



Night View: 17th Street, North of Marine Drive

STREET PLANTING STRATEGY

TREE PLANTING:

Most of the existing street trees at Ambleside Village were planted in the late 1980's when the Village streetscapes were renovated. Over time, a number of trees have been removed and new trees have been planted in some locations. The remaining 1980's tree planting varies in condition from healthy to weak. The proposed streetscape standards will aim to improve the street trees in the Village by adding more trees and replacing trees that are weak or dying.

GENERAL RECOMMENDATIONS:

The general objectives of the street tree strategy are to:

- Increase the extent of the tree canopy within the Village area
- Increase the general health and long term success of tree planting
- Retain existing healthy trees where possible
- Improve growing conditions of existing trees where possible
- Provide the best growing conditions possible for new tree plantings
- Selectively remove and replace unhealthy or unsuitable trees

New tree planting is proposed to achieve the following urban design objectives:

- Achieve regularly spaced street trees along all streets to provide visual and environmental benefits
- Select tree types that are suited to their location
- Protect views towards the waterfront on north-south streets
- Select narrow trees or trees with high canopies to allow clear views of stores' signage

STREET TREE REQUIREMENTS

New street trees should conform to the following standard:

- Minimum 7 cm caliper
- Conforming to BCLNTA and BCSLA Standards
- Uniform in shape and form and of the highest quality
- Maximum 10 m on centre spacing

Selection and approval of street trees will be by the District staff.



STREET-BY-STREET RECOMMENDATIONS

MARINE DRIVE

Field Maples (*Acer campestre*) were planted along the length of the street within the Village area. The trees are generally in good condition but many trees have been removed over time.

RECOMMENDATION:

- Retain existing healthy Field Maples
- Work towards continuous lines of Field Maple throughout the Village Centre
- Add more Field Maples where trees have been removed and space permits

17TH STREET FESTIVAL STREET

COMMERCIAL AREA SOUTH OF THE LANE (NORTH OF MARINE DRIVE):

South of Marine, cherry trees remain from the 1980s.

Between Marine and the lane, a variety of trees exist north of Marine including older Cherry Trees (west side) and newer Birch and Maples (east side).

RECOMMENDATION:

- Existing trees to be removed south of Marine Drive as a part of the proposed festival street reconfiguration
- South of Marine Drive, provide an informal arrangement of new street trees comprising Liquidambar

styraciflua as the larger canopy tree with *Sorbus aucuparia* as the secondary, smaller ornamental tree. Trees would be planted in informal groupings.

- Mixed tree planting north of Marine to remain.
- Replace existing cherry trees on the west side (north of Marine) with *Liquidambar styraciflua*

RESIDENTIAL AREA NORTH OF THE LANE:

Heritage Horse Chestnuts extend from the lane north of Marine Drive to Inglewood Avenue.

Horse Chestnuts on west side of 17th are generally in good shape, however more recent replacement plantings have been carried out using *Liquidambar styraciflua*.

Horse Chestnuts east side of 17th have been heavily pruned under Hydro wires and are visually unappealing and structurally compromised.

Flowering Star Magnolias have been planted as a secondary row east of the Horse Chestnuts.

RECOMMENDATION:

- Retain the existing Horse Chestnuts and continue with current re-planting strategy.
- As Chestnuts fail, replace with smaller scale *Magnolia stellata* that can grow under the hydro wires.
- Retain Star Magnolias and fill in gaps with new trees.



14TH STREET FESTIVAL STREET

Cherry trees are planted along both sides the length of the street.

RECOMMENDATION:

- Retain existing Cherry Trees north of Marine Drive
- Remove existing trees between Marine Drive and Bellevue as part of the proposed Village Plaza street reconfiguration. New cherry trees adjoining the 1300 block site can be re-planted elsewhere
- Provide two new regularly planted rows of shade trees, *Platanus x acerifolia* “Bloodgood” within the proposed Village Plaza

BELLEVUE AVENUE

A variety of mostly smaller flowering tree types exist along Bellevue. Many of the trees are in poor condition.

RECOMMENDATION:

- Selectively remove unhealthy, stunted trees
- Add to the current planting and fill in gaps
- Allow a variety of smaller decorative tree types to exist on this street. Recommended species include *Cornus* (Dogwood) “Eddie’s White Wonder”, *Acer* (Maple) *griseum*, and *Magnolia stellata*

19TH STREET

Relatively new trees, for example *Cornus* var., have been planted along the east side of the street.

RECOMMENDATION:

- Retain existing street trees

18TH STREET

Very few original 1980’s trees remain on the narrow street south of Marine.

RECOMMENDATION:

- Retain mature purple beech at south-east corner of Marine.
- North of Marine, retain Hornbeams on west side of the street, if feasible.
- North and South of Marine, seek opportunities to add more columnar trees where possible. Recommended tree is *Acer platanoides* “columnar”.

16TH STREET

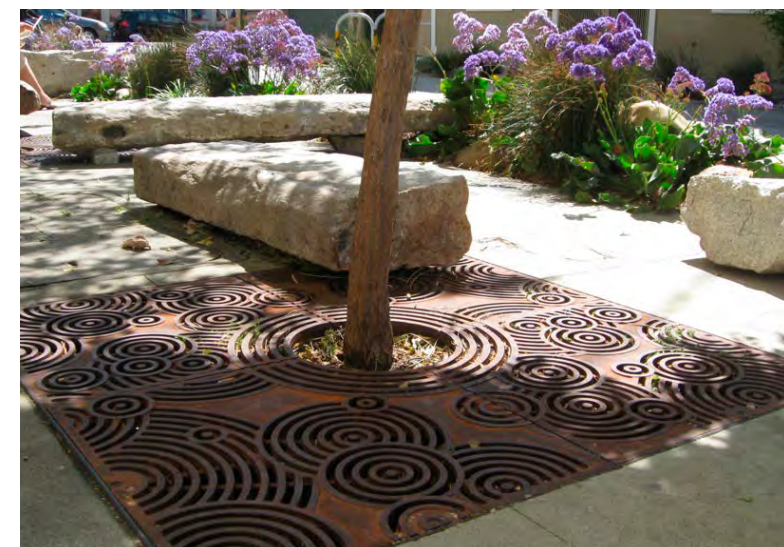
Cherry trees remain from the 1980s south of Marine Drive.

Newer Purple Beech and Liquidambar have been added, mostly north of Marine Drive.

Redevelopment of the old Safeway site may result in removal of trees south of Marine Drive.

RECOMMENDATION:

- Add more Liquidambar south of Marine Drive as replacement plantings to match newer trees



15TH STREET

Road widening has resulted in fewer trees on this street. Original trees have been replaced with columnar Norway Maple (*Acer platanoides* var.).

RECOMMENDATION:

- Retain existing columnar Norway Maple. Seek opportunities to add more matching columnar trees where possible.

13TH STREET

A line of mature Maple trees exists close to the curb on the east side of the street, south of Marine. There are no trees west of 13th Street.

RECOMMENDATION:

- Protect and retain the mature existing trees east of the street. Limit further road widening in this location
- Seek opportunities to add columnar street trees on the west side of the street through redevelopment of the 1300 block. Recommended tree species is *Acer rubrum* "Armstrong" (Red Maple).

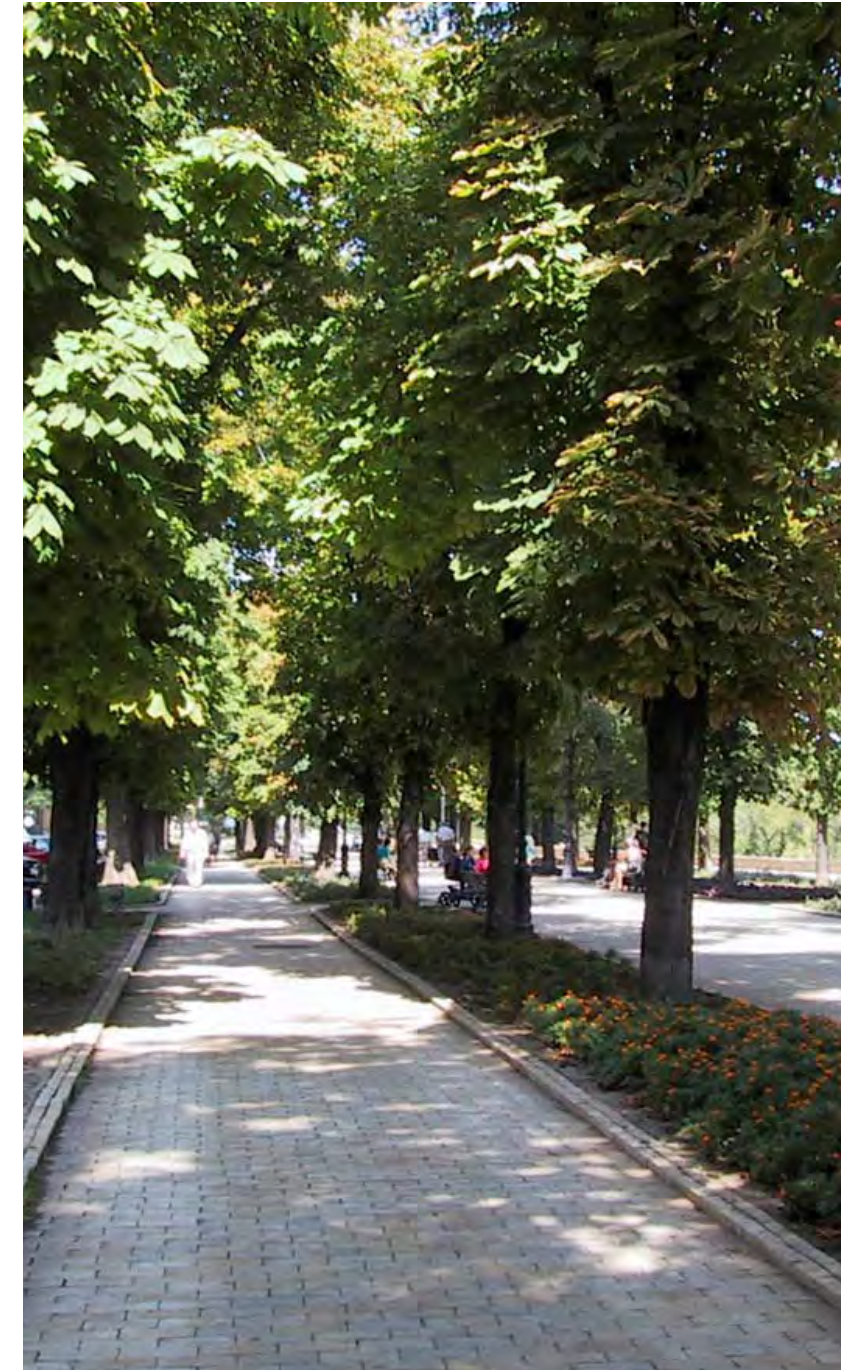


CLYDE AVENUE

Tree planting on Clyde Avenue is limited to a few Cherry trees just west of 14th Street, some of which are dead. Adding street trees on Clyde would improve character and environment of the street. Larger scaled street trees with high open canopies would allow more open views to storefronts and signage. No trees within lanes.

RECOMMENDATION:

- Examine opportunities to add more, individual larger scaled deciduous shade trees.
- Recommended tree species are *Fagus sylvatica*, *Quercus palustris* and *Platanus acerifolia*.



TREES PLANT LIST

SCIENTIFIC NAME	COMMON NAME	SIZE
<i>Acer campestre</i>	Field Maple	7 cm Cal
<i>Acer griseum</i>	Paperback Maple	5 cm Cal
<i>Acer platanoides</i> 'Columnare'	Columnar Norway Maple	7 cm Cal
<i>Acer rubrum</i> 'Armstrong'	Armstrong Red Maple	7 cm Cal
<i>Acer rubrum</i> 'Franksred'	Red Sunset Maple	7 cm Cal
<i>Fagus sylvatica</i>	Beech	7 cm Cal
<i>Cornus</i> 'Eddie's White Wonder'	Eddies White Wonder Dogwood	5 cm Cal
<i>Liquidambar styraciflua</i> 'Worplesdon'	Worplesdon Liquidambar	7 cm Cal
<i>Magnolia</i> 'Galaxy'	Galaxy Magnolia	7 cm Cal
<i>Magnolia stellata</i>	Star Magnolia	5 cm Cal
<i>Platanus x acerifolia</i> 'Bloodgood'	Bloodgood Plane Tree	7 cm Cal
<i>Pyrus calleryana</i> 'Glen's Form'	Chanticleer Ornamental Pear	7 cm Cal
<i>Quercus palustris</i>	Pin Oak	7 cm Cal
<i>Sorbus aucuparia</i>	Mountain Ash	5 cm Cal
<i>Syringa reticulata</i> 'Ivory Silk'	Ivory Silk Tree Lilac	5 cm Cal



Sorbus aucuparia



Acer griseum



Acer platanoides 'Columnare'



Acer rubrum 'Armstrong'



Fagus sylvatica



Liquidambar styraciflua 'Worplesdon'



Magnolia 'Galaxy'



Magnolia stellata



Quercus palustris

TREE PLANTING DETAILS

STRUCTURAL SOILS, SOIL CELLS + GROWING MEDIUM

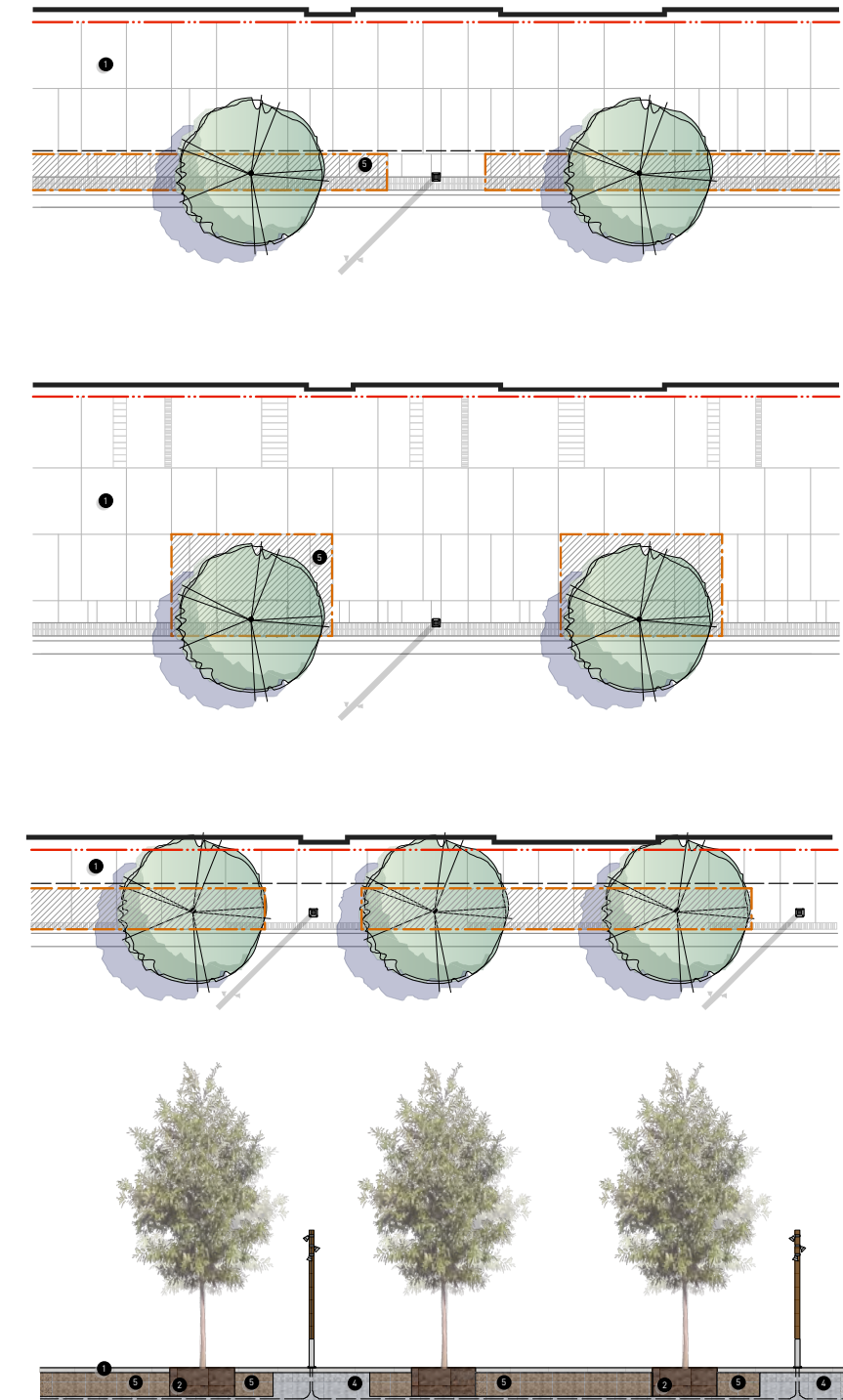
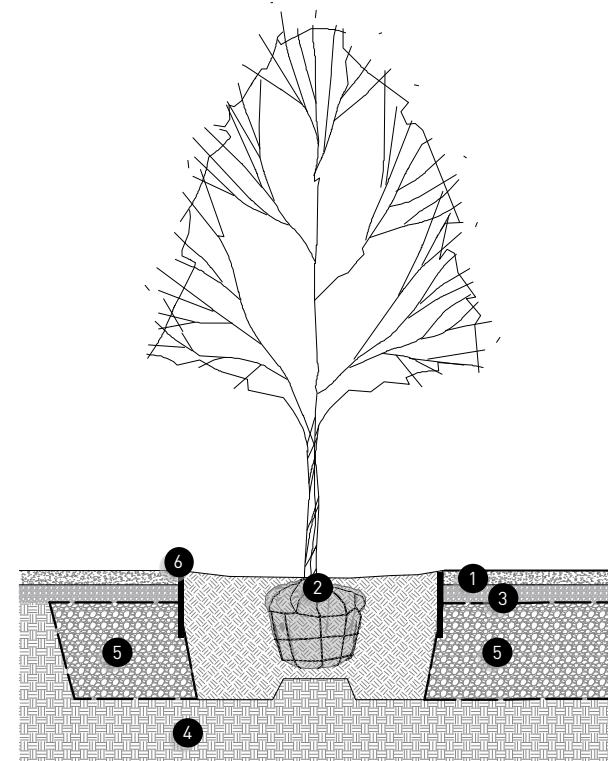
The performance and long-term survival of urban trees are heavily dependent upon an adequate provision of growing medium. This is particularly true for street plantings that grow in harsh urban environments with little maintenance.

