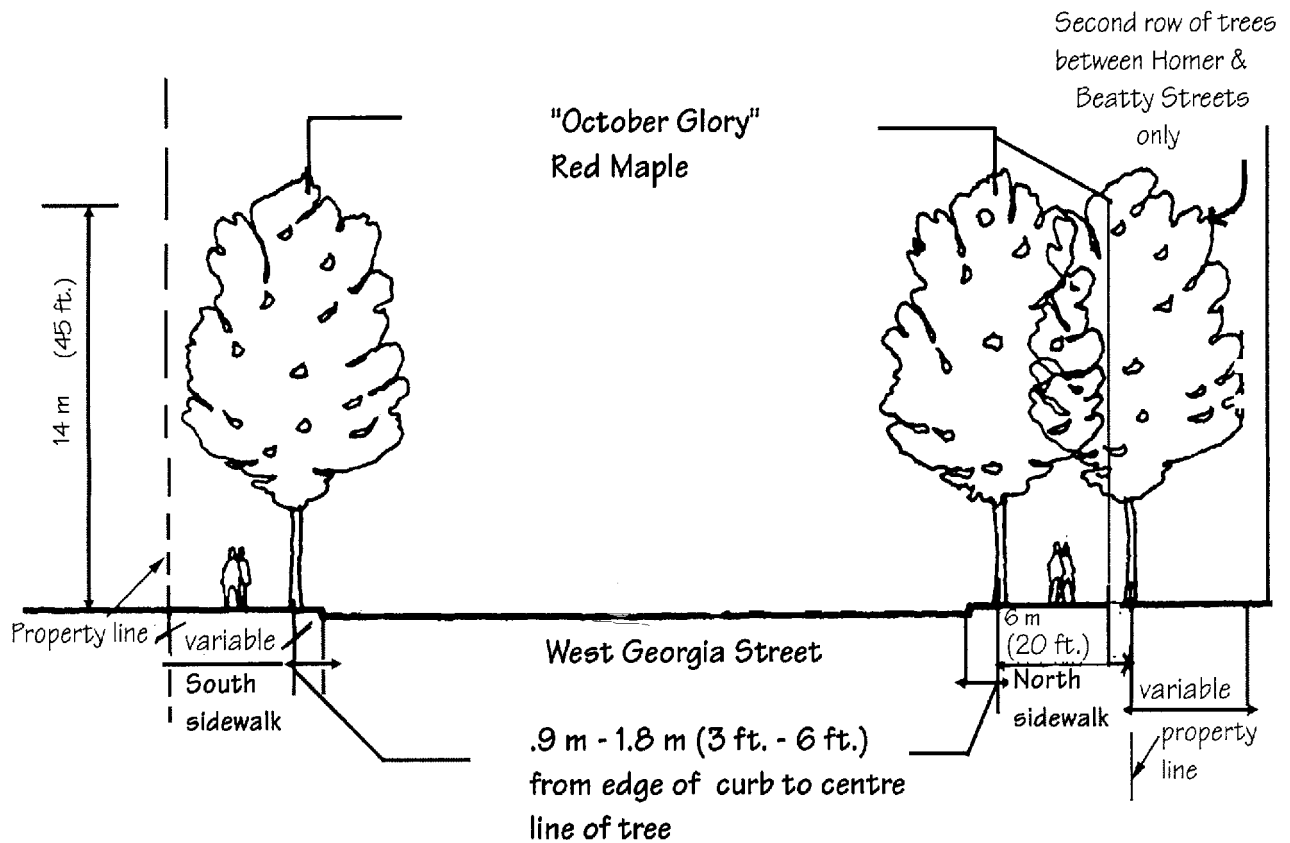
**Figure 6: Sub-Area 5 (Seymour to Beatty)**

(NOTE: double row of trees between Homer and Beatty Street on North side of street)



**Sub-Area 5 - (Seymour to Beatty) Existing and Proposed Street Tree Layout**

- existing street trees (44 trees - 56%)
- proposed street trees (34 trees - 44%)
- ↑ access point
- bus stop or drop off
- = Total Potential (78 trees - 100%)



## 2.7 Decorative Tree Grates and Tree Planting

### Objectives

As a significant part of the sidewalk design, decorative tree grates are proposed for all the new street tree planting. The objectives of providing the tree grates are to provide:

- an attractive visual element at the base of the street trees;
- a component in creating visual continuity and contribute to the feeling of homogeneity along the entire street;
- protection for the street tree root system; and
- permeability for irrigation and rain water.

