

Appendix B

Draft India Basin Design Standards and Guidelines

INDIA BASIN

Design Standards and Guidelines
Draft, 14 August 2017



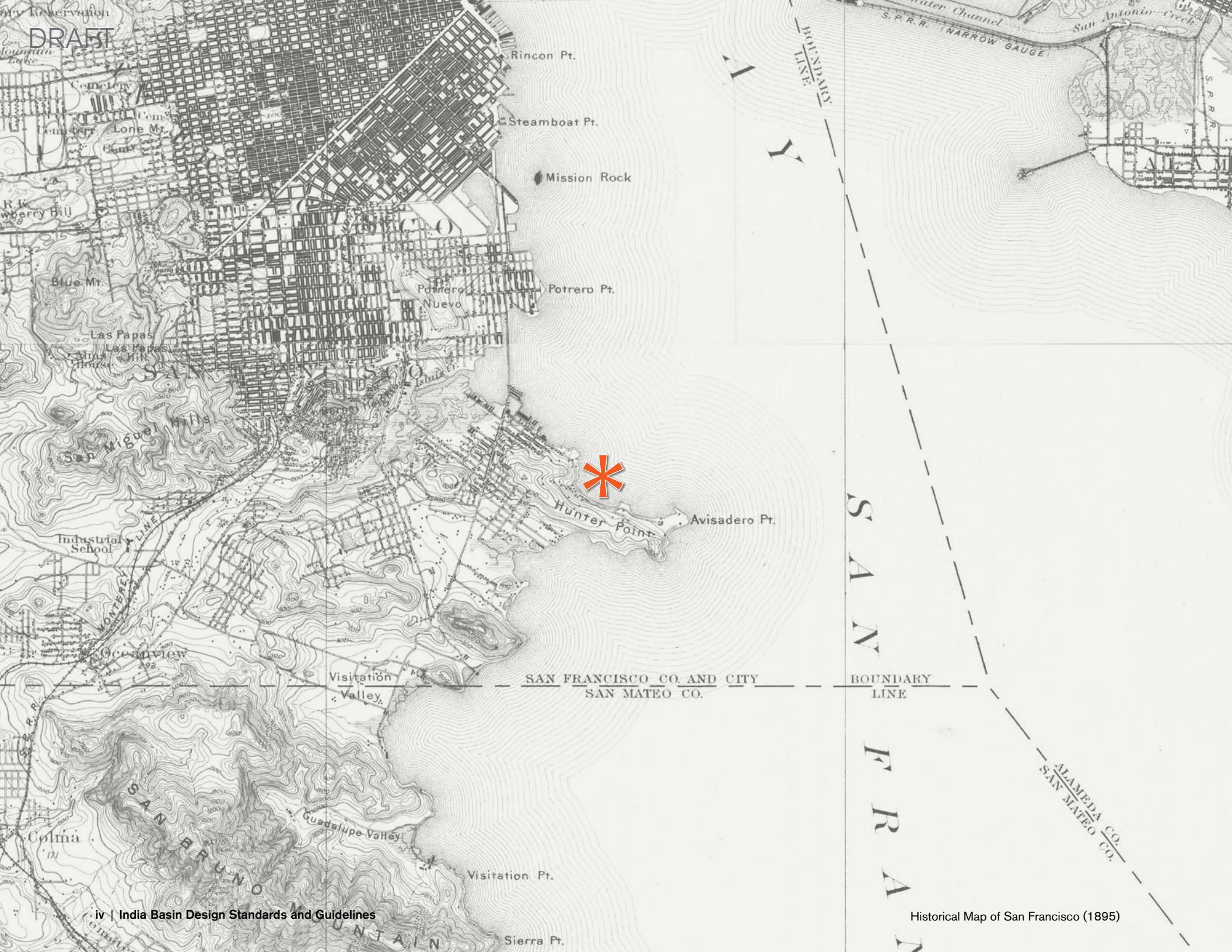
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View of Downtown from Site

INDIA BASIN

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Preface

The India Basin Design Standards and Guidelines (DSG) provides a comprehensive framework for the transformation of the project site into a human-scaled, socially vibrant, amenity-rich, active and distinctive San Francisco neighborhood. The document represents the distillation of the project sponsors' and community's collective values and aspirations – as manifested through urban development – into explicit, actionable, site-specific improvements that will leverage public and private investments to advance local objectives. The DSG, in concert with associated project documents comprise the regulatory construct for project implementation. The family of project documents includes:

- **Environmental Impact Report (EIR)** – fulfills project approval requirements with respect to the California Environmental Quality Act (CEQA), including the documentation of anticipated impacts and the identification of appropriate mitigation measures.
- **Design Standards and Guidelines (DSG)** – describes the project vision and conceptual framework for proposed improvements, and elaborates development controls for the public realm, district sustainability, land use, urban form, architecture, wayfinding and signage. The DSG also summarizes a process for project implementation. For the purposes of this document, the terms 'Standards,' 'Guidelines' and 'Goals' are understood to mean the following:

Standards Mandatory, objective and quantifiable specifications or other requirements applicable to the Project. Modifications to Standards require formal approval by the Planning Commission.

Guidelines Are specifications or requirements that are inherently subjective and therefore require discretionary interpretation by the Planning Department Staff. Guidelines differ from Standards in that variation from them does not require formal modification by the Planning Commission. Compliance may be evaluated, and guidelines amended or waived administratively, by Planning Staff.

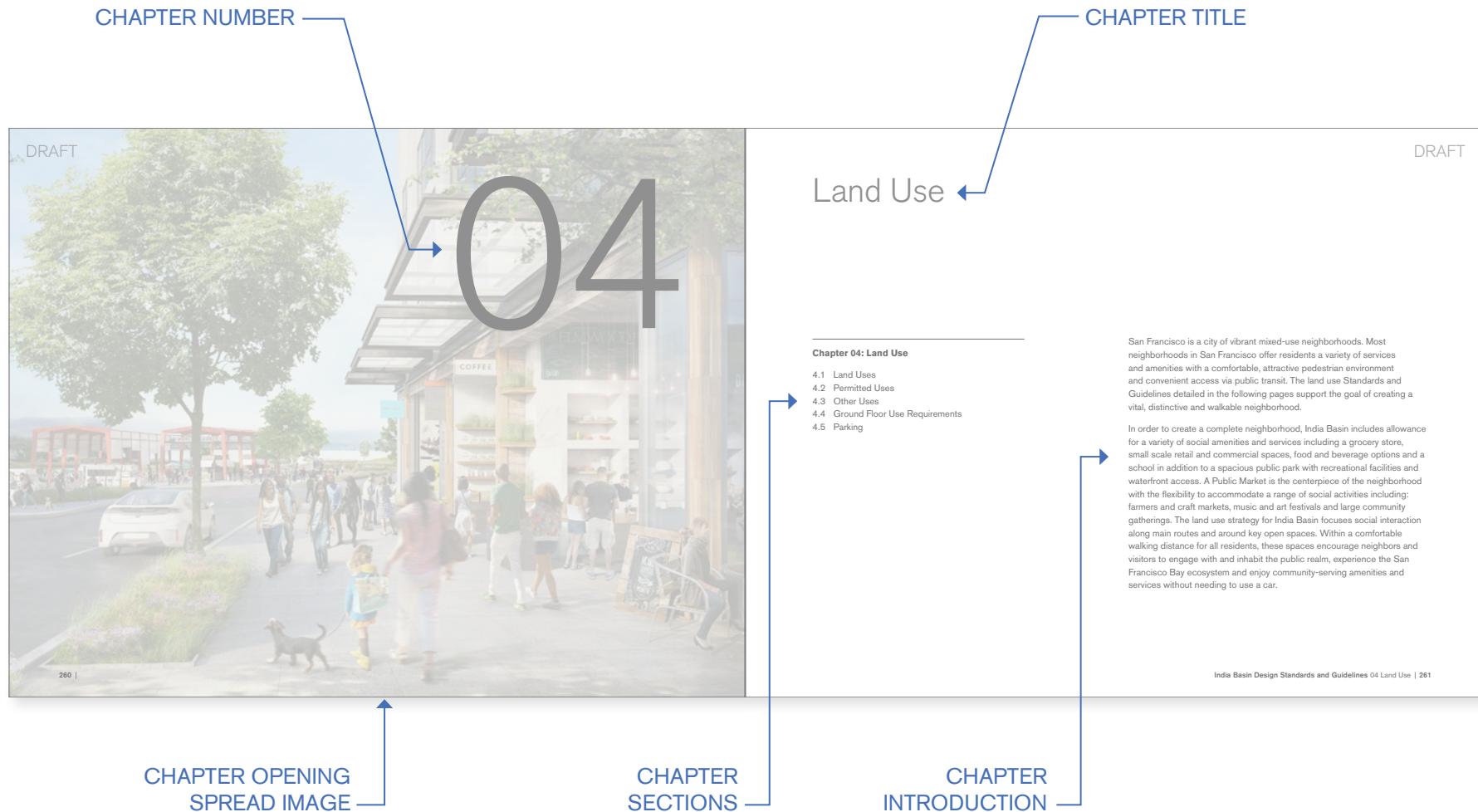
Goals Specifications or components of the project that the sponsors will pursue if financially feasible. Goals are ultimately non-binding and are aspirational.

- **Infrastructure Plan** – the Infrastructure Plan defines the infrastructure required to support implementation of the project.
- **Shoreline Permit Application** – details the specific improvements within the shoreline sub-area of the project including access, recreation, habitat, planting, materials, and adaptation elements submitted to agencies having jurisdiction.
- **Special Use District** – details the location, boundary and conditions of the district to ensure the orderly, efficient and effective development of the India Basin Plan Area.
- **Development Agreement** – details the terms of agreement between the project sponsor and the City and County of San Francisco for development in compliance with these Design Standards and Guidelines and with applicable regulatory statutes.

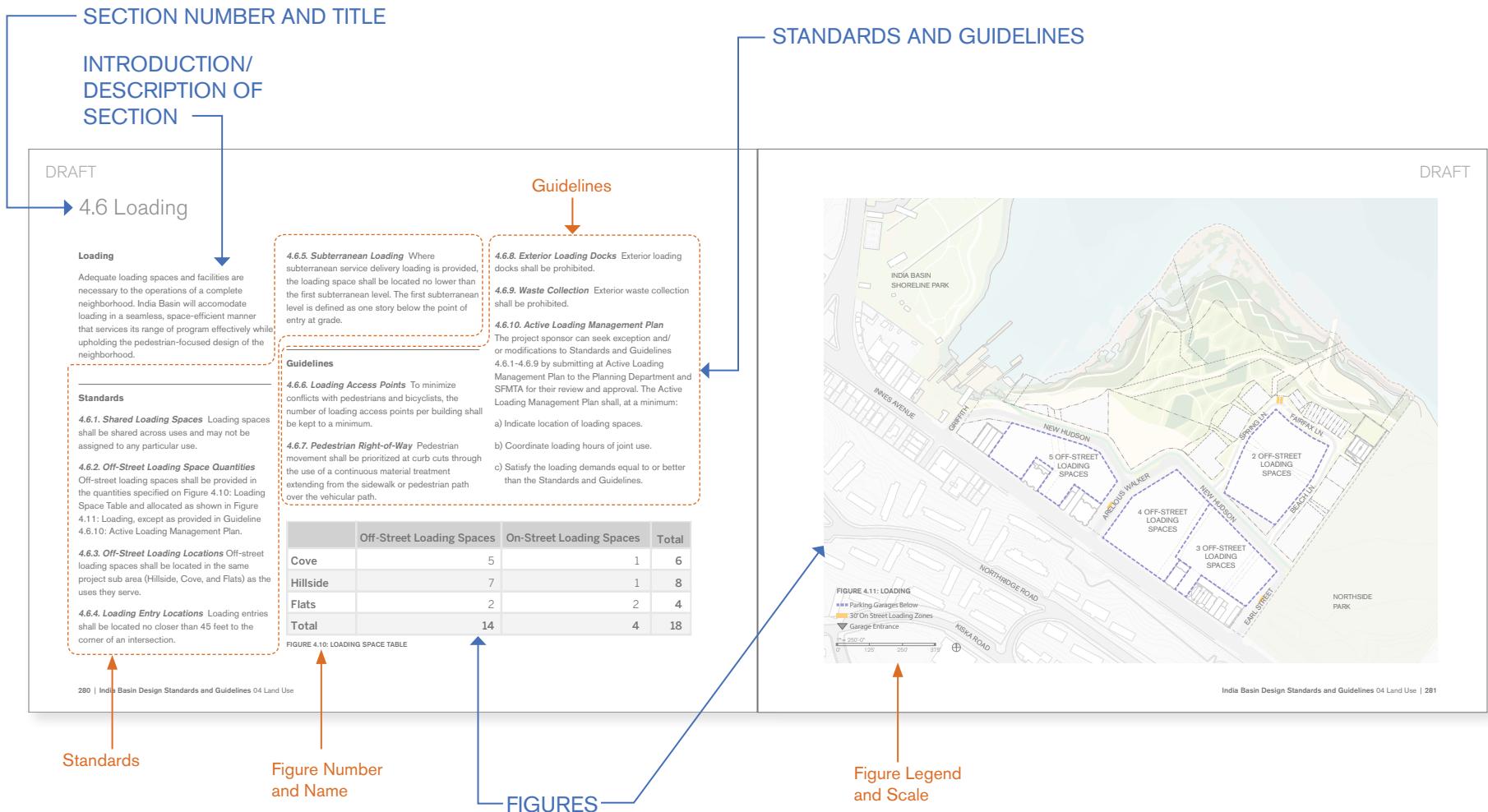
The vision for India Basin has been developed through a collaborative process, with input from community members, local agencies and departments, public advocacy organizations and design and engineering experts. The Design Standards and Guidelines are a mechanism to realize this vision, building on substantial prior and parallel planning efforts including the India Basin Transportation Action Plan, the India Basin Waterfront Parks and Trails Vision Plan, the Blue Greenway Plan, the India Basin Shoreline Subarea Plan, and the India Basin Neighborhood Association's Shoreline Community Vision, among others.

User Guide

TITLE SPREAD LAYOUT



TYPICAL SPREAD





Project Vision

The India Basin project reimagines urbanity as integral with ecology to create a connected, complete and human-scale, urban village that contributes to the surrounding community.

In a once-isolated corner of San Francisco—on reclaimed tidal flats where the City meets the Bay—lies a discreet outcrop; overgrown, tranquil, sublime. Set against a backdrop of sweeping views, traces of human intervention and enduring super-natural process allude to both an abundant ecological inheritance and a robust industrial legacy. Forgotten remoteness, lingering decay and remnants of pioneering improvisation juxtaposed with profound possibility—teetering right at the edge of next. This is India Basin. Wild. Eclectic. Extra-ordinary. A window into both the city's remarkable past and its auspicious future.

The India Basin redevelopment project presents an unparalleled vision for that future. The transformation of primarily vacant land through this multiphase, mixed-use development will create a uniquely pedestrian-first, human-scaled neighborhood where amenities are accessible with a short walk. It reimagines urbanity as integral with ecology to create a connected, complete and human-scale, urban village that contributes to the surrounding community. Beyond a development venture or park expansion, this innovative Public-Private Partnership advances the City's and community's aspirations for housing, jobs, shoreline adaptation, waterfront access, essential recreation space and vital community services.

Design for the India Basin project—and development of these Design Standards and Guidelines—has been guided by the principles listed on the following pages.

Guiding Principles



Active Ground Floor



Public Space



Human Scale Development

Complete the Neighborhood

At present, the India Basin community at large is in need of many of the basic amenities commonly found in San Francisco's walkable neighborhoods. The project connects into and augments the neighborhood by adding a wide range of amenities, public services and recreation options so that the surrounding community can meet basic needs within a 10–15 minute walk. Housing, transportation options and access to open space are expanded as well.

Shape Public Space for Public Life

India Basin's focus on public life compels integration of development with a dynamic open space system; interweaving parks, plazas and gathering places with an extensive pedestrian and bicycle network. Scale and configuration of space are modulated to purpose—from the intimate Town Triangle to the flexible Public Market and expansive waterfront terraces and boardwalks edging the shoreline. Direct and intuitive access to the Big Green and Shoreline enables these signature places to reinforce the regional network of public waterfront parklands.

Craft a Human-Scale Village

Contemporary development often lacks the attention to detail, articulations, subtle nuance and material quality that condition the richness of experience manifest in pre-modern urbanism. The India Basin project emphasizes the calibration of form, size, texture, proportion and articulation of physical elements to the characteristics of human perception. Flexibility is preserved to enable and encourage a variety of architectural responses.



Urban Stormwater Management



Sense of Place



Stewardship

Cultivate a Robust Urban Ecology

India Basin is a dynamic coastal environment with unique hydrology, topography and habitat conditions supportive of a distinctive cross-section of San Francisco Bay ecology. The site presents a rare opportunity to achieve the degree of horizontal and vertical habitat continuity needed to nurture urban biodiversity. Streetscape, understory planting, tree selection, green roofs and other elements work in concert to optimize habitat potential and create habitat niches across the site.

Foster an Authentic Sense of Place

Embodying a commitment to authenticity, the project embraces the storied history and unique physical characteristics of the site—harnessing its idiosyncratic qualities to create a distinctive sense of place. Climate, topography, hydrology, ecology and maritime Industrial heritage are evoked in the design of landscape, open space features, surfacing and material choice, architectural guidelines, and wayfinding to amplify a sense of urban wildness; of the omnipresence of natural processes; of unpolished, ad hoc improvisation; a sense of both temporality and of timelessness.

Grow a Legacy of Stewardship

The India Basin sponsors have made an unparalleled commitment to progressing environmental stewardship and community resilience. Holistic thinking permeates district-wide strategies for water, energy, waste, ecology, habitat creation and shoreline adaptation. Beyond physical development, the project is pioneering an innovative approach for long term community management by creating a new non-profit entity—the India Basin Trust—with responsibility for operations, maintenance, programming, social capacity-building and community resilience.





Completing the Neighborhood

The term Neighborhood Completeness refers to the proximity of residents to daily goods, public services and other basic amenities within a walkable distance. A growing body of evidence suggests that proximity to a critical mass of public and retail services increases the likelihood that residents and workers will walk or bike to access those services—boosting physical activity, enhancing social interactions, and even improving

public health. For example, research has found the presence of a supermarket in a neighborhood predicts higher fruit and vegetable consumption and a reduced prevalence of obesity. In addition, neighborhoods with diverse and mixed uses create closer proximity between residences, employment, and goods and services, thereby reducing vehicle trips and miles traveled and as a result, reducing air and noise pollution.

The Hunter's Point neighborhood—of which the site is a part—currently lacks many of the basic amenities commonly found in San Francisco's walkable communities. The project connects into and completes the neighborhood by adding a wide range of key public and retail services so that the surrounding community can meet basic needs within a 10–15 minute walk. Housing, Transportation, Recreation options and access to open space are expanded as well.

“In a Society becoming steadily more privatized... the public component of our lives is disappearing. It is more and more important to make the cities inviting, so we can meet our fellow citizens face to face and experience directly through our senses. Public life in good quality public spaces is an important part of a democratic life and a full life.”

- Jan Gehl

Public Space for Public Life

The City of San Francisco benefits from an abundance of high-quality public spaces, enjoyable year-round thanks to a famously temperate climate. In contrast, the Southeast Waterfront historically served heavy industrial purposes and therefore lacked many of the public space offerings and recreational facilities that are essential to livable communities. A vital part of completing the India Basin neighborhood is the provision of great public spaces—places for the community to gather, find amusement, relax, learn, and express itself.

Indeed, the project's focus on supporting public life compels integration of development with a vibrant, high-performance public realm; interweaving parks, plazas and gathering places with an extensive network of complete streets, stairs, pathways, trails, pedestrian and bicycle routes. The public realm plays a central role in establishing the character of this new pedestrian-priority neighborhood, providing a wide range of active and passive uses and experiences—from the expansive wilds of the shoreline to the small-scale neighborhood plazas to be discovered between buildings. Public spaces are envisioned to adapt to and support the communities they serve; evolving over time, responding to, and sustaining the dynamism of urban life, while providing the place-based infrastructure for community capacity-building and social resilience.





A Human-Scale Village

As a pedestrian-priority community, India Basin is intended to be experience at a walkable pace. Whereas contemporary development often lacks the qualities that condition the richness of experience manifest in pre-modern urbanism, the India Basin project is designed to foster a more welcoming and comfortable experience of place. This requires the calibration of Form,

Proportion, Articulation, Variation, Modulation, Depth, Materiality, Texture, and Color of physical elements to the speed, range and capabilities of human sensory perception. Detail has been focused on the zone of experience in the public realm—to the open space network, rights of way, lower-floors of development and to the threshold interface between public and private.

Composition of buildings and spaces emphasize diversity with complementarity. Flexibility is preserved to enable and encourage a variety of architectural responses.



A Regional Waterfront Destination

The project is located centrally within a larger network of seven interconnected park sites, which together form a regional-scale waterfront destination. Programming and design of the project's major open space areas – the Big Green and Shoreline – have been carefully coordinated to align with and compliment the India Basin waterfront parks and trails network

as a whole. Together, the Big Green and the Shoreline combine a wide range of healthy active and passive recreational uses, including: play areas, facilities and access for human-powered boating, educational and interpretive resources, public art, hiking and wildlife viewing trails, food and beverage concessions, a Public Market, and a flexible space for events.

01



View of Site from Hillside

Master Plan Framework

Chapter 01: Master Plan Framework

- 1.1 Context
- 1.2 Physical Framework
- 1.3 Placemaking

The India Basin Design Standards and Guidelines (DSG) provides a comprehensive framework for the transformation of the project site into a human-scaled, socially vibrant, amenity-rich, active and distinctive San Francisco neighborhood. The document represents the distillation of the project sponsors' and community's collective values and aspirations—as manifested through urban development—into explicit, actionable, site-specific improvements that will leverage private and public investments to advance local objectives.

This chapter presents the Project Context, Background, Development Concept and overall Structure of proposed improvements. Subsequent chapters detail specific design guidelines and development controls for the Public Realm, District Sustainability, Land Use, Urban Form, Architecture, and Wayfinding and Signage. The document also summarizes the process and regulatory mechanisms for project Implementation.

1.1 Context

San Francisco is booming. The City and surrounding communities have enjoyed several years of strong growth, and the Metro's economy remains vibrant. Employment and wages are on the rise; the City's unemployment rate is among the lowest in the nation; and San Francisco's labor force participation rate is ten-percent higher than the national average. Population growth is at a 40-year high. As San Francisco's dynamic urban environment, quality of life and idyllic climate make the City a highly-attractive locale for both employers and the high-quality talent they seek, the City's innovation-fueled growth continues to draw people from across the country and around the world.

However, this latest economic boom has not been without challenges. Housing supply has failed to keep pace with increased demand. Rents are climbing at a rapid clip. Rising costs of living are contributing to displacement, and a feeling of unease that the city is becoming less diverse and inclusive.

Nevertheless, years of thoughtful planning are leading to positive change in a number of the City's underserved areas. In the midst of this complex milieu, India Basin presents a significant opportunity. With an iconic waterfront setting, stunning views, and close proximity to downtown San Francisco, India Basin is a chance for the City and the Bayview Hunters Point community to expand employment, increase housing options, augment public amenities, improve transit service, and create

a regional-scale waterfront attraction that serves local residents and elevates the profile of the neighborhood. Beyond a development venture or park expansion, this innovative Private-Public Partnership advances the City's and community's aspirations for housing, jobs, shoreline adaptation, waterfront access, essential recreation space and vital community services.

As project co-sponsors, BUILD and the San Francisco Recreation and Parks Department (RPD) propose to redevelop adjacent parcels along the India Basin shoreline of San Francisco Bay. Towards this end, RPD and BUILD have formed a public-private partnership to transform privately owned vacant land and publicly owned but underutilized parkland into a new mixed-use waterfront community connected by a rich network of public parks. The project, detailed in the pages that follow, presents an unparalleled vision of the future—a paradigm shift, reimagining urbanity as integral with ecology to create a connected, complete and resilient village that contributes to the surrounding Bayview Hunters Point community.



View of Downtown from Site

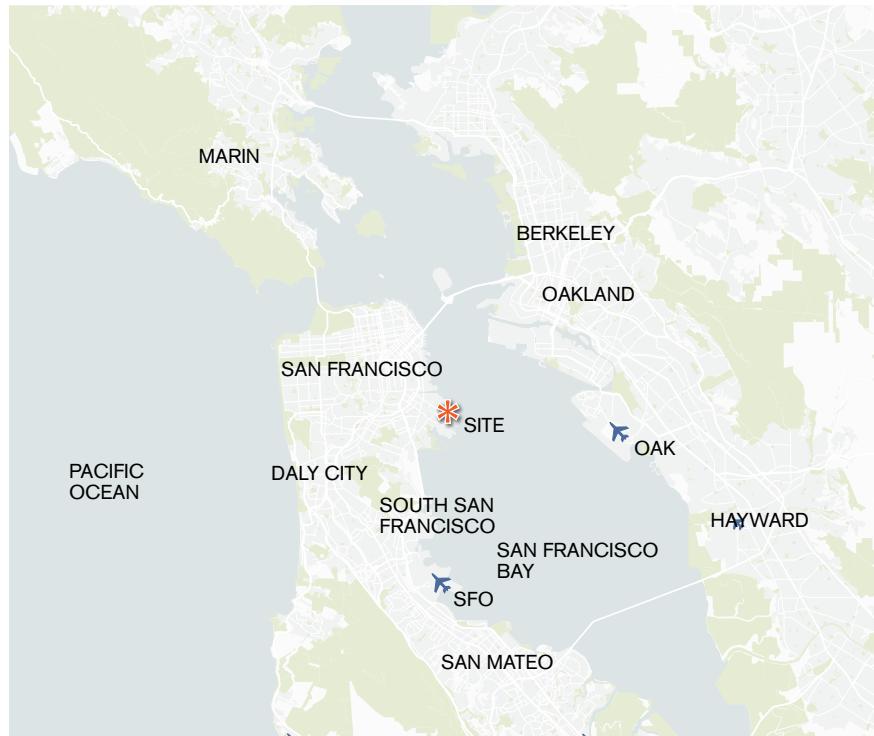


FIGURE 1.01: REGIONAL CONTEXT

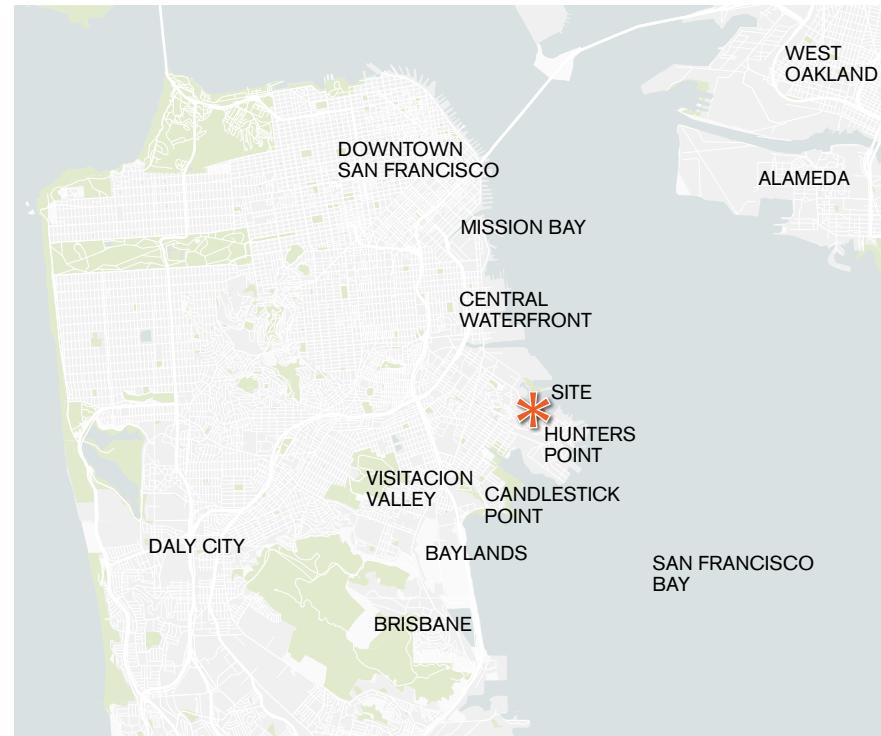
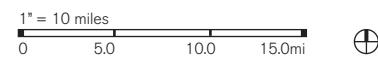
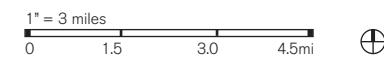


FIGURE 1.02: PROJECT LOCATION

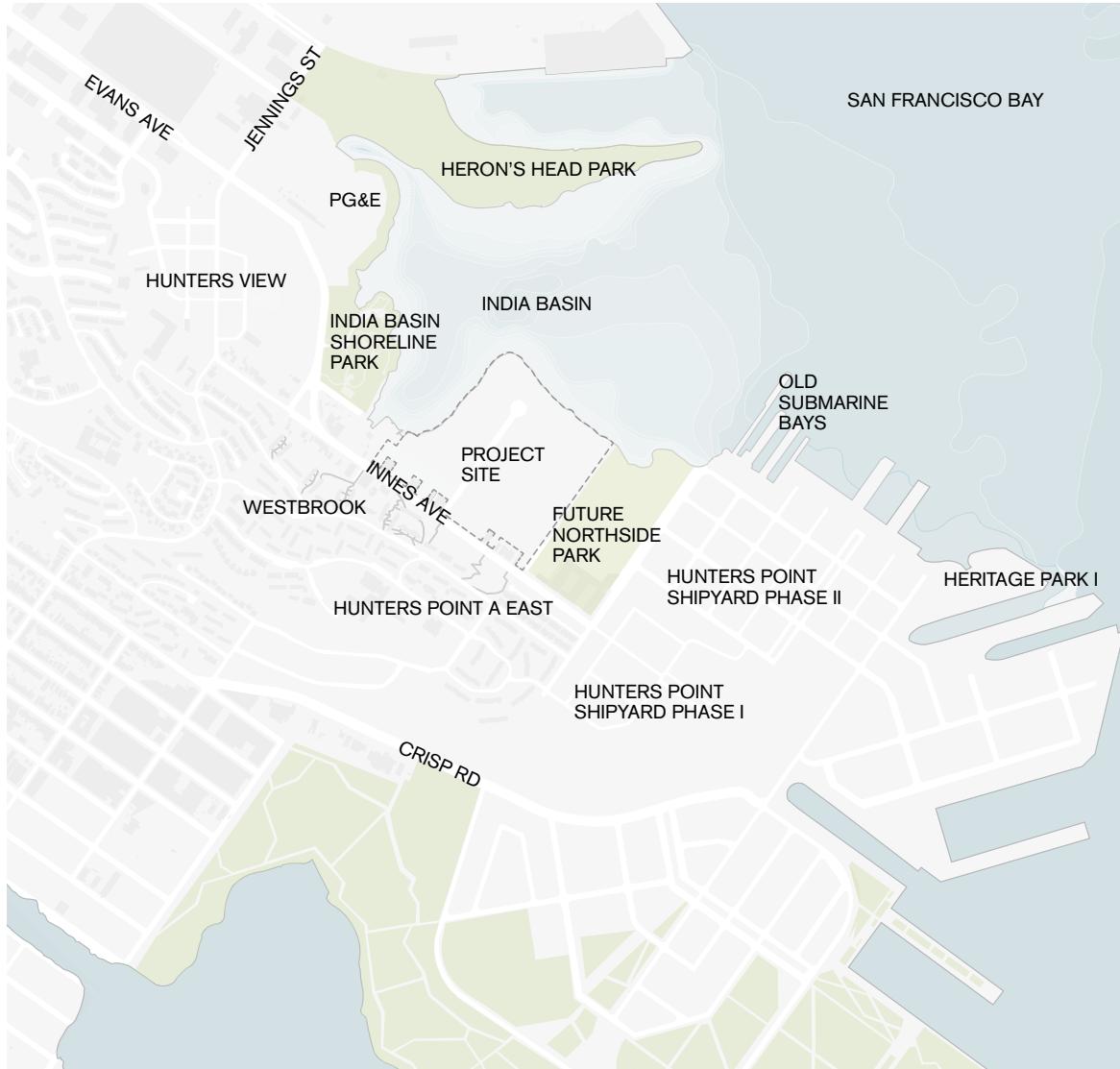


Regional Context

India Basin is located in the south-eastern quadrant of the City of San Francisco, at the heart of the Bay Area. The larger Bayview Hunters Point neighborhood—of which India Basin is part—enjoys ready access to downtown San Francisco, Oakland and San Francisco International Airports, South San Francisco, San Mateo, and a number of other peninsula communities.

Project Location

The India Basin project site is centrally located among a number of the city's rapidly transforming Eastern Neighborhoods. Major redevelopment efforts in Mission Bay, Pier 70, Visitacion Valley and the Brisbane Baylands—among others—are expanding housing options and extending transit, community services and neighborhood amenities into these underserved areas.

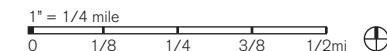


Neighborhood Context

The project site is located in the Bayview Hunters Point neighborhood, in the southeast quadrant of the City. Bayview is the sunniest neighborhood in San Francisco, home to a storied history and burgeoning creative scene that complement areas of picturesque landscape and a rich ecology.

South of India Basin, hundreds of acres of historically industrial land are undergoing transformation. The Shipyard and Candlestick Point redevelopment projects are bringing over 12,000 residences along with over 3 million square feet of research and development uses focused on “green” and clean technology. Facilities will include a clean tech business incubator and the headquarters for the United Nations Global Compact Sustainability Center. Development of the two sites incorporates over 300 acres of parks and open space, including a complete renovation of the Candlestick Point State Recreation area. In total, Phase 1 and Phase 2 will generate hundreds of new construction jobs each year, and ultimately will create more than 10,000 permanent jobs.

FIGURE 1.03: NEIGHBORHOOD CONTEXT



India Basin Transportation Action Plan

India Basin and the surrounding neighborhoods are undergoing significant transformation from a once outlying portion of San Francisco into an active, dense, and accessible new district. Expansion of the City's existing transit systems are proposed to connect the project to other districts through a network of pedestrian, bicycle, and bus routes.

The India Basin Transportation Action Plan (Action Plan) is a comprehensive vision for streetscape and mobility improvements to accelerate construction of the India Basin transportation corridor along Innes Avenue, Hunters Point Boulevard, and Evans Avenue, consistent with the Hunters Point Shipyard Environmental Impact Report (HPS EIR).

Transit stops for local and express buses are consolidated and strategically located at major entries to the site along Innes Avenue such that all parts of the development, parks, and shoreline are accessible in less than a five-minute walk. A combination of Class I and Class II bikeways through the site promote cycling as a dominant mode of transportation, and offer safe and continuous routes for all ages. Trails are expanded into a diverse and comprehensive network of pathways to promote a pedestrian-oriented district.



FIGURE 1.04: CITYWIDE TRANSIT ACCESS TO SITE

1" = 2.0 miles
0 1.0 2.0 3.0mi



- BART System
- Muni Metro
- CalTrain
- Transit Stops
- New Bus 44 Route
- New Bus 48 Route
- New HPX Route
- Bay Area Ferry



Existing Site Conditions

The approximately 30-acre project site is generally bounded by San Francisco Bay on the north, the Hunters Point Shipyard Development project area on the east, and the 900 Innes site, the historic India Basin Boatyard owned by the San Francisco Recreation and Parks Department (RPD), on the west. Innes Avenue runs along the southern side of the project site and is a main thoroughfare from Cesar Chavez Street to the Hunters Point Shipyard area. Along the project site, Innes Avenue is a four-lane, two-way road. The site itself is generally flat with a slope toward the Bay at the north-east corner, with the highest elevation along Innes Avenue and the lowest elevation along the shoreline.

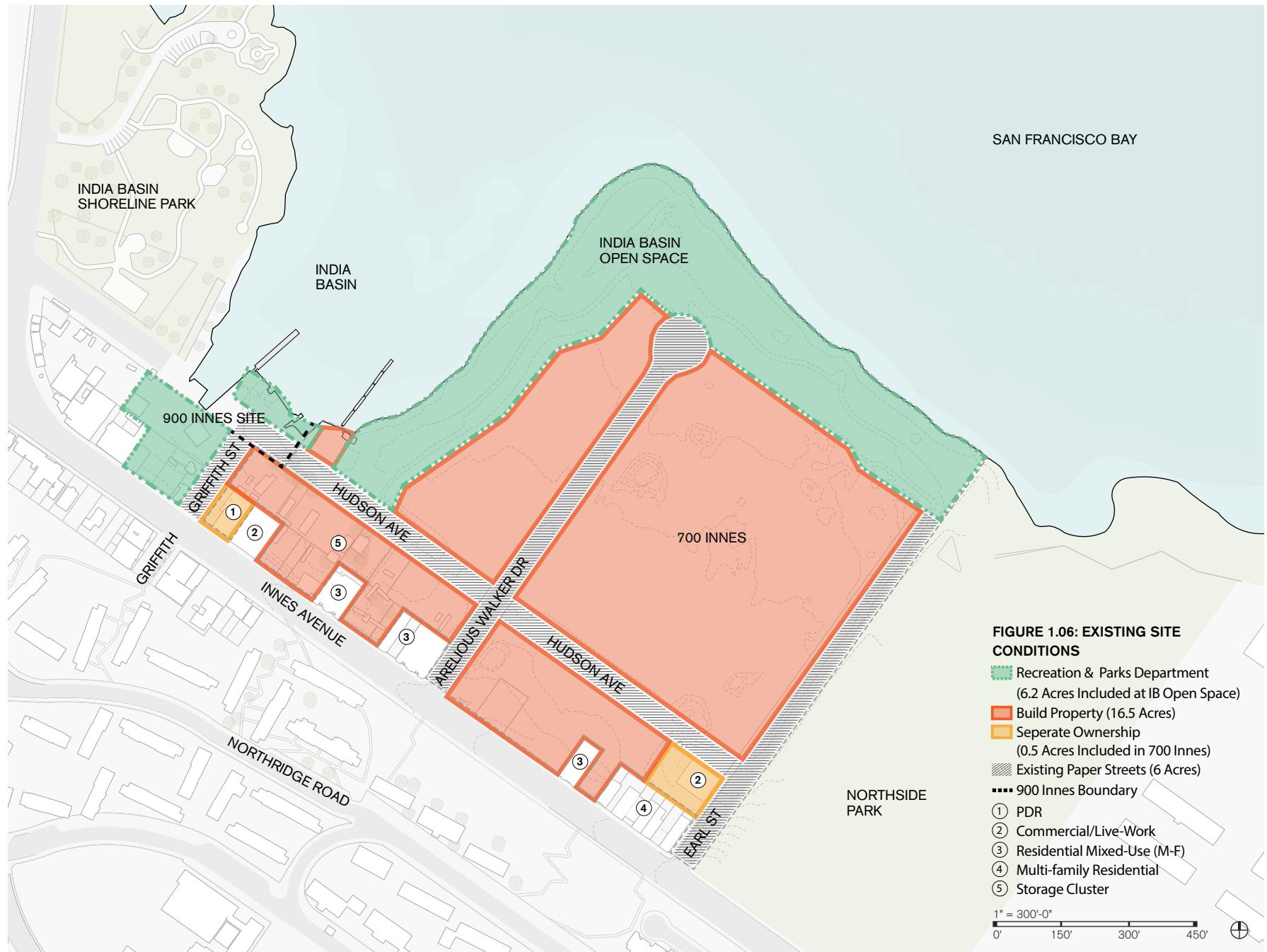
Figure 1.06 shows the project site and the general property ownership boundaries. The parcels that are collectively referred to as 700 Innes total approximately 17 acres and are owned or will be acquired by BUILD. The 6.2 acre India Basin Open Space parcel is owned by RPD. Portions of accepted and unaccepted street rights-of-way are also included in the project site. New alignments for rights-of-way have been developed as part of the proposal and will be confirmed through the Development Agreement (DA). Proposed rights-of-way are detailed in Chapter 2: Public Realm.