For street trees, conventional tree planting pits, such as existing in Ambleside, provide insufficient growing medium for the long-term healthy development of medium to large street trees. Insufficient growing medium reduces the long-term supply of nutrients, water and oxygen. Current research shows that urban trees require between 28-34 cubic metres of growing medium to develop to a size of 40-50 cm caliper, DBH. A conventional 1.2m x 1.2m tree pit provides approx. 2 cubic metres.

In a streetscape context there are two main solutions to improve the volume of growing medium provided:

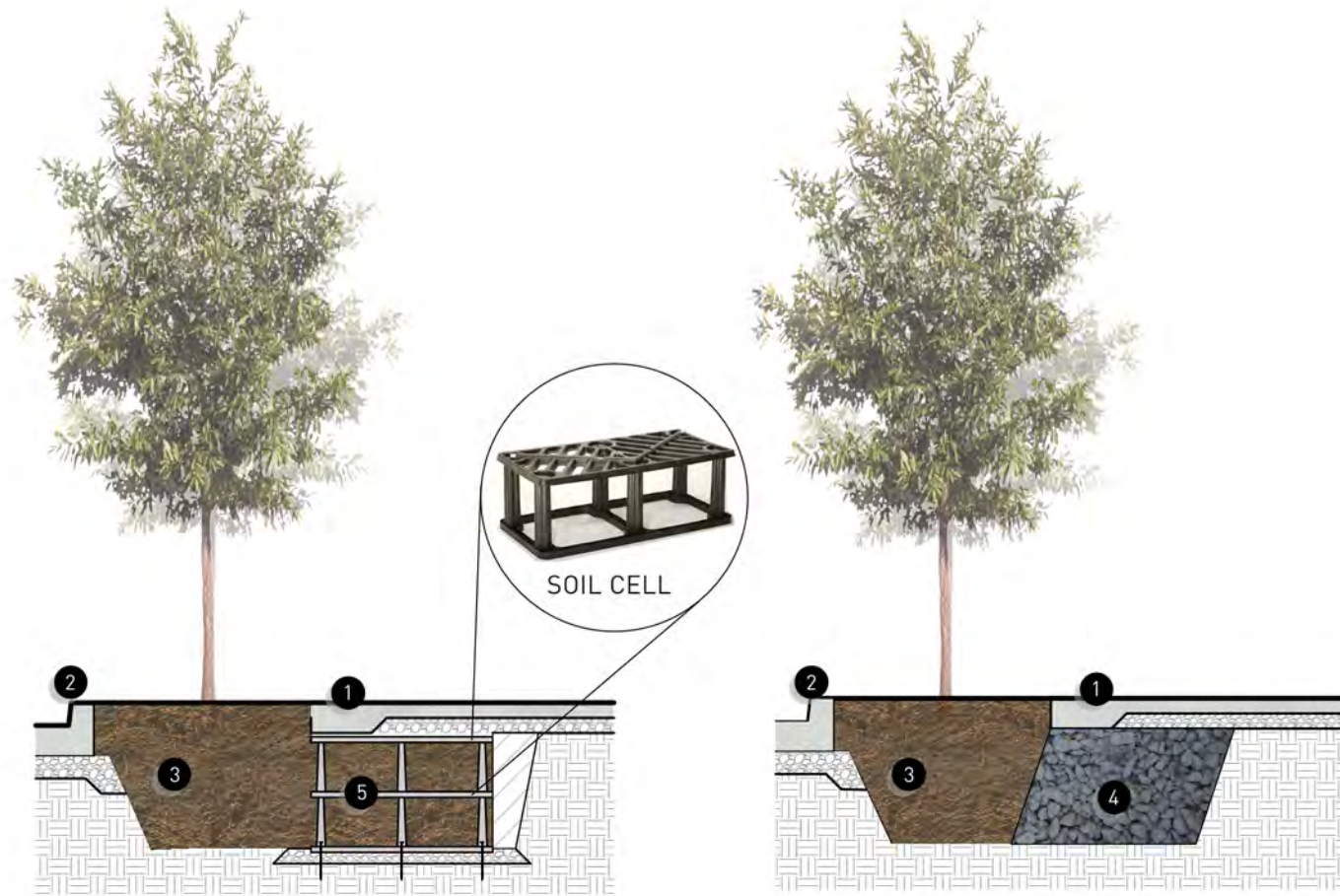
- The use of soil cells under paved area adjoining tree pits
- The use of structural soil under paved area adjoining tree pits

Typical tree pit detailing utilizing soil cells and structural soil are provided. Soil cells provide the most growing medium within a given volume but carry the highest construction costs. Structural soil is a cheaper and simpler solution but only provides approximately 30% growing medium by volume of structural soil installed. The remaining 70% is rock. Soil cells are preferred by the District. This approach would only be applied to major redevelopment.



Typical Plan and Sections
Arrangement of Structural Soil or Soil Cells to Provide a 10m³ Tree Pit

- 1 CONCRETE SIDEWALK
CAST IN PLACE SAND BLASTED CONCRETE
REFER TO PAGE 58 FOR LAYOUT AND MATERIALS
- 2 CURB AND GUTTER
- 3 GROWING MEDIUM
MINIMUM 900mm DEEP
- 4 STRUCTURAL GROWING MEDIUM
- 5 STRUCTURAL SOIL CELL



Typical Tree Pit Detail
Soil Cell Option

Typical Tree Pit Detail
Structural Soil Option

STREETSCAPE PLANTINGS

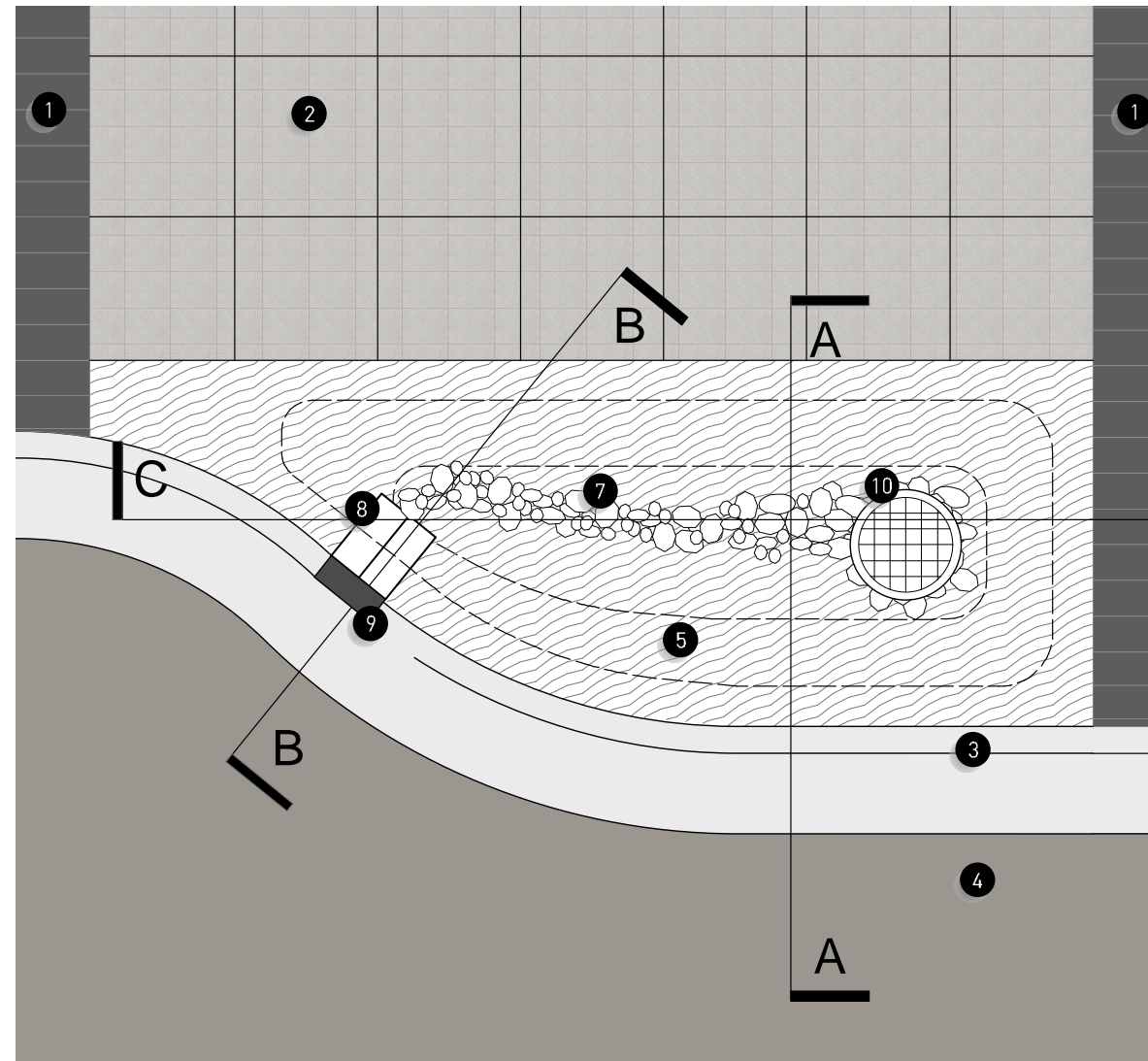
The proposed streetscape improvements provide opportunities for new areas of streetscape planting in a variety of locations. New planting will improve the street by:

- Cooling the urban environment
- Reducing run off from hard surfaces
- Creating visual interest and beauty
- Providing potential urban habitat
- Providing potential cover and food sources for birds

All streetscape plants should conform to the following requirements:

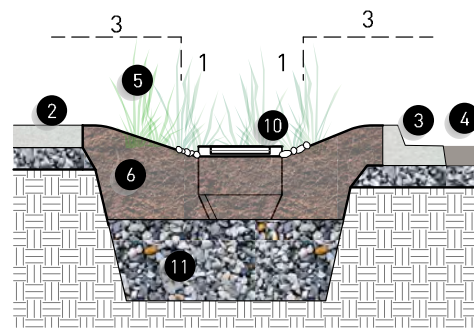
- Drought tolerant and / or native varieties
- Generally lower than 600 mm in height or lower to allow for sightlines and public safety
- Non invasive
- Non spreading to avoid encroachment on sidewalks and roads
- Tough and low maintenance suited for a public streetscape
- A mixture of evergreen and deciduous plants that provide year round interest

Where possible, proposed planting areas should act as rain gardens collecting, cleansing and infiltrating run-off from the adjoining streets.

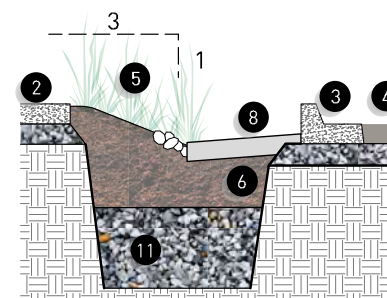


- 1 BASALT PAVING BAND
GREY BASALT SLABS
REFER TO PAGE 32-35
- 2 CONCRETE SIDEWALK
CAST IN PLACE SAND BLASTED FINISH CONCRETE
REFER TO PAGE 32-35
- 3 CURB AND GUTTER
- 4 ASPHALT PAVEMENT
- 5 RAIN GARDEN PLANTING
MIN 450mm GROWING MEDIUM (900mm FOR TREES)
- 6 GROWING MEDIUM
- 7 RIVER ROCK
1" - 3" DIAMETER
- 8 CONCRETE APRON
- 9 METAL CURB INLET
- 10 CATCH BASIN
- 11 DRAIN ROCK
600mm DEEP

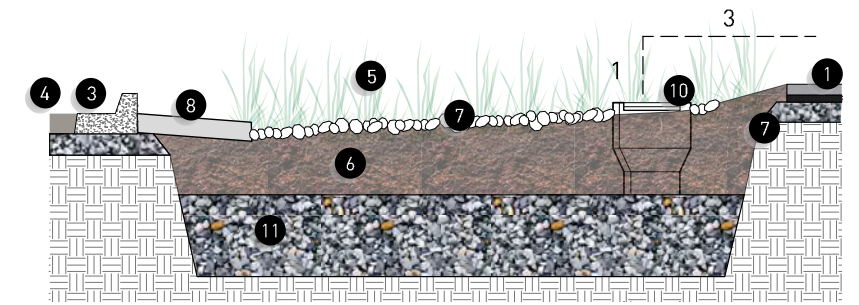
Typical Rain Garden Plan



Section A



Section B



Section C

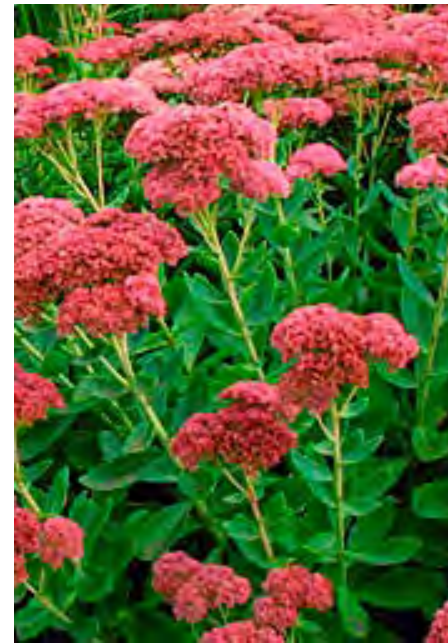
Typical Rain Garden Sections

SHRUBS LIST

SCIENTIFIC NAME	COMMON NAME	#	POT	HEIGHT
<i>Buxus microphylla</i> 'Winter Gem'	Winter Gem Boxwood	#2	pot	45 cm
<i>Choisya ternata</i>	Mexican Orange Blossom	#3	pot	90 cm
<i>Cornus sericea</i> 'Kelseyii'	Kelsey Dogwood	#2	pot	60 cm
<i>Ilex crenata</i> 'Hetzii'	Hetz Japanese Holly	#2	pot	60 cm
<i>Lonicera pileata</i>	Privet Honeysuckle	#2	pot	60 cm
<i>Mahonia aquifolium</i>	Oregon Grape	#1	pot	45 cm
<i>Rosa</i> 'Meidiland White'	Meidiland White Rose	#2	pot	60 cm
<i>Rosa rugosa</i> 'Frau Dagmar Hartopp'	Frau Dagmar Hartopp Rose	#2	pot	60 cm
<i>Sarcococca hookeriana humilus</i>	Sweet Box	#2	pot	45 cm
<i>Senecio greyii</i>	Senecio	#1	pot	45 cm
<i>Spiraea bumalda</i> 'Goldflame'	Goldflame Spiraea	#2	pot	60 cm
<i>Spiraea nipponica</i> 'Snowmound'	Snowmound Spirea	#2	pot	60 cm
<i>Symphoricarpos chenaultii</i> 'Hancock'	Trailing Snowberry "Hancock"	#2	pot	60 cm
<i>Vaccinium ovatum</i> 'Thunderbird'	Evergreen Huckleberry	#2	pot	45 cm

GROUNDCOVER & HERBACEOUS

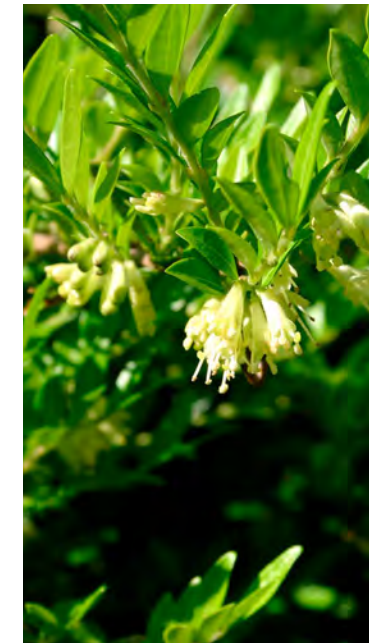
<i>Alchemilla mollis</i>	Lady's Mantle			
<i>Artemisia</i> 'Powis Castle'	'Powis Castle' Artemisia			
<i>Erica carnea</i> 'Springwood Pink'	'Springwood Pink' Heath	15 cm	pot	38 cm
<i>Erica darleyensis</i> 'Kramer's Red'	Kramers Red Heath	#1	pot	38 cm
<i>Euonymus fortunei</i> 'Emerald Gaiety'	Emerald Gaiety Wintercreeper	#1	pot	38 cm
<i>Euphorbia amygdaloides robbiae</i>	Robbiaeword Sponge	#1	pot	38 cm
<i>Euphorbia myrsinites</i>	Myrtle Sponge	#1	pot	45 cm
<i>Gaultheria shallon</i>	Salal	#1	pot	45 cm
<i>Geranium macrorrhizum</i>		#1	pot	45 cm
<i>Hemerocallis</i> 'Happy Returns'	"Happy Returns" Day Lily	#1	pot	30 cm
<i>Iris siberica</i>	Siberian Iris	#1	pot	30 cm
<i>Lavandula angustifolia</i> 'Hidcote'	Lavender	#2	pot	60 cm
<i>Mahonia repens</i>	Creeping Mahonia	#1	pot	30 cm



