

CANDLESTICK POINT

STREETSCAPE MASTER PLAN

DRAFT

November 8, 2013





LENNAR URBAN

SAN FRANCISCO, CA

CONSULTING TEAM

URBAN DESIGN

COOPER, ROBERTSON AND PARTNERS

STREETSCAPE

URBAN DESIGN +

INDUSTRIAL DESIGN & STREETSCAPE

IMELK LANDSCAPE ARCHITECTURE PC

LANDSCAPE ARCHITECTURE

TOM LEADER STUDIO

CIVIL ENGINEERING

SHERWOOD DESIGN ENGINEERS

SIGNAGE

DEBRA NICHOLS DESIGN

COST ESTIMATING

R. BORINSTEIN COMPANY

TABLE OF CONTENTS

1. OVERVIEW	5
1.1 INTRODUCTION	
2. CONCEPTUAL FRAMEWORK	9
2.1 NEIGHBORHOOD CHARACTER	
2.2 HISTORY AND CULTURE: SPECIAL MOMENTS	
3. STREET TYPOLOGIES	13
3.1 STREET TYPOLOGIES	
3.2 THE SPINE CHARACTER	
4. STREETScape ZONES	19
4.1 SIDEWALK ZONES	
4.2 STREET ZONES	
5. STREETScape ELEMENTS	25
5.1 PAVING MATERIALS	
5.2 STREET TREES	
5.3 STORMWATER TREATMENT	
5.4 LANDSCAPE PLANTING	
5.5 STREET FURNITURE	
5.6 STREET LIGHTS	
5.7 UTILITY COVERS	
5.8 STREETScape ELEMENTS MATRIX	
6. TYPICAL STREET LAYOUTS	43
6.1 STREETScape ELEMENT PLACEMENT MATRIX	
6.2 TYPICAL STREET CORNER LAYOUT	
6.3 THE SPINE (FULL) : HARNEY WAY (NORTH OF ARELIQUS WALKER)	
6.4 THE SPINE (FULL) : EGBERT AVENUE	
6.5 RESIDENTIAL STREET: P STREET	
6.6 RESIDENTIAL STREET: TYPICAL	
6.7 RESIDENTIAL STREET: FITZGERALD AVENUE	
6.8 COMMERCIAL: ARELIQUS WALKER (SOUTH OF INGERSON AV)	
6.9 COMMERCIAL STREET: INGERSON AVENUE (WEST OF HARNEY WAY)	
6.10 PARK STREET: EARL STREET	
6.11 PARK STREET: EGBERT AVENUE (WEST OF ARELIQUS WALKER)	
6.12 PARK STREET: EARL STREET (NORTH OF GILMAN AV.)	
7. DETAILS	57
7.1 STREET TREE PLANTING GUIDELINES & DETAILS	
7.2 PLANT MATERIALS PALETTE	
7.3 DISABLED PARKING AND LOADING DETAILS	
7.4 STREETScape ELEMENT DETAILS	



5
Parkside Drive

6
THE GROVE

7
THE VILLAS

1. OVERVIEW

1. OVERVIEW

1.1 INTRODUCTION

This Streetscape Master Plan presents an overall vision for the streetscape and public realm in Candlestick Point. A complementary Streetscape Master Plan for Hunters Point Shipyard will be prepared and submitted to the City at the same time that the first Major Phase application for development at Hunters Point Shipyard is submitted to the City for approval.

The Streetscape Master Plan furthers place-making and identity building for the project master plan, the surrounding community, and the City as a whole. The plan also positions the streetscape as an integral component of an innovative, performing landscape, and welcoming public realm by establishing guidelines for furnishings, paving, landscaping, stormwater management, sidewalk bulb-outs and other streetscape elements. Where applicable, guidelines from the Better Streets Plan and City standards have been incorporated into this document.

Site Influences

Every site in the city is affected by an arrangement of influences that evoke memories, give character, and define possibilities. Such influences might be subtle or overt, physical or symbolic, specific or subtle, but together they tell a story of place that can inspire design that is truly rooted in place, responsive to history, and open to future.

Candlestick Point is rich in history and culture, ecology, and physical influences, offering touchstones for creating a unique streetscape design.

Combining these site influences with the development master plan for Candlestick Point creates a distinctive conceptual framework for the public streets on the site. This framework underlies a unique story of place and identity that is expressed with identifiable neighborhoods, opportunities for special moments, and integrated infrastructure systems.





5
Parkside
Drive

6
THE GROVE

7
THE VILLAS



2. CONCEPTUAL FRAMEWORK

2. CONCEPTUAL FRAMEWORK

2.1 NEIGHBORHOOD CHARACTER

Neighborhood Character

Defining neighborhoods and creating a legible urban environment that creates a sense of place is a particular challenge in large redevelopments. Given their scale, it is critical that Candlestick Point-Hunters Point Shipyard Phase 2 (CPHPS2) be perceptively felt as communities and neighborhoods, each with its own character, yet part of the whole.

Neighborhood character is influenced by the interplay of site influences in the development master plan. Each neighborhood will have its own narrative of place, which is distinct, but always reinforcing the larger vision for the entire project.

Figure 2.1 – CPHPS2 Neighborhoods



2. CONCEPTUAL FRAMEWORK

2.2 HISTORY AND CULTURE: SPECIAL MOMENTS

Each neighborhood will have a special place (e.g. neighborhood park) and an important street (or streets) which lead to the water. The interconnected network of public spaces is a connective tissue and a tool to develop the character for each neighborhood.

Each place becomes the opportunity to develop narratives (historic, cultural, etc.) through wayfinding or artwork installations.

Special places, neighborhood parks, important streets, such as The Spine and retail streets, view corridors and points of contact with the waterfront become potential locations and opportunities for art installations to be embedded in the overall streetscape plan. These special moments will further be design in Sub-Phase submittals.

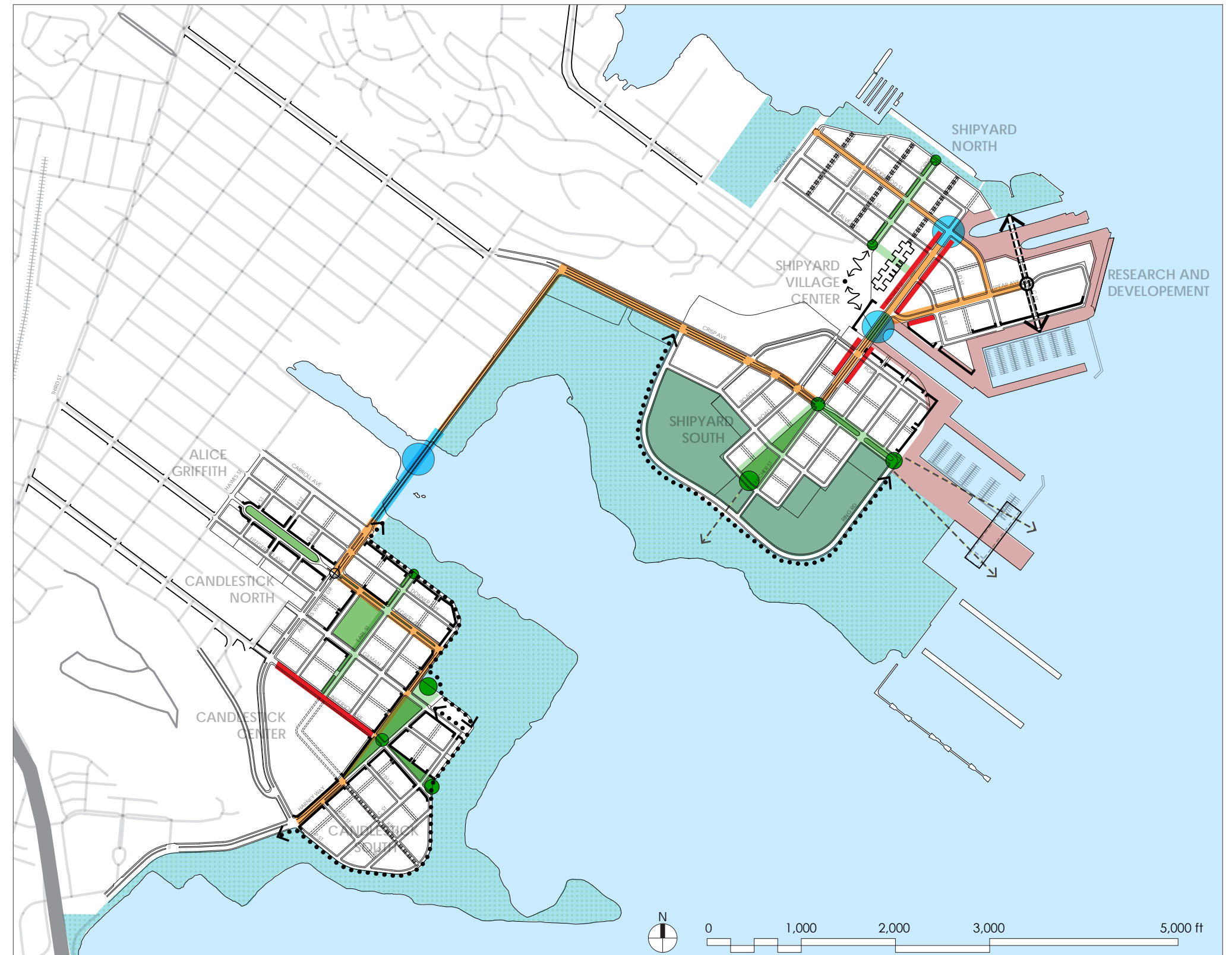
Expressions of special moments may include:

- Sculpture
- Narratives (historical, cultural, etc.)
- Wayfinding devices
- Site artifacts and "found objects"
- Landscape installations and environment
- Lighting
- Public pedestrian infrastructure
- Bridge opportunities

LEGEND

- Neighborhood Parks
- Recreational Areas
- Waterfront Parks
- Dockside Waterfront
- Special Streets
- Retail Streets
- Waterfront Walk
- Special Open Space Moments
- Special Waterfront Moments

Figure 2.2 – Special Moments





5
Parkside
Drive

6
THE GROVE

7
THE VILLAS

3. STREET TYPOLOGIES



3. STREET TYPOLOGIES

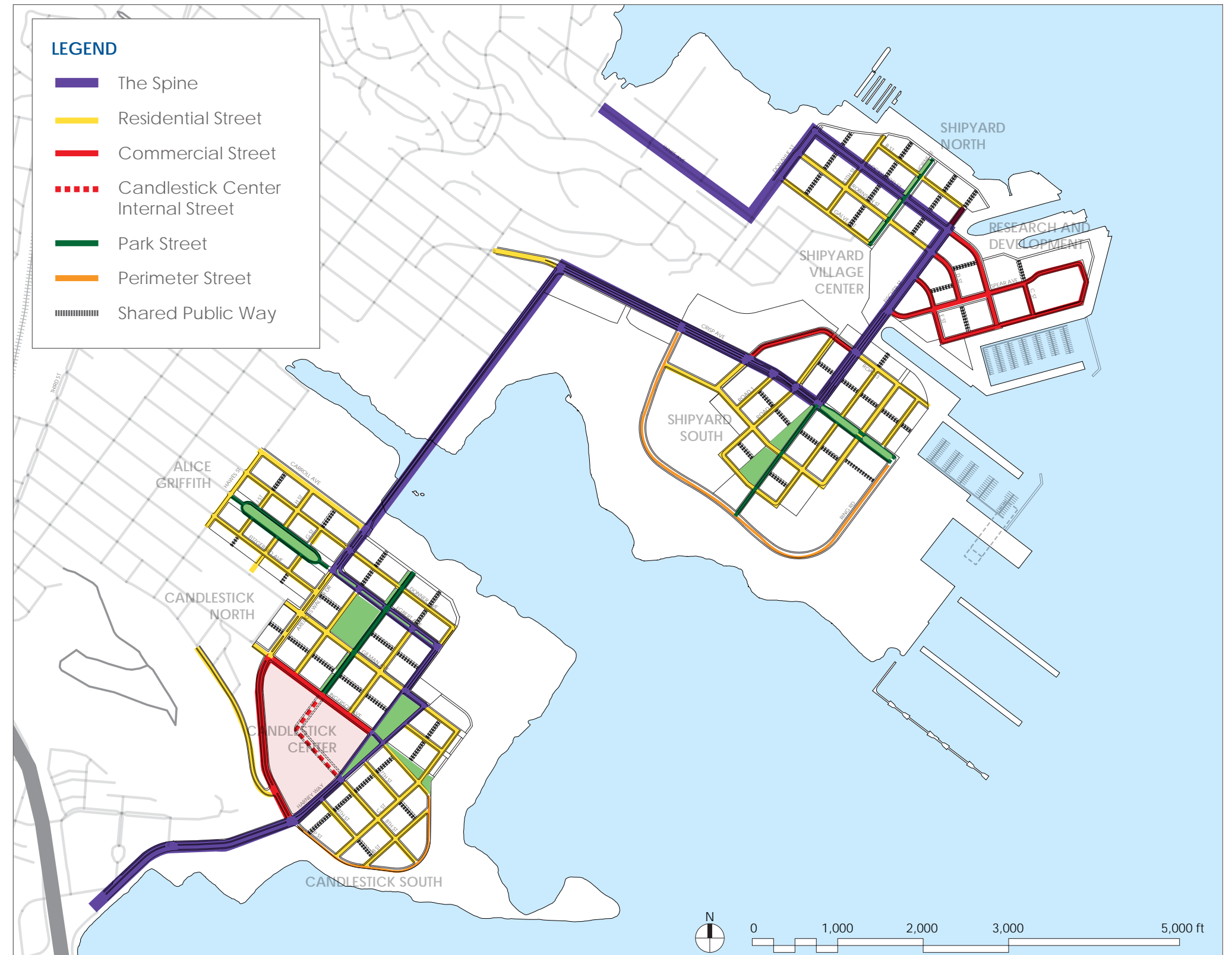
3.1 STREET TYPOLOGIES

A framework of streetscape typologies establishes order and hierarchy in Candlestick Point's streetscape by relating streets of similar character and function together.

In many cases, the CPHPS2 streetscape typologies directly overlap with typologies in the Better Streets Plan, but in cases such as The Spine, multiple Better Streets Plan categories will exist in the single street typology, as it is the role of The Spine to have a singular and consistent character through Candlestick Point and Hunters Point Shipyard. Specific references to Better Streets categories are made on the following Streetscape Matrix.

As outlined on the next page, Street typology design narratives inform how streetscape elements are selected, arranged, and detailed. Each streetscape typology has unique characteristics that relate to the overall neighborhood vision and are rooted in unique site influences.

Figure 3.1 – Street Typologies



3. STREET TYPOLOGIES

THE SPINE

Iconic and Civic Scaled

The Spine is comprised of several typologies (Residential, Commercial, Park), which are unified as a main thoroughfare by a distinctive design. The Spine is a place “to see and be seen” and provides a special identity for Candlestick Point and Hunters Point Shipyard

Better Streets Plan Typology
Analogs:

- Civic (Ceremonial)
- Boulevard

RESIDENTIAL STREET

Consistent and Calm

Residential streets are calm streets to set neighborhood life and engagement. Each neighborhood will have unique landscaping, paving details, and other streetscape elements that will create distinctive neighborhood streetscapes.

Better Streets Plan Typology
Analogs:

- Residential Thoroughway
- Neighborhood Residential

COMMERCIAL

Energetic, Colorful, and Engaging

Embedded with the rich sports history of Candlestick Park, a collection of flexible spaces, programmed for a multitude of activities, commercial streets and open spaces can provide spaces for concerts, outdoor films, and other community events.

Better Streets Plan Typology
Analogs:

- Commercial Thoroughway
- Neighborhood Commercial

PARK STREETS

Diverse, Expressive, and Active

Park Streets are special landscape corridors to connect parks and lead the public to the waterfront. Wide swaths of landscaping along Park Streets provide opportunities for recreation and stormwater management.

Better Streets Plan Typology
Analogs:

- Parkway
- Park Edge

PERIMETER STREETS

Visually Porous and Pedestrian

Evening walks, a jog or a bike ride, the place to relax and “watch the water”. Perimeter Streets are another design opportunity: to blend the built and natural environments.

Better Streets Plan Typology
Analogs:

- Neighborhood Residential
- Park Edge

SHARED PUBLIC WAYS

Intimate, Privately Designed

Privately developed, with a public easement, shared public ways may have flower stands, small cafes, and other amenities. Predominately a pedestrian only street, shared public ways also provide vehicular access when built as a mid-block laneway.

Better Streets Plan Typology
Analogs:

- Shared Public Way



3. STREET TYPOLOGIES

3.2 THE SPINE CHARACTER

The Spine is the civic backbone of the new neighborhoods, a city scale street that connects to the surrounding community and provides a unifying link between Hunters Point Shipyard and Candlestick Point. Akin to Market Street and Van Ness Avenue in the center of the City, The Spine visually creates consistency and makes connections with iconic and bold design elements. Using streetscape elements that are engaging, dynamic and exclusive to The Spine, the street becomes an instantly recognizable and organizing element in the public realm.

Functionally, the Spine links the major open spaces and special places, and defines the northern and southern gateways, making it the most travelled street in Candlestick Point. The Spine is also most multi-modal street in Candlestick Point with BRT, cars, bus, bike and pedestrian networks all uniquely designed to help way-finding between the multiple neighborhoods and special places.

Streetscape elements on The Spine reflect the civic importance of the street. The lighting, landscaping, paving, and furniture are bold and instantly recognizable as unique in the overall public realm.

The coniferous trees are the tallest and the most unique, punctuated by lights that are similarly scaled. Together, they make The Spine immediately visible in the landscape of the community.

Complementing this verticality is a potential special materials treatment for The Spine, a patterned paving with a unique and special graphic inspired by the Dazzle painting schemes from pre-radar era Navy ships.

Streetscape elements such as landscape planters, furniture and biofiltration basins along The Spine could also take on the curves and contours of the Dazzle patterns thereby reinforcing the street's unique visual identity. Elements of The Spine will also be incorporated in the future Slough bridge design, further supporting the connection between Candlestick Point and Hunters Point Shipyard.

Spine Intensities

The Spine has varying degrees of intensity. "Spine Full" applies to segments of The Spine within denser, more active areas of the development, such as commercial corridors. "Spine Light" applies to project entry roads less developed areas between Candlestick Point and Hunters Point Shipyard. "Spine Light" may have different and/or fewer streetscape elements than "Spine Full". Lights, trees and other design elements may remain unchanged between typologies to provide consistent and uniform character along length of The Spine.



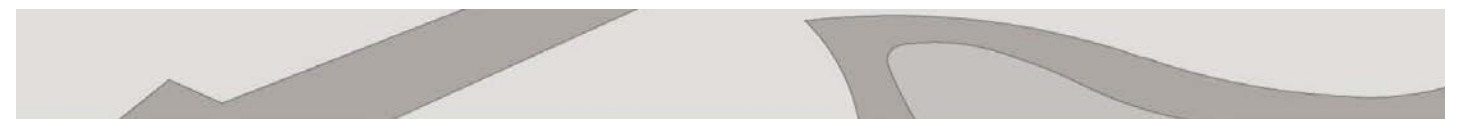
Special furnishing zone paving precedent: Madrid, Spain



The Spine Lighting: RoadStar Luminaire



SS Independence with Dazzle paint



Conceptual Dazzle pattern for furnishing zone

Figure 3.2 – Spine Intensities





5 Parkside Drive

6 THE GROVE

7 THE VILLAS

3
4

6
8
CRANE
BAY

SLOUGH
SLOUGH

4. STREETSCAPE ZONES



4. STREETScape ZONES

4.1 SIDEWALK ZONES

Sidewalk Zones

The sidewalk consists of 3 primary zones: Frontage Zone, Throughway Zone, Furnishing Zone, Edge Zone. Each zone has a distinct functional role and set of design considerations.

- 1. Throughway Zone : The portion of the sidewalk for pedestrian travel along the street Widths vary between 5' and 12'.
- 2. Furnishing Zone : The portion of the sidewalk used for street trees, landscaping, biofiltration, transit stops, street lights, and street furniture Widths vary between 4' and 8'.
- 3. Edge Zone : The area used by people getting in and out of vehicles parked at the curbside. The edge zone may have streetscape elements, given 4' access area remains from curb to throughway near the centerline of each street parking space. The edge zone is 2' in width for parallel parking and 30" for angled parking.

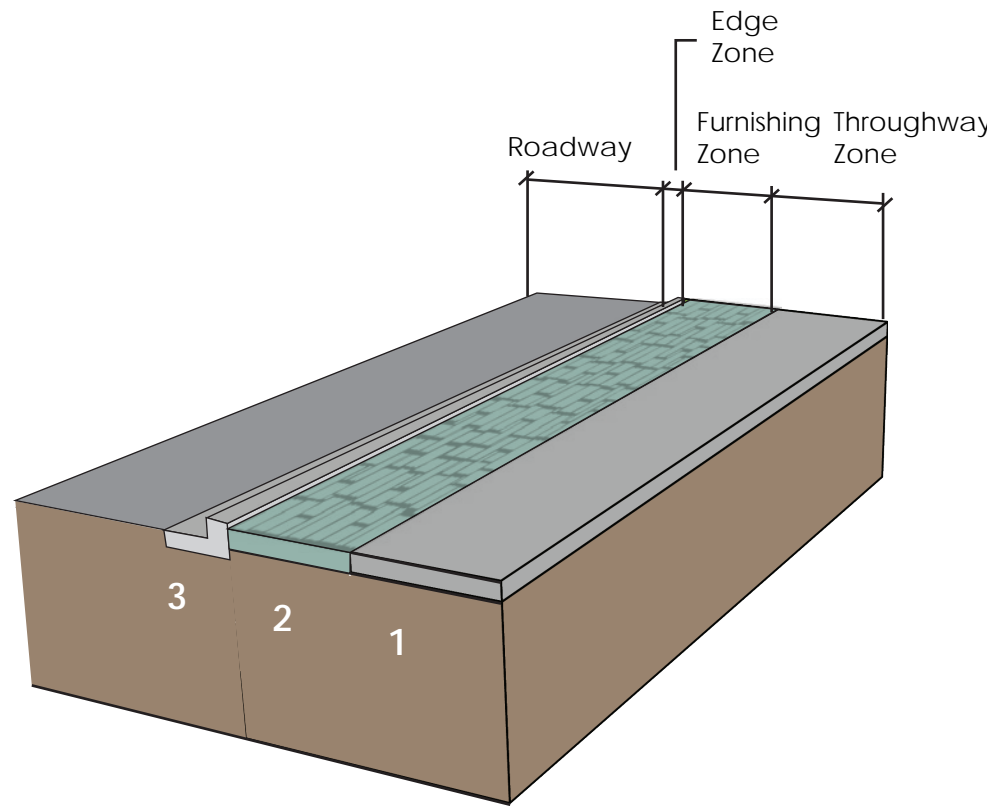


Figure 4.1 – Sidewalk Zones

Bulb-outs

Streets in neighborhoods are both connections between places and the setting for community. Bulb-outs create more sidewalk space at selected locations and provide an opportunity to enhance the street as an important public space in the neighborhood, while also creating a safer pedestrian environment.

Furnished bulb-outs in Candlestick Point are organized in typologies that response to their streets or relationship to the Bay. Bulb-outs on paths to the water may incorporate elements that reinforce connection to the water, without necessarily using water. Bulb-out design should create special moments in the streetscape and provide visitors with memorable walks to the Bay.

Unfurnished bulb-outs in commercial areas should be developed by adjacent retailers to enhance surrounding food and beverage provisions, and provide places for enjoying the City's street life.



4. STREETScape ZONES

4.1 SIDEWALK ZONES

Bulb-Out Location and Sizing

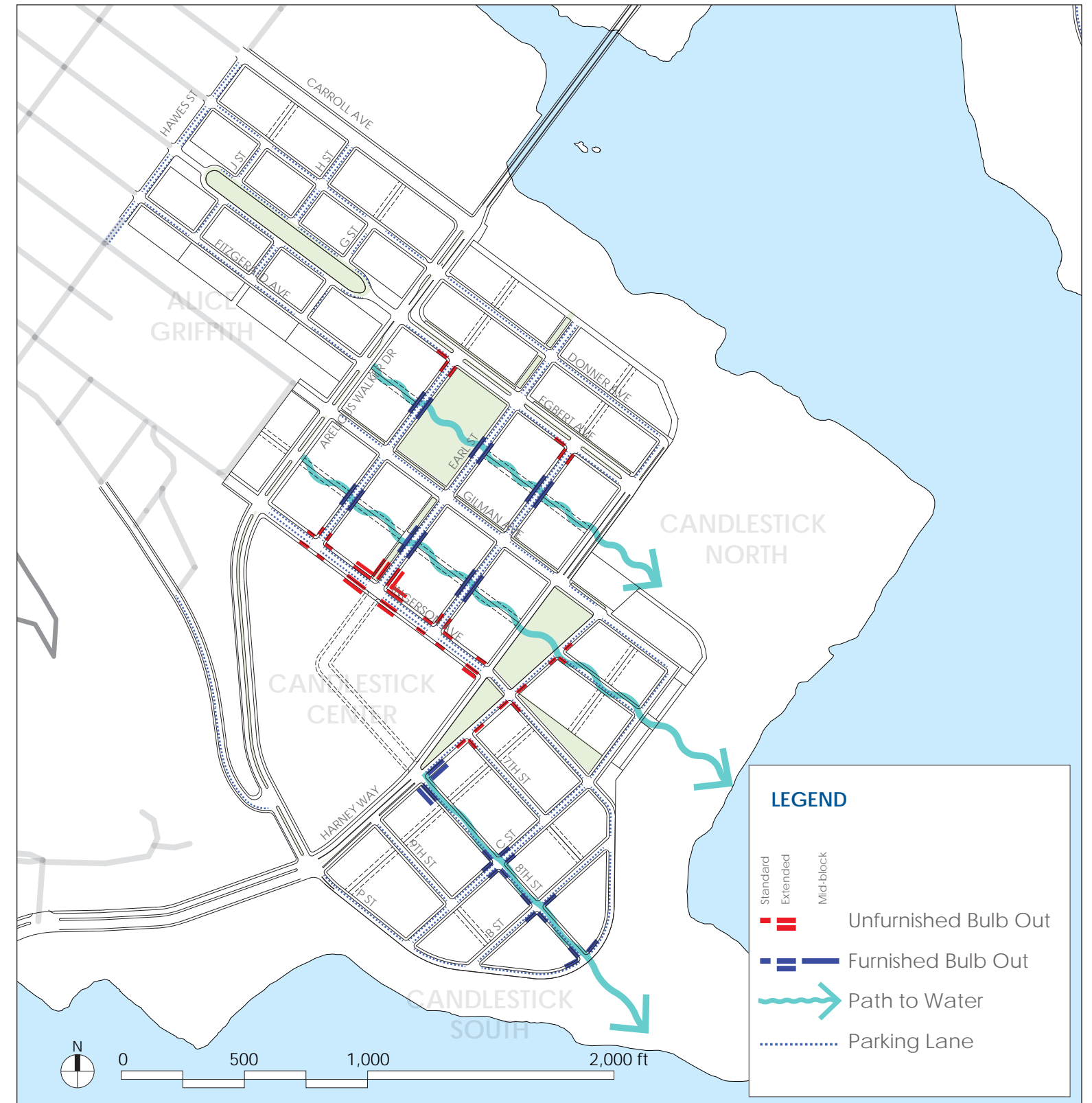
Conceptual bulb-out sizes and locations are shown to the right. Standard bulb-outs are the length of 1 parking space, while extended bulb-outs are the length of 2 spaces.

Corner bulb-outs are recommended for pedestrian safety at key intersections and along three pedestrian routes to the waterfront where they function as an extension of the waterfront park into the neighborhood.

Specific location and sizing of bulb-outs will be determined at Sub-Phase submittal phases.



Figure 4.2 – Bulb-out Map



4. STREETSCAPE ZONES

4.2 STREET ZONES

BRT Lanes & Cycle Track

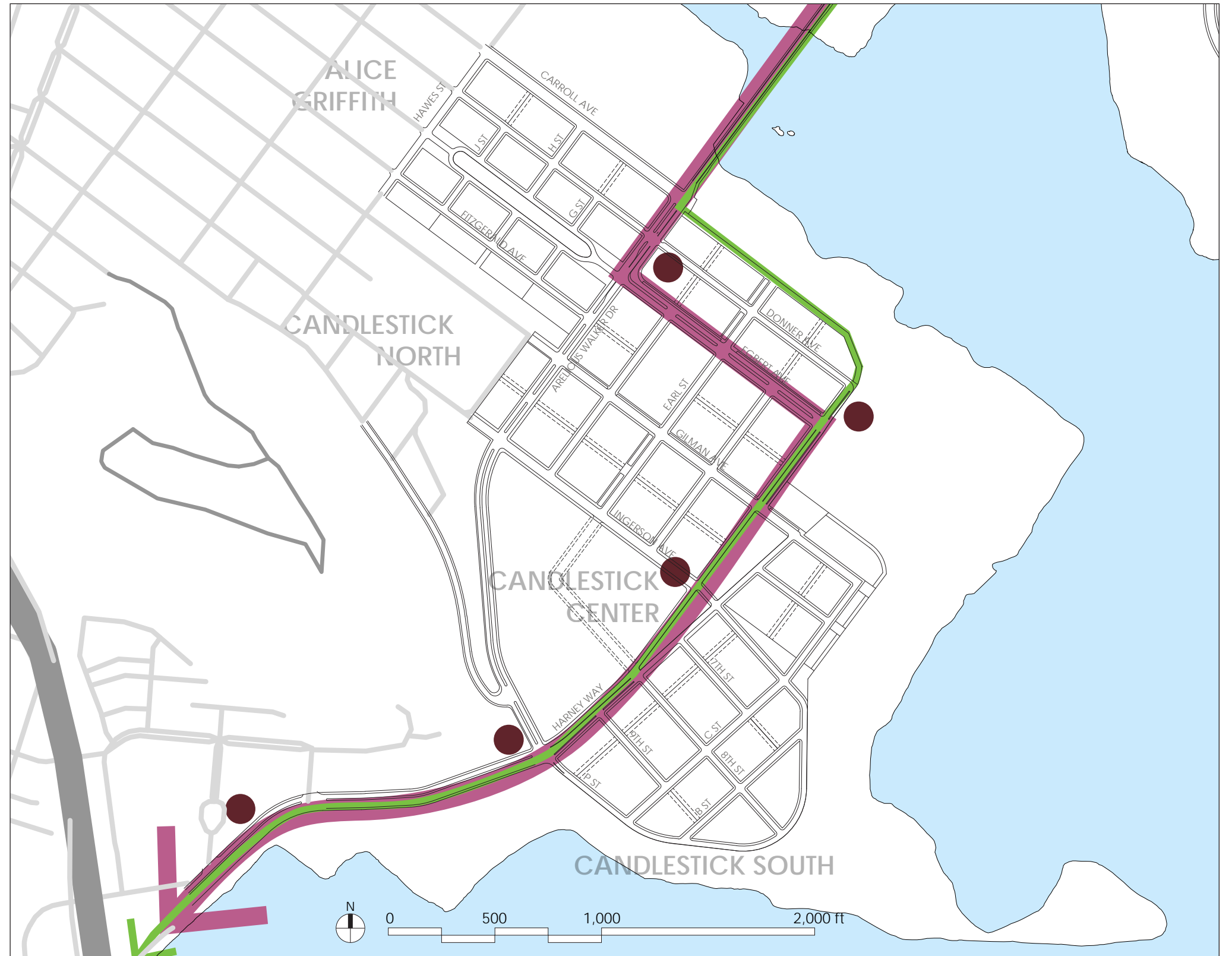
The BRT and cycle track will have distinctive colors, with painting or colored concrete, to increase pedestrian safety and for ease of navigation. Exact color and application method to be determined at Sub-Phase submittal phases.



LEGEND

- BRT route
- BRT stop
- Cycle track

Figure 4.3 – BRT and Cycle Track Networks



DRAFT NOVEMBER 8, 2013

4. STREETScape ZONES



5
Parkside
Drive

6
THE GROVE

7
THE VILLAS



5. STREETScape ELEMENTS

5. STREETScape ELEMENTS

Streetscape elements create comfortable, interesting, and usable spaces in the public realm, and the unique design at Candlestick Point supports the creation of distinct neighborhood identity and streetscape typologies.