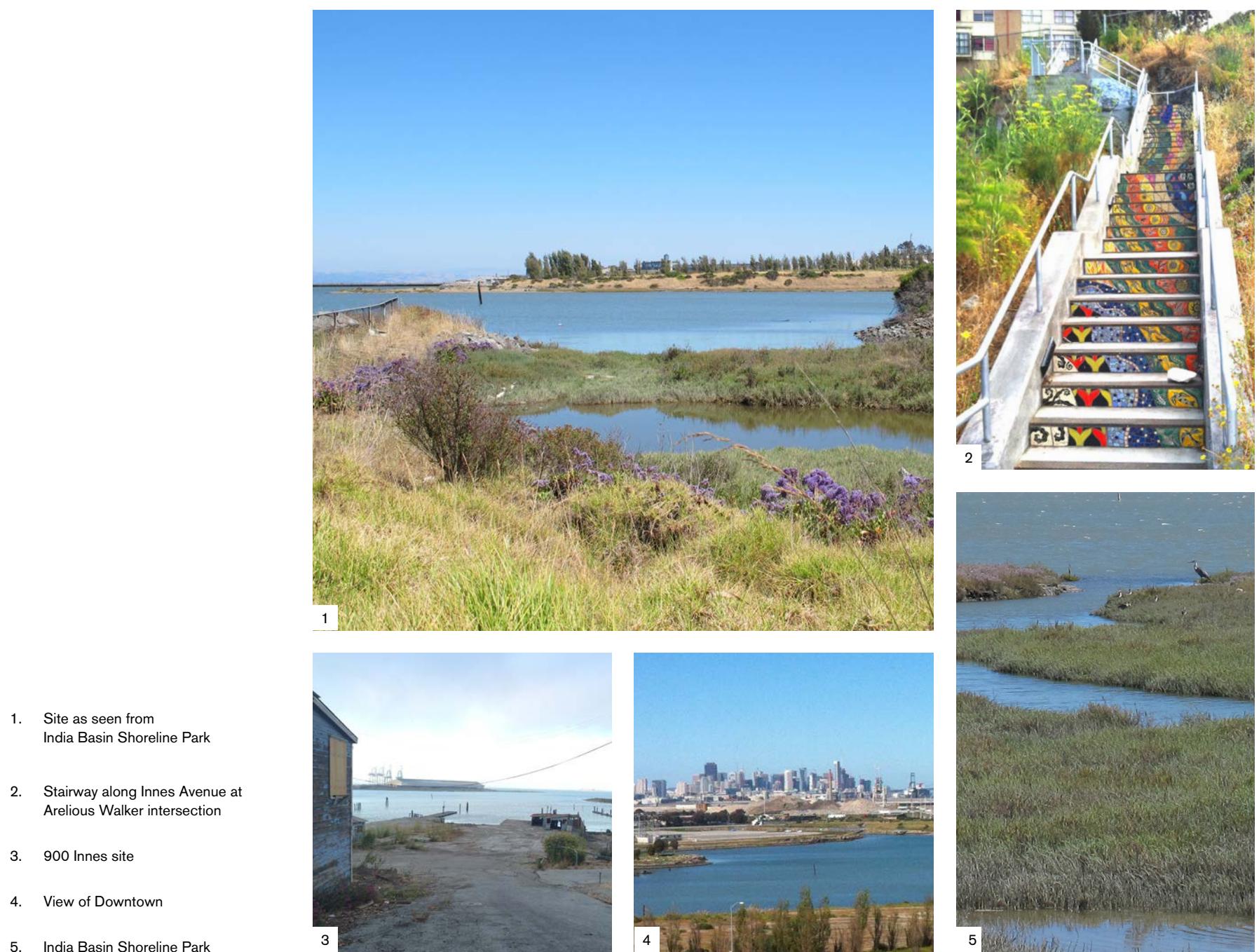
The 30 parcels which comprise the 700 Innes property are primarily reclaimed tidal flats, generally consisting of fill materials, and covered by light brush, debris, dirt, and gravel mounds. The property is undeveloped, aside from a handful of permanent and temporary structures of varying size,

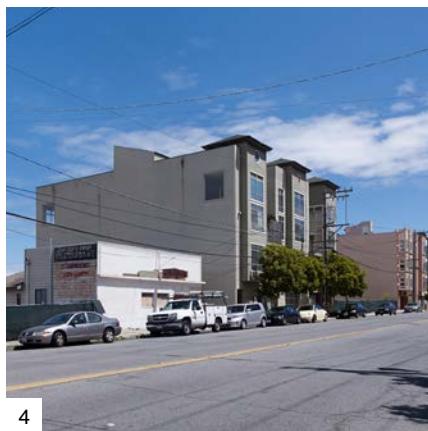
function and condition—a number of which are vacant. Descriptions and status of existing structures are detailed in the Environment Impact Report, Table 2-2: Existing Buildings on the Project Site.

The India Basin Open Space property is an existing open space that borders the Bay. This property includes a portion of the Blue Greenway/Bay Trail along its shoreline, and contains limited improvements along with upland habitat, tidal salt marsh, mudflats, sand dunes, and native vegetation. Tidal salt marsh habitat occupies 2.5 acres of the property; habitat management and protection areas are fenced from public access. A storm drain and an overflow storm outfall are located on the northeastern shoreline, but are currently not operable. Legal public access to the shoreline is limited to the Blue Greenway/Bay Trail. Two easements to the shoreline exist, but they are not paved or designated for public access. Shoreline access also occurs via informal pathways.

The existing public rights-of-way within the project site total approximately 6 acres. The project site surrounds Arelious Walker Drive and it generally is bounded by Earl Street, Griffith Street, and Innes Avenue. An undeveloped portion of Hudson Street runs through the project site, starting at Hunters Point Boulevard and terminating at Earl Street. Griffith Street, Hudson Street, and Earl Street are partially paved where they meet Innes Avenue, but in general they are unpaved and/or partially paved, unimproved, and fenced from public access. All of the existing streets on the site are unaccepted by the City.







1. Existing storage yard
2. Undeveloped area of site
3. Existing Earl Street Right-Of-Way
4. India Cove 828 Innes Avenue
5. Arelious Walker



Site location overlayed on historic map of San Francisco, 1895.



India Basin, c.1900

Site History

India Basin and the surrounding Hunters Point neighborhood share a storied history. Much of the peninsula and tidal flats remained uninhabited until the 1860s when proximity to a booming San Francisco made the area a strategic location. Construction of the California Dry Dock Company at the eastern tip of the peninsula in 1866 presaged the growth of maritime manufacturing and commerce. Beginning around 1870, San Francisco's bay scow schooner building industry began relocating to India Basin from Potrero Point and Islais Creek. Attracted by the availability of inexpensive land with deep water access, boat builders lined the southern edge of India Cove with boatyards alongside several Chinese shrimp

camps. Most of the early yards were family-owned businesses operated by English, Scandinavian, and German immigrants. Boat yard owners and employees lived alongside one another in simple vernacular dwellings, creating a linear "village" along 9th Avenue South (now Innes Avenue). The bay scow building industry began to decline in the 1920s with the introduction of the gas-powered launch, competition from short haul truckers, and with the opening of the Bay Bridge in 1936. The Anderson & Cristofani yard endured for another half century however, concentrating on repair and maintenance work.

India Basin remained a distinct and largely self-contained community until the eve of the Second World War, when the U.S. Navy's decision to purchase



India Basin, 1920s



India Basin, 1969

the Hunters Point Shipyard transformed the district. Well-paying jobs lured thousands of workers to San Francisco. Many of these new residents occupied new FHA-financed “junior fives” along Innes Avenue. Others took up residence in the rows of “temporary” war worker housing constructed by the FHA on along the ridge above India Basin.

Following the end of World War II, India Basin experienced dramatic demographic shifts and economic dislocation. In the immediate post-war period, operations at the shipyard scaled back, and residents suffered as employment opportunities declined. The industries that remained tended to be heavily polluting, contributing to the increasingly distressed reputation of the district. Continued ethnic tensions led to white flight from the area,

particularly after riots erupted in 1966.

In 1965, owners of several dozen water lots north of Hudson Avenue between Griffith and Earl streets filled them with debris from the construction of Interstate 280—in time to avoid restrictions on fill soon to be enacted by the Bay Conservation and Development Commission (BCDC). From the late 1960s until the late 1990s, India Basin did not change dramatically. The surviving boatyards remained in business until recently. The last one to close was Allemand Brothers’ yard at the foot of Griffith Street. Other light industrial businesses set up operations due to the availability of large lots and low land values. Beginning in the late 1990s, the availability of large undeveloped lots began to attract the interest of real estate developers who



Historic Shipwright's Cottage, 900 Innes

Historic Resources

Although many of the older, nineteenth-century dwellings are long gone, the majority of the boat yard area still survives along India Cove, as well as a handful of historic dwellings dating from the last quarter of the nineteenth century and the first quarter of the twentieth century. The Shipwright's Cottage, located on RPD's adjacent 900 Innes site dates from 1875 and is California Register of Historic Resources-eligible. A principle objective of RPD's proposal is to preserve and celebrate historic resources through the restoration of the historic Shipwrights Cottage and revitalization of the boatyard cultural landscape on this site.

Coastal Assessment

India Basin is a dynamic coastal environment. The shoreline is directly impacted by the coastal processes and requires consideration of existing conditions, wave energy and erosion, bathymetry, shoaling and sedimentation, sea level rise, and flooding.

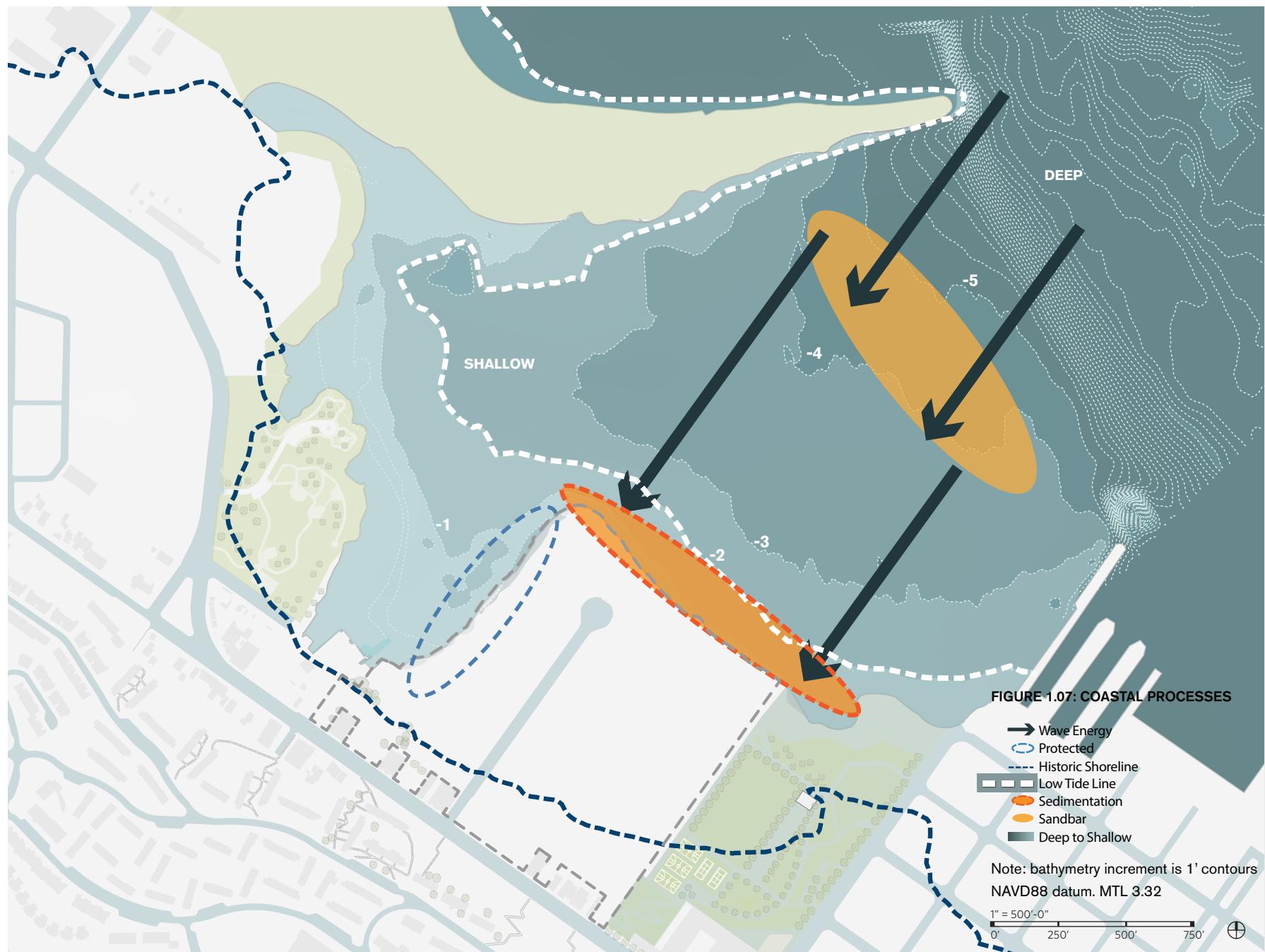
Existing Conditions: The current shoreline extends beyond the historic shoreline as a result of bay fill that occurred by 1965.

Wave Energy & Erosion: Wave energy enters the basin from 2 primary directions: north and northeast. The northeast shoreline receives continuous wave action from tidal currents having up to a 4-mile fetch. The northwest shoreline receives limited wave action and is relatively protected.

Bathymetry: The basin is relatively shallow. At the lowest tide, the mud line is offshore from the northeastern shoreline approximately 40'. Boat launch access should be located where the mud line is closest to the existing shoreline.

Shoaling & Sedimentation: The wave direction and energy is causing an offshore sandbar at the edge of India Basin through the process of shoaling. As a result of the shallow bathymetry in the basin, the sandbar accumulation and the continuous wave energy, sedimentation is occurring on the north-eastern shoreline of India Basin Open Space. This natural process has resulted in the accumulation of sand and naturally forming sand dunes at the northern tip of the shoreline.

Sea Level Rise & Flooding: Sea level rise and flooding are significant design drivers. See Section 3.8 for Sea Level Rise adaptation strategies.



Regulatory Constraints

Multiple regulatory agencies having jurisdiction (AHJs) over the property, including the US Army Corps of Engineers (USACE), the California Regional Water Quality Control Board (RWQCB), the Bay Conservation and Development Commission (BCDC), and the State Public Trust Lands. Permits will be required for proposed improvements within these areas. Proposed changes to existing wetland and tidal habitats will require mitigation. Designs and land uses have been reviewed with AHJs and final designs will be approved by AHJs prior to implementation.



FIGURE 1.08: REGULATORY JURISDICTION

- ● Current Mean High Water (MHW)
- Current High Tide Line
- 100' BCDC Shoreline Band
- USACE/RWQCB Jurisdiction
- BCDC Jurisdiction
- USACE/RWQCB Jurisdiction over wetlands

1" = 400'-0"
0' 200' 400' 600'



FIGURE 1.09: EXISTING MITIGATION WETLANDS

- 2.1 Acres Created Mitigation Wetlands
- 0.4 Acres Enhanced Mitigation Wetlands
- 0.31 Acres Seasonal Wetlands

1" = 400'-0"
0' 200' 400' 600'

Existing Wetlands

The shoreline located in India Basin Open Space includes 2.5 acres of mitigation wetlands that were created in 2002.* According to the 10 year monitoring report, the two wetland zones located on the northwest shoreline achieved a greater target criterion (85% and 82%) than the two zones located on the northeast shoreline (72% and 53%).**

Wetland improvements or creation of new wetlands will likely perform better on the northwest shoreline. Any shoreline improvements that impact the existing mitigation wetlands will likely require greater mitigation ratios. The project proposes to retain the existing tidal wetlands in place. New tidal marsh wetlands are proposed for the northwest shoreline as mitigation for impacts and bayfill.

The site also contains 0.3 acres of seasonal wetlands. The USACE will require that the seasonal wetlands be relocated within the shoreline and big green at a defined mitigation ratio, and function the same as or better than they exist currently.

*SEE CRWQCB ORDER NO. 99-037, AND BCDC PERMIT NO. 10-93.

** SEE TENTH ANNUAL MONITORING REPORT FOR THE INDIA BASIN WETLANDS CREATION AND ENHANCEMENT PROJECT COMPLETED BY LSA

Existing Habitats

700 Innes

The site consists of fill material with barren areas, small patches of native habitat, rubble, and gravel mounds. No protected or endangered species were found on site. The upland site also contains 0.31 acres of seasonal wetlands.

India Basin Open Space

The existing shoreline consists of salt marsh conditions resulting from a 2002 wetlands mitigation project for the San Francisco International Airport expansion. Conditions include upland habitat, tidal salt marsh, sand dunes, native vegetation, debris and rubble, and a rip rap breakwater. Eel grass has been known to exist off of the northeastern shoreline in the past.

No protected or endangered species were identified as currently existing on the site. *Suaeda californica* (California seablite) has been previously found on site. Field surveys were conducted in summer 2016 and none was found.



FIGURE 1.10: EXISTING HABITATS AND WETLANDS

Yellow	Beach	Dark Green	Tidal Marsh
Purple	Concrete Debris	Red	Seasonal Wetland (0.16 acre)
Orange	Maintained Landscaping	Blue	Water (0.11 acre)
Teal	Native Coastal Scrub	Dark Green	Wetland swale (0.04 acre)
Green	Sand	SEASONAL WETLANDS (0.31 ACRES)	

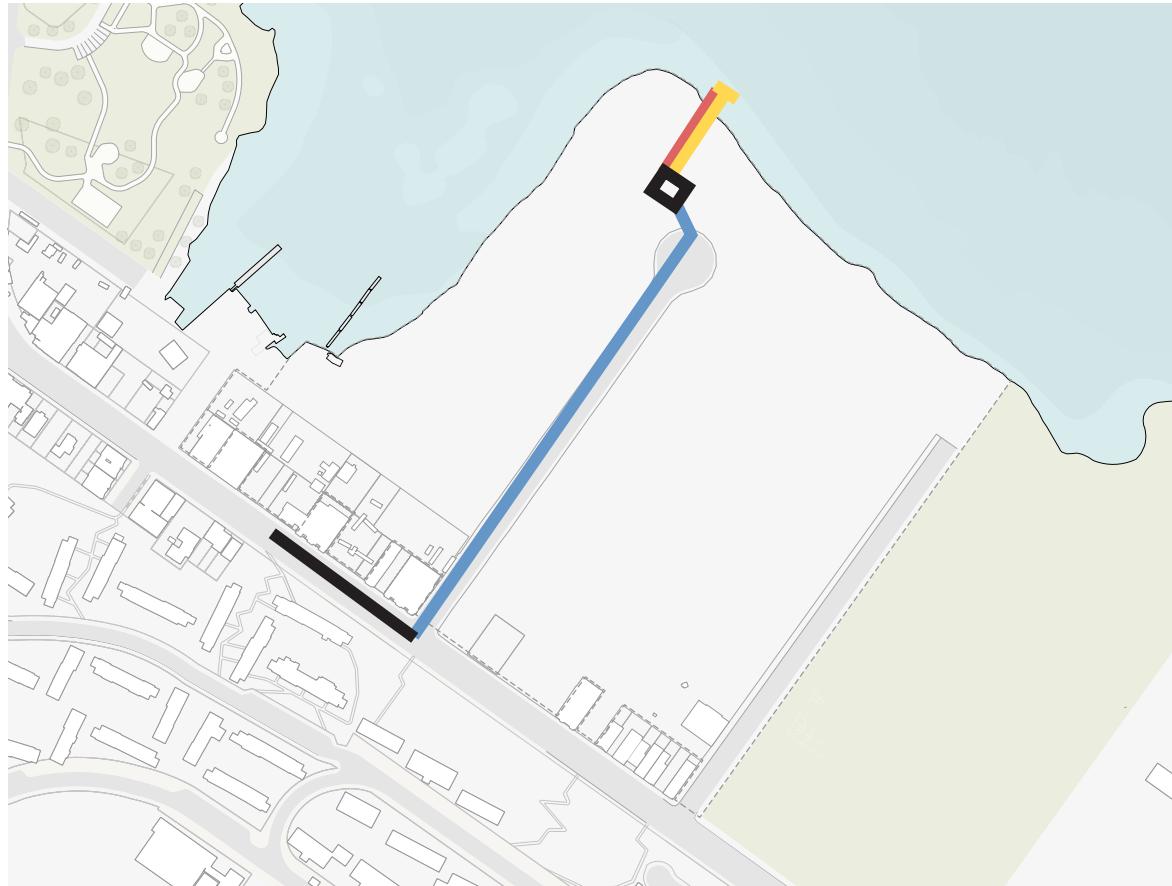


FIGURE 1.11: EXISTING HYDROLOGY SYSTEM

- Combined Storm Sewer
- Combined Sewer Force Main
(unaccepted & non-operational)
- Existing Combined Sewer Pump Station
(unaccepted & non-operational)
- Overflow Storm Sewer Outfall
(unaccepted & non-operational)
- Storm Drain
(unaccepted & non-operational)

1" = 400'-0"
0' 200' 400' 600'

Existing Hydrology

A combined storm and sewer overflow line current runs from Innes Avenue northeast beneath Arelious Walker Drive with a pump station located at the cul-de-sac of Arelious Walker Drive. and an outfall located on the northeast shoreline of the India Basin Open Space. A storm drain outfall also exists at this location. Neither the existing overflow storm and sewer outfall nor the storm drain have been accepted by the City Public Utilities Commission. These outfalls have never been utilized and remain non-operational today. It is anticipated that these existing utilities will be removed and replaced with new utility lines and outfalls in a different configuration suitable to the proposed design.

Sea Level Rise

At the time of this publication, the City of San Francisco, BCDC, and the State of California all have slight variations in their guidelines and recommendations on predicted sea level rise and flooding conditions. The project uses the following sea level rise predictions per the 2016 San Francisco Sea Level Rise Action Plan: 2050: +24", 2100: +66". The site is also impacted by extreme conditions including king tides and 100-year storm events. Storm surges are measured as an additional 42" of temporary inundation.

Due to the uncertainty of future conditions, the project proposes a long-term strategy to protect major infrastructure and the development on a 100-year horizon, combined with a robust adaptation approach for the shoreline that can adapt and evolve as tide levels become better defined (see section 3.8).

All major capital improvements, the Bay Trail, and the development will be located with an elevation at or above the extreme predicted elevations plus a buffer should predictions rise, for protection from worst case flooding by end of century. Major capital improvements include utilities, roads, restrooms, permanent structures and facilities, buildings, infrastructure, and bridges.

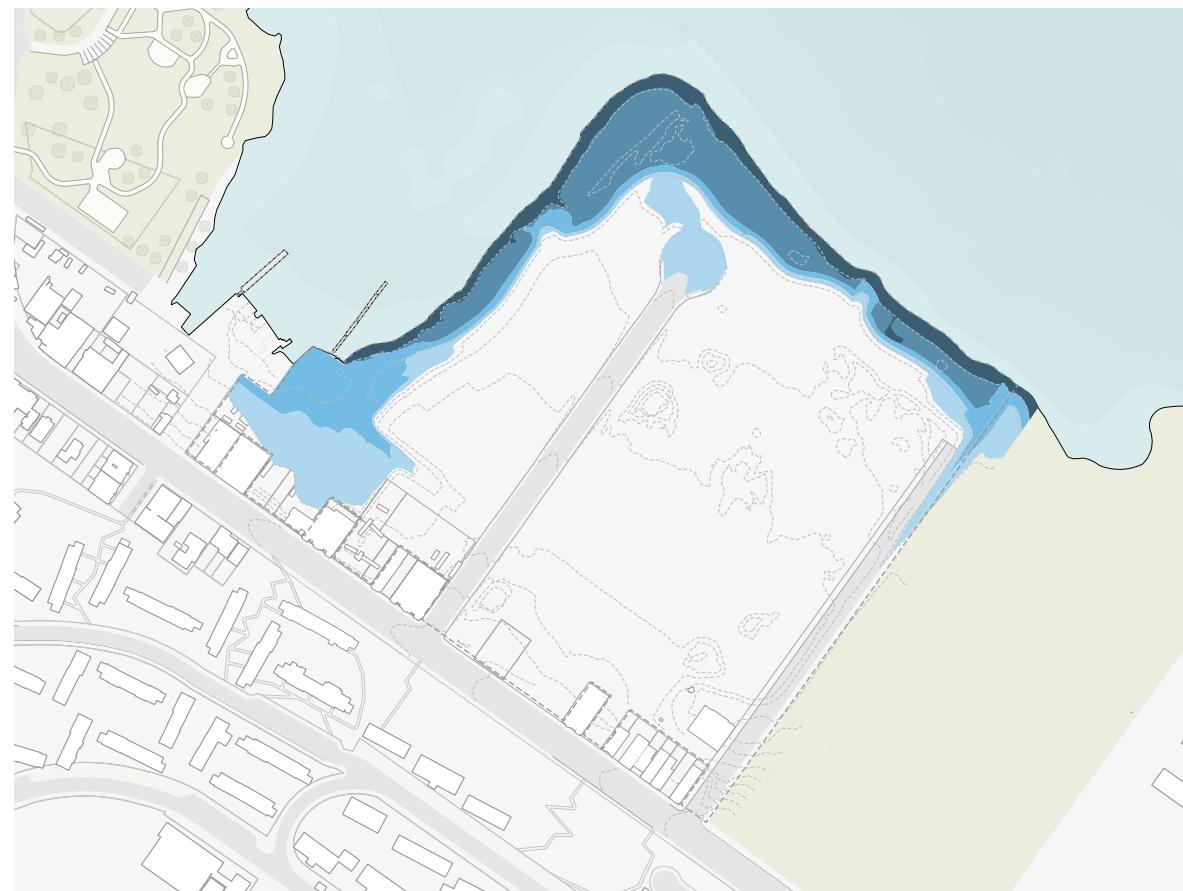
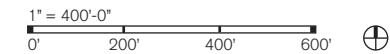


FIGURE 1.12: SEA LEVEL RISE (EXISTING CONDITIONS FOR MHHW)

- 2100: Storm Surge
- 2100: +66" (2050 Storm Surge)
- 2050: +24"
- Today: Elevation at 6.37ft (76")
- * Per SF SLR Action Plan 2016.
Storm Surge is 42" + SLR



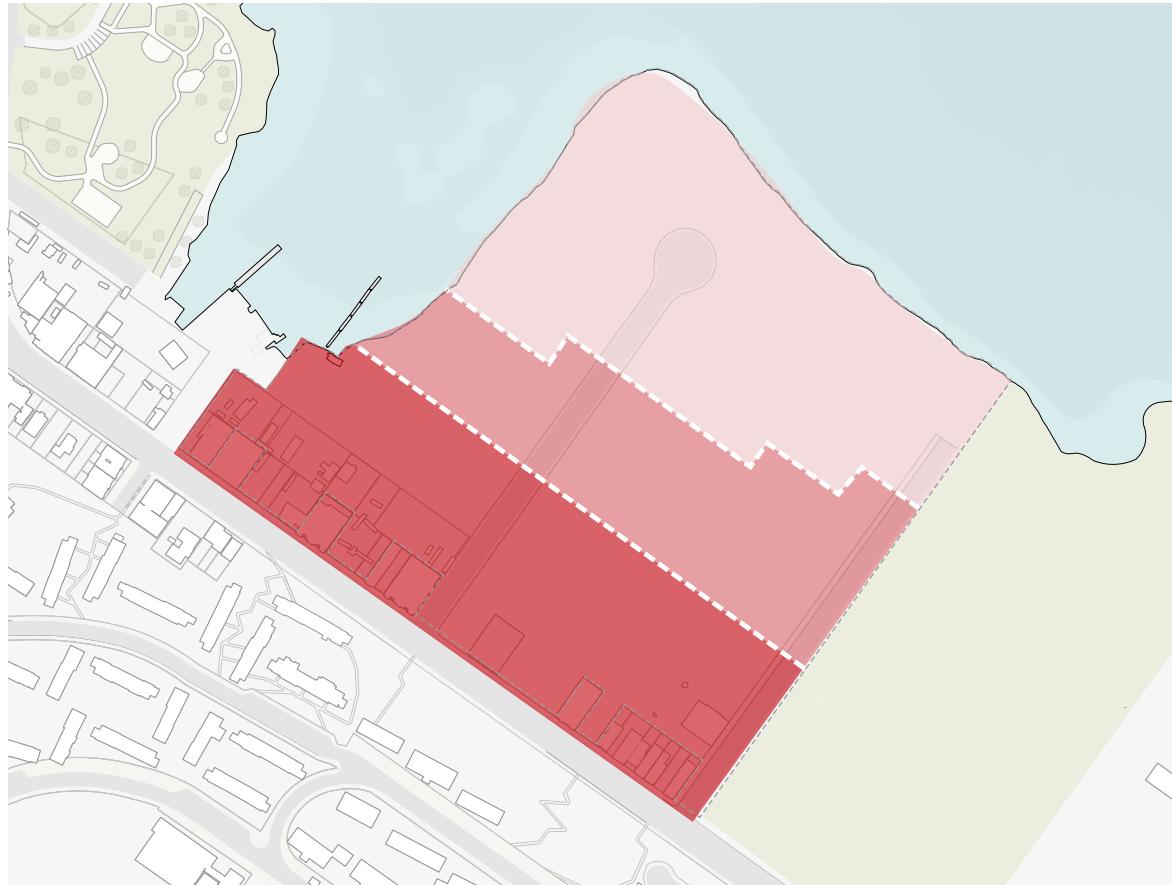


FIGURE 1.13: SETTLEMENT ZONES

- Zone 3: most settlement with placed fill
- Zone 2
- Zone 1: least settlement with placed fill

Settlement

As a bay-fill site, soils will continue to settle. It is anticipated that additional vertical settlement will occur as fill material and structures are loaded onto existing soils. Strategies to load and settle material in earlier stages may reduce long term settlement. Examples include pre-loading and pre-settling fill material in early construction phases, localized fill, additions of stair treads, use of lightweight fill alternatives where applicable, paving zones, and hinged slabs.

Geotechnical Constraints

Preliminary geotechnical evaluation has identified portions of the project site where existing soils are more suitable for development. Other areas (blue-shaded) are less suitable. If loaded with significant weight, these areas have greater potential for lateral spreading during a seismic event and would require construction of underground lateral buttresses.

The numbered dashed lines in Figure 1.14 indicate the top of the load-bearing layer. To reduce unnecessary expenditures on costly lateral buttresses, development is only proposed inboard of the zone susceptible to lateral spread. Open space, plazas, rights-of-way and lightweight temporary structures can be located in this area without costly underground buttressing.

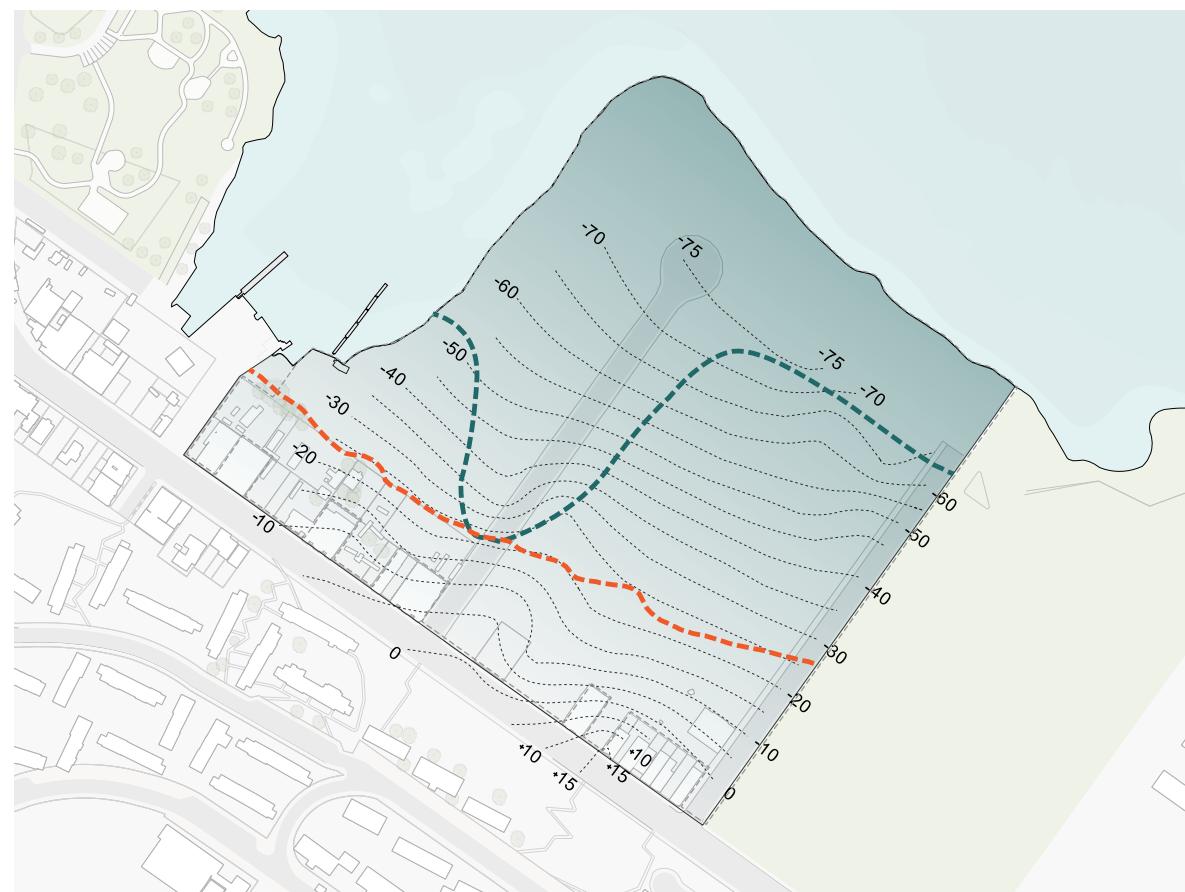


FIGURE 1.14: GEOTECHNICAL CONSTRAINTS

- Top of Bearing Layer
- - - Lateral Spread Demarcation
- - - Bedrock / Bay Fill Demarcation
- Bearing Layer Depth



Existing Site

1.2 Physical Framework

“Yet there are fundamental functions of which the city forms may be expressive: circulation, major land-uses, key focal points. The common hopes and pleasures, the sense of community may be made flesh. Above all, if the environment is visibly organized and sharply identified, then the citizen can inform it with his own meanings and connections. Then it will become a true *place*, remarkable and unmistakable.”

– Kevin Lynch, *The Image of the City*

The Physical Framework described in this section—and further detailed in subsequent chapters—illustrates the opportunities and challenges of India Basin’s contextual setting and elaborates the fundamental organizing concepts for movement, place-making, function and physical form. The framework shapes and connects the public and private realms—the streets, plazas and parks, buildings and infrastructure, the shoreline and the Bay itself. Systems of movement are layered and woven throughout, intersecting with gathering nodes and moments for interaction or quiet repose. Ecology is integrated across public and private territory, creating a built environment that nurtures habitat, residents and visitors alike.

The Physical Framework derives from the project Vision and Guiding Principles, supporting the legibility and imagability of a contextually-responsive, connected, complete and resilient village that contributes to the surrounding community—a distinctive district where urbanity is integral with ecology.

The following pages depict the principle organizing systems for site Access and Circulation, Public Realm Design, Open Space, Signature Places, District Sustainability and Urban Form. Associated Standards and Guidelines for realizing the project are detailed in Chapters 2 through 7.





FIGURE 1.16: BLUE GREEN COASTAL ZONE



FIGURE 1.17: ECO-BANDS (TERRACING)



FIGURE 1.18: PUBLIC VIEWS

Blue Green Coastal Zone

The shoreline creates a continuous waterfront open space along India Basin. Rather than a fixed edge, it presents a dynamic, continuously-shifting zone that moves with the daily tide, the cycle of seasons, and ongoing global climate change. The shoreline is ecologically, economically and culturally important as it filters pollutants and absorbs terrestrial nutrients, buffers coastlines from waves and storm surge, supports nurseries for fish and other marine animals, and provides delight for residents and visitors.

Eco-Bands (Terracing)

The transition from the hillside, through the project site and toward the waterfront is reinforced in landscape. The terracing of land connects elevation and distance from the water to the types of habitat supported, and consequently, to the design of landscape, planting and surfacing, public realm programming, and to the range of uses and activities in each stratum.

Public Views

Views from the Ridgeline to the Bay are enhanced in urban form with fine grain of pedestrian focused routes from the hillside and uplands down towards Innes Avenue and through the Site to the water. The routes are aligned to frame view corridors to the waterfront and beyond, providing both physical and visual access to the Bay and making way-finding intuitive.



FIGURE 1.19: ECO-CORRIDORS - HILLSIDE TO BAY

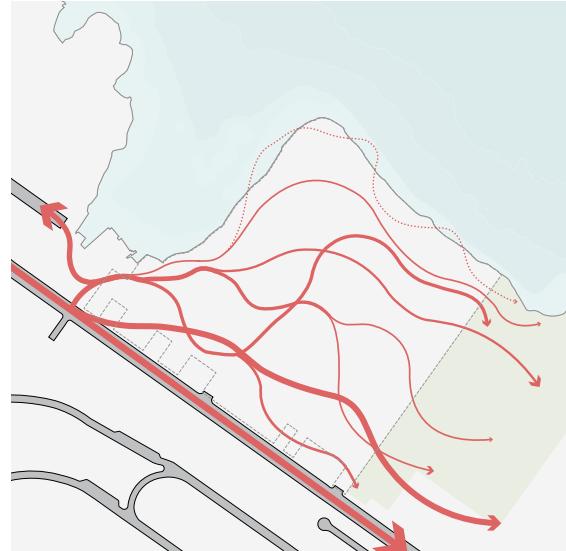


FIGURE 1.20: UNBRAIDED CORD - PARALLEL TO SHORELINE



FIGURE 1.21: NODES/ PLACES

Eco-Corridors - Hillside to Bay

Eco-corridors recall and preserve hydrological and ecological flows from the hillside to the Bay—water, plant life, fauna and people are all directed toward the waterfront. The continuation of this fundamental movement pattern resonates in the design of the public realm, where urban and ecological systems are intertwined, elevating quality of life in the neighborhood.

Unbraided Cord - Parallel to Shoreline

Lateral movement through the site is interpreted as an unbraided cord. A hierarchy of paths of varying character and experience are created to accommodate different modes and paces of movement across the site. Paths for quiet contemplative strolling diverge from recreational walking and cycling, which are kept distinct from the more hurried movement of bicycle commuters and from neighborhood traffic and transit arterials.

Nodes/Places

The intersection between lateral and longitudinal movement, and ecological systems forms the basis of “placemaking” at a variety of scales. Each place derives their character and uniqueness from the specific components of their intersection, which create opportunities for differentiation, surprise and discovery.



FIGURE 1.22: TYPICAL GRID

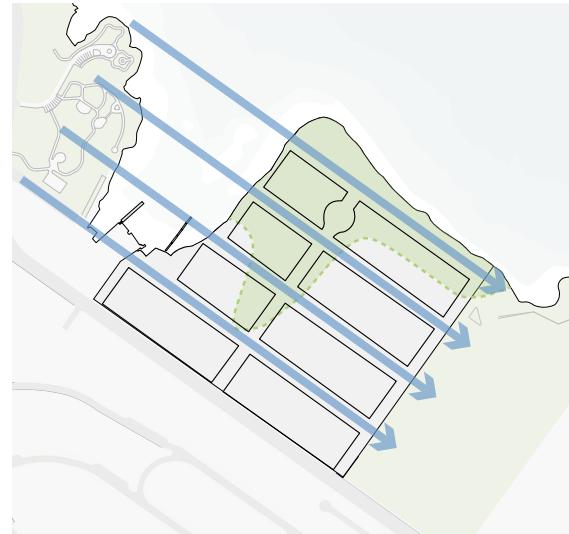


FIGURE 1.23: ADJUSTED GRID TO MITIGATE WIND



FIGURE 1.24: BROKEN GRID CREATES DIVERSE SPACES

City Grid Extension

The mapped extension of the city grid through the site consists of large blocks (600' long) limiting access to the Waterfront. The India Basin project subdivides large blocks to increase waterfront access, and restricts development to areas with more suitable load bearing capacity.