Sedum telephium 'Autumn Joy'



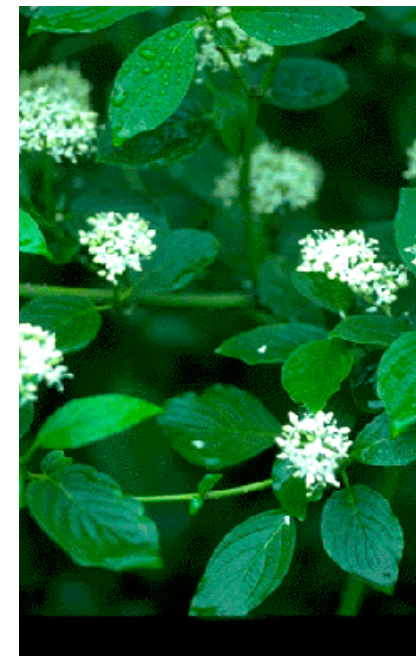
Alchemilla mollis



Lonicera pileata



Iris siberica



Cornus sericea 'Kelseyii'



Polystichum munitum

Polystichum munitum	Western Sword Fern	#2 pot	75 cm
Potentilla fruticosa	Potentilla	#2 pot	45 cm
Rudbeckia fulgida 'Goldsturm'	Goldsturm Rudbeckia	#1 pot	40 cm
Sedum telephium 'Autumn Joy'	Autumn Joy Stonecrop	#1 pot	30 cm
Stachys byzantia	Stachys Silver Carpet	4" pot	30 cm
Stipa tenuissima			

GRASSES & SEDGES

Carex morowii 'Ice Dance'	Variegated Sedge	4" pot	30 cm
Calamagrostis x acutiflora 'Karl Foerster'	Feather Reed Grass	#1 pot	80 cm
Festuca glauca 'Elijah Blue'	Elijah's Blue Fescue	#1 pot	30 cm
Helictotrichon sempervirens	Blue Oat Grass	#1 pot	60 cm
Luzula nivea			
Pennisetum alopecuroides 'Hameln'	Dwarf Fountain Grass	#1 pot	30 cm

RAINGARDEN PLANTS

Carex pendula	Drooping Sedge	#1 pot	45 cm
Carex stipata	Owl Fruit Sedge	4" pot	30 cm
Carex testacea	Orange Sedge	4" pot	30 cm
Carex obnupta	Slough Sedge	4" pot	30 cm
Cornus sericea 'Kelseyii'	Dwarf Red Twig	#1 pot	45 cm
Iris douglasiana	Douglas Iris	4" pot	30 cm
Iris missouriensis	Rocky Mountain Iris	4" pot	30 cm
Iris siberica	Siberian Iris	#1 pot	30 cm
Juncus effusus 'Quartz Creek'	Quartz Creek Juncus	4" pot	30 cm
Scirpus microcarpus	Small Fruited Bullrush	4" pot	30 cm
Polystichum munitum	Sword Fern	#2 pot	45 cm
Vaccinium ovatum 'Thunderbird'	Evergreen Huckleberry	#2 pot	45 cm



Carex morowii 'Ice Dance'



Cornus sericea 'Kelseyii'



Luzula nivea



Pennisetum alopecuroides



Carex pendula



Helictotrichon sempervirens



PUBLIC ART

EXISTING CULTURAL FACILITIES + PUBLIC ART WORKS

Ambleside Village Centre and the adjacent Waterfront is home to a growing number of public art projects. Only two of the art installations fall within the study area and the rest are located mostly along the waterfront.

The Recommendations for future Public Art integration can be divided into two separate, but connected projects.

These are:

- Sidewalk patterning along Marine Drive and Bellevue Avenue
- Stand alone works of art along major Festival Streets (14th and 17th).

Existing Public Art Within or Adjacent to Study Area

1. 17th and Marine "The eye of the Mountain Bear" Don Vaughn, 1991
2. near 18th and Marine -Sidewalk Mural over 'piped section of Lawson Creek, artist unknown
3. 19th on seawalk "random acts of mosaic art" artist unknown , ongoing project
4. 19th on seawalk "Wind Sock" Art work and Irwin Park Grade 6 class 1994
5. 18th on seawalk "Big Chairs" Bill Pechet 1991
6. park on 18th near seawalk "Friends Forever" James Koester 1995
7. park on 18th "Birdbath" Bill Pechet 1995
8. interior Lawson Creek Studio "Canada 1" Arie Alexander Galles , date unknown
9. Lawson Creek and Argyle "Fish Run" Coolfires, date unknown
10. Silk Purse Art Centre -exterior "Mural 1" Richard Tetrault , 2011
11. Silk Purse Art Centre -exterior "Mural 2" Richard Tetrault , 2011
12. Music Box Art Centre -exterior "Chimney Mural" Richard Tetrault , 2011
13. 14th on seawalk at Ambleside Landing "Granite Assemblage" Don Vaughan, 1989
14. 14th at Bellevue -temporary artwork
15. 14th at Marine -temporary artwork
16. Ambleside park, foot of 13th "Sna7m Smanit (Spirit of the Mountain)" Xwa lak tun, (Rick Henry), 2007
17. Mural by Richard Tetrault

Existing and Future Cultural Facilities

18. District Hall (Exhibition space)
19. West Vancouver Museum
20. Navy Jack House (historic site)
21. Lawson Creek Studios
22. Silk Purse Arts centre
23. Music Box/ Harmony Arts Festival Office
24. 2 houses (potential future cultural use) -owned by District of West Vancouver
25. Ferry Building Art Gallery (historic site)



- Public Art
- Public Art Temporary
- Seasonal Outdoor Art Shows
- Existing Cultural Facility
- Potential Future Sites For Arts and Culture Uses

PUBLIC ART CONCEPTS

SIDEWALK PATTERNING

PROPOSAL

To install a series of engraved basalt slabs within the sidewalk primarily along Marine Drive and Bellevue Avenue.

INTENT

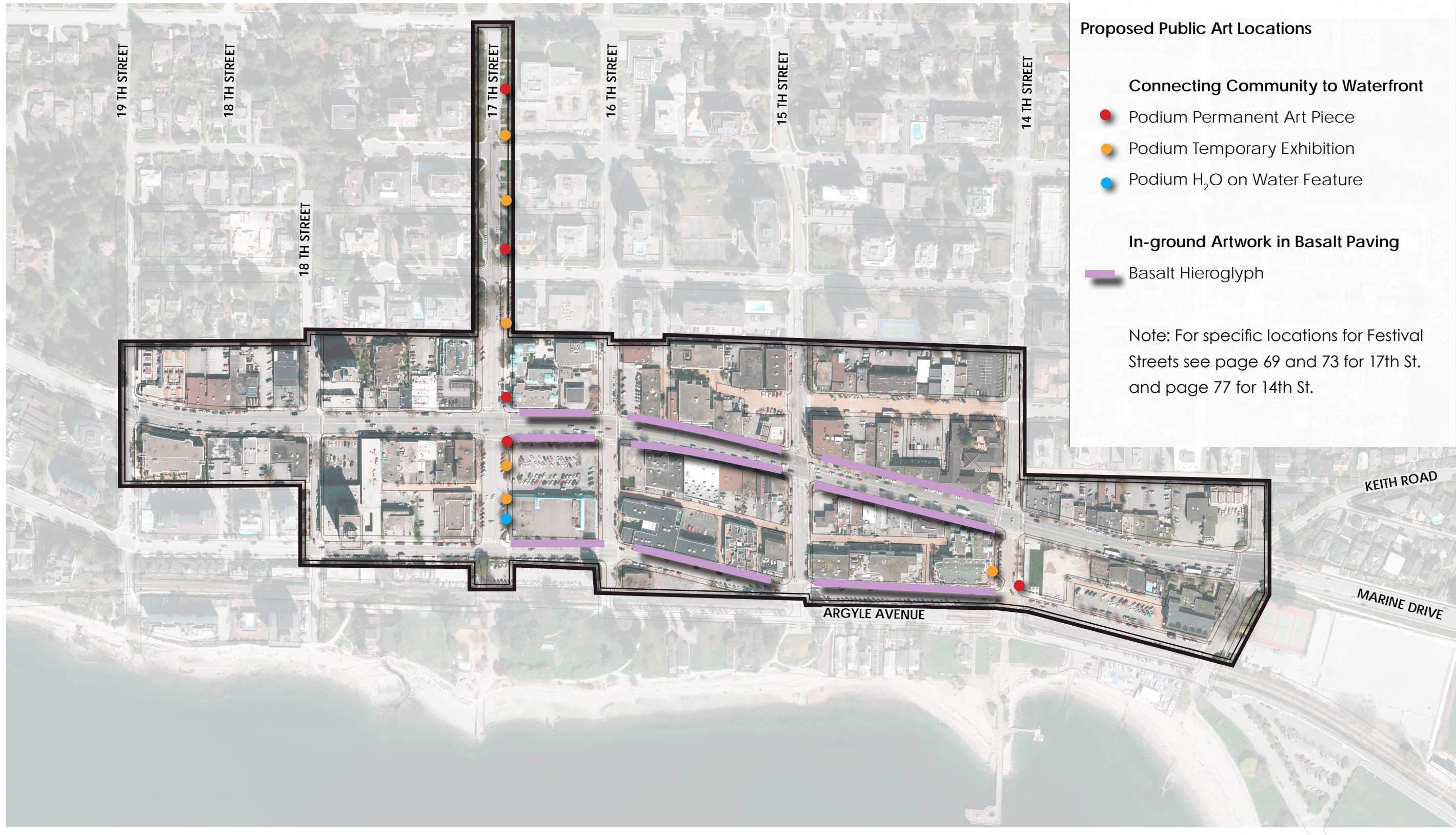
Inscribed basalt slabs located in the sidewalks along Marine and Bellevue would create a repeating or connected motif forming a necklace of artwork connecting the two festival streets.

At each corner along Marine Drive and Bellevue Avenue, there would be basalt slabs inlaid with the north-south street name inscribed within its surface. In the mid block areas, other motifs, texts or patterns would be inscribed within the surface of the basalt slabs positioned randomly along the concrete sidewalk.

The selected works could be garnered by a competition to choose one or more artists. This approach would be simple to install and could be implemented over time.

The idea behind this is to help link the neighbourhood with iconic 'drawings in stone', in such a way that they do not overtake the material palette of the sidewalks but rather compliment it, in a quiet and localized way, the material choices of the environment.





STAND ALONE WORKS OF ART ALONG MAJOR FESTIVAL STREETS

PROPOSAL

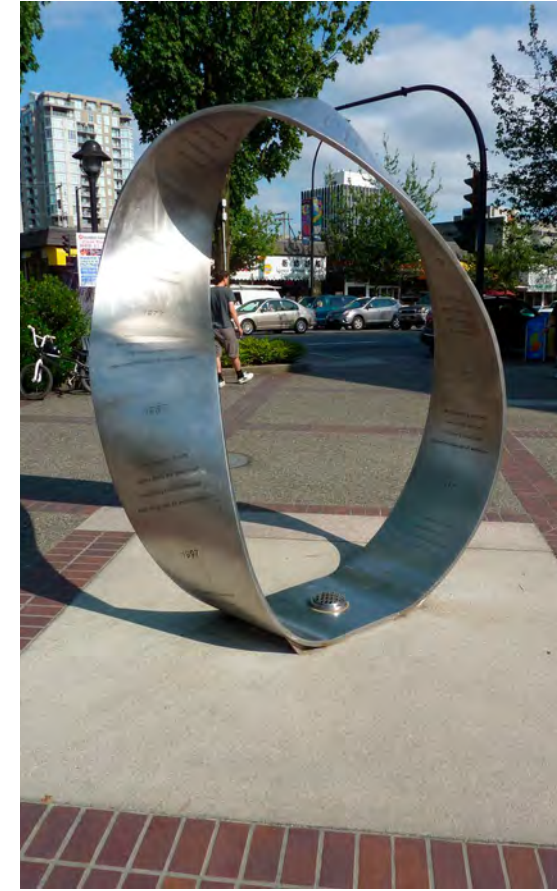
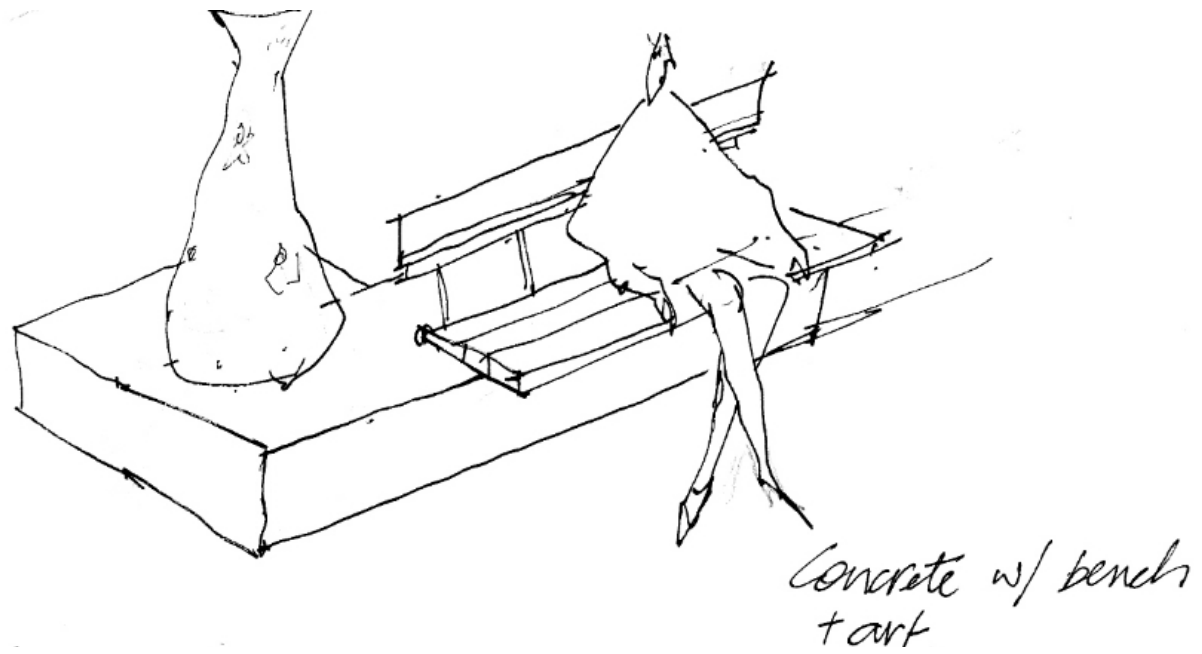
To install a series of stand-alone art pieces located on insitu concrete plinths located along the length of the 14th Street Plaza, south of Marine Drive and along the length of 17th Street to Fulton.

INTENT

The artworks can be acquired through both competition and bequeathing processes. Managed through a committee representing appropriate stakeholders and District departments the selection and approval of these works can be an ongoing and multi-year program to enliven these important “cultural bookend” streets with periodic and engaging works of art. The works can be mounted to the low plinths planned for the streets and lit from the spot-poles, as suggested in the report.

- Village plan show locations of potential features, show existing features
- Describe public art themes
- Suggest potential forms, types of installation, relationship to streetscape
- Provide Sketches / Images





Examples of Urban Public Art Pieces



STREETSCAPE DESIGN CONCEPTS

STREETSCAPE DESIGN CONCEPTS

17TH STREET FESTIVAL STREET

17th Street has been proposed as a “Festival Street” connecting District Hall to John Lawson Park and the pier at the waterfront. At 100’ in width, it is the widest street right-of-way in the Ambleside Village Centre and provides the greatest potential to create a special ceremonial corridor connecting to the waterfront.

SOUTH OF MARINE DRIVE

INTENT

South of Marine Drive, the street provides the potential for a new multi-purpose urban plaza that can provide a more spacious pedestrian friendly environment within the Village Centre and be used as an event space for the community through occasional street closures.

The plaza would accommodate a variety of activities such as processions, festivals, weekend events and markets as well as providing smaller scaled seating areas, gathering spaces and improved street planting.

The proposed plaza would involve complete reconfiguration of the street between Marine and Bellevue with a reduced road width and angled parking being replaced by parallel parking on both sides of the street. Larger sidewalks and paved boulevards would be established with more room for pedestrian circulation, and with streetscape amenities such as social seating areas, public art, street plantings, bike racks, signage etc.

The concept design for the streetscape includes:

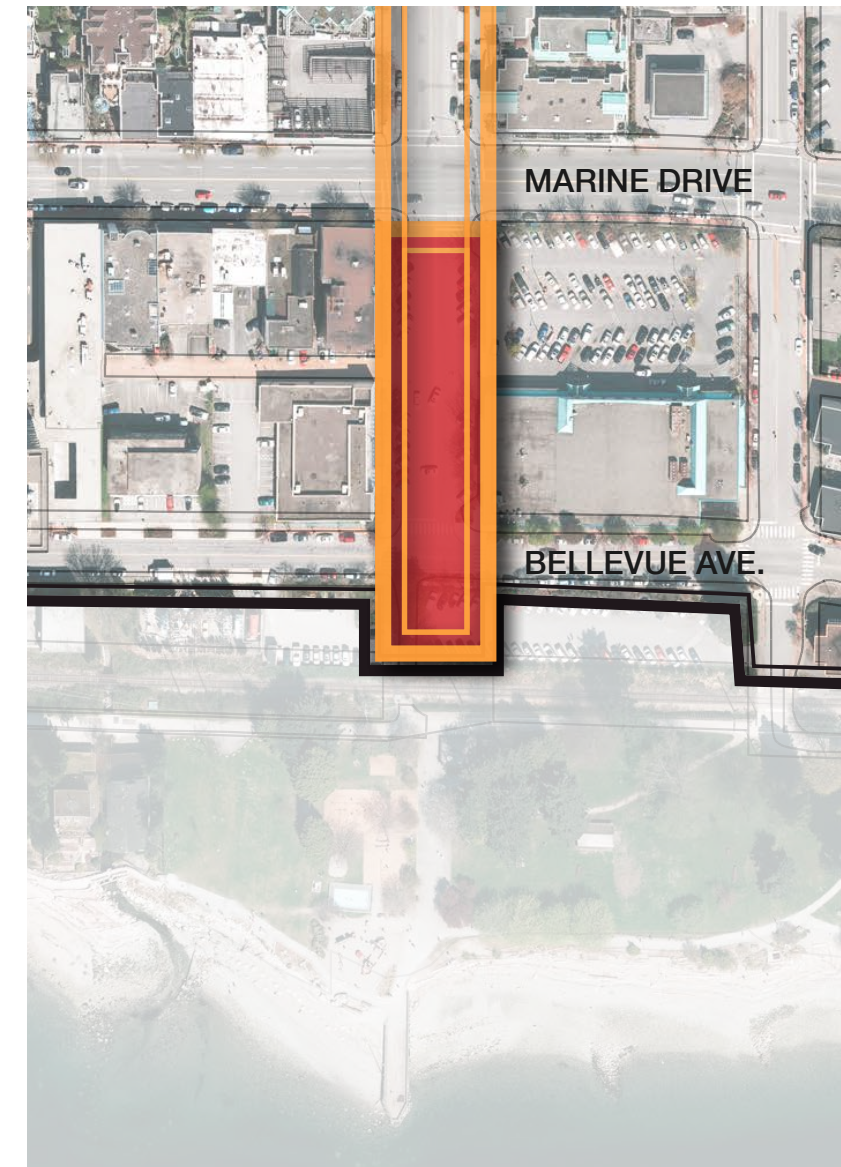
- cast-in-place concrete sidewalks with scored jointing for visual consistency with the adjoining streets
- coloured concrete pavers for front and rear boulevards
- basalt banding extending from the building faces to the curbs
- coloured concrete unit pavers for the road surfacing with coloured paver banding to align with basalt bands in the sidewalk
- custom thermoplastic crossing patterning on asphalt

The sloping street provides the opportunity for a series of low plinth features to be sited along the east side of the street that provide base structures for custom designed seating, water features, public art installations and low level lighting. The plinths would be located along the length of the street from Bellevue to District Hall. See Public Art at page 75.

Potential development of a new Arts Centre at the foot of 17th Street (at 1600 block of Bellevue) would potentially provide the opportunity to extend the plaza southward across Bellevue Avenue and significantly reinforce the sense of connection to John Lawson Park and the waterfront.

In addition potential redevelopment of the former Safeway site may also provide opportunities for more usable public open space.

New pedestrian scaled lighting is proposed along the length of 17th Street. See Lighting page 43.



The proposed designs for the festival streets are conceptual and may be amended to suit conditions at the time of development.



Conceptual Master Plan - 17th Plaza

- 1 WIDER SIDEWALKS
SCORED CONCRETE WITH BASALT STONE BANDS
- 2 NARROWER ROAD WAY WITH PARALLEL PARKING
FEATURE PERMABLE CONCRETE UNIT PAVER SURFACING
- 3 BOULEVARD ZONE
WIDENED BOULEVARD AREA WITH ROOM FOR CHAIRS, TWO SIDED BENCHES, SEATING WALLS AND PUBLIC ART. CONCRETE UNIT PAVERS WITH BASALT BANDS WITH SEATING ZONE
- 4 CORNER PLAZA
17TH STREET SIDEWALK DESIGN EXTENDS ACROSS BELLEVUE AVENUE TO EMPHASIZE THE CONNECTION TO THE WATERFRONT. SOUTH FACING CORNERS ARE IDEAL FOR PUBLIC GATHERING AND OUTDOOR SEATING
- 5 TREE PLANTING
TREES PLANTED IN GROUPS CREATING A SERIES OF OPEN SUNNY SPACES, INCLUDING TALLER COLUMNAR SPECIES AND SMALLER DECORATIVE TYPES LOCATED ADJOINING SEATING AREAS TO CREATE A MORE INTIMATE EXPERIENCE.

- 6 A SERIES OF PUBLIC ART FEATURES
INTEGRATED WITH SEATING, PLANTING AND LIGHTING ARE PROPOSED ALONG THE LENGTH OF THE STREET AND EXTEND NORTHWARD TO DISTRICT HALL
- 7 WATER FEATURE ELEMENTS
IN BOULEVARD ZONE. SMALL, PLAYFUL BUT NATURAL WATER BOULDERS IN BOULEVARD ZONE. TO PROVIDE INTEREST AND REST AREAS. RAIN WATER COMPONENT SHOULD BE CONSIDERED FOR INTEGRATION WITH WATER FEATURES
- 8 SOUTHERN PLAZA / SEATING ZONE
PROPOSED NEW PLAZA SPACE REINFORCES CONNECTION TO WATERFRONT. SPACE AVAILABLE FOR COMMUNITY EVENTS AND PERFORMANCES. PLAZA DESIGN TO RELATE TO POTENTIAL FUTURE DEVELOPMENT. POTENTIAL REALIGNMENT OF RAIL CROSSING TO IMPROVE CONNECTION TO PARK
- 9 FEATURE PAVING AT PEDESTRIAN CROSSING AND INTERSECTION
- 10 FEATURE LANE PAVING
RED/BROWN (EXISTING) CONCRETE UNIT PAVERS
- 11 EXISTING STRUCTURES / PATIOS RETAINED
- 12 SPECIAL LIGHTING

SIDEWALK EDGE BANDING
 RECYCLED RED BRICKS AND GREY BASALT PAVERS
 REFER TO PAGE 32-35 FOR LAYOUT AND MATERIALS

BASALT PAVING BAND
 GREY BASALT SLABS
 REFER TO PAGE 32-35 FOR LAYOUT AND MATERIALS

CONCRETE PAVING
 CONCRETE UNIT PAVERS
 REFER TO PAGE 32-35

CONCRETE SIDEWALK
 CAST IN PLACE SAND BLASTED FINISH CONCRETE
 REFER TO PAGE 32-35 FOR LAYOUT AND MATERIALS

EXISTING ASPHALT PAVEMENT

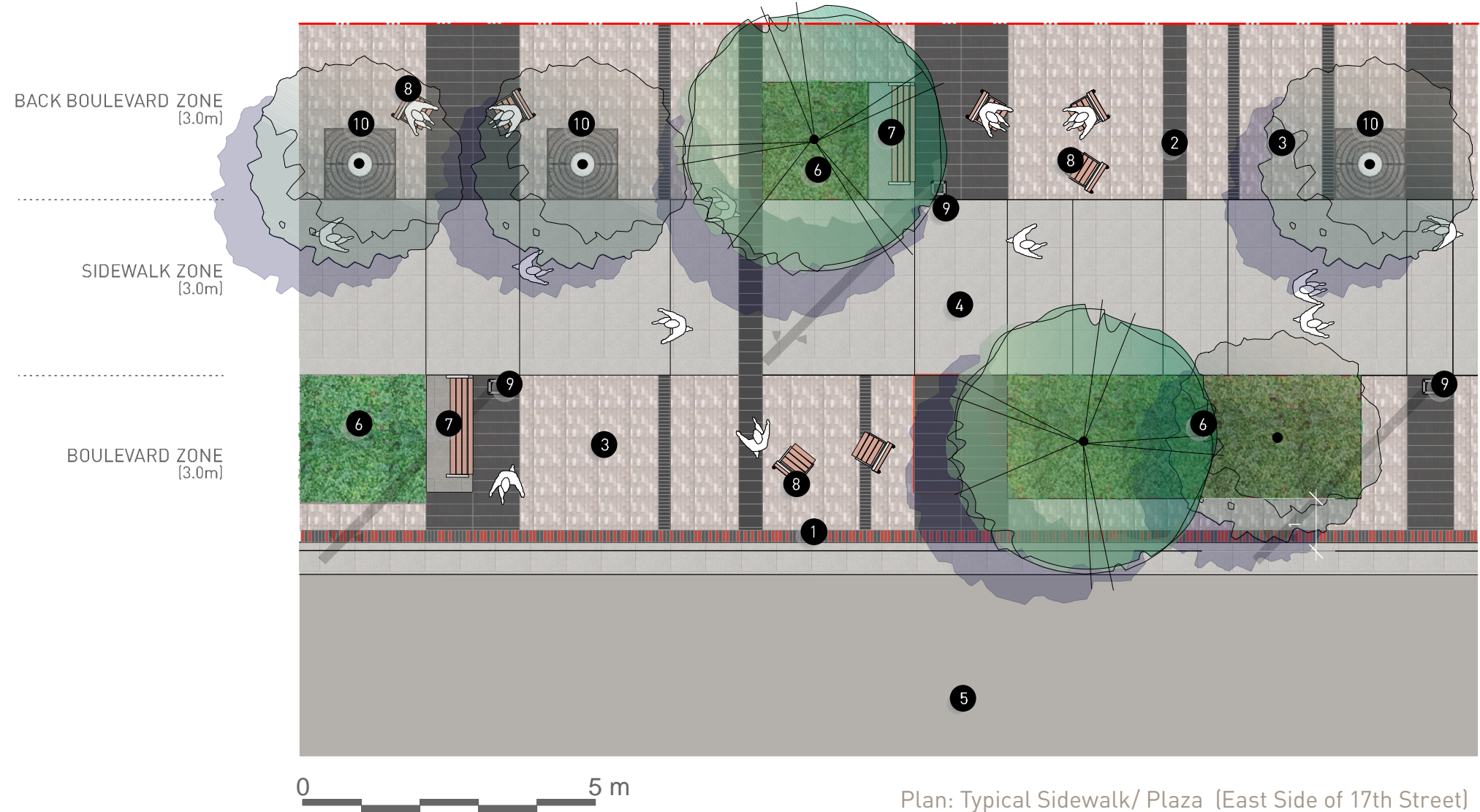
PLANTER TREE PIT
 900mm GROWING MEDIUM
 REFER TO PAGE 53 FOR LAYOUT AND MATERIALS

PROPOSED BENCH
 REFER TO PAGE 37-38 FOR ADDITIONAL INFO

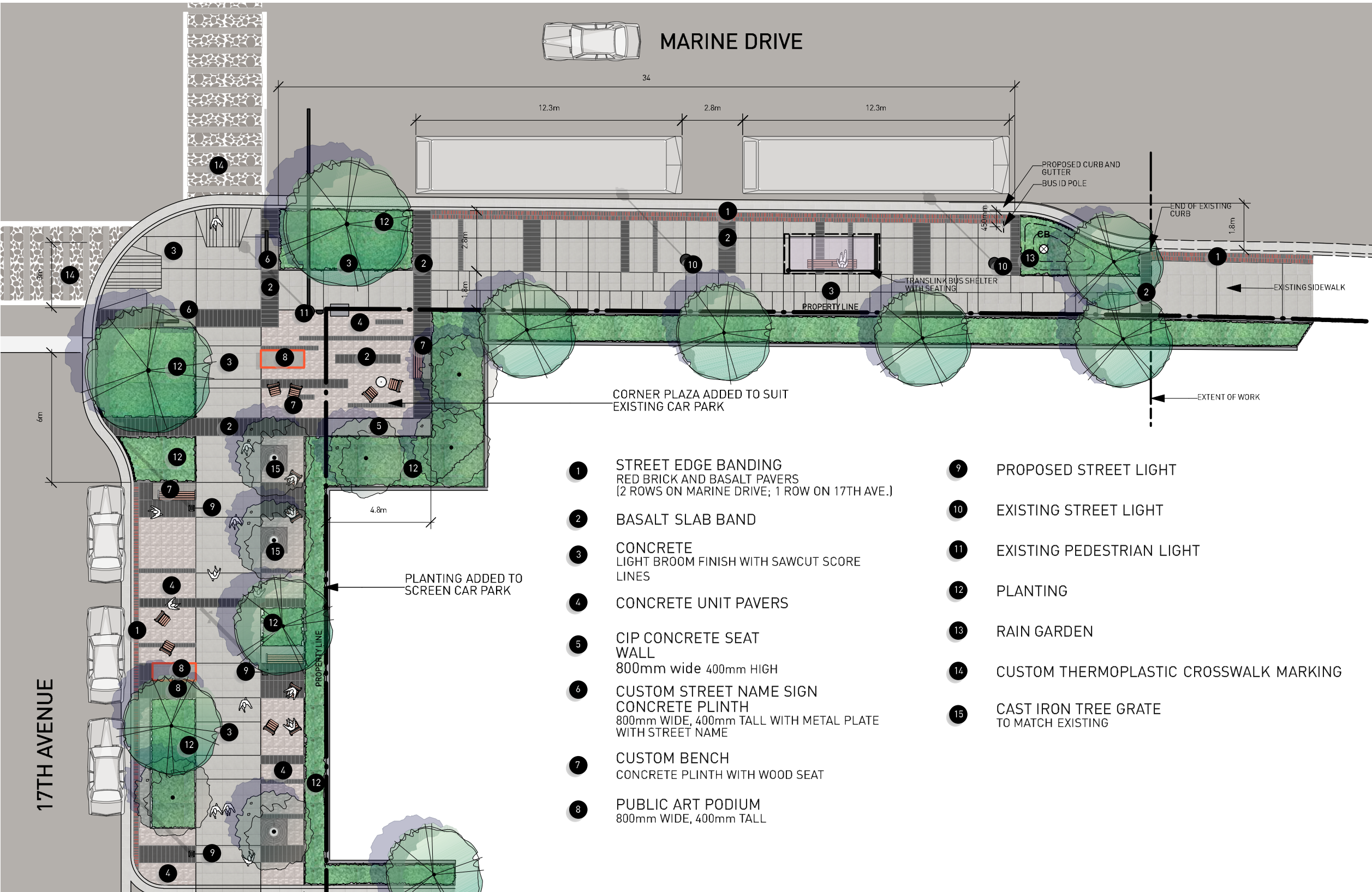
PROPOSED CHAIR
 REFER TO PAGE 37-38 FOR ADDITIONAL INFO

PROPOSED STREET LIGHT
 REFER TO PAGE 43 FOR ADDITIONAL INFO

PROPOSED TREE GRATE
 USE CURRENT AMBLESIDE STANDARD TREE GRATE



Plan: Typical Sidewalk/ Plaza (East Side of 17th Street)



Design Adaptation at Marine Drive and 17th Avenue

Note: Plan shows proposed interim treatment to suit existing adjoining site conditions. The standards would apply in the event of future major redevelopment.



View: 17th Street South of Marine Drive | Looking South



Typical View: 17th Street South of Marine Drive | Looking North on East Side

Precedent Images

NORTH OF MARINE DRIVE

INTENT

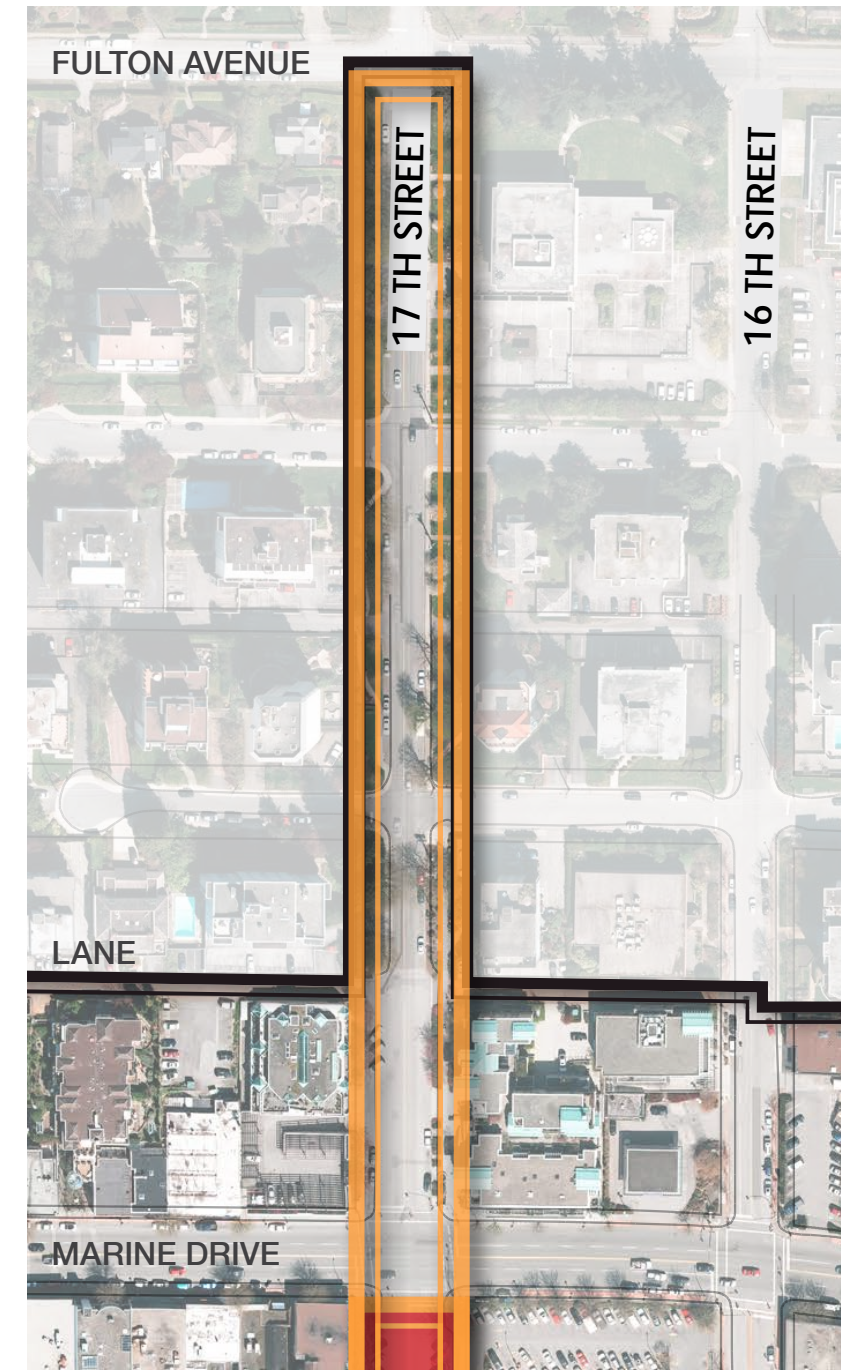
North of Marine Drive improvements would be limited mostly to the east side of the street reinforcing the connection to District Hall. The existing sidewalk would be removed and replaced with a wider sidewalk located further from the curb to create a wider grassed/landscaped boulevard along the street edge. The new widened sidewalk would provide a more formal and generous pedestrian route connecting the Municipal complex with the Village Centre and waterfront.

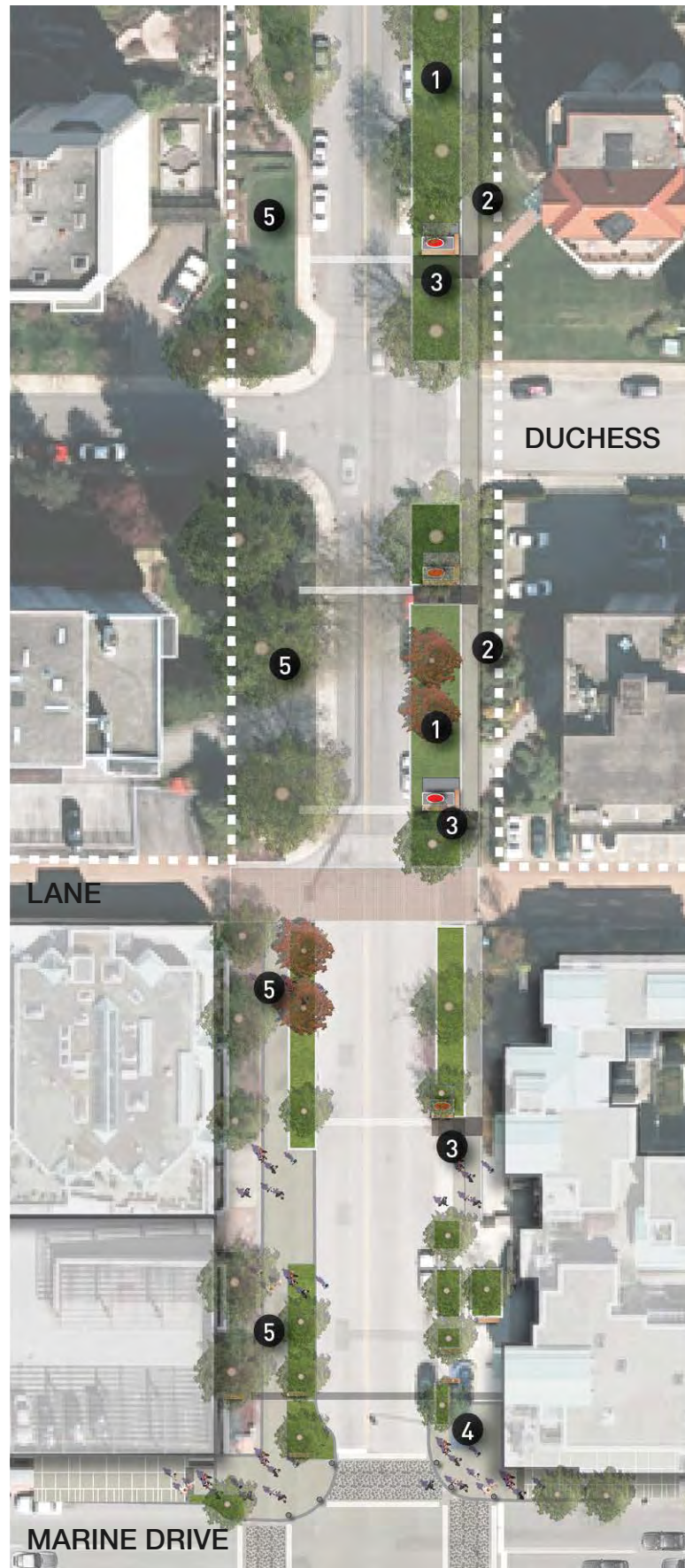
Public art plinths would be located within the widened boulevard along the length of the improved sidewalk to create an “art walk” extending to the waterfront. Basalt paving with concrete plinth/seating units would highlight these locations. The plinths would provide a base structure for the installation of permanent or temporary art pieces along the length of the street. Each art venue would include seating, plantings and low-level lighting.

A retaining wall or stabilized slope would be required in order to retain the steeply sloped grass boulevard east of 17th adjacent to private development north of Duchess Avenue.

Mature heritage Horse Chestnut trees form an avenue along the length of 17th Avenue. In addition, Magnolia trees are planted in the boulevard along the east side of the street. The Horse Chestnuts on the east side of the street have been severely pruned to avoid conflict with overhead hydro cables. Detailed recommendations for tree retention, removal and replacement are outlined at page 46, Street Tree Planting Strategy.

The proposed designs for the festival streets are conceptual and may be amended to suit conditions at the time of development.



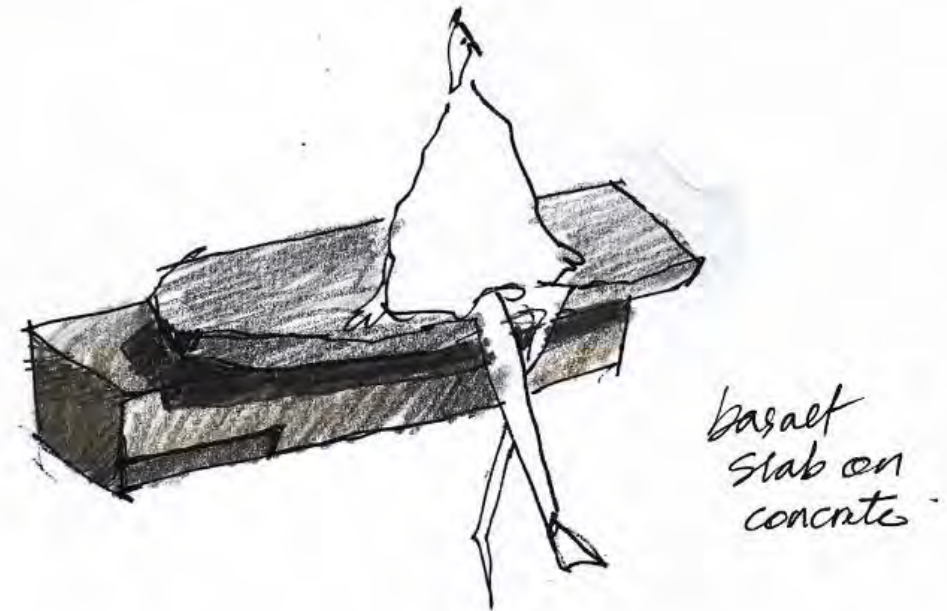
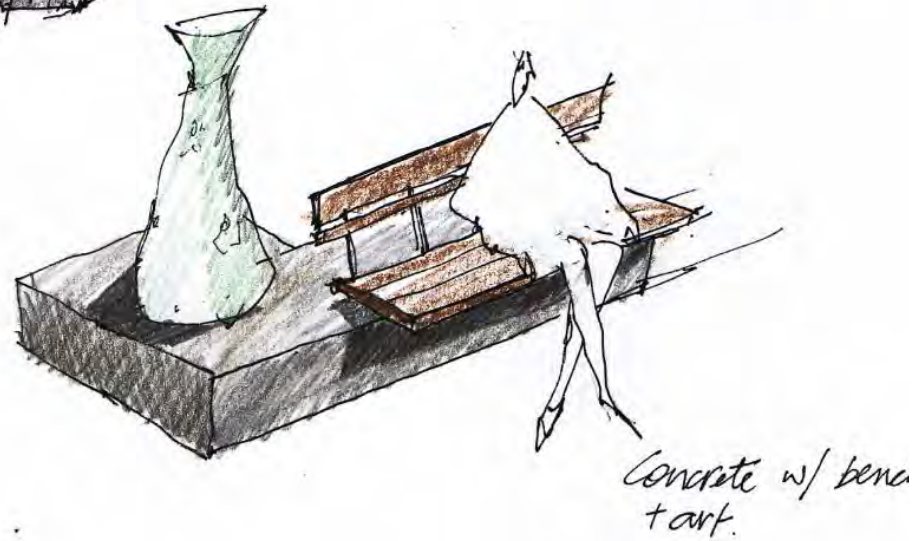
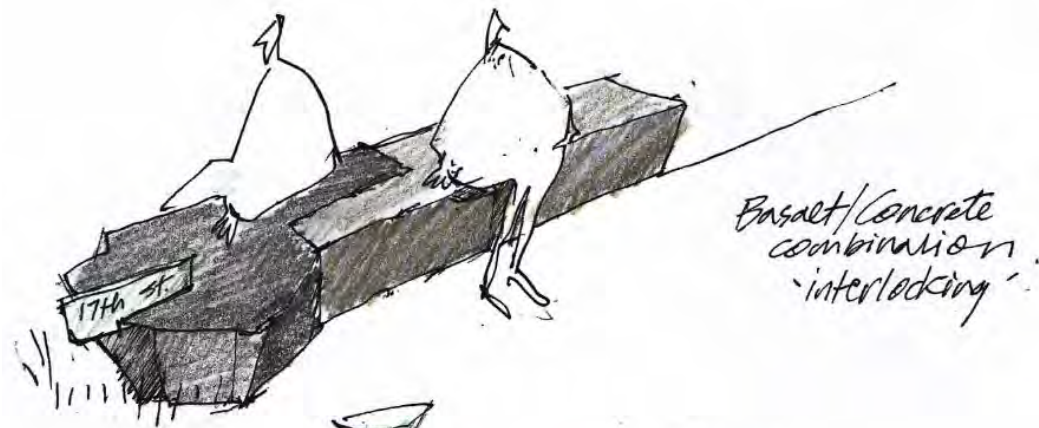
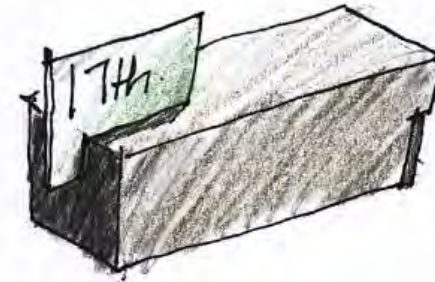
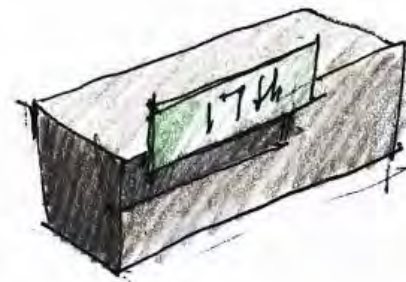
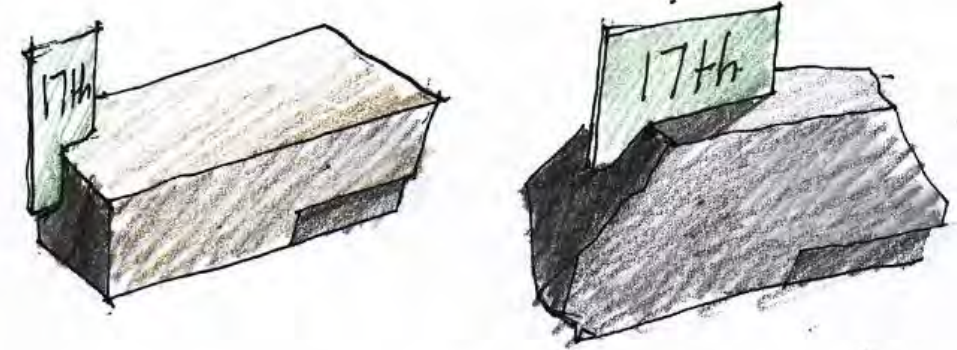
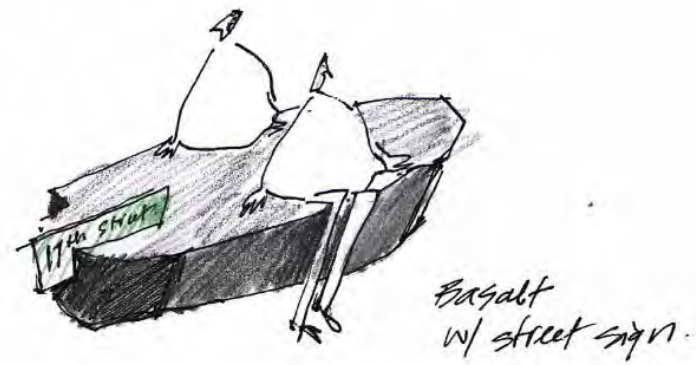


Conceptual Master Plan

- 1 BOULEVARD ZONE
LOW PLANTING AND TREES IN GROUPS
- 2 RELOCATED SIDEWALK
CONCRETE SIDEWALK RELOCATED TO THE EAST SIDE OF TREES
- 3 ART WALK
SERIES OF ELEVATED PLATFORMS FORMING INFORMAL SEATING AND PODIUMS FOR ART DISPLAYS
- 4 EXISTING PUBLIC ART TO REMAIN
- 5 EXISTING TREE PLANTING TO REMAIN



View: 17th Street North of Marine Drive



Custom Furniture and Art Plinth Form Study

14TH STREET NEIGHBOURHOOD PLAZA

14th Street, south of Marine Drive, has been proposed as a “Festival Plaza” connecting the pier at the Ferry Building Gallery to Marine Drive.

INTENT

South of Marine Drive, 14th Street provides the potential for a new multi-purpose urban plaza that can provide a more spacious pedestrian friendly environment within the Village Centre and be used as an event space for the community through occasional street closures.

The plaza would accommodate a variety of activities such as festivals, weekend events and markets as well as providing smaller scaled seating areas, gathering spaces and improved street planting.

The proposed plaza would involve complete reconfiguration of the street between Marine and Bellevue with a reduced road width and angled parking being replaced



by parallel parking on both sides of the street. Larger sidewalks and paved boulevards would be established with more room for pedestrian circulation, and additional streetscape amenities such as social seating areas, public art, street plantings, bike racks, signage etc.

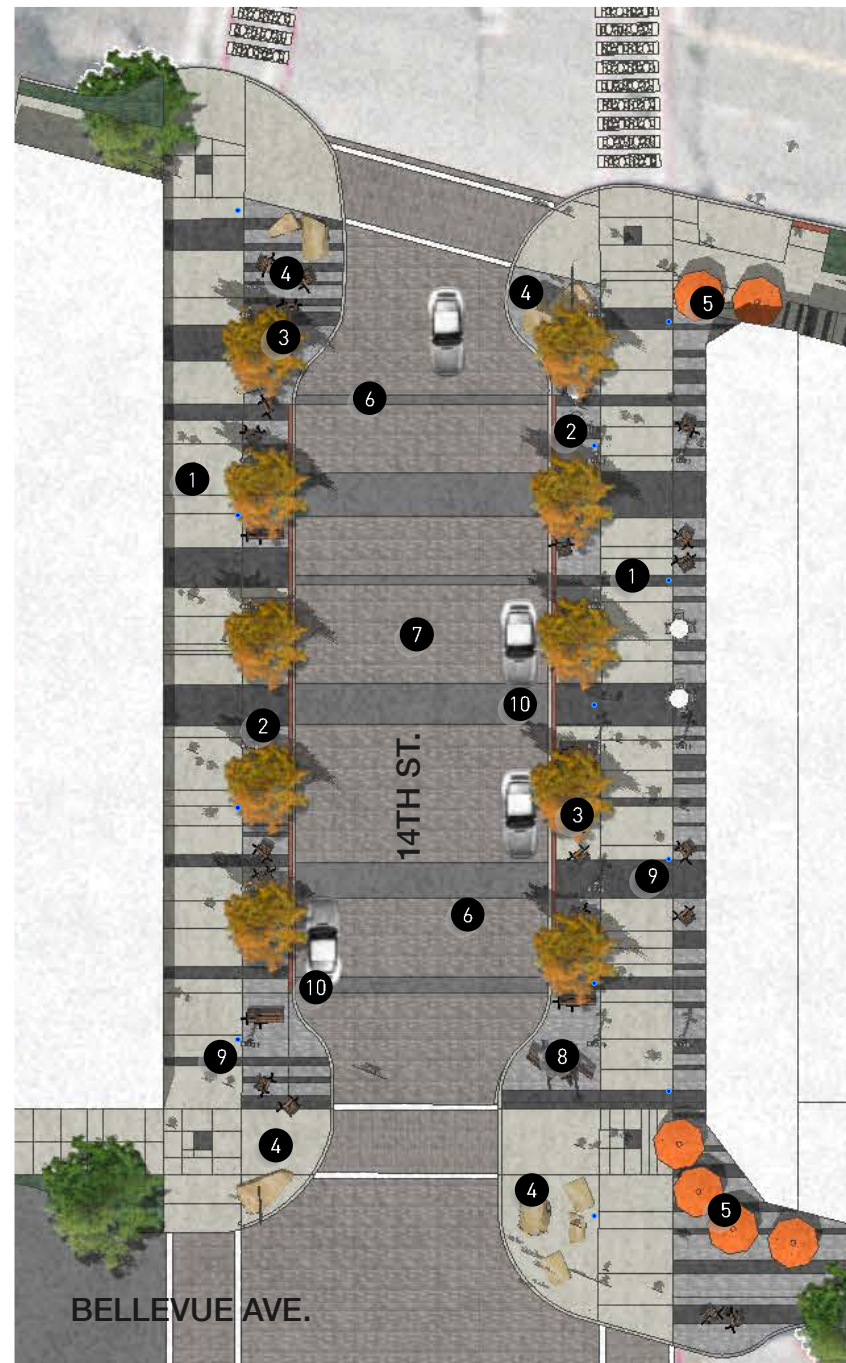
The concept design for the streetscape includes:

- cast-in-place concrete sidewalks with scored jointing for visual consistency with the adjoining streets
- coloured concrete pavers for front and rear boulevards
- basalt banding extending from the building faces to the curbs
- coloured concrete unit pavers for the road surfacing with coloured paver banding to align with basalt bands in the sidewalk
- custom thermoplastic crossing patterning on asphalt

As with the 17th Street Festival Street, low plinth features would be sited along the street to provide base structures for custom designed seating, water features, public art installations and low level lighting.

New pedestrian scaled lighting is proposed on 14th Street between Marine Drive and Bellevue. See Lighting page 43 and 44.





14th Street Conceptual Master Plan

- 1 WIDENED SIDEWALKS
SCORED CONCRETE WITH BASALT BANDS
- 2 BOULEVARD ZONE
CONCRETE UNIT PAVERS WITH BASALT BANDS WITH SEATING ZONE (ARRANGEMENT OF SINGLE SEATS, SEATING WALLS, TWO SIDED BENCHES, FLEXIBLE AND INFORMAL)
- 3 TREE PLANTING
ONE SPECIES OF TREE SYMMETRICALLY PLANTED ON BOTH SIDES OF THE STREET TO EMPHASIZE THE URBAN AND SIMPLE GEOMETRY OF THE SPACE
- 4 CHARACTER ELEMENTS
BOULDERS, ROCKS, GRASSES - WATERFRONT CHARACTER
- 5 CORNER PLAZAS
14TH STREET PAVING PATTERN EXTENDS ACROSS BELLEVUE AVENUE TO VISUALLY EMPHASIZE CONNECTION TO THE WATERFRONT. SOUTH FACING CORNERS PROVIDE EXCELLENT LOCATIONS FOR PUBLIC GATHERING AND SEATING
- 6 ON-STREET BIKE ROUTE (SHARED ON-ROAD CONDITION)
- 7 NARROWER ROAD WAY WITH PARALLEL PARKING
FEATURE PERMEABLE CONCRETE UNIT PAVER SURFACING
- 8 PERMANENT PUBLIC ART LOCATION
SPECIFIC LOCATION TO BE DETERMINED AT TIME OF DEVELOPMENT
- 9 SPECIAL LIGHTING (DOUBLE ROW ON EAST SIDE)
- 10 PARALLEL PARKING



View: 14th Street South of Marine Drive | Looking South



Views: 14th Street



APPENDIX

sustainability data sheet

Neoliviano

May 2012



With our roots in the landscape and a stated purpose to “Enrich Outdoor Spaces,” Landscape Forms has a special relationship to the natural environment. We have always been mindful that as we design and manufacture products that are acted upon by the environment, we act upon it in turn. Environmental sustainability is completely consistent with our purpose, our goals, our values and our principles. We make stewardship of the environment a vital part of our business.

To learn more about our sustainability initiatives, refer to our [Environmental Statement](#).

NEOLIVIANO IS MANUFACTURED USING THE FOLLOWING MATERIALS:

Material	Parts	Recyclable
aluminum	bench supports	100%
wood	seat/back panels	100%

Finishing

Supports are treated with Alodine® to provide corrosion protection.

Landscape Forms wood furniture for outdoor use is manufactured from wood species that weather naturally in outdoor settings to a beautiful pewter gray. We do not apply paints or finishes to these products and do not recommend the use of finishes which would require ongoing maintenance programs as the wood weathers. Our wood furniture for indoor use is finished with LF 80, a clear, catalyzed low-VOC acrylic finish.

Packaging Materials

Packaging Materials	Parts	Recyclable
biodegradable plastic	product bagged to protect finish	100%
recycled skid		100%
cardboard with 35% recycled content		100%

To find local recyclers visit: for steel: www.recycle-steel.org; for cardboard: www.corrugated.org.

LEED®

This product may help achieve the following points under the LEED 2009 Rating System. For specifics regarding rules for the inclusion of furniture, please consult the rating system and reference guide that applies to your project.

IEQ Prerequisite 2: Environmental Tobacco Smoke (ETS) Control**Intent**

To prevent or minimize exposure of building occupants, indoor surfaces and ventilation air distribution systems to environmental tobacco smoke (ETS).

Benches, tables, chairs and ash urns help create a designated smoking area 25 feet or more from entries, outdoor air intakes and operable windows to support the intent of this prerequisite.

Materials and Resources**MR Credit 4, Recycled Content****Intent**

To increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials.

Recycled Content

Style	Total	Post Consumer	Pre Consumer
bench	6	3	3

MR Credit 5, Regional Materials**Intent**

To increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation.

This product is categorized as Furniture and Furnishings, Division 12. MR Credit 5 is to include only products in Division 2 – 10 of the (CSI) MasterFormat. At the option of the project, Division 12 may be included, but then must also be included consistently in MR Credits 3 through 7.

This product is manufactured in our Kalamazoo, MI facility, zip code 49048. Many of our suppliers are located within a 500 mile radius of this facility, but they may source raw materials from multiple sources. If the project is within 500 miles of Kalamazoo and you wish to consider this product for MR Credit 5, please contact Landscape Forms prior to order placement to explore the possibility of specifying regionally sourced raw materials.

CARE AND MAINTENANCE

Neoliviano is designed and engineered to live a long, useful life in outdoor spaces without the use of chemical cleaners to maintain the finish. The durability, longevity and low maintenance of our products contribute to responsible stewardship of the earth's resources.

Metal: Clean surface as needed using a soft cloth or brush with a mild detergent. Avoid steam cleaning, abrasive cleansers, carbon steel brushes/wools and cleaners containing chlorine.

Wood: Exterior woods require no maintenance. If desired, the surface may be scrubbed with warm soapy water and soft bristle brush. Pressure washing, steel wool/wire brushes are not recommended. Heavily ingrained stains may be sanded away with fine grade sandpaper worked in the direction of the grain. Sanded wood will weather to a gray patina. Interior woods require only dusting or occasional cleaning with a good-quality furniture polish.

IMPORTANT NOTE: Standard choices are shown; colors are approximate. To make final color selections, please call for material samples.

wood

Exterior woods weather to a warm, pewter gray; no finish is applied so no maintenance is required. Options: black locust, purpleheart may be specified as FSC® certified (may extend lead times). Special stain may be specified for interior woods. Pricing for standard woods and options varies, see Price Book. (P) = Premium Woods

exterior no finish



jarrah (P) black locust (P) purpleheart (P)

interior LF-80 finish



jarrah (P)

aluminum



aluminum

Instructions

Assembly
Installation
Operation

Recommended procedure for embedded mounting:

Each embedded bench is shipped with two M10 threaded rods per support casting. For mounting to existing concrete, we recommend using an adhesive anchoring system (Hilti HIT RE 500 or Powers Fasteners AC100 PLUS™). These products may be used in wet or dry conditions. Gel and cure times vary with temperature. Each bench support requires approximately 1-1/2 ounces of adhesive. Although the anchoring procedure is the responsibility of the installer, we suggest the following:

1. Place bench upside down on non-marring material.
2. Locate and install two M10 threaded rods in each support. Leave 4" of threaded rod sticking out of the support. DO NOT thread rods in until they bottom out.
3. Place the bench in the desired position.
4. Mark hole locations around rods.
5. Move the bench to allow access for drilling holes.
6. Hammer drill 5/8" holes, 4-1/2" deep.
7. Clean holes carefully using a 1" diameter nylon brush and compressed air. For best results use a nozzle that reaches the bottom of the hole. Holes must be free of standing water or ice.
8. Follow the manufacturer's instructions for dispensing adhesive. Fill the holes from the bottom up to avoid air pockets. Fill to a level 1" from the top of each hole. (The adhesive level should rise to the top of the hole as the bench is set in place.)
9. Set the bench in the installed position. Do not disturb the bench during the cure time.
10. Wipe away any spilled adhesive before it gels.



OLYMPIA™ BIKE RACK



PRODUCT DATA

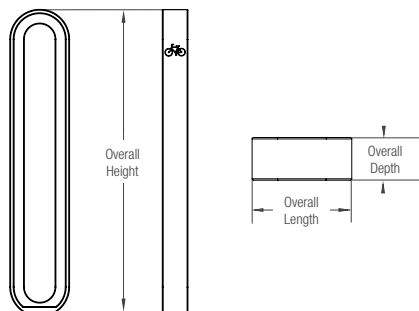
The **Olympia Bike Rack's** smooth, fluid curves combined with the strength that comes with solid corrosion-resistant cast aluminum construction make this rack a perfect choice for parks, corporate campuses and more. Its stand-alone, space-saving design allows for an unlimited number of configuration options for ultimate design flexibility.

MATERIAL & FINISHES

MATERIAL	FINISHES	INSTALLATION	MAINTENANCE
<ul style="list-style-type: none"> Body is made of corrosion-resistant cast aluminum with powdercoat finish. 	<ul style="list-style-type: none"> Standard colors are Aluminum Texture and Slate Texture; optional colors from the F+S color chart and custom RAL colors are available for an upcharge. Bike logo comes standard without color. Custom colors are available for an upcharge. Due to the inherent nature of metal castings, gloss powdercoats are not offered for cast components. 	<ul style="list-style-type: none"> Olympia Bike Racks must be surface mounted. Anchors and stainless steel screws are included. 	<ul style="list-style-type: none"> Metal surfaces can be cleaned as needed using a soft cloth or brush with warm water and a mild detergent. Avoid abrasive cleaners.

INSTALLATION & MAINTENANCE

NOMINAL DIMENSIONS



OVERALL LENGTH	OVERALL DEPTH	OVERALL HEIGHT	WEIGHT
7" (178 mm)	3" (76 mm)	35.6" (903 mm)	22.2 lbs (10.1 kg)

ENVIRONMENTAL CONSIDERATIONS

- Please refer to the Olympia Bike Rack Environmental Data Sheets for detailed environmental impact information.
- Olympia's aluminum casting has up to 95% recycled content and is fully recyclable.
- Standard powdercoat finishes are no-VOC; non-standard powdercoat finishes are no- or low-VOC, depending on color.
- Low maintenance.

NET PRICING AND ORDERING INFORMATION (pricing does not include freight)

MODEL	DESCRIPTION	NET PRICE
SKOLY	Olympia Bike Rack	\$375
	Optional powdercoat color from Forms+Surfaces standard color chart	+ \$200 per color/per order
	Custom RAL powdercoat color	+ min. \$500 per color/per order

TO ORDER SPECIFY: quantity, model, powdercoat color for body casting and bike logo color if desired

LEAD TIME: 6 to 8 weeks. Shorter lead times may be available upon request. Please contact us to discuss your specific timing requirements.

T 1.800.451.0410 | F 412.781.7840 | www.forms-surfaces.com

FORMS+SURFACES®

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OLYMPIA™ BIKE RACK



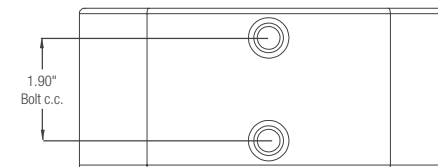
PRODUCT DATA

CONFIGURATION OPTIONS

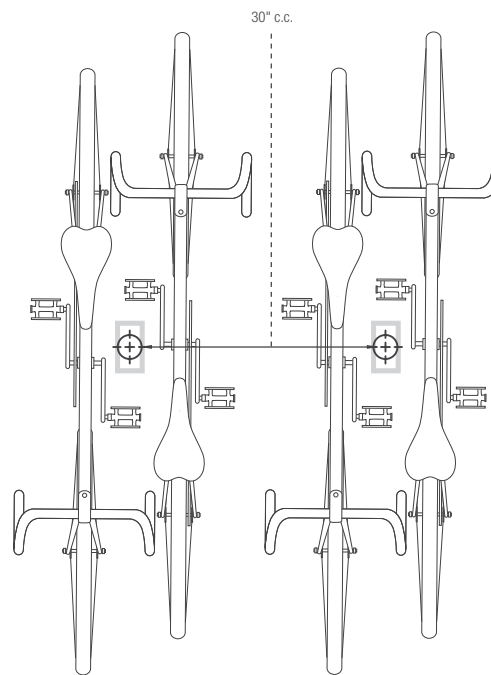
The Olympia Bike Rack was designed to allow for a multitude of configuration options to meet your individual needs. Please note that for optimal performance, Forms+Surfaces recommends a 30" center to center placement (see diagrams below for more details).



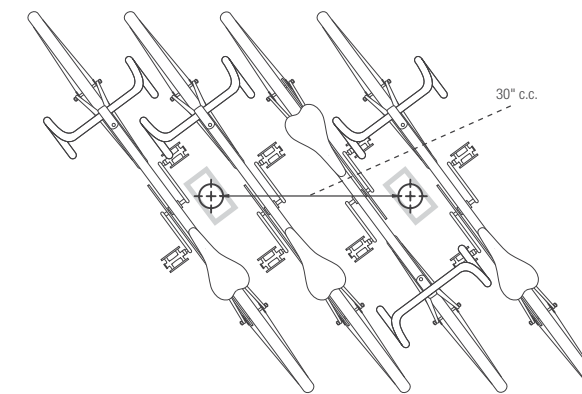
SIDE DETAIL



MOUNTING / HARDWARE DETAIL



CONFIGURATION OPTION A



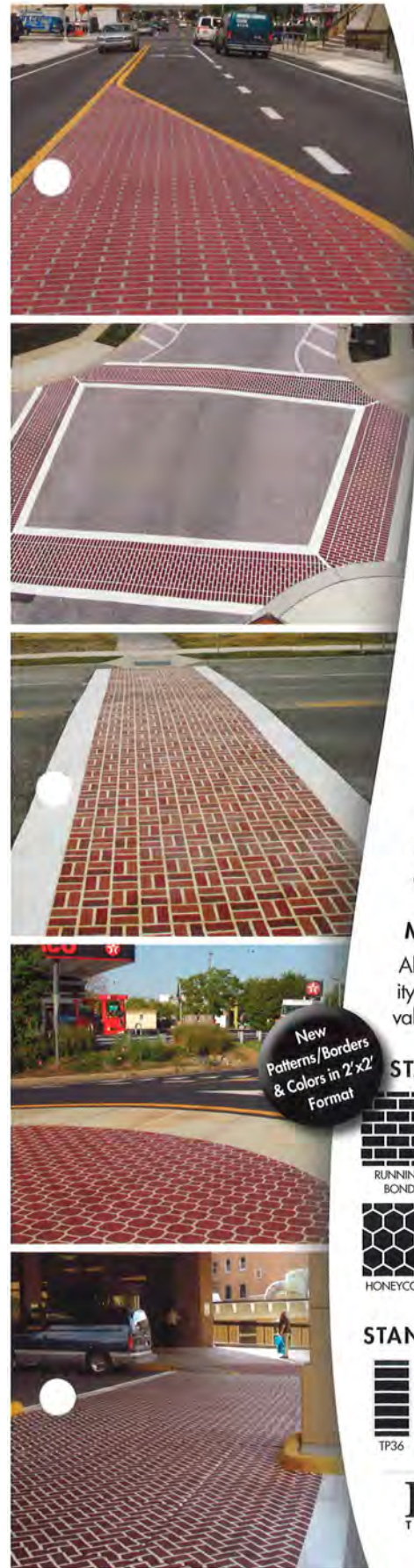
CONFIGURATION OPTION B

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MAX 3'
MIN 1/2"



CROSSWALKS • STREETSCAPES • MEDIANS • ROUNDABOUTS

TrafficPatterns® is the durable surface-applied pavement surfacing solution designed to:

- Improve traffic safety especially at intersections and multi-use paths
- Enhance visibility for motorists, cyclists and pedestrians
- Promote and/or revitalize community image and pride; attract new business
- Create attractive walkways in pedestrian and parking areas
- Create low-cost median or island effect without the need for raised curbs

HIGH SKID/SLIP RESISTANT FOR SAFETY

Skid resistance is maximized because anti-skid elements are added to surface and intermix of the material at time of manufacturing. As the marking wears, new anti-skid properties are exposed.

ENHANCED DURABILITY

- Engineered as heavy-duty intersection grade pavement marking material
- Can last 6 to 8 times longer than painted or epoxy-coated surfaces
- Eliminates the maintenance and safety concerns of loose pavers

ACCESSIBILITY & MAINTENANCE

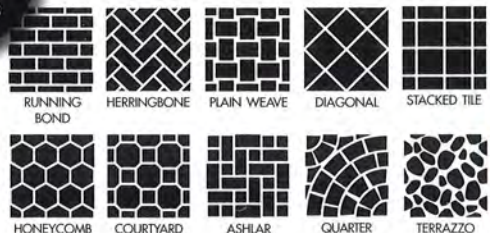
- TrafficPatterns® has the same surface characteristics as the pavement. Therefore, there is no additional vibration level or rigid bumpy effect as with pavers and imprints.
- Although virtually maintenance free, it's easy and quick to repair with minimal traffic disruption. Remove damage, apply sealer, replace with new material, and heat.

MANUFACTURING CONTROL

All TrafficPatterns® preformed thermoplastic materials are made at Flint's manufacturing facility which is ISO 9001:2008 certified for design, development and manufacturing. Quality, value and long-term performance are built into the material.

New Patterns/Borders & Colors in 2'x2' Format

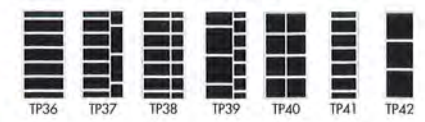
STANDARD PATTERNS



STANDARD COLORS



STANDARD BORDERS



Flint Trading, Inc. • 115 Todd Ct. Thomasville, NC • 336.475.6600
trafficscapes@flinttrading.com • www.flinttrading.com

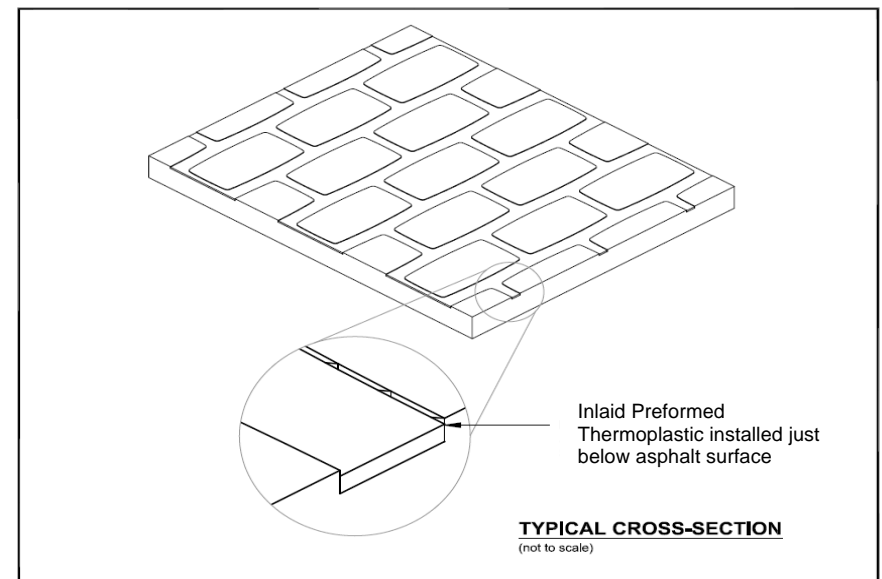


DT

SPECIFICATION

Inlaid Preformed Thermoplastic Asphalt Pavement Marking System

1. **Use:** A durable preformed thermoplastic asphalt pavement marking system, inlaid just below the asphalt pavement surface to create colorized patterns within the asphalt for streetscape and traffic calming purposes on public roads and private property. The inlaid preformed thermoplastic asphalt pavement marking system is typically used on public roadway crosswalks between white crosswalk lines and on residential and commercial areas open to pedestrian and vehicular traffic.
 - 1.1. The preformed thermoplastic is inlaid into asphalt pavement using proprietary infrared heating equipment designed specifically to elevate the temperature of the asphalt without it being adversely affected. A specialized template is imprinted into the heated asphalt pavement to create depressions to match the desired pattern. The preformed thermoplastic, precut by the material manufacturer to match the imprinted pattern, is laid to fit within the depressions and melted in place using the proprietary infrared heater.
 - 1.2. As shown below in the typical cross-section, the top of the inlaid preformed thermoplastic lies slightly below the surface level of the surrounding asphalt pavement allowing the pavement to absorb the physical effects of the traffic:



- 1.3. When applied in accordance with the manufacturer's application guidelines by an applicator certified by the manufacturer, the inlaid preformed thermoplastic will wear at a similar rate as the surrounding asphalt pavement. Therefore, the life of the inlaid preformed thermoplastic is dependent upon using a long lasting, durable and stable asphalt pavement to prevent premature wear.
- 1.4. The inlaid preformed thermoplastic is available in a variety of standard patterns and colors. The primary pattern shall be created using precut preformed thermoplastic sheets that are 24 in. (.6 m) x 24 in. (.6 m). The precut patterned border pieces shall measure either 8 in. (.2 m) or 12 in. (.3 m) wide x 24 in. (.6 m) long. These sizes ensure the specified patterns are created with a minimal number of seams between the preformed thermoplastic sheets. The use of individual preformed thermoplastic strips inlaid into standard imprinted patterns to create the design shall not be allowed.
- 1.5. The inlaid preformed thermoplastic is manufactured without glass beads. The inlaid preformed thermoplastic material must be a resilient preformed thermoplastic product, which contains intermixed anti-skid/anti-slip elements with a minimum hardness of 6 (Mohs scale), and where the top surface contains factory applied anti-skid/anti-slip elements with a minimum hardness of 8 (Mohs scale).

SPECIFICATION

Inlaid Preformed Thermoplastic Asphalt Pavement Marking System

2. **MANUFACTURING CONTROL AND ISO CERTIFICATION:** The manufacturer must be ISO 9001:2008 certified for design, development and manufacturing of preformed thermoplastic, and provide proof of current certification.
3. **PREFORMED THERMOPLASTIC MATERIAL:** Must be composed of an ester-modified rosin impervious to degradation by motor fuels, lubricants, etc. in conjunction with aggregates, pigments, binders, and anti-skid/anti-slip elements. Pigments and anti-skid/anti-slip elements must be uniformly distributed throughout the material. The thermoplastic material conforms to AASHTO designation M249, with the exception of the relevant differences due to the material being supplied in a preformed state, being non-reflective, and potentially being of a color different from white or yellow.
- 3.1. **Pigments:**
- 3.1.1. **White:** The material shall be manufactured with sufficient titanium dioxide pigment to meet FHWA Docket No. FHWA-99-6190 Table 5 and Table 6 as revised and corrected.
- 3.1.2. **Other Colors:** The pigment system must not contain heavy metals, nor any carcinogen as defined in 29 CFR 1910.1200 in amounts exceeding permissible limits as specified in relevant Federal Regulations.
- 3.2. **Skid Resistance:** The surface of the preformed thermoplastic material shall contain factory applied anti-skid material with a minimum hardness of 8 (Mohs scale). Upon application the material shall provide a minimum skid resistance value of 60 BPN when tested according to ASTM E 303.
- 3.3. **Slip Resistance:** The surface of the preformed thermoplastic material shall contain factory applied anti-skid material with a minimum hardness of 8 (Mohs scale). Upon application the material shall provide a minimum static friction of coefficient of 0.6 when tested according to ASTM C 1028 (wet and dry), and a minimum static coefficient of friction of 0.6 when tested according to ASTM D 2047.
- 3.4. **Thickness:** The material must be supplied at a minimum thickness of 90 mil (2.3 mm).
- 3.5. **Environmental Resistance:** The material must be resistant to deterioration due to exposure to sunlight, water, salt or adverse weather conditions and impervious to oil and gasoline.
- 3.6. **Storage Life:** The material may be stored for 12 months, if stored indoors and protected from the elements.
- 3.7. **Transverse Lines for Inlaid Preformed Thermoplastic Crosswalk Application:** Supplied as white, retroreflective preformed thermoplastic linear striping material in 90 mil (2.3 mm) or 125 mil (3.2 mm) thickness, material is available in 6 in. (.15 m), 8 in. (.20 m) or 12 in. (.30 m) widths. This material may be supplied and applied by the certified applicator in conjunction with the inlaid preformed thermoplastic system and is available from the inlaid preformed thermoplastic manufacturer. (Consult the manufacturer's published application instructions for the preformed thermoplastic linear striping material selected for proper application methods.)
4. **SPECIALIZED APPLICATION EQUIPMENT:**
- 4.1. **Stamping Templates:** Designed and constructed for imprinting the specified pattern into the asphalt pavement, templates are supplied by the inlaid preformed thermoplastic manufacturer in 150 mil (3.81 mm) thickness. Standard patterned templates are designed to create crosswalks ranging from 6 ft. (1.8 m) to 20 ft. (6.1 m) wide, in 2 ft. (.6 m) width increments. Template layout drawings shall be supplied by the inlaid preformed thermoplastic manufacturer to illustrate proper template placement to create the specified pattern. Certain templates may be field assembled as needed using the manufacturer supplied template assembly kit. For crosswalk widths less than 6 ft. (1.8 m) or more than 20 ft. (6.1 m), custom templates may be designed and constructed in 2 ft. (.6 m) width increments.

SPECIFICATION

Inlaid Preformed Thermoplastic Asphalt Pavement Marking System

- 4.2. **Heating Equipment:** The inlaid preformed thermoplastic manufacturer shall distribute reciprocating infrared heating equipment designed specifically to elevate the temperature of the asphalt pavement without adversely affecting it, as well as the inlaid preformed thermoplastic material. The primary asphalt heating unit must employ a bank of propane-fired infrared heaters, mounted on a track device that allows the heater bank to reciprocate back and forth over a designated area, thereby allowing the operator to monitor the temperature of the asphalt pavement and the inlaid preformed thermoplastic at all times during the pavement heating process.
- 4.2.1. A smaller, mobile infrared heater distributed by the inlaid preformed thermoplastic manufacturer is designed specifically to heat areas such as borders and narrow areas that are inaccessible to the primary heater. This secondary heater also allows the operator to monitor the temperature of the asphalt pavement and the inlaid preformed thermoplastic at all times during the heating process.
- 4.2.2. An approved hand-held propane heat torch distributed by the inlaid preformed thermoplastic manufacturer shall be used to heat isolated areas of the asphalt pavement or inlaid preformed thermoplastic.
- 4.3. **Hand Held Finishing Tool:** Enables the applicator to complete the imprinting of the asphalt pavement in areas around permanent structures, such as curbs and manholes covers, which may be inaccessible to the stamping template. The hand held finishing tools are distributed by the inlaid preformed thermoplastic manufacturer.
- 4.4. **Vibratory Plate Compactor (700-900 lb. / 318-408 kg):** Shall be used for pressing the stamping template into the heated asphalt to create the specified pattern. The inlaid preformed thermoplastic manufacturer does not supply vibratory plate compactors.
5. **APPLICATION (Asphalt Substrate Only):**
- 5.1. **Manufacturer Certified Applicator Requirement:** The material shall be supplied and applied only by an applicator certified by the manufacturer. The applicator shall provide proof of current certification before commencing work. The Certified Applicator shall follow the manufacturer's current published application guidelines.
- 5.2. **Substrate Condition:** The material must only be applied to a stable, high quality asphalt pavement substrate over a stable base, that is free of defects, as per the manufacturer published substrate guide. The asphalt pavement surface shall be dry and free from all foreign matter, including but not limited to dirt, dust, de-icing materials, and chemical residue.
- 5.3. **Procedure:** The asphalt pavement surface is heated with the primary reciprocating infrared heater to the appropriate temperature range to allow for surface imprinting. The stamping template in the specified pattern is imprinted into the heated asphalt pavement using the 700-900 lb. vibratory plate compactor. The preformed thermoplastic sheets, precut at the factory by the material manufacturer to match the template pattern, are laid into the pattern created by the stamping template, and heated until thoroughly molten with the primary reciprocating infrared heater. The mobile infrared heater or approved propane heat torch may be used in areas inaccessible to the primary reciprocating infrared heater. The material is then allowed to cool thoroughly before being opened to vehicle or pedestrian traffic. (Consult the manufacturer's published application procedures for complete information.)
- 5.4. The inlaid preformed thermoplastic asphalt pavement marking system shall not be applied to Portland Cement Concrete.
5. **PACKAGING:** The preformed thermoplastic material shall be vacuum sealed in protective plastic film with cardboard stiffeners to prevent damage in transit. The cartons in which standard preformed thermoplastic patterned sheets are packed shall be non-returnable and shall not exceed 25 in. in length and 25 in. in width. The cartons shall be labeled for ease of identification. The weight of an individual carton must not exceed fifty (50) pounds. The carton must be wrapped with a protective film to protect the material from rain or premature aging.
6. **TECHNICAL SERVICES:** The successful bidder shall provide technical services as required.

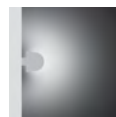
lumendome™ nano

2-INCH DIRECT-VIEW LED PIXEL

The Lumendome Nano is the 2-inch member of a family of direct-view pixel luminaires designed for creative urban concepts such as media facades, low-density video displays and environmental graphics. In contrast to LED strings and mesh systems, Lumendomes can be arranged in any formation, enabling flexibility and closer integration with architecture. Pixels are available in white or RGB for full video applications.



Optics



Direct view

Mounting



Surface

- Fully flexible**
 Addresses large scale architectural challenges without being restricted by strings or meshes
- Wide viewing angle**
 240° domed optic enables pixel formations to be perceived from any direction
- Durable design**
 Made from architectural-grade materials; 120,000-hour lumen maintenance (L70 at 25°C); 5-year warranty
- Remote drivers**
 Remote, replaceable drivers enable easier access and service
- Long range**
 48V DC power enables runs up to 370 ft (112.8m) with 32 fixtures on a single output

Technical data

2W
Watts

48V DC
Power

IP
66
IP Rating

DMX
Control

Colors

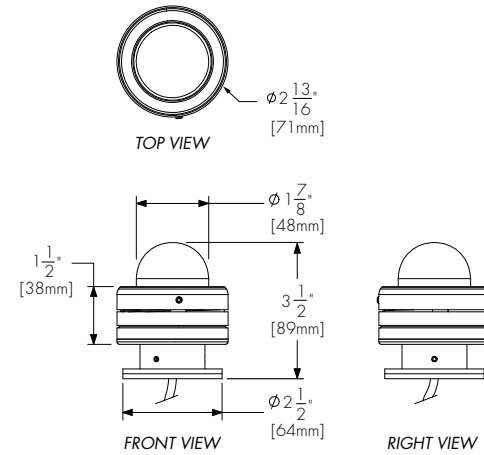
2700K

3000K

3500K

4000K

RGB

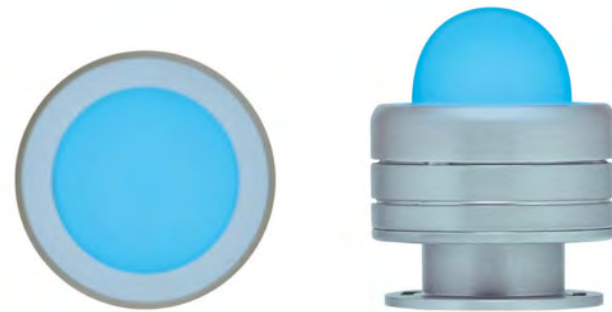
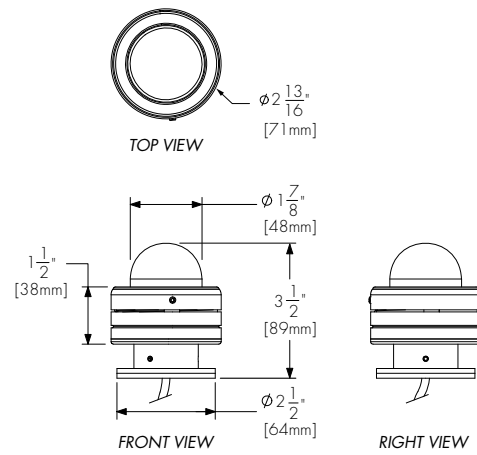


Specifications

Output*	Luminous Flux (Delivered lumens)	2700K	3000K	3500K	4000K
	Luminance (cd/m ² @ 0°)	Pending. Please refer to our website for ies files.			
	Lumen Maintenance †	120,000 hrs [L70 @ 25°C] / 90,000 hrs [L70 @ 50°C]			
Electrical	Power Consumption / Voltage input	2 watts DC power (total consumption varies according to remote power supply efficiency) / 48V DC			
	Control methods	DMX dimming			
Physical	Dimensions (diameter x height)	$\phi 2 \frac{13}{16}$ " x $3 \frac{1}{2}$ " / $\phi 71$ mm x 89mm			
	Weight	0.50 kg / 1.10 lbs			
	Housing	Aluminum housing			
	Lens	Impact resistant UV protected polycarbonate dome lens			
	Connectors	Liquidtight cable connector / 3ft (1m) power and data cable #18			
	Driver	120V-277V AC remote driver (order separately, refer to control boxes specification sheets for details)			
	Mounting	Wall mounting or canopy cover mounting options			
	Operating Temperatures	-25° C to 50° C / -13F to 122F			
	Ingress Protection	IP66			
	Environment	Dry / damp / wet location - corrosion-resistant option for marine environments.			

* Please consult website for tested ies files.

† Lumen maintenance data is based on LM80 data from the LED manufacturer.



Specifications

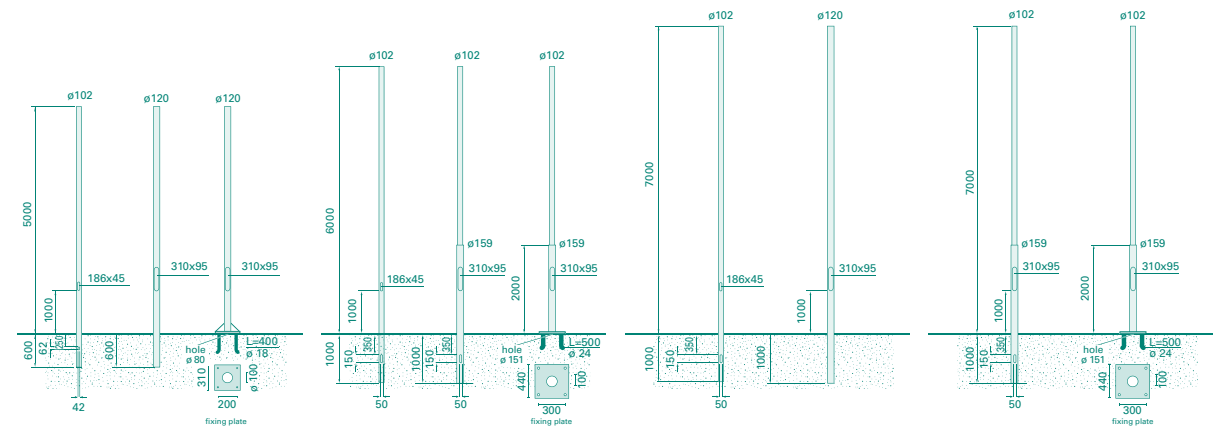
Output*	Luminous Flux (Delivered lumens)	Pending. Please refer to our website for ies files.
	Luminance (cd/m ² @ 0°)	Pending. Please refer to our website for ies files.
	Lumen Maintenance [†]	120,000 hrs [L70 @ 25°C] / 90,000 hrs [L70 @ 50°C]
Electrical	Power Consumption / Voltage input	2 watts DC power (total consumption varies according to remote power supply efficiency) / 48V DC
	Control methods	DMX 512 ready
Physical	Dimensions (diameter x height)	$\phi 2 \frac{13}{16}'' \times 3 \frac{1}{2}'' / \phi 71\text{mm} \times 89\text{mm}$
	Weight	0.50 kg / 1.10 lbs
	Housing	Aluminum housing
	Lens	Impact resistant UV protected polycarbonate dome lens
	Connectors	Liquidtight cable connector / 3ft (1m) power and data cable #18
	Driver	120V-277V AC remote driver (order separately, refer to control boxes specification sheets for details)
	Mounting	Wall mounting or canopy cover mounting options
	Operating Temperatures	-25° C to 50° C / -13F to 122F
	Ingress Protection	IP66
Environment	Dry / damp / wet location - corrosion-resistant option for marine environments.	

* Please consult website for tested ies files.

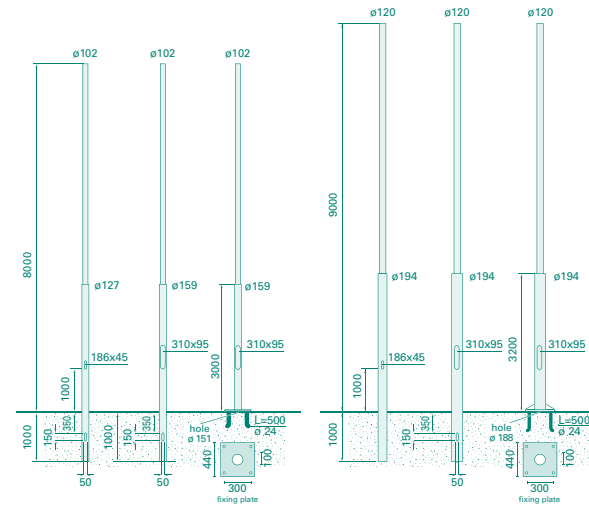
† Lumen maintenance data is based on LM80 data from the LED manufacturer.



Registered Design



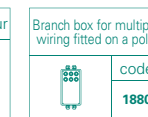
code	ø	length	colour
1205	102	5600	15
1291	120	5600	
1292	120	5000	
code	ø	length	colour
1542	102	6800	15
1561	102	6800	
1597	159	6000	
code	ø	length	colour
1543	102	8000	15
1287	120	8000	
code	ø	length	colour
1562	102	8000	15
1598	159	7000	



code	ø	length	colour
1544	102-127	9000	15
1565	102	9000	
1599	159	8000	
code	ø	length	colour
1288	120	10000	15
1545	194	10000	
1547	159	9000	

The terminal blocks have four polarities with three ways for pole and are fitted for bridge wiring. They are made with class II insulation. Code 1862 is equipped with a fuse holder for dim. 8,5x31,5 - 380 V - max 20 A. Suitable for power cables with cross-section 16 mm² on input and 2,5 mm² on output to hook up with the light source. Code 1863 is equipped with two fuse holders for dim. 10,3x38 - 380 V - max 20A. Suitable for power cables with cross-section 16 mm² on input and 2,5 mm² on output to hook up with the light source. Code 1865 is equipped with two fuse holders for dim. 8,5 x 31,5 - 380 V - max 20 A. Suitable for power cables with cross-section 16 mm² on input and 2,5 mm² on output to hook up with the light source.

terminal box			door key	
code	colour	poles	code	colour
1862 1865	00	1205	0227	00
		1542		
		1561		
		1543 1544		
1862 1865	00	1597	0246	00
		1562		
		1598		
		1565		
		1599		
		1545 1547		
1863	00	1291	0246	00
		1292		
		1597		
		1287		
		1598		
		1288 1545 1547		



fixing plate with anchoring bolts		
code	poles	colour
1168	1292	00
1165	1597-1598 1599-1547	

accessories for terminal block	
code	poles
B943	1542-1543-1544-1545 1547-1561-1562-1565 1597-1598-1599

accessories for terminal block	
code	poles
B944	1542-1543-1544-1561-1562 1565-1597-1598-1599
B972	1545-1547

The poles featured in the tables are suitable for fixing on I, F and E. For other countries, add the specific fixing systems featured in the table.

* DIN guide for D and CH
** Marine grade plywood support for terminal board for GB

Poles with plate are suitable for the F and E markets



scale 1:100

MultiWoody System can install the optical assemblies with compact, small and medium body. Can also house iPro large body (page 240). In case of installation of iPro floodlight on horizontal arms the number of floodlights can be doubled.
The system is compatible with MaxiWoody LED floodlights (compact and small body) presented on page 299

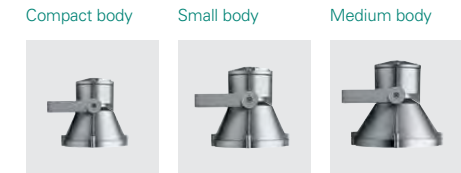
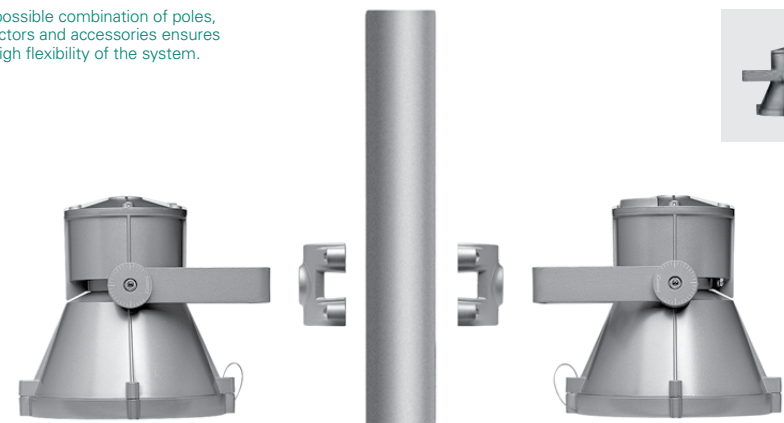
Horizontal arm	ø pole	code	Flanges	ø pole	code	Multiple support for two floodlights	Multiple support for three floodlights
for 1 floodlight	120	6113 L=400	for 1 floodlight	120	6012 149x180	code 6014	code 6015
	102	6116 L=390		102	6111 119x165		
for 2 floodlights	120	6114 L=795	for 2 floodlights	120	6013 156x180	code 6014	code 6015
	102	6117 L=785		102	6112 126x165		
counter flange	120	6115 L=178	Directional flap	Elliptical light flow refractor	Coloured filters	Visor	Circular louvre
	102	6118 L=160					
adapter disk	-	6119*	Accessory retention cable	Accessory codes are shown on page 176.			

* Allows for complete rotation of floodlight on horizontal arm

W-Saving: maximum nominal power of the lamp up to 250 W. The components that are necessary for the operation of the fittings must be ordered separately. They are presented on page 262.

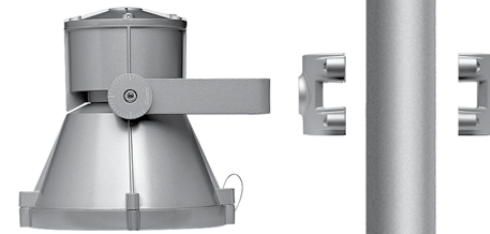
lamp	W	ø pole	W-Saving 220 V	base for poles				base for poles			
HST-DE	70/150	194	BG42 + BZG1	code	size	poles	colour	code	size	poles	colour
HST	70/100			1841		1292	15	1842		1597 1598 1599	15
HSE	70			1843		1547					

The possible combination of poles, projectors and accessories ensures the high flexibility of the system.

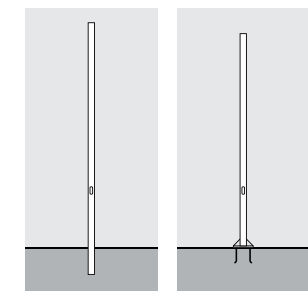


The system is available in three different sizes for the floodlight.

Flanges for pole mounting are available for single or double composition.



The pole is available in two versions, with fixing plate or for burying.





DISPATCH™ LITTER & RECYCLING RECEPTACLE



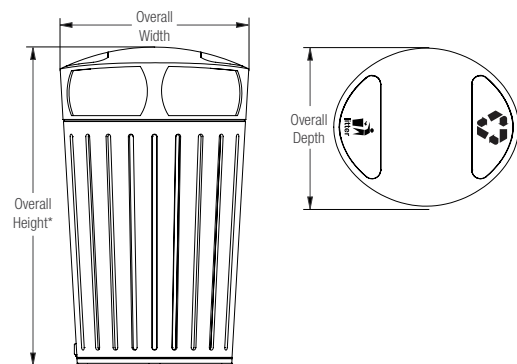
PRODUCT DATA

Dispatch combines distinctive design, robust materials and a versatile array of waste stream management options. Receptacles are made of heavy cast aluminum with a hinged side-access door for easy servicing. Available with 36 and 45 gallon capacities in single-stream and split-stream versions, openings can be configured for litter-only, bottles & cans-only, paper-only or for combined litter and recycling. Attractive, durable and highly adaptable, Dispatch is an ideal litter and recycling solution for any public space.

MATERIAL & CONSTRUCTION DETAILS

BODY AND LID	CONFIGURATION OPTIONS	LID GRAPHICS	INSTALLATION
<ul style="list-style-type: none"> Body and lid are made of solid cast aluminum with a powdercoat finish. Standard powdercoat colors are Aluminum Texture and Slate Texture; F+S optional colors and custom RAL colors are available for an upcharge. Due to the inherent nature of metal castings, gloss powdercoats are not offered for cast components. 	<ul style="list-style-type: none"> Receptacles are available in 36 and 45 gallon configurations. Single-stream receptacles use a single 36 or 45 gallon liner. Split-stream configurations are divided by an internal baffle plate to create two separate litter and/or recycling streams. 36 gallon receptacles use two 16 gallon half liners; 45 gallon receptacles use two 20 gallon half liners. 	<ul style="list-style-type: none"> Instructional graphics are applied to two sign plates, which are mechanically fastened to the top of each lid. Sign plates are stainless steel with a Satin finish; instructional graphics are Black vinyl. 	<ul style="list-style-type: none"> Receptacles can be used freestanding with a concrete base or surface mounted with or without a concrete base. Anchors and stainless steel mounting screws are provided for surface mounting.
RECYCLING OPENINGS	SIDE ACCESS DOOR AND LATCH	LINERS	MAINTENANCE
<ul style="list-style-type: none"> Openings can be limited to a particular type of recyclable. Along with the standard full litter opening, round bottles & cans and slotted paper openings are available. See details on page 2. 	<ul style="list-style-type: none"> Receptacle opens in a clamshell fashion with half of the cast body serving as a swing-out door. Two stainless steel latch options are available: lift lever or screwdriver-operated recessed access. 	<ul style="list-style-type: none"> Both single-stream and split-stream receptacles use independent, replaceable internal liners designed to be used with or without plastic litter bags. Liners are molded from durable black polyethylene with UL94HB fire rating. 	<ul style="list-style-type: none"> Metal surfaces can be cleaned as needed using a soft cloth or brush with warm water and a mild detergent. Avoid abrasive cleaners.

NOMINAL DIMENSIONS (36 GALLON)



MODEL	OVERALL HEIGHT*	OVERALL WIDTH	OVERALL DEPTH	WEIGHT	INTERNAL CAPACITY
SLDIS-136	43.0" (1092 mm)	25.5" (648 mm)	21.8" (554 mm)	112 lbs (50 kg)	36 gallons (136 liters)
SLDIS-216	43.0" (1092 mm)	25.5" (648 mm)	21.8" (554 mm)	112 lbs (50 kg)	32 (2 x 16) gallons (121 liters)

*NOTE: Concrete base adds 2.75" to overall height

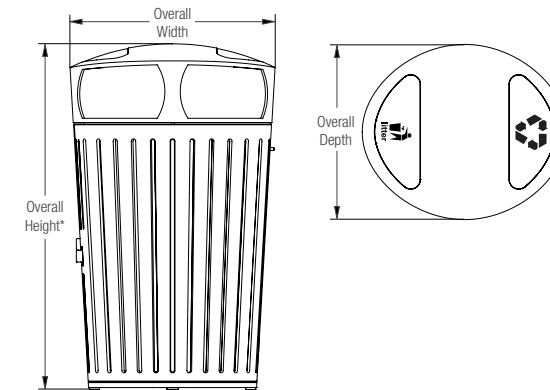


DISPATCH™ LITTER & RECYCLING RECEPTACLE



PRODUCT DATA

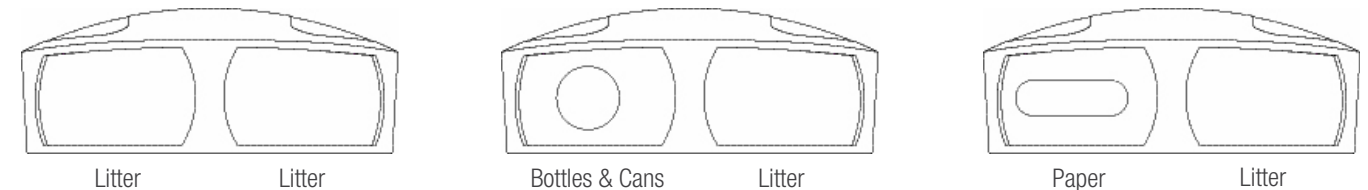
NOMINAL DIMENSIONS (45 GALLON)



MODEL	OVERALL HEIGHT*	OVERALL WIDTH	OVERALL DEPTH	WEIGHT	INTERNAL CAPACITY
SLDIS-145	45.8" (1162 mm)	27" (686 mm)	23" (584 mm)	125 lbs (57 kg)	45 gallons (170 liters)
SLDIS-220	45.8" (1162 mm)	27" (686 mm)	23" (584 mm)	125 lbs (57 kg)	40 (2 x 20) gallons (150 liters)

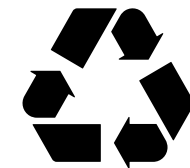
*NOTE: Concrete base adds 2.75" to overall height

LID OPENING OPTIONS



OPENING	DIMENSIONS (36 GALLON)	DIMENSIONS (45 GALLON)
Litter	9.9" (251 mm) x 6.3" (160 mm)	11.5" (292 mm) x 7.0" (178 mm)
Bottles & Cans	4.5" (114 mm) x 4.5" (114 mm)	4.5" (114 mm) x 4.5" (114 mm)
Paper	8.0" (203 mm) x 2.5" (63 mm)	8.0" (203 mm) x 2.5" (63 mm)

STANDARD GRAPHICS





DISPATCH™ LITTER & RECYCLING RECEPTACLE

PRODUCT DATA

ENVIRONMENTAL CONSIDERATIONS

- Please refer to the Dispatch Environmental Data Sheets for detailed environmental impact information.
- Dispatch Receptacle has up to 90% recycled content.
- All components are fully recyclable.
- Rustproof cast aluminum construction ensures a long product life cycle.
- Standard powdercoat finishes are no-VOC; non-standard powdercoat finishes are no- or low-VOC, depending on color.
- Low maintenance and easy to disassemble.

NET PRICING AND ORDERING INFORMATION (pricing does not include freight)

MODEL	DESCRIPTION	NET PRICE
SLDIS-136	Dispatch Receptacle, 36 gallon, single-stream, one 36 gallon liner	\$1,550
SLDIS-216	Dispatch Receptacle, 36 gallon, split-stream, two 16 gallon half liners	\$1,650
SLDIS-145	Dispatch Receptacle, 45 gallon, single-stream, one 45 gallon liner	\$1,750
SLDIS-220	Dispatch Receptacle, 45 gallon, split-stream, two 20 gallon half liners	\$1,850
	Optional powdercoat color from Forms+Surfaces standard color chart	+ \$200 per color/per order
	Custom RAL powdercoat color	+ minimum \$500 per color/per order
	Add concrete base	+ \$149 per receptacle
	Add recycling openings	+ \$25 per side/per receptacle

TO ORDER SPECIFY: quantity, model, powdercoat color(s), lid graphics, recycle openings (optional), latch option, freestanding or surface mount with or without concrete base

LEAD TIME: 6 to 8 weeks. Shorter lead times may be available upon request. Please contact us to discuss your specific timing requirements.

T 1.800.451.0410 | F 412.781.7840 | www.forms-surfaces.com

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