Included in sidewalk elements are the following:

- Paving materials
- Street trees
- Stormwater treatment
- Landscape planting
- Benches
- Bike racks
- Newsracks
- Trash / recycling receptacles
- Street lights
- Utility covers

The plans and guidelines provided in this section are based on concept level design. Streetscape designs will be further developed and submitted for review for each Sub-Phase.



5. STREETSCAPE ELEMENTS

5.1 PAVING MATERIALS

Furnishing Zone Material

Furnishing zones have materials and patterning that will help define neighborhood identity and special streets across Candlestick Point.




In the base case, each neighborhood will have a unique pattern and / or color scheme in the paver design that supports the notion of neighborhood differentiation; Residential, Park and Perimeter streets in Candlestick Point will have cobble pavers in the furnishing zone and The Spine and Commercial street will have smooth pavers.






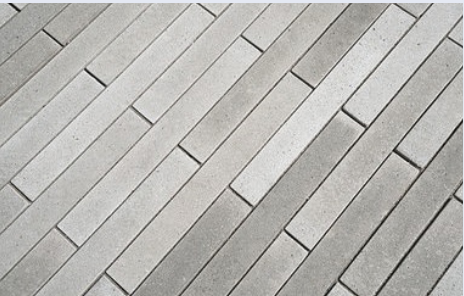
Throughway Zone Material

A zone for pedestrian travel along the street, the throughway zones will provide a consistent and uniform path of travel in the sidewalk.

Special paving may occur on Candlestick Center commercial frontages, and along parts of The Spine, to reinforce neighborhood character and enhance special moments.

The design of all pavers and cobble will address accessibility, maintenance, and comfort considerations. Concrete finishes should be saw-cut and smooth finish concrete. Curb ramps will be paved with contrasting color concrete to enhance visibility.

FURNISHING ZONE MATERIALS		
BASE CASE		
General Note Except for standard concrete sidewalks, all paving materials will be field-tested to ensure accessibility compliance. Pavers in the Furnishing Zone and Edge Zone may be soft set in landscape areas to facilitated drainage as outlined in the San Francisco DPW Sidewalk Landscape Standards. Other areas shall be installed with a concrete or similar sub-base to ensure consistent and smooth joints (1/4" max).	THE SPINE	 Smooth pavers
	RESIDENTIAL	 Cobble pavers
	PARK	
	PERIMETER	 Smooth pavers
	COMMERCIAL	

THROUGHWAY ZONE MATERIALS		
BASE CASE		POTENTIAL SPECIAL MATERIAL
THE SPINE	 Concrete with silicon carbide sparkle	 Smooth pavers
RESIDENTIAL	 Standard concrete	 Concrete with silicon carbide sparkle
PARK		
PERIMETER	 Concrete with silicon carbide sparkle	 Smooth pavers
COMMERCIAL		

5. STREETScape ELEMENTS

5.2 STREET TREES

Street trees are the most memorable and visible elements in the streetscape. As such, their differentiation is critical to creating Candlestick Point’s unique neighborhood character and street typologies.

STREET TREES

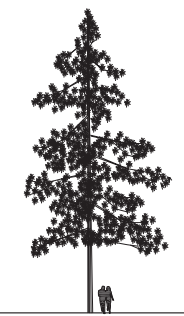
BASE CASE

In coordination with the San Francisco Department of Urban Forestry and HortScience, an expert local arborist, a collection of street trees have been identified for their character and potential to thrive in the uniquely challenging Candlestick Point climate.

Additional tree selections that maintain character, scale, and site suitability may be considered at Sub-Phases submittal phases. A full list of recommendation and planting details can be found in chapter 6.

THE SPINE

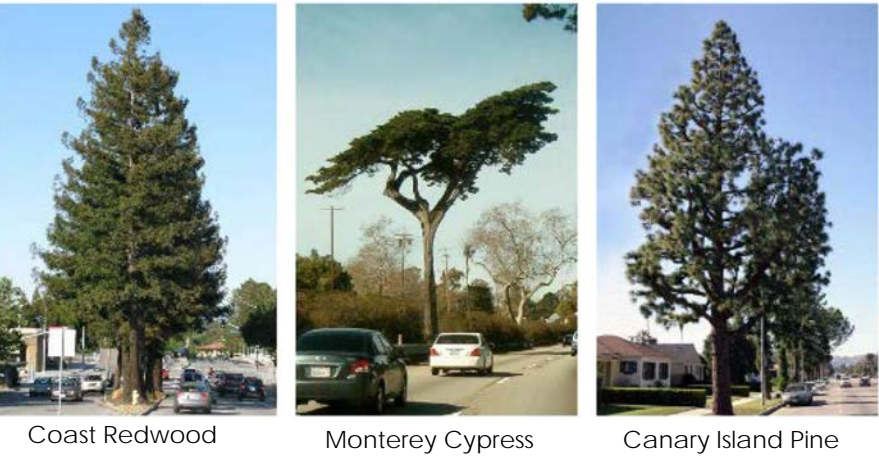
Monumental, tall and columnar



Visually dominant, the wind-blocking evergreen trees will have a tall and narrow form to reinforce the Spine Streets’ character as the main iconic and civic-scaled boulevards within Candlestick Point.


- Coniferous evergreen
- Narrow columnar form
- Taller than 45’ high at maturity
- Multiple species, similar in look & form
- Wind tolerant

Potential Species



RESIDENTIAL

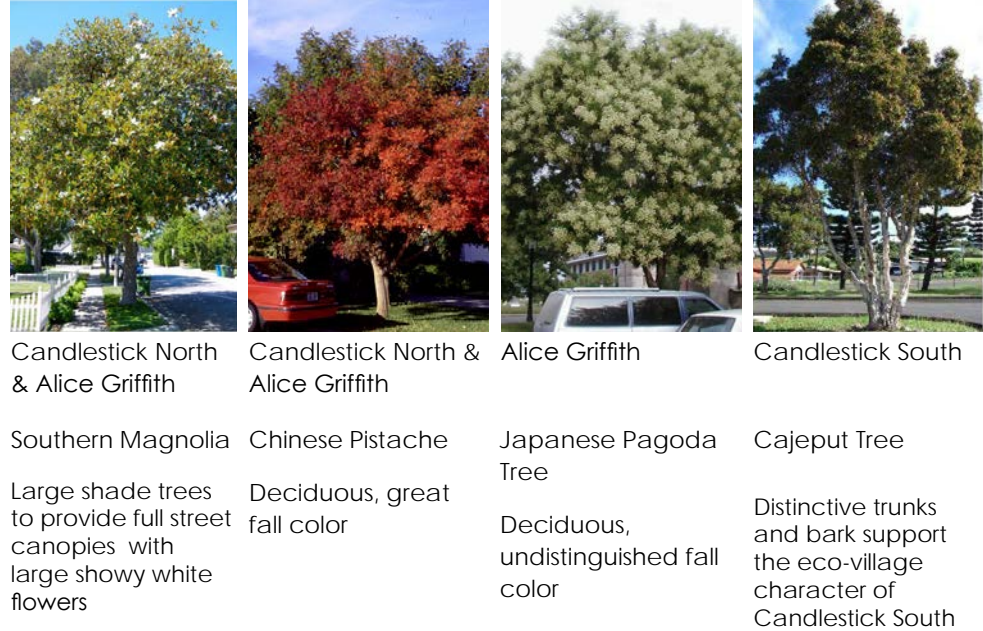
Neighborhood specific with unique features



As the most prevalent street type in Candlestick Point, Residential street trees will reinforce the diversity of neighborhoods by allowing a variety of species, similar in size and function, emphasizing unique features such as bark, foliage, or flowers. To help define neighborhoods, tree species used should be neighborhood-specific.


- Bark, foliage or flower interest
- Medium to large size
- Multiple species
- Mix of broadleaf evergreen & deciduous species

Potential Species



COMMERCIAL

Light, hardy and high canopies



Taller, high canopy street trees suitable for retail and commercial frontages.

- High, narrow or open canopy
- Taller than 40’ high at maturity
- Evergreen or deciduous
- Multiple species

Potential Species

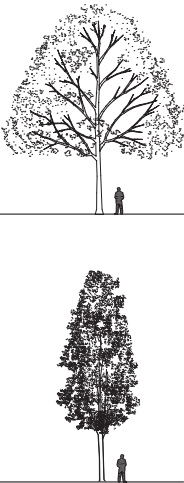


5. STREETScape ELEMENTS

5.2 STREET TREES

PARK

Expressive and active blooms

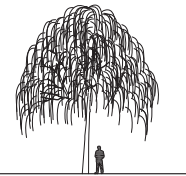


Formal and uniform, suitable for planting in double-row allees. Species will reinforce the character of these park edge boulevard streets, intended to provide additional open space and to frame views out to the Bay waterfront.

- Mix of broad canopy trees with smaller ornamental accent trees
- Seasonal interest in flowers & leaves
- Multiple species
- Broadleaf evergreen or deciduous
- Multiple species, similar in look & form

PERIMETER

Showing and breezy

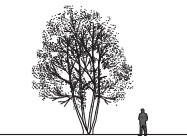


Typically located at park edge perimeters near the waterfront, Perimeter street trees will be visually open and porous, with weeping foliage, 'breezy' in appearance, and wind tolerant.

- Foliage that moves in the wind
- Broadleaf evergreen species
- Single species or alternate species
- Wind tolerant

SHARED PUBLIC WAYS

Smaller, ornamental and offer seasonal changes



A variety of compact ornamental flowering trees offering seasonal interest and pedestrian scale. To help define neighborhoods, the tree species used should be neighborhood specific.

- Seasonal color in flowers & leaves
- Narrow compact canopy
- Small to medium size
- Multiple species, similar in look & form

Potential Broad Canopy Species



Ginkgo 'Autumn Gold' White Alder Red Flowering Gum

Potential Ornamental Accent Species



Olive Tree 'Swan Hill' Kwanzan Cherry

Potential Species



Holly Oak Native Willow Primrose Tree Willowleaf Peppermint

Potential Species



Krautervesuvius Plum Kwanzan Cherry Olive Tree

5. STREETScape ELEMENTS

5.3 STORMWATER TREATMENT

Stormwater biofiltration is a landscaping tool used to more sustainably treat stormwater runoff and to reinforce the distinct character of each Candlestick Point neighborhood with a unique planting palette.

The biofiltration features are designed to filter stormwater through landscaped planters in the streetscape, cleansing the water of pollutants and reducing harmful runoff into downstream water sources. The types of stormwater treatment facilities include flow-through planters, semi-structured bioretention within medians, rain gardens and bioswales.

The biofiltration system's flow-through planters and vegetated areas will reinforce special neighborhood character and street typologies by aligning plant selection and enclosure design with neighborhood and street typology design narratives. Monochromatic plantings, wooden boardwalks, built-in seating and special materials are some of the features that may be employed to create this variation in design.

Approximate percentage of frontage required for these biofiltration facilities is shown on the following page. Final percentages will be determined with the final design of streets for each Sub-Phase.



Roadside biofiltration



Vegetated swale



Infiltrated boardwalk



Water conveyance

BIOFILTRATION FACILITIES				
BASE CASE			POTENTIAL SPECIAL	
THE SPINE	RESIDENTIAL	PARK	PERIMETER	PARK
Flow-Through Planters				
<p>The majority of the storm water runoff in Candlestick Point will be treated using flow-through planters within the City sidewalks. The flow-through planters will typically be designed with concrete sidewalls, bioretention planting within amended soils to provide water quality treatment, and either open bottoms to allow for infiltration, or closed bottoms with underdrains depending on the location and the quality of the underlying native soils. The flow-through planters will have slightly different design elements depending on adjacent parking or travel lane conditions.</p>			<p>In addition to flow-through planters, Park Streets may also feature other approved types of biofiltration within their wide medians and park-like landscaped areas.</p>	
Median Bioretention			Rain Gardens	
<p>Within the medians, similar bioretention facilities can be created. These areas will have linear concrete sidewalks to maintain necessary separation between the bioretention areas and the roadway subgrade. However, these areas will not need to have concrete sidewalks on all four edges, allowing for a less expensive and more flexible design. These can also be used to differentiate character between neighborhoods and allow for more pedestrian space within the sidewalk and building frontage zones.</p>			<p>Rain gardens are shallow landscape areas that can collect, slow, filter, and absorb large volumes of water, delaying discharge into the watershed system and providing water quality treatment. They are similar to flow-through planters but with soil, not concrete, sidewalks. This technique is generally less expensive, but can only be used in areas which are set-back a sufficient distance from the roadway and building foundations. Linear parks within the street right-of-way or larger medians may have god opportunities for this style of bioretention.</p>	
COMMERCIAL			Bioswales	
<p>Extensive biofiltration facilities are not desirable along Commercial Streets because of their high volumes of pedestrian traffic and role as active gathering places. If necessary, flow-through planters may be included on Commercial Streets, however, the preferred method of treating stormwater from Commercial Streets will be to treat it in a centralized facility.</p> <p>More specifically, it is envisioned that runoff from the Commercial Streets will be collected and piped to the Wedge Park along Harney Way between Ingerson Ave. and Gilman Ave. The treatment flow will then be pumped to the ground surface using a simple pump station (no back-up power required) and treated by a centralized biofiltration facility in the landscape area of the Park. Centralized biofiltration facilities in the park may include rain gardens and bioswales described to the right. These systems will be further developed during Sub-Phase design and will be subject to City approval.</p>			<p>Bioswales are shallow landscaped areas designed to capture, convey, and potentially infiltrate storm water runoff as it moves downstream. They are primarily used to convey stormwater runoff on the land’s surface while also providing water quality treatment. As water flows through a vegetated swale, it is slowed by the interaction with plants and soil, allowing sediments and associated pollutants to settle out. Some water soaks into the soil and is taken up by plants, and some may infiltrate further if native soils are well drained. The remaining water that continues to flow downstream travels more slowly than it would through pipes in a traditional stormwater conveyance system. Bioswales can be employed within medians and linear parks.</p>	

5. STREETScape ELEMENTS

5.3 STORMWATER TREATMENT

Figure 5.1 – Approximate percent of Linear Street Frontage Required for Biofiltration Facilities



5. STREETScape ELEMENTS

5.4 LANDSCAPE PLANTING

Landscaping in sidewalks and stormwater facilities will support unique neighborhood character and to add variety and softness to the Candlestick Point streetscape. Each neighborhood will vary planting colors, forms, and textures to reinforce it’s special character. In addition to neighborhood specific palettes, 2 street typologies will have unique planting palettes across multiple neighborhoods, The Spine and Shared Public Ways. The Spine will have bold and monochromatic plantings, supporting its role as Candlestick Point’s iconic and civic street. Shared Public Way planting will be more community oriented, and could include small-scale flower and vegetable gardens.

Sidewalk plant palettes have been developed to include a mix of locally-adapted, Mediterranean plants, succulents from various arid climates and native California plants noted for their interesting form, flowers, and/or foliage. These plants are well-adapted to local San Francisco microclimates and most are also recommended for sidewalk landscaping by the SFDPW’s Urban Forestry division.

Bioretention plant palettes (including shrub, ground cover & perennial) consider wetter circumstances and seasonal inundation conditions associated with bio-filtration and storm water management areas. Most are also recommended for low impact design (L.I.D.) by the San Francisco Public Utility Commission’s (SFPUC’s) San Francisco Stormwater Design Guidelines.

LANDSCAPE PLANTING

BASE CASE



PERIMETER

RESIDENTIAL

PARK


COMMERCIAL

Typical sidewalk planting selections, palettes calibrated by neighborhood




THE SPINE

Bold, monochromatic planting on The Spine



SHARED PUBLIC WAYS

Community Garden planting



5. STREETScape ELEMENTS

5.5 STREET FURNITURE

Inspired by the site’s maritime history, unique physical setting, and distinct ecology, Candlestick Point’s street furniture will support neighborhood identity through variation, respond to specific site influences, and create a consistent design palette.

Variation in street furniture will include form, materiality and scale, and be designed to retain the notion that all the elements belong to the same streetscape family.

Manufactured and custom designed street furniture options continue to be explored in concert with City staff, with specific consideration being made for durability and maintenance issues. The following pages illustrate base case and special alternate options for a broad range of street furniture elements:

- Bench
- Bike rack
- Newsrack
- Trash / recycling receptacle
- Automatic waster collection enclosure







Specific selections will be made for Sub-Phase submittals.

BENCHES

BASE CASE

ALL STREETS

Manufactured Bench Options



S Bench by Lab23

Portiqoa by MM Cite

Paper Bench by Lab23

Parallel 43 by Landscapeforms




Preva Urbana by MM Cite

Bench by Lab 23

POTENTIAL SPECIAL BENCHES

ALL STREETS

Manufactured Bench Options



Rough & Ready by Streetlife

Woody by MM Cite

CorTen Seat Strips by Streetlife

CANDLESTICK POINT STREETScape MASTER PLAN

DRAFT NOVEMBER 8, 2013

33

5. STREETScape ELEMENTS

5.5 STREET FURNITURE

Bike racks, newsracks, and other street furniture should have a consistent palette and visual relationship to minimize visual clutter in the streetscape.

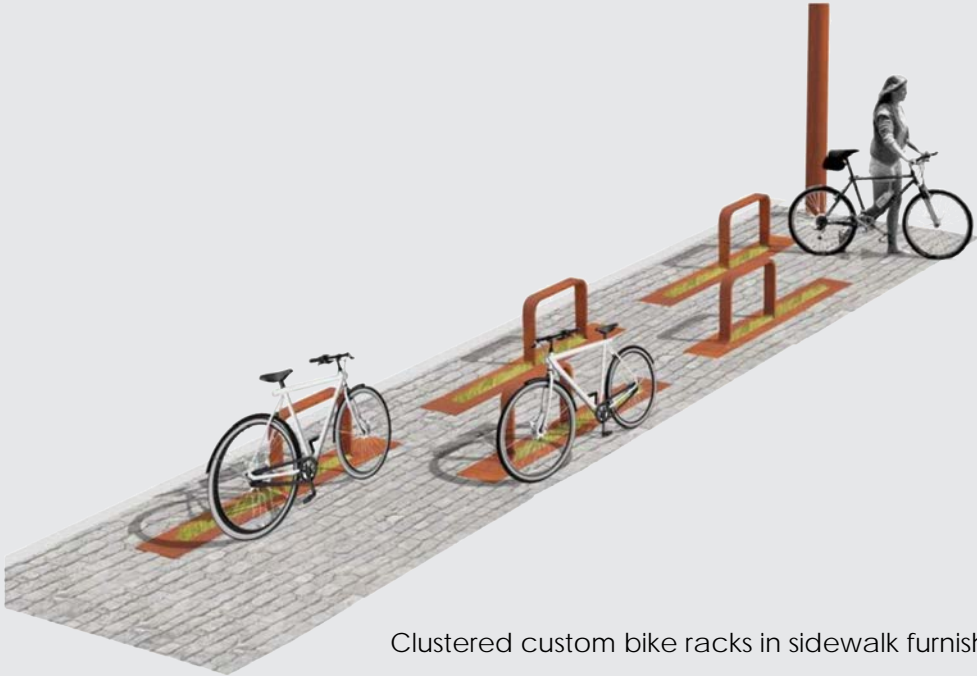
To the right are examples of custom street furniture inspired by the area’s naval history and shipmaking heritage, constructed of folded and treated corten steel. Detailed patterns could be incorporated in the design of elements to reflect neighborhood character and sense of place.

OTHER STREET FURNITURE


BASE CASE

ALL STREETS


Custom Treated Corten Steel Furniture Concepts




Clustered custom bike racks in sidewalk furnishing zone



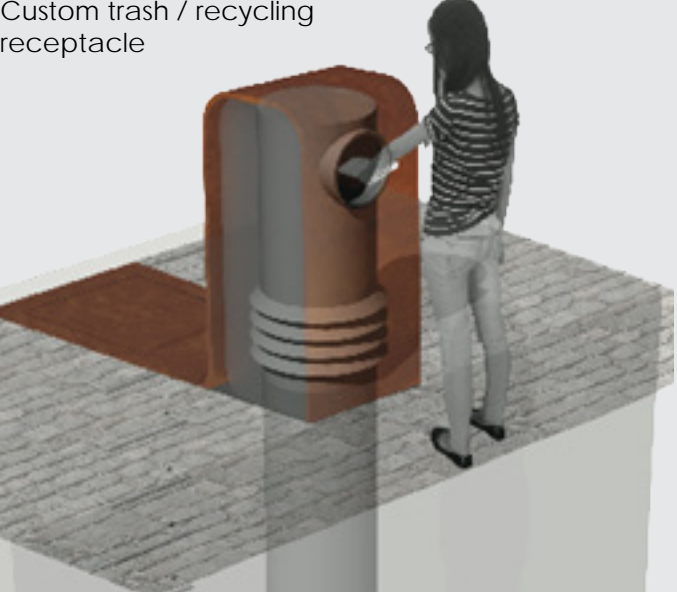
Custom bike rack



Custom newsrack



Custom trash / recycling receptacle



Custom automatic waste collection enclosure

5. STREETScape ELEMENTS

5.5 STREET FURNITURE

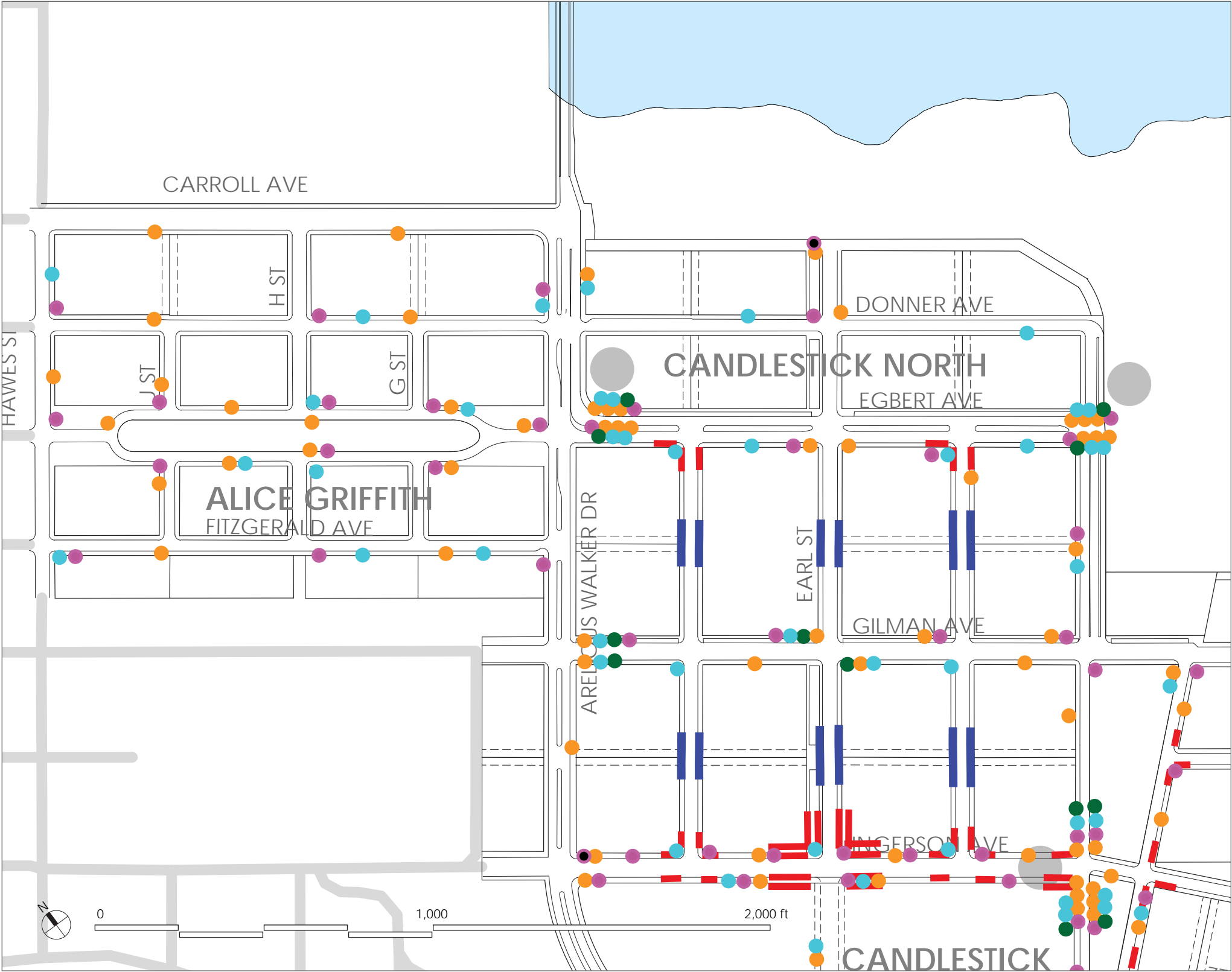
Furniture Locations

Street furniture locations respond to specific street typologies, adjacent land uses and transit stops. General locations are shown to the right. Specific locations will be determined on a block-by block basis at Sub-Phase submittal phases of design and all sidewalk furniture should be installed as per the dimensional and clearance requirements and accessibility guidelines established by the City of San Francisco in the Better Streets Plan, SFPDW Sidewalk Landscape Guidelines, and applicable DPW orders, unless otherwise noted.

Benches: All seating areas will include accessible elements including a minimum of 36" level surface area adjacent to each bench to allow for companion seating. Smaller benches may be oriented perpendicular to the path of travel to allow for companion seating space.

Bike racks: Bike rack installations up to 3 racks may be located in the Furnishing Zone outside of the Corner Clear Zone. Installations near corners should be designed as an "alcove" with diverting elements such as a trashcan, tree, or planter (min. 42" in height) between the racks and corner. Installations larger than 3 racks shall be placed "Bike Corrals" in the parking zone of the street.

Figure 5.2 – Street Furniture in Alice Griffith and Candlestick North



LEGEND

STANDARD

EXTENDED

MID-BLOCK

UNFURNISHED Bulb-Out

Furnished Bulb-Out (PATH to WATER)

BRT Stop

Transvac public collection point

Trash / Recycling receptacle*

3 Newsracks

3 Bike Racks

Bench

* Not shown: Trash / recycling receptacles at primary entrances to parks.

5. STREETScape ELEMENTS

5.5 STREET FURNITURE

Figure 5.3 – Street Furniture in Candlestick Center and Candlestick South

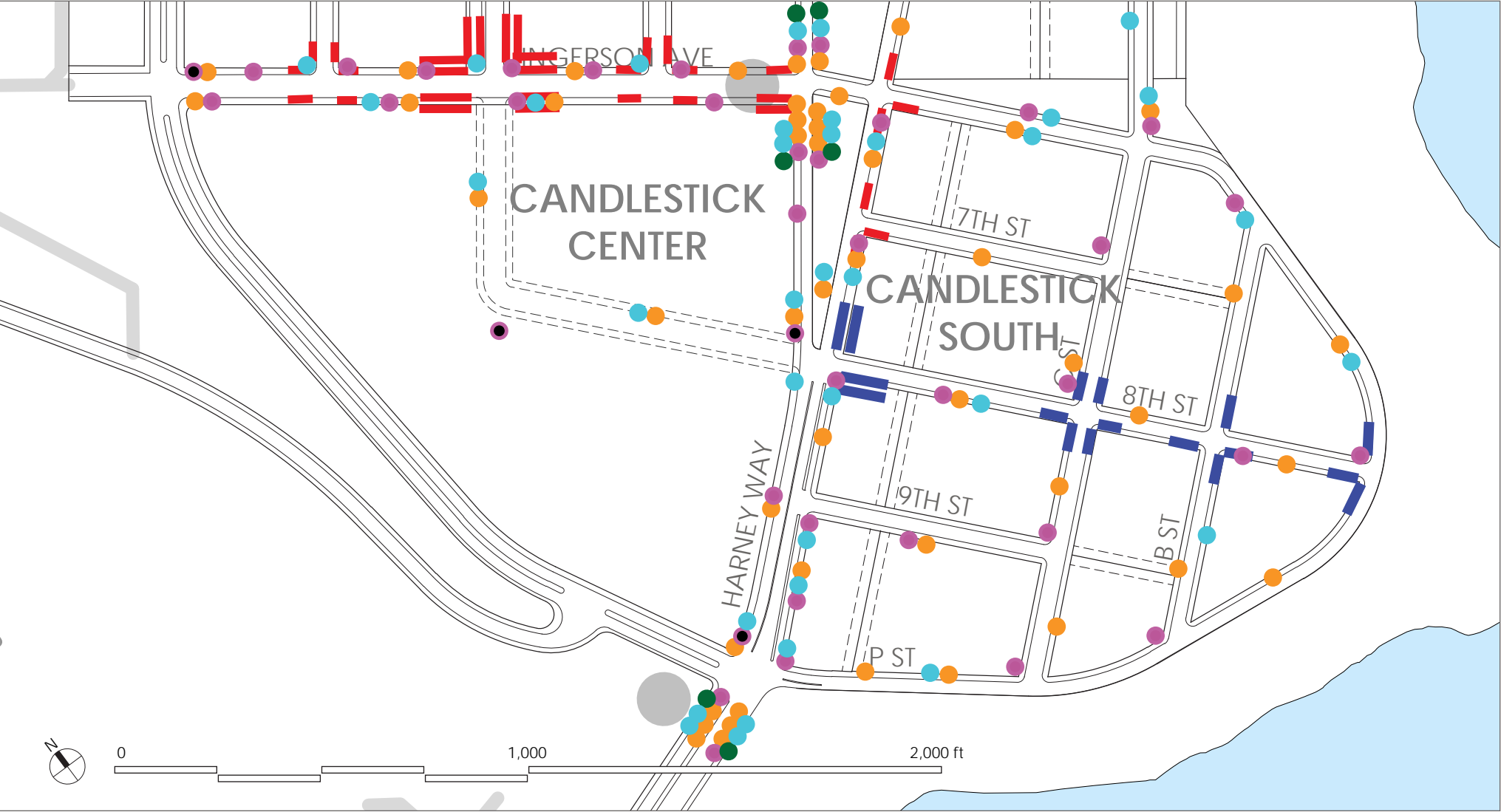
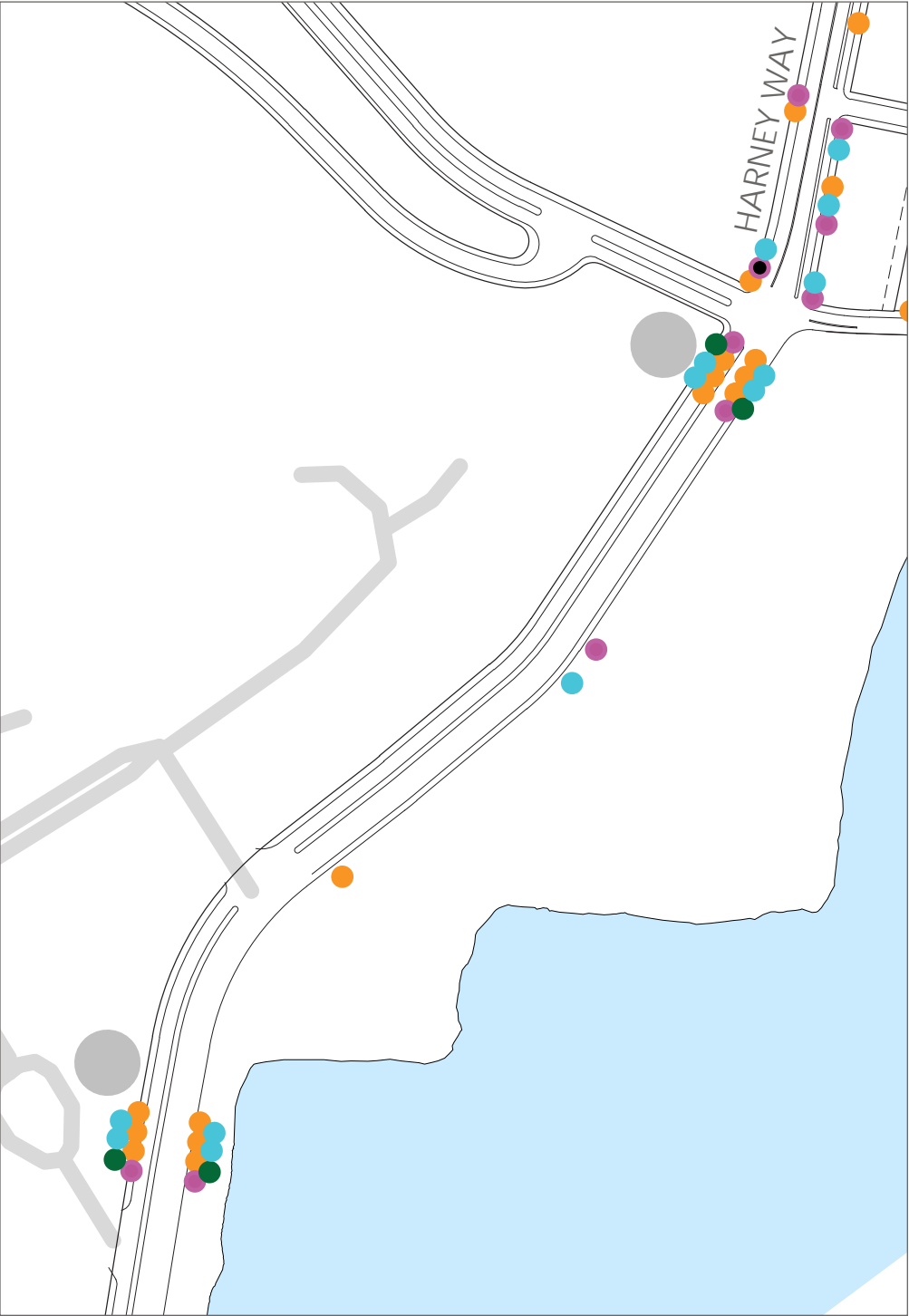


Figure 5.4 – Street Furniture on Harney Way




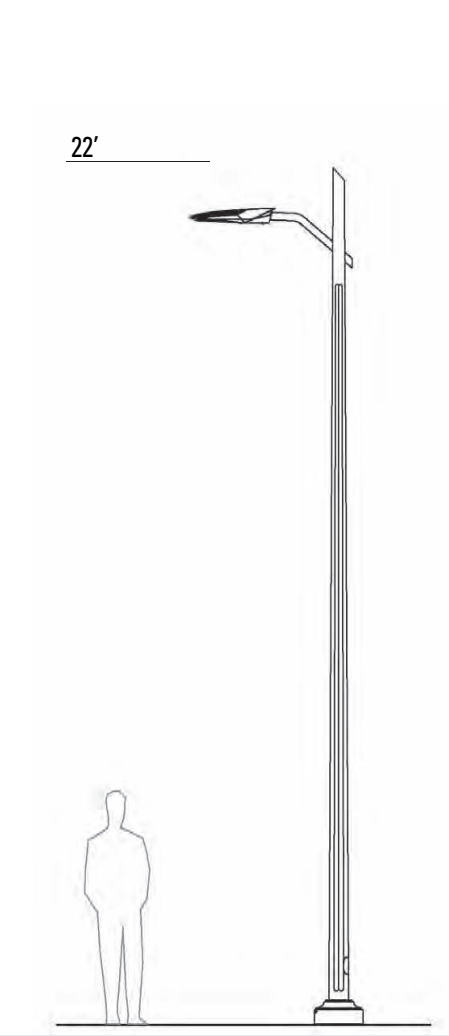
5. STREETSCAPE ELEMENTS

5.6 STREET LIGHTS

Street lights are one common element uniting many different typologies and neighborhoods in Candlestick Point. The Spine is the only typology that receives a special lighting condition. Street lights have been selected from the catalogue of standards provided in SFPUC’s “A Guide to San Francisco Street Lights”.