Wind

Prevailing winds in this part of the city are oriented from Northwest to Southeast. The mapped extension of the city grid allows wind to pass through unabated, creating wind tunnels through the site. To avoid wind tunnels, and create a more comfortable street level experience, the India Basin project grid is shifted so that both landscape and building mass help decelerate and block wind.

Broken Grid

The shifted grid is further staggered and offset to create intimate pockets of open space within the site for parklets and courtyards. Primary and secondary access ways are preserved. The scale of massing is broken down to accommodate variety of uses and programs. The shifted massing, broken grid and small pockets of space create unique places, differentiated by site-specific conditions to allow diversity of experience and opportunities for discovery.



FIGURE 1.25: PROPOSED BLOCK STRUCTURE

Block Structure

The combination of increased waterfront access, wind mitigation via the shifted offset grid, and restriction of development to areas outside the zone of lateral spread drives the design of the India Basin project. As a result, larger blocks along the hillside transition to smaller blocks towards the waterfront. Varying the scale of parcels and massing facilitates the ability of different housing typologies to coexist within a site, and allows for a varied street level experience. Each block is strategically configured to reduce wind downwash from buildings and improve pedestrian comfort.

District Sustainability

India Basin can serve as a model of progressive, performance-based sustainable design. The master plan for the district takes advantage of the site's waterfront location and topographic variation by consolidating the majority of buildings on the upper portion of the site in order to designate a large portion of Bayside land as a public park. The scale of the project, along with its unique site conditions, enable it to leverage district-wide strategies to achieve a meaningful and measurable reduction in environmental impact. Urban and ecological systems are arranged for enhanced social interaction and district resilience.

The project's 'supernatural landscape' is central to the sustainability approach. It includes a diverse range of symbiotic habitats, performs as critical stormwater infrastructure, defines the site's adaptation strategy and promotes recreational and educational opportunities for sustained social engagement and stewardship.

India Basin leverages district-wide solutions to reduce potable water demand and conserve energy. Performance goals have been established for water and energy efficiency at both a district and building scale. The project's approach to sustainable design and resilience is outlined in Chapter 3 and Chapter 6 of this document.

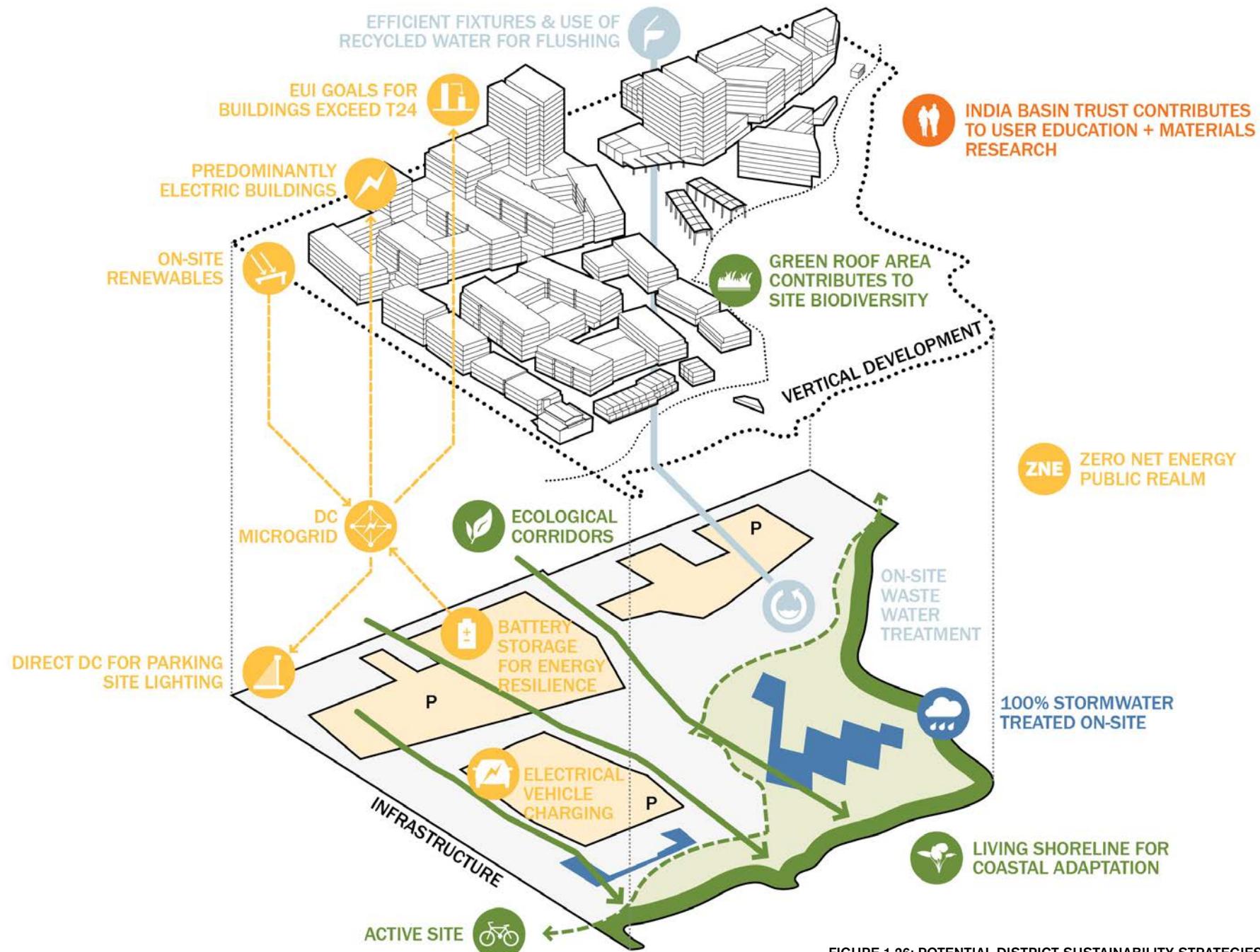
Resilience and Adaptation

Resilience and Adaptability are integral to the district-wide sustainability approach at India Basin.

'Resilience' refers to the ability to withstand and recover quickly from an extreme event. For India Basin and other projects in San Francisco, extreme events include seismic hazards, such as earthquakes, or weather-related hazards, such as coastal flooding or extreme storm events. India Basin may also provide disaster preparedness relief for those living on the site and in adjacent neighborhoods by leveraging on-site energy production and storage, as well as water storage.

'Adaptability' is the capacity to withstand changing environmental conditions and adjust relationships and systems for a sustained lifespan. Adaptable design is integrated into the site in several ways: from initial remediation of soil to the creation of a terraced wetland system that will allow habitat to migrate upland as sea levels rise. An adaptive management ethos allows the landscape to be dynamic and iterative, rather than rigid and vulnerable to disruption.

Social resilience and adaptation is also addressed at India Basin via strategies associated with public realm, activation, and mobility. Public space and urban design ensure the future evolution of mobility, proximity of public space to homes and offices, and human-centered design to enhance social interaction. This focus on vibrant, public gathering spaces will allow the community to reorganize and respond to gradual social change or potential economic or natural disruptions.



Diverse Ecologies

Located at the edge of the San Francisco Bay in a relatively protected water basin, the project offers a rare opportunity to support a diverse range of habitats from mudline to ridge-line. Local residents like the site's wild and "feral" feel. A range of habitats currently exist on site. And the shoreline is a dynamic coastal landscape.

In line with the project's guiding principles, the project strives to preserve existing habitats, create new habitats, promote the unique wild character of the site, and also introduce a range of active programs by locating program across the site in a gradient from active to wild.

Active programs that have light, sound and access requirements are located closer to the development and vehicular access. Programs and habitats that are passive, quiet, and serene in nature are located closer to the shoreline and existing habitats. The Bay Trail serves as a dividing line in this transect.

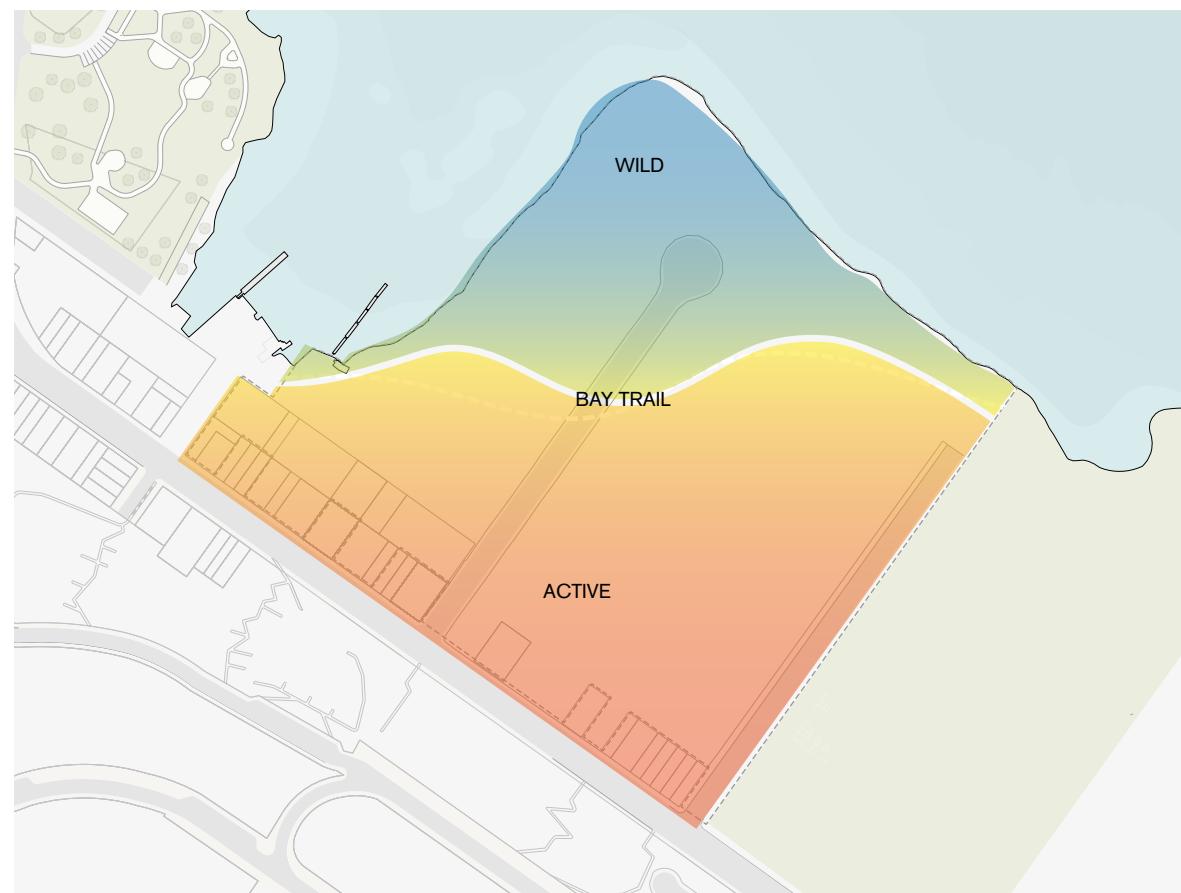
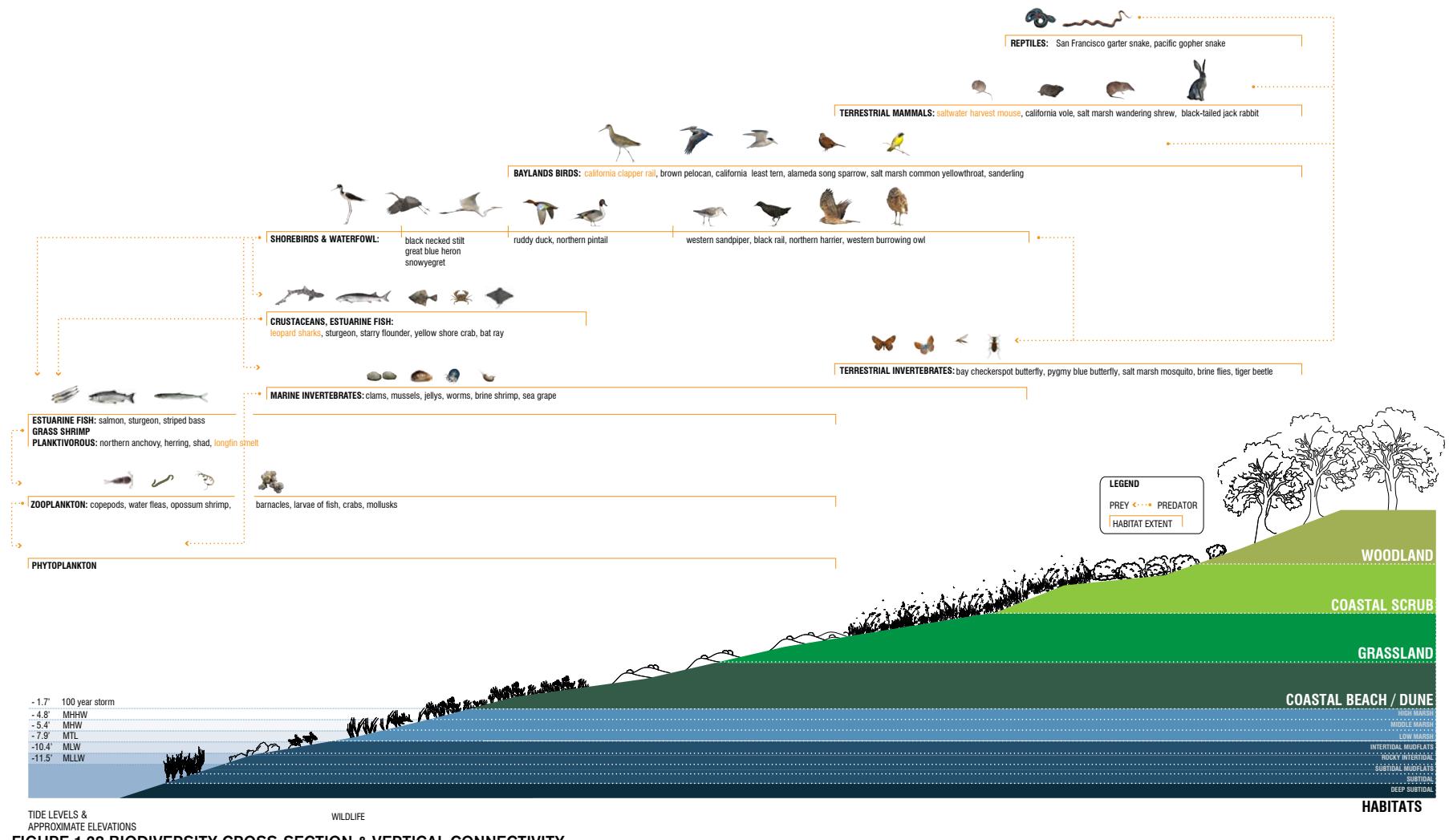


FIGURE 1.27 WILD TO ACTIVE GRADIENT



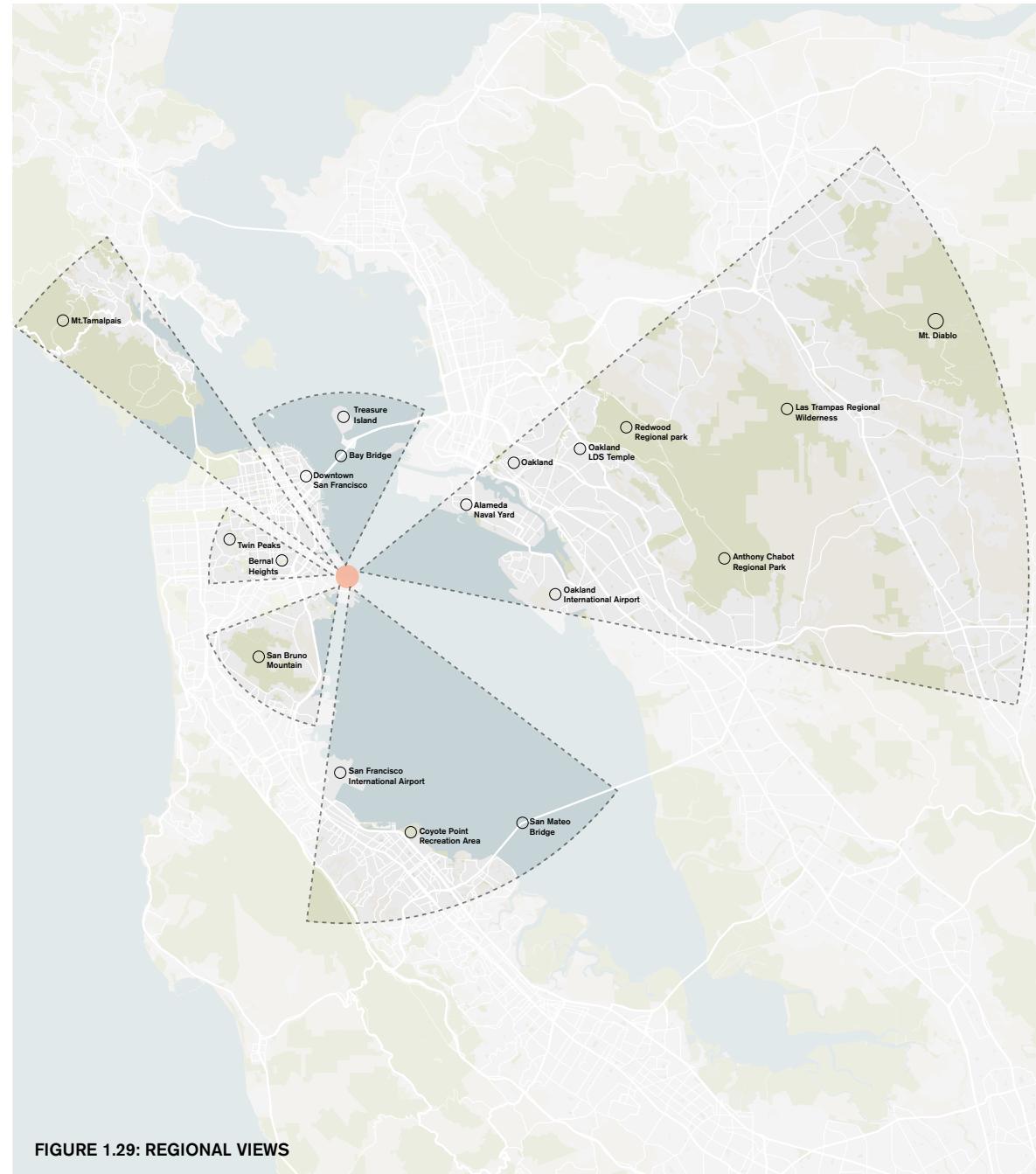
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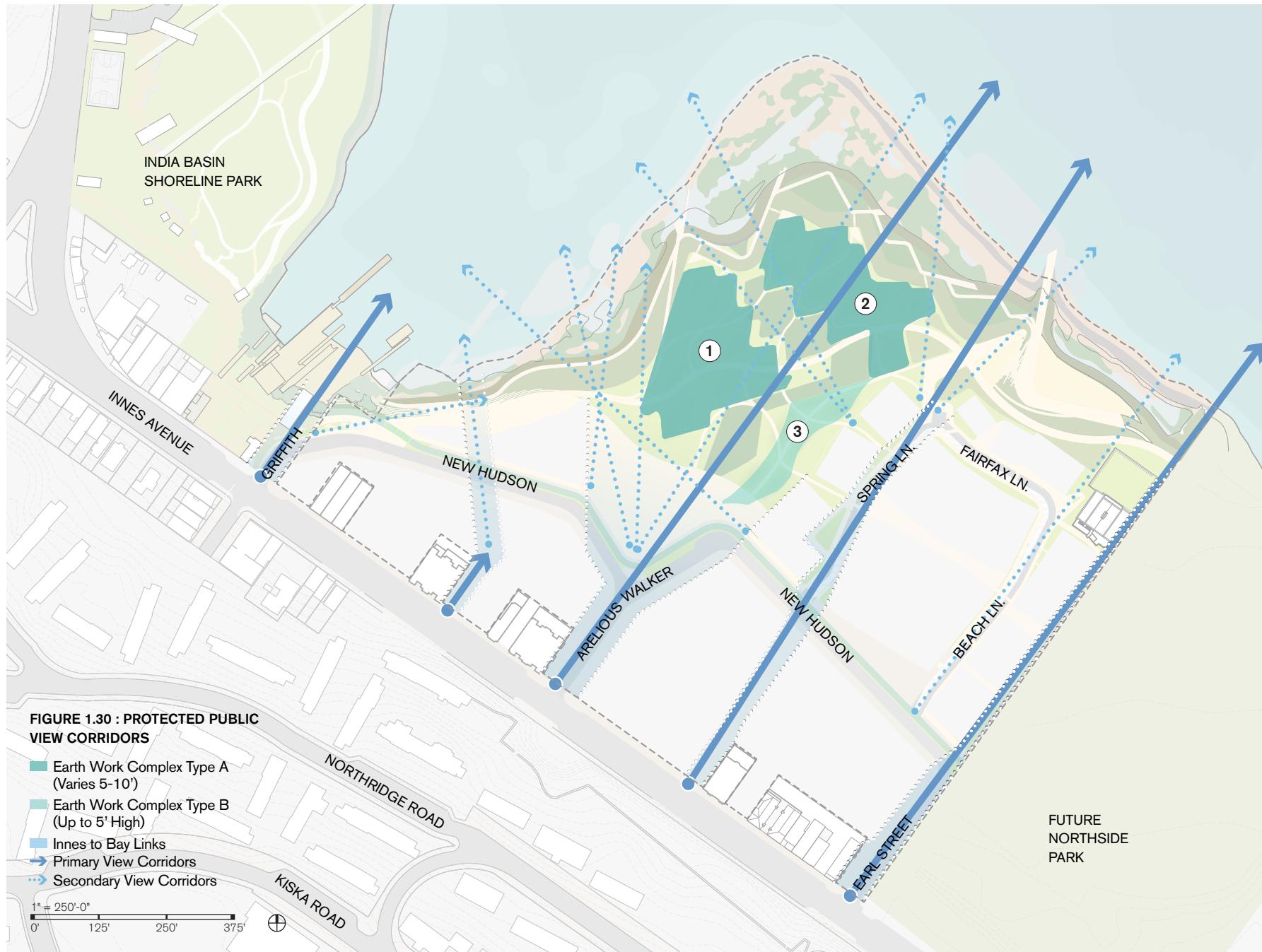


Views

Views to the city's hilltops, open areas, and surrounding water allow people to orient themselves within their community and beyond. Protected public view corridors and protected vistas preserve and maintain scenic views from the public realm, with considerable bearing on our understanding of the City. India Basin protects view corridors through the site to the waterfront through the thoughtful configuration of streets, parcels, and building massing. New vistas from the Big Green and Shoreline to Bay Area landmarks are provided through the open space design.

Protected view corridors and vistas strengthen the visual connection between the site, its immediate context and iconic sights such as: The Bay Bridge, Downtown San Francisco, Alameda Point, Twin Peaks, Sutro Tower, Mount Diablo and the East Bay Mountains.





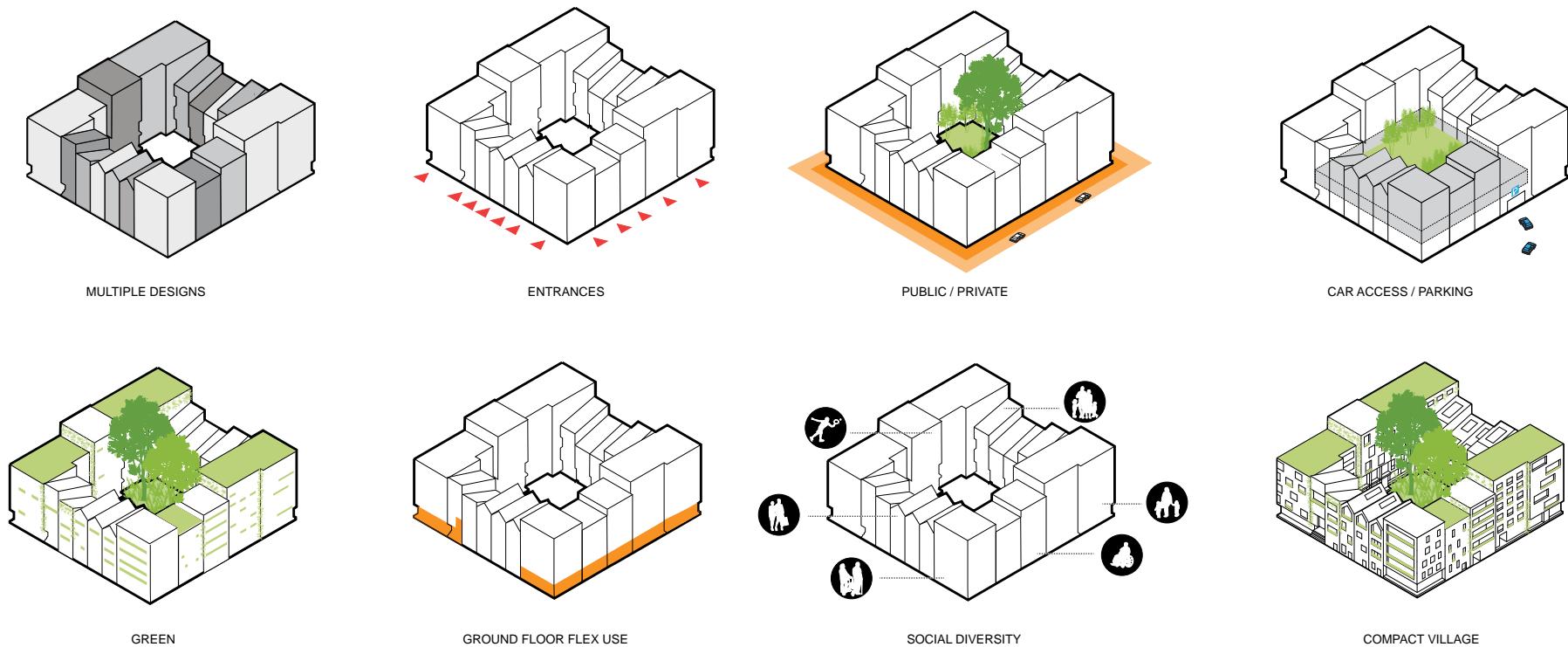


FIGURE 1.31: COMPACT VILLAGE

Urban Form

As a pedestrian-priority community, India Basin is intended to be experienced at a walkable pace. This requires the calibration of form, proportion, articulation, variation, modulation, depth, materiality, texture and color of physical elements to the speed, range and capabilities of human sensory perception.

Detail has been focused on the zone of experience in the public realm—to the open space network,

streets and pathways, lower-floors of buildings and to the threshold interface between public and private. The massing and scale of development steps down from Innes Avenue towards the waterfront, accentuating the city's topography, and intuitively guiding people to the Bay.

Composition of buildings and spaces emphasize diversity with complementarity. Flexibility is preserved to enable and encourage a variety of architectural responses.



FIGURE 1.32: URBAN FORM



FIGURE 1.33: URBAN FORM

Public Realm & Public Life

The project seeks to foster a vibrant public life through the development of a high-performance public realm interweaving parks, plazas and gathering places with an extensive network of complete streets, stairs, pathways, trails, pedestrian and bicycle routes. The public realm is integral to this new pedestrian-priority neighborhood, providing a wide range of active and passive uses and experiences—from the dynamic energy of the Public Market, the small-scale neighborhood plazas, to the expansive wilds of the shoreline.

Intensity is focused around the Public Market, which functions as the social heart of the project. Micro-retail and rotating food and craft programs will animate the market, and permanent retail lining Arelious Walker and New Hudson streets will extend this energy to create a real neighborhood shopping district. Secondary gathering places are provided at the intersections of project sub-areas: the Cove Terrace, the Town Triangle and the Perched Beach. Small-scale court-yards within the blocks provide intimate, sheltered open space for local residents and families.

The Big Green and Shoreline are the signature open space. Part of a regional-scale seven-site network of waterfront parks, the Big Green and Shoreline provide excellent access to the San Francisco Bay. Areas for events, active recreation and play are interwoven with a network of trails, foot-paths and boardwalks, amongst earthworks, wetlands, constructed habitat and native landscape—together offering a full and varied experience of the Bay environment, views and microclimates.



FIGURE 1.34: PUBLIC REALM "HEAT MAP"

- Most Activity
- Moderate Activity
- Least Activity



1.3 Placemaking

Project Sub-Areas

India Basin is organized as a group of five interconnected sub-areas. Each sub-area features a different character and distinct sense of place to provide a diversity of experiences across the site.

The Hillside is bounded by Innes Avenue, and Earl, New Hudson and Arelious Walker Streets. The Hillside is mixed-use, urban and dense. Making use of the site's existing topography, a podium extends from below grade along Innes to ground-floor level along New Hudson, with parking concealed by active use frontage. The Streetwall of this sub-area features both a high degree of public realm definition and variation on all sides. Larger parcels in the Hillside offer more flexibility for development, while pedestrian laneways, intimate courtyards and public stairs maintain the human scale and permeability of blocks.

The Cove is delineated by Innes Avenue and Arelious Walker Street, and by substantial frontage directly onto the Big Green and Shoreline. Immediacy to the Bay is the defining feature of this area. The direct adjacency of the Cove to the Shoreline creates a uniquely urban waterfront, with striking views to Downtown. Here too topography is used to extend a podium from below grade along Innes to ground-floor level along New Hudson, with parking concealed by active use frontage. Between New

Hudson and the Shoreline, dual-aspect ground floor community-serving uses spill out into and activate the Cove Terrace and the Public Market.

The Flats are edged by New Hudson Street, and front onto future Northside Park, the Big Green and the Shoreline. The Flats are modestly scaled, lower density, more family-oriented and quieter in character. Arranged around an internal, pedestrian-priority shared public way, buildings in the Flats feature direct street-level access to ground-floor live-work and residential units with stoops, decks, porches and other socially-engaging outdoor spaces.

The Big Green is a performative landscape, supporting active recreation alongside habitat, stormwater management and other ecological functions, and resulting in a rich open space where urban meets wild. Trails meander through the earthworks and public art, engaging with a range of program offerings and educational moments for a sense of discovery.

The Shoreline is a dynamic land-waterscape. Existing tidal marshes and natural forming sand dunes are retained and expanded to increase habitat potential. A perched sand area and deck terrace serve as a regional attraction for sunbathing, beach sports and kayaking. Natural and constructed adaptation measures are designed into the shoreline landscape for long-term resilience.





FIGURE 1.37: THE SHORELINE AND BIG GREEN



FIGURE 1.38: THE COVE

The Shoreline and Big Green

The Shoreline and Big Green are the major public spaces for India Basin. Part of a larger regional-scale open space network, these two areas together provide the signature attractions for the project. The Big Green is an active waterfront destination with forms, spaces and programs that have a “wild” character, reflecting the unique qualities of the existing site.

The Shoreline provides water access in the form of boardwalks, trails, viewing platforms, human powered boat launches and a recreational beach. Existing tidal salt marsh wetlands are improved with sand dunes, bird islands, a bioengineered breakwater, brackish lagoons, scrub upland planting, wind-mitigating tree stands and new wetlands.

The Cove

The Cove opens onto the India Basin shoreline landscape with sweeping views to downtown San Francisco. The main attraction of this part of the site is the Cove Terrace, providing active ground floor retail and restaurant uses that face the waterfront and connect through to the Public Market Plaza. The Cove also features intimate courtyards, a pedestrian laneway, and a public stair which together maintain the human scale and permeability of block.



FIGURE 1.39: THE HILLSIDE



FIGURE 1.40: THE FLATS



The Hillside

The Hillside is a high density, mixed-use, urban district defined by the generous treatment of its pedestrian-priority sidewalks and an active, engaging streetwall. The Transit Plaza, at the corner of Innes Avenue and Arelious Walker, serves as a welcoming gateway to the neighborhood. Within the block, intimate courtyards, pedestrian laneways and a public stairs maintain human scale and permeability. The Hillside Steps mediate the site's topography connecting Innes Avenue to the lower level along New Hudson Street but also serving as a special, intimate public space.

The Flats

The Flats contain several intimate pocket plazas where paths toward the Bay and paths parallel to the Shore intersect. These gathering nodes are linked along a shared public way that advances the highest ideals of the San Francisco Better Streets Plan by creating a low-speed space for pedestrians, ecology and vehicles to co-exist. The materials and vegetation selected for the shared public way are performative – designed to treat stormwater while producing a distinctively soft, verdant sense of place. The Town Triangle, and two additional private courtyards complete the place-making amenities for this sub-area.



FIGURE 1.41: THE MARKET PLAZA

The Public Market

Located at the heart of the village and the foot of the Big Green, the Public Market and plaza serves as a major destination and gathering place for India Basin. Flexible pavilions designed to be modular and evolve over time provide seating, shade, community spaces and stalls for local vendors and artisans, as well as restrooms and other park amenities. The Public Market spills onto a generous plaza design to accommodate daily users, as well as large events, gatherings and farmers markets. As a regional destination, the Public Market orients users to the India Basin public realm and acts as a gateway to the Big Green. It is also intended to serve as an emergency evacuation site for the greater India Basin neighborhood.



Public Market

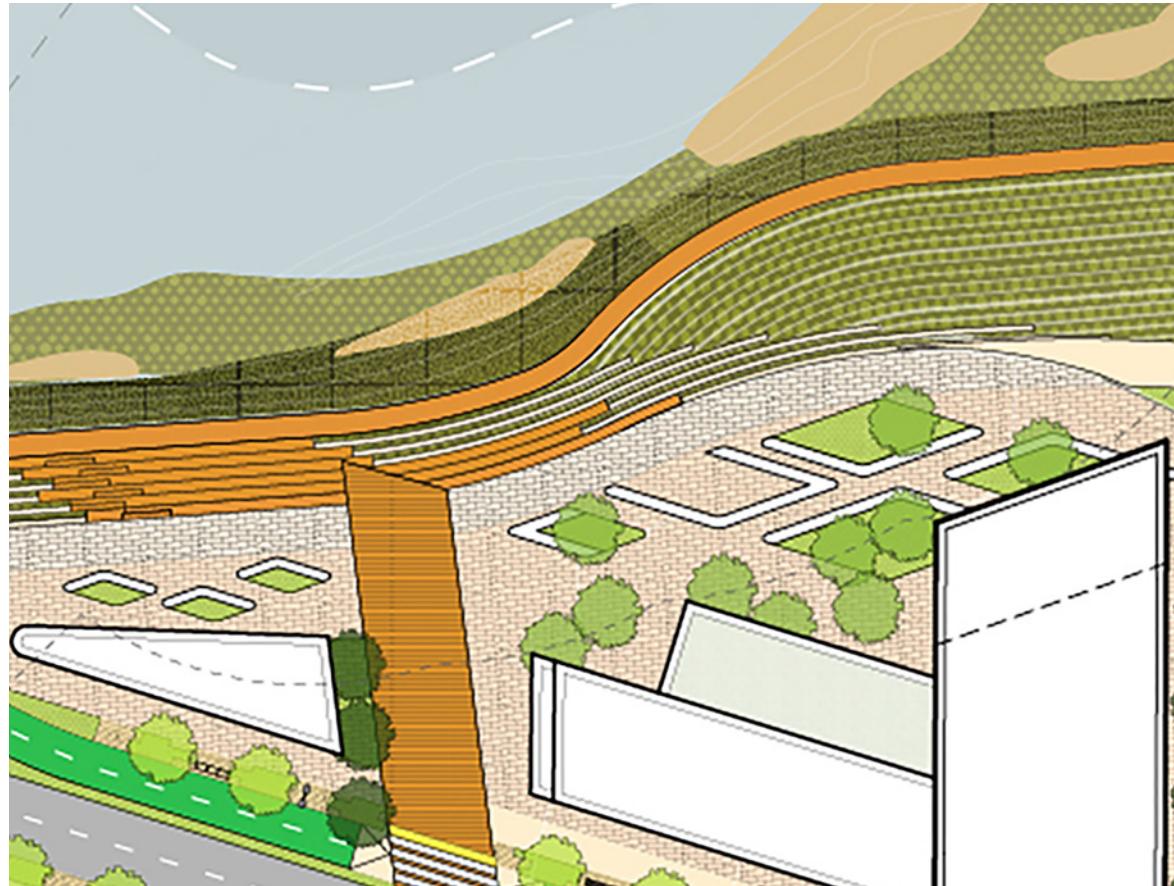


FIGURE 1.42: THE COVE TERRACE

The Cove Terrace

The Cove Terrace is a prominent public and private plaza, lined with active ground floor restaurant and cafes, located at the top of a terraced bank with panoramic views to downtown San Francisco. At a critical entry to the site, the plaza is a signature space. Pedestrians and bicycles intermix along the Bay Trail as it weaves through an active plaza with restaurants and concessions. The Cove Terrace steps down with generous terraces to a newly created tidal marsh. The intersection of the urban and the wild offers a rare experience along the San Francisco waterfront.



Cove Terrace



FIGURE 1.43: THE HILLSIDE STEPS

The Hillside Steps

The Hillside steps provide an important functional pedestrian connection from Innes Avenue down to New Hudson, the retail heart of the neighborhood. The steps are designed to feel welcoming, generous and comfortable to the larger existing India Basin community. Planting, art and water can be incorporated into the stairs to increase comfort and animate this critical public space.



Hillside Steps



FIGURE 1.44: THE TOWN TRIANGLE

1" = 50'-0"
0' 25' 50' 75' 

The Town Triangle

The Town Triangle functions as the secondary gathering space for the residents of the Flats and the Hillside, distinct and different from the larger-scale Public Market. Lined with neighborhood-serving retail, the Triangle's public realm role is to provide flexible plaza space for small-scale gatherings and activities. Accordingly, the plaza incorporates a large paved area, as well as more intimate gathering spaces.



Town Triangle

09



Public Realm

Chapter 02: Public Realm

- 2.1 Open Space Network
- 2.2 Transit Access and Bicycle Network
- 2.3 Streets and Lanes
- 2.4 Places
- 2.5 Public Realm Elements
- 2.6 Ecology and Biodiversity

This chapter details the design intent, Standards and Guidelines for the Public Realm, including Rights of Way, Public Pathways, Easements and Walks, Parklands, Plazas, Courtyards, and other unique places.

Following on the guidelines and best practices detailed in the San Francisco Better Streets Plan (BSP), and the recommendations elaborated in the India Basin Transportation Action Plan (IBTAP), Access and Circulation at India Basin are considered holistically – integrating transit, bike, and pedestrian routes along with automobile, service and emergency vehicle access. The robust network of streets, laneways, pedestrian paths, trails, boardwalks, terraces, stairs and promenades creates a highly-walkable, pedestrian-priority precinct that links into the surrounding neighborhood, connecting the site to greater Bayview Hunters Point, and beyond.

Internally, India Basin has been configured to feature small blocks with many intersections and a network of open spaces providing a variety of engaging pedestrian focused streets, lanes, paths, and trails that encourage walking and biking. The open space plan for India Basin offers opportunities for a wide array of outdoor activities, fostering social interaction among residents. Intimate semi-private residential courtyards, community plazas, the Public Market, Shoreline and Big Green all provide a wide range of scales and experiences. The landscape is visually rich and varied, featuring areas for both active recreation and passive enjoyment, while also supporting district wide sustainability objectives for water management and biodiversity. Water plays an important role in shaping the public realm. An advanced network collects and conveys rain water via planted rooftops, courtyards, swales, flow-through planters, bio-retention areas, and wetlands to the Bay—a complex system that informs the design of specific landscape elements and makes the commitment to Sustainability visible in the Public Realm.

2.1 Open Space Network

Public Realm Framework

The emphasis of the India Basin project on supporting civic life obliges integration of development with a vibrant, high-performance public realm; interweaving parks, plazas and gathering places with an extensive network of complete streets, stairs, pathways, trails, pedestrian and bicycle routes. The public realm plays a central role in establishing the character of this new pedestrian-priority neighborhood, providing a wide range of active and passive uses and experiences—from the dynamic energy of the Public Market, to the small-scale neighborhood plazas, to the expansive wilds of the shoreline.