### Criteria

- to be decorative as well as durable and easy to maintain;
- to be designed to eliminate pedestrian hazard through size of grating holes and through tree roots lifting the grates over a period of time;
- to provide 'knock-out' rings to allow for future growth; and
- to provide root protection and an appropriate environment to allow the root system to flourish and ensure good tree growth.

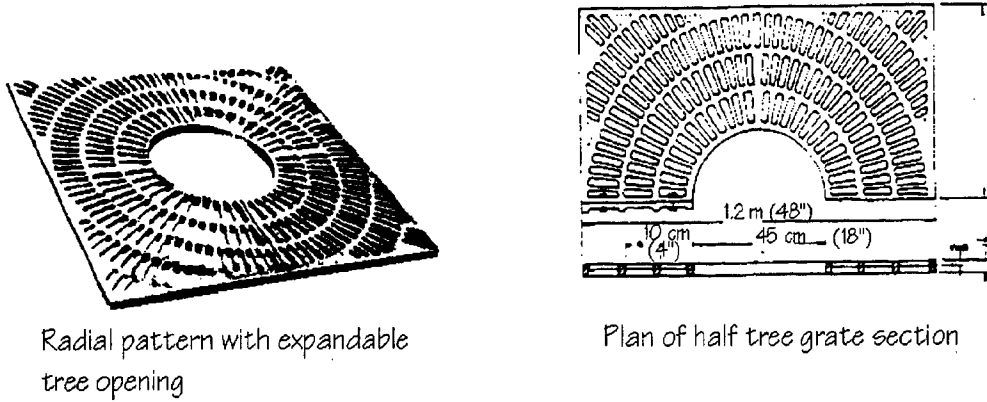
### Installation

A 1.2 m × 1.2 m (4 ft. × 4 ft.) decorative cast iron grill is to be provided for each tree base. The tree grates are, in practice, installed as part of sidewalk paving, but are detailed here for ease of reference (see Figure 7).

Special attention will be given to the planting of the new trees on West Georgia Street as the trees, when planted, will be of a larger size (minimum 10 cm or 4" caliper) including:

- providing a minimum 0.9 m × 2.4 m (3 ft. × 8 ft.) planting concrete box, separated from the curb and sidewalk with expansion joints, in hardscape areas (sides, no base); and
- installing a 9 cm (3½") precast concrete cover to protect the root ball hole and to provide firm support for the decorative cast iron grill (see figures 8 and 9 for Tree Planting details).

Figure 7. Tree Grate Details



Radial pattern with expandable tree opening

Plan of half tree grate section

### Cast Iron Decorative Tree Grate

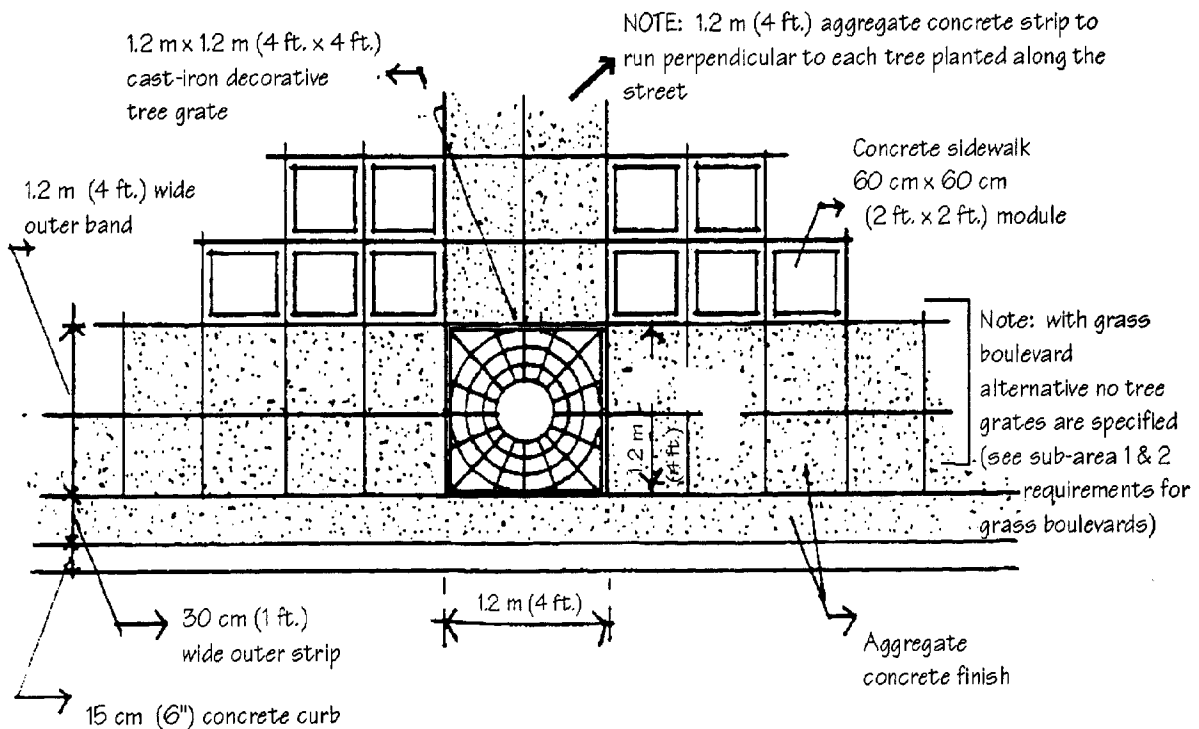




Figure 8. Tree Planning Detail in Hardscape

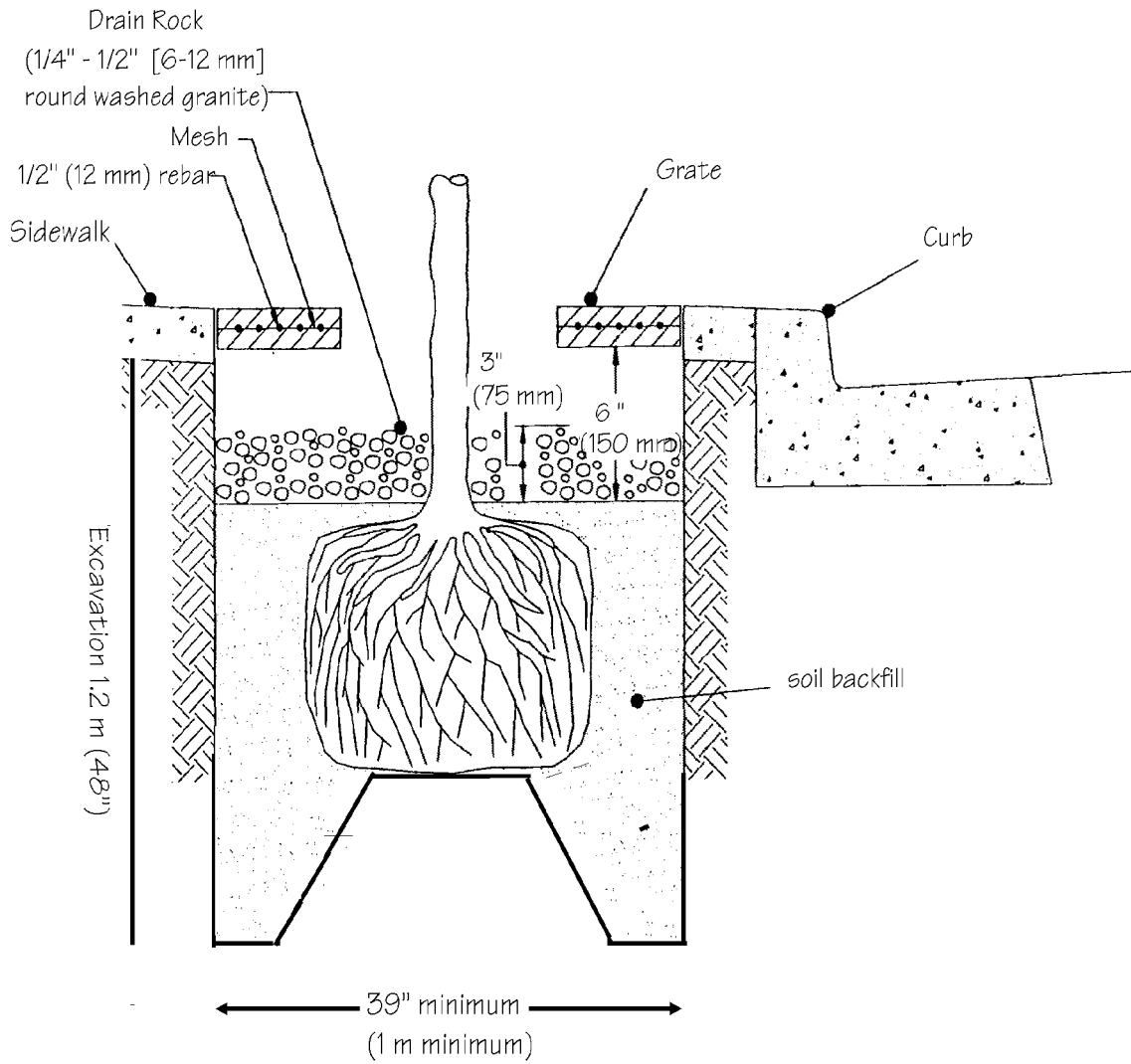
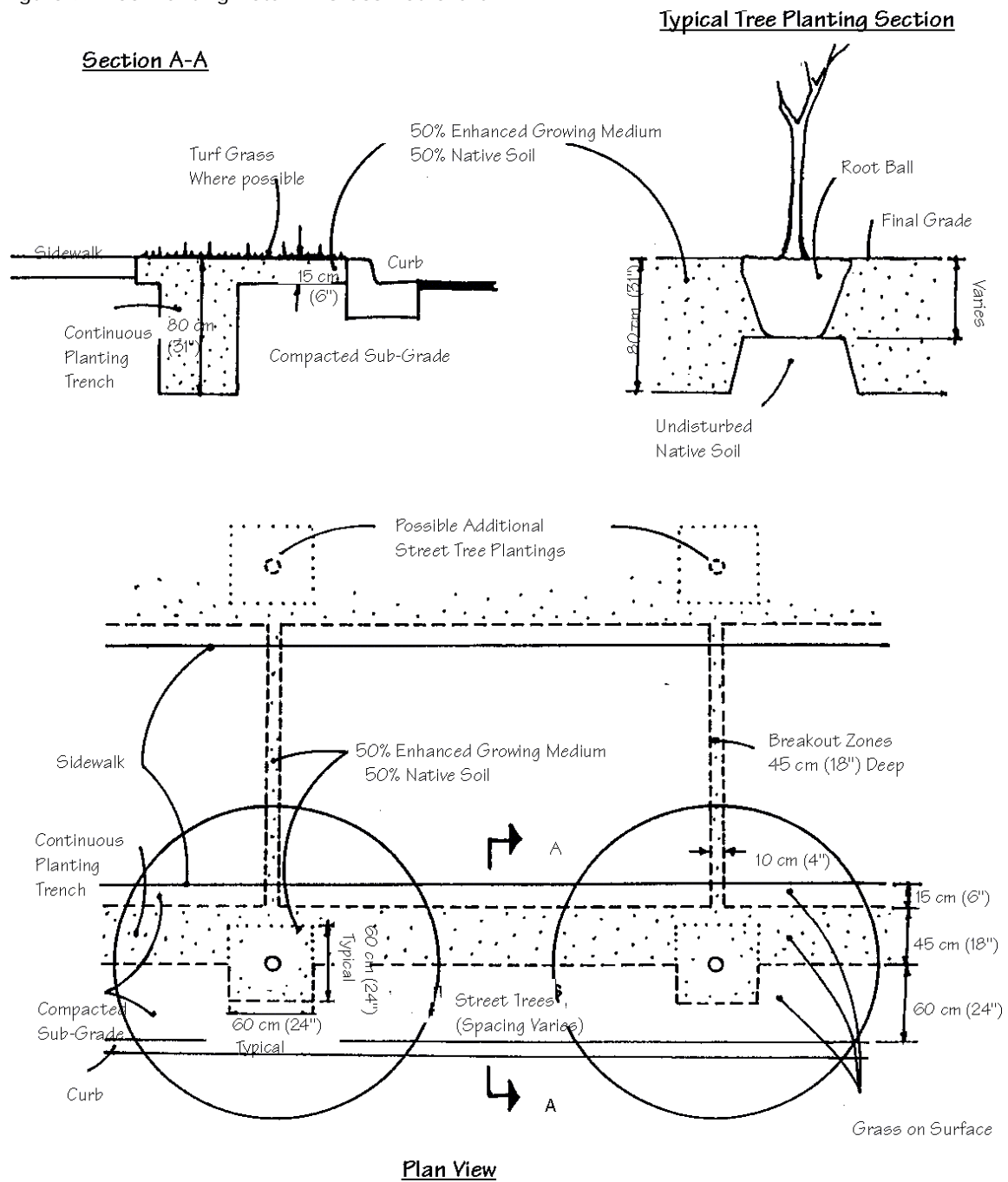


Figure 9. Tree Planting Detail in Grass Boulevard



- Note:**
- tree base corners must be squared (diagonals must be equal)
  - concrete cover dimensions are 900 mm x 1000 mm (36" x 39")
  - ledge and opening dimensions to be constructed within  $\pm 5$  mm ( $\frac{1}{4}$ " )

## 3.0 Sidewalk Design

### 3.1 Objectives

New sidewalk paving is proposed for Georgia Street. The new paving is to achieve a number of objectives:

- create an attractive physical character at an appropriate pedestrian scale;
- create visual continuity for pedestrians throughout West Georgia Street; and
- provide high quality sidewalk paving, and minimize longer term maintenance costs consistent with achieving the desired pedestrian amenity.

A consistent sidewalk paving treatment is sought throughout the public realm, with a visually pleasing pattern and scoring, clearly demarcating the public realm boundary from the treatment of private plazas, and other private open spaces of adjoining property development.

In addition, the sidewalk will be capable of being repaired in its own finish material over the long-term by Engineering service crews. This means that the sidewalk area can remain visually attractive for a long period of time (see Figure 10. Sidewalk Design Details).

### 3.2 Design Criteria

- to be of simple design to facilitate matching repairs over a number of years;
- the design to be pedestrian in scale; and
- to provide a transition from the city sidewalk to individual paving treatment at the property line.

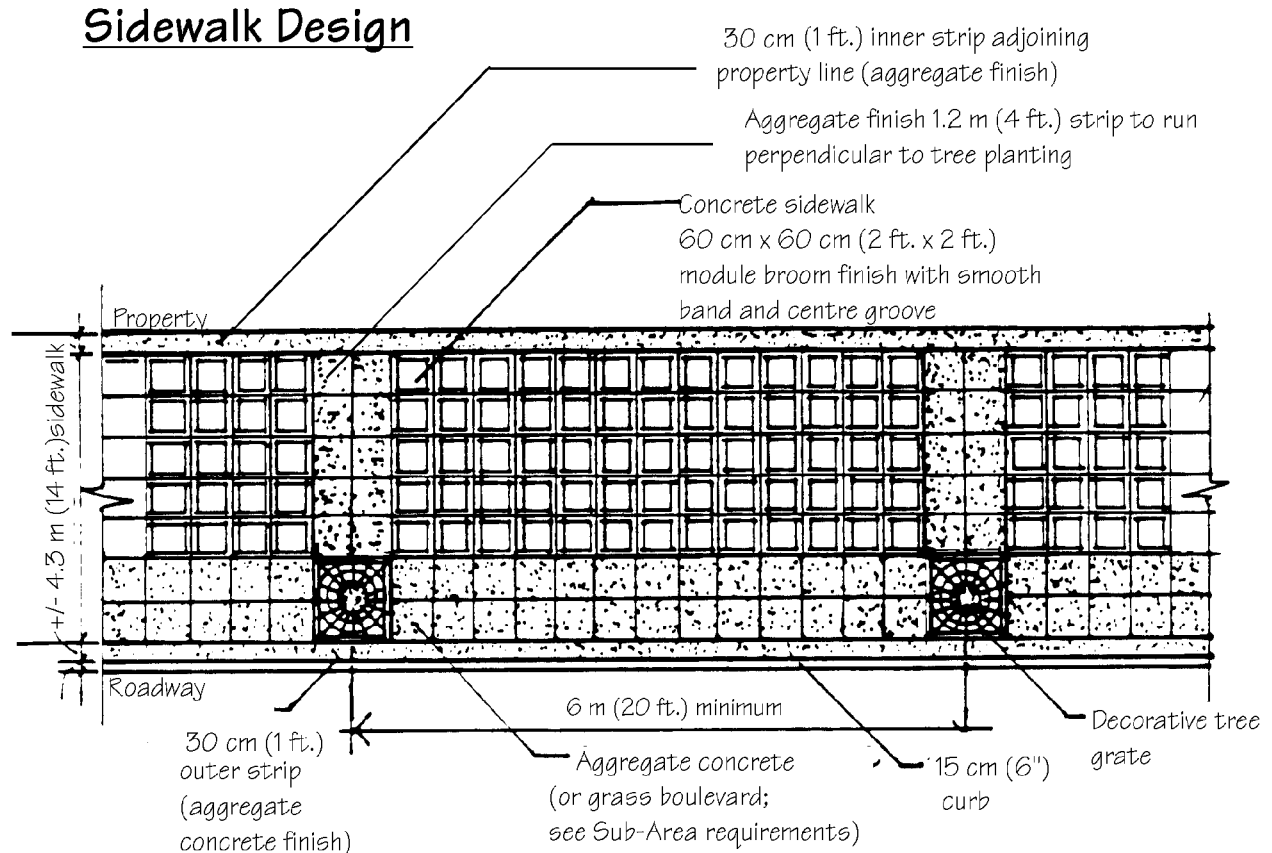
### 3.3 Installation

The sidewalk design has the following components:

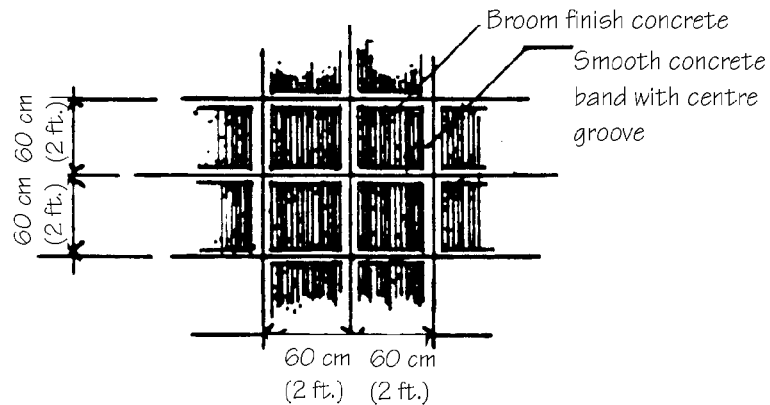
- Against the street sidewalk curb, (or along the grass boulevard) and against the interior property line, a 30 cm (1 ft.) wide exposed aggregate concrete finish outer and inner dividing strip is required to clearly demarcate the public pedestrian domain.
- Between the exposed aggregate finish 30 cm (1 ft.) outer strip and the concrete sidewalk, a 1.2 m (4 ft.) wide exposed aggregate concrete finish paving area is required; divided into 60 cm × 60 cm (2 ft. × 2 ft.) squares. This paving area accommodates all the needed street furniture, light poles, signs, trees and tree grates.
- A standard broom finished concrete sidewalk is required, divided into 60 cm × 60 cm (2 ft. × 2 ft.) modules, with each module finished with a smooth edge and score line.
- The standard sidewalk is divided at regular intervals by a 1.2 m (4 ft.) wide exposed aggregate concrete finish paving, as already provided, divided also into 60 cm × 60 cm (2 ft. × 2 ft.) squares. The module spacing for this 1.2 m (4 ft.) wide paving strip at right angles to the sidewalk curb will be subject to individual block design. The spacing is determined by the tree spacing and/or street and design lighting pole location. **Normally, this 1.2 m (4 ft.) wide exposed aggregate concrete strip is required to run perpendicular to each tree planted along the street.**
- The sidewalk treatment should avoid any introduction of a non-grey colour, noting that the sidewalk treatment in front of Cathedral Place (Hornby and West Georgia Streets) represents a good example of colour, material and standard of work.
- While the priority is to define and maintain the visual continuity of the public realm as shown in the detailed pattern details on the opposite page; individual developers may, if appropriate, vary the materials in the sidewalk area in front of their buildings provided that the required definition and pattern of the sidewalk area is maintained. Again, the entrance sidewalk design at Cathedral Place at the corner of Hornby and West Georgia Streets is a good example of acceptable treatment.



Figure 10. Sidewalk Design Details



### Typical Sidewalk Treatment



### Sidewalk Paving Detail