Street lights along The Spine supports its role as a singular and unifying element by use of the tallest roadway and pedestrian lights in Candlestick Point. The shared public ways and internal streets at Candlestick Center may have the smallest lighting, including bollards and building mounted fixtures.

Conceptual spacing and optic assumptions are outlined in this section. LED optics will be utilized on all street lights, per City standards. Spacing to be refined at Sub-Phase submittal phase. All street lighting will be designed to ensure that the overall light levels conform to SF DPW standards. Higher foot-candle standards should be developed for bus stops and other areas of significant pedestrian activity. Streetlights should typically be located away from the curb and the area between two parking spaces (typically within a 4’ area generally defined as the last 2’ of two adjacent spaces).

STREET LIGHTS			
BASE CASE			
The base case street lights scheme for Candlestick Point utilizes the following poles and fixtures:			
THE SPINE		RESIDENTIAL	PERIMETER
San Francisco Street Light Plan Type: LS102		PARK	COMMERCIAL
Fixture: Philips Roadstar GPLM		San Francisco Street Light Plan Type: LS100	
Pole: Valmont 28’-6” height		Fixture: Philips Roadstar	
See SFPUC’s “A Guide to San Francisco Street Lights” for pole and fixture details		Pole: Valmont 22’ height	
See SFPUC’s “A Guide to San Francisco Street Lights” for pole and fixture details		See SFPUC’s “A Guide to San Francisco Street Lights” for pole and fixture details	
			
Figure 5.5 – LS102		Figure 5.6 – LS100	

5. STREETScape ELEMENTS

5.6 STREET LIGHTS


STREET LIGHTS

POTENTIAL SPECIAL


ALL STREETS

Custom Street Light

Custom street lights may be designed and used in lieu of City standards. Custom street lights used in San Francisco, pictured below, provide a unique and unifying element to the streetscape that instantly contributes to the sense of place. Designs will be in concert with the street furniture materials and forms. Initial custom pole concepts include simple tapered profiles with corten steel, wood, and powder coated finishes. Attached light fixtures will be positioned and calibrated to achieve maximum efficiency with a minimum of elements.

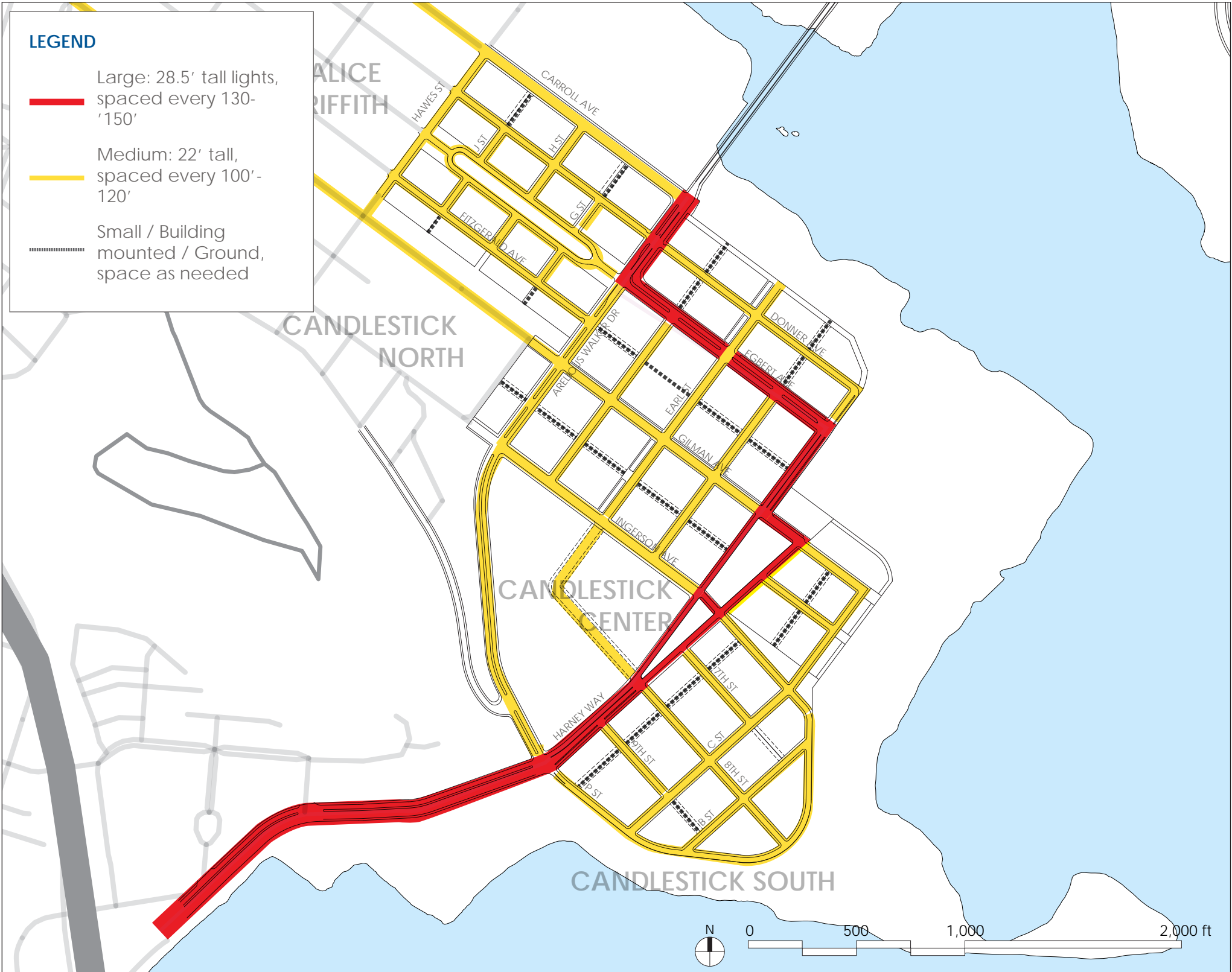


Mission Bay



Rincon Hill

Figure 5.7 – Base Case Street Light Spacing Assumptions



5. STREETScape ELEMENTS

5.7 UTILITY COVERS

Using uniform utility vault materials across Candlestick Point will minimize the variety of materials and ground plane textures in the streetscape. Custom utility covers may be used in special areas

All utility covers will have a smooth slip-resistant surface treatment.

Traffic signal boxes, utility boxes, and backflow preventers will be painted a uniform color.

UTILITY COVERS

BASE CASE

ALL STREETS



SF standard Utility Box




Typical Backflow Preventer Covers

UTILITY VAULT

POTENTIAL SPECIAL COVER






















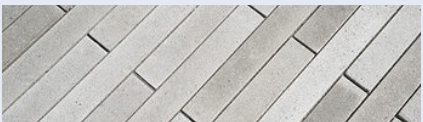
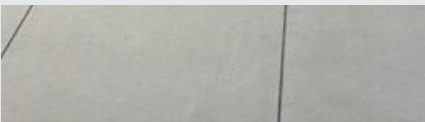


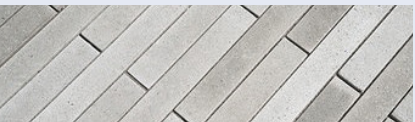
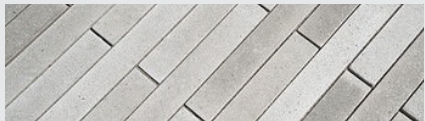

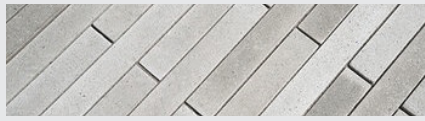
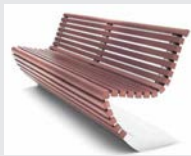

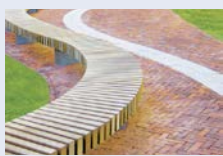
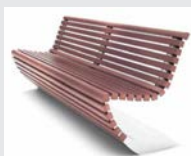

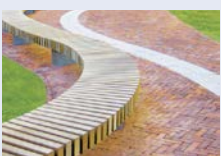
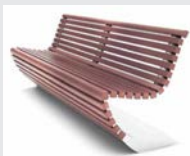





ALL STREETS



Mission Bay Custom Utility Vault























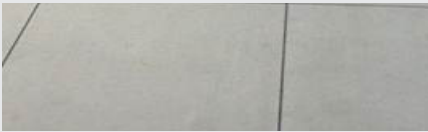





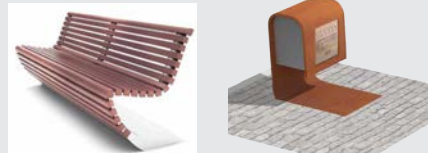
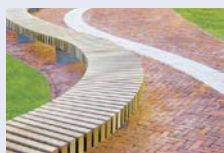
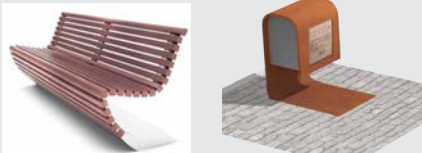





5. STREETScape ELEMENTS

5.8 STREETScape ELEMENTS MATRIX

	THE SPINE Iconic and Civic Scaled		RESIDENTIAL STREETS Consistent and Calm		COMMERCIAL Energetic, Colorful, and Engaging	
POTENTIAL STREET TREES	MONUMENTAL, TALL AND COLUMNAR    Coast Redwood Monterey Cypress Canary Island Pine		NEIGHBORHOOD SPECIFIC WITH UNIQUE FEATURES     Candlestick North & Alice Griffith Southern Magnolia Candlestick North & Alice Griffith Chinese Pistache Alice Griffith Japanese Pagoda Tree Candlestick South Cajeput Tree		LIGHT, HARDY AND HIGH CANOPIES      Catalina Ironwood Golden Rain Tree Victorian Box Brisbane Box Bronze Loquat	
LANDSCAPE PLANTING	  Bold monochromatic planting palette potentially designed to be integrated into the overall design of The Spine		   Neighborhood specific palettes		   Neighborhood specific palettes	
	Base	Potential Special Material / Furniture	Base	Potential Special Material / Furniture	Base	Potential Special Material / Furniture
CURB AND EDGE ZONE	Concrete with silicon carbide sparkle		Standard concrete	Concrete with silicon carbide sparkle	Concrete with silicon carbide sparkle	
SIDEWALK THROUGHWAY ZONE	 Concrete with silicon carbide sparkle	 Smooth pavers	 Standard concrete	 Concrete with silicon carbide sparkle	 Concrete with silicon carbide sparkle	 Smooth pavers
SIDEWALK FURNISHING ZONE	 Smooth pavers		 Cobble pavers		 Smooth pavers	
STREET FURNITURE	  Manufactured Benches / Custom furniture	 Potential special furniture	  Manufactured Benches / Custom furniture	 Potential special furniture	  Manufactured Benches / Custom furniture	 Potential special furniture
STREET LIGHTS	 San Francisco Street Light Plan type: LS102	Pole: Custom Fixture: Custom	 San Francisco Street Light Plan type: LS100	Pole: Custom Fixture: Custom	 San Francisco Street Light Plan type: LS100	Pole: Custom Fixture: Custom

5. STREETScape ELEMENTS

5.8 STREETScape ELEMENTS MATRIX

PARK STREETS Diverse, Expressive, and Active		PERIMETER STREETS Visually Porous and Pedestrian		SHARED PUBLIC WAY Intimate, Privately Designed	
EXPRESSIVE AND ACTIVE BLOOMS Potential Broad Canopy Species		SHOWING AND BREEZY		SMALLER, ORNAMENTAL AND OFFER SEASONAL CHANGES	
<div>Potential Ornamental Accent Species</div> <div></div> <div>Ginkgo 'Autumn Gold' White Alder Red Flowering Gum Olive Tree 'Swan Hill' Kwanzan Cherry</div>		<div></div> <div>Holly Oak Native Willow Primrose Tree Willowleaf Peppermint</div>		<div></div> <div>Krautervesusvius Plum Kwanzan Cherry Olive Tree</div>	
<div></div> <div>Neighborhood specific palettes</div>		<div></div> <div>Neighborhood specific palettes</div>		<div></div> <div>Community Gardens</div>	
Base	Potential Special Material / Furniture	Base	Potential Special Material / Furniture	Base	Potential Special Material / Furniture
Standard concrete	Concrete with silicon carbide sparkle	Standard concrete	Concrete with silicon carbide sparkle		
					
Standard concrete	Concrete with silicon carbide sparkle	Standard concrete	Concrete with silicon carbide sparkle		Cobble pavers
					
Cobble pavers		Cobble pavers			Cobble pavers
					
Manufactured Benches /Custom furniture	Potential special furniture	Manufactured Benches /Custom furniture	Potential special furniture		Potential special furniture
	Pole: Custom Fixture: Custom		Pole: Custom Fixture: Custom		
San Francisco Street Light Plan type: LS100		San Francisco Street Light Plan type: LS100			Pedestrian, building mounted, ground lighting



5 Parkside Drive

6 THE GROVE

7 THE VILLAS

3
4

6

CRANE

8

BAY

SLOUGH
SLOUGH

6. TYPICAL STREET LAYOUTS



6. TYPICAL STREET LAYOUTS

6.1 STREETSCAPE ELEMENT PLACEMENT MATRIX

Table 6.1 – PLACEMENT GUIDELINES SUMMARY CHART

STREETSCAPE ELEMENT	THE SPINE	RESIDENTIAL STREET	PARK STREET	COMMERCIAL	PERIMETER STREET	SHARED PUBLIC WAY
Benches	In furnishing zone, at mid-blocks or corners, set back from throughway zone to maintain clear passage	In furnishing zone or bulb-outs, at mid-blocks and corners, set back from throughway zone to maintain clear passage	In furnishing zone, at mid-blocks or corners, set back from throughway zone to maintain clear passage	In furnishing zone, at mid-blocks, set back from throughway zone to maintain clear passage	In furnishing zone, at mid-blocks or corners, set back from throughway zone to maintain clear passage	Permitted
Bike Racks	In furnishing zone, at transit stops, entries to open spaces, and near building entrances	In furnishing zone or bulb-outs, clustered near intersections and building entrances	In furnishing zone or bulb-outs, clustered near intersections, near building entrances, and at primary entries to parks	In furnishing zone or bulb-outs, clustered near intersections, and near building entrances	In furnishing zone or bulb-outs, clustered near intersections, building entrances and access to open spaces	Permitted
Newsracks	In furnishing zone, at transit stops and high-traffic pedestrian areas	At transit stops in furnishing zone	Discouraged	In furnishing zones, at transit stops and high-traffic pedestrian areas	Discouraged	Discouraged
Trash / Recycling Receptacles	In furnishing zone, at transit stops, at entries to open spaces and high-traffic pedestrian areas. Per Better Streets Plan, every 200' of commercial frontage	In furnishing zone near intersections	In furnishing zone, at primary entries to parks and near intersections	In furnishing zone or bulb-outs, clustered near intersection and every 200' as outlined in Better Streets Plan	In furnishing zones, at primary entries to parks and near intersections	Permitted
Utility Vaults	Permitted in all sidewalk zones, preferred location is edge zone, followed by throughway	Permitted in all sidewalk zones, preferred location is edge zone, followed by throughway	Permitted in all sidewalk zones, preferred location is edge zone, followed by throughway	Permitted in all sidewalk zones, preferred location is edge zone, followed by throughway	Permitted in all sidewalk zones, preferred location is edge zone, followed by throughway	Discouraged
Utility Boxes	In furnishing zone, preferably away from high-traffic areas	In furnishing zone, preferably away from high-traffic areas	In furnishing zone, preferably away from high-traffic areas	In furnishing zone, preferably away from high-traffic areas	In furnishing zone, preferably away from high-traffic areas	Discouraged
Street Lights	In furnishing zone and medians, at standard spacing	In furnishing zone, at standard spacing	In furnishing zone and medians, at standard spacing	In furnishing zone and medians, at standard spacing, potentially in ground plane, bollards and building mounted in retail areas	In furnishing zone, at standard spacing	Small scale, bollards and building mounted
Street Trees	In furnishing zone and medians, at standard spacing	In furnishing zone, at standard spacing	In furnishing zone and medians, at standard spacing	In furnishing zone, at standard spacing	In furnishing zone, at standard spacing	Permitted
Landscape Planting	Permitted in sidewalk furnishing zone, curb extensions and medians	Discouraged	Permitted in sidewalk furnishing zone, curb extensions and medians	Permitted in sidewalk furnishing zone, curb extensions and medians	Discouraged	Permitted
Stormwater Treatment	Flow-through planters in furnishing zone, median bioretention, centralized treatment facilities for retail frontages	Flow-through planters in furnishing zone and median bioretention	Flow-through planters in furnishing zone and median bioretention	Flow-through planters in furnishing zone, median bioretention, centralized treatment facilities for retail frontages	Flow-through planters in furnishing zone and median bioretention	N/A

6. TYPICAL STREET LAYOUTS

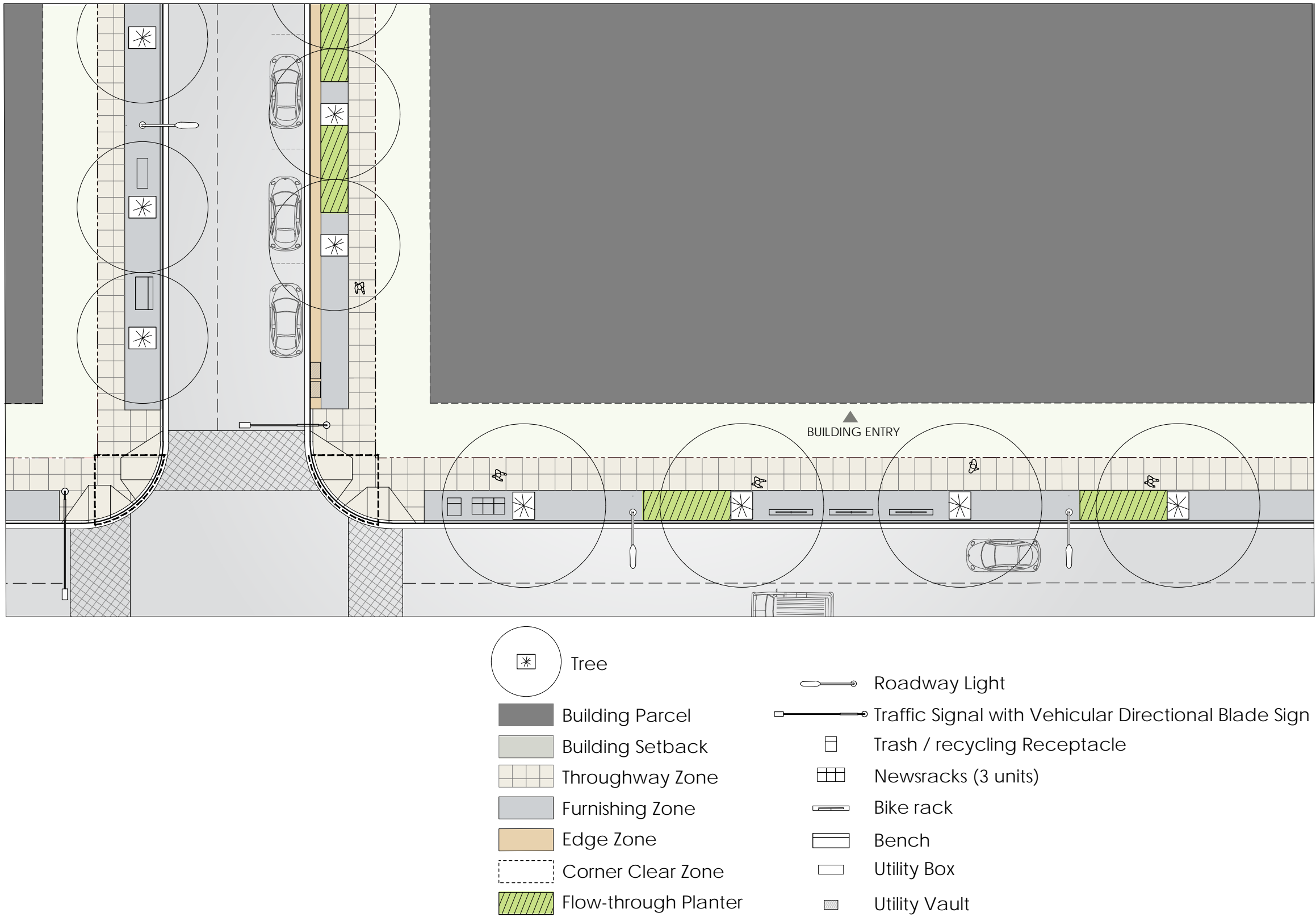
6.2 TYPICAL STREET CORNER LAYOUT

Figure 6.1 – Typical Street Corner Layout

Typical street corners are the preferred location for clustering some utilities, furnishings, and other streetscape elements.

No sidewalk furnishings shall be within the Corner Clear Zone, except as required for pedestrian or vehicular safety. The first sidewalk furnishing element adjacent to the Corner Clear Zone shall be a minimum of 42" in height to divert pedestrian traffic to the sidewalk throughway Zone.

The conceptual layout to the right shows the placement of typical furnishings, biofiltration, lighting, and signage. Exact location of these elements to be determined as each sub-phase of the project is designed.

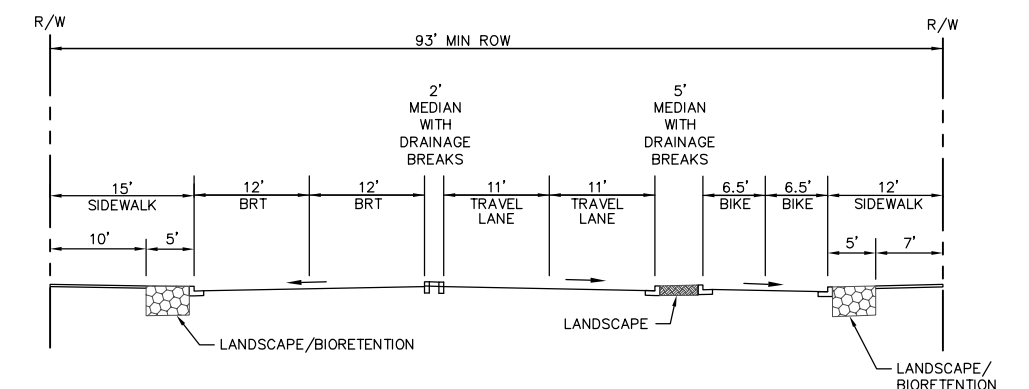
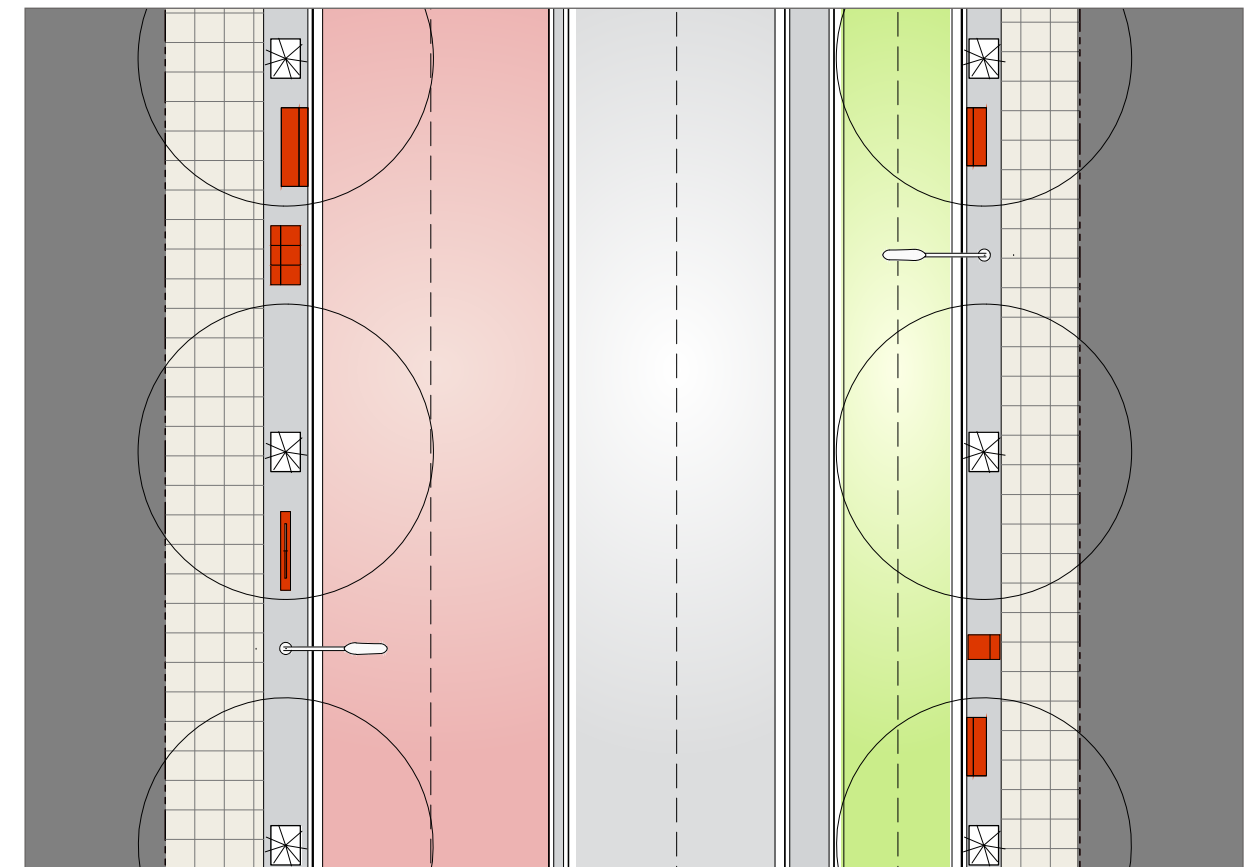
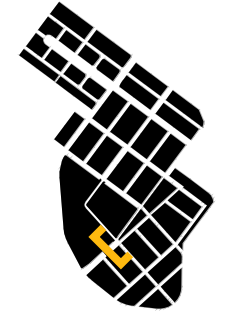
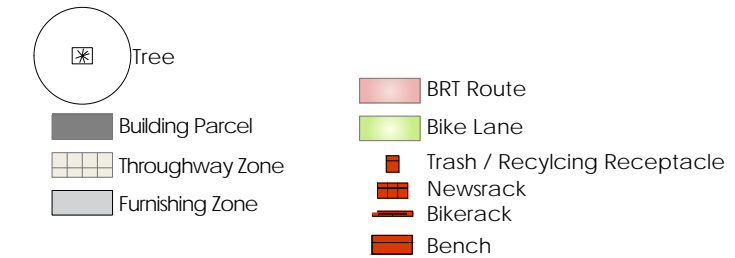
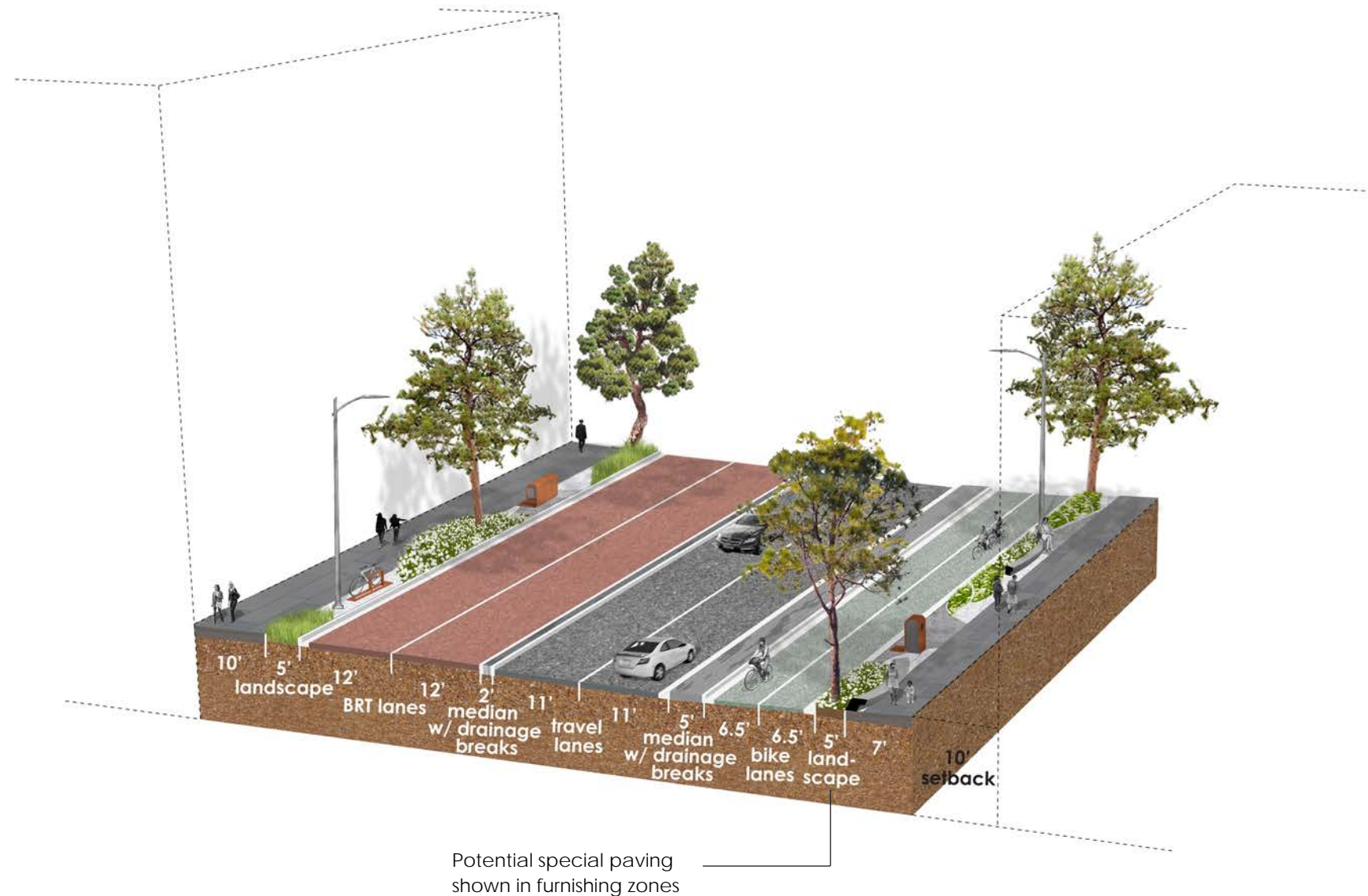


6. TYPICAL STREET LAYOUTS

6.3 THE SPINE (FULL) : HARNEY WAY (NORTH OF ARELIUS WALKER)

Neighborhood specific streetscape elements:

- Sparkle concrete in furnishing zone
- Potential special material : Dazzle pattern in furnishing zone (as shown)
- Furniture and landscape areas shaped to contours of Dazzle pattern.

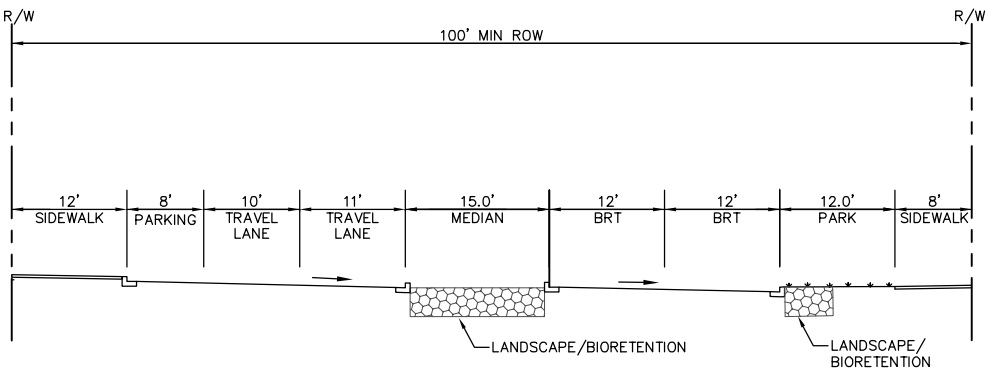
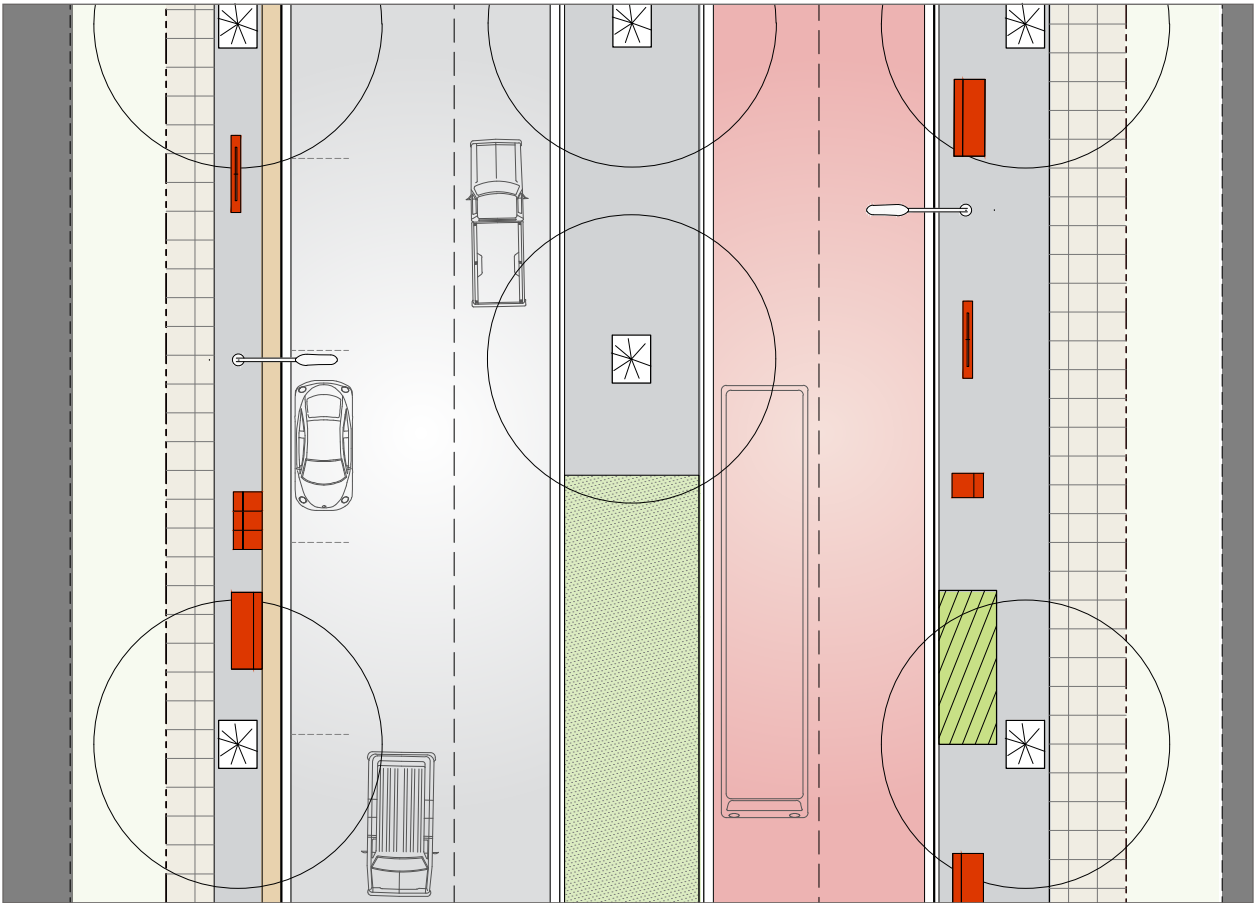
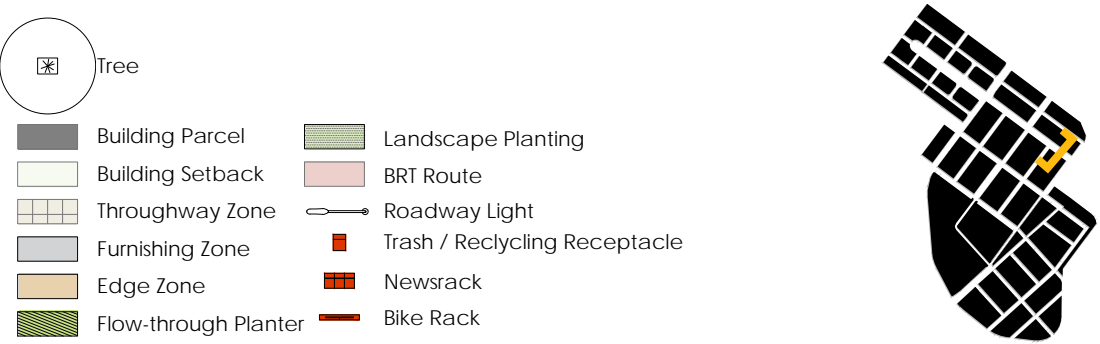
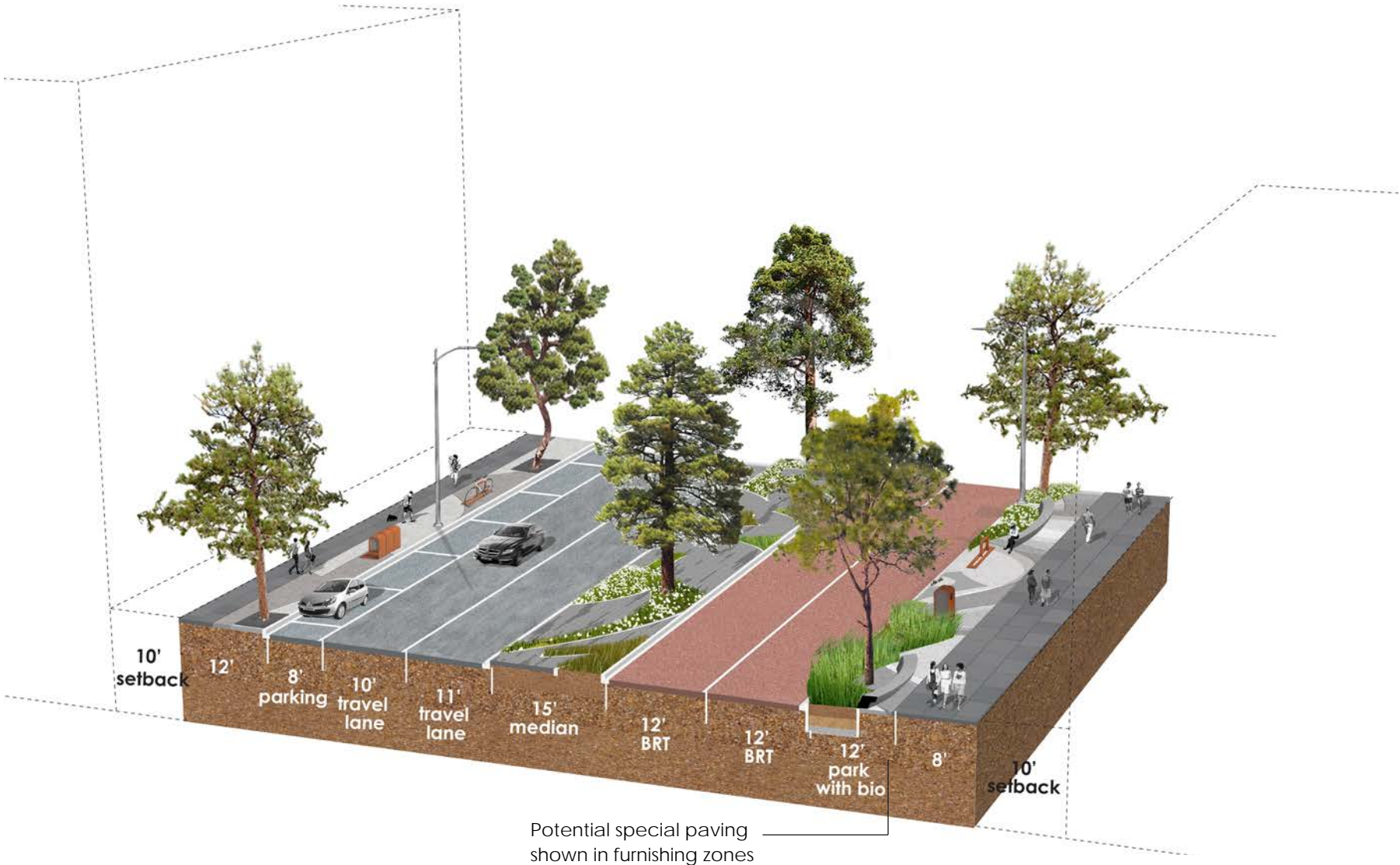


6. TYPICAL STREET LAYOUTS

6.4 THE SPINE (FULL) : EGBERT AVENUE

Neighborhood specific streetscape elements:

- Sparkle concrete in furnishing zone
- Furniture detailing/materials
- Landscape (trees and biofiltration)
- Potential special material : Dazzle pattern in furnishing zone (as shown)
- Furniture and landscape areas shaped to contours of Dazzle pattern. (as shown)

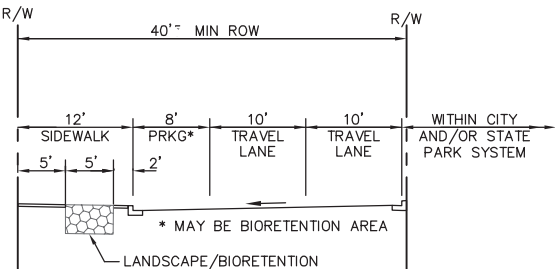
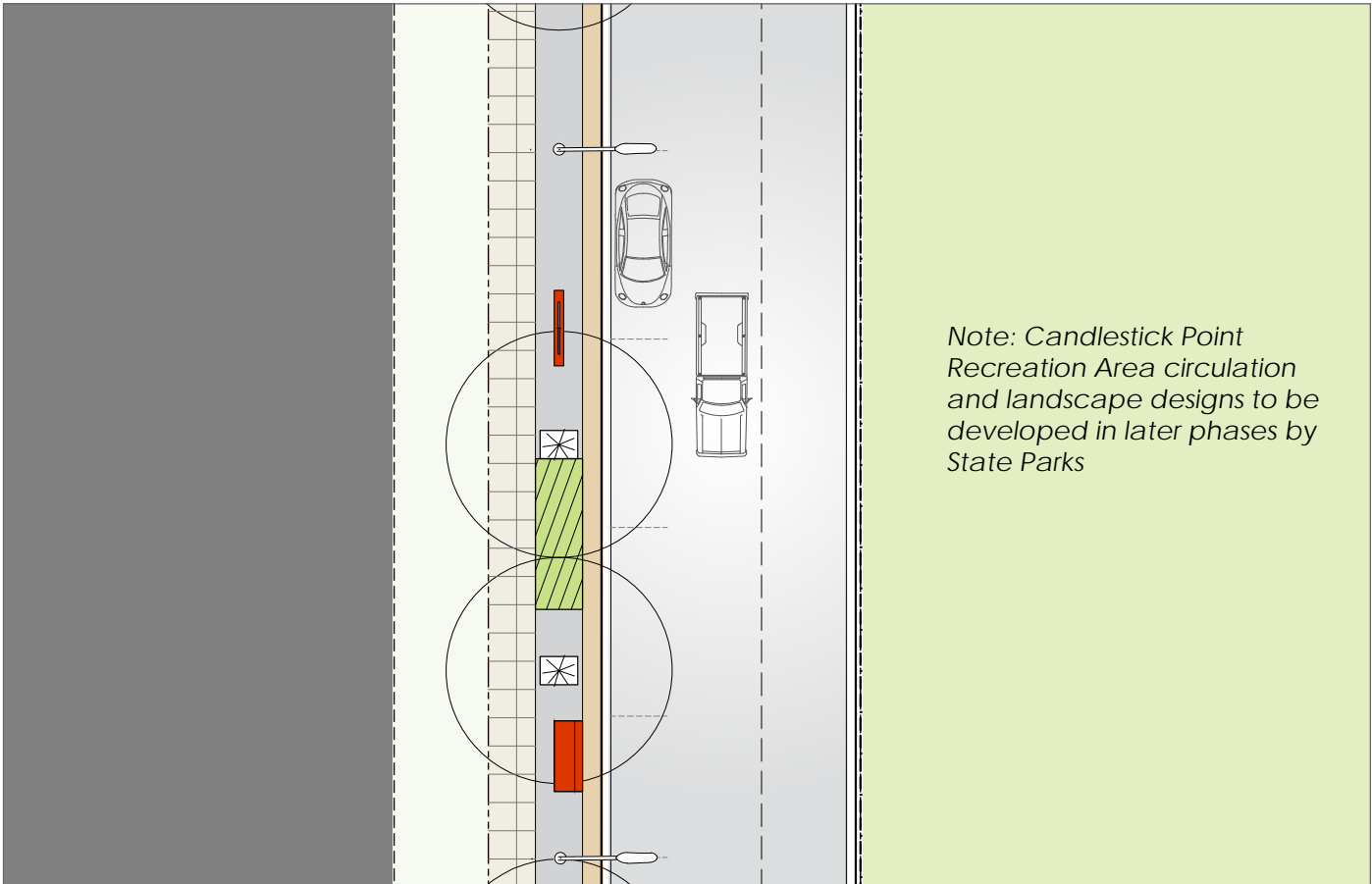
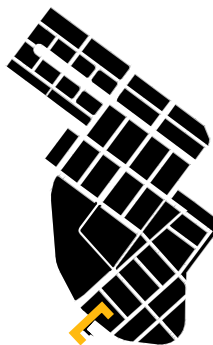
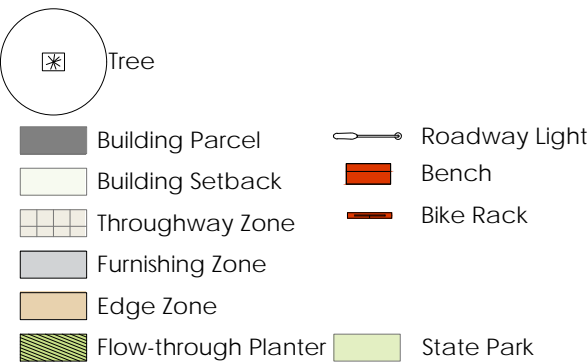
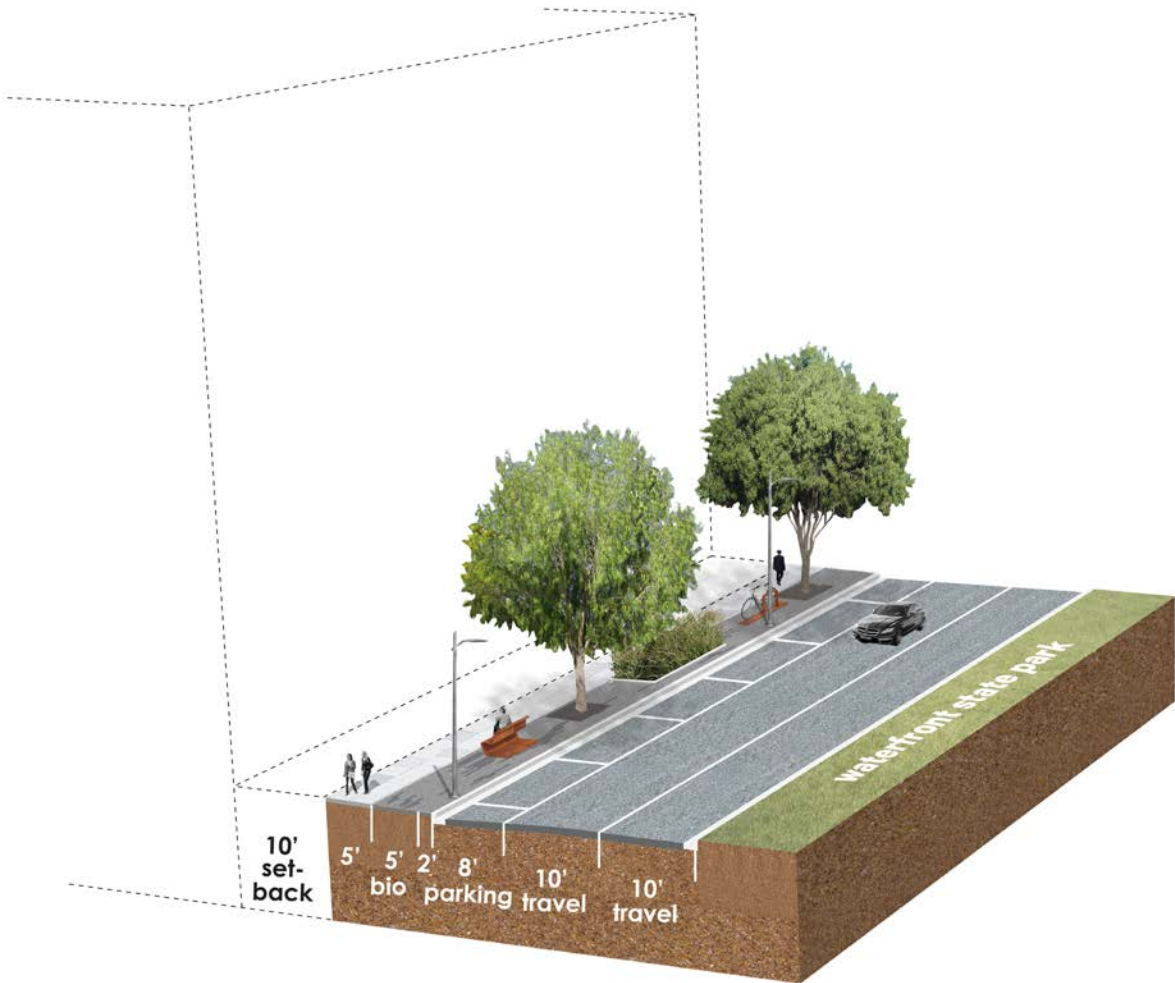


6. TYPICAL STREET LAYOUTS

6.5 RESIDENTIAL STREET: P STREET

Neighborhood specific streetscape elements:

- Paving pattern in furnishing zone
- Furniture detailing/materials
- Landscape (trees and biofiltration)

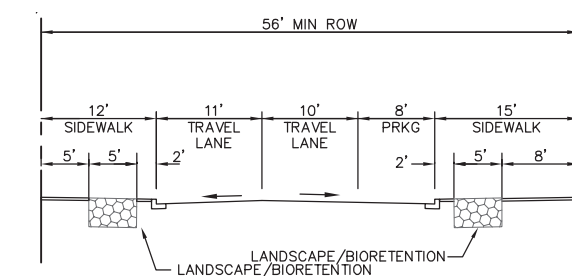
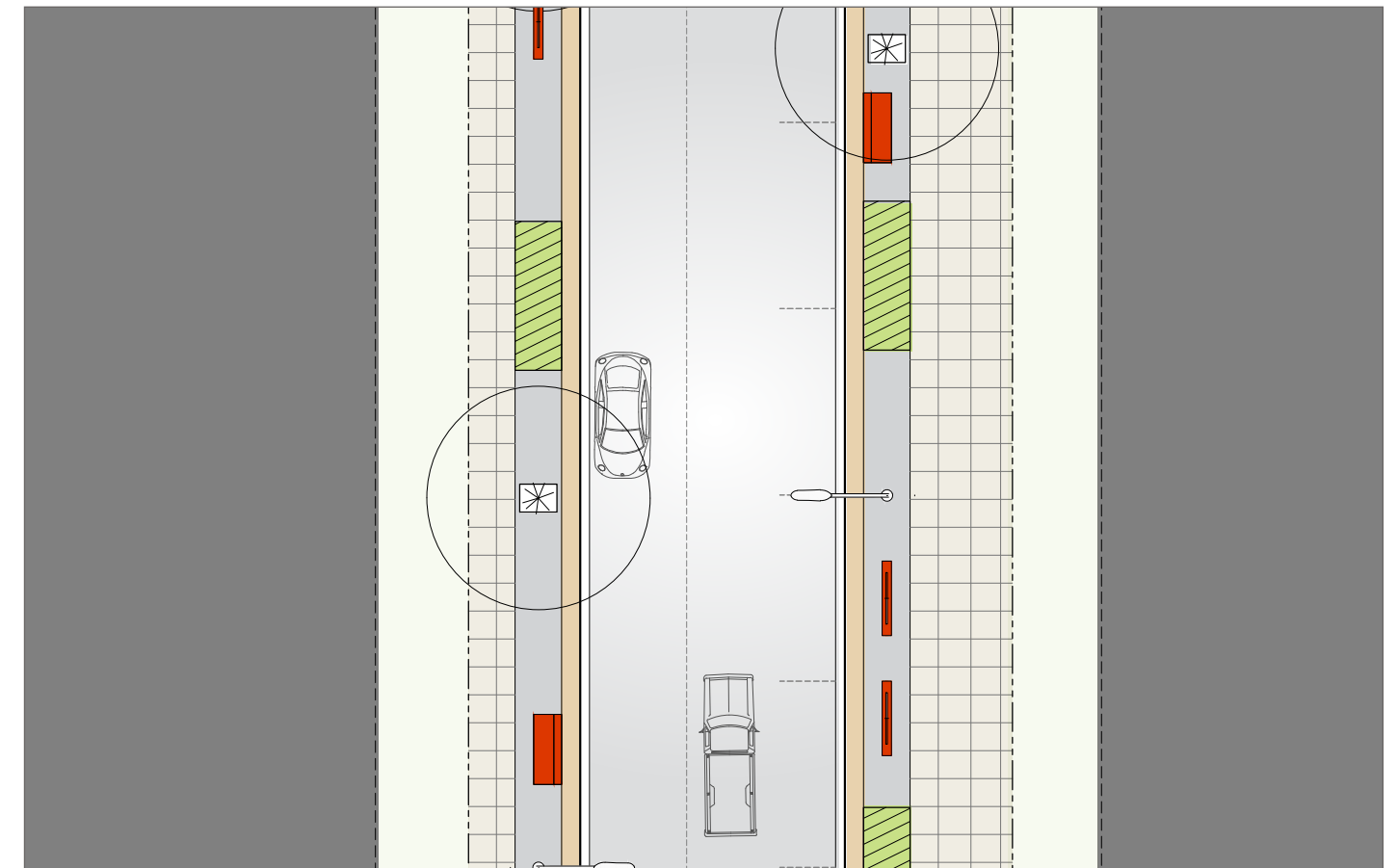
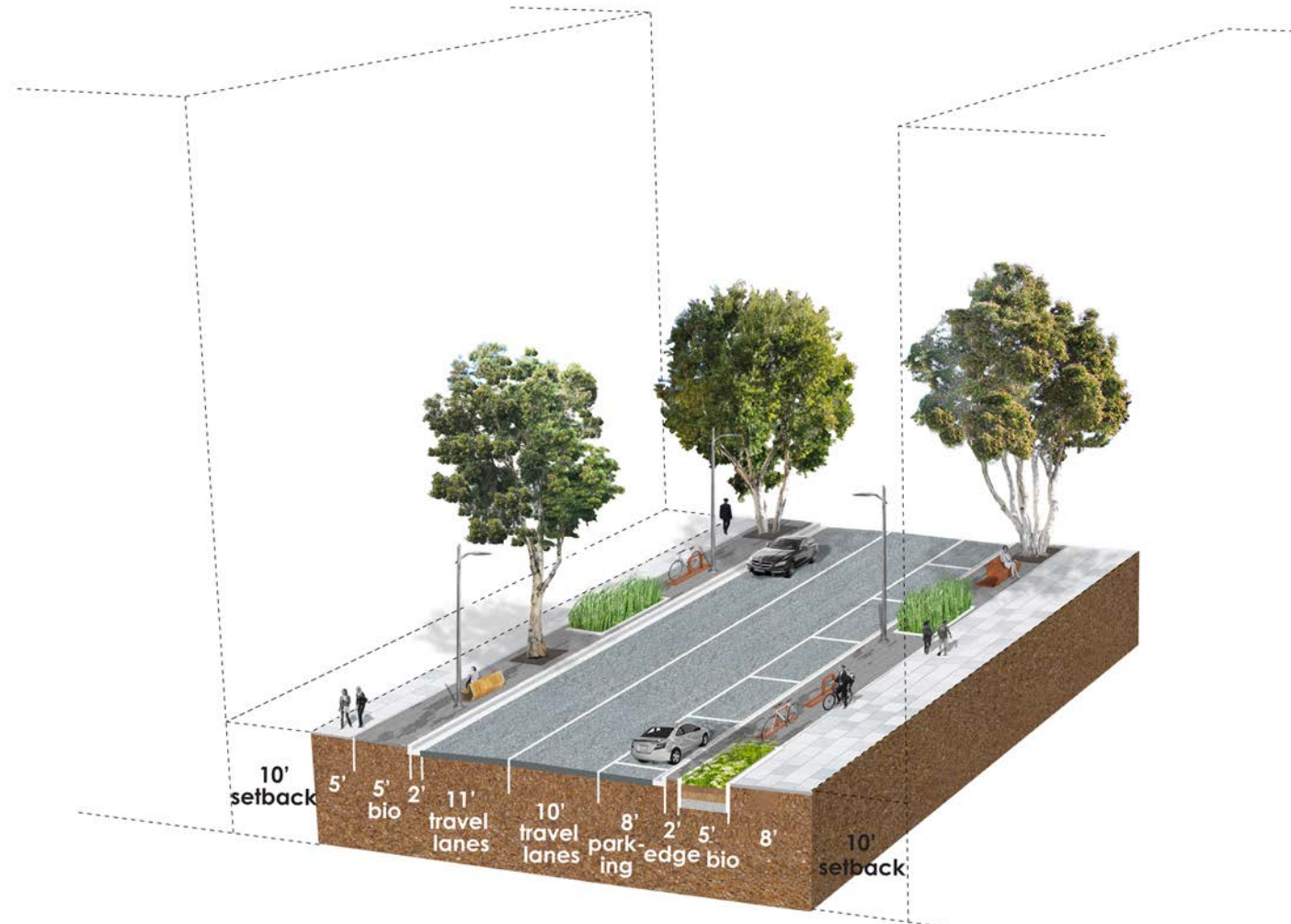
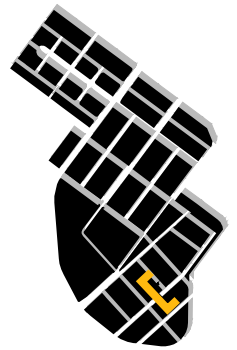
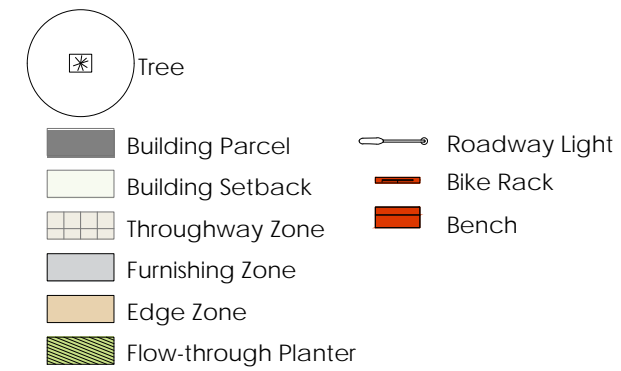


6. TYPICAL STREET LAYOUTS

6.6 RESIDENTIAL STREET: TYPICAL

Neighborhood specific streetscape elements:

- Paving pattern in furnishing zone
- Furniture detailing/materials
- Landscape (trees and biofiltration)

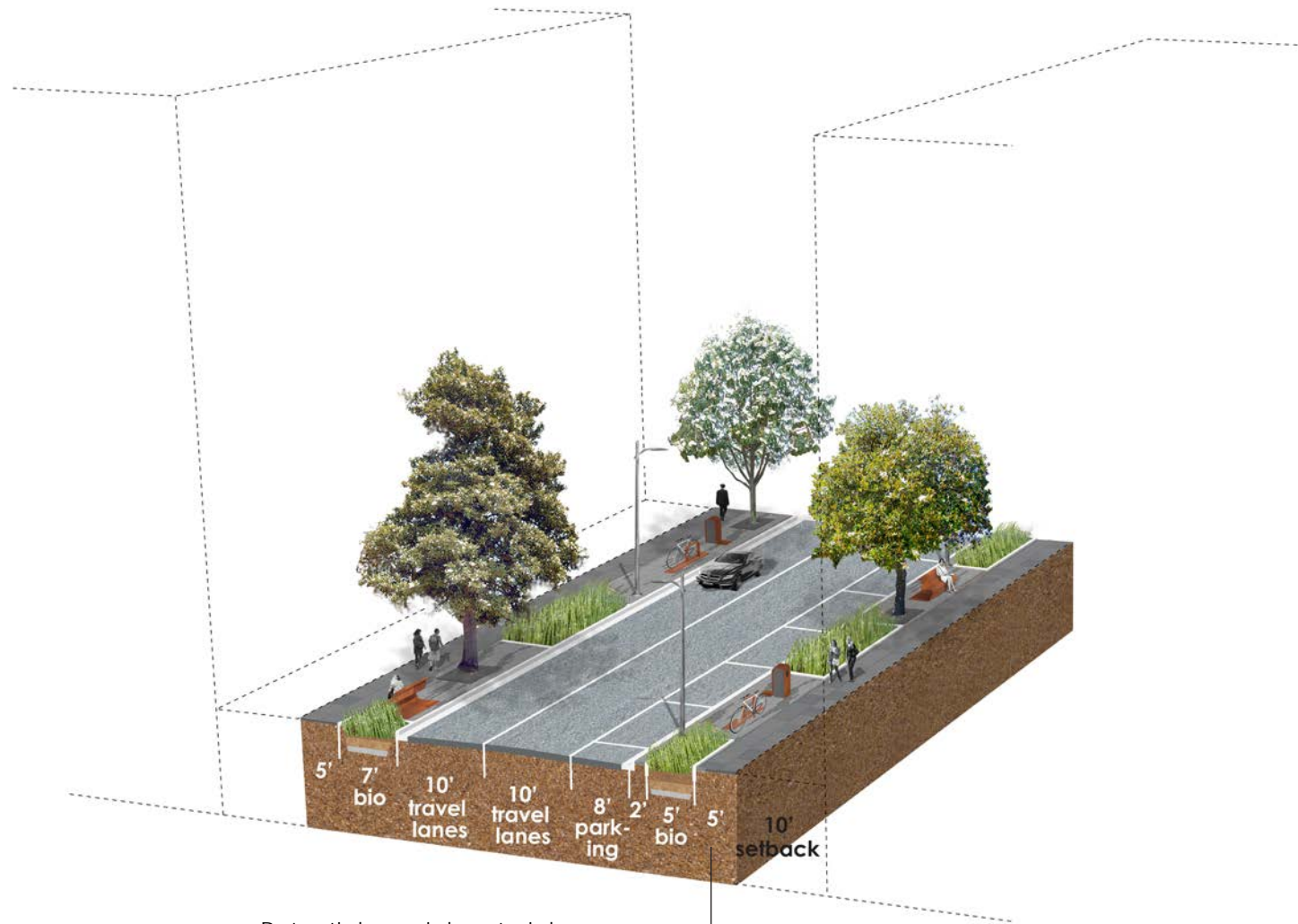


6. TYPICAL STREET LAYOUTS

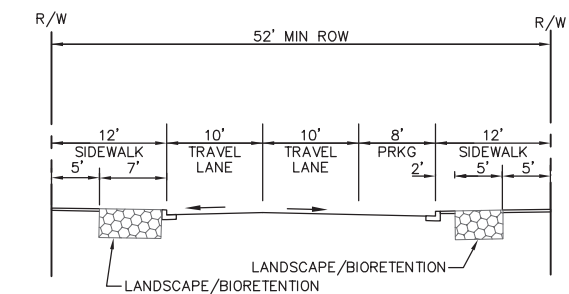
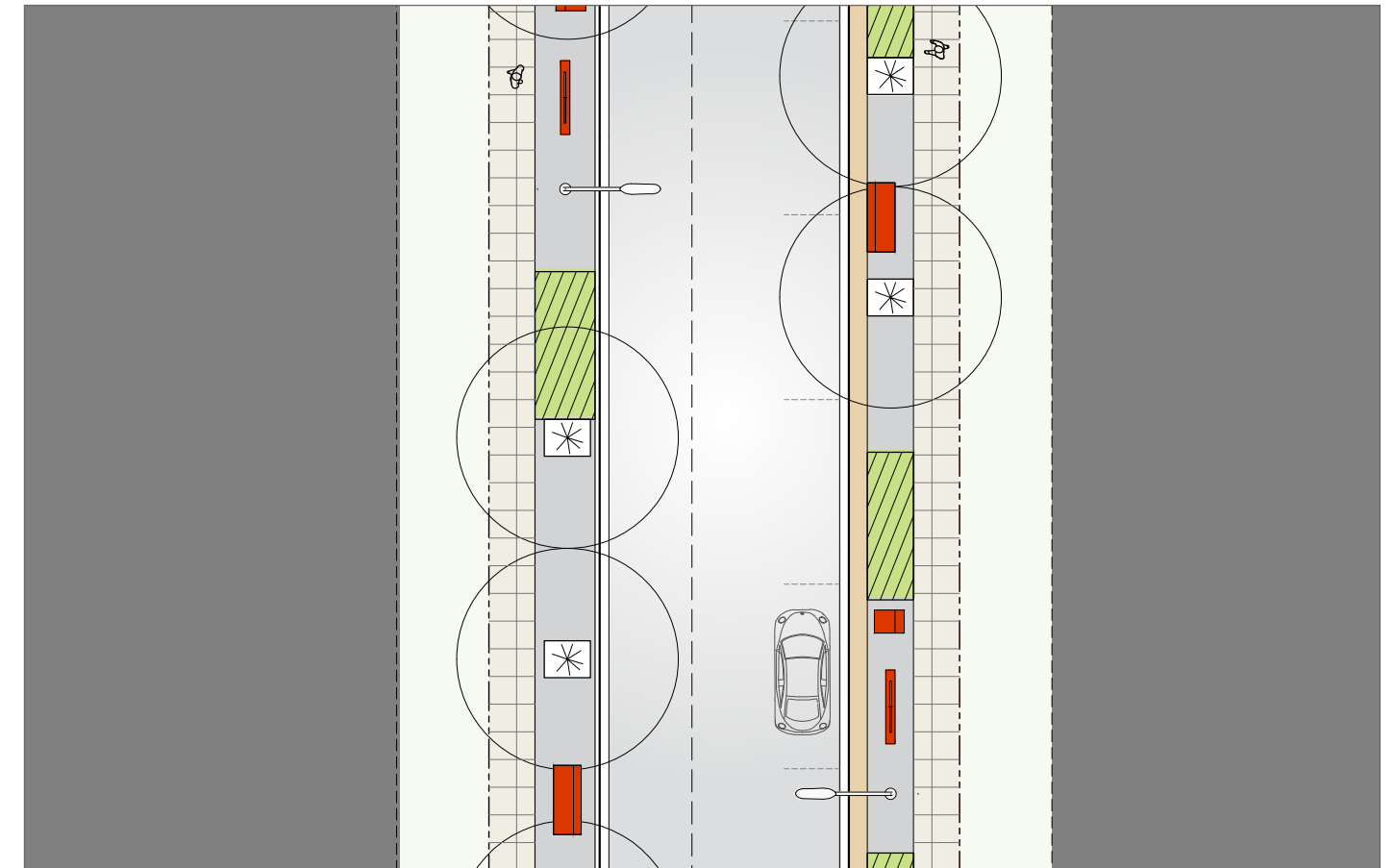
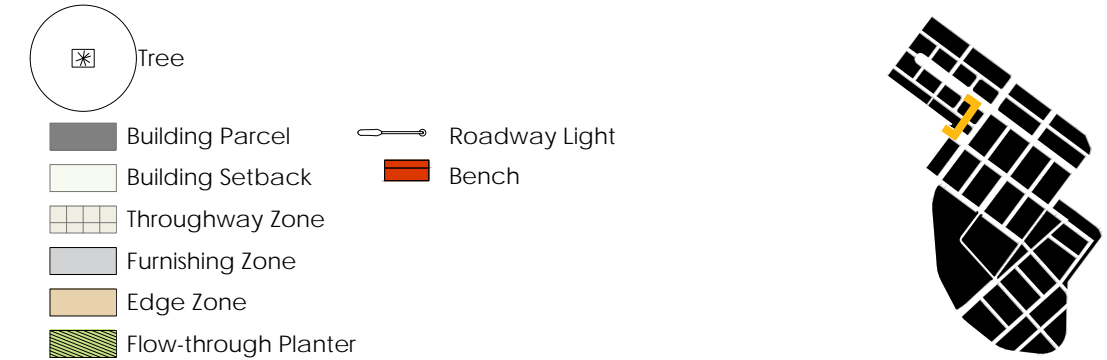
6.7 RESIDENTIAL STREET: FITZGERALD AVENUE

Neighborhood specific streetscape elements:

- Paving pattern in furnishing zone
- Potential special material : Concrete with silicon carbide sparkle in throughway (as shown)
- Furniture detailing/materials
- Landscape (trees and biofiltration)



Potential special material
: Concrete with silicon
carbide sparkle

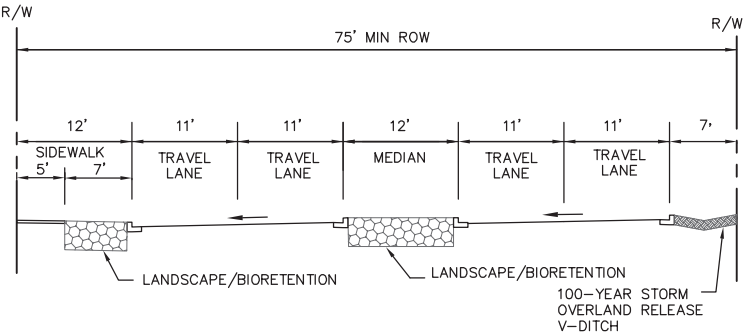
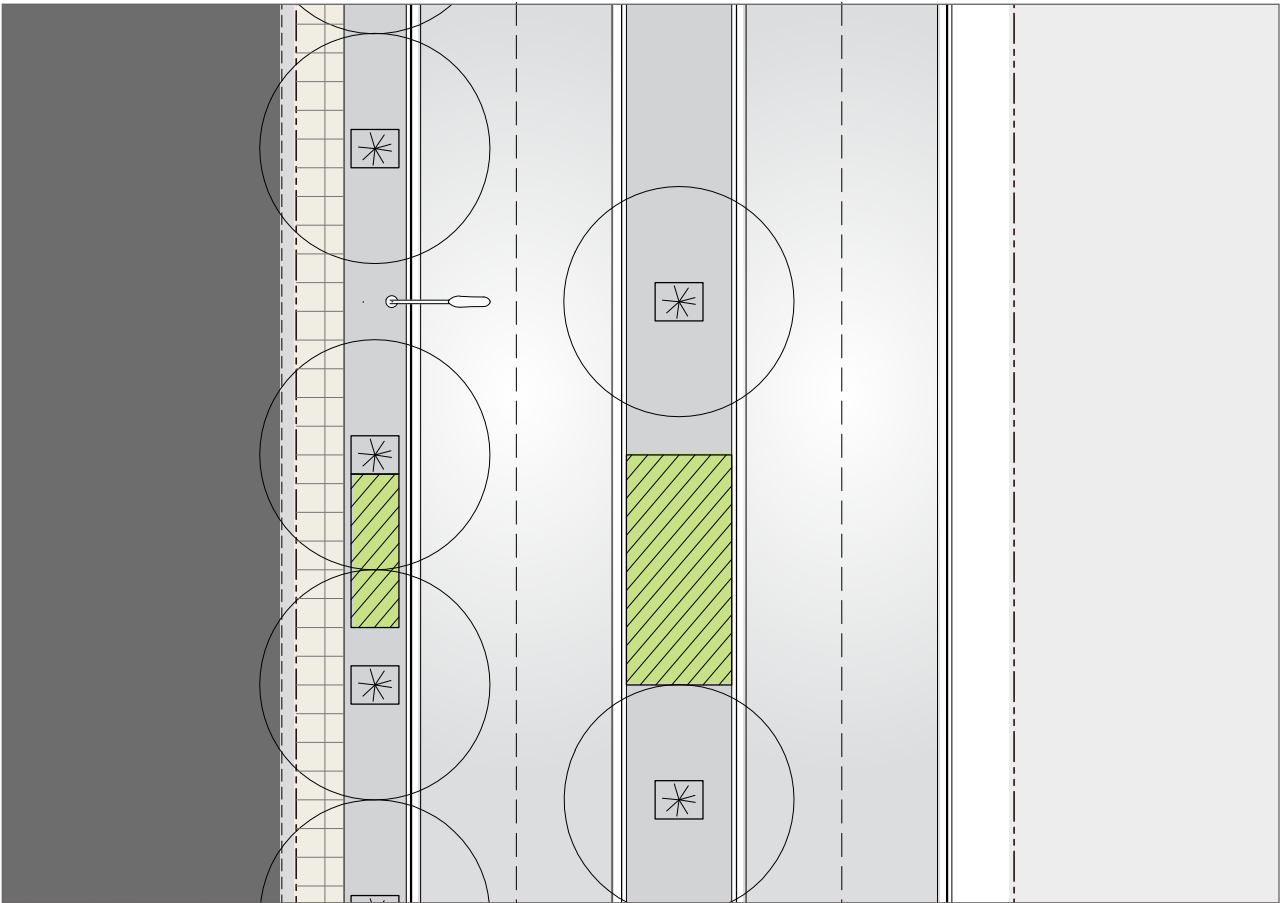
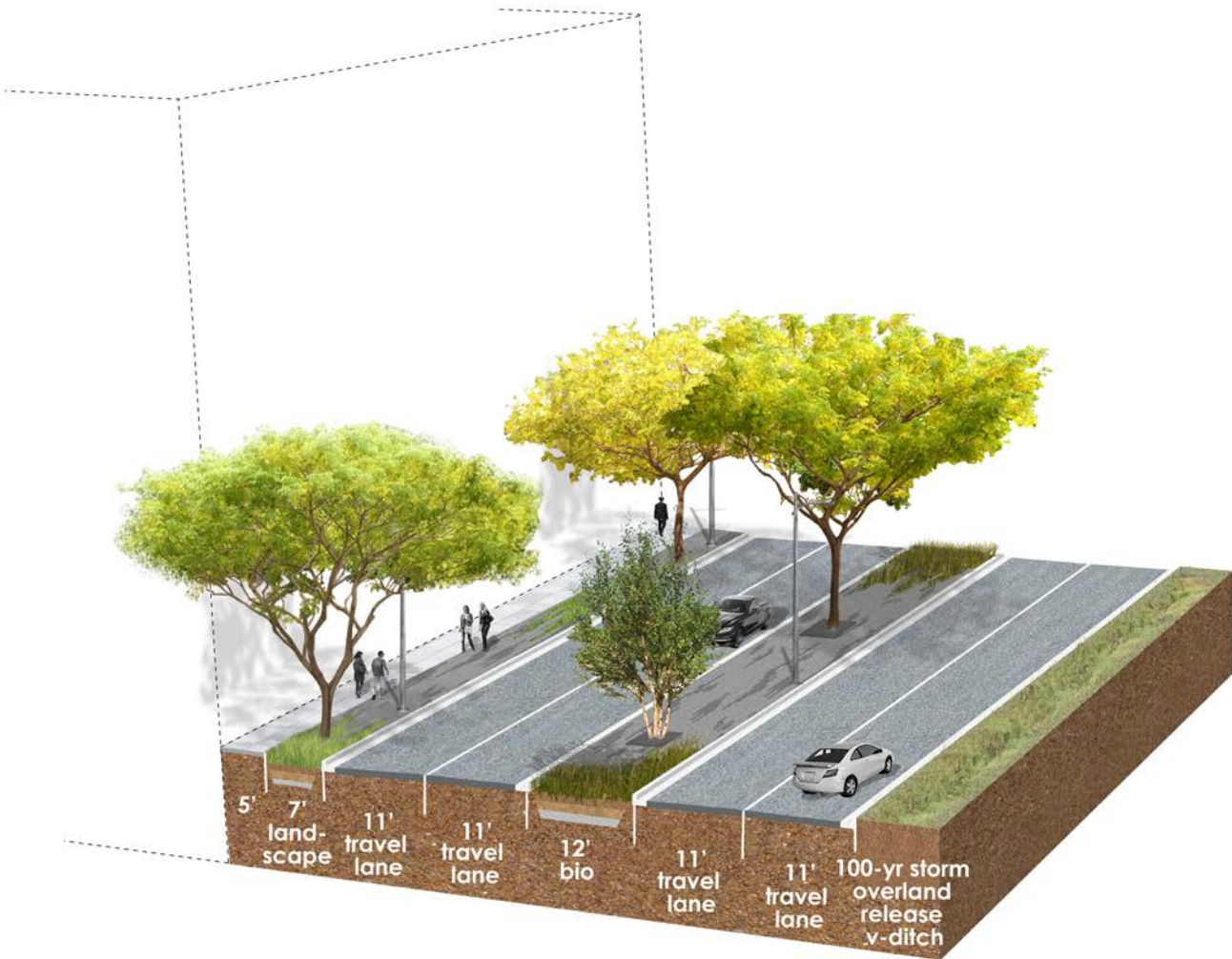
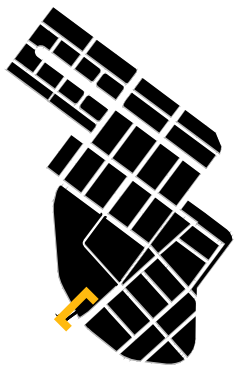
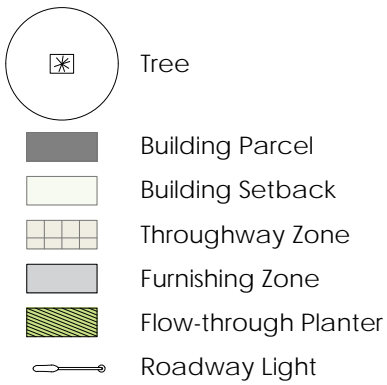


6. TYPICAL STREET LAYOUTS

6.8 COMMERCIAL: ARELIOUS WALKER (SOUTH OF INGERSON AV)

Neighborhood specific streetscape elements:

- Paving pattern in furnishing zone
- Furniture detailing/materials
- Landscape (trees and biofiltration)

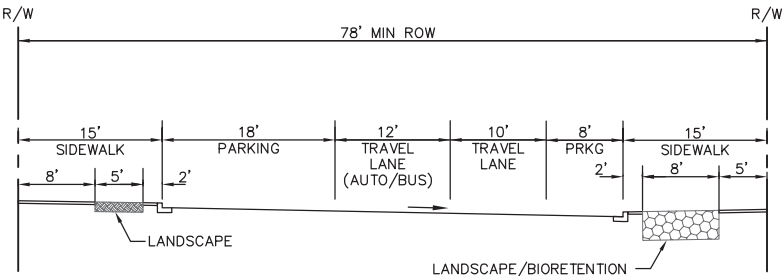
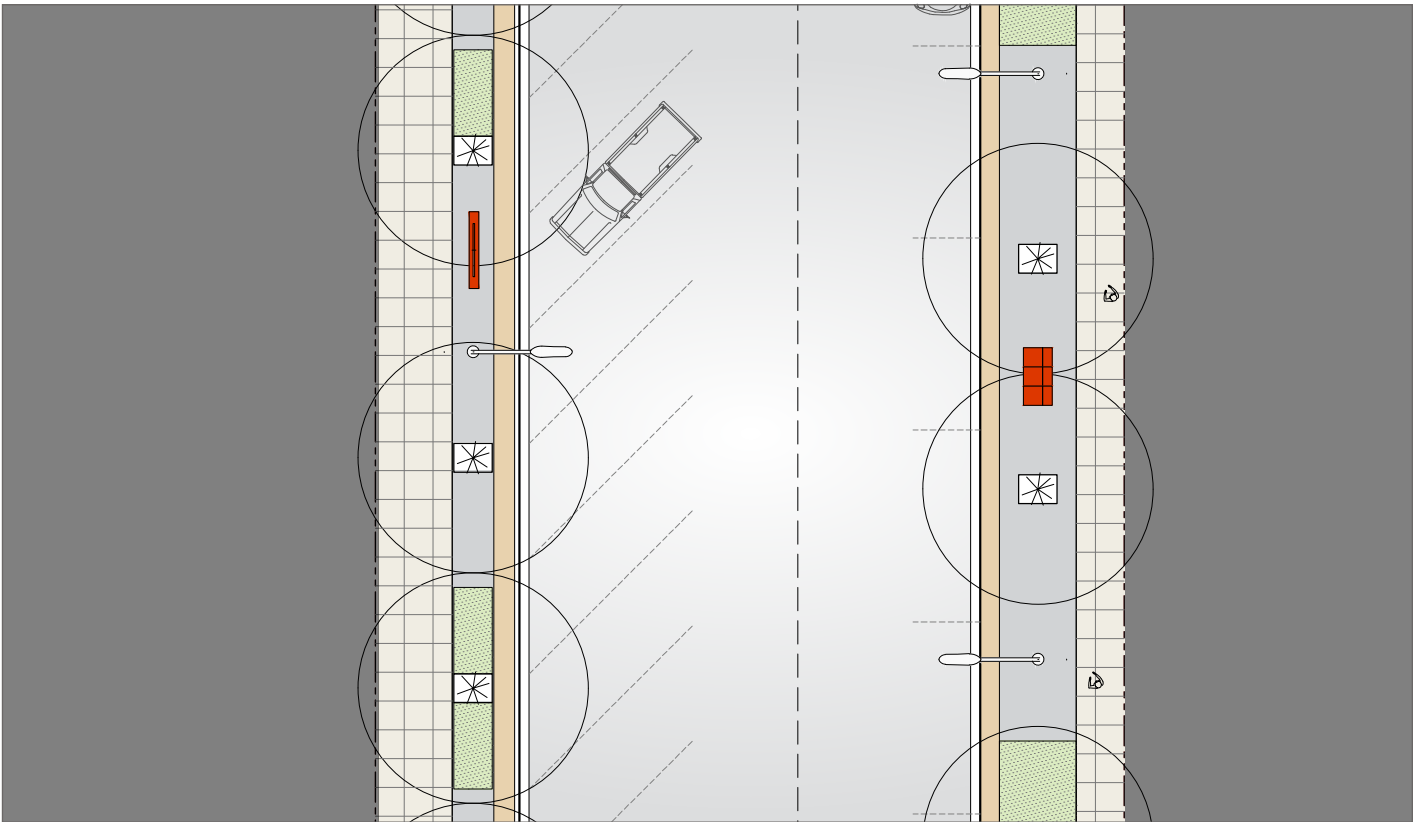
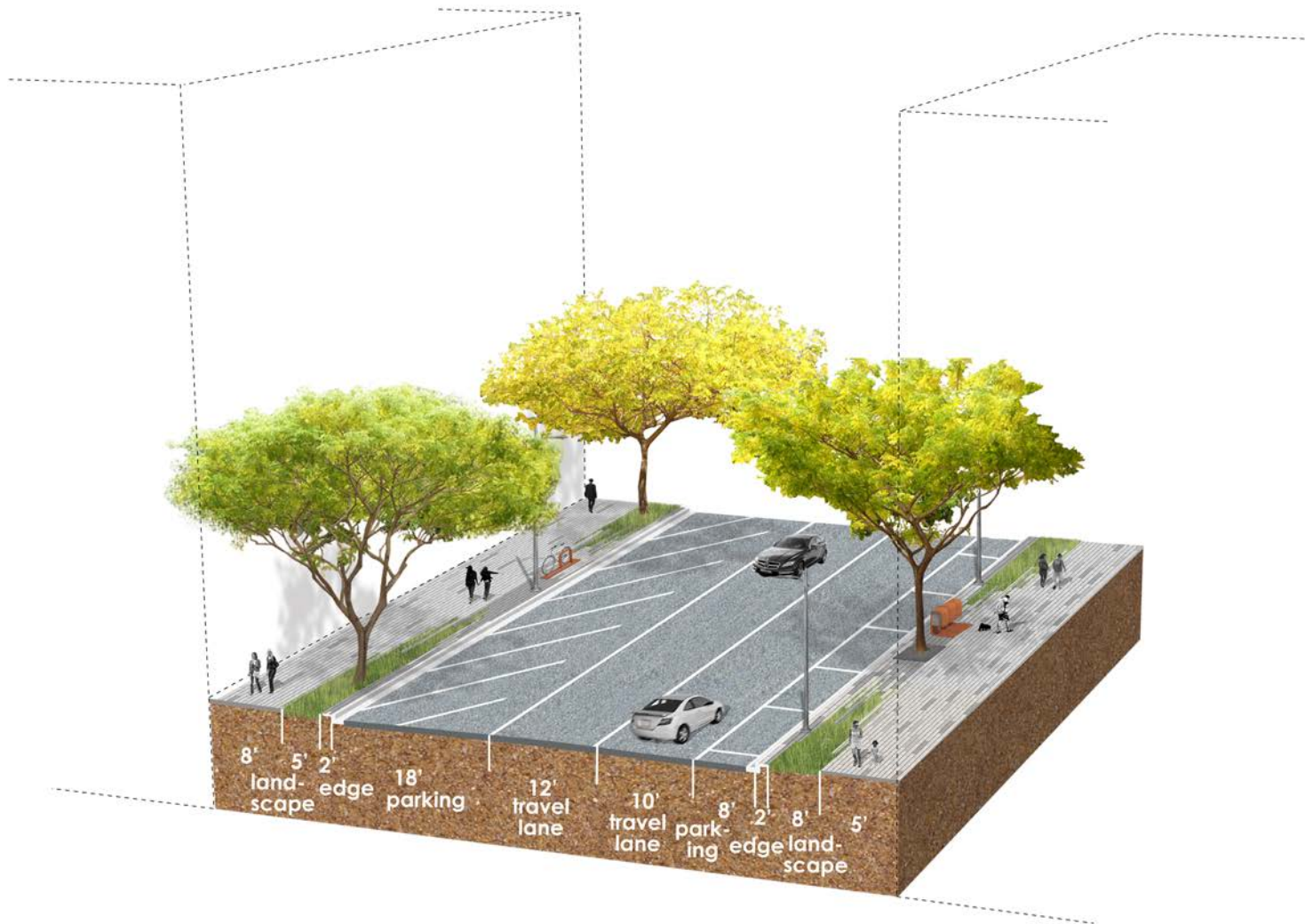
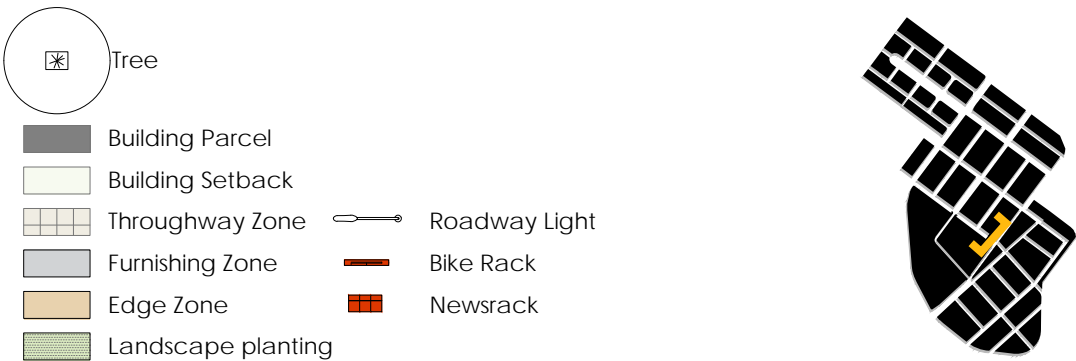


6. TYPICAL STREET LAYOUTS

6.9 COMMERCIAL STREET: INGERSON AVENUE (WEST OF HARNEY WAY)

Neighborhood specific streetscape elements:

- Paving pattern in furnishing zone
- Furniture detailing/materials
- Landscape (trees and biofiltration)

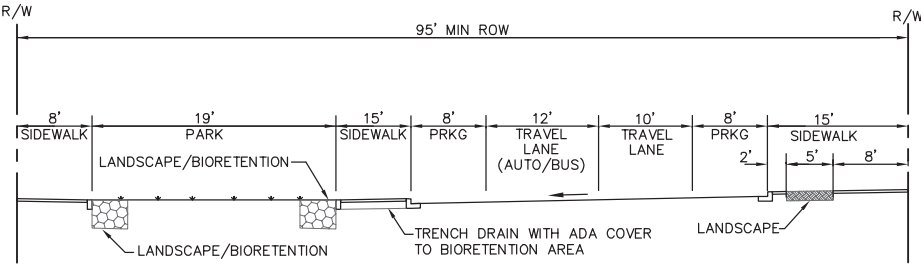
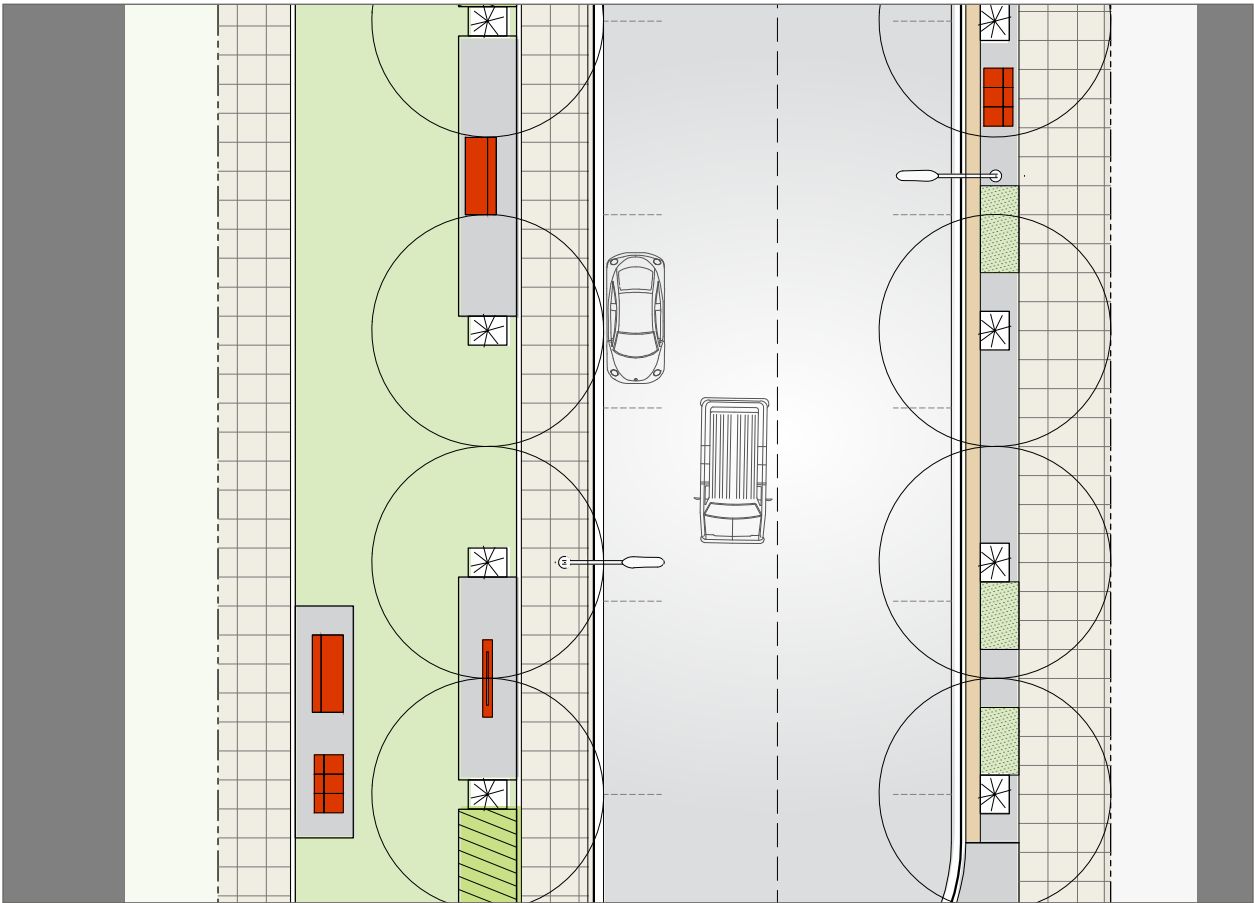
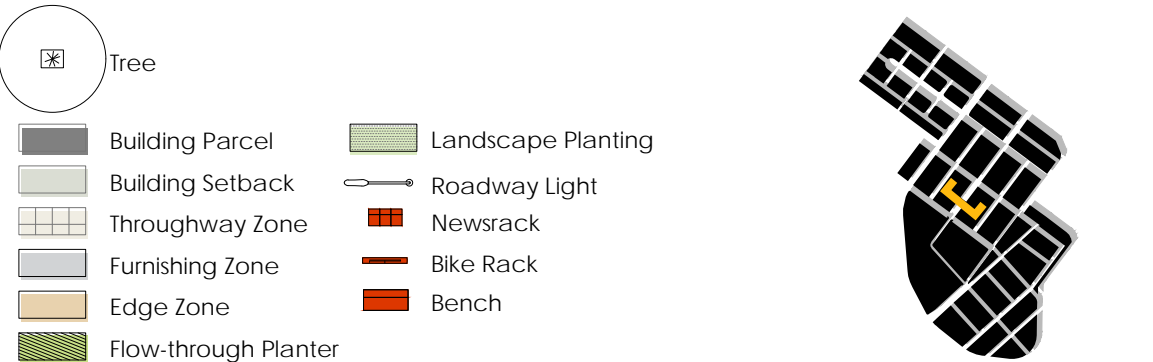
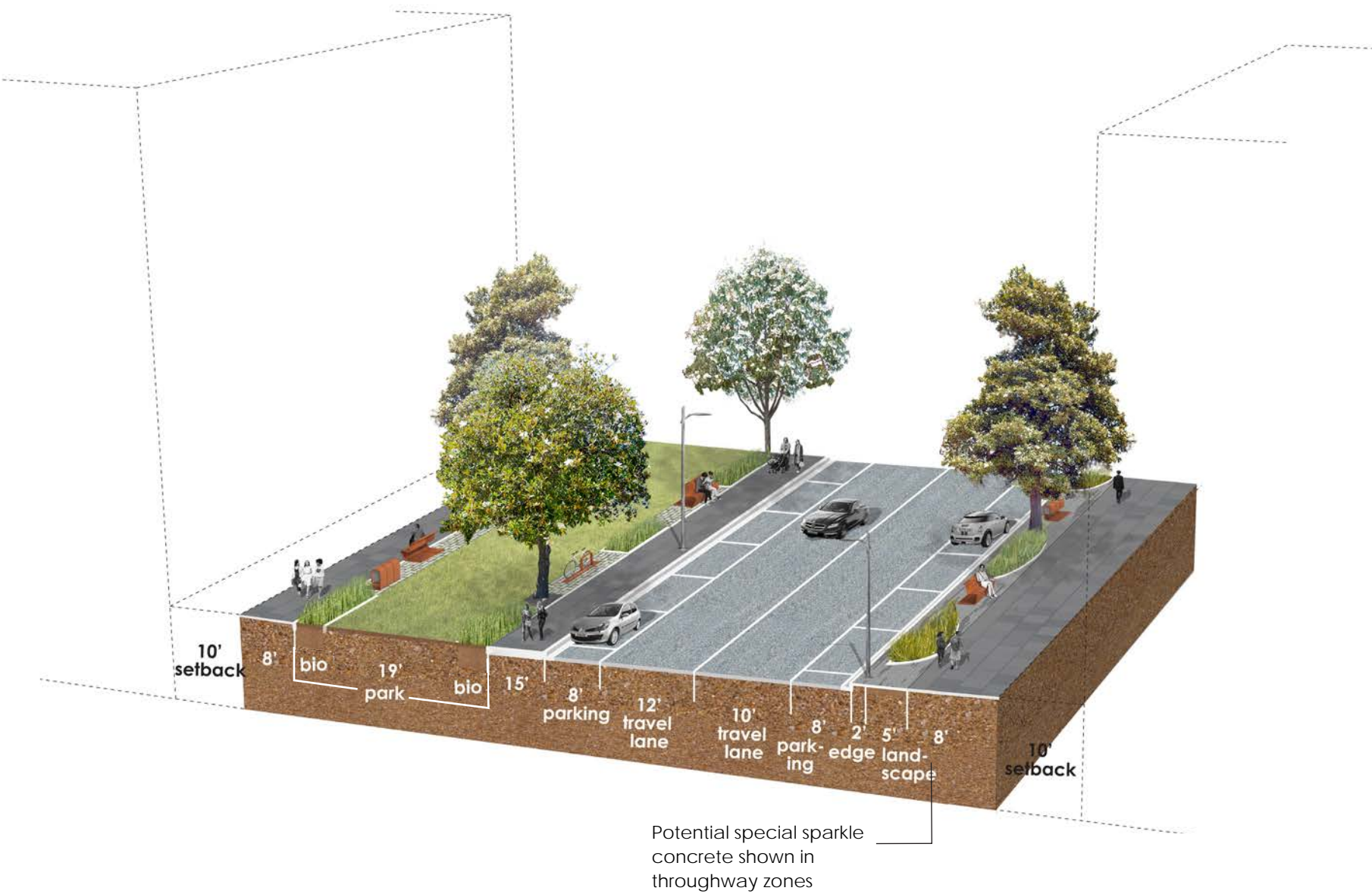


6. TYPICAL STREET LAYOUTS

6.10 PARK STREET: EARL STREET

Neighborhood specific streetscape elements:

- Paving pattern in furnishing zone
- Potential special material : Concrete with silicon carbide sparkle in throughway (as shown)
- Furniture detailing/materials
- Landscape (trees and biofiltration)

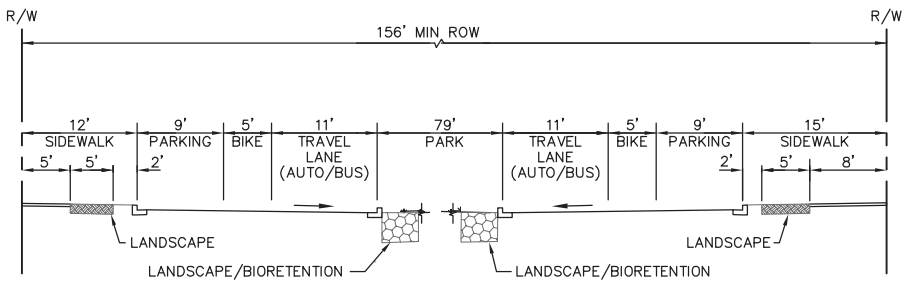
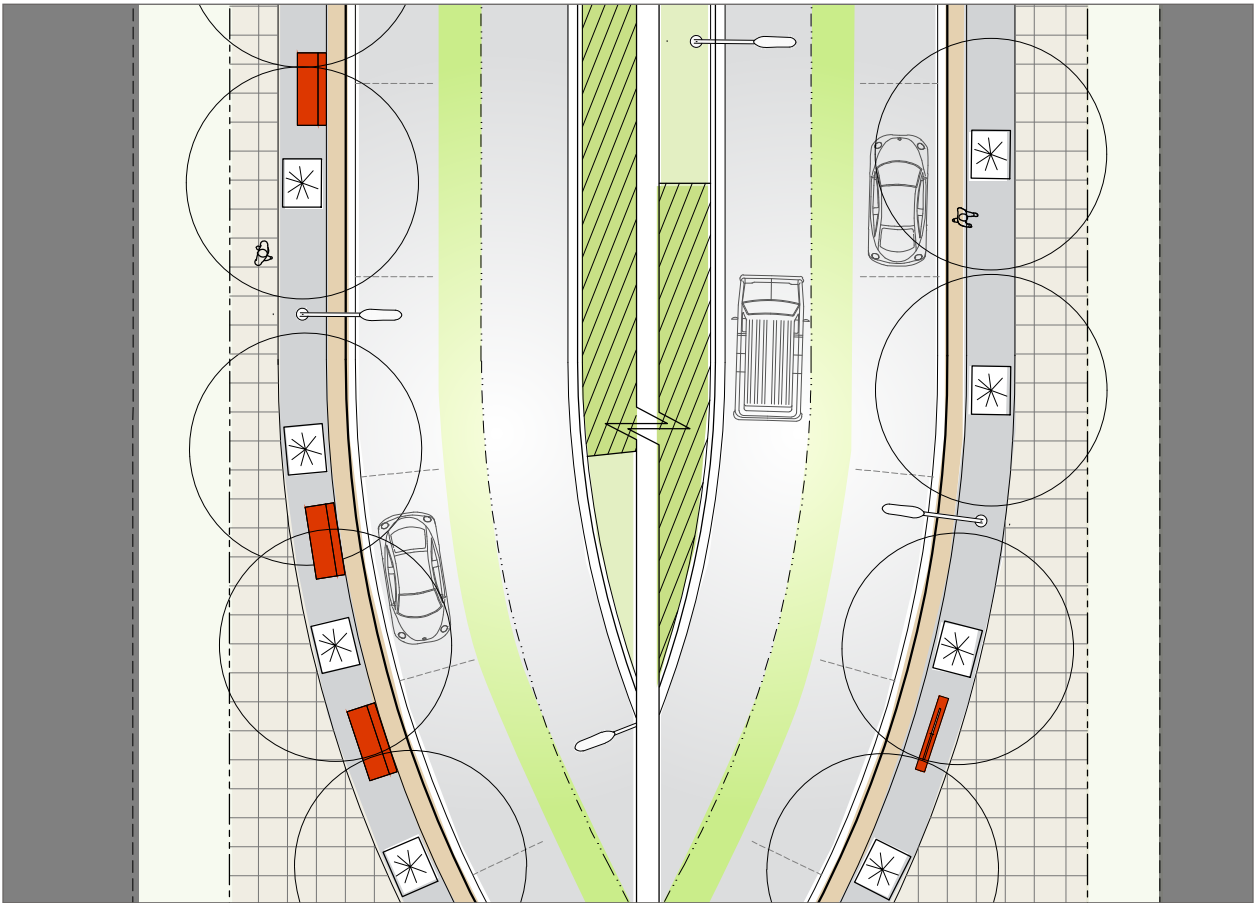
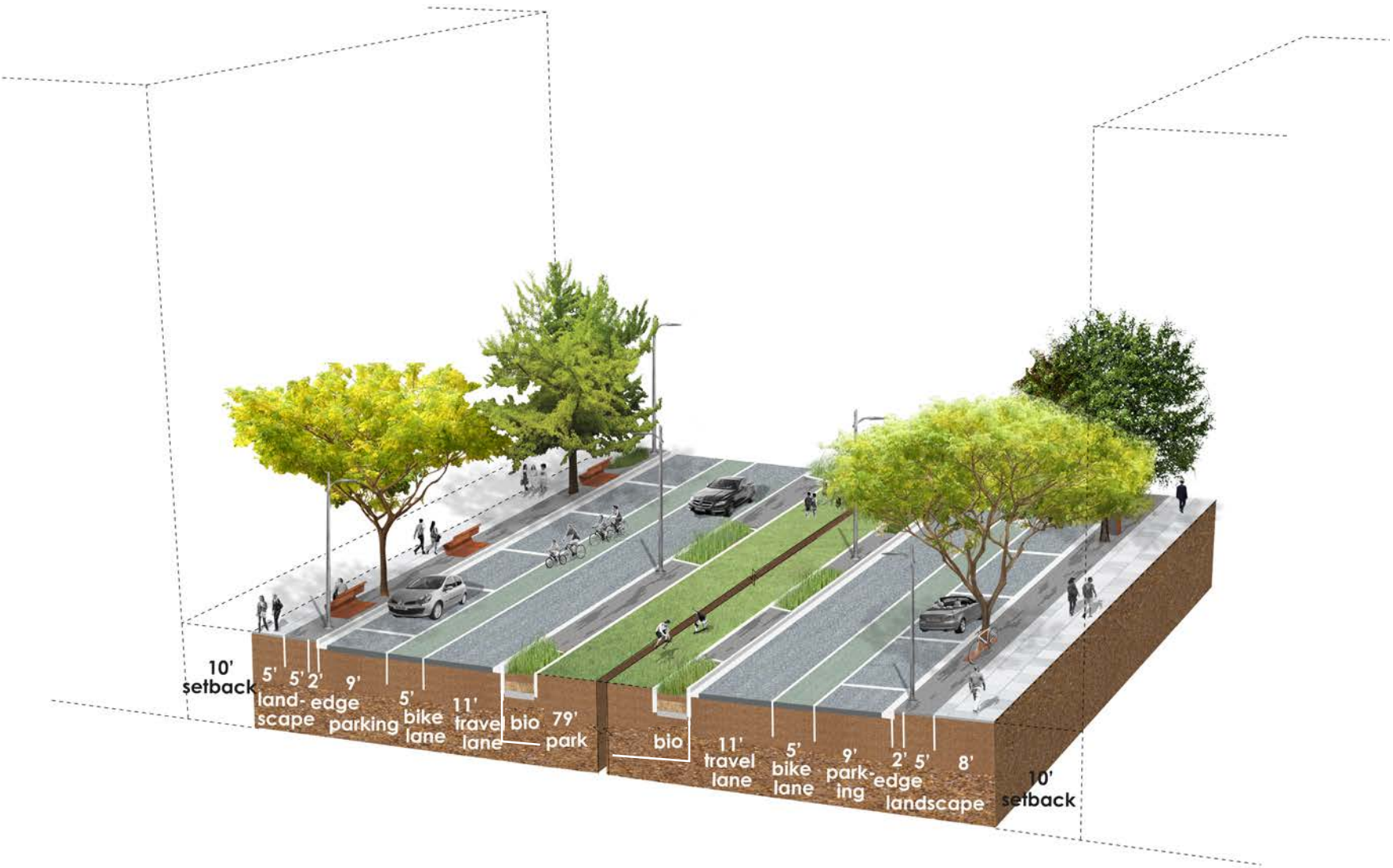
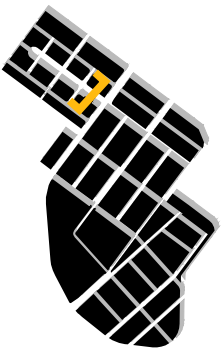


6. TYPICAL STREET LAYOUTS

6.1 1 PARK STREET: EGBERT AVENUE (WEST OF ARELIUS WALKER)

Neighborhood specific streetscape elements:

- Paving pattern in furnishing zone
- Furniture detailing/materials
- Landscape (trees and biofiltration)

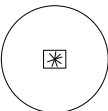



6. TYPICAL STREET LAYOUTS


6.12 PARK STREET: EARL STREET (NORTH OF GILMAN AV.)


Neighborhood specific streetscape elements:


- Paving pattern in furnishing zone
- Furniture detailing/materials
- Landscape (trees and biofiltration)


 Tree


 Building Parcel


 Building Setback


 Throughway Zone


 Furnishing Zone


 Edge Zone


 Flow-through Planter

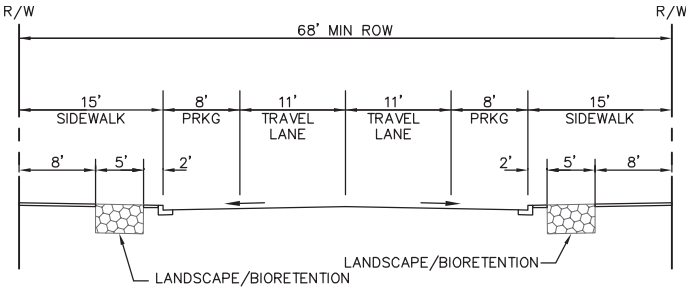
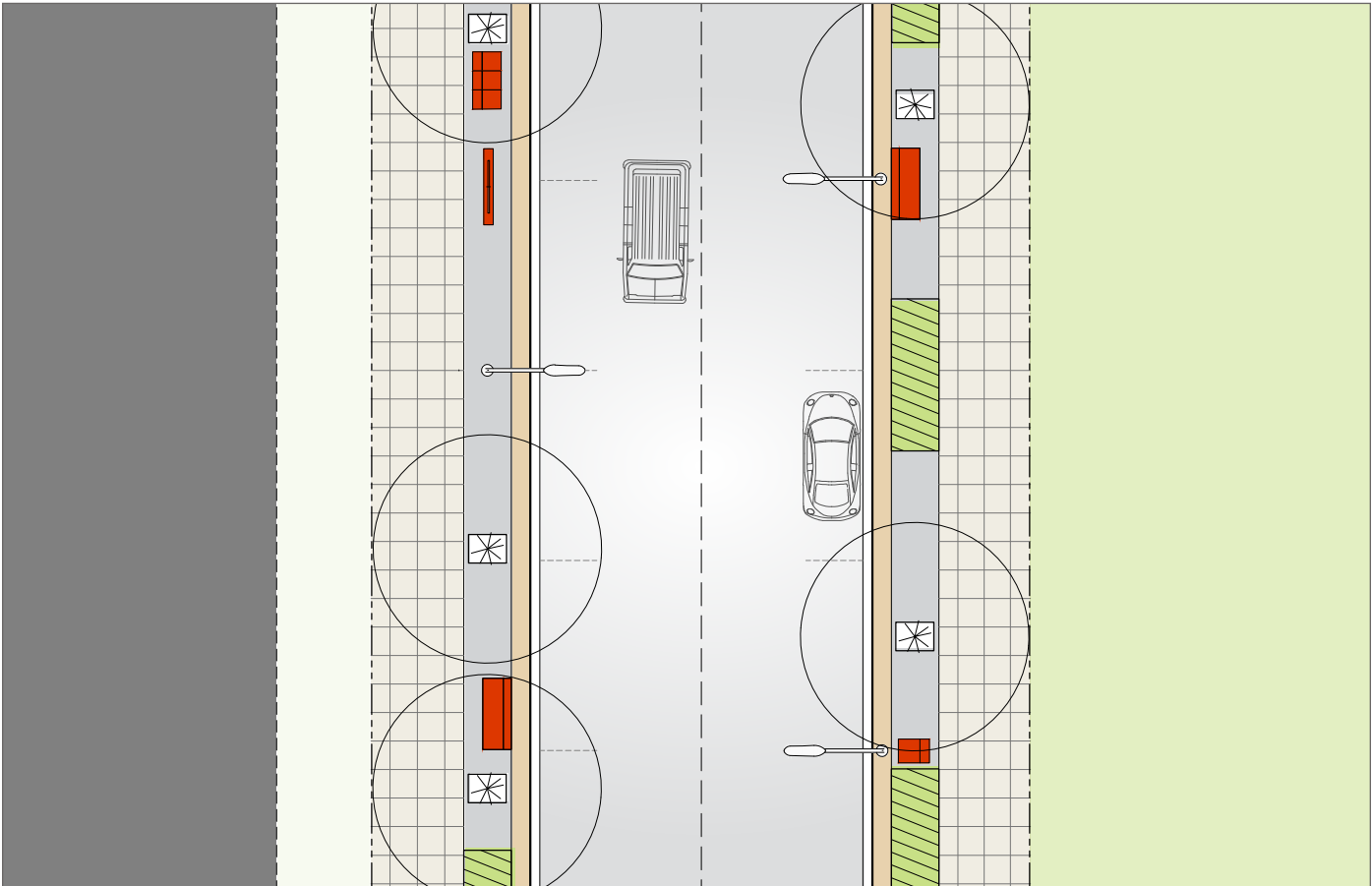
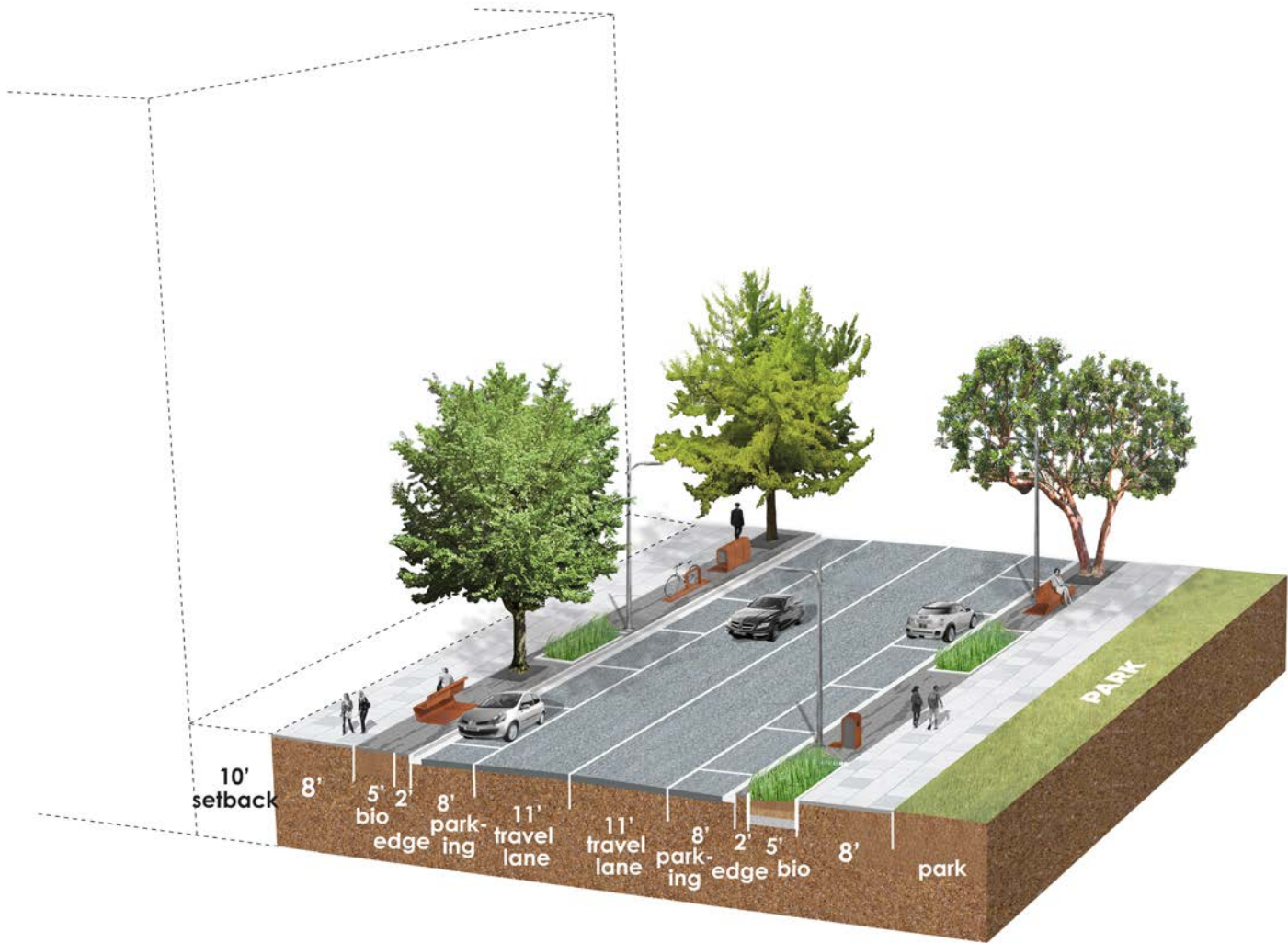
 Roadway Light

 Trash / Recycling Receptacle

 Newsrack

 Bike Rack

 Bench





5
Parkside
Drive

6
THE GROVE

7
THE VILLAS

7. DETAILS



7. DETAILS

7.1 STREET TREE PLANTING GUIDELINES & DETAILS

General Guidelines

A list of preferred street trees for each street type has been assembled with the help of an expert team of horticulturists, including Hort Science, renowned and well respected California based consulting arborists. Review by the SFDPW’s Division of Urban Forestry was also part of the selection process. Recommended tree species were selected using the following criteria:

- Character
- Scale
- Micro-climate, especially the frequent periodic cold and salt -laden wind and fog
- Native and acclimated species that are water-conserving
- Moisture tolerance
- Density
- Urban performance
- Soils
- Management and maintenance
- Visibility guidelines

Street Tree Planting

Tree Spacing:

Tree spacing shall be consistent and appropriate for the scale of the selected tree species. Typical street tree spacing will meet San Francisco Planning Code guidelines by providing 1 tree of minimum 36” box size for each 20’ of street frontage. Medium and large trees may be spaced every 20-35’, per Better Streets Plan spacing guidelines. Typically, street trees shall be planted on both sides of the street and in medians 5 feet or greater in width. Tree size, height and canopy form shall be regular and consistent in each street type unless otherwise noted. Approximately 2,500 street trees are estimated to be planted in Candlestick Point.

Visibility at Intersections:

At intersections, trees shall be planted in accordance with the Department of Public Works Director’s Order No. 169,946; or a minimum of 25 feet on the approach side, and 5 feet from the crosswalk on the far side of any intersection. Trees and plantings located in the sidewalk area shall not obscure traffic signals, signs or street lights.

Tree Size:

Typical tree size at planting shall be 36” box size minimum, unless otherwise noted.

Tree Wells:

Tree wells should be 4 feet wide by 4 feet long, minimum. A larger typical tree well size of 5 feet wide by 5 feet long is recommended.

Planting & Installation:

Planting and installation techniques shall be in accordance with the highest level of horticultural practice and are to meet City standards. This includes conformance with the urban greening requirements and guidelines of the SF Better Streets Plan. All planting pits are to include underdrainage and horticulturally excellent planting medium. All new trees shall be irrigated and robustly staked to support the trees against the strong prevailing winds. A high level of attention to horticultural best practices will promote the long term viability and sustainability of the street trees.

Preferred and Alternative Tree Species:

The Plan encourages street tree species to be selected from the proposed preferred list for each respective street type. Street tree species not included in the proposed list are permissible as substitutions if they meet the listed formal, character, and horticultural criteria and if selected by a certified arborist and approved by the SFDPW Department of Urban Forestry. The

selection of alternative tree species shall comply with the requirements of this Master Streetscape Plan and must follow the street tree characteristics listed for street trees in Section 5, ‘Streetscape Elements’ for each particular street type.

It is intended that a single tree species (or species mix) be planted the entire length of a named street. Once a specific species (or species mix) has been planted on a portion of a street, the same species must be installed on the remainder of the blocks in order to provide a consistent horticultural theme. For streets that, by virtue of their length, significantly change character, street width or typology along their length (For example: Arelious Walker Drive, Harney Way, Egbert Avenue, Crisp Avenue and Fischer Street), the street typology shall govern the tree species selection.

7. DETAILS

7.1 STREET TREE PLANTING GUIDELINES & DETAILS

Soil volume & Tree growth

A street tree's ability to grow and stay healthy is largely dependent on the amount of rooting space provided. Larger soil volumes will generally yield larger trees. Provide sufficient soil volumes for tree species planted. For use as a general guideline, a minimum soil volume of 8 cubic yards per tree is recommended with at least 3 feet 6 inches of soil depth. However, it will be advantageous to exceed this minimum to ensure the long term health and viability of newly planted street trees. Illustrations to this point are on the following pages.

Several design methods can be used to achieve adequate soil volumes:

- Continuous Planting Trench:

Wherever possible, trees should be installed in a continuous planting trench with at least 3 feet 6 inches of soil depth. Where there is no sidewalk paving, such as in open landscape and median areas, this is easily achieved. In paved areas, alternate methods must be used to support the sidewalk areas between the tree wells. (This method is compatible with Planting Condition 1: Open Planters/Parkway Strips described on the following pages).

- Open Soil Areas:

Open soil areas are unpaved areas surrounding a tree, typically open planting areas or ornamental gravel mulch areas. (This method is compatible with Planting Condition 1: Open Planters/Parkway Strips).

- Structural Soils:

Structural soils support sidewalk pavements while also preventing excess compaction and allowing adequate void spaces for needed oxygen exchange, water drainage and root growth. By allowing the penetration of the roots into the structural soil level, rather than above the surface, pavement heaving will also be inhibited. Structural soils have the additional benefit of being highly permeable and free-draining. (This method is compatible with Planting Condition 2: Tree Wells).

- Tree Cells:

'Silva Cell' type tree cells support sidewalk pavements via a modular cellular frame and deck structure while also preventing compaction and allowing adequate porosity in a manner similar to structural soils, but using conventional planting soil as backfill. (This method is compatible with Planting Condition 2: Tree Wells).

- Root Paths:

Root paths are constructed paths that use aeration or drainage strips to give roots a way to grow under paving and connect to adjacent green spaces or open planting areas. (This method is compatible with Planting Condition 2: Tree Wells).

Street Tree Planting Guidelines & Details

Planting and installation techniques for street trees are to be in accordance with the highest level of good horticultural practice. This includes, in addition to providing adequate volumes of high-quality planting soil medium, providing: 1) continuous underdrains (typically 4-inch diameter perforated pipe in a 12-inch by 12-inch bed of drain rock wrapped in filter fabric); 2) heavy-duty tree staking or guying to deal with the Candlestick Point's strong prevailing winds; and 3) high-efficiency, water conserving drip irrigation.

- Storm Water Management:

Many of the streetscape plantings at Candlestick Point will perform a vital role in capturing, treating and retaining storm water runoff from adjacent streets and sidewalks. To achieve this, many streets will incorporate bioswales, flow-through biofiltration tree well planters and bioretention areas. The prevalence of these features will require the use of sandy loam soil mixes with high percolation rates, structural soils and underdrains to ensure soil permeability and adequate infiltration rates. It will also require the use of trees, shrubs and ground covers that can tolerate seasonal inundation and saturated soil conditions.

Figure 7.1 – Soil Volume & Tree Growth



7. DETAILS

7.1 STREET TREE PLANTING GUIDELINES & DETAILS

General planting guidelines and details for three typical street tree planting scenarios are presented on the following pages:

- Condition 1: Open Planters/Parkway Strips
- Condition 2: Tree Wells

Planting Condition 1 - Street Trees in Open Planting Areas / Parkway strips

On residential and non-commercial streets where the curbside sidewalk landscape zone (also referred to as the 'parkway strip' or 'furnishing zone') is not being used for flow-through biofiltration, street trees may be planted in open planting areas. These parkway strips will typically feature shrub, perennial and ground cover plantings to add visual interest and richness to the streetscape.

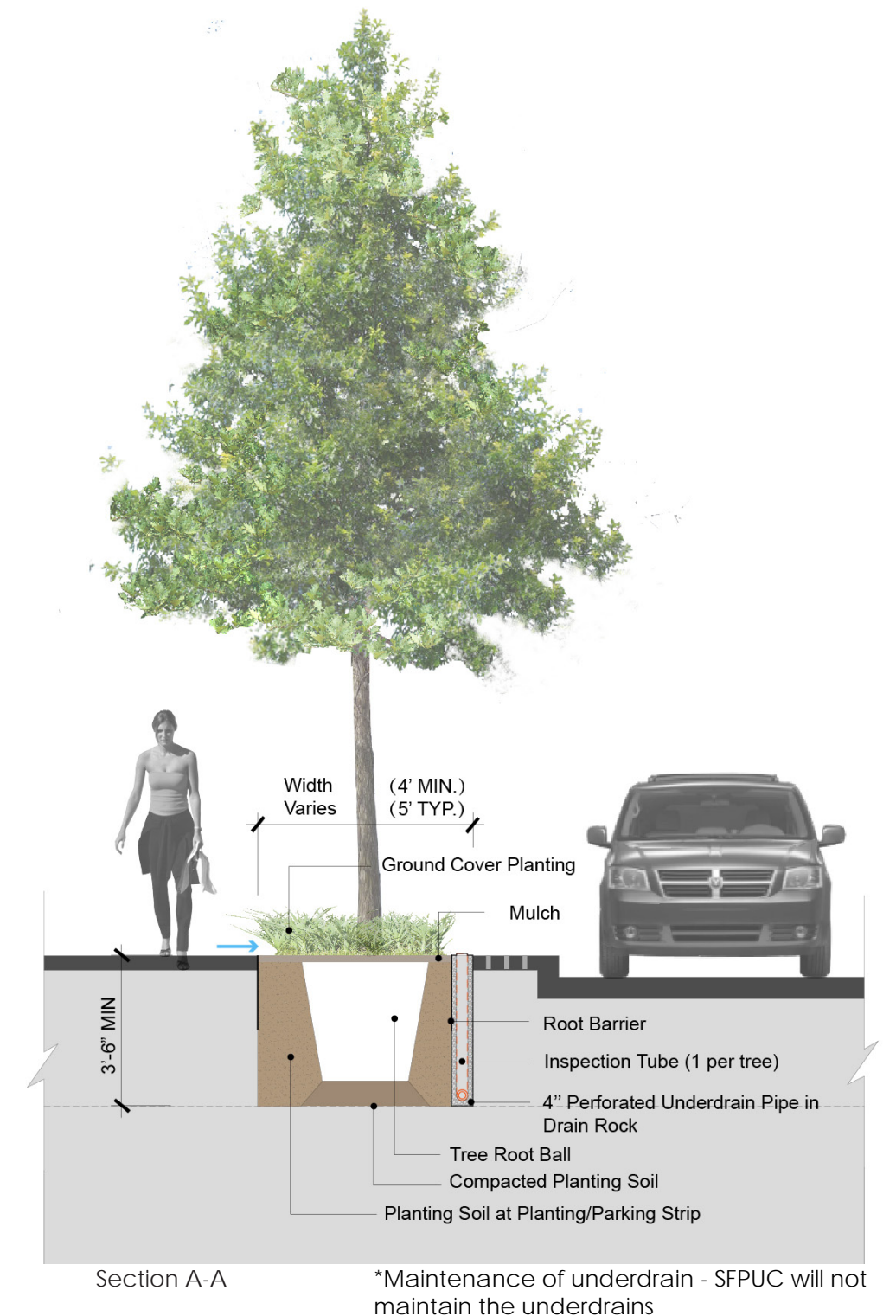
The length and width of the parkway strips will vary, but a width of 4 to 5 feet is typical. The planted areas will generally be extended to include the end block and mid block bulb-outs. On streets where there is parallel parking, a 2 foot curbside stepout will be provided and the parkway strip will need to be interrupted with walkway passages. Providing one walkway passage per parallel parking stall is recommended. On streets where there is no curbside parking, the stepout can be omitted and the parkway strips can be longer, without interruption.

Tree planting soil volumes should be maximized by providing continuous planting trenches a minimum of 3'-6" deep and underdrainage should be provided. (Figure 7.2, Section B-B).

Median Plantings: On streets with medians, a general guideline is to provide street trees in open planted areas on any median that is 5 feet or greater in width. On narrower medians, it is generally recommended to provide a paved surface and omit trees and other landscape plantings.

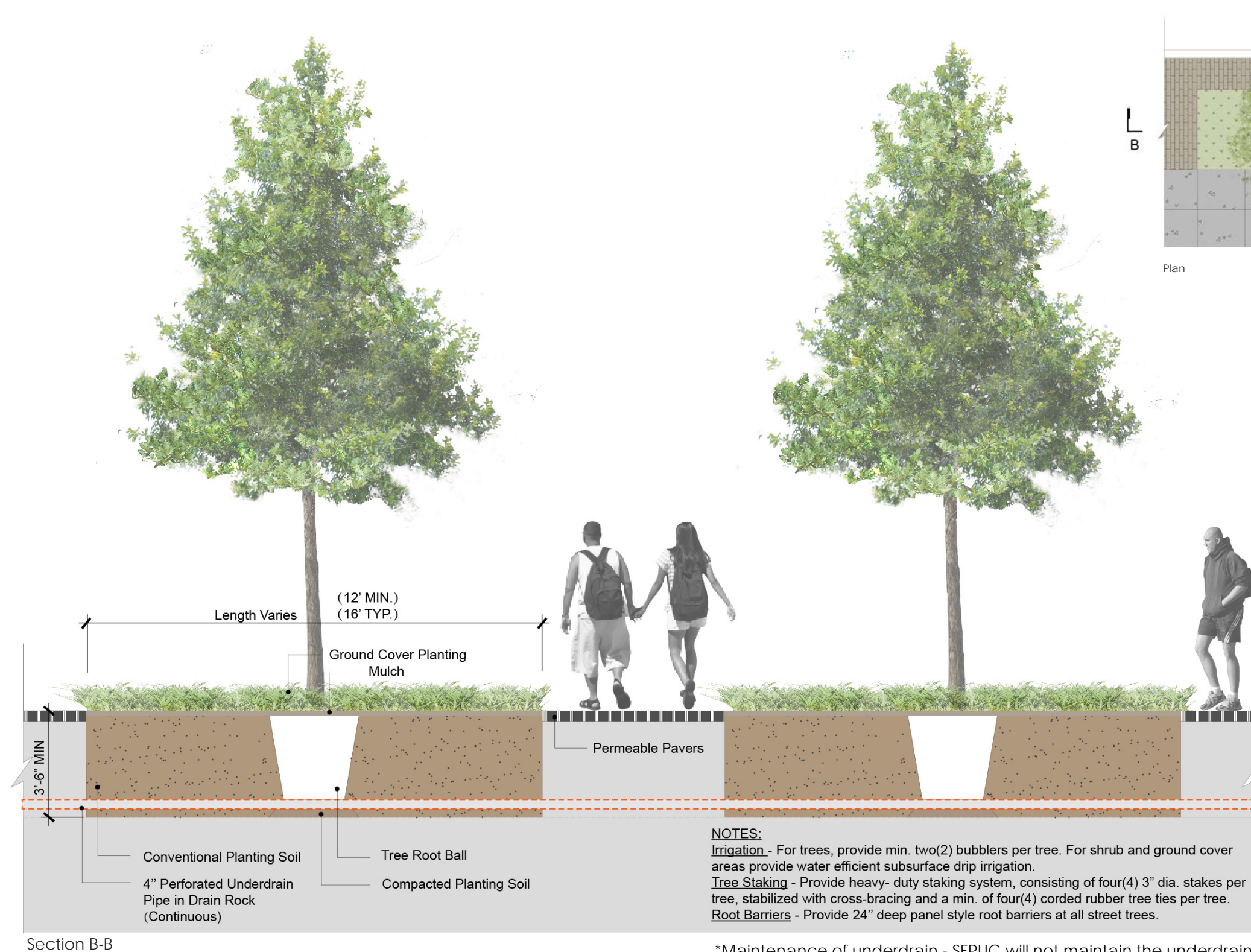
Compatibility with Stormwater Treatment & Bioswales: This planting condition is generally compatible with streets where a percentage of the frontage will be required for stormwater management flow-through biofiltration facilities. When bioswales or other open storm water management features are incorporated into parkway strips or medians, trees and understory plants that can tolerate seasonal inundation should be specified.

Figure 7.2 – Street Tree Planting Condition 1: Street Trees in Open Planting Areas



7. DETAILS

7.1 STREET TREE PLANTING GUIDELINES & DETAILS



*Maintenance of underdrain - SFPUC will not maintain the underdrains

7. DETAILS

7.1 STREET TREE PLANTING GUIDELINES & DETAILS

Planting condition 2 -Street Trees in Tree Wells

On commercial and retail streets, accommodating higher volumes of pedestrian traffic moving to and from curbside parking will often require that the curbside sidewalk landscape zone is minimized. Street tree plantings in these areas will typically be in tree wells. The understory of the wells can be treated in a variety of ways: either planted; paved with ornamental gravel or unit pavers.

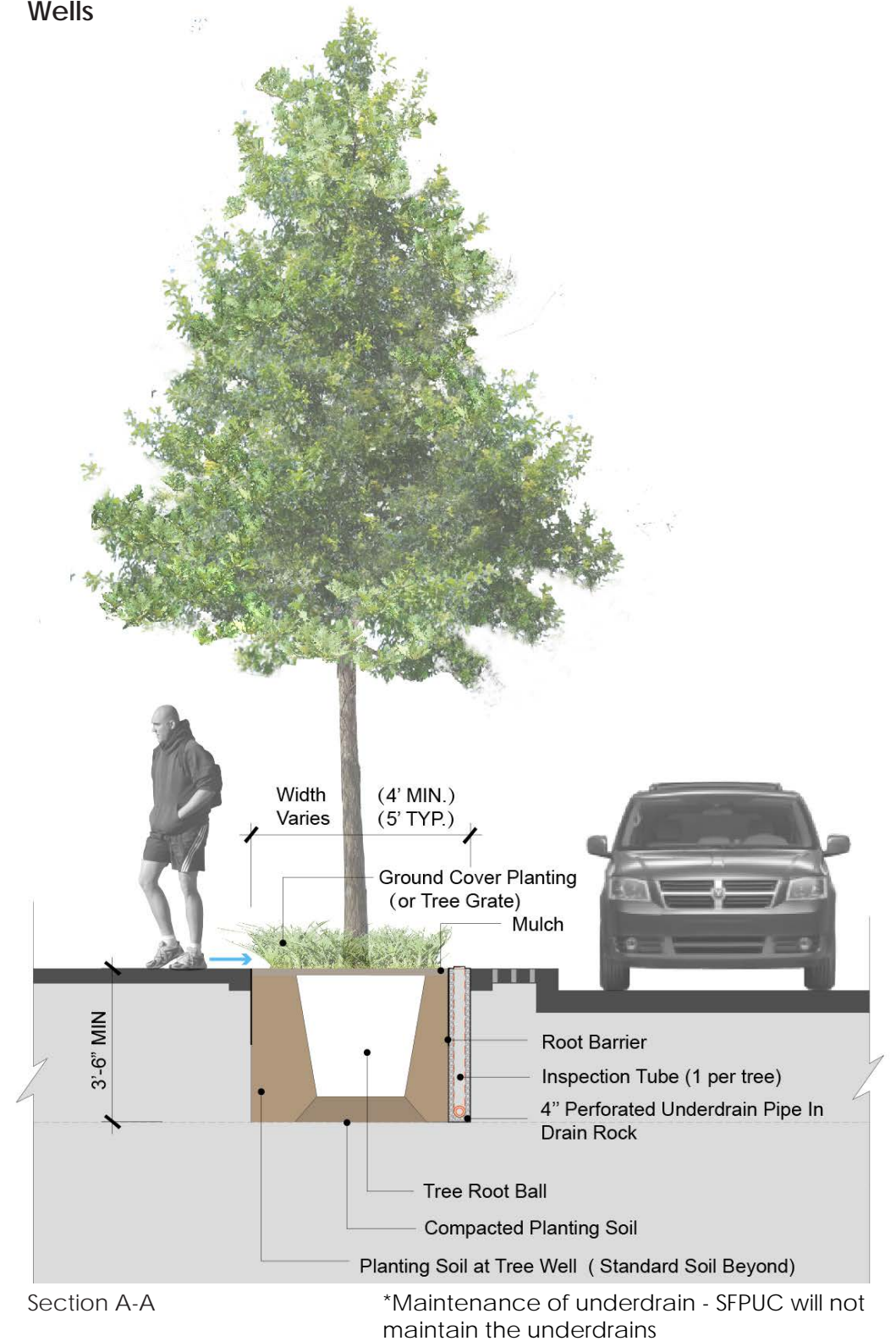
The size of tree wells can vary, however, a minimum size of 4 feet by 4 feet is required. In order to optimize the health of the street trees, the use of larger, 5 feet by 5 feet tree wells is recommended.

As elsewhere, tree planting soil volumes should be maximized. In tree well planting situations, the recommended approach is to provide extended trenches of structural soil, a minimum of 5 feet wide by 5 feet long and 3'-6" deep, under the adjacent pavement areas on either side of the open tree well.

Understory Plantings: Understory plantings in tree wells should generally be limited to lower-growing species, no more than 3 feet in height.

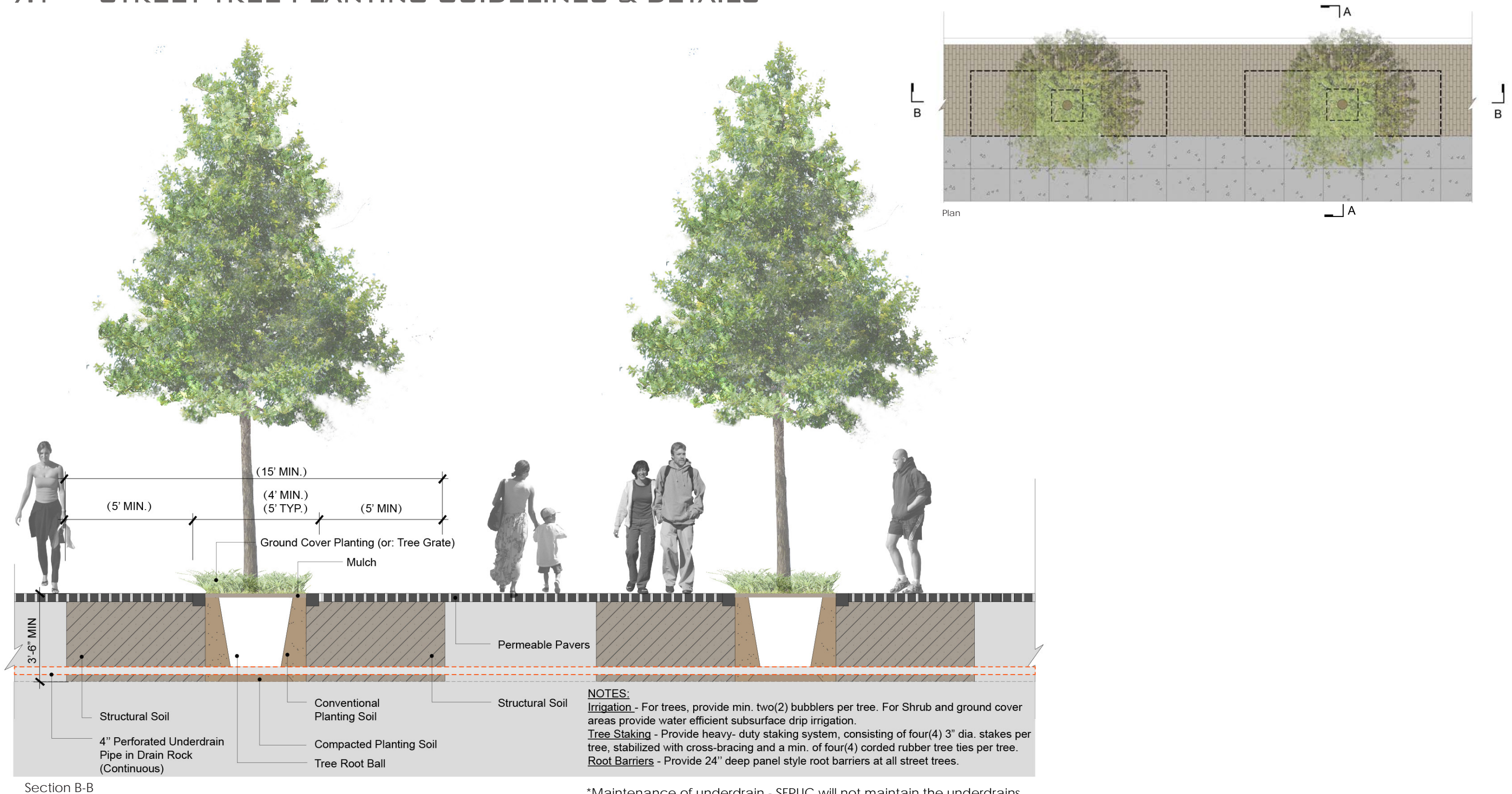
Compatibility with Stormwater Treatment & Bioswales: This planting condition is generally not compatible with stormwater management improvements such as bioswales or flow-through biofiltration facilities. For this reason at commercial/retail streets, centralized treatment facilities are proposed.

Figure 7.3 – Street Tree Planting Condition 2: Street Trees in Tree Wells



7. DETAILS

7.1 STREET TREE PLANTING GUIDELINES & DETAILS



7. DETAILS

7.2 PLANT MATERIALS PALETTE

Street Trees

The following trees are adapted to tough urban conditions, and are tolerant of wind and fog, poor soils and bayfront/coastal conditions. Most are also recommended for San Francisco’s streets by the SFPDW and the Friends of the Urban Forest.

SCIENTIFIC NAME	COMMON NAME
Aesculus x carnea	Ruby Red Horsechestnut
Arbutus x ‘Marina’	Marina Strawberry Tree**
Arbutus unedo	Strawberry Tree
Betula jacquemontii	Himalayan Birch
Callistemon viminalis	Weeping Bottlebrush**
Cupaniopsis anacardioides	Carrotwood
Cupressus macrocarpa	Monterey Cypress**
Eriobotrya deflexa	Bronze Loquat
Eucalyptus cinerea	Argyle Apple
Eucalyptus citriodora	Lemon-Scented Gum
Eucalyptus ficifolia	Red Gum**
Eucalyptus leucoxylon	White Ironbark
Eucalyptus maculata	Spotted Gum**
Eucalyptus microtheca	Coolibah Gum
Eucalyptus nicholii	Willow-Leafed Peppermint**
Eucalyptus polyanthemus	Silver Dollar Gum
Eucalyptus rudis	Swamp Gum
Fraxinus americana	White Ash
Fraxinus latifolia	Oregon Ash
Geijira parviflora	Australian Willow**
Ginkgo biloba ‘Autumn Gold’	Autumn Gold Maidenhair Tree**
Ginkgo biloba ‘Princeton Sentry’	Columnar Maidenhair Tree **
Koelreuteria paniculata	Golden Rain Tree**
Laurus nobilis ‘Saratoga’	Bay Laurel
Lagunaria patersonia	Primrose Tree
Liquidambar styraciflua ‘Festival’	American Sweetgum**
Liquidambar styra. ‘Rotundiloba’	Friutless Sweetgum **
Lophostemon confertus	Brisbane Box**
Lyonothamnus floribundus asplenifolius	Catalina Ironwood**
Magnolia grandiflora ‘Samuel Sommers’	Southern Magnolia**
Magnolia grandiflora ‘Little Gem’	Dwarf Southern Magnolia

SCIENTIFIC NAME	COMMON NAME
Melaleuca linariifolia	Flaxleaf Paperbark
Melaleuca quinquenervia	Cajeput Tree**
Metrosideros excelsus	New Zealand Christmas Tree**
Olea europea ‘Swan Hill’	Fruitless European Olive**
Pinus canariensis	Canary Island Pine**
Pinus contorta	Shore Pine
Pinus pinea	Italian Stone Pine**
Pinus torreyana	Torrey Pine
Pistacia chinensis	Chinese Pistache**
Pittosporum undulatum	Victorian Box**
Platanus acerifolia ‘Bloodgood’	Bloodgood London Plane Tree
Platanus acerifolia ‘Columbia’	Columbia London Plane Tree
Podocarpus gracilior	Fern Pine**
Prunus cerasifera ‘Krauter Vesuvius’	Purpleleaf Plum**
Prunus serrulata ‘Kwanzan’	Kwanzan Flowering Cherry
Pyrus calleryana ‘Chanticleer’	Chanticleer Flowering Pear**
Pyrus calleryana ‘New Bradford’	New Bradford Flowering Pear**
Quercus ilex	Holly Oak
Quercus virginiana	Southern Live Oak
Rhus lancea	African Sumac
Sequoia sempervirens var.	Coast Redwood**
Sophora japonica	Chinese Scholar Tree
Tristania laurina ‘Elegant’	Little Leaf Tristania
Ulmus x ‘Frontier’	Frontier Elm
Ulmus parvifolia ‘Emer II’	Allee Chinese Elm**
Ulmus parvifolia ‘Drake’	Chinese Evergreen Elm**

** = First tier street tree recommendation

7. DETAILS

7.2 PLANT MATERIALS PALETTE

Trees For Park Areas

The following trees are larger in scale, are coniferous evergreens, have unique form or foliage, are adapted to the project’s site conditions and are suitable for use in park sites and other larger open space areas.

Aesculus x carnea	Ruby Red Horsechestnut
Casuarina stricta	Drooping She-Oak
Cedrus deodara	Deodar Cedar
Cupressus macrocarpa	Monterey Cypress
Eucalyptus citriodora	Lemon-Scented Gum
Eucalyptus ficifolia	Red Gum
Eucalyptus leucoxylon	White Ironbark
Eucalyptus maculata	Spotted Gum
Eucalyptus microtheca	Coolibah Gum
Eucalyptus nicholii	Willow-Leafed Peppermint
Eucalyptus polyanthemus	Silver Dollar Gum
Eucalyptus rudis	Swamp Gum
Eucalyptus saligna	Sydney Blue Gum
Phoenix canariensis	Canary Island Date Palm
Pinus canariensis	Canary Island Pine
Pinus contorta	Shore Pine
Pinus pinea	Italian Stone Pine
Pinus torreyana	Torrey Pine
Platanus acerifolia ‘Bloodgood’	Bloodgood London Plane Tree
Platanus acerifolia ‘Columbia’	Columbia London Plane Tree
Platanus racemosa	California Sycamore
Populus fremontii ‘Nevada Male’	Fremont Cottonwood
Populus nigra ‘Afghanica’	Theves Poplar
Quercus agrifolia	Coast Live Oak
Quercus ilex	Holly Oak
Schinus molle	California Pepper
Sequoia sempervirens var.	Coast Redwood
Washingtonia robusta	Mexican Fan Palm

7. DETAILS

7.2 PLANT MATERIALS PALETTE

Understory Plantings

The following plant palette represents a mix of locally-adapted, Mediterranean plants, succulents from various arid climates and native California plants noted for their interesting form, flower, and/or foliage. These plants are well-adapted to local San Francisco microclimates and most are also recommended for sidewalk landscaping by the SFDPW’s Division of Urban Forestry.

SCIENTIFIC NAME	COMMON NAME	SCIENTIFIC NAME	COMMON NAME
Acanthus mollis	Bear’s Breeches	Echium fastuosum	Pride of Madiera
Achillea filipendulina	Fernleaf Yellow	Elymus magellanicus	Blue Wheatgrass, Magellan Wheatgrass
Achillea millefolium var.	Common Yarrow	Erigeron glaucus	Beach Aster
Aeonium arboretum var.	Tree Aeonium	Erigeron karvinskianus	Santa Barbara Daisy
Aeonium decorum ‘Sunburst’	Sunburst Aeonium	Eriogonum fasciculatum	California Buckwheat
Agave attenuata ‘Nova’	Foxtail Agave	Escallonia ‘Newport Dwarf’	Dwarf Ecallonia
Agapanthus dwarf hybrids	Dwarf Lily-of-the-Nile	Eschscholzia californica	California Poppy
Agave attenuata ‘Nova’	Dwarf Foxtail Agave	Equisetum hyemale	Horsetail
Anigozanthos hybrids	Kangaroo Paw	Erigeron karvinskianus	Santa Barbara Daisy
Anemone x hybrida	Japanese Anemone	Euphorbia characias wulfenii	Euphorbia var.
Arctostaphylos ‘Emerald Carpet’	Groundcover Manzanita	Festuca californica	California Fescue
Arctostaphylos uva ursi	Radiant Bearberry	Festuca glauca ‘Siskiyou Blue’	Blue Fescue var.
Armeria maritima	Sea Thrift / Sea Pink	Festuca glauca	Common Blue Fescue
Artemisia ‘Powis Castle’	Silver Sage	Ficus pumila	Creeping Fig
Baccharis pilularis’ Twin Peaks’	Dwarf Coyote Brush	Fragaria chiloensis	Sand Strawberry
Calamagrotis nutkaenis	Pacific Reed Grass	Graptoperia ‘Debbie’	Graptoperia
Ceanothus gloriosus	Point Reyes Ceanothus	Helleborus foetidus	Bear’s Foot Hellebore
Ceanothus griseus horizontalis	Carmel Creeper	Helleborus orientalis	Lenten Rose
Ceanothus g.h. ‘Yankee Point’	Yankee Point Ceanothus	Hemerocallis var.	Daylily varieties
Ceanothus thyrsiflorus repens	Low Blue Blossom	Heuchera maxima var.	Island Alum Root
Chondropetalum tectorum	Dwarf Cape Rush	Heuchera micrantha	Coral Bells
Cistus salvifolius ‘Prostratus’	Sageleaf Rockrose	Iris douglasii var.	Pacific Coast Hybrid Iris
Clivia miniata hybrids	Clivia- Yellow Hybrids	Jasminum polyanthum	Pink Jasmine
Coleonema pulchrum	Pink Breath of Heaven	Kniphofia uvaria ‘Dwarf Yellow’	Yellow Poker
Coprosma ‘Verde Vista’	Verde Vista Coprosma	Knifphofia galpini	Orange Flame
Correa ‘Dusky Bells’	Pink Australian Fuschia	Lavandula stoechas ‘Otto Quast’	Spanish Lavender
Correa ‘Ivory Bells’	White Australian Fuschia	Lavandula dentata ‘Candicans’	French Lavender
Cycas revoluta	Sago Palm	Lavandula x intermedia ‘Grosso’	Fat Bud French Lavender
Dicksonia antartica	Tasmanian Tree Fern	Limonium perezii	Sea Lavender
Delosperma cooperi	Hardy Iceplant	Loropetalum chinensis	Chinese Fringe Flower
Dietes bicolor	Fortnight Lily	Mahonia repens	Creeping Oregon Grape
Dietes iridioides	African Iris	Miscanthus ‘Morning Light’	Morning Light Silver Grass
Dodonea viscosa ‘Pupurea’	Purple Hopseed Bush	Muhlenbergia rigens	Deergass
Echeveria agavoides	Hens and Chicks	Myoporum parvifolium var.	Ground Cover Myoporum

7. DETAILS

7.2 PLANT MATERIALS PALETTE

Biofiltration / L.I.D. Understory Plantings

The following understory (shrub, ground cover & perennial) plantings are adapted to wetter circumstances and seasonal inundation conditions associated with biofiltration and storm water management areas. Most are also recommended for low impact design (L.I.D.) by the San Francisco Public Utility Commission’s (SFPUC’s) San Francisco Stormwater Design Guidelines.

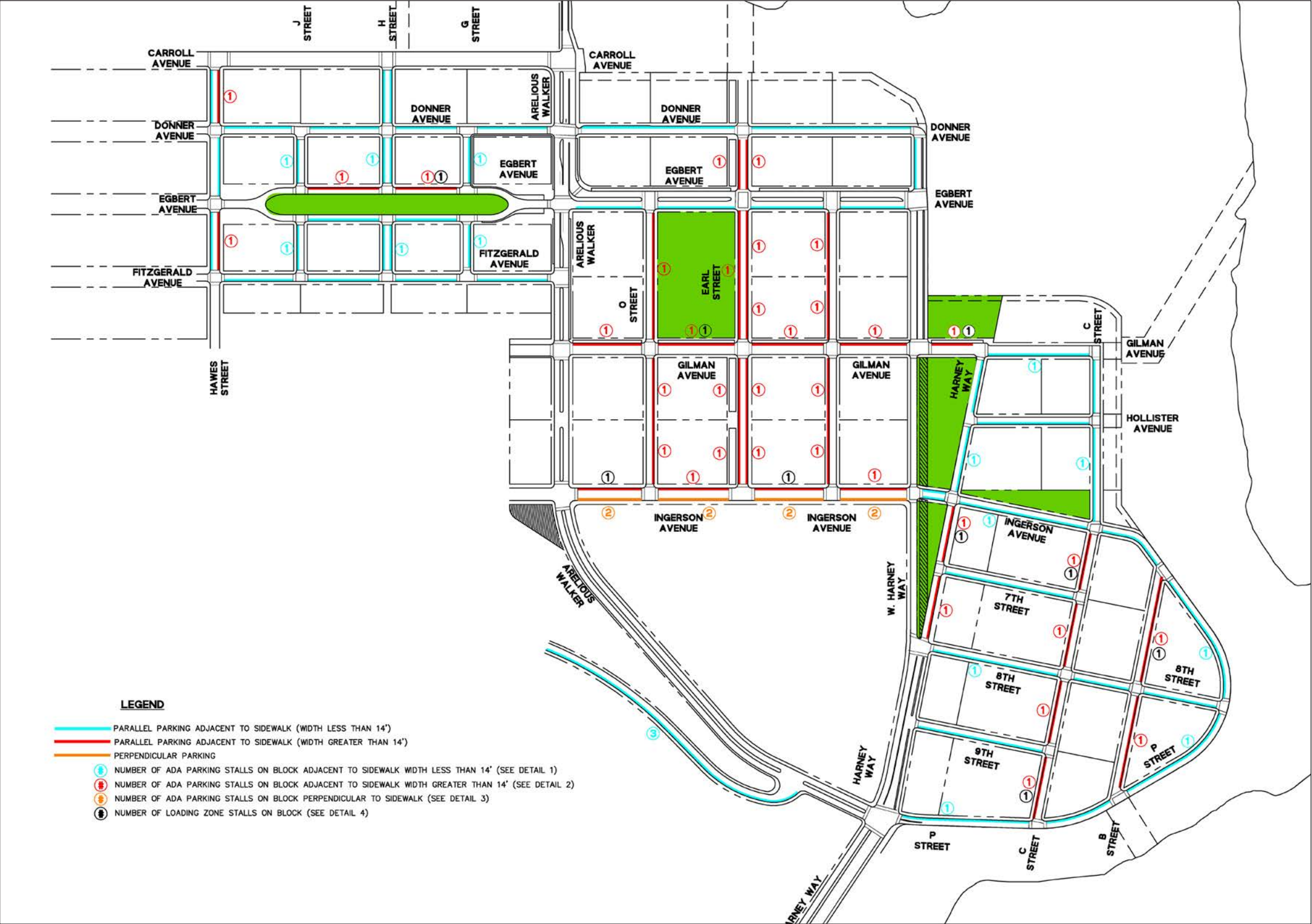
SCIENTIFIC NAME	COMMON NAME
Myrtus communis ‘Compacta’	Dwarf Myrtle
Nandina domestica ‘Fire Power’	Dwarf Heavenly Bamboo
Nandina domestica ‘Harbor Dwarf’	Dwarf Heavenly Bamboo
Nassella pulchra	Purple Needlegrass
Nepeta x faassenii	Ornamental Catmint
Olea europea ‘Montra’	Little Ollie Dwarf Olive
Ophiopogon japonicus	Mondo Grass
Osteospermum fruticosum	Trailing African Daisy
Pennisetum ‘Eaton Canyon’	Dwarf Red Fountain Grass
Penstemon heterophyllus var.	Penstemon varieties
Phormium tenax hybrids	New Zealand Flax (dwarf varieties)
Pittosporum crassifolium	Karo
Pittosporum tobira ‘Variegata’	Variegated Tobira
Pittosporum tobira ‘Wheelers Dwarf’	Wheelers Dwarf Tobira
Polystichum munitum	Western Sword Fern
Rhamnus californica ‘Seaview’	Dwarf Coffeeberry
Rosmarinus officianalis var.	Rosemary var.
Rubus pentalobus	Creeping Bramble
Salvia clevelandii	Cleveland Sage
Salvia gregii	Autumn Sage
Salvia leucantha	Mexican Sage
Salvia sonomensis	Creeping Sage
Santonlina chamaecyparissus	Lavender Cotton
Senecio cineraria	Dusty Miller
Senecio serpens	Blue Chalksticks
Seslaria autumnalis	Autumn Moor Grass
Sollya heterophylla	Australian Bluebell Creeper
Stipa tenuissima	Mexican Feather Grass
Symphoricarpus albus	Common Snowberry
Tibouchina urvilleana	Princess Flower
Teucrium chamaedrys	Wall Germander
Teucrium fruticans ‘Compactum’	Bush Germander
Tulbaghia violacea ‘Silver Lace’	Variegated Society Garlic

SCIENTIFIC NAME	COMMON NAME
Baumea rubiginosa	Striped Rush
Bouteloua dactyloides	Buffalo Grass
Calamagrostis nutkaensis	Pacific Reedgrass
Carex comosa	Bristly Sedge; Longhair Sedge
Carex densa	Dense Sedge
Carex tumulicola	Berkeley Sedge
Chondropetalum tectorum	Dwarf Cape Rush
Distichlis spicata	Salt Grass
Elymus glaucus	Blue Wild Rye
Epilobium canum spp. Canum	California Fuchsia
Equisetum hyemale	Scourgrush Horsetail
Erigeron glaucus	Seaside Daisy
Festuca idahoensis	Idaho Fescue
Festuca rubra	Red Fescue
Fragaria chiloensis	Sand Strawberry
Fragaria vesca	Mountain Strawberry
Juncus effusus	Pacific Rush
Juncus leseurii	Common Rush
Juncus patens	California Grey Rush
Juncus xiphiodes	Irisleaf Rush
Mimulus aurantiacus	Sticky Monkeyflower
Mimulus guttatus	Creek Monkeyflower
Miscanthus sinensis ‘Morning Light’	Morning Light Silver Grass
Muhlenbergia rigens	Deergrass
Nassella pulchra	Purple Needlegrass
Polystichum munitum	Western Sword Fern
Rhamnus californica ‘Seaview’	Dwarf Coffeeberry
Seslaria autumnalis	Autumn Moor Grass
Sisyrinchium bellum	Blue-Eyed Grass
Sisyrinchium californicum	Yellow-Eyed Grass
Symphoricarpus albus	Common Snowberry

7. DETAILS

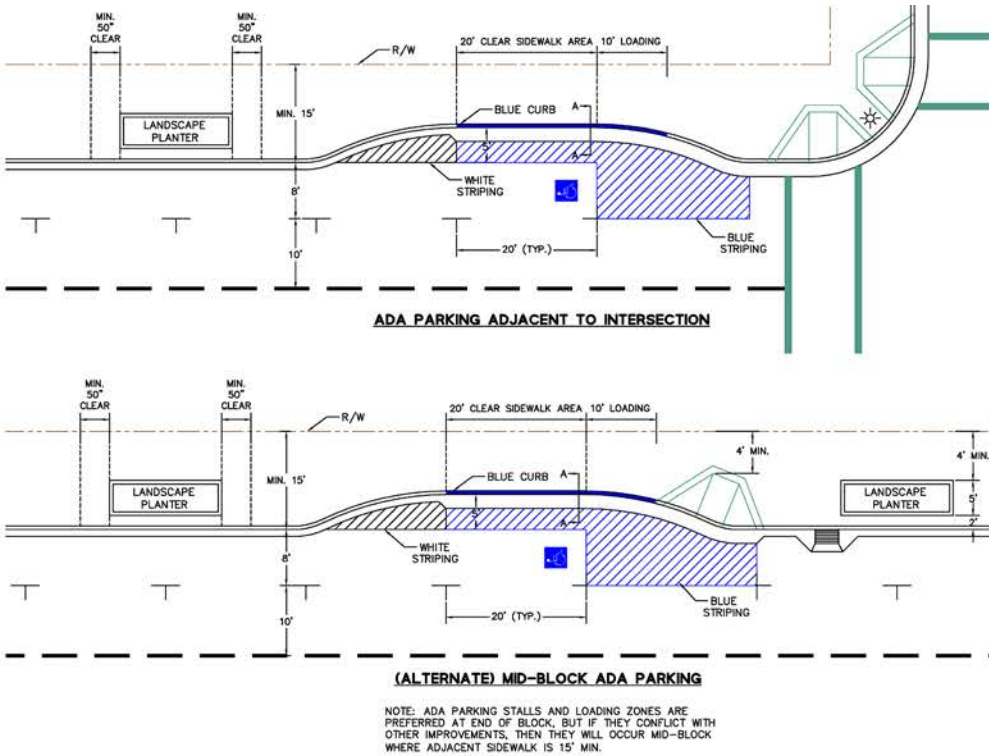
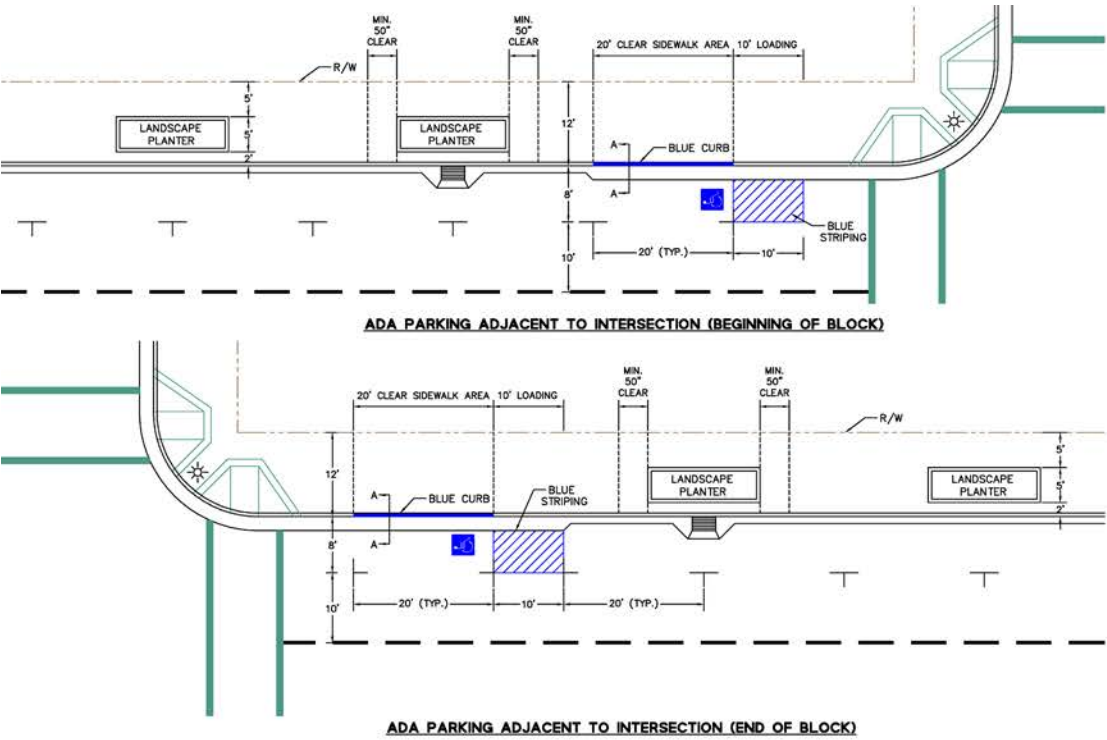
7.3 DISABLED PARKING AND LOADING DETAILS

Disable parking stalls and Passenger Loading Zones will be located on the public streets throughout the project. The number of disabled stalls and passenger loading zones within the blocks designated to include these spaces are shown to the right. The typical layout details for the disabled parking and passenger loading zones are shown on the opposite page.

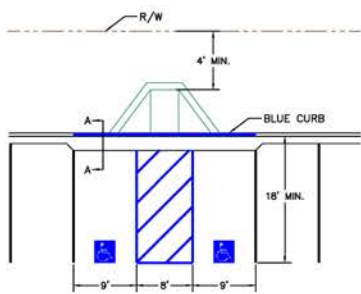


7. DETAILS

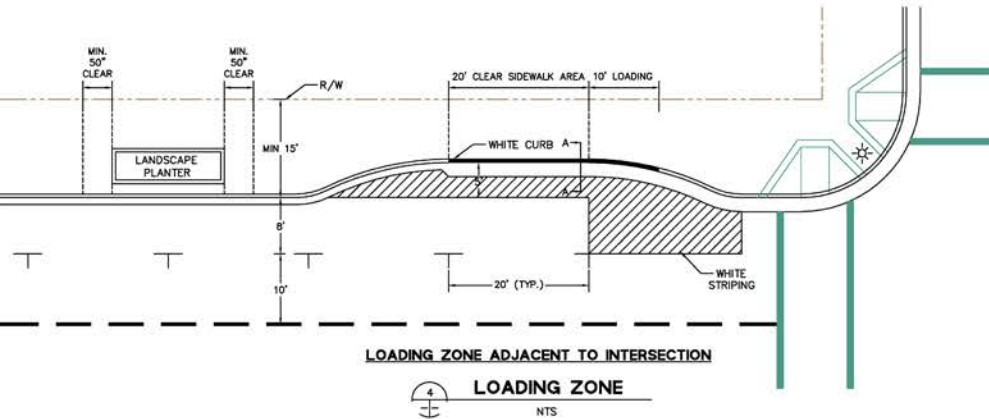
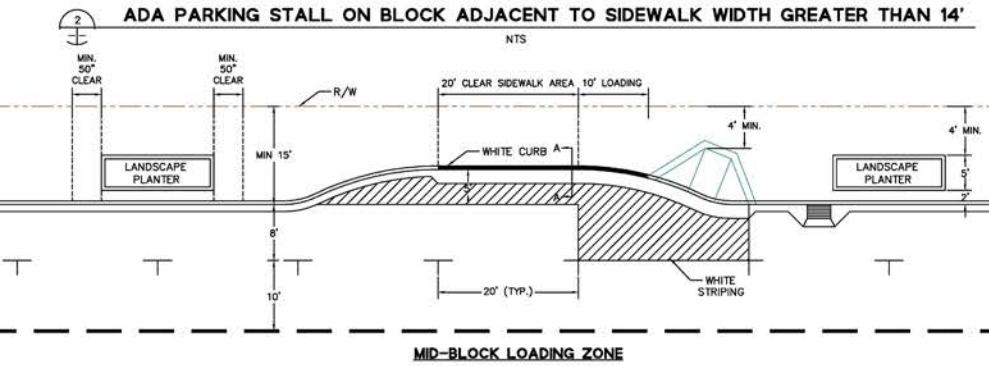
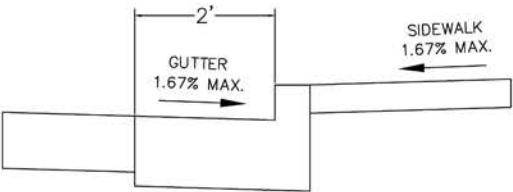
7.3 DISABLED PARKING AND LOADING DETAILS



1 ADA PARKING STALL ON BLOCK ADJACENT TO SIDEWALK WIDTH LESS THAN 14'



3 ADA PARKING STALLS PERPENDICULAR TO SIDEWALK



7. DETAILS

7.4 STREETSCAPE ELEMENT DETAILS

SW Treatment Type 1

Treatment in sidewalks adjacent to parking should be estimated using 4 ft by 16ft. long treatment boxes on average.

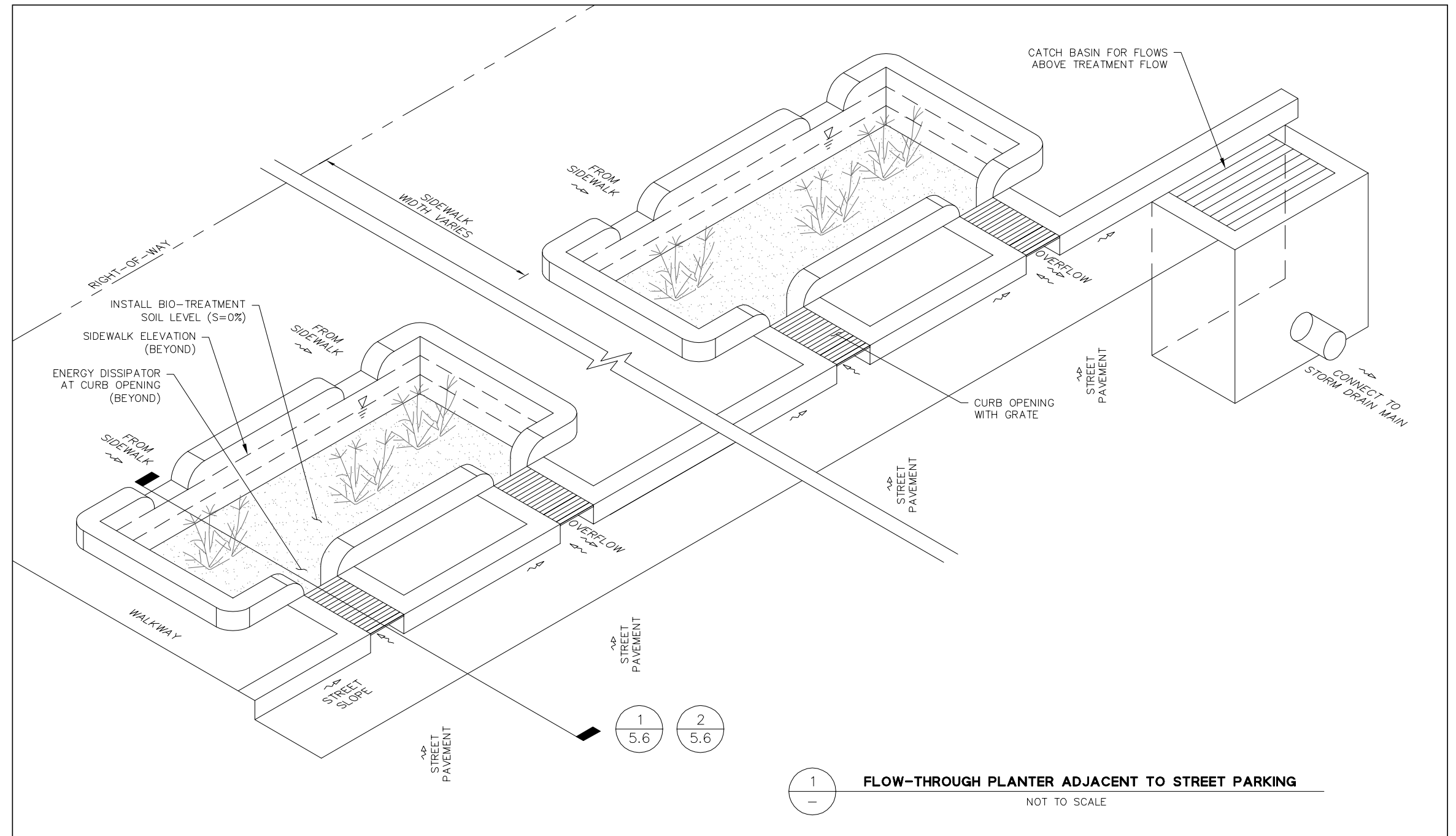


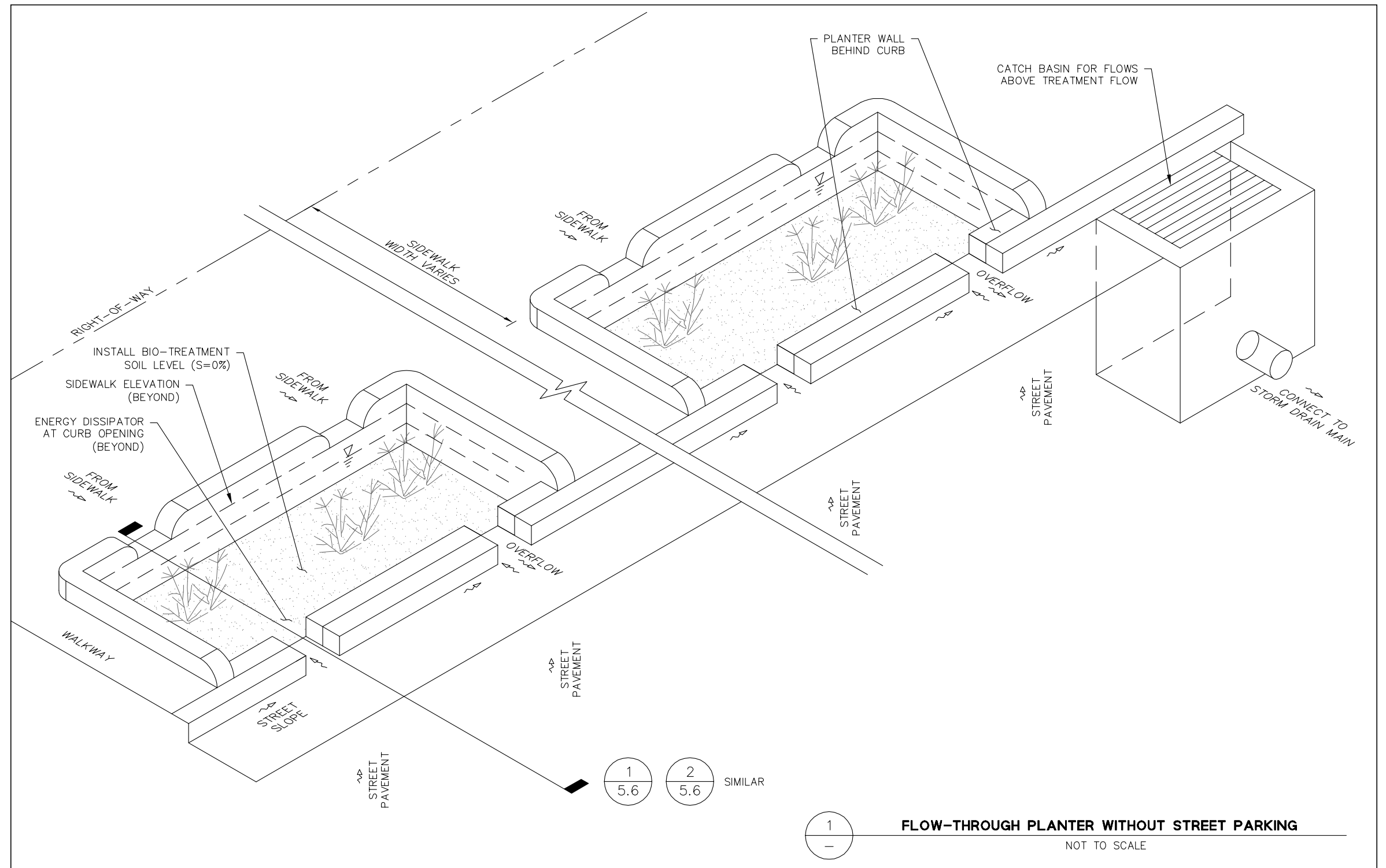
Figure 7.4 – SW Treatment Type 1:
Flow through planter w/ hard edge, adjacent to
street parking 4ft. X 16ft, nts.

7. DETAILS

7.4 STREETSCAPE ELEMENT DETAILS

SW Treatment Type 2

Treatment in sidewalks where parking is not planned can have wider boxes. These are 6 ft. wide by 16 ft. long on average (i.e. 6 ft. of planted width).



7. DETAILS

7.4 STREETSCAPE ELEMENT DETAILS

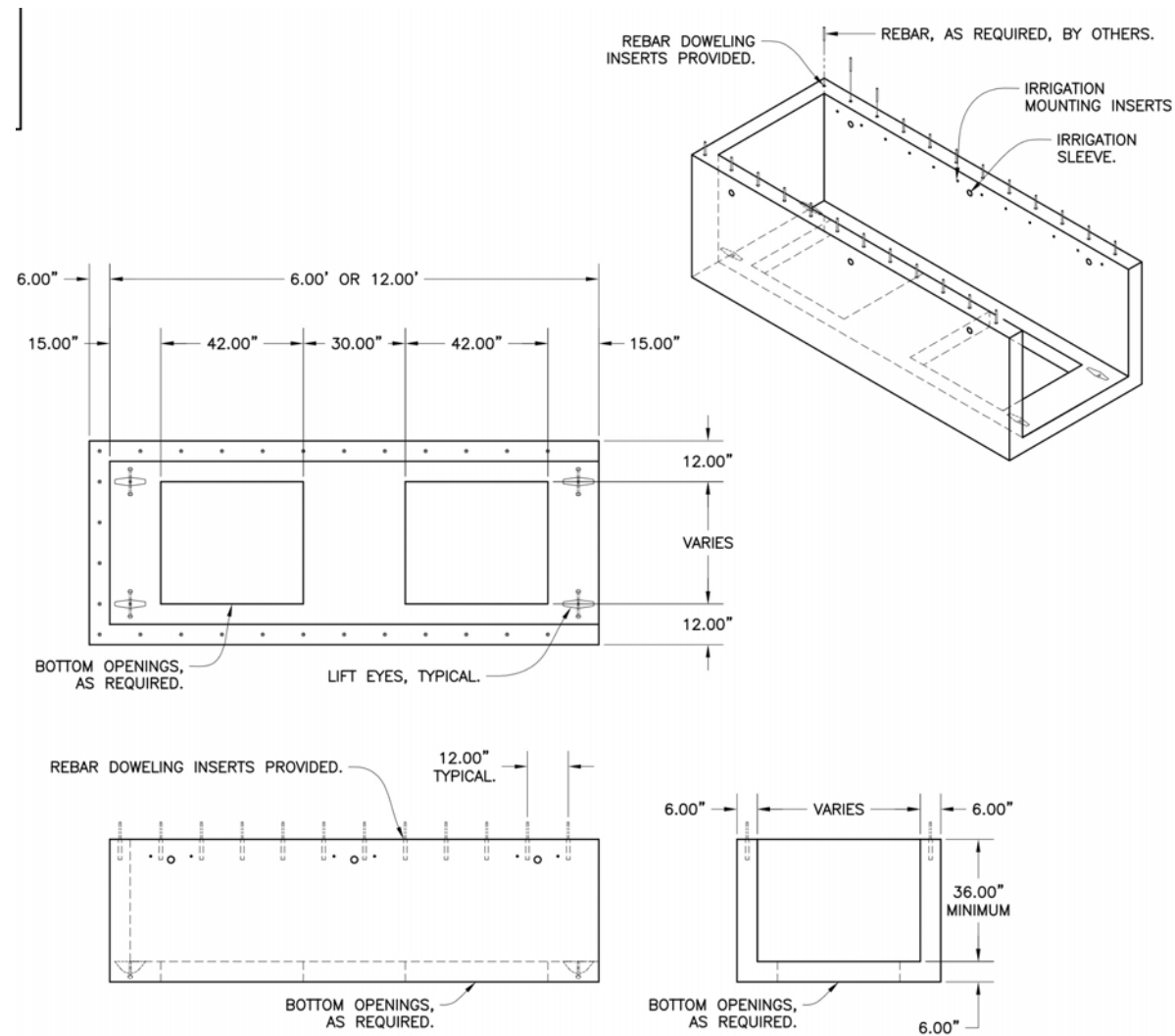


Figure 7.6 – Typical infiltrating flow-through planter, nts

Note: Dimensions shown are examples only. Final dimensions and sizes to be reviewed and approved with the Improvement Plans and Stormwater Control Plans.

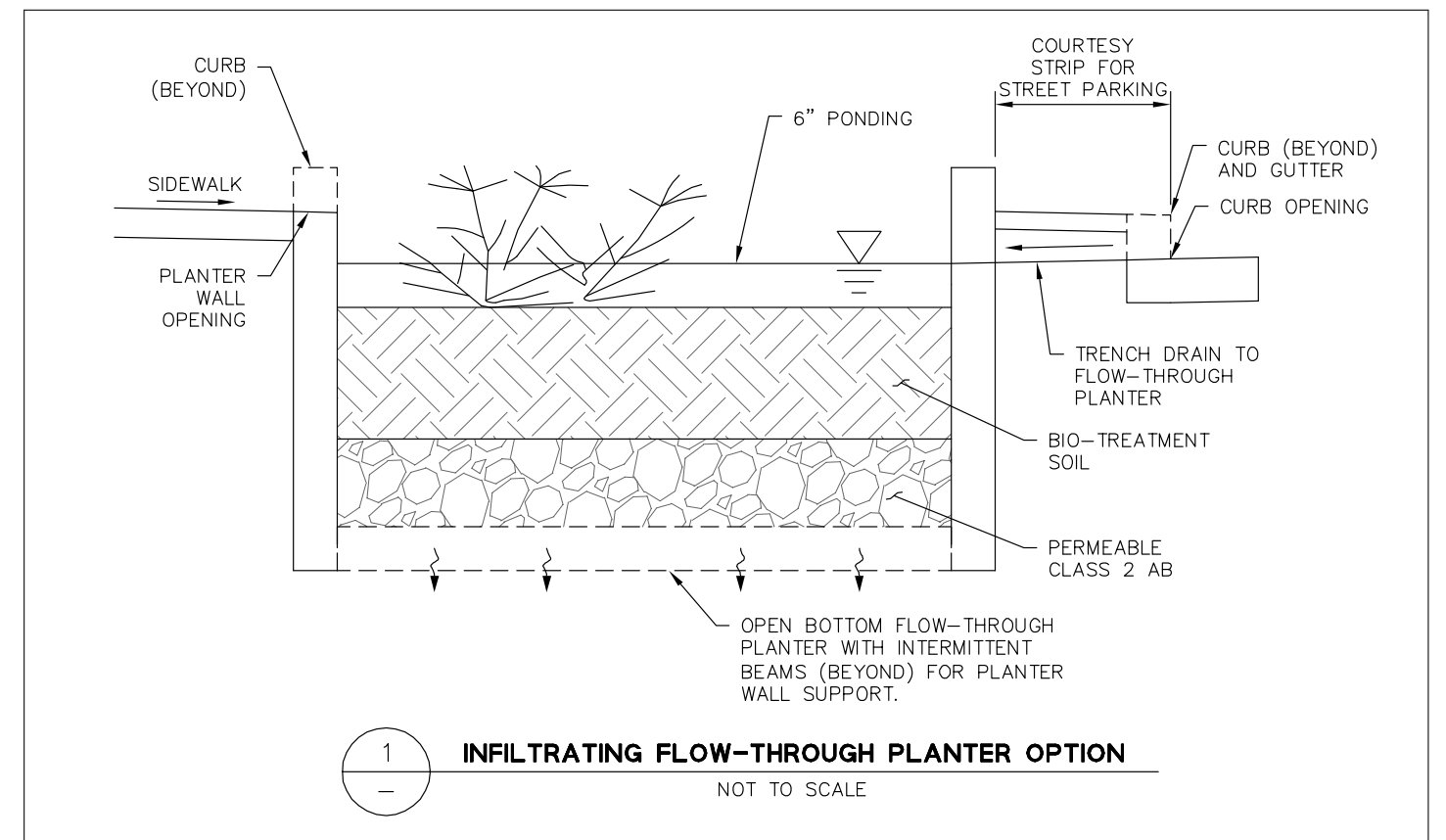


Figure 7.7 – Infiltrating Flow-through planter option for treatment type 1 and 2, nts

7. DETAILS

7.4 STREETSCAPE ELEMENT DETAILS

Details for Potential Custom Furniture

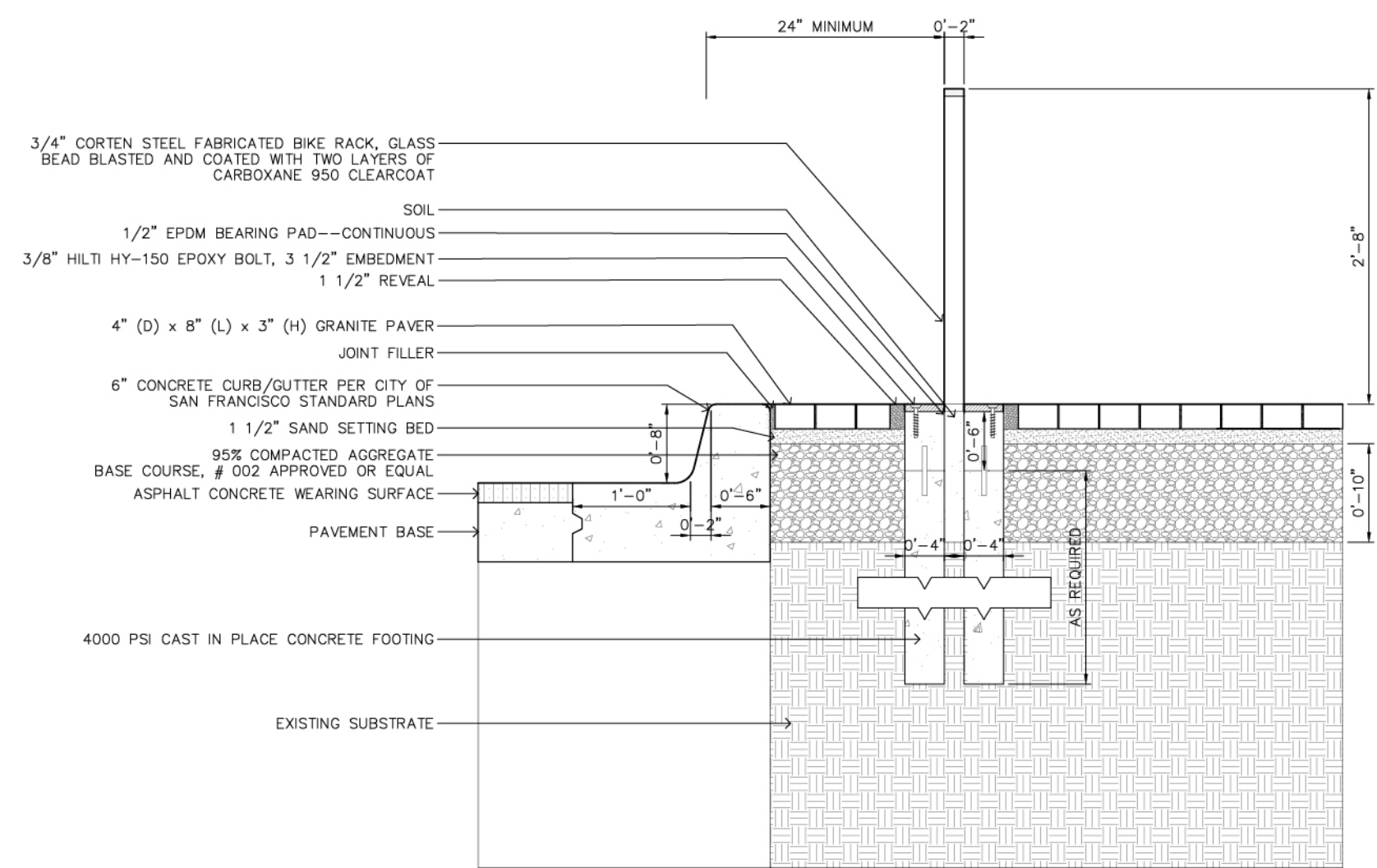


Figure 7.8 – Figure 6.45 – Custom bike rack details, nts

7. DETAILS

7.4 STREETSCAPE ELEMENT DETAILS

Details for Potential Custom Furniture

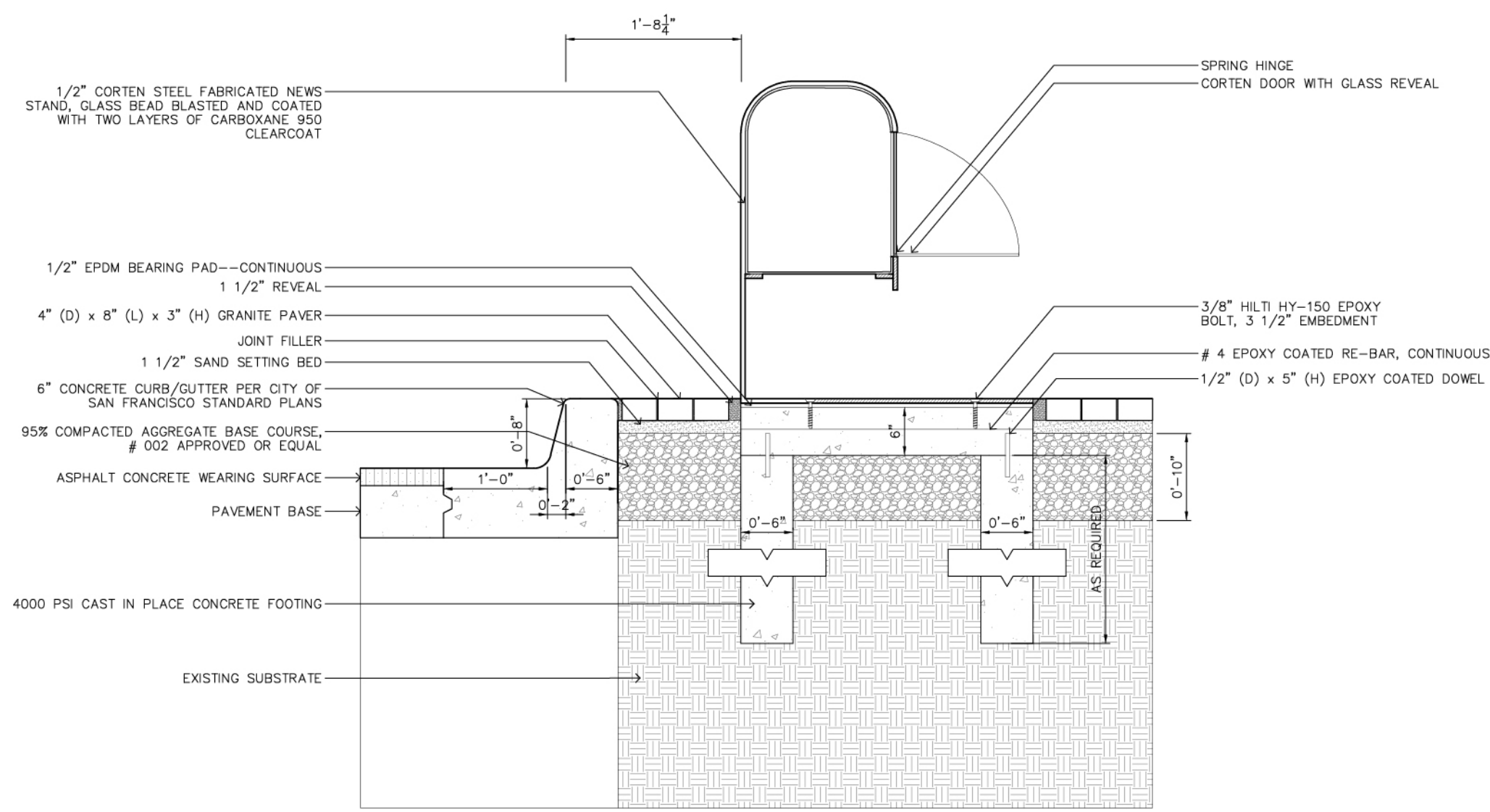


Figure 7.9 – Custom newsrack details, nts

7. DETAILS

7.4 STREETSCAPE ELEMENT DETAILS

Details for Potential Custom Furniture

Figure 7.10 – Automatic pneumatic trash system custom enclosure details, nts