Intensity of active use is focused around the Public Market, which functions as the social heart of the project. Retail and Food & Beverage programs around the market, along Arelius Walker and New Hudson streets concentrate and amplify this energy to create a vibrant atmosphere. Secondary gathering places are public nodes at the intersections of project sub-areas, at the Cove Terrace, the Town Triangle, and the Beach. Small-scale courtyards within the blocks provide intimate, more-sheltered open space for local residents and families.



FIGURE 2.01: PUBLIC REALM “HEAT MAP”

- Most Activity
- Moderate Activity
- Least Activity



2.2 Transit Access and Bicycle Network

Transit Access

Essential to the development of India Basin are access and mobility improvements that expand transportation options and promote walking, cycling and public transit use over dependence on private automobiles. This spirit echoes the City of San Francisco's pioneering Transit First Policy, and reaffirms the community's commitment to healthy, sustainable, equitable transportation alternatives.

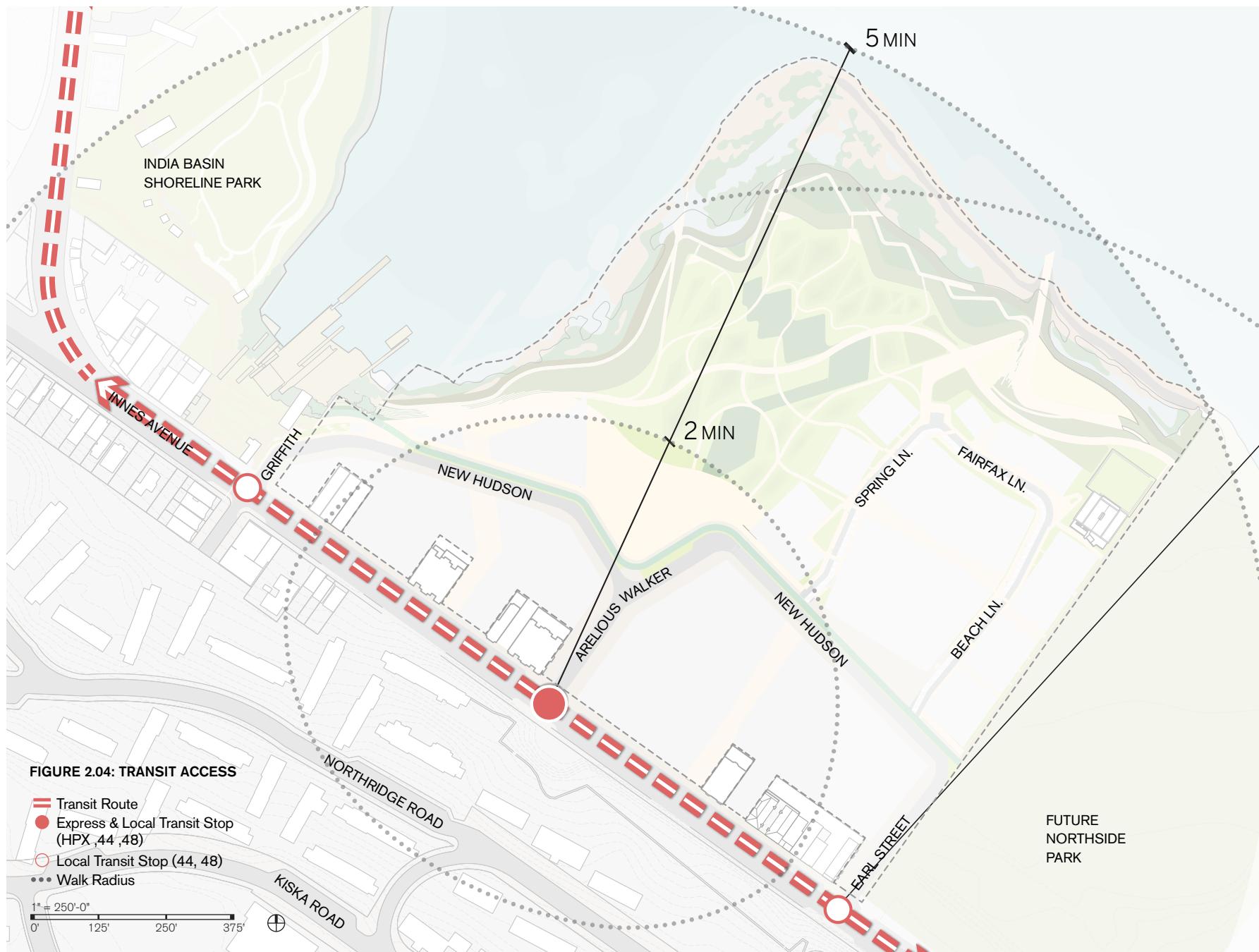
The use of public transportation by a significant proportion of residents, employees and visitors is critical to meeting sustainability commitments, providing economic opportunity, and achieving a high quality of life at India Basin. The project provides a convenient and attractive transit plaza at the intersection of Innes Avenue and Arelious Walker—the main entry to the site. This location places the entire project site, and significant uphill areas within a five-minute walk, facilitating access to improved local and express bus services.

Recommendations detailed in the India Basin Transportation Access Plan (IBTAP)—including configuration of dedicated bus lanes to provide rapid bus service along Innes Avenue, as well as stop locations to access Northside Park, 900 Innes, and India Basin Shoreline Park—are currently being studied by SFMTA. These will be implemented as part of the Candlestick Point Hunters Point Shipyard redevelopment effort.



FIGURE 2.03: EXISTING AND PROPOSED TRANSIT ACCESS

① Class I Cycle Track	Planned Local Route
② Class II Bike Lane	Existing Local Route
③ Shared Lane	Express and Local Stop (HPX,48,44)
④ Bay Trail	Planned Transit Stop
⑤ Downtown Express	Existing Transit Stop





Class I Cycle Track



Multi-Use Shared Path



Class III "Sharrows"

Bicycle Network

Prior Planning efforts—including the India Basin Waterfront Parks and Trails Plan (IBWPTP) and the India Basin Transportation Action Plan (IBTAP)—have focused on expanding access for pedestrians and bicyclists, resulting in an integrated transportation network that provides convenient non-motorized access to the India Basin neighborhood and beyond. A major feature of this network is a new Class I, dedicated and protected cycle track that

connects from India Basin Shoreline Park through the 900 Innes Site, along New Hudson Street and into Northside Park. This facility is intended to become an important commuter bike route, linking the southeast waterfront all the way to downtown.

Additional multi-use shared paths weave through the Big Green, along the shoreline, and within the shared public ways. Class III “sharrows” along Earl Street connect Innes to “Earl’s Path”—a shared multi-use trail at the edge of

Northside Park that provides additional bike access to the beach. Bike parking and Bike-share facilities are concentrated along Arelious Walker Drive, to accommodate bike access to retail, food and beverage, and other community amenities.



“Above all, do not lose your desire to walk. Every day I walk myself into a state of well-being and walk away from every illness. I have walked myself into my best thoughts, and I know of no thought so burdensome that one cannot walk away from it.”

- Søren Kierkegaard

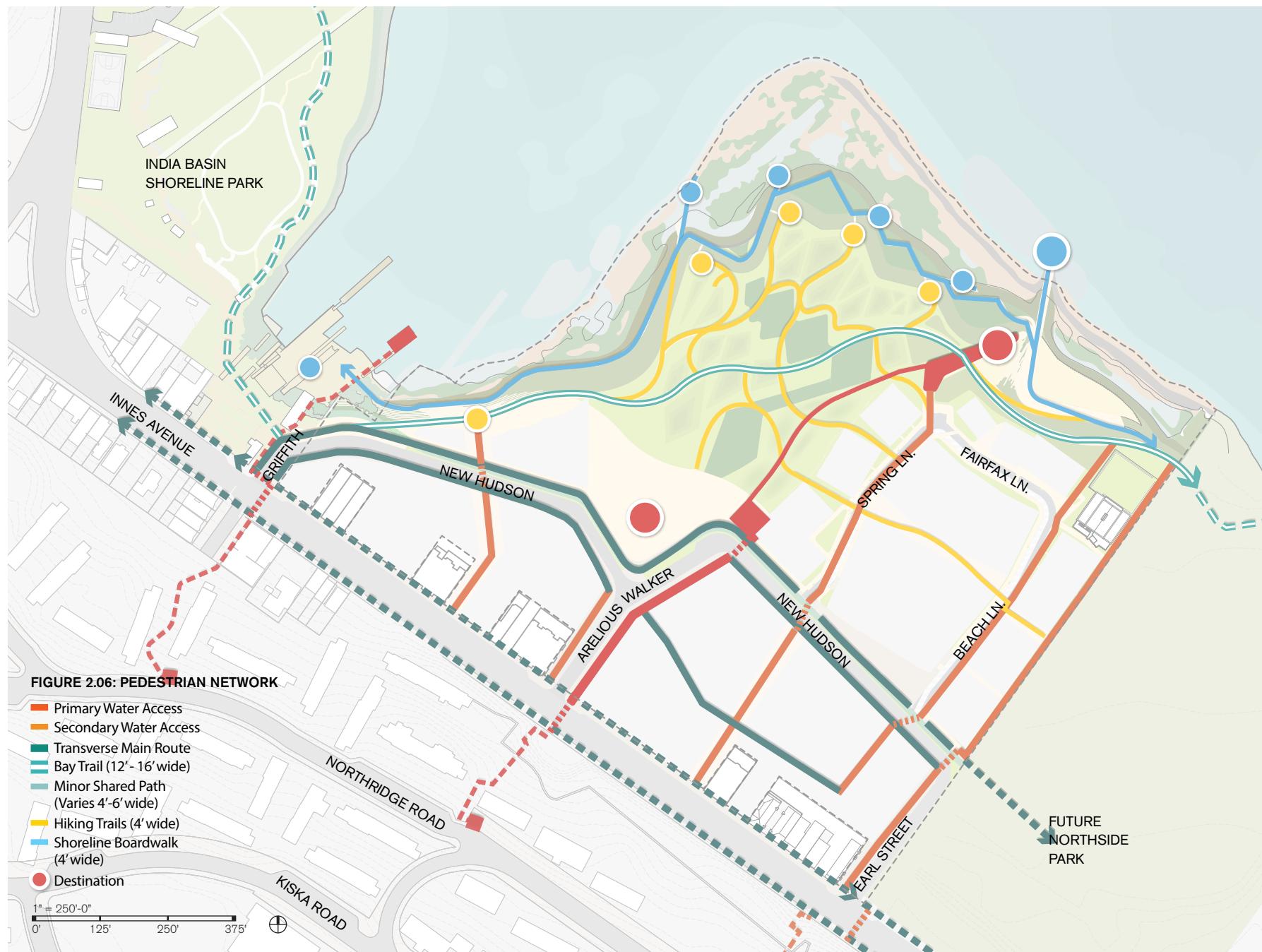
Pedestrian Network

The existing site is essentially a blank slate with long blocks. As a pedestrian-priority district, the urban design framework for the project shifts the site's monolithic proportions to the scale of the pedestrian. Pedestrian passages are provided at mid-block distances on Innes Avenue to increase permeability and prioritize access to the shoreline.

A network of pedestrian pathways permeate the site to offer a range of access routes and experiences from direct and intuitive passages, to meandering trails that provide a sense of discovery. Dimensions are designed for a future intensity of use and to create variety, choice, and character. Trails vary from urban and hard to soft and intimate.

The project advances the vision of San Francisco's Better Streets Plan for multi-functional networks that provide corridors of movement while at the same time reach their potential for enhanced community life, recreational opportunities, and ecological benefits. Better Streets are designed and built to strike a balance between all users regardless of physical abilities or mode of travel. A Better Street attends to the needs of people first, considering pedestrians, bicyclists, transit, street trees, stormwater management, utilities, and livability as well as vehicular circulation and parking.

Connections are designed to be seamless with adjacent sites for continuity and to reinforce both the waterfront and regional trail network.



2.3 Streets and Lanes



Existing Throughway - Innes Avenue



Neighborhood Commercial



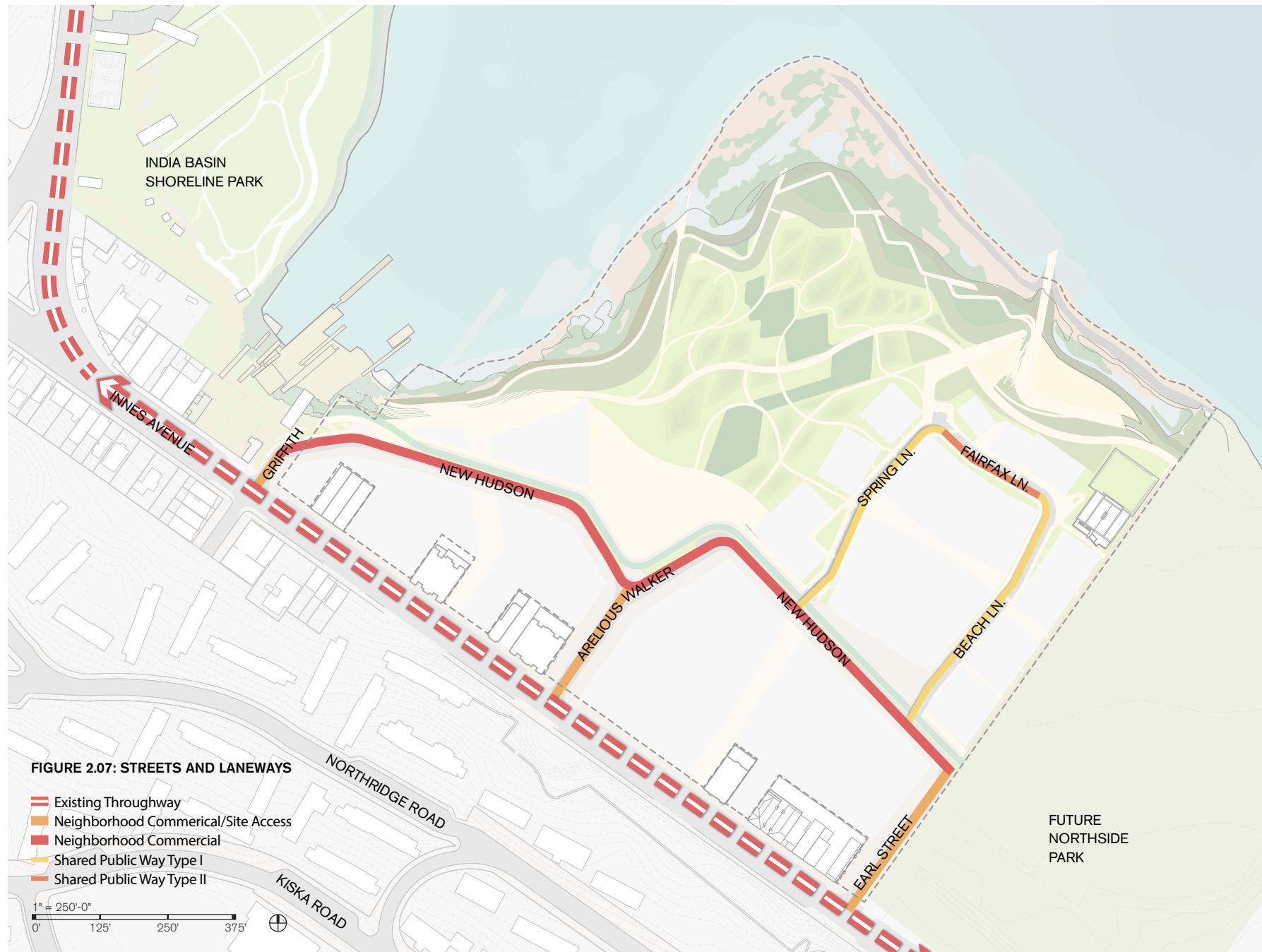
Shared Public Way

Complete Streets

Accessibility and pedestrian safety are a priority for public realm improvements. To promote healthy life styles and reduce auto-traffic and emissions, street designs are intended to support walking, the use of bicycles and public transportation. Complete Streets create a pedestrian focused environment that is safe, comfortable, inviting and visually legible as a way-finding system. Through thoughtful consideration of the full right-of-way cross-

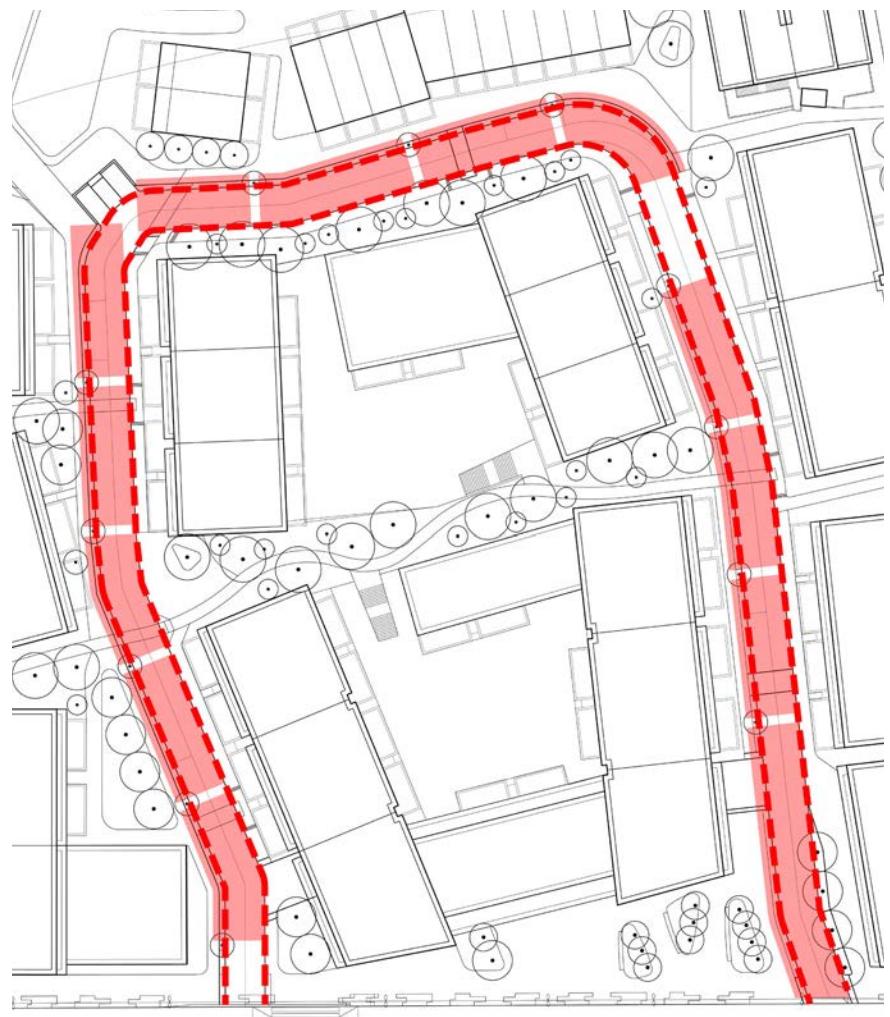
section, Complete Streets provide ample space for walking, sitting and gathering to encourage social interaction among residents and visitors. Bicycle and pedestrian pathways connect India Basin to surrounding sites, as well as the city-wide network of bicycle and pedestrian routes. In conjunction with overall sustainability goals for the neighborhood, an integral part of the streetscape is a network of planters and bioswales that capture, direct and treat stormwater.

As a result of these priorities, neighborhood streets are designed with the minimum travel lane dimension. Travel lanes are widened only where required for service and emergency vehicle access standards. Street cross sections and enlarged partial plans on pages 76-109 illustrate typical conditions for each street type. Detailed roadway configurations are subject to the Tentative Map.



Emergency Vehicle Access

The India Basin street network is designed to accommodate the requirements of emergency vehicle access. Street widths and turning radii accommodate San Francisco Fire Department requirements and emergency vehicle access is provided throughout the street network.



**FIGURE 2.08: SHARED PUBLIC WAY
EMERGENCY VEHICLE ACCESS**

— 20' Clear Emergency Vehicle Access
— 26' Clear Emergency Vehicle Staging



San Francisco is a walker's city – a dense mix of uses, short blocks, and small streets combine to make a convenient and desirable walking environment.

– SF Better Streets Plan, 2010

Access Design Objectives

The project advances the vision of San Francisco's Better Streets Plan for multi-functional networks that provide corridors of movement while enhancing community life, recreational opportunities, and ecological benefits. Better Streets are designed and built to strike a balance between all users regardless of physical abilities or mode of travel. A Better Street attends to the needs of people first, considering pedestrians, bicyclists, transit, street trees, stormwater management, utilities, and livability as well as vehicular circulation and parking.

This is achieved through thoughtful consideration of the full right-of-way cross-section. Automobile Travel zones are optimized to remain narrow. Interstitial areas buffer the Pedestrian zone with Parking, Loading, Bike Lanes or Curb Extensions. Ample space is allotted for Planting and Street Furnishing so that comfortable, clear Pedestrian through-access can be maintained. Setbacks provide additional opportunity for indoor-outdoor engagement with seating and tables in commercial areas, or stoops and outdoor planting in more residential areas.

Streetscape Zones

Streetscape Zones define the use of the area within the street right of way including the curb line and the building face.

Travel Zone The portion of the street allocated to vehicular travel. In pedestrian and cycle-priority neighborhoods like India Basin, this zone should be minimized.

Interstitial Zone The Interstitial Zone refers to a variable area between the Travel Zone and the sidewalk. It provides a buffer between vehicles and pedestrians, and may include on-street parking, bicycle facilities, or curb extensions and bulbouts. It may also accommodate landscaping and furnishings.

Planing/Furnishing Zone The planing/furnishing zone provides a buffer between the pedestrian walking zone and the roadway. This zone can accommodate a range of furnishing elements, as well as street trees and planting. The furnishing zone should be differentiated from the through-way zone through material or paving scoring change.

Pedestrian Zone This is the zone maintained clear of obstructions for pedestrian through-travel. The surface should be firm, stable and slip resistant. The width of this zone should accommodate anticipated foot-traffic. A minimum clear travel path of 6' should be maintained at all times.

Setback Zone The setback zone provides transition from public streets to buildings. Activation of the public realm can be achieved by providing outdoor use areas within the setback zone. Along commercial facilities the setback zone may include outdoor display, signage and/or movable seating. Planting between the edge of the public right of way and the building face can create an effective buffer and help soften the street with vegetation. See Chapter 5 for setback requirements.

"There is magic to great streets. We are attracted to the best of them not because we have to go there but because we want to be there. The best are as joyful as they are utilitarian. They are as entertaining as they are open to all. They permit anonymity at the same time as individual recognition. They are symbols of a community and of its history; they represent a public memory. They are places for escape and for romance, places to act and to dream. On a great street we are allowed to dream; to remember things that may never have happened and to look forward to things that, maybe, never will."

- Allan Jacobs



FIGURE 2.10: STREETSCAPE ZONES

Street Standards and Guidelines

India Basin streets will be oriented toward pedestrians and bicycles and support a robust public realm. The streets will have a distinct look and feel, and the materials and furnishings will reflect the unique character of India Basin.

The standards and guidelines included on this page apply to all India Basin streets. On the pages that follow, specifications, guidelines and standards are provided for specific streets.

Standards

2.3.1. Tree Size Street trees shall be minimum 24-inch box at installation.

2.3.2. Tree Pit Street trees shall have a minimum of 1000 cubic feet of soil to maximize habitat potential. This may include use of a structural cell system (see Section 2.5 for Tree Pit Types) to maximize soil volume.

Guidelines

2.3.3. Throughway Zone Surfacing in throughway zone shall be distinct from surfacing in the furnishing zone. Variation may include jointing pattern, paving type, texture and color. Throughway zone surfacing shall conform to DPW standards for accessibility and shall be firm, stable and slip resistant.

2.3.4. Furnishing Zone Furnishing zone shall be surfaced with cast in place concrete, concrete unit pavers or stone cobble. Fixed furnishings shall be located in this zone and placed outside of the throughway zone.

2.3.5. Placement of Furnishings Placement of furnishings including bike racks, refuse receptacles, seating and news stands shall be coordinated with building design and entry locations. Furnishings shall be located adjacent to primary building entries. Furnishings shall not conflict with or obstruct building entries.

2.3.6. Tree Spacing Where regular spacing of trees is not possible due to curb cuts, subgrade utilities or other obstacles, regular spacing shall be maintained for as much of the street as possible. A gap of no more than one tree shall be permitted.



NOT USED

NOT USED

NOT USED

NOT USED

New Hudson Street

New Hudson serves as the primary circulation route and retail corridor for India Basin. New Hudson is also the primary bicycle thoroughfare traversing the site, with a dedicated 2-lane Class 1 Bikeway that is separated from the vehicular zone by a 3' planted buffer and 2" curb. New Hudson links the primary public spaces of the site, including the Public Market, Town Triangle, and Big Green to each other and adjacent properties. The Right-of-Way configuration features pedestrian-oriented treatments with generous sidewalk dimensions and an ample zone for plantings and furnishings to enable a robust public realm.



FIGURE 2.11: NEW HUDSON STREET VIEW

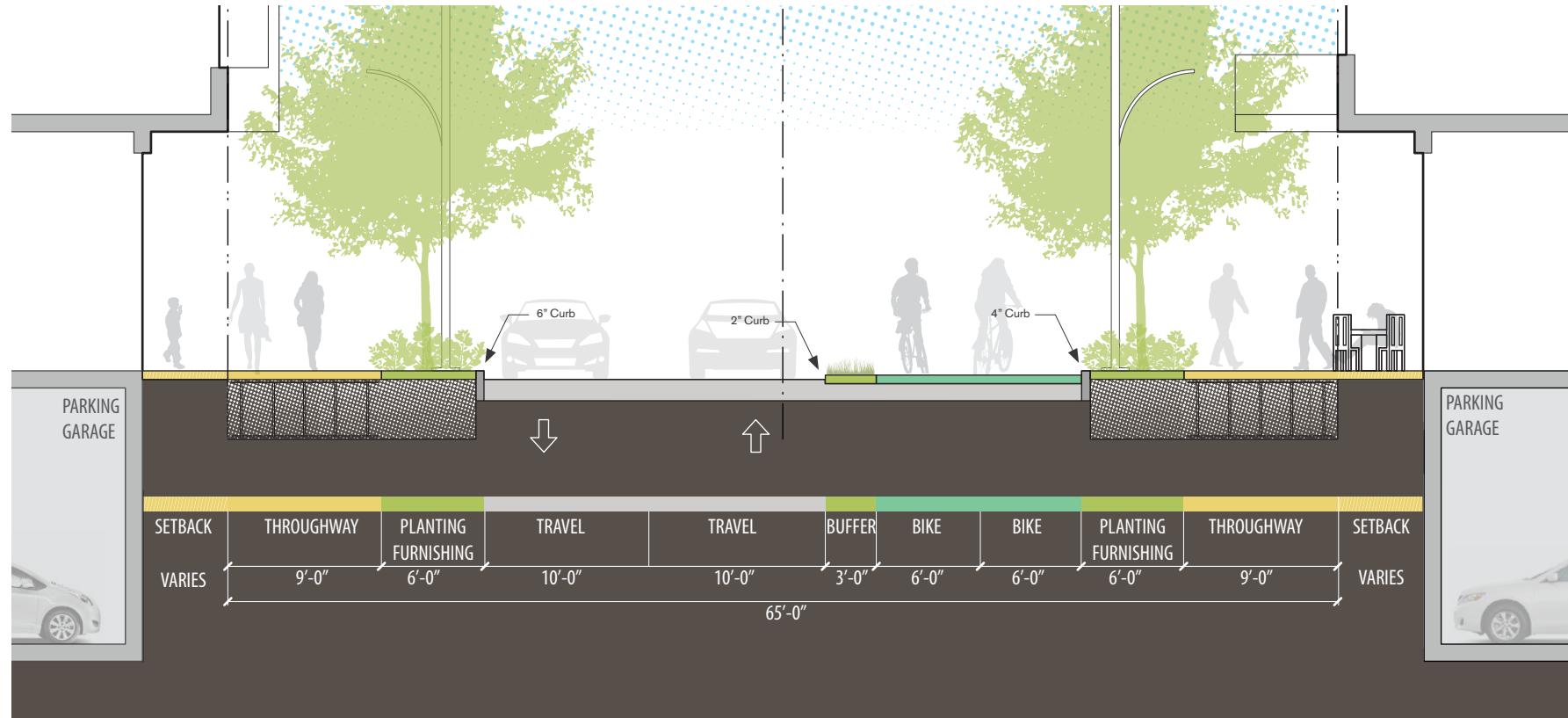


FIGURE 2.12: NEW HUDSON STREET SECTION - TYPICAL



Table 2. New Hudson Specifications

R.O.W. WIDTH: 65'-0"
BIKE FACILITIES: CLASS I BIKE LANE

SURFACING

P1	RAISED CROSSWALK ZONE	TYPE H, I, J, K
P2	FURNISHING ZONE	TYPE I, J, K
P3	TRAVEL ZONE	TYPE G, H
P4	THROUGHWAY ZONE	TYPE H, I, J
P5	CLASS I BIKE LANE	TYPE L

CURBS

C1	CURB AND GUTTER	DPW STANDARD
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PLANTING

L1	TREE	COMMERCIAL CORRIDOR
L2	STREETSCAPE PLANTING	UNDERSTORY TYPE C

LIGHTING

LT1	STREET LIGHT	TYPE 1
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FURNISHING

F1	BIKE RACK	
F2	SEATING	TYPE 1, 2

Standards

2.3.13. Street Zone Dimensions Right-of-way cross-section dimensions shall be as shown in Figure 2.16.

2.3.14. Elements Elements per Figure 2.17. All elements shown shall be included. Dimensions vary.

2.3.15. Specifications Specifications shall conform to Table 2. New Hudson Specifications. See Section 2.5 for public realm elements.

2.3.16. Throughway Zone Maintain a minimum 6-foot wide unobstructed throughway zone on both sides of the street.

2.3.17. Street Trees Street trees are required and shall be spaced at maximum 30'-0" on center.

Guidelines

2.3.18. Street Trees Street trees shall be Commercial Corridor tree type. See Section 2.6 for species.

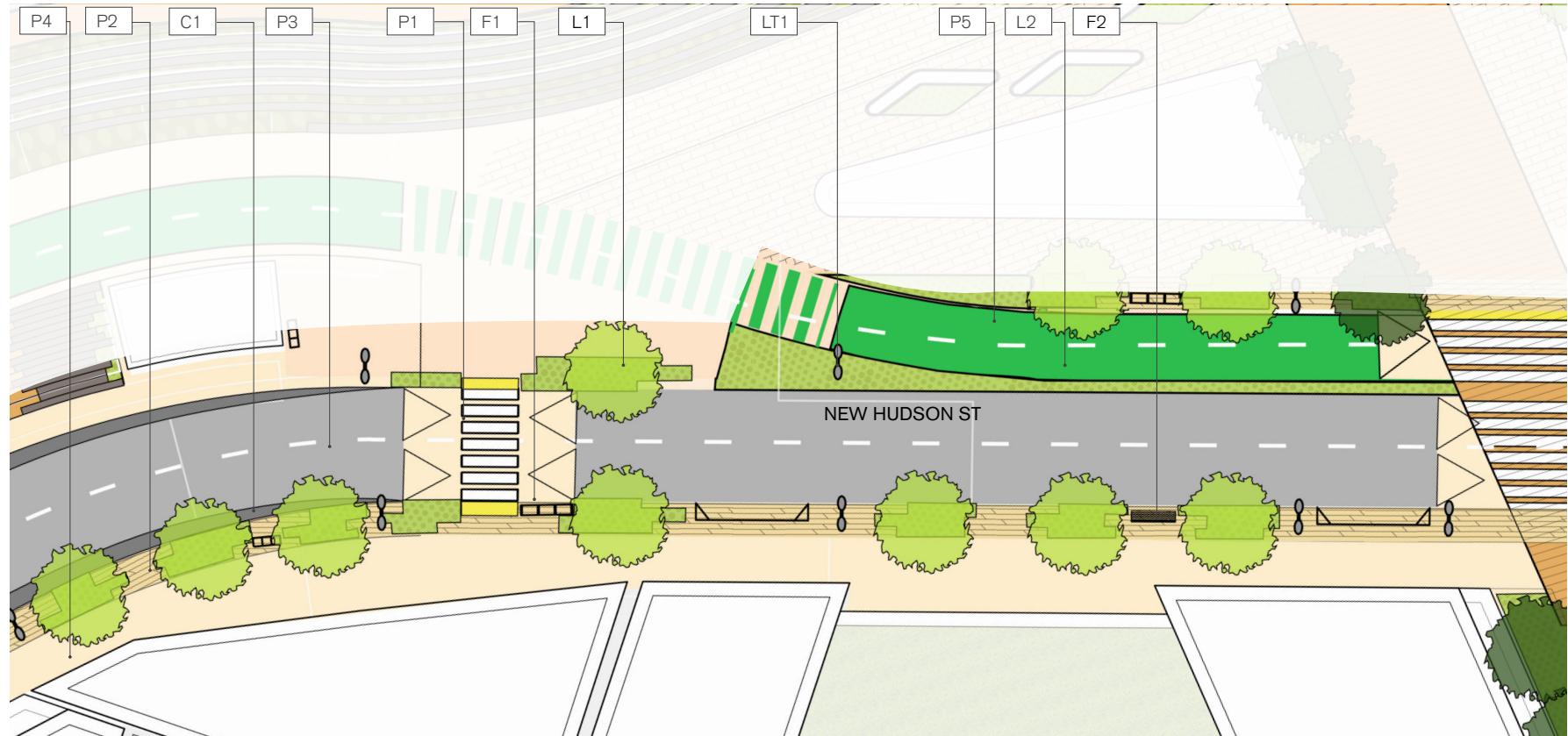
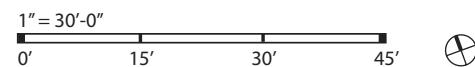


FIGURE 2.13: NEW HUDSON ENLARGED PLAN



Arelious Walker Street

Arelious Walker is the primary point of entry into the site for residents and visitors. Arelious Walker provides a generous pedestrian entry to the site accommodating multiple modes of arrival. A transit plaza and bike sharing node welcome those arriving by bus. The pedestrian zone is widened on the south. This includes a major bus stop with a transit plaza on Innes Avenue and a bike-sharing node and sidewalk with extended pedestrian zone located on the south side of the street for circulation; and street parking is located on the north side of the street.



FIGURE 2.14: ARELIOUS WALKER STREET VIEW

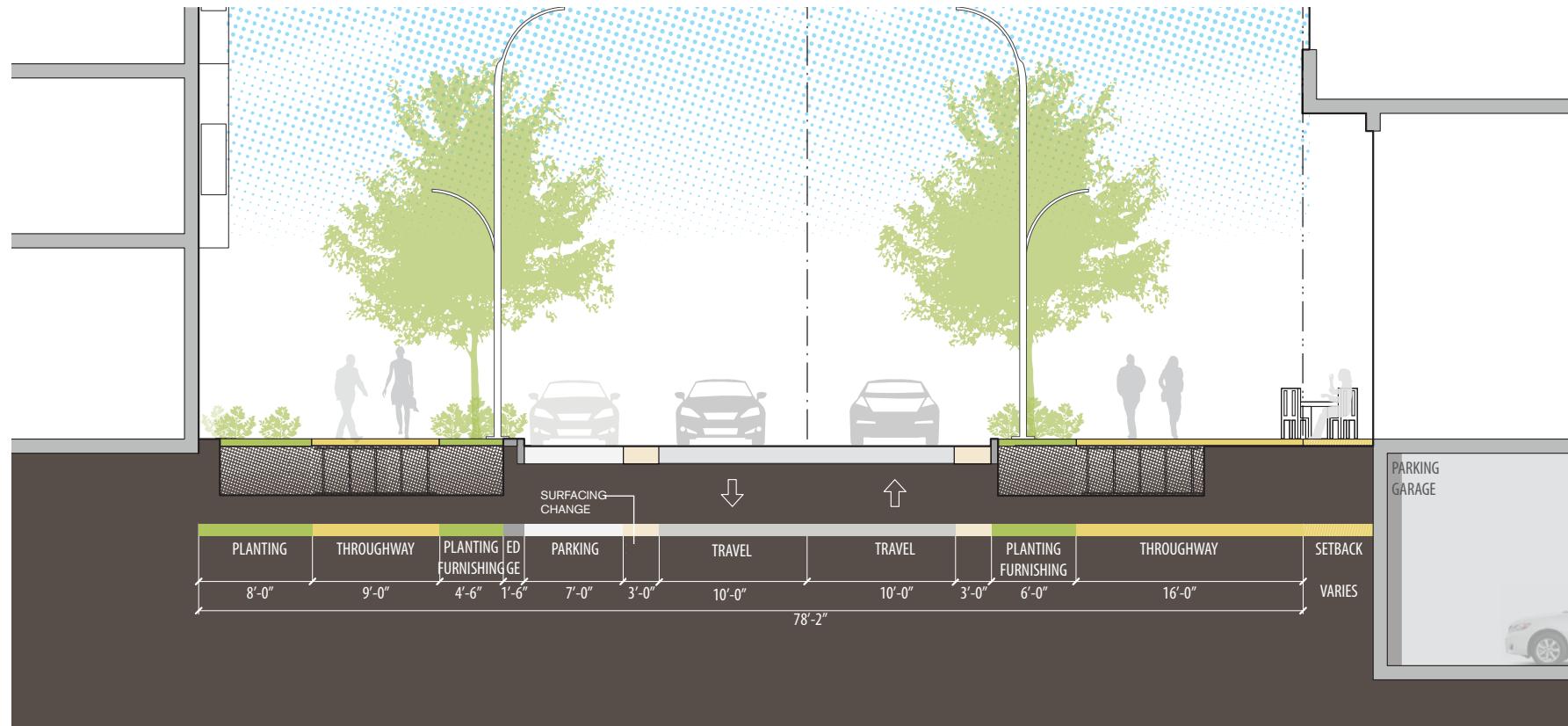


Table 3. Arelious Walker Specifications

R.O.W. WIDTH: 86 FEET BIKE FACILITIES: BIKE SHARE		
SURFACING		
P1 RAISED CROSSWALK TYPE H, I, J, K		
P2	FURNISHING ZONE	TYPE I, J, K
P3	TRAVEL ZONE	TYPE G, H
P4	THROUGHWAY ZONE	TYPE H, I, J
P5	CURB ZONE	TYPE H, I, J, K
CURBS		
C1	CURB RAMP	DPW STANDARD
C2	CURB EXTENSION	TYPE H, I, J, K
C3	CURB AND GUTTER	DPW STANDARD
PLANTING		
L1	TREE	ENTRY STREET
L2	STREETSCAPE PLANTING	UNDERSTORY TYPE C
LIGHTING		
LT1	STREET LIGHT	TYPE 1
FURNISHING		
F1	BIKE SHARE NODE	
F2	BIKE RACK	
F3	SEATING	TYPE 1, 2
PARKING & LOADING		
PA1	STREET PARKING	DPW STANDARD
TRANSIT		
T1	TRANSIT PLAZA	

Standards

2.3.19. Street Zone Dimensions Right-of-way cross-section dimensions shall be as shown in Figure 2.19.

2.3.20. Elements Elements per figure 2.20. All elements shown shall be included. Dimensions vary.

2.3.21. Specifications Specifications shall conform to Table 3. Arelious Walker Specifications. See Section 2.5 for public realm elements.

2.3.22. Throughway Zone Maintain a minimum six-foot wide unobstructed throughway zone on both sides of the street.

2.3.23. Street Trees Street trees are required and shall be spaced at maximum 30' on center.

2.3.24. Daylighting Street parking shall be inset in interstitial area, setback at least 10' from closest base of crosswalk table top.

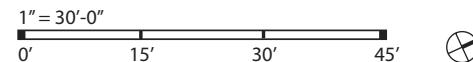
2.3.25. Surfacing Where travel lanes exceed 10 feet wide, surfacing shall change adjacent to curb to a contrasting material, such as textured paving.

Guidelines

2.3.26. Street Trees Street trees shall be Entry Street tree type. See page 212 for species.

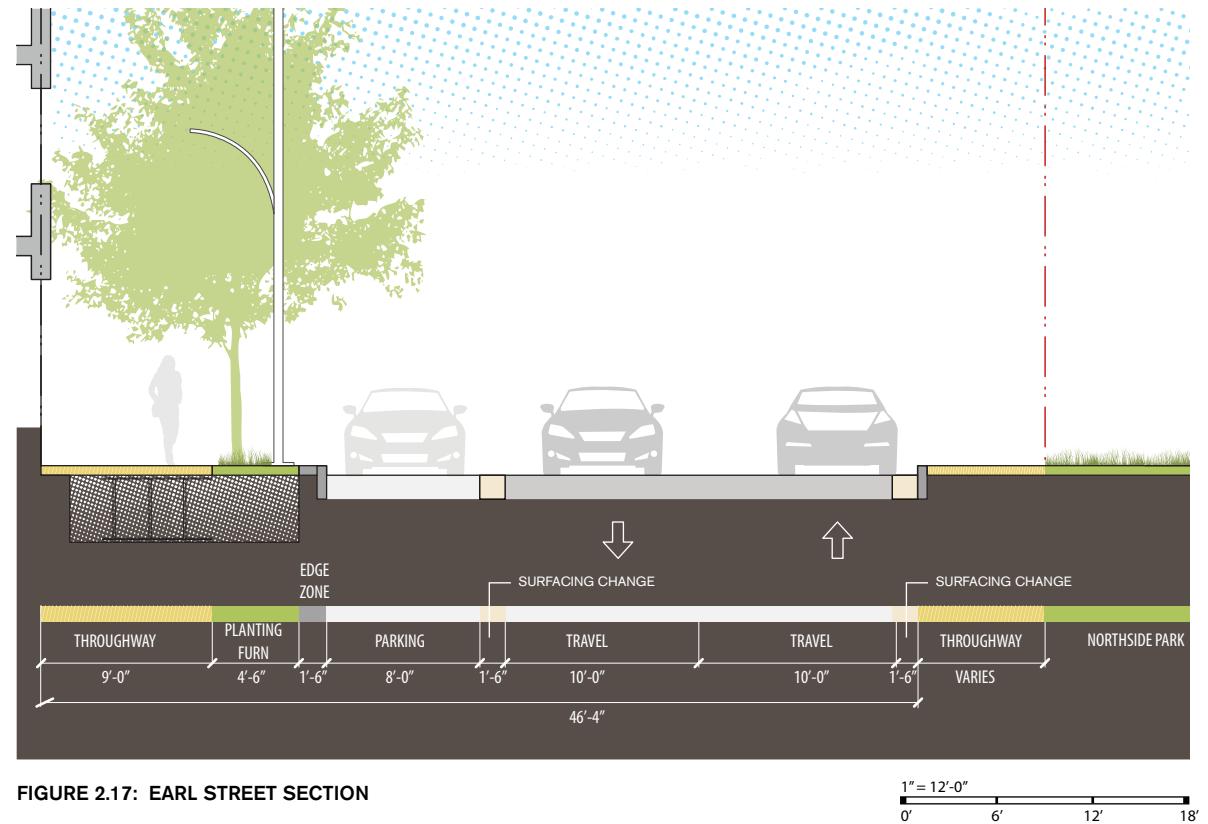


FIGURE 2.16: ARELIous WALKER STREET ENLARGED PLAN



Earl Street

Earl Street serves as a secondary point of entry. In addition, Earl Street creates an edge between the Site and Northside Park. A generous pedestrian zone is provided. Large trees mark the entry to the site. A zone is provided on the northwest side for on-street parking and drop-off adjacent to the potential school.



Earl Path

Earl Path is a multi-use path along the interface with the adjacent park. The path provides pedestrian and bicycle access along the southern edge of the site from the end of Earl Street and the New Hudson Class 1 bikeway to the shoreline. The path is lined with large trees to help buffer adjacent residences from the park.



FIGURE 2.18: EARL PATH VIEW

Table 4. Earl Street Specifications

R.O.W. WIDTH: 20 FEET
BIKE FACILITIES: CLASS III (SHARROWS)

SURFACING

P1	RAISED CROSSWALK	TYPE H, I, J, K
P2	FURNISHING ZONE	TYPE I, J, K
P3	TRAVEL ZONE	TYPE G, H
P4	THROUGHWAY ZONE	TYPE H, I, J
P5	CURB ZONE	TYPE H, I, J, K

CURBS

C1	CURB RAMP	DPW STANDARD
C2	CURB EXTENSION	DPW STANDARD
C3	CURB AND GUTTER	DPW STANDARD
C4	GARAGE ENTRY	REFER TO XX

PLANTING

L1	TREE	ENTRY STREET
L2	STREETSCAPE PLANTING	UNDERSTORY TYPE C

LIGHTING

LT1	STREET LIGHT	TYPE 1
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FURNISHING

F1	SEATING
----	---------

PARKING & LOADING

PA1	STREET PARKING	DPW STANDARD
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Standards

2.3.27. Street Zone Dimensions Right-of-way cross-section dimensions shall be as shown in Figure 2.21.

2.3.28. Elements Elements per Figure 2.23. All elements shown shall be included. Dimensions vary.

2.3.29. Specifications Specifications shall conform to Table 4. Earl Street Specifications. See Section 2.5 for public realm elements.

2.3.30. Throughway Zone Maintain a minimum six-foot wide unobstructed throughway zone.

2.3.31. Street Trees Street trees are required and shall be spaced at maximum 30' on center.

2.3.32. Daylighting Street parking shall be inset in interstitial area, setback at least 10' from closest base of crosswalk table top.

2.3.33. Surfacing Where travel lanes exceed 10 feet wide, surfacing shall change adjacent to curb to a contrasting material, such as textured paving.

Guidelines

2.3.34. Street Trees Street trees shall be Entry Street tree type. See page 212 for species.



FIGURE 2.19: EARL STREET ENLARGED PLAN

1" = 30'-0"
0' 15' 30' 45'



Table 5. Earl Path Specifications

R.O.W. WIDTH: XX FEET

BIKE FACILITIES: MULTI-USE TRAIL

SURFACING

P1 MULTI-USE PATH TYPE I, M

P2 BOARDWALK TYPE U

PLANTING

L1 TREE ENTRY STREET

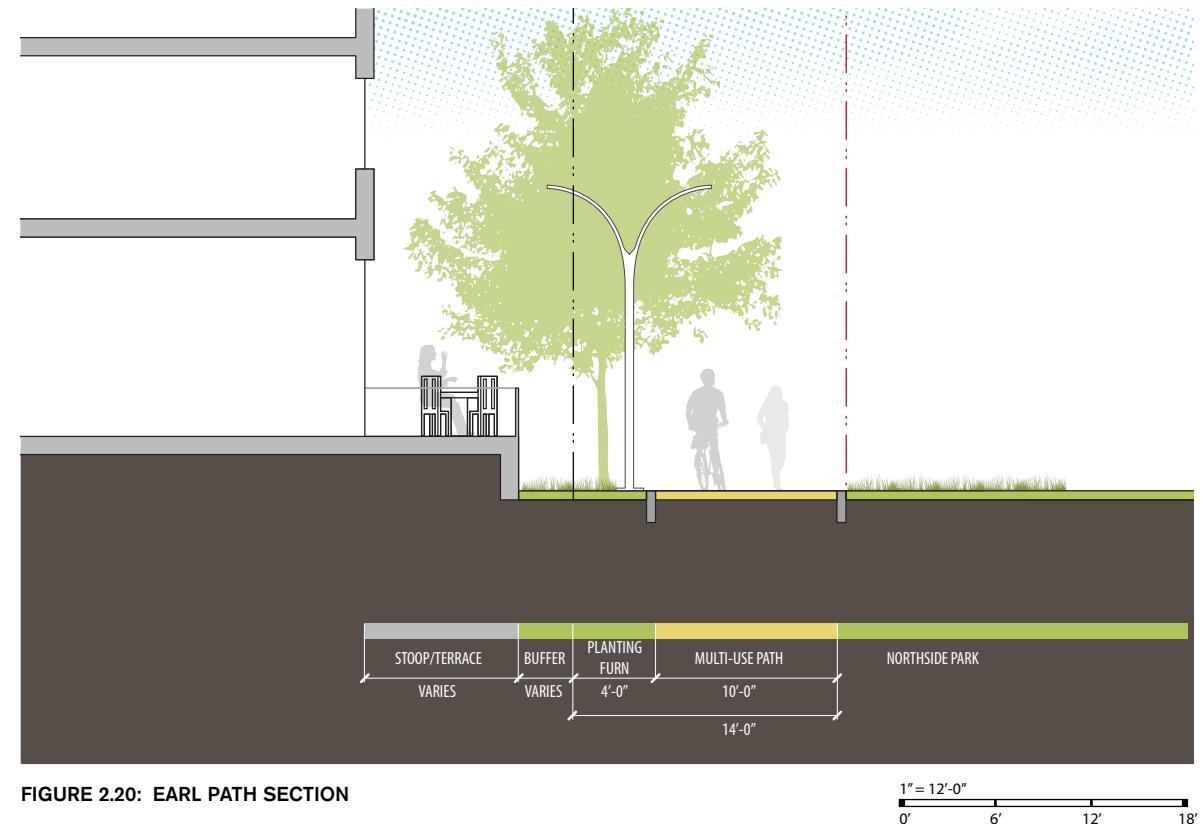
L2 STREETSCAPE PLANTING UNDERSTORY TYPE C

LIGHTING

LT1 PEDESTRIAN LIGHT TYPE 2

FURNISHING

F1 SEATING TYPE 1, 2



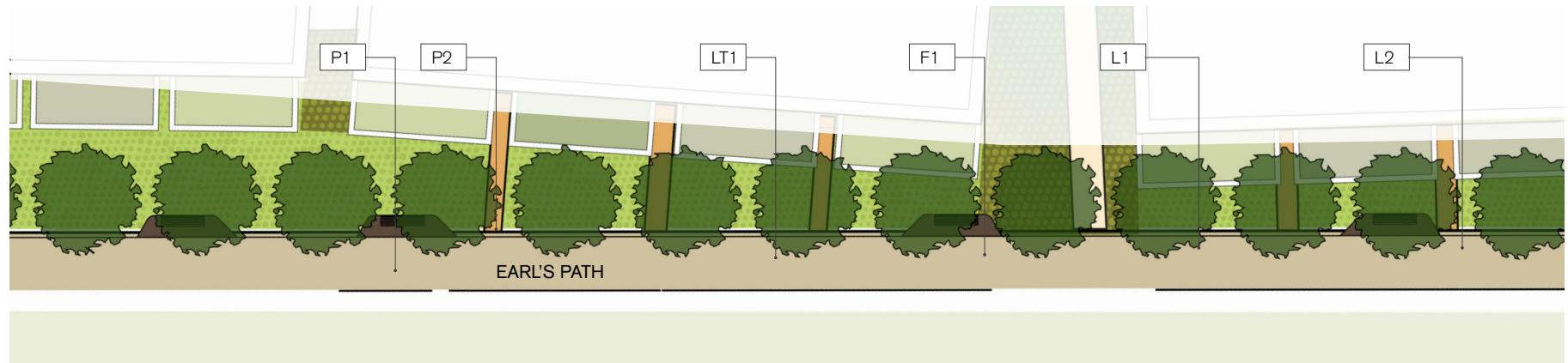


FIGURE 2.21: EARL PATH ENLARGED PLAN

Standards

2.3.35. Elements Elements per figure 2.25. All elements shown shall be included. Dimensions vary.

2.3.36. Specifications Specifications shall conform to Table 5. Earl Path Specifications. See Section 2.5 for public realm elements.

2.3.37. Tree Size Minimum tree size is 24-inch box.

Guidelines

2.3.38. Seating Seating shall be oriented toward the adjacent property, not toward residences.

2.3.39. Trees Trees shall be Entry Street tree type. See page 212 for species.

2.3.40. Pedestrian Surfacing Surfaces shall be firm, stable and slip resistant.



Shared Public Way

The Shared Public Way prioritizes pedestrians -- accommodating requirements for infrequent, low-volume vehicular access in a one way loop while maintaining flexible community use. Vehicular access is limited to slow speeds to facilitate creation of a vibrant pedestrian space. The shared public way fosters a unique identity and venue for public life in the Flats neighborhood. Planting is accommodated where possible, with an emphasis on habitat creation and stormwater treatment, reducing infrastructure required for stormwater elsewhere on site and expanding public realm amenities.



Shared Public Way

The Shared Public Way is configured to provide varied experiences, be performative, and provide places of discovery within the Flats neighborhood. At strategic moments, spaces for public gathering and signature furnishings and installations are provided. Extents of the shared way expand to create wider areas for pedestrian use and informal gathering spaces, as well as staging areas for emergency vehicles.



FIGURE 2.22: SHARED PUBLIC WAY - BEACH LANE

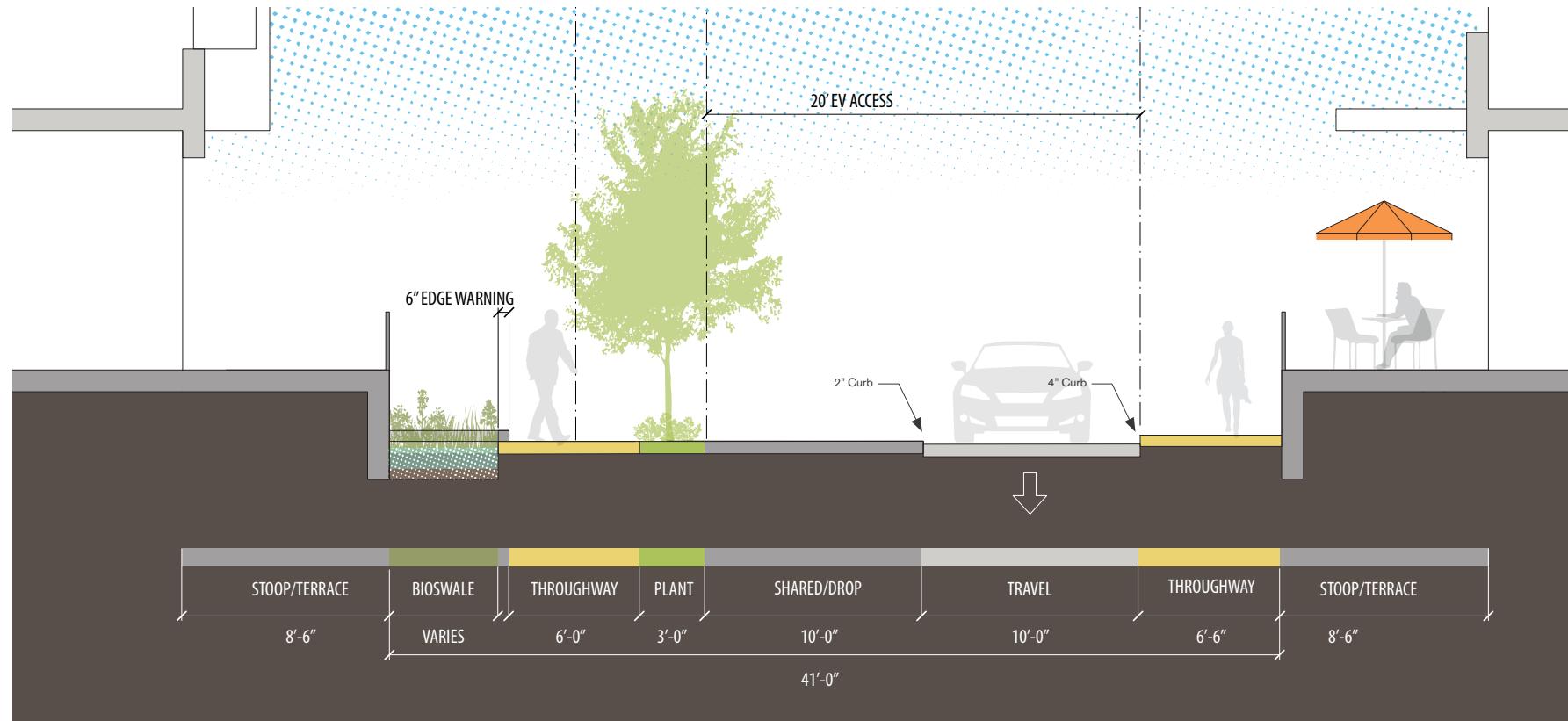


FIGURE 2.23: SHARED PUBLIC WAY SECTION AT TREE

1" = 12'-0"
 0' 6' 12' 18'



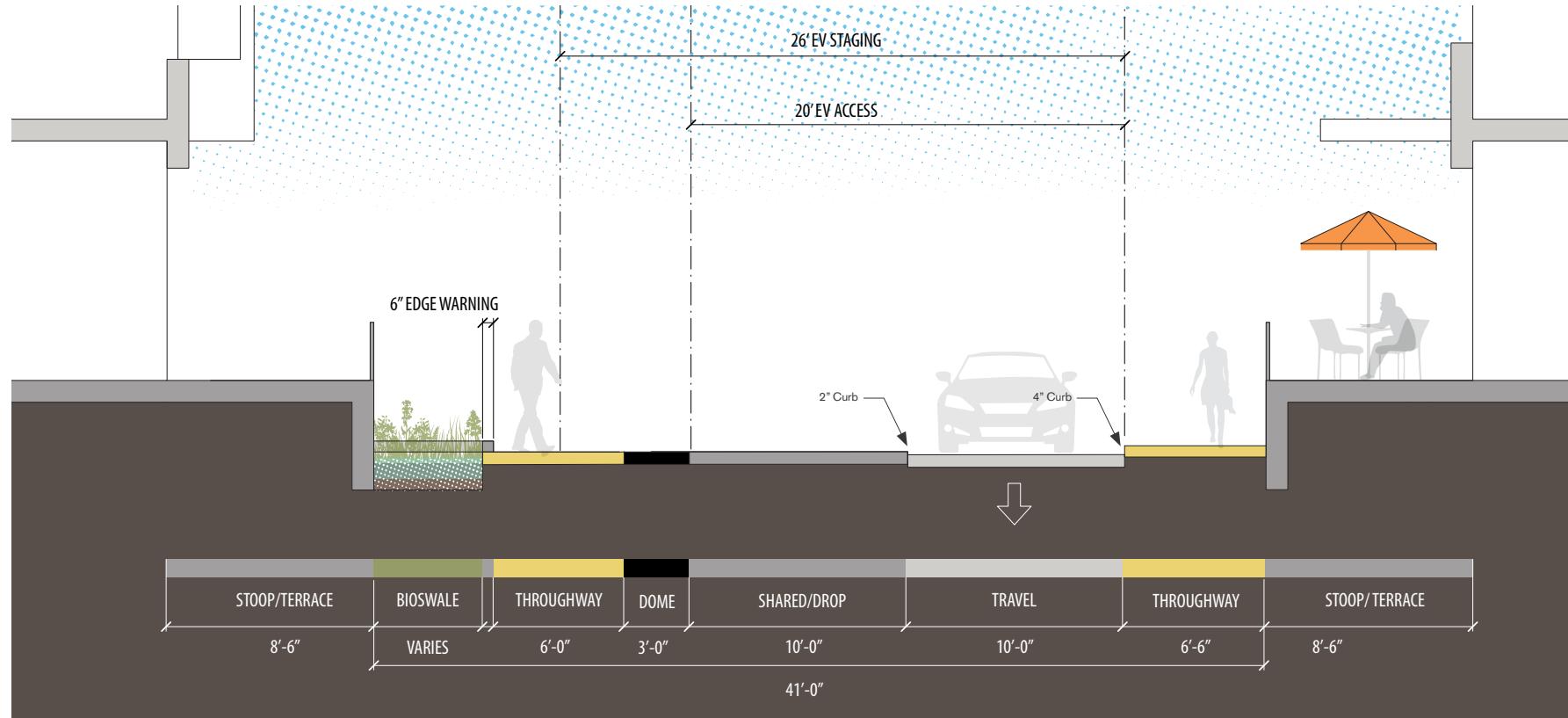


FIGURE 2.24: TYPICAL SHARED PUBLIC WAY SECTION

1" = 12'-0"
0' 6' 12' 18'



Table 6. Shared Public Way Specifications

R.O.W. WIDTH: VARIES BIKE FACILITIES: NO		
SURFACING		
P1 THROUGHWAY TYPE H, I, J, K		
P2	INFILTRATION BOARDWALK	TYPE U
P3	DETECTABLE WARNING	TYPE R
P4	DETECTABLE WARNING AT PED CROSSING	TYPE R
P5	SHARED SURFACE	TYPE H, I, J, K
P6	PED PATHWAY	TYPE I, J, K
P7	POCKET PLAZA	SEE X.X
PLANTING		
L1	TREE	OPEN SPACE
L2	BIORETENTION	UNDERSTORY TYPE F
L3	TREE	LANE/LANEWAY
L4	STREETSCAPE PLANTING	UNDERSTORY TYPE C
LIGHTING		
LT1	PEDESTRIAN LIGHT	TYPE 2
PARKING & LOADING		
PA1	LOADING ZONE	

Standards

2.3.41. Street Zone Dimensions Right-of-way cross-section dimensions shall be as shown in Figure 2.27 & Figure 2.28.

2.3.42. Elements Elements per figure 2.29, 2.30 and 2.31. All elements shown shall be included. Dimensions vary.

2.3.43. Specifications Specifications shall conform to Table 6. Shared Public Way Specifications. See Section 2.5 for public realm elements.

2.3.44. Encroachments Encroachments into pedestrian ROW shall maintain a minimum six-foot wide unobstructed throughway zone.

2.3.45. Edge Warning Provide minimum 6" high edge warning at edge of stormwater treatment area where vertical grade change exceeds 4". Use wood or pipe rail material.

2.3.46. Pocket Plazas Pocket Plazas shall be provided as shown in Figures 2.46 & 2.64. These are vehicle-free zones which shall feature special paving and site-specific furnishings. See Section 2.5 for non-exhaustive examples.

Guidelines

2.3.47. Street Trees. Street trees shall be Lane/ Laneway type. See page 212 for species.

2.3.48. Visual/Tactile Cues Provide visual/tactile cues to alert people with visual impairments to the shared nature of the space, including tactile warnings and paving texture changes.

2.3.49. Vehicular Travel Zone Paving pattern and texture change shall be used to distinguish the vehicular travel zone.

2.3.50. Boardwalks Elevated boardwalks shall span over stormwater treatment facilities to provide pedestrian access.

2.3.51. Groundplane Planting Groundplane planting shall maximize habitat potential. See Sec. 2.6.

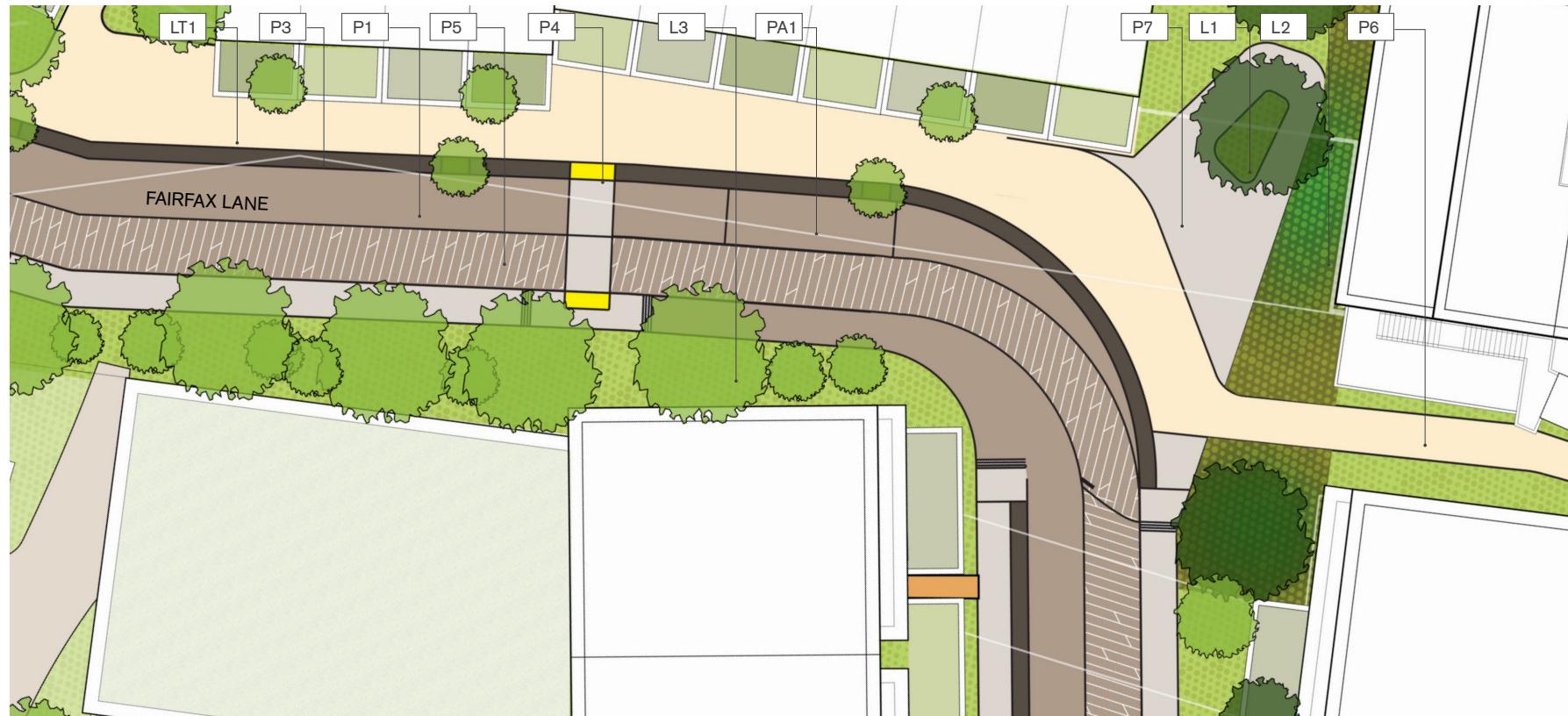
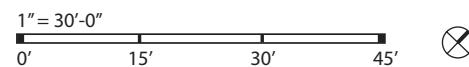


FIGURE 2.25: SHARED PUBLIC WAY - FAIRFAX LANE ENLARGED PLAN



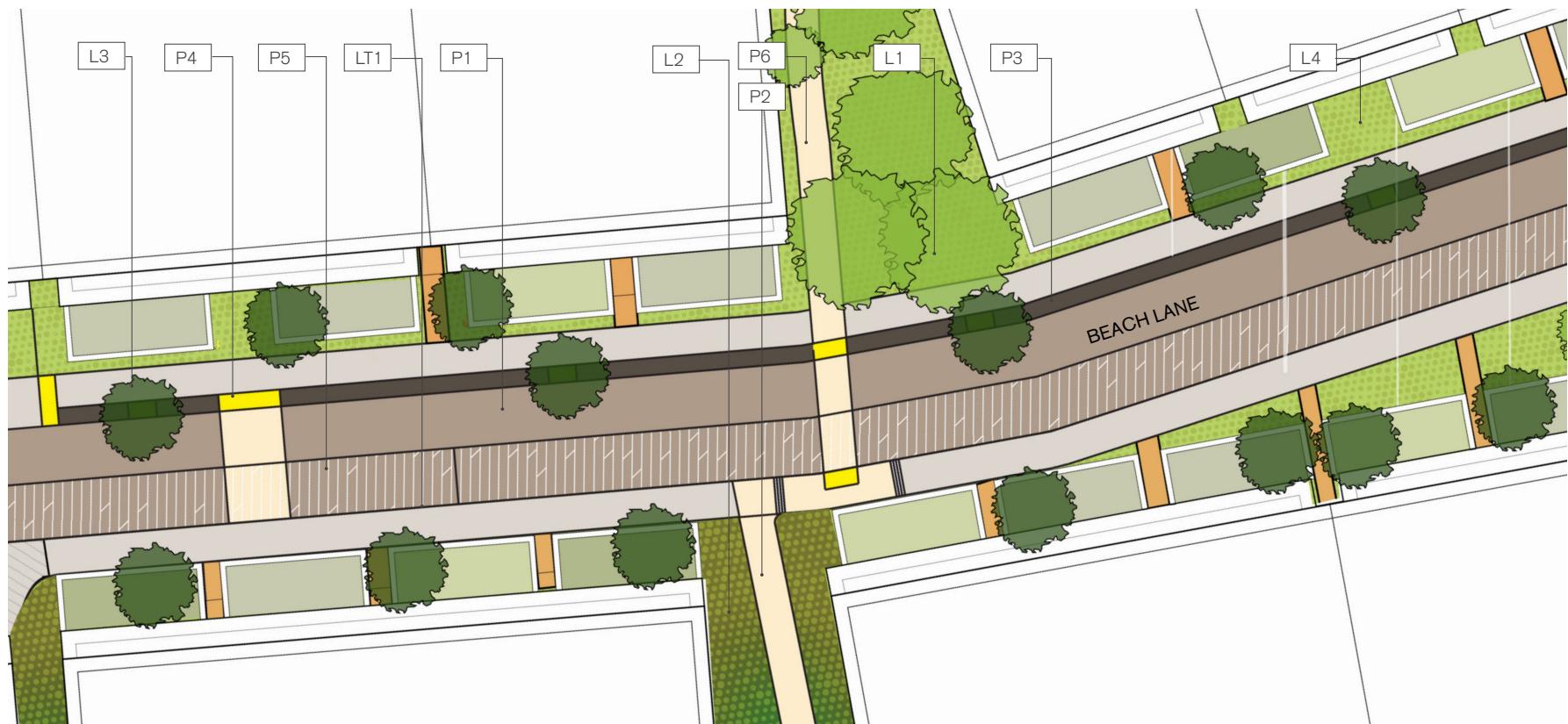


FIGURE 2.26: SHARED PUBLIC WAY - BEACH LANE ENLARGED PLAN

1" = 30'-0"



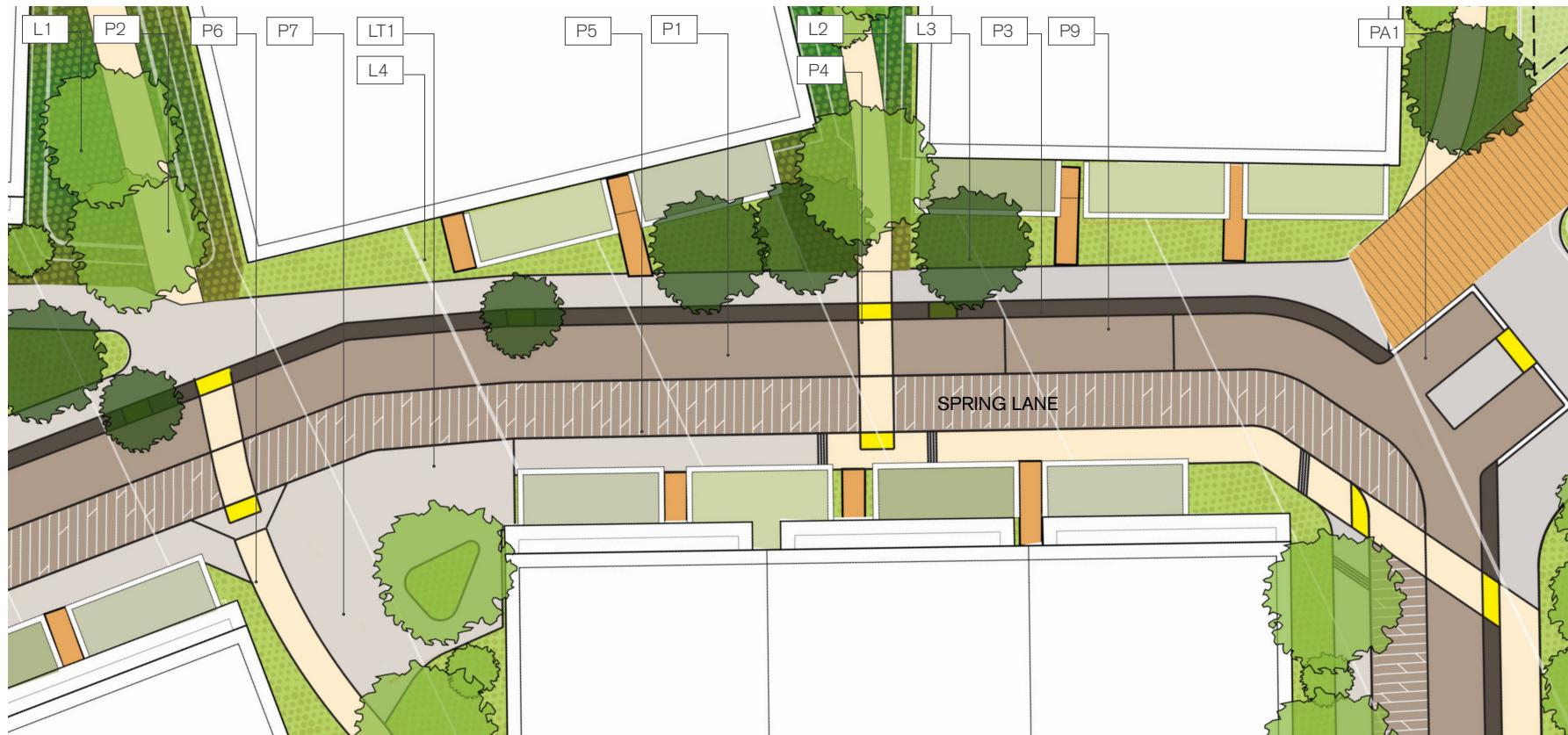



FIGURE 2.27: SHARED PUBLIC WAY - SPRING LANE ENLARGED PLAN

1" = 30'-0"
 0' 15' 30' 45'



KEY PLAN

Laneways

The Laneways break down the scale of large blocks, providing permeability, pedestrian access, views to the bay and enhanced connectivity. The Cove Laneway provides a direct mid-block passage for pedestrians from Innes to New Hudson and the Cove Terrace. This is an active, vibrant public space with a garden like, linear park character. Material choices, including wood decking distinguish this space from a typical pedestrian sidewalk. Materials and planters are integrated into the subgrade parking structure. Planting areas may be used for stormwater management if required by the hydraulics of the phase.



FIGURE 2.28: COVE LANEWAY AXON

Cove Laneway

The Cove Laneway provides pedestrian access from Innes to New Hudson adjacent to the Cove Terrace. The Cove Laneway terminates at a raised crosswalk accross New Hudson, connecting to a cantilivered viewing platform at the Cove Terrace.



FIGURE 2.29: COVE LANEWAY SECTION-TYPICAL

1" = 12'-0"
0' 6' 12' 18'



KEY PLAN

Table 7. Cove Laneway Specifications

R.O.W. WIDTH: VARIES
BIKE FACILITIES: NO

SURFACING

P1	THROUGHWAY	TYPE I, J
P2	WOOD DECK	TYPE U

PLANTING

L1	FLOW-THROUGH PLANTER	UNDERSTORY TYPE F
L2	TREE	LANE/LANEWAY
L3	STREETSCAPE PLANTING	UNDERSTORY TYPE C

LIGHTING

LT1	PEDESTRIAN LIGHT	TYPE 2
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FURNISHING

F1	SEATING	TYPE1, 2
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Standards

2.3.52. Elements Elements per figure 2.34. All elements shown shall be included. Dimensions vary.

2.3.53. Specifications Specifications shall conform to Table 7. Cove Laneway Specifications. See Section 2.5 for public realm elements.

2.3.54. Tree Size Minimum tree size is 24-inch box. Top of rootball shall not exceed 2' above finished grade. Accommodate soil in podia.

2.3.55. Raised Planters Raised planters shall be no greater than 18" in height to allow for incorporation of seating elements.

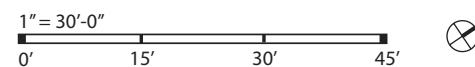
Guidelines

2.3.56. Trees Trees shall be Lane/Laneway type. See page 212 for species.

2.3.57. Trees Trees shall be planted in linear rows to frame views to the bay.



FIGURE 2.30: COVE LANEWAY ENLARGED PLAN



KEY PLAN

Hillside Laneway

As a midblock passageway spanning from Innes to New Hudson at the intersection with Spring Lane, the Hillside Laneway provides an important pedestrian connection to the Flats, the Big Green, and the Beach.



FIGURE 2.31: HILLSIDE LANEWAY AXON

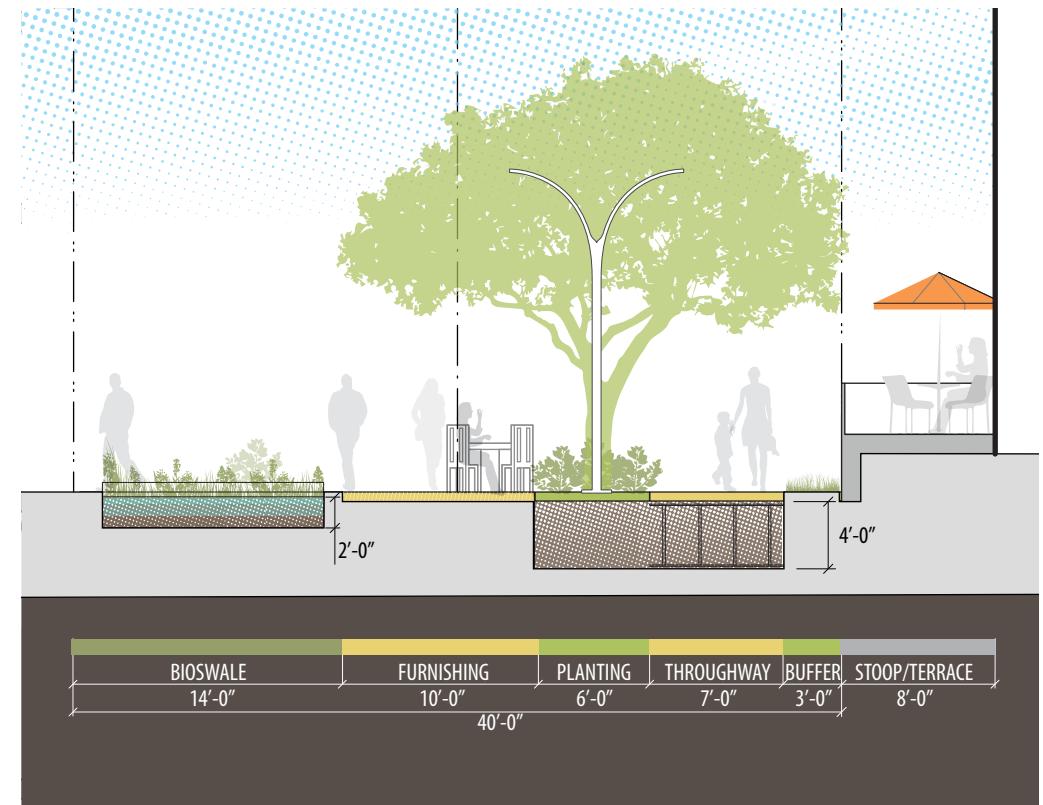


FIGURE 2.32: HILLSIDE LANEWAY SECTION-TYPICAL



Table 8. Hillside Laneway Specifications

R.O.W. WIDTH: VARIES
BIKE FACILITIES: NO

SURFACING

P1	THROUGHWAY ZONE	TYPE I, J
P2	WOOD DECK	TYPE U
P3	INFILTRATION BOARDWALK	TYPE U

PLANTING

L1	TREE	LANE/LANEWAY
L2	FLOW-THROUGH PLANTER	UNDERSTORY TYPE F

LIGHTING

LT1	PEDESTRIAN LIGHT	TYPE 2
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FURNISHING

F1	SEATING	TYPE 1, 2
F2	WATER FEATURE	

Standards

2.3.58. Elements Elements per figure 2.37. All elements shown shall be included. Dimensions vary.

2.3.59. Specifications Specifications shall conform to Table 8. Hillside Laneway Specifications. See Section 2.5 for public realm elements.

2.3.60. Tree Size Minimum tree size is 24-inch box. Top of rootball shall not exceed 2' above finished grade. Accommodate soil in podia.

2.3.61. Raised Planters Raised planters shall be no greater than 18" in height to allow for incorporation of seating elements.

Guidelines

2.3.62. Trees Trees shall be Lane/Laneway type. See page 212 for species.

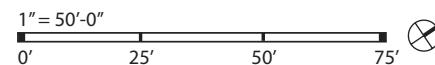
2.3.63. Trees Trees shall be planted in linear rows to frame views to the bay.

2.3.64. Stormwater Collection and Treatment Stormwater collection and treatment shall be incorporated into the laneway right of way.

2.3.65. Water if a water feature is included, nonportable water shall be used.



FIGURE 2.33: HILLSIDE LANEWAY ENLARGED PLAN



Flats Laneway

The Flats Laneway provides a midblock pedestrian connection between Spring Lane and Beach Lane. Program zones adjacent to the Flats Laneways will serve residents of the adjacent neighborhood.

Table 9. Flats Laneway Specifications

SURFACING		
P1	THROUGHWAY ZONE TYPE I, J	
PLANTING		
L1 TREE LANE/LANEWAY		
L2 FLOW-THROUGH PLANTER	UNDERSTORY TYPE F	
LIGHTING		
LT1 PEDESTRIAN LIGHT TYPE 2		
FURNISHING		
F1 SEATING TYPE 1, 2		
F2 POCKET PLAZA SEE FIGURE 2.61		

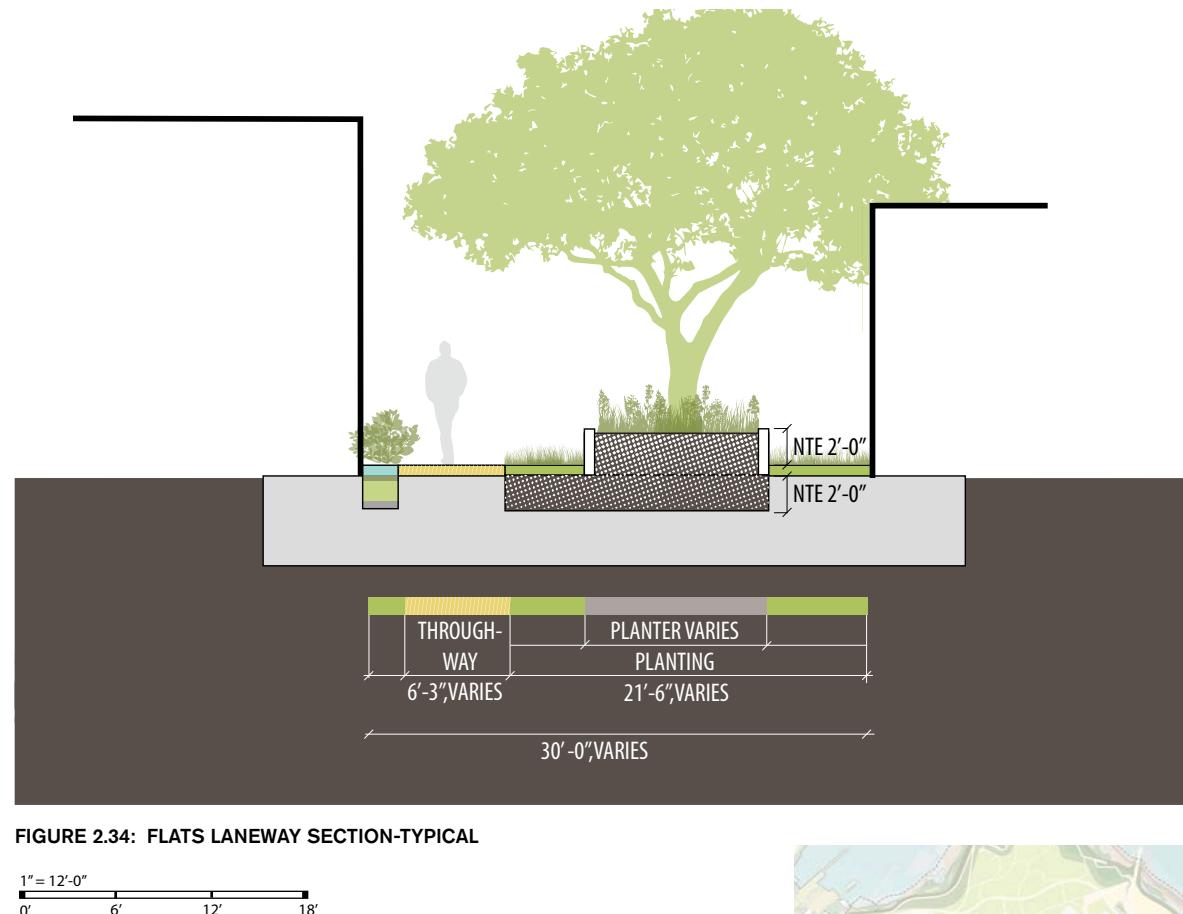




FIGURE 2.35: FLATS LANEWAY ENLARGED PLAN

1" = 50'-0"
0' 25' 50' 75' 

Standards

2.3.66. Elements Elements per Figure 2.39. All elements shown shall be included. Dimensions vary.

2.3.67. Specifications Specifications shall conform to Table 9. Flats Laneway Specifications. See Section 2.5 for public realm elements.

2.3.68. Tree Size Minimum tree size is 24-inch box. Top of rootball shall not exceed 2' above finished grade. Accommodate soil in podia.

2.3.69. Raised Planters Raised planters shall be no greater than 24" in height to allow for incorporation of seating elements.

Guidelines

2.3.70. Trees Trees shall be Lane/Laneway type. See Section 2.6 for species.

2.3.71. Trees Trees shall be planted in linear rows to frame views to the bay.

2.3.72. Stormwater Collection and Treatment Stormwater collection and treatment shall be incorporated into the laneway right of way.



Trail Network

Part of a regional-scale network of trails, the India Basin project fills a missing link in the Bay Area system with a robust web of interwoven and diverse trails. Primary multi-use and class-I bikeway trails are designed for direct and intuitive passages through the site and to main gathering spaces and destinations. Secondary hiking trails and boardwalks meander through the open spaces for a sense of discovery and intimacy. Informal foot paths are anticipated to evolve over time. Laneways, lanes, and shared ways serve as urban trails for continuity and connectivity to the development. Connections are intended to be seamless with adjacent sites and to reinforce both the waterfront and regional trail network. This section details the design intent, standards, and guidelines for different trail types.

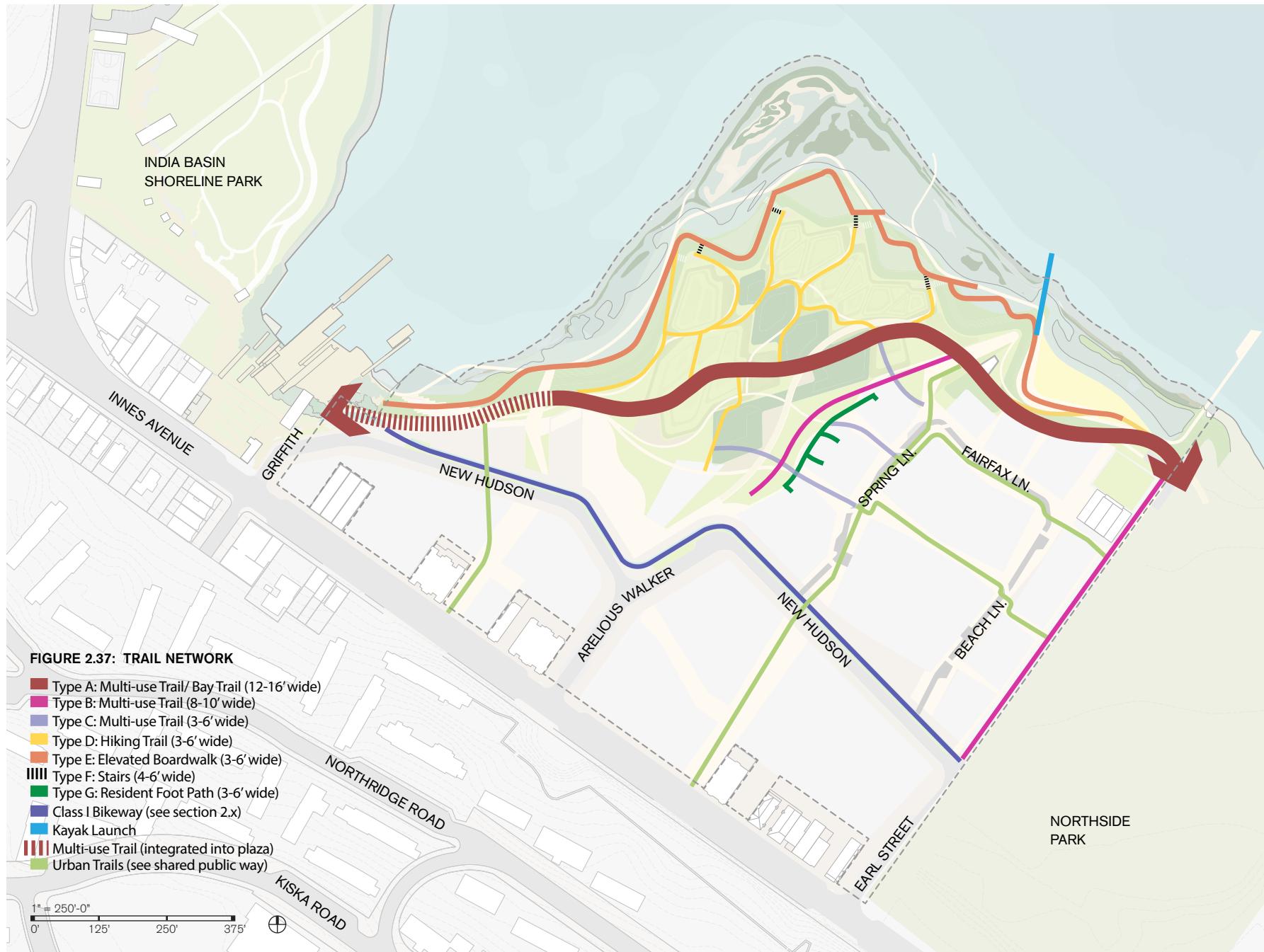
Maintenance Access Routes

The Big Green is composed of diverse habitats, amenities, and water infrastructure that require on-going maintenance and servicing. The maintenance and access regime prioritizes the pedestrian and habitats, and preserves the sense of place and natural character of the site as wild and rugged. Vehicular access routes should be consolidated through the park to the primary multi-use trail to reserve park space for public amenities. Dimensions for maintenance access routes are designed to be scale-appropriate to the small, intimate feel of the site. Access to the trail is provided through the market plaza and shared way. Off-shoot access routes to maintain the stormwater facilities are designed to align with the facilities and blend into the landscape.



FIGURE 2.36: MAINTENANCE ACCESS ROUTES

- Park Vehicular Entry /Egress
- Main Access Path/ Bay Trail (12-14' w)
(vehicular supported paving)



Trail Types

The trail network provides a range of experiences for pedestrians and bicyclists accessing the site where no two trails will look and feel exactly the same. Dimensions are designed for a future intensity of use and to create variety, choice, and character. Trails vary from urban and hard to soft and intimate. Trails widen at furnishing zones and specific moments to incorporate amenities, furnishings, and varied conditions. Trails should also be aligned to accent views, create intimate gathering spaces, and call attention to unique landscapes, sculptures, or habitat conditions.

The trail types palette provides a range of trail experiences and access routes that are durable and lasting. See Figure 2.41 Trail Network for location of types.



Type A & B: Multi-Use Trail

Durable and smooth, resin pavement trail. Provides access for pedestrians and bicycles.



Type C: Multi-Use Trail

Combination of resin pavement pedestrian shoulders and smooth, durable, paved 2-way main throughway.



Type D: Hiking Trail

Durable, smooth materials where occurs in tidally influenced areas, can withstand tidal conditions and occasional submersion.

**Type E: Elevated Boardwalk**

Durable, wooden boardwalk elevated above adjacent grade.
6" wood curb for edge detection.
No guardrail. Adjacent grade not to exceed 30" below finish surface.
Dogs prohibited.

**Type F: Spur Trail**

Informal trail providing access at low tide to sand shoulder. Durable wood materials to endure tidal conditions and submersion. Dogs prohibited.

**Type H: Resident Foot Path**

Cobble foot path provides access through semi-private shared backyard to residential units.
Ensure durable fill between cobbles for stable surface.

**Type I: Foot Path**

Informal dirt trail that meander throughout park. Compact and maintain where footpaths evolve.

**Type G: Stair In Slope**

Wood and resin stair set into slope providing access from upland to shoreline trail.

Trail Types: Sections

The sections here detail dimensions for each trail type. See Figure 2.41: Trail Network for location of each trail type.

Multi-Use Trail A major spine through the open space, the multi-use trail connects to adjacent sites and provides direct yet meandering access for pedestrians and bicycles through the Cove Terrace, Big Green, and Beach Overlook.

Elevated Boardwalk & Trail in Slope The primary path through the shoreline, the boardwalk is situated for direct access to the tidal zone and is intended for pedestrians only. The trail is located at an elevation midway between current tidal marsh and top of bank for a unique experience in a perched habitat zone. See Chap 3 for adaptation strategies.

Hiking Trail Hiking trails meander through the Big Green providing a sense of discovery, finding, and wildness. Trails are intended to be narrow and for pedestrians and dogs.

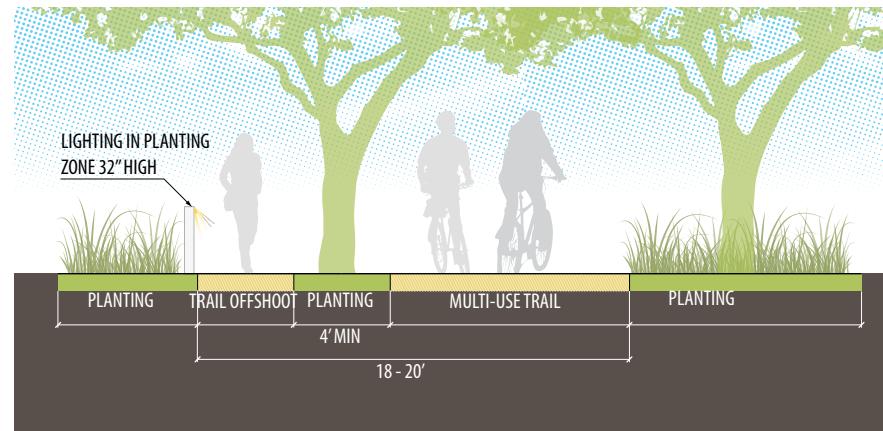
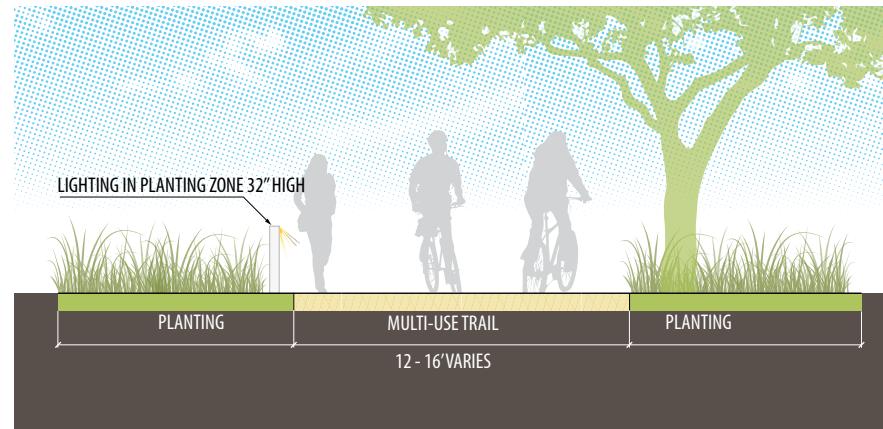


FIGURE 2.38: TRAIL SECTIONS - MULTI-USE TRAIL

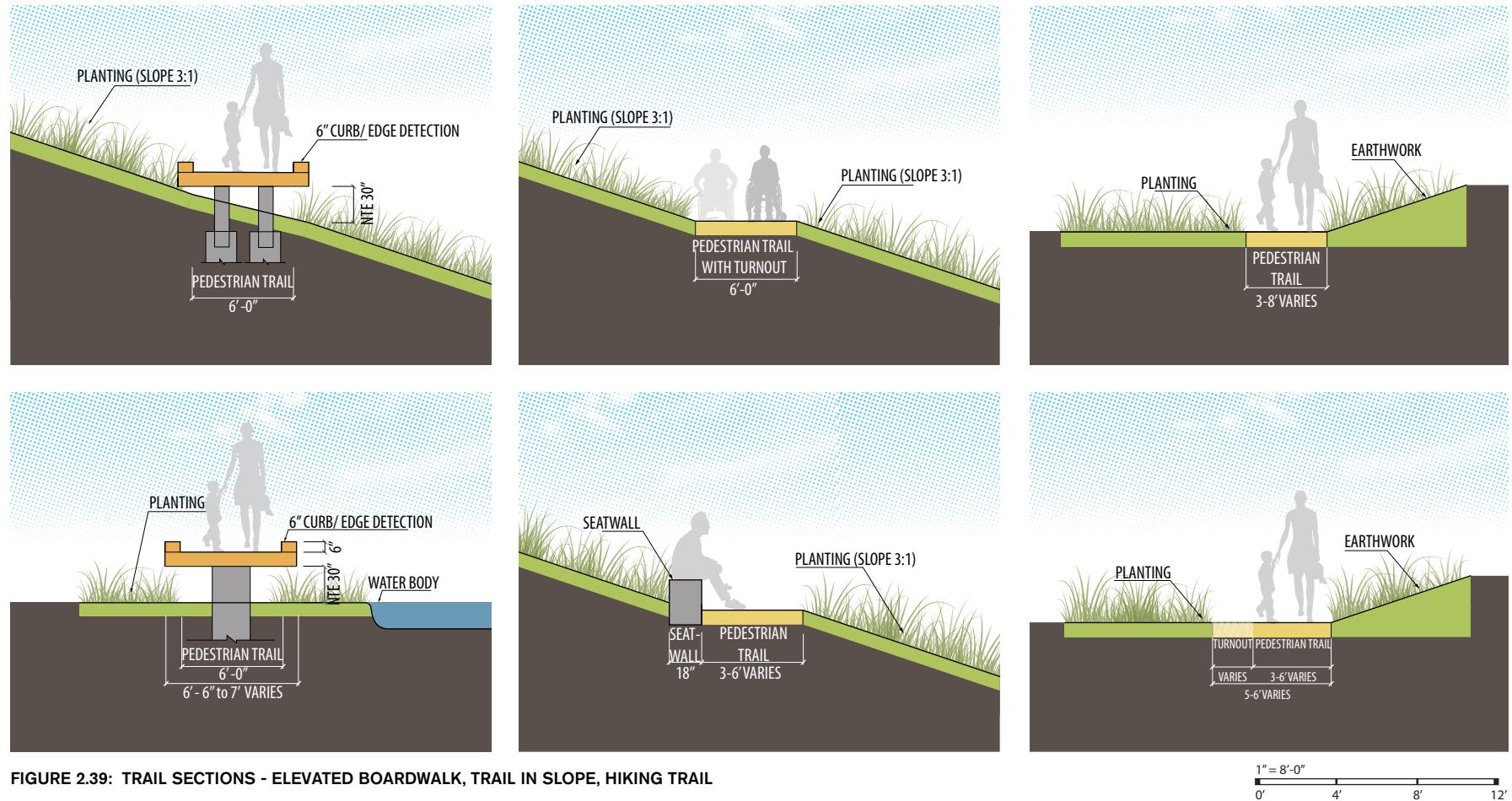


FIGURE 2.39: TRAIL SECTIONS - ELEVATED BOARDWALK, TRAIL IN SLOPE, HIKING TRAIL

Trails & Amenity Zones

Located adjacent to trails, amenity zones are located throughout the Big Green and Shoreline to accommodate furnishings and a range of elements that enhance usership and experience of the park. These include furnishings, signage, refuse receptacles, viewing areas, drinking fountains, turnouts, and picnic areas. Dimensions of the amenity zones are designed for intensity of use and to create intimate spaces for reflection, while preserving through access on adjacent trails. The amenity zones should reflect the wild character of the Big Green. See Chapter 3 for trail adaptation for sea level rise.

Standards

2.3.73. Dimensions Trail dimensions shall conform to Figure 2.41 Trail Network and Figure 2.42-2.43 Trail Sections.

2.3.74. Turnouts Where trail width is less than 5 feet, provide turnouts at least 5 feet wide every 200 feet or in conformance with current US Outdoor Recreation Access Route standards for trail passing spaces, whichever distance is shorter.

2.3.75. Clearance Vertical clearance shall be at least 10 feet high from path finished surface.



Bay Trail Rendering

2.3.76. Borders Provide either a change in elevation or a physical barrier at the edge of trails to define the edge that may include planting, a plant barrier, or a low fence. Fence shall be at least 90% transparent.

Guidelines

2.3.77. Furnishing Built-in or affixed furnishings shall be located in amenity zones only and outside of the primary trail path of travel.

2.3.78. Location Amenity zone shall be integral to pathways in design, materiality, and alignment. Locate amenity zones to maximize comfort including but not limited to wind protection and solar aspect. Place amenity zones for views of the shoreline and for viewing sculptures.

2.3.79. Amenities The following amenities shall be provided at furnishing zones: seating, refuse receptacles, signage, bicycle racks. See Section 2.5 Public Realm Elements.

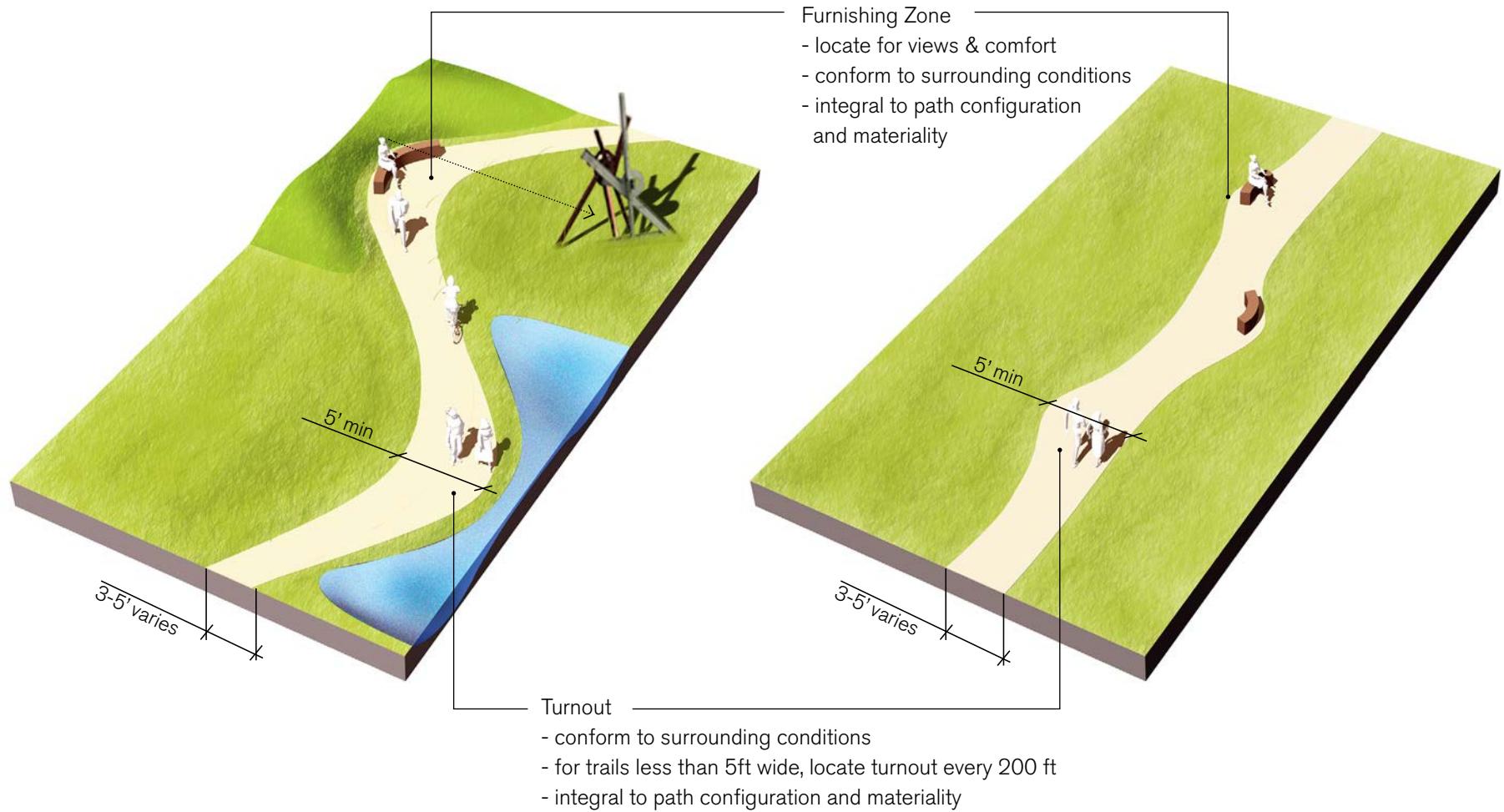


FIGURE 2.40: (LEFT) FURNISHING ZONES AT CURVE (RIGHT) FURNISHING ZONES AT STRAIGHT ALIGNMENTS

2.4 Places

As a complete neighborhood, India Basin is composed of five integrally connected places. Each place possesses a slightly different character to provide a diversity of experiences across the site.

The Hillside is urban and dense. Podia step down from Innes avenue to the rich and active New Hudson Avenue retail corridor. Landscape and laneways consists of The Hillside public realm active retail frontages and public streets, intimate courtyards, public stairs, and laneways.

The Cove, while similar to the Hillside in physical structure, opens onto the India Basin cove landscape with panoramic views to downtown San Francisco and onto the Public Market plaza. An active cove terrace fronts the Bay and connects to the adjacent proposed public park, the Big Green, and the shoreline.

The Flats are designed around a shared public way that prioritizes the pedestrian and stormwater treatment at grade. Pocket plazas, the village triangle, and courtyards are tucked into this pedestrian-oriented place.

The Big Green is a performative landscape with diverse ecologies and programs. Habitat, stormwater treatment, and earthworks are prioritized, resulting in a rich open space where urban meets the wilds. Trails meander through topography and engage with a range of program offerings and educational moments for a sense of discovery and engagement.

The Shoreline is a dynamic landscape defined by the ever-evolving Bay edge. Existing tidal marshes and naturally forming sand dunes are retained and expanded to increase habitat potential. Natural and constructed adaptation measures are constructed in the shoreline landscape for long-term resilience. And a perched sand area and deck terrace serve as a regional attraction for sunbathing, beach sports, and human powered boating.



Signature Places

Within each Place, unique signature places provide a richness of public realm offerings from wild and serene shorelines, to active and programmed recreation areas, to urban plazas and courtyards. Spaces are designed to be nuanced and instill an authentic sense of place. Modulate the scale and configuration of spaces to purpose. Their scale and configuration are designed for the specific purpose of each signature place. This section details the design intent, standards, and guidelines of each signature place. The standards and guidelines included here apply to all signature places. See Section 2.5 for Public Realm Elements.

Standards

2.4.1. Lighting Lighting fixtures shall adhere to lighting standards and guidelines list in Section 2.5.

2.4.2. Materials All signature places shall conform with the material palette in Section 2.5.

2.4.3. Bank The bank between the tidal zone and upland areas (Big Green) shall be reshaped and graded to increase total length as compared to existing bank length. Where slopes are steeper than 3:1, use slope stabilization materials and planting. All slopes shall be at least 80% planted. See Figure 2.59 Earthwork Typologies.

2.4.4. Shoreline Protection Upgrade and replace existing shoreline protection located at the toe of slope with stabilization materials and planting. Shoreline protection zone to be at least 80% planted.

Guidelines

2.4.5. Elements Public realm elements shall be provided throughout the Big Green and Shoreline. See Section 2.5.

2.4.6. Maintenance Standalone maintenance storage facilities shall not be located within the Big Green, Shoreline, or Shared Front Yard.

2.4.7. Signage Interpretive signage shall be incorporated throughout the Big Green and Shoreline to describe the unique phenomena and infrastructure of the site that may include sea level rise, resiliency, pilot projects, stormwater and blackwater management, habitats, land morphology, soil, sculpture, history, and the tidal marsh. See Chapter 6 Signage.

2.4.8. Trees Place trees to emphasize views to the shoreline, create micro-climates, and provide diverse habitats, shade, and wind mitigation.

2.4.9. Plants Select a diverse plant palette appropriate to the coastal environment to maximize ecologies and habitat types. See Section 2.6 Ecology and Habitats.

2.4.10. Guardrails Trails and boardwalks shall be designed to use guardrails sparingly, and only at overlooks and bridges.



Perched Beach, Boat Launch & Overlook

Located on the east shoreline, this signature place provides a unique experience with the Bay on three terraces. The lowest consists of existing tidal marsh that will be retained in place. Living shoreline strategies provide enhanced habitat. A boat launch provides water access for human powered boats. A perched sand area (the “Perched Beach”) midway up the bank provides recreational amenities at the Bay’s edge, and is designed to adapt into a tidally influenced beach with rising sea levels. At the top of bank, an upper terrace provides wind protection for the beach below, as well as concessions, rentals, and amenities to enjoy the panoramic views. Boat and bike storage is provided adjacent to the shared way public drop-off and parking. Stormwater cells treat storm water generated in the flats before outfalling the Bay.



FIGURE 2.43: BEACH, BOAT LAUNCH & OVERLOOK AXON, LOOKING WEST

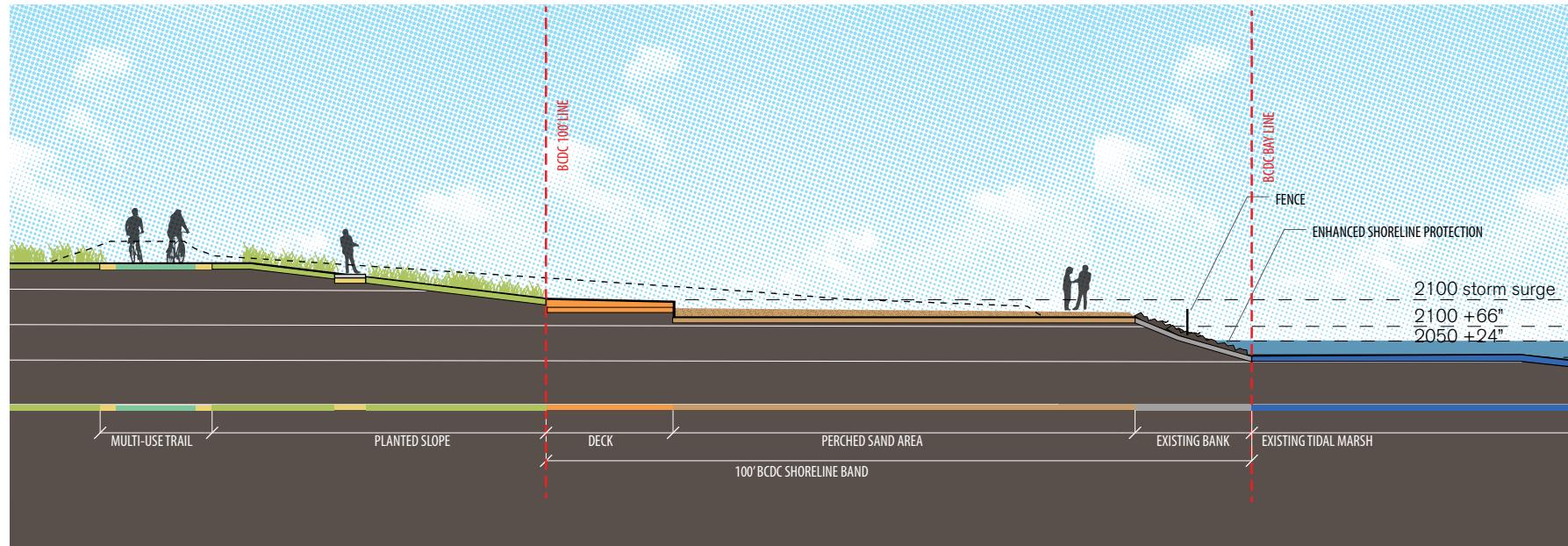


FIGURE 2.44: PERCHED BEACH

1" = 20'-0"
0' 10' 20' 30'



Table 10. Perched Beach, Boat Launch & Overlook Specifications

(See Section 2.5 for Public Realm Elements)

Bank Slopes: NTE 2:1

SURFACING

P1	TRAIL IN SLOPE	TRAIL TYPE A
P2	SAND AREA	TYPE V
P3	KAYAK LAUNCH	TYPE Q
P4	ELEVATED BOARDWALK	TRAIL TYPE E
P5	DECK	TYPE O
P6	DECK	TYPE S
P7	MULTI-USE TRAIL	TRAIL TYPE A, B, D
P8	MULTI-USE TRAIL	TRAIL TYPE A, B, C
P9	PLAZA TERRACE	TYPE I, J, N, U
P10	TERRACES	TYPE I, U

PLANTING

L1	BANK	UNDERSTORY TYPE G
L2	STORMWATER TREATMENT	UNDERSTORY TYPE F
L3	TREE	OPEN SPACE TREE
L4	TIDAL MARSH	SALT MARSH
L5	TIDAL ZONE	ROCKY INTERTIDAL
L6	YARD	UNDERSTORY TYPE B

LIGHTING

LT1	PARK LIGHT	TYPE B, C
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FURNISHING

F1	SEATING	TYPE D, E, F
F2	SEATING	TYPE A, E, C, F
F3	FENCING	TYPE A OR B
F4	BOAT RACK	

STRUCTURES

S1	BOAT STORAGE SHED
S2	CONCESSION STAND

Standards

2.4.11. Elements All elements shown in Figure 2.49 are required. Dimensions may vary.

2.4.12. Specifications Specifications shall conform to Table 10. Beach Specifications.

2.4.13. Screening Plants ranging in height from 36"–48" shall line the perimeter of the yard.

2.4.14. Percentage Softscape The beach area shall be at least 60% softscape.

2.4.15. Restroom The concession stand shall include at least 2 restroom stalls, 1 per gender.

2.4.16. Fence For protection of the existing tidal marsh, locate a fence mid-slope between the sand area / kayak launch and tidal marsh. No more than 12" of the top of the fence shall extend above the elevation of the sand area for an unobstructed Bay view.

2.4.17. Sand Area The perched sand area shall be located at an elevation no lower than +13 NAVD88.

Guidelines

2.4.18. Stormwater Locate at-grade stormwater treatment areas between the Bay Trail and Flats to treat stormwater generated in the flats to eliminate the need for any on-structure treatment areas. A stepped feature is recommended but not required.

2.4.19. Tidal Marsh Existing tidal marsh and dunes shall be retained in situ.

2.4.20. Trails A continuous, universally accessible shoreline trail shall connect the east shoreline with the lower beach deck.

2.4.21. Seawall A low seat wall at the landward edge of the deck shall be constructed for occasional inundation in sea level rise conditions. See Chapter 3.

2.4.22. Outfall A stormwater outfall shall be located in the bank and incorporated into the slope terraces. See Shoreline Permits and Infrastructure Plan for sizing and location.



Perched Beach



FIGURE 2.45: BEACH & BOAT LAUNCH ENLARGEMENT PLAN

1" = 80'-0"
0' 40' 80' 120' 



KEY PLAN



Kayak Launch



Perched Beach & Deck

East Shoreline

The East Shoreline faces the San Francisco Bay. Continual wave energy periodically inundate the existing tidal marsh and require erosion control measures to protect the shoreline. Design emphasis is focused on creating habitat, diverse ecologies, and access to the shoreline. A terrace in the bank is designed to provide space for habitat adaptation and also create a unique space between the tidal marsh and top of bank for a secluded encounter with the Bay. Seasonal wetlands are terraced into the bank as immediate mitigation and space for future adaptation of upland habitat migration. Living shoreline strategies provide enhanced habitat. Visitors can experience this dynamic landscape from top of bank, terraced boardwalk, and overlooks.



FIGURE 2.46: EAST SHORELINE AXON, LOOKING EAST

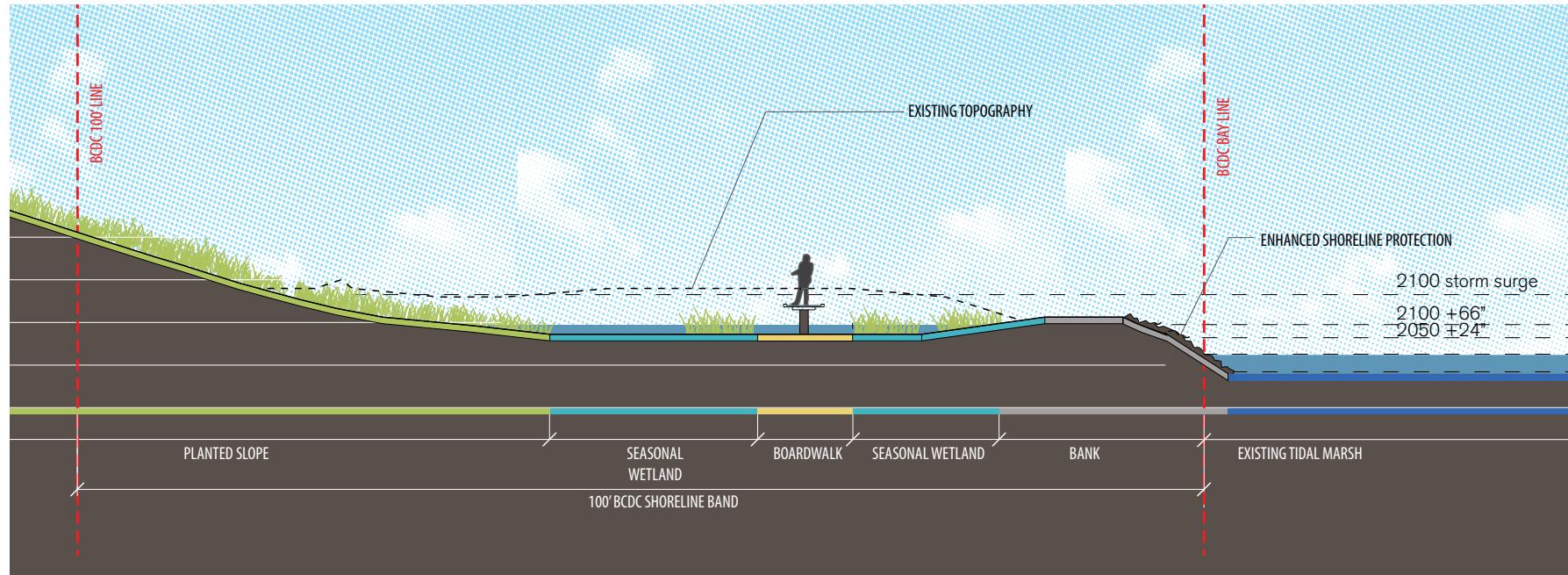


Table 11. East Shoreline Specifications

(See Section 2.5 for Public Realm Elements)

BANK SLOPES: NTE 2:1

SURFACING

P1	ELEVATED BOARDWALK	TYPE U
P2	OVERLOOKS	TYPE U
P3	STAIRS	TRAIL TYPE G

PLANTING

L1	TIDAL ZONE	SEASONAL WETLAND
L2	BANK	SCRUB
L3	TIDAL ZONE	FLOATING WETLAND
L4	TIDAL ZONE	TIDAL MARSH
L5	TIDAL ZONE	ROCKY INTERTIDAL
L6	EEL GRASS	

FURNISHING

F1	SEATING	TYPE D, E
F2	REFUSE	
F3	RECEPTACLES	

STRUCTURES

S1	OVERLOOK
S2	SCULPTURE / INSTALLATION

Standards

2.4.23. Elements All elements shown in Figure 2.52 are required. Dimensions may vary.

2.4.24. Specifications Specifications shall conform to Table 11. East Shoreline Specifications.

2.4.25. Terraced At least 0.31 acres of wetlands and a boardwalk shall be located in a terrace in the bank at an elevation midway between existing tidal marsh and top of new bank, no lower than elevation +10 NAVD88. (See Section 3.8)

2.4.26. Overlooks At least 3 overlooks shall be incorporated into the boardwalk as viewing platforms. Material shall be consistent with boardwalk. Extent and footings shall not be constructed beyond the MHW line. (See Shoreline Permits)

2.4.27. Boardwalk Boardwalk shall be elevated. Finished surface shall not exceed 30" drop from adjacent grade.

2.4.28. Percentage Softscape At least 90% of the east shoreline shall be softscape.

Guidelines

2.4.29. Tidal Marsh Existing tidal marsh and dunes shall be retained in situ.

2.4.30. Watershed Earthwork along the bank and Big Green shall be oriented to maximize the watershed that drains to the terraced wetlands.



FIGURE 2.48: EAST SHORELINE ENLARGEMENT PLAN

1" = 120'-0"
0' 60' 120' 180'





West Shoreline

West Shoreline

The West Shoreline faces the India Basin cove. Relatively protected from wave energy, this area is conducive to tidal marsh habitat. Cuts into the existing bank are created to expand Bay edge and create wetlands where feasible. Visitors can experience this serene and tranquil landscape from top of bank, terraced boardwalk, overlooks, and a spur trail to the sandy shoulder. A stormwater outfall is located to discharge high quality treated stormwater into the Bay. Brackish marsh habitats are anticipated at the edge of existing tidal wetlands.

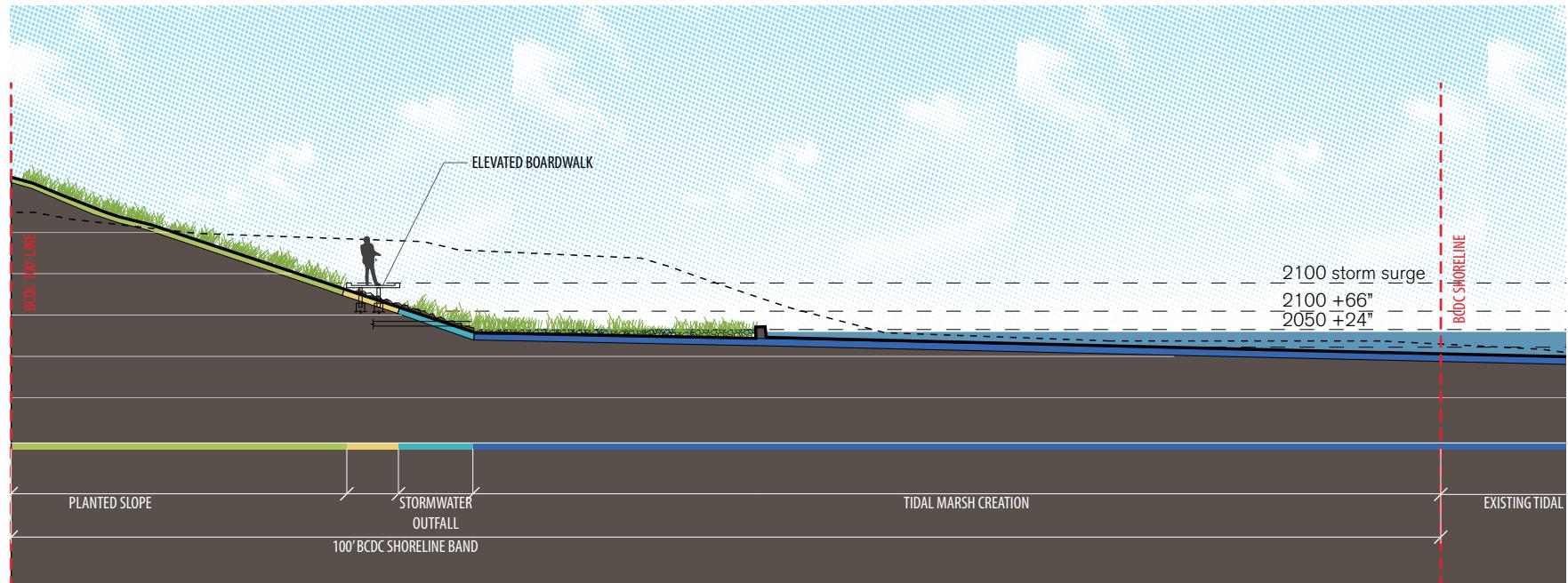


FIGURE 2.49: WEST SHORELINE SECTION

1" = 20'-0"
 0' 10' 20' 30'



Table 12. West Shoreline Specifications
(See Section 2.5 for Public Realm Elements)

Bank Slopes: NTE 2:1

SURFACING		
P1	ELEVATED TRAIL	TYPE U
P2	TRAIL IN SLOPE	TYPE N
P3	STAIRS	TYPE D, N, U
P4	OVERLOOKS	TYPE U
PLANTING		
L1	TIDAL ZONE	FLOATING WETLAND/SALT MARSH
L2	TIDAL ZONE	UNDERSTORY TYPE G
L3	TIDAL ZONE	TIDAL MARSH
L4	STORMWATER	UNDERSTORY TYPE F, H
FURNISHING		
F1	SEATING	TYPE D, G
F2	REFUSE RECEPTACLES	
F3	SIGNAGE	
STRUCTURES		
S1	OVERLOOK	
S2	STORMWATER OUTFALL	SEE SHORELINE PERMITS

Standards

2.4.31. Elements All elements shown in Figure 2.54 are required. Dimensions may vary.

2.4.32. Specifications Specifications shall conform to Table 12. West Shoreline Specifications.

2.4.33. Overlooks At least 3 overlooks shall be incorporated into the boardwalk as viewing platforms. Material shall be consistent with boardwalk. Extent and footings shall not be constructed beyond the MHW line. (See Shoreline Permits)

2.4.34. Boardwalk Boardwalk shall be elevated. Finished surface shall not exceed 30" drop from adjacent grade.

2.4.35. Percentage Softscape At least 90% of the west shoreline shall be softscape.

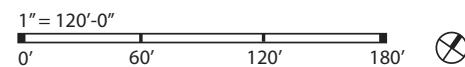
Guidelines

2.4.36. Tidal Marsh Existing tidal marsh and dunes shall be retained in situ. See Shoreline Permits for tidal marsh creation areas.

2.4.37. Outfall A stormwater outfall shall be located in the bank and incorporated into the boardwalk structure. See Shoreline Permits and Infrastructure Plan for sizing and location.



FIGURE 2.50: WEST SHORELINE ENLARGEMENT PLAN



Cove Terrace

The Cove Terrace is at the nexus of 900 Innes Park, India Basin Shoreline Park, the Public Market Plaza, the New Hudson retail corridor, and the East Shoreline. This area offers the most urban waterfront experience at the edge of the Bay, with a cantilevered platform and structured gabion terraces stepping down to the water's edge. Commercial and retail frontages spill onto an active plaza that provides seating, continuous access for pedestrians and bicycles, and views of the Cove.



FIGURE 2.51: COVER TERRACE AXON LOOKING NORTHEAST



Table 13. Cove Terrace Specifications

(See Section 2.5 for Public Realm Elements)

BANK SLOPES: NTE 2:1
 BIKE FACILITIES: MULTI-USE TRAIL, RACKS

SURFACING

P1	MULTI-USE TRAIL	TYPE H, I, M
P2	CLASS I BIKEWAY	TYPE L
P3	PLAZA	TYPE H, I, J
P4	SHARED ZONE	TYPE J, N
P5	PLAZA	TYPE H, I, J
P6	DECKING	TYPE U
P7	TERRACES	TYPE H, I, U

PLANTING

L1	TERRACE PLANTING	UNDERSTORY TYPE C
L2	PLAZA PLANTING	UNDERSTORY TYPE B
L3	TREE	LANE/LANEWAY
L4	TREE	OPEN SPACE
L5	SCRUB	UNDERSTORY TYPE G

LIGHTING

LT1	PLAZA LIGHTING	TYPE B, C
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FURNISHING

F1	CAFE SEATING	TYPE A, F
F2	PLAZA SEATING	TYPE D, F

STRUCTURES

S1	CONCESSIONS/RETAIL	
S2	CONCESSIONS/RETAIL	
S3	OVERLOOK	PED TYPE I

Standards

2.4.38. Elements All elements shown in Figure 2.56 are required. Dimensions may vary.

2.4.39. Specifications Specifications shall conform to Table 12. Cove Terrace Specifications.

2.4.40. Furnishings Accommodate at least one built-in fire pit in the plaza to increase use.

2.4.41. Surfacing A 12' wide zone shall be demarcated through the plaza at top of bank to signify the Bay Trail alignment by a change in surfacing texture, color, and/or paving pattern that complements the Cove Terrace plaza paving. A distinct line between these two zones is not permitted.

2.4.42. Planters Locate planters on the plaza with perimeter seatwalls that vary in height not to exceed 24" high.

2.4.43. Percentage Softscape At least 15% of the cove terrace plaza and bank shall be softscape.

2.4.44. Trails A universally accessible minimum 8' wide pathway and minimum 12' wide Class-1 bikeway shall connect to the adjacent site to the northwest.

Guidelines

2.4.45. Access Access from the shoreline boardwalk to cove terrace at top of bank shall be provided in the form of stairs or terraces.

2.4.46. Terraces Locate stadium terraces and/or low, planted retaining walls to accommodate the grade change between Griffith Street and Class-I bikeway.

2.4.47. Overlook A protruding overlook shall be located to align with the mid-block pedestrian passage and shall be oriented to the downtown San Francisco view. Surfacing used for the overlook shall extend across New Hudson to toe of stair at mid-block passage for continuity.

2.4.48. Shared Zone Where Class-1 Bikeway passes through plaza, demarcate by a change in surfacing texture, color and/or paving pattern. Change in surfacing shall be prioritized over appliqué.

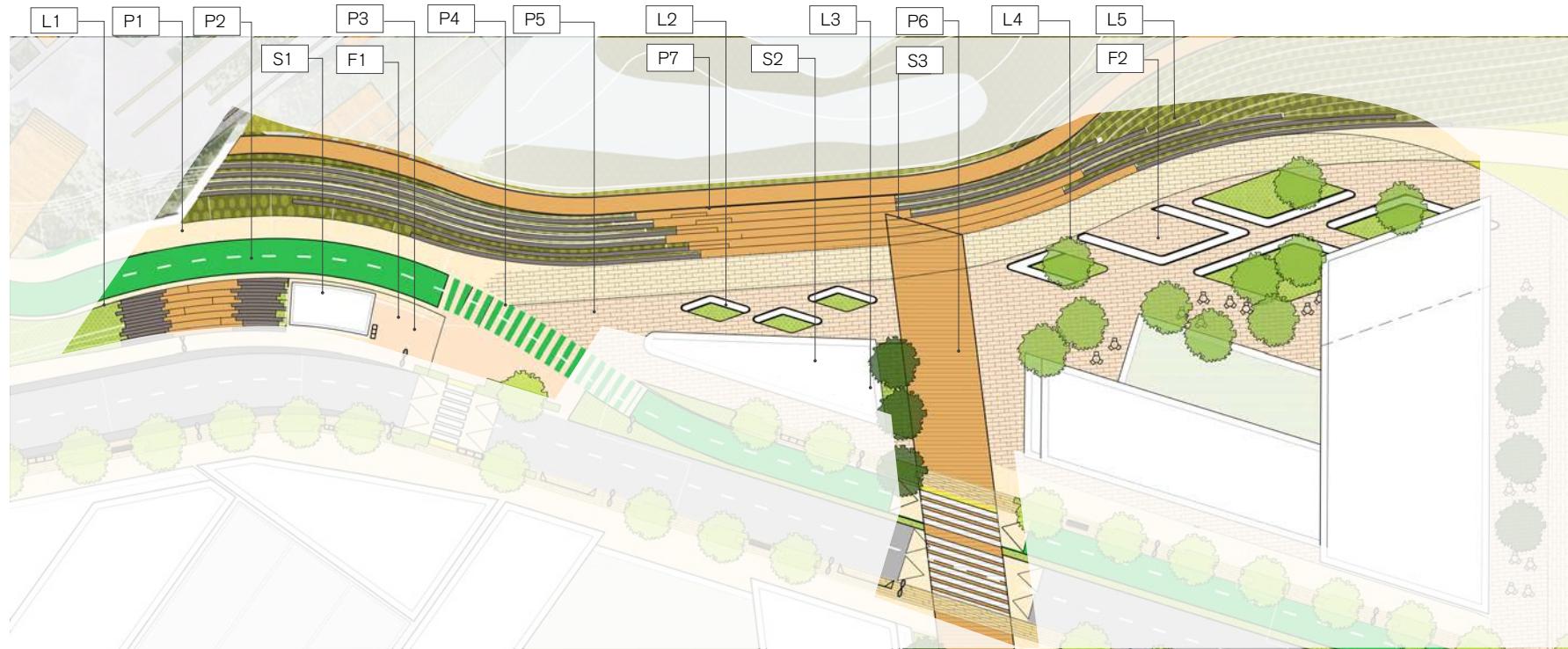
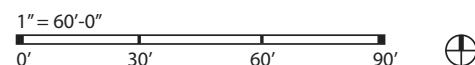


FIGURE 2.52: COVE TERRACE ENLARGEMENT PLAN



KEY PLAN



Big Green & Stormwater Pond

Big Green

The Big Green is the heart of the open space system and functions as a performative landscape with diverse ecologies and programs. It balances a range of active, passive, and water related recreation with habitats, stormwater treatment, and earthworks, resulting in a diverse open space where urban meets the wilds. Trails meander through topography and engage with a range of program offerings and educational moments for a sense of discovery and engagement. Design emphasis shall be placed preserving the character of the Big Green as natural, rugged, feral, and wild. Where feasible, the Big Green will also treat blackwater and reuse recycled water to create habitats.



Big Green Meadow & Hiking Trail Rendering



Earthwork, Science Lab



Earthwork, Storm King

Table 14. Big Green Specifications

(See Section 2.5 for Public Realm Elements)

BANK SLOPES: NTE 2:1

SURFACING

P1	ELEVATED BOARDWALK	TYPE U
P2	HIKING TRAIL	TYPE N
P3	MULTI-USE TRAIL	TYPE G, M, O, P
P4	MULTI-USE TRAIL	TYPE M

PLANTING **UNDERSTORY**

L1	UPLAND PLANTING	TYPE I
L2	UPLAND PLANTING	TYPE B
L3	UPLAND PLANTING	TYPE E
L4	UPLAND PLANTING	TYPE D
L5	UPLAND PLANTING - STORMWATER WETLAND	TYPE F
L6	UPLAND PLANTING - GARDEN	TYPE B
L7	UPLAND PLANTING - WETLAND	TYPE F/H

LIGHTING

LT1	PARK LIGHT	TYPE C, D
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FURNISHING

F1	DOG RUN FENCING	TYPE A, C
F2	FIRE PITS & HAMMOCKS	
F3	RECREATION AMENITIES	
F4	AMENITY ZONE	SEATING TYPE B, G

STRUCTURES

S1	OVERLOOK
S2	SCULPTURE / INSTALLATION
S3	LIGHTWEIGHT PAVILION

Standards

2.4.49. Elements All elements shown in Figure 2.57 are required. Dimensions may vary.

2.4.50. Specifications Specifications shall conform to Table 14. Big Green Specifications.

2.4.51. Overlooks Locate at least 3 distinct viewing areas at the top of bank. Location, size, and form shall maximize views and fit with surrounding landforms.

2.4.52. Activity Area Locate a lawn, recreational area, and flower cutting garden adjacent to the Public Market Plaza. Lawn slope shall not exceed 5%. Cutting flower garden shall be irrigated.

2.4.53. Percentage Softscape At least 85% of the Big Green shall be softscape.

2.4.54. Emergency Call Box SOS emergency call boxes shall be incorporated into other structures throughout the Big Green. 1 per every 2,000 square feet.

2.4.55. Gathering Areas At least 3 areas for picnicing and small gatherings shall be located throughout the Big Green in protected areas in addition to overlooks at top of bank. Surfacing shall be the same as adjacent trails or

softscape that can accommodate light foot traffic.

2.4.56. Dog Area An off-leash dog area shall be accommodated in the Big Green. Locate between earthworks to decrease impact to surrounding habitats. A perimeter fence no taller than 5' high shall line the perimeter of the off-leash dog area.

Guidelines

2.4.57. Stormwater A centralized stormwater feature shall be located in the Big Green to treat stormwater from the development. See Section 2.4 Stormwater Standards and Guidelines.

2.4.58. Earthworks Earthworks shall be incorporated throughout the Big Green. See Section 2.4 Earthworks.



FIGURE 2.53: BIG GREEN ENLARGEMENT PLAN

1" = 100'-0"
0' 50' 100' 150'

Table 15. Earthworks Specifications
(See Section 2.5 for Public Realm Elements)

COMPLEX		
A1 & A2	COMPLEX A	6-15' HIGH, DIVERSE ECOLOGIES
B2	COMPLEX B	< 6' HIGH, IRRIGATED WILDFLOWER MEADOW

The 2 primary earthwork goals are:

1. Achieve a net zero off-haul;
2. Improve accessibility from Innes Avenue.

Site grading is designed in 2 layers to retain cut soils on-site. The base layer raises the upland areas for a smoother transition from Innes into the site. The top layer consists of earthwork complexes and mounds that contain additional cut soils. (See Ch. 3)

Standards

2.4.59. Complexes Earthwork complexes shown in Figure 2.58 are required. Dimensions may vary.

2.4.60. Specifications Specifications shall conform to Table 15. Earthworks Specifications.

2.4.61. Views Earthworks shall conform with view corridors. (See Ch. 1)

2.4.62. Slopes Side slopes shall not exceed 2:1 ratios. Use slope stabilization system to prevent erosion and reduce overall maintenance for slopes greater than 3:1.

2.4.63. Soils Earthworks that contain soils with poor quality shall include 24" of soil cover for plant success. Conduct soil profiling of fill material to determine appropriate placement given soil contents.

2.4.64. Erosion Control Slopes shall be planted with 90% plant cover after first growing cycle to prevent erosion and create a range of micro-climates and habitat conditions.

Guidelines

2.4.65. High Points High points of individual mounds within larger earthwork complex shall alternate for variation and a layer effect.

2.4.66. Height Where earthworks need increased height to accommodate more fill or achieve design effect, earthworks shall incorporate a low wall at the toe of slope. A drain shall be included behind wall for drainage to limit maintenance and erosion.

2.4.67. Trails Trails shall be designed to traverse large earthwork complexes and pass through low points between individual mounds.

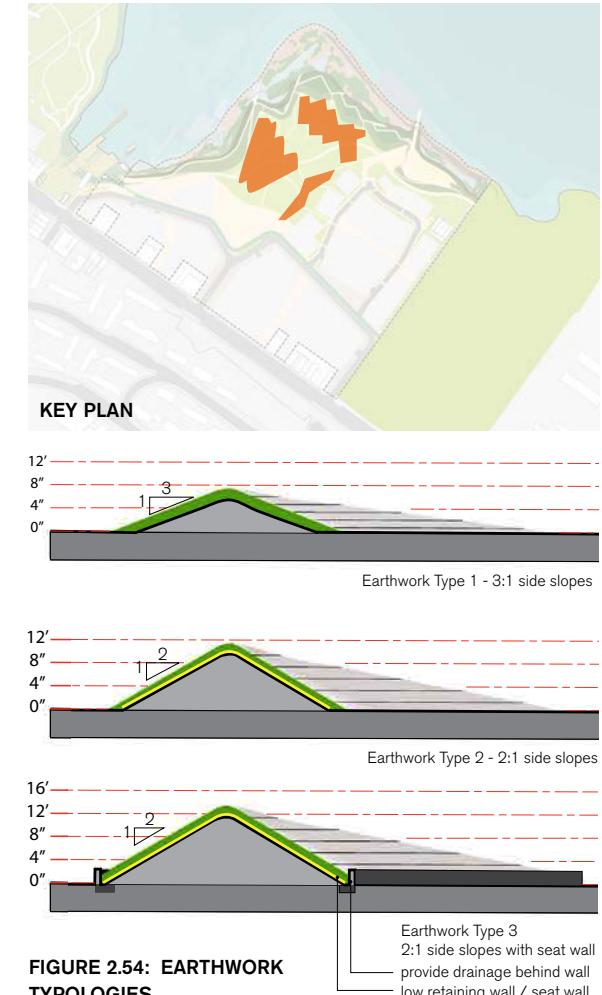


Table 16. Stormwater Specifications
(See Section 2.5 for Public Realm Elements)

SURFACING		
P1	SPAN	TYPE U
P2	BOARD WALK	TYPE U
PLANTING		
L1	UPLAND PLANTING - STORMWATER WETLAND	UNDERSTORY TYPE F
L2	COASTAL GRASSLAND	UNDERSTORY TYPE H
STRUCTURES		
S1	BIRD BLIND	
S2	SCULPTURE/INSTALLATION	

Stormwater

The Big Green is a performative landscape designed to treat all stormwater from the Hillside and Cove areas to the highest water quality before discharging to the Bay. (Stormwater generated in the Flats will be treated in the Shared Public Way.) See Section 3.2. Trails and overlooks are designed to provide viewpoints. The grading and planting should focus on habitat creation to the greatest extent possible. Where feasible, a wet pond using recycled water should be incorporated to keep low areas wet year round. The feature should be managed to promote habitat growth and long-term sustainability.

Standards

2.4.68. Elements All elements shown in Figure 2.60 are required. Dimensions may vary.

2.4.69. Specifications Specifications shall conform to Table 16. Earthworks Specifications.

2.4.70. Size The stormwater feature shall be sized to accommodate treatment of 100% of the hillside and cove's stormwater at full build out.

2.4.71. Access Limit public access to a maximum of 6 crossings over stormwater pond.

2.4.72. Sculpture Integrate at least 1 installation and/or sculpture into the stormwater feature as an attraction.

Guidelines

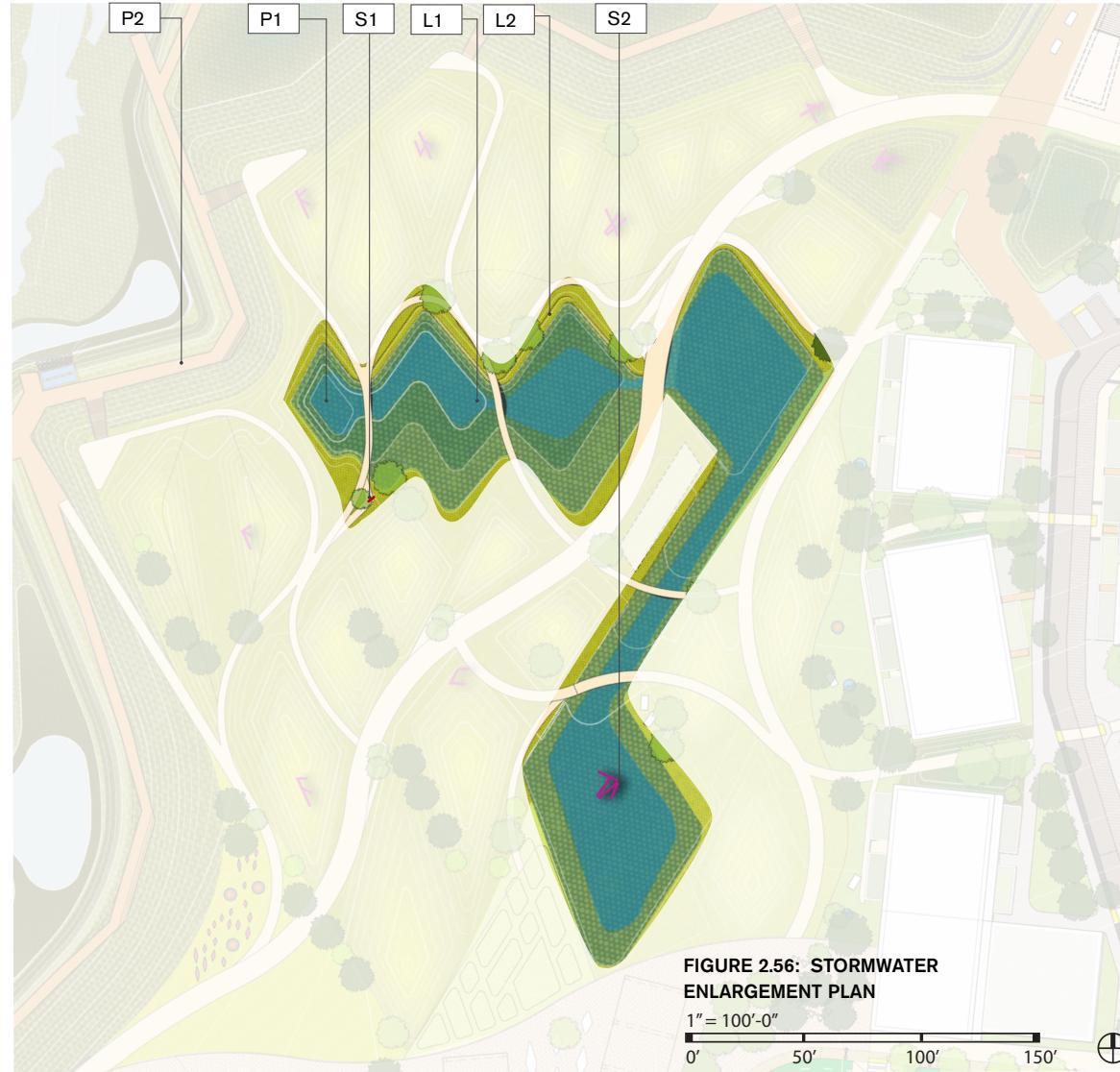
2.4.73. Amenities Locate bird blinds adjacent to the stormwater feature and adjacent to trails.

2.4.74. Water Portions of the stormwater feature shall remain full with stormwater or recycled water year-round.

2.4.75. Erosion Control The stormwater system shall include retention and low control measures to regulate flows and ensure slope stability and erosion control.

2.4.76. Materials The system shall be lined and constructed with inert durable materials that do not have any long term environmental effects on habitats.

2.4.77. Outfall Stormwater feature shall drain to outfall in West Shoreline. See Fig. 2.54.



Stormwater pond character



Boardwalk traversing stormwater pond

Table 17. Shared Front Yard Specifications

(See Section 2.5 for Public Realm Elements)

SURFACING		
P1	BOARDWALK	TYPE U
P2	FOOT PATH	TYPE M, F
P3	MULTI-USE TRAIL	TYPE M, F
PLANTING		
L1	TREE	OPEN SPACE
L2	BIORETENTION	UNDERSTORY TYPE F
LIGHTING		
LT1	PARK LIGHT	TYPE C, D
FURNISHING		
F1	FENCING	TYPE A, D
F2	BIRD BATH	
F3	FIRE PIT	

The shared front yard is a buffer between the Big Green and the Flats. It acts as a visual transition between public open space and private homes, and provides residents with a shared semi-private open space for activities such as play, barbecue, small gatherings, and leisure time. Stoops overlook the shared yard, which fronts the Big Green. Stormwater generated in the Flats is treated between buildings.

Standards

2.4.78. Elements All elements shown in Figure 2.61 are required. Dimensions may vary.

2.4.79. Specifications Specifications shall conform to Table 17. Shared Front Yard Specifications.

2.4.80. Fence A low fence no taller than 36 inches with at least 85% transparency is permitted at the perimeter of each shared yard.

2.4.82. Percentage Softscape At least 80% of the shared yard shall be softscape.

Guidelines

2.4.83. Furnishings Placement of permanent and temporary furnishings in the shared front yard shall be permitted and maintained by the building HOA.

2.4.81. Stormwater Planted areas between buildings shall be used for stormwater treatment to treat the stormwater generated in the Flats. Paths over stormwater features shall be elevated boardwalks.



Shared yard for residences



Activated edge and public realm engagement



**Table 18. Public Market Plaza
Specifications**

(See Section 2.5 for Public Realm Elements)

BIKE FACILITIES: RACKS

SURFACING

P1	PLAZA	TYPE D,I,J,M,N,O / UNDERSTORY PLANTING TYPE I
P2	FURNISHING ZONE	TYPE I, J, N
P3	TRAVEL ZONE	TYPE G

PLANTING

L1	TREE	COMMERCIAL CORRIDOR
L2	TREE	OPEN SPACE

LIGHTING

LT1	PLAZA LIGHT	TYPE B
-----	-------------	--------

FURNISHING

F1	SEATING	TYPE A, C, D, E, F
----	---------	--------------------

STRUCTURES

S1	PUBLIC MARKET	SEE SECTION X.X
----	---------------	-----------------

The Public Market is a flexible plaza space capable of hosting large events as well as everyday market functions. It serves as the threshold from the developed Hillside into the Big Green. The edge between plaza and Big Green should be integrated. The configuration allows for the plaza to evolve over time to suit the needs of the community, starting as a site activation location during early construction phases and becoming an active space for daily functions, gatherings, play, and events.

Standards

2.4.84. Elements All elements shown in Figure 2.62 are required. Dimensions may vary.

2.4.85. Specifications Specifications shall conform to Table 18. Public Market Plaza Specifications.

2.4.86. Public Market Locate 2 lightweight structures in the plaza to function as a public market. Total footprint not to exceed 10,000 sq ft. Construct the structures to allow for some enclosable spaces for community facilities.

2.4.87. Restroom Accommodate at least 6 restroom stalls in the public market pavilion or within 100 feet of the public market pavilion.

2.4.88. Amenities The following amenities shall be provided within the plaza: movable and built-in seating, lighting, a bicycle corral, signage, drinking fountains, and refuse receptacles.

2.4.89. Percentage Hardscape The plaza shall be at least 75% hardscape.

Guidelines

2.4.90. Shade Provide a lightweight canopy for cover and shade adjacent or attached to the public market structures.

2.4.91. Trees Locate trees in plaza to create a grove adjacent to New Hudson Avenue and allees to enhance view corridors.

2.4.92. Vehicular Access The plaza shall be designed to accommodate vehicular access.

2.4.93. Program Temporary programs and activities shall be allowed within the Plaza.



Flexible Plaza Space (The Plaza, Cambridge)



Canopy Typology (Flora Grubb, San Francisco)



Transit Plaza

The Transit Plaza is a primary entry into the site located at the corner of Innes Avenue and Arelious Walker. It will welcome people arriving by public transit, and should be inviting and comfortable. The plaza shall be robust in nature for durability on a primary transit corridor.

Table 19. Transit Plaza

(See Section 2.5 for Public Realm Elements)

BIKE FACILITIES: RACKS & BIKE SHARE

SURFACING

P1	THROUGHWAY ZONE	TYPE H, I, J
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P2	FURNISHING ZONE	TYPE H, I, J, K, N
----	-----------------	--------------------

PLANTING

L1	TREE	COMMERCIAL CORRIDOR
----	------	---------------------

LIGHTING

LT1	PLAZA LIGHT	TYPE B
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FURNISHING

F1	SEATING	TYPE A, C, D, E, F
----	---------	--------------------

F2	SIGNAGE & WAYFINDING	SEE CHAPTER 7
----	----------------------	---------------

F3	BIKE SHARE	
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STRUCTURES

S1	OVERHANG	SEE CHAPTER 6
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Standards

2.4.94. Elements All elements shown in Figure 2.63 are required. Dimensions may vary.

2.4.95. Specifications Specifications shall conform to Table 19. Transit Plaza Specifications.

2.4.96. Percentage Hardscape The plaza shall be at least 90% hardscape.

Guidelines

2.4.97. Lighting Plaza lighting shall be incorporated into building and hardscape, and/or planters.

2.4.98. Shade See Ch. 6 for building overhang.

2.4.99. Amenities The following amenities shall be provided within the plaza: movable and built-in seating, lighting, signage, and refuse receptacles.

2.4.100. Paving Paving shall be distinct from DPW standard sidewalk, including enhanced cast in place concrete or concrete unit pavers.

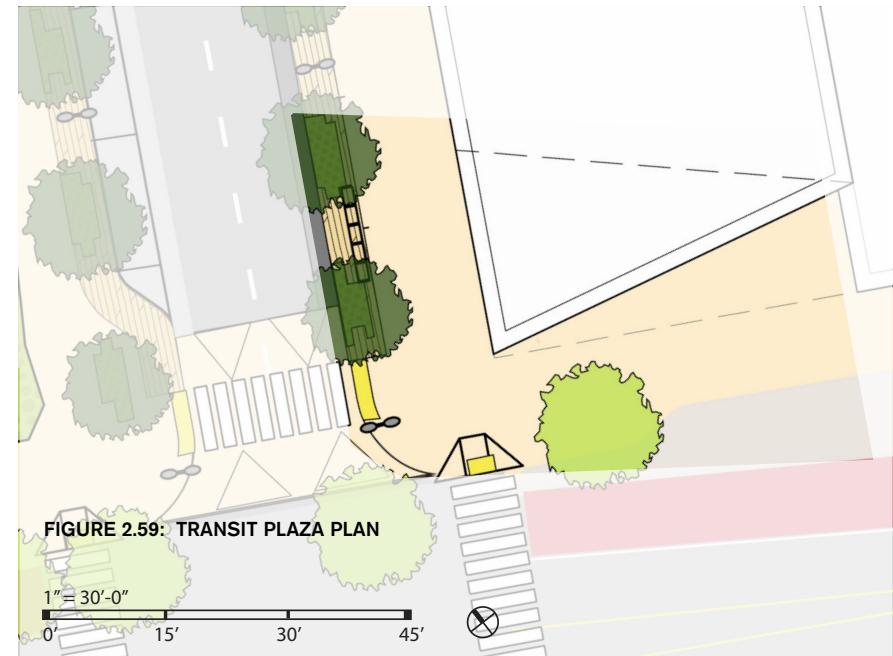


Table 20. Town Triangle Specifications
(See Section 2.5 for Public Realm Elements)

SURFACING		
P1	TOWN TRIANGLE PAVING	TYPE H, I, J
PLANTING		
L1	TREE CORRIDOR	COMMERCIAL
L2	COURTYARD/PLAZA	UNDERSTORY TYPE B
LIGHTING		
LT1	STREET LIGHT	TYPE 2
FURNISHING		
F1	SEATING	ALL TYPES

The town triangle is a signature plaza for the community designed to accommodate small to medium size gatherings, neighborhood events, and retail seating areas. The plaza should enable a range of activities and allow the ground floor retail outdoor space for seating and occasional events. Accordingly, the plaza is designed for flexibility with a large paved area, as well as more intimate gathering spaces. Located adjacent to the Class-I bikeway, the plaza also provides bicycle infrastructure and places for bicyclists to stop for a break.

Guidelines

2.4.104. Gathering Spaces Provide gathering spaces at a variety of scales to accommodate a range of programmatic activities, from larger scale formal performances and events to small scale informal gatherings.

2.4.105. Furnishings A range of fixed and movable furnishings shall be provided to accommodate programmatic activities.

2.4.106. Infrastructure Power, water and internet shall be provided to accommodate users and a range of outdoor programs and events.

2.4.107. Paving Paving shall be distinct from DPW standard sidewalk. Variation may include jointing pattern, paving type, texture and color.

2.4.108. Building Activation Open spaces shall be oriented to activate building and retail frontages.

Standards

2.4.101. Elements All elements shown in Figure 2.64 are required. Dimensions may vary.

2.4.102. Specifications Specifications shall conform to Table 20. Town Triangle Specifications.

2.4.103. Raised Planters Raised planters shall be maximum 18" above adjacent finish surface. Raised planters edges shall incorporate seating/play elements where possible.

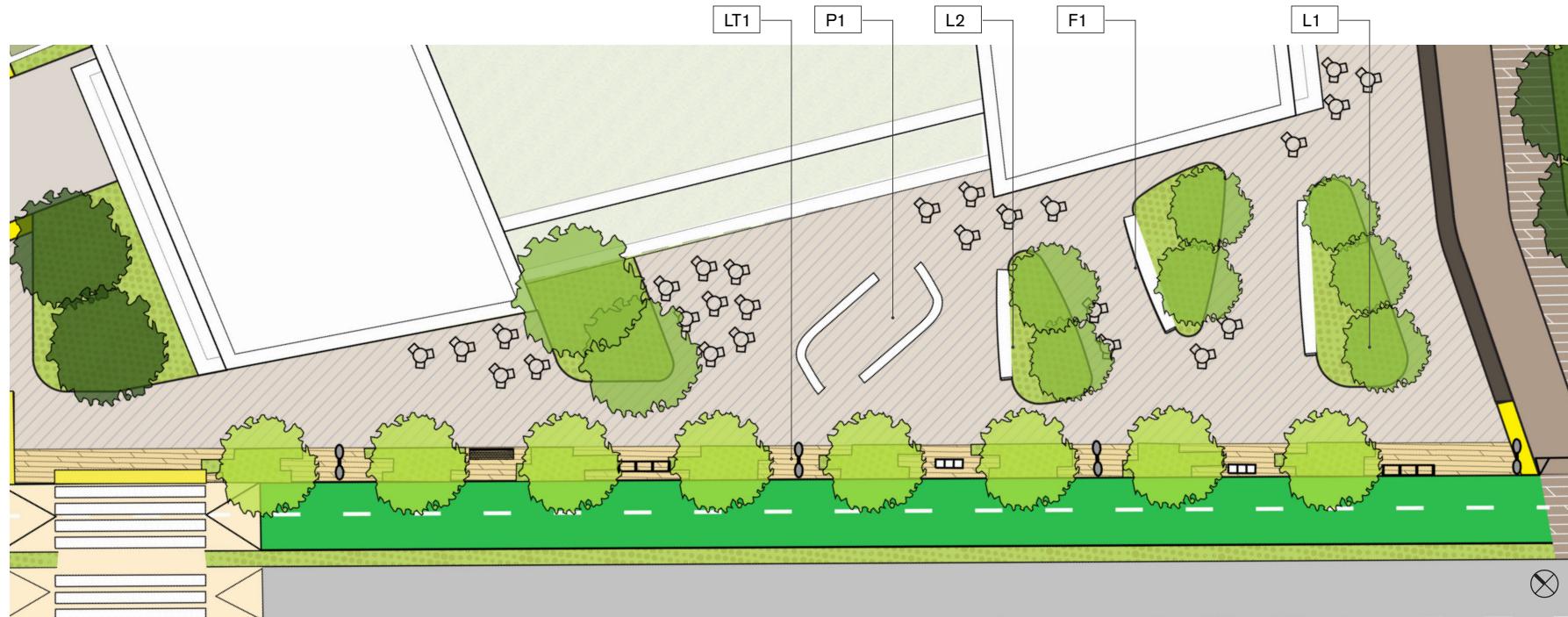


FIGURE 2.60: TOWN TRIANGLE ENLARGEMENT PLAN



Table 21. Pocket Plazas Specifications
(See Section 2.5 for Public Realm Elements)

SURFACING		
P1	POCKET PLAZA ZONE	TYPE H, I, J
LIGHTING		
LT1	PED LIGHT	TYPE 2
FURNISHING		
F1	SEATING	ALL TYPES

Pocket Plazas are nestled into the flats. They are community gathering and program spaces located at strategic nodes within the neighborhood. The pocket plazas are reserved as locations for site specific installations, and a range of interventions should be considered for these locations to mark them as distinct signature places within the public realm. These could include site specific furnishings, inlay/pressed paving and art installations. Reuse found objects to retain the character of the place. Consider engaging a local artist or artisan for creation of site specific interventions in the pocket plazas.

Guidelines

2.4.111. Site Specific Interventions Site specific interventions shall be incorporated into the pocket plazas. These may include site specific custom furnishings, inlay/pressed paving and art installations incorporating found objects.

2.4.112. Seating A range of seating types shall be provided.

2.4.113. Paving Paving at pocket plazas shall be distinct from adjacent surfacing. Variation may include jointing pattern, paving type, texture and color.

Standards

2.4.109. Location Location shall conform to Figure 2.65. Dimensions may vary.

2.4.110. Specifications Specifications shall conform to Table 21. Pocket Plaza Specifications.



Courtyards & Stairs

The courtyards and stairs provide important functional spaces for India Basin. The courtyards function in the urban design framework is to provide residents with gathering and program spaces near their home. These spaces serve as extension of living spaces where residents can carry out community life. Programmatic activation and a sense of community ownership are key for the success of these spaces.

The stairs provide transition from streets to the elevated podium level, which includes the laneways and courtyards. These are intended to feel welcoming, generous and comfortable and should not act or feel like a barrier. Planting, art and water are incorporated into the stairs to increase comfort and animate these spaces.



FIGURE 2.62: COURTYARDS, STAIRS, & LANEWAYS

 See Laneways Section 2.4



Laneway Grand Stair

Table 22. Courtyard & Stairs Specifications
(See Section 2.5 for Public Realm Elements)

SURFACING		
P1	PEDESTAL PAVING	TYPE C, S
P2	STAIRS	TYPE I, J, T
PLANTING		
L1	COURTYARD TREE	ABOVE GRADE
L2	COURTYARD PLANTING	UNDERSTORY TYPE A
L3	PLANTING	UNDERSTORY TYPE C
LIGHTING		
LT1	PEDESTRIAN LIGHT	TYPE 2
FURNISHING		
F1	SEATING	ALL TYPES

Standards

2.4.114. Access Control Access control shall conform to Figure 2.67.

2.4.115. Specifications Specifications shall conform to table 22 Coutyard and Stair Specifications

2.4.116. Soil Depth Trees on structure shall be provided minimum 4' soil depth. 5' is recommended.

2.4.117. Storage Courtyards shall provide storage space for residents to store items such as garden tools, toys and furnishings.

2.4.118. Bicycle Channel A bicycle channel or rail shall be incorporated into stairs to facilitate ease of bicycle transport.

2.4.119. Raised Planters Raised planters shall be maximum 18" above adjacent finish surface. Edges of raised planters shall incorporate seating/ play elements where possible.

Guidelines

2.4.120. Overhead Cover Courtyards shall provide common space with overhead cover that may include shade sails, canopies, and trellises.

2.4.121. Sightlines Stoops and entrances shall have sightlines to common spaces.

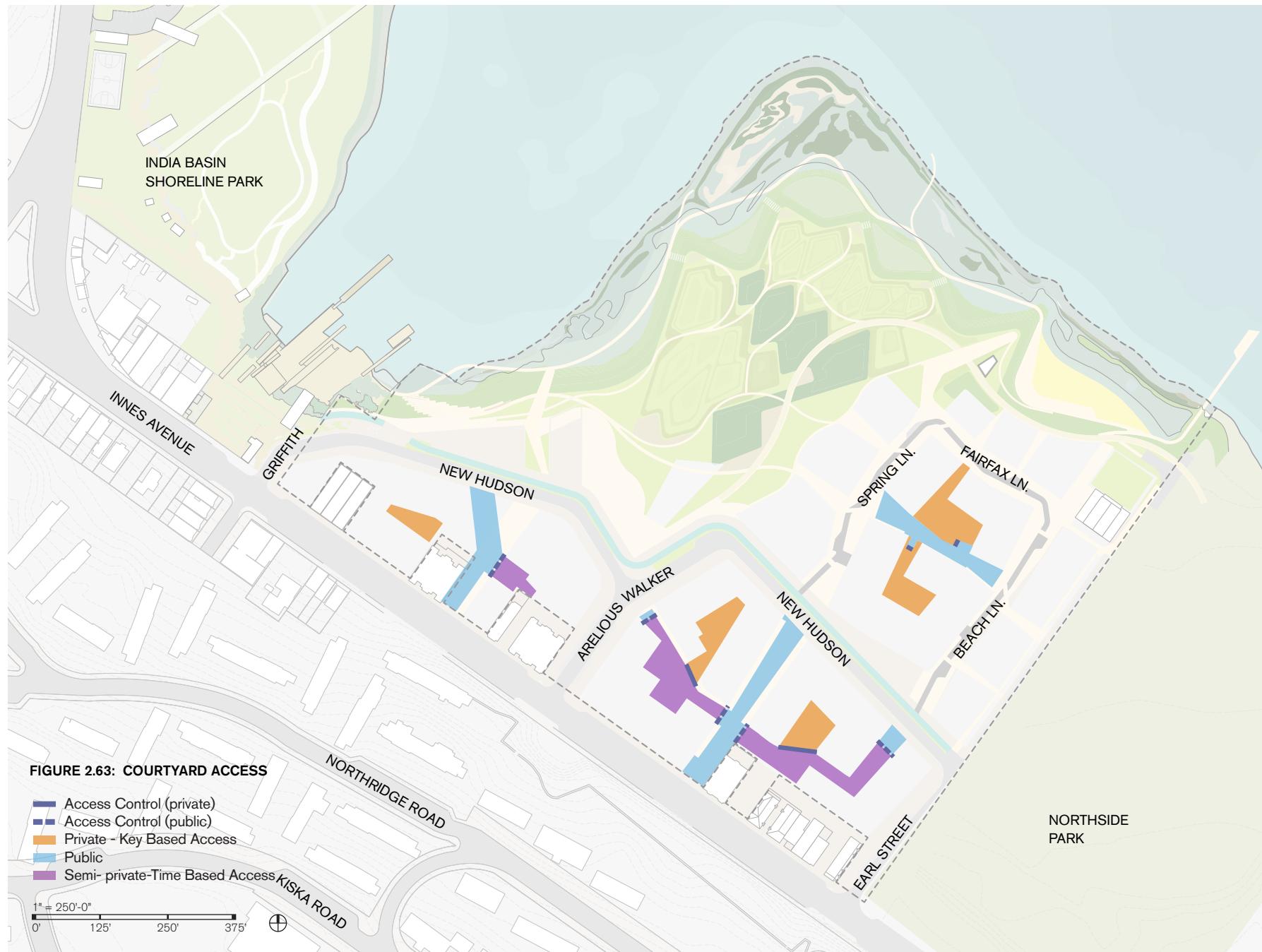
2.4.122. Amenities and Programming

Courtyards shall include common amenities for residents that may include community gardens, fire pits, play areas, bbq facilities and community common resource sharing facilities (e.g. tool lending library).

2.4.123. Thermal Comfort Thermal comfort shall be considered when locating courtyard planting and program zones. Gathering spaces shall be provided with a variety of sun/shade conditions.

2.4.124. Planting Areas Planting areas shall be placed with consideration given to solar exposure. Plants shall be located where they will receive adequate sun.

2.4.125. Paving Surfacing of courtyards and stairs shall match laneway surfacing.



2.5 Public Realm Elements

A comprehensive mix of elements and India Basin-specific materials are proposed to create public spaces for active public life that cherish and embrace the nuances of India Basin.

An active and vibrant public realm is reliant on places with a diverse and appropriate mix of elements and amenities that extend the use of a space to all times and conditions of the year. To achieve the guiding principals, a comprehensive palette of elements and India Basin-specific materials are proposed to create public spaces for active public life that cherish and embrace the nuances of the existing place. The following palettes, precedents, and design guidelines and standards included in this section should be closely adhered to for authenticity and a site that is true India Basin.

Included Elements:

- Surfacing
- Furnishing
- Bike Racks & Corrals
- Newsracks
- Parking Meters
- Boardwalks & Spans
- Bollards
- Fire Pits
- Drinking Fountains
- refuse Receptacles
- Recreation Elements
- Fences & Gates
- Lighting
- Structures
- Streetscape Systems
- Stormwater Treatment
- Signage (see Chapter 6)
- Ecology (see Section 2.6)



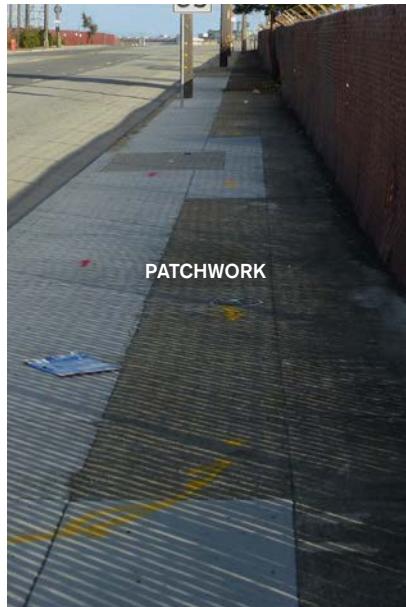
Public Realm Activation

EXISTING	FUTURE
FOUND	INTENTIONAL
RANDOM	DURABLE AND LASTING
INDUSTRIAL	ARTFUL AND COMPOSED
VARIETY	VARIETY AND CHANGE

Existing Basin-Wide Elements

Shaped by forces of economy, industry, and improvisation, India Basin exists today as a site of variety, remnants, artifacts, patterns, and materials. Leftover pieces, oddities, and a patchwork of materials result in found objects. Constant interaction with the Bay creates dynamic experiences, views, and unique habitats. The resulting site character is feral, rugged, industrial, and wild. India Basin's industrial and storied past has been integral to envisioning the future of this place, and the proposed design for India Basin reflects the community's desires to preserve the wild and post-industrial character of the Basin and promote the legibility of such formative eras in the landscape.

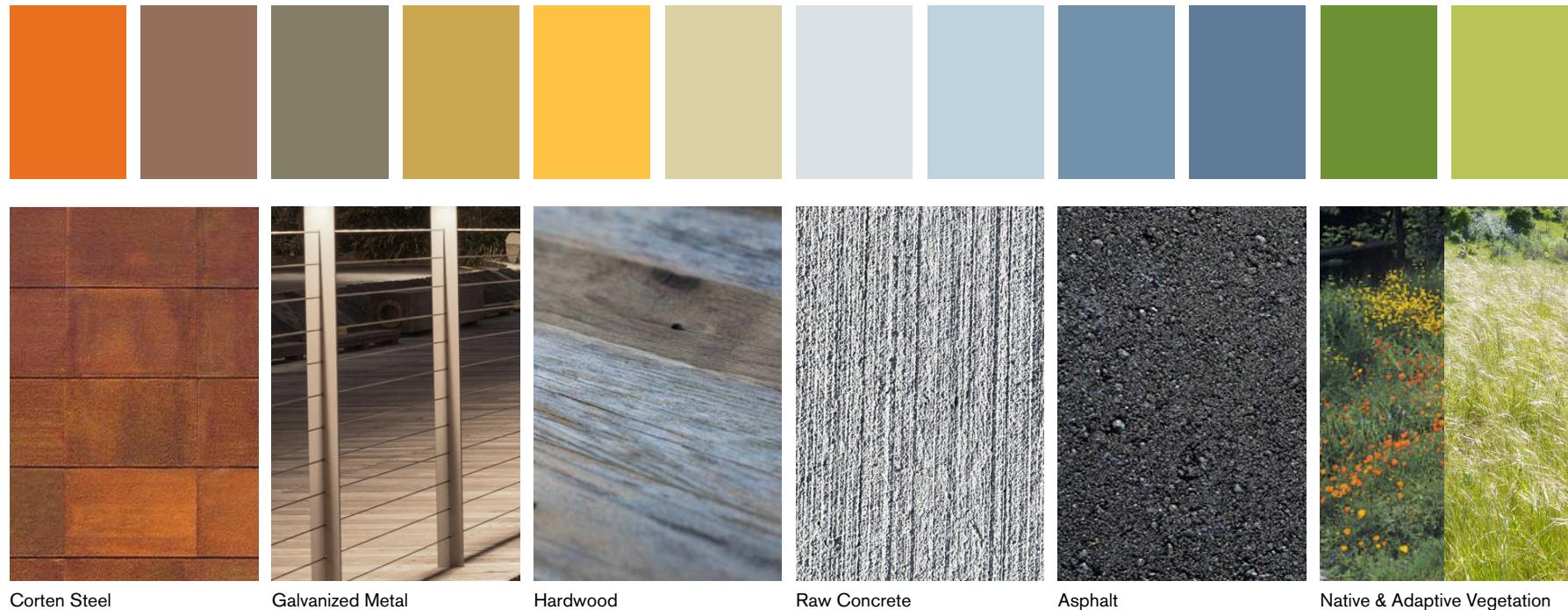
The materials and colors throughout the Basin and the surrounding sites inspire an India Basin unique materials and color palettes that are durable, site specific, and in this condition, mundane. All elements will conform to the materials, textures, and colors of this overarching project palette to achieve a public realm that is authentic India Basin.





1. Wildflower meadow
2. Concrete rubble and Oystercatchers
3. Cracked asphalt paving
4. Existing coastal scrub and upland grasslands
5. Power sub-station, galvanized metal
6. Steel
7. Rip rap breakwater





Corten Steel

Galvanized Metal

Hardwood

Raw Concrete

Asphalt

Native & Adaptive Vegetation

Color & Materials Palette

Wildness, variation in light, seasonal dynamics, and the affects of time on materials in India Basin inspire a palette of material and colors that will blend into the existing setting and will preserve the unique character, look, and feel of India Basin. The color palette shall be used as a basis to guide color selection of public realm elements. The materials and textures in this palette shall serve as guiding principles for selection of public realm materials. The “Trust” should be engage to manage and coordinate all public realm elements.

Standards

2.5.1. Materials All materials and furnishings shall conform to the color and materials palette included here.

Guidelines

2.5.2. Durability All materials and furnishings shall be durable, resilient, suitable for use in an urban coastal environment, and require minimal maintenance.

2.5.3. Life-cycle Materials and furnishings shall be selected to conform with sustainability goals. See Ch. 3.

Surfacing

The India Basin public realm surfacing palette is composed of durable materials appropriate for an urban environment. Materials should require minimal maintenance. At the time of this publication, it is anticipated that permeable surfacing may only be applicable if an underdrain is provided. Permeable materials are provided herein pending future geotechnical investigations.

Standards

2.5.4. Vehicular Surfacing Surfacing in vehicular zones shall be designed with appropriate profiles to accommodate vehicular traffic. Concrete unit pavers in vehicular zones shall not exceed 4" x 12" module size.

Guidelines

2.5.5. Surfacing Provide visual and textural contrast between pedestrian and vehicular surface.

2.5.6. Joints Cast in place concrete joints shall be saw cut.

2.5.7. Edge Restraint Non rigid paving shall have an edging composed of either a stainless steel or aluminum edging or cast in place concrete.

Surfacing Types



Type A: Permeable Asphalt

Standard hot mix asphalt with reduced fines.



Type D: Turf Block

Modular paving system with large voids to allow for planting and passage of water.



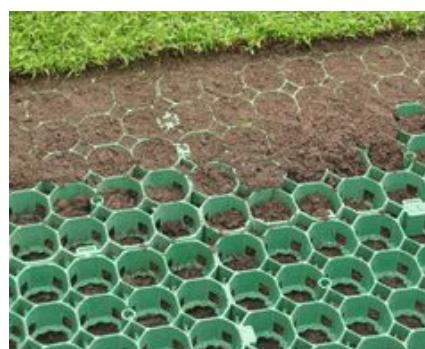
Type B: Permeable Concrete

Custom concrete mixture contains little or no sand which results in high void content.



Type E: Permeable Unit Pavers

Modular cast concrete paving system. Paving joints allow for passage of water.



Type C: Grass Pave

Pervious, planted load bearing surface composed flexible grid system. Provides high permeability suitable for vehicular loading



Type F: Reinforced Planting

Modular cut stone pavers set into turf or crushed stone surrounds.

Surfacing Types



Type G: Asphalt

Smooth, durable road surface.



Type H: CIP Concrete

DPW standard CIP concrete..



Type I: Enhanced Cast In Place Concrete

Cast in place concrete with integral color. May include embossing or patterns.



Type J: Concrete Unit Pavers

Modular cast concrete system. In vehicular areas, size of modules shall accommodate vehicular loading. May be sand set on an aggregate base or mortar set on a concrete slab. Install per geotechnical recommendations.



Type K: Cobblestone

Modular cut stone paving.



Type L: Thermoplastic

Marking to delineate Class I bike lane.

Surfacing Types



Type M: Decomposed Granite

Flexible non porous paving system.



Type P: Stenciled Concrete

Pressed use found object as stencil in CIP concrete or asphalt.



Type N: Demarcation Multi-use Paving/Pavers

Flexible non-porous paving system



Type Q: Stabilized Crushed Stone

3/8" or 1/4" minus aggregate with integrated non-toxic stabilizer.



Type O: Exposed Aggregate

Select materials inlaid into concrete and/or asphalt for a distinct pattern. Finish surface shall be smooth and durable with no sharp protruding objects. Inlay materials may include shells, found objects, large aggregate.



Type R: Truncated Domes

Detectable warning surface to delineate edge between pedestrian and vehicular zones. Refer to DPW standards for material, color and installation specifications.

Surfacing Types



Type S: Inlay Pressed Paving

Select materials inlaid into concrete and/or asphalt for a distinct pattern. Finish surface shall be smooth and durable with no sharp protruding objects. Inlay materials may include shells, found objects, large aggregate.



Type T: Wood Plank

Smooth, linear wooden planks. Suitable for vehicular loading.



Type U: Wood Boardwalk

Hardwood planking for porous surfacing and elevated trails. Allows for access through stormwater facilities without interrupting hydraulic flow.



Type V: Sand

Fine grain, clean sand for perched sand areas.



Seating with Back Support



Long, linear seating



Furnishings

Furnishings are an important component of the public realm. The furnishings at India Basin are sturdy and resilient while at the same time fulfilling aesthetic aspirations. To this end, furnishings at India Basin are constructed of simple, robust materials that can withstand the urban environment and coastal exposure. The use of industrial materials with integral finishes is encouraged. They should be inviting, comfortable and accessible.

To establish a unique and site-specific identity, a family of furnishings are envisioned for the site. Sizes, dimensions, layout, configuration, and type vary within the family. Materials should conform to the public realm palette, and be durable and appropriate for an urban waterfront setting.

Standards

2.5.8. Location & Type Furnishing type shall conform to Figure 2.68.

2.5.9. Backing Backed and backless varieties shall be provided, functional areas shall include at least one seating option with back and armrest.

Guidelines

2.5.10. Location Furnishings shall be located outside main path of travel within furnishing zones and allow for sufficient space for comfortable seating. Furnishings shall be located in areas where they are likely to be used. Furnishings shall be visible and located in a manner that allows them to be easily accessed.

2.5.11. Intervals Seating shall be located at regular intervals.

2.5.12. Experience Furnishings shall be located to define unique places and enhance unique experiences, such as views, sculpture, and activities.



Type A: Small Scale Seating

Small scale seating that can be configured to provide seating for individuals and small groups. Can be used in small scale spaces.



Type B: Standard Bench

The standard India Basin streetscape bench will be medium scale and be robust and built to withstand urban conditions. Primary materials to include galvanized or stainless steel and durable hardwood.



Type C: Large Bench

Substantial bench element for large scale gathering and plaza spaces. Can accommodate large groups of people



Type D: CIP Concrete Seating

Built in seating elements constructed of cast in place concrete.

Furnishing family durable materials



Type E: Modular Furnishing System

Modular furnishing systems allows for various configurations which enables adaptability to varied public realm conditions.



Type F: Movable Furnishings

Standard India Basin furnishing that is repositionable by users. Should be easy to store, durable, and offer a variety of seating positions including straight back chair, reclined back chair, foot rest, and table.



Type G: Site-Specific / Custom Furnishings

To define a unique experience or view at gathering places and/or unique places, a site-specific, built-in furnishing and/or art piece should be commissioned to define the public realm.





Durable, corten steel bike rack

Bike Racks

Bike racks should be a simple, robust design. Bike racks constructed of galvanized or stainless steel without powder coating are easier to maintain and are encouraged. Refer to Ch. 1 for bike network and bike corral locations.

Standards

2.5.13. Location Bike racks shall be located no further than 50 feet from program areas such as building entries, small and large gathering areas and signature places. Bike racks shall be provided near major destinations and locations with high pedestrian traffic.

2.5.14. Design Bike racks shall contain at least 2 points of contact and multiple locking options for a range of bikes.

2.5.15. Design All elements of a bike rack shall have a minimum 2 inch diameter or 2 inch square tube.

Guidelines

2.5.16. Material Bike racks shall be galvanized or stainless steel to facilitate ease of maintenance. Bike racks shall not be powder coated.

2.5.17. Visibility Bike racks shall be visible to cyclists and pedestrians.

2.5.18. Location Bike racks shall be located where ample space is available and pedestrian flow will not be compromised. Bike racks shall be located to avoid conflict with access to underground utilities.



Built-in fire pit for year round use

Fire Pits

Fire pits are proposed for public areas to provide comfort that should increase the use of the public realm spaces to all times of day and year.

Guidelines

2.5.19. Construction Fire pits shall be constructed as integral, built-in elements to the place.

2.5.20. Design Provide built-in utility lines to supply fire pits.

Recreation Elements

The Big Green is envisioned to create a healthy, fun, and engaging environment for people of all ages and abilities. A range of recreation and adventure elements are intended for the Big Green.

Standards

2.5.21. Design Shall be designed for all ages and abilities.

2.5.22. Fencing Shall be designed without the need for fencing and controlled access.

Guidelines

2.5.23. Activities Shall provide space for a range of experience and activities

2.5.24. Drinking Fountains Drinking fountains shall be provided at all active recreation areas.

2.5.25. Lighting Lighting shall be provided in active and adventure areas for evening use.



Variety and adventure



Spaces for outdoor fitness



Recreation amenities for all ages and abilities



Flexible public spaces maximum potential uses



Integrate play features into the landscape



Elevated boardwalk

Boardwalks & Spans

Standards

2.5.26. Material Boardwalks shall be made of wood materials.

2.5.27. Guardrail Guardrail shall be at least 80% transparent.

2.5.28. Roll Guard Where drop from boardwalk exceeds 4", provide a 6" high roll guard for edge detection. Roll guard material shall be integral to boardwalk material.

Guidelines

2.5.29. Guardrails Trails and boardwalks shall be designed to use guardrails sparingly, and only at overlooks and bridges. (See section 2.4)



Newsracks combined as one feature

Newsracks

Standards

2.5.30. Location Only 1 six-unit pedmount newsrack shall be placed behind the curb of any passenger loading (white) zone.

2.5.31. Clear Width Where newsracks are located in the furnishings zone, placement shall meet the minimum clear width with the newsrack door open.

2.5.32. Location Newsracks shall be located next to red curbs that are not marked for a bus stop.

2.5.33. Bus Zone No newsrack shall be placed within 6 feet of the curb for the length of any bus zone.

2.5.34. Location A maximum of five free-standing newsracks may be placed in a continuous row. No more than two pedmount newsracks shall be placed within 5 feet of each other except if the sidewalk is 25 feet wide or greater, in which case the maximum is 3 pedmounts.

Guidelines

2.5.35. Location Newsracks shall be placed in building setbacks, instead of the furnishings zone, with the property owner's approval.

2.5.36. Design Newsracks shall be consolidated into a single integral cabinet. The cabinet shall have a simple design that complements the design and color of other street furniture. Newsracks shall be permanently affixed to the sidewalk.



Parking meter stations

Parking Meters

Standards

2.5.37. EV Charging Provide EV charging at on-street parking meters for electrical vehicles and bikes. EV charging stations shall be provided for at least 50% of street level parking spaces within the public realm.

3.5.38. Location Multi-space meters shall be placed every 8 to 10 parking spaces, 150 to 200

feet apart.

2.5.39. Multi-Space Meters Signage shall clearly direct patrons to the multi-space parking meter. Signage directing patrons to multi-space meters shall be placed every 100 feet (4 to 5 parking spaces).

Guidelines

2.5.40. Striping & Numbering Some payment mechanisms require striping, and in some cases numbering, of individual spaces on the roadway while others allow cars to freely fill in the entire block. Where roadway striping and/or numbering is required it shall be minimal and not visually



Drinking Fountains
Water filling stations as bicycle infrastructure distracting or unnecessarily large.

Drinking Fountains & Bottle Filling Stations

Guidelines

2.5.41. Location Provide at least 1 drinking fountain and bottle filling station near recreation areas, signature spaces, and recreation areas.

2.5.77. Location Locate bottle filling stations adjacent to bicycle facilities, including the Class-1 bikeway, and the primary multi-use trail.

Fence Types



Type A: Wire Mesh A

Lightweight, low-profile fence to create a clear yet transparent divide between spaces. 36-42" high. 60-72" high in select places. Durable materials with integral finish appropriate for marine environment and occasional flooding.



Type B: Cable

Rustic wood and cable and/or rope materials designed to fit into the wild and feral landscape. 36-42" high. Durable materials with integral finish appropriate for marine environment and occasional flooding.



Type C: Wood Slats

Lightweight, low-profile fence to create a clear and opaque divide between spaces. 36" high. Durable materials with integral finish. Industrial aesthetic.



Type D: Gate

At entries to private courtyards, a gate is provided for secure resident entry. 48-72" high in select places. Gates should meet or exceed City of San Francisco residential guidelines and standards in transparency and access requirements.



Type E: Screen

Structure to provide screening from adjacent spaces. 48-72" high in select places. Screen should meet or exceed City of San Francisco residential guidelines and standards in transparency and access requirements.





Identity



Multi-Stream & Capacity



User Behavior

Refuse Receptacles

Refuse receptacles will be located throughout the public realm to support the City's ambitious zero waste goal (see Ch. 3) and are intended to serve 3 functions.

1. Identity - Custom designed refuse receptacles unique to India Basin palette for wayfinding and identity.
2. Multi-Stream and Capacity - Modular system to collect different refuse streams. High capacity in busiest areas to minimize collection frequency and overflow.
3. User Behavior - Furnishings for refuse collection for all users and refuse streams.

Standards

2.5.43. Capacity refuse receptacles shall be high capacity (36 gallon or greater) to minimize collection frequency.

Guidelines

2.5.44. Maintenance refuse receptacles shall be easily cleaned.

2.5.45. Design refuse receptacles shall be side opening and covered for rain protection.

2.5.46. Location refuse receptacles shall be located in the furnishing zone outside of pedestrian circulation path. refuse receptacles shall be located where ample space is available and pedestrian flow will not be compromised. refuse receptacles shall be placed in a location visible to pedestrians and adjacent to high activity zones. refuse receptacles shall be located to avoid conflict with access to underground utilities. refuse receptacles shall be located as near to corners as practicable but out of the corner clear zone.

2.5.47. Design refuse receptacles shall contain a closed flap to limit wildlife exposure and access.

Lighting

Lighting is designed for safe roadways, pedestrian and open spaces to foster an active urban environment and provide an important component of India Basin's identity. India basin lighting fixtures provide flexibility and allow for multiple configurations while providing the ability to integrate with security and data components. Fixture materials will build on India basin's industrial heritage. The India Basin lighting design balances lighting requirements with minimization of light pollution to protect habitats and dark skies.

Standards

2.5.48. Height Street lighting: Street lighting fixtures shall be mounted 20-30' high

2.5.49. Height Pedestrian-scale lighting: Pedestrian-scale lighting fixtures shall be mounted 12-15' high, min 15' high in vehicular travel zones

2.5.50. Sky Glow Sky glow shall be mitigated by selecting dark sky friendly lighting fixtures that direct most of the light downward, by eliminating excessive light level, and turning lights off when not needed. Light fixtures shall achieve a semi-cutoff light (5% or less concentration of light

above a 90 degree angle from the fixture than the light output of the fixture), with a target of full-cutoff (zero light loss above the fixture or shield level).

2.5.51. Location Light poles and fixtures in the Big Green shall not exceed 36" high. Locate light fixtures in the shoreline only at the beach upper and lower decks. Only footlighting with motion sensor activation or no lighting will be permitted on the shoreline boardwalk.

2.5.52. Efficiency Select lighting to maximize energy efficiency to meet or exceed the minimum energy performance requirements of Title 24 at the time of construction. See Ch. 3 for energy efficiency.

2.5.53. Maintenance & Cost Light fixtures shall be chosen to minimize maintenance and operating costs, and should have a minimum lifespan of 50,000 hours.

Guidelines

2.5.54. Location Street lighting poles shall be located on the sidewalk close to the curb on the curb side edge, or centered within, the furnishing zone.

2.5.55. Pedestrian Lighting Pedestrian lighting shall be added to street light poles where feasible unless spacing between street light poles does not support adequate pedestrian lighting, in which case pedestrian lighting may need to be located between street light poles.

2.5.56. Light Distribution Light fixtures shall be selected to efficiently direct light to the desired area of the roadway and sidewalk. Light fixtures should enable a variety of light distributions to adapt to different street and sidewalk configurations while maintaining the same fixture appearance. The distribution type shall be selected based on street and sidewalk width. Glare shall be mitigated by selecting the proper lamp wattage and mounting fixtures at the appropriate height.

2.5.57. Light trespass Lighting fixtures shall not be located close to windows to avoid light trespass or glare and disturb the adjacent building's occupants. House-side shields may be used on fixtures to minimize light trespass into residences or other areas.

Lighting Types



Type A: Street Light

20–30' high. Industrial aesthetic. Simple durable materials with integral finish. Can incorporate pedestrian light (12–15' high). Configurability. Able to integrate security, data gathering, cameras



Type B: Pedestrian Light

12–15' high (min 15' in vehicular travel zones). Industrial aesthetic. Simple durable materials with integral finish



Type E: Solar Powered Light

Consider light features that incorporate PV to generate on-site renewable energy to achieve the ambitious sustainability goals. See Ch. 3.



Type C: Bollard Light

36–42" high. Industrial aesthetic. Simple and durable materials with integral finish that is designed to fit into the surrounding landscape. Shall be placed outside of primary foot traffic. Limit light pollution to limit impact to habitat and preserve dark skies.



Type D: Foot Light

6–12" high. For low level foot traffic pathways in Big Green and residential areas. Industrial aesthetic. Simple, durable materials with integral finish.



Structures

A range of structures - small and large - will be incorporated throughout the Big Green to provide amenities, services, and experiences for visitors. The form, dimension, and materiality of all structures should be designed as site-specific and purpose-specific constructions that reference the surrounding landscape, industrial heritage, waterfront setting, and environment. As a field house to augment the Heron's Head EcoCenter, a lightweight pavilion should be provided in the Big Green.

The unique waterfront setting and landscape lends itself to a robust sculpture park program. A collection of large, environmental scale pieces that are site-specific, interactive, and/or interpretive are envisioned to be dispersed throughout the Big Green as a local amenity and destination. Consider contracting site-specific pieces by local artists, and contracting local artists / artisans for fabrication of pavilions and structures. Installations should be interactive and engaging to the greatest extent possible.

Standards

2.5.58. Elements Structures shall conform to Figure 2.71. Dimensions and locations may vary.

2.5.59. Size Maximum allowable footprint per structure in Big Green and Beach Terrace is 1,500 square feet, excluding public market pavilion. Only sculptures, art installations, and shade canopies built-into overhangs or the bank shall be permitted below top of bank.

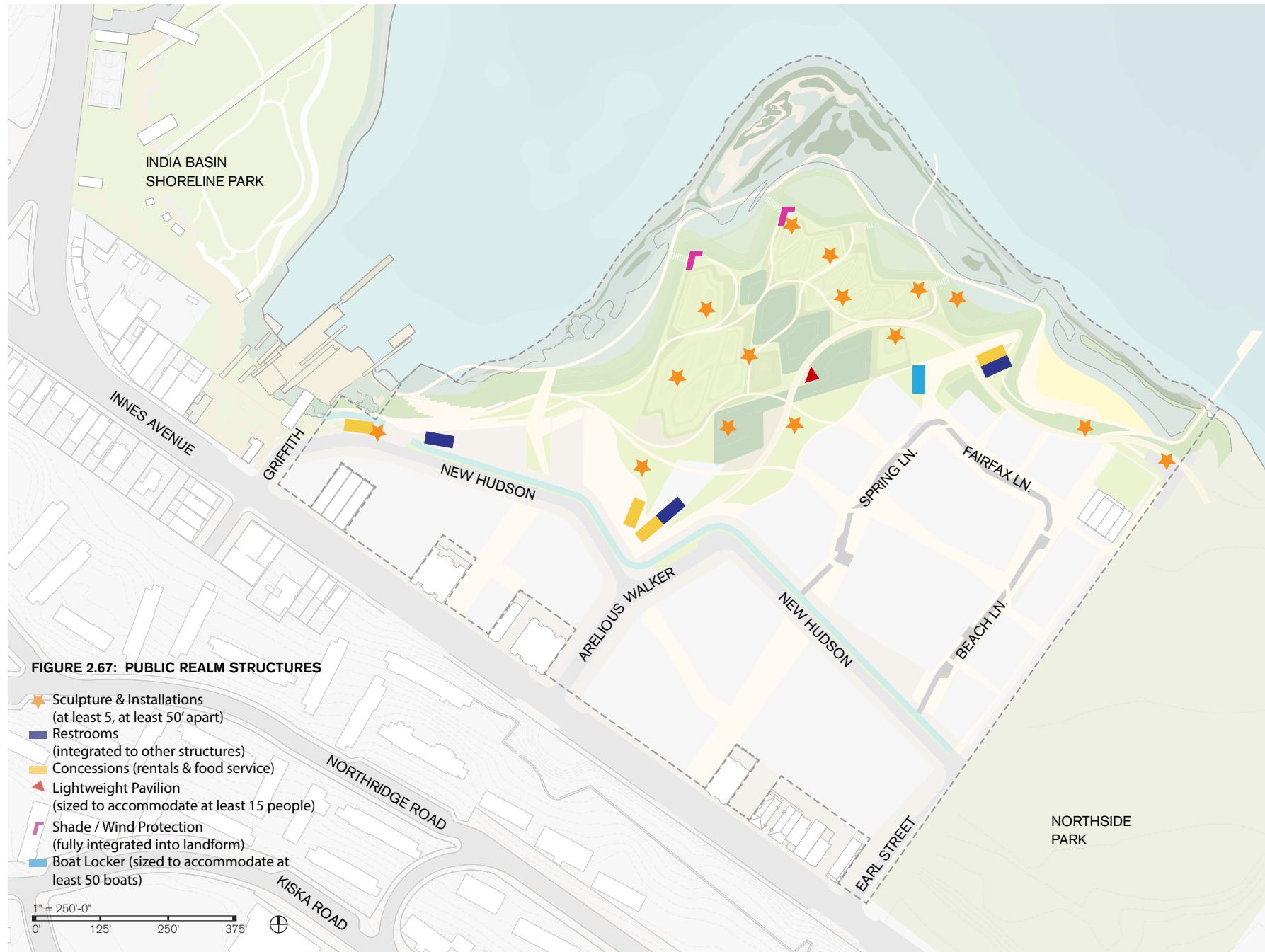
Guidelines

2.5.60. Collection Both permanent and temporary / rotating sculptures shall be permitted.

2.5.61. Experience Locate pieces to create views, unique experiences and encounters.

2.5.62. Varied Designers & Artist Pavilions and structures shall be designed by different designers / artists.

2.5.63. Restrooms Restrooms shall be incorporated into structures. Standalone restroom facilities shall not be permitted.



Structure Types



Concessions Stand

Pavilions providing small-scale retail, food service, rentals, and souvenirs. Canopy should allow for indoor and outdoor seating.



Boat Storage Shed

Single structure capable of securely storing up to 50 human-powered boats. Pavilion design should reflect scale of boats.



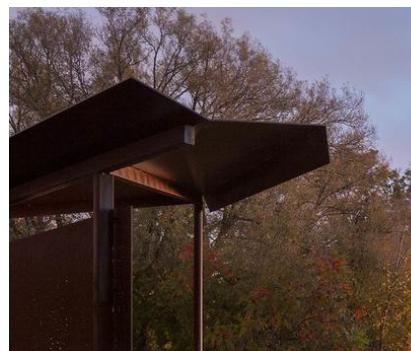
Field Center

Lightweight pavilion for on-site environmental education, stewardship, and engagement activities. Should support outdoor classroom activities.



Restrooms

Should be located in multiple 2.71 locations as indicated on Figure. Should be incorporated into other structures where feasible.



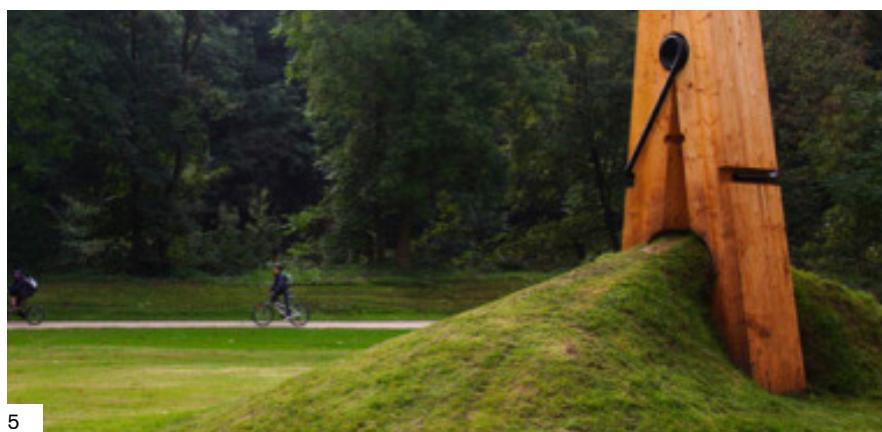
Shade / Wind Protection

Located in the Big Green and Shoreline areas to provide increased comfort to promote year-round use, and to provide habitat protection in viewing areas.



Framed Views & Overlooks

The site is surrounded by views of downtown, east bay, the bay bridge, and existing parks and wetlands. Site-specific installations should be incorporated to frame views and orient users to unique site elements.



1. Sculpture & Installation Examples
2. Mark Di Suvero, Governors Island.
3. Whatami.
4. "Bamboo Circle", Los Angeles.
5. Olympic Sculpture Park.
6. Clothespin Sculpture, Chaudfontaine Park, Belgium.
7. The Platform, Saunders Architecture, Fjord.

Streetscape Systems

This section includes standards and guidelines for constructed elements of the streetscape.

These include elements that address the interface between pedestrian zones and the vehicular zone, including curb ramps, raised crossings and curb extensions. Ensuring that these elements are well coordinated and meet accessibility standards is essential to the development of well functioning, complete streets.

In addition, this section addresses the configuration of tree planting within the streetscape. Trees are an essential component of the streetscape, bringing habitat, climatic comfort and aesthetic benefits. Tree pits should be constructed in a manner that will foster healthy trees with long lifespans in order to maximize these benefits.

Curb Ramps

Curb ramps provide access between the sidewalk and roadway, particularly for people with mobility issues. Because of this, curb ramps are integral to safe and accessible streets.

Standards

2.5.64. DPW Standards Curb ramps shall be constructed per City of San Francisco DPW standard plans for curb ramps and DPW Director's Order #175,387 (Guidelines for Constructing or Reconstructing Curb Ramps).

Guidelines

2.5.65 Location Curb ramps shall be installed parallel to the direct path of travel across an intersection.

2.5.66. Clearance Curb ramps and crosswalks shall remain clear of obstacles. No new poles, utilities or other impediments shall be placed in the curb ramp return areas.

2.5.67. Planting Area Planting areas shall be permitted at corners on either side of curb ramps.

Curb Extensions

Curb extensions or bulb-outs enlarge the sidewalk to incorporate the parking lane, which increases the pedestrian zone at strategic locations. This can be implemented at corners and mid block. Curb extensions enhance safety by increasing pedestrian visibility while providing additional space for pedestrians and streetscape amenities.

Standards

2.5.68. DPW Standards Curb extensions shall conform to San Francisco DPW Standard Plan for Curb Bulb.

2.5.69. Bulb-Outs Bulb-outs shall continue at least to the inside edge of the crosswalk and preferably extend at least 5 feet beyond an extension of the corner property line.

Guidelines

2.5.70. Curb Radius Curb extensions shall not include curb radius that interferes with emergency vehicle access.

2.5.71. Design Curb extensions shall be designed to maximize pedestrian space and

minimize crossing distance.

2.5.72. Location Curb extensions shall not encroach on bicycle or vehicle travel lanes.

2.5.73. Paving Curb extensions shall use special paving to distinguish them from pedestrian throughway travel zone.

2.5.74. Buffers Curb extensions shall include bollards, planting or other buffers between pedestrians and vehicles. These elements shall not impede drivers' view of pedestrians.

2.5.75. Furnishing Furnishings shall be located on curb extensions where space allows.

Raised Crosswalks

Raised crosswalks provide a pedestrian crossing of the roadway at the level of the sidewalk. In addition to providing a level surface for pedestrian access across the roadway, this provides traffic calming benefits as vehicles are forced to reduce speeds before passing over the crosswalk.

Standards

2.5.76. Dimensions Raised crosswalks shall be flush with the sidewalk height and at least the

width of the crossing or intersection.

2.5.77. Length Raised crosswalk shall be long enough in the direction of travel to allow both front and rear wheels of a passenger vehicle to be on top of the table at the same time—typically 10 feet. Specific lengths should be determined by using the ITE/FHWA document Traffic Calming: State of the Practice. Vertical transition shall be designed to not cause excessive jarring or discomfort to vehicle passