Inventory
The design team undertook a comprehensive field survey and inventory of the existing street and alley street trees in the Transbay Project Area. The field survey documentation indicates a generally poor inventory of existing street trees except in newly developed sites within the district. No consistent pattern of street trees was observed except for a predominate planting of Platanus x. acerfolia “Bloodgood” along Howard Street and mature plantings of London Planes and Southern Magnolias trees on Second Street.

Another influencing factor in the analysis is the proposed sidewalk widening and re-scaling occurring on the linear park streets as well as on Folsom Street, thereby necessitating the removal of any existing street trees, regardless of their condition.

The Team’s conclusion is that a new street tree palette is recommended for the entire district, excluding Howard Street and the historic Second Street, where there would be a continuation of the existing tree types and pattern.

Selection Criteria
Street tree selection was developed with the assistance of an arborist team. Preferred tree genus-species recommendations and alternatives were based on a number of criteria. The criteria have both design aesthetic and horticultural components. Alternative recommendations are provided for circumstances in which the provision of the primary trees is impracticable. This could be the result of limited sourcing quantities or species-wide disease risk which would compromise the viability of a uniform street tree reading.

Design and Aesthetics
The Team investigated a series of Streetscape Framework options (see Section 2.) and determined that a hybrid of the three studies was the most interesting in terms of wayfinding and street type identification. East-west streets would receive a similar streetscape development, including site furnishings and tree types; north-south streets will have a similar expression; and north-south living streets, a unique treatment. Alleys will be developed as the interstitial links, having specific spatial requirements.

A variety of tree typologies were explored for aesthetics, scaling, density and transparency, and spatial organizing opportunities within the overall streetscape framework. The living streets provide opportunities to plant double rows of trees, creating allées and linear parks. The expanded north sidewalks of Folsom Street are spacious enough for double rows of street trees and north-south intersection vertical elements (see Folsom Street alternate 2). Sidewalks that remain the same dimension receive single rows of street trees, and narrower alleys and mid-block mews have columnar trees specified.

Horticultural Requirements
Urban Performance
Trees have been selected for their performance in urban environments in which higher demands are placed on them, affecting their success rate, viability and longevity as street trees. Traffic interference, pollution and limitations on soil volume are all factors in determining the suitability of specific genus-species.

Microclimate
The Transbay Project Area was reviewed in greater detail for its specific microclimate conditions. New trees to be located on the north-south grid orientation have a general habitat with leeward building protection and reduced winds and shorter solar seasons with more shadow in the mornings-afternoons. Trees selections recommended for these conditions have habits that are more bold, open, “centrifugal” and in general are taller, deciduous, forest-type trees.

Trees to be located on the east-west grid orientation have a general habitat that is windward with corridors more aligned with the prevailing or parallel winds and will have a potentially longer period of solar exposure. Tree selections for these conditions are in general shorter, coastal, “closed”, buffeted bosque and evergreen, representative of tight, viregate, dark and denser canopy trees. Decurrent branching and a more Mediterranean “centripetal” type(s) have been selected. With those specific characteristics we were concerned with canopy density and low light conditions underneath and have selected trees that have a more open, broad-leaved evergreen canopy so light penetration is maintained.

The area’s alleys run in both east-west and north-south directions, and due to the narrow character of these streets and parking requirements, tall, deciduous, columnar trees have been recommended; trees are shown within the alley parking zones, protected by bollards. This streetscape strategy provides a more generous, unimpeded sidewalk pedestrian zone.

Size and Location
The recommended nursery-grown container size specifications is a 48” box for all new street tree installations and a 36” box for the columnar alley trees. A SFRA-approved Arborist should accompany the Landscape Architect when nursery field inspections and final street tree nursery tagging takes place. Tree structure, overall form, branching heights and pattern, and general nursery growing protocol all require careful consideration in the selection of street trees, and will greatly influence the outcome of a successful streetscape.
**Structural Soils**

Structural soil is a critical component to the success of street trees and a successful urban forest. All street trees are to utilize structural soils as the planting medium with specific volume requirements identified for the specified genus-species. Where practical, continuous structural soil trenches should run the length of the street tree plantings. Specifications for structural soils should be carefully analyzed for the appropriate application within the project area. Trees that will go into existing streetscape environments should utilize structural soils in new planting installation. (See Appendix for Sample Structural Soil Guidelines)

**Irrigation**

All street trees are to receive automatic irrigation. This pertains to trees planted within hardscape-stone sets and tree grate environments as well as trees planted within planting zones. The latter will receive irrigation that provides a two-tiered horizontal coverage for both the trees and understory, as vertical saturation is provided through the use of structural soils.

**Staking**

A custom-designed tree-staking system will be developed for the Transbay Project Area that contributes to the aesthetics of the site furnishing family and provides the required support during the initial years of tree stabilization and adaptation. These will be developed to provide tree support and anchorage yet allow for movement and root structure development. Prescriptive staking techniques and removals will be clearly defined in a maintenance manual.

**Visibility Guidelines**

The siting of all new tree plantings shall be in accordance with City of San Francisco guidelines [Department of Public Works, Ordinance No. 169,946] regarding tree setbacks and utility/signal visibility. On the approach and far sides of any intersection, trees shall be no closer than 25 and 0', respectively, from the corner of the property line. Additionally, trees and landscape treatments located in the sidewalk area shall be located so that visibility of traffic signals or lights will be assured at all times.

**Management and Maintenance**

A maintenance manual for the project area will be required and will specify the maintenance requirements of the street trees as they relate to all components: staking, staking adjustment and removal, irrigation programming, water application requirements and frequency, fertilization program, pruning methods and schedule, as well as tree replacement procedures.
### STREET TREE PALLETTE

#### LOCATION | BOTANICAL NAME | COMMON NAME
--- | --- | ---
Folsom Street | Lophostemon conferta | Brisbane Box
Folsom Street Accent | Populus nigra var betulifolia | Theves Improved Lombardy
Folsom Street Off-Ramp | Platanus acerifolia v. ‘Bloodgood’ | London Plane Cultivar
Howard Street | Tilia cordata v. ‘Greenspire’ | Little Leaf Linden
Main Street | Liquidambar styaciflora ‘Rotundifolia’ | Liquidambar Cultivar
Beale Street | Magnolia grandiflora | Southern Magnolia
Spear Street | Acer rubrum ‘Red Sunset’ | Red Maple

#### LOCATION | BOTANICAL NAME | COMMON NAME
--- | --- | ---
Second Street | Acer rubrum ‘Red Sunset’ | Freeman’s Maple
Fremont Street | Pyrus calleryana v. ‘Chanticleer’ | Columnar Ornamental Pear
Essex Street | Pyrus calleryana v. ‘Chanticleer’ | Columnar Ornamental Pear
London Plane | Ginkgo biloba v. ‘Princeton Sentry’ | Columnar Beech

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<thead>
<tr>
<th>LOCATION</th>
<th>BOTANICAL NAME</th>
<th>COMMON NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clementina</td>
<td>Ginkgo biloba v. ‘Princeton Sentry’</td>
<td>Columnar Ginkgo</td>
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<tr>
<td>Tehama</td>
<td>Pyrus calleryana v. ‘Chanticleer’</td>
<td>Columnar Ornamental Pear</td>
</tr>
<tr>
<td>Natomia</td>
<td>Acer rubrum ‘Bowhall’</td>
<td>Columnar Red Maple</td>
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<tr>
<td>Shaw</td>
<td>Pyrus calleryana v. ‘Chanticleer’</td>
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<td>Oscar</td>
<td>Ginkgo biloba v. ‘Princeton Sentry’</td>
<td>Columnar Ginkgo</td>
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<tr>
<td>Ecker</td>
<td>Fagus sylvatica v. ‘Dawyck Gold’</td>
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<tr>
<td></td>
<td>Fagus sylvatica v. ‘Fastigiata’</td>
<td>Columnar Beech</td>
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**DESIGN GOALS**

There are two streetscape applications that may be used to help create the character of Folsom Street, the ‘Main Street’ of the new Transbay Neighborhood and Rincon Hill.

**ALTERNATIVE 1**

Acting as visual gateways, sculptural lighting, tensile structures or other vertical art elements will announce Folsom as the gateway street into the Transbay neighborhood. Scaled to rise above the Brisbane Box on the north and south sides of the street, these ‘markers’ would also function as wayfinding devices for pedestrians using the north-south connector streets.

It is recommended that the art budget for the redevelopment effort target and aggregate these vertical elements as an opportunity for differentiating the character of the Transbay neighborhood. Potential sources of inspiration for the work could be climatic, kinetic (transportation), light-related, or based on seasonal or other regional phenomena.

**ALTERNATIVE 2**

Under the alternative scenario, the intersections of Folsom Street will be accented by the Canary Island Date Palms, which will rise above the canopies of the Brisbane Box on the north and south side corners of the street, framing both the urban landscape and water views beyond.

The Canary Island Date Palm, a medium height palm with a stout, textured trunk and broad canopy, presents a striking and dramatic silhouette.

The photo on the right illustrates one of the numerous plantings within San Francisco’s boulevards. This palm has been effectively used in the medians of Dolores Street, upper Market Street and the Embarcadero.
**FOLSOM & MISSION STREETS**

**DESIGN GOALS**

As the “Main Street” of the new Transbay and Rincon Hill neighborhoods, Folsom Street will provide a mixed-use pedestrian environment. Widened sidewalks on the north will accommodate a double planting or alley of street trees. The Brisbane Box will provide an evergreen, vertical profile, facilitating ground level site lines. The south side will be planted with a single row.

Mission Street will also receive a similar street tree treatment, with unaltered sidewalks widths and single rows on both the north and south sides. Folsom and Mission Streets represent the northern and southern project boundaries and planting like genus/species responds to these street's east-west horticultural growth criteria and establishes a visual demarcation of neighborhood edges.

Brisbane Box is a broadleaf evergreen that is similar in appearance to madrone and some eucalyptus species. This fast-growing and robust tree is well suited for street planting as they are pyramidal in form and maintain an upright habit, facilitating double plantings and allees.

The photo on the right is an example of a successful Brisbane Box streetscape in San Francisco. This tree selection has been used in commercial, retail and residential environments as it facilitates a rapid scaling of the adjacencies, reaching two to three stories in height.

**BOTANICAL INFORMATION**

Species: Lophostemon confertus

Common Name: Brisbane Box

Type: Broadleaf Evergreen

Height: 30’-45’

Spread: To 25’

Description: Erect and moderate to fast growing. The leaves are in bright green clusters at the ends of branches. White to cream colored flowers in summer. The bark is reddish brown, similar to a Madrone.

**GROWTH PATTERN**

The newly installed Brisbane Box are to have the branches and overall tree structure trained for a street environment. The branching will be 8’ at installation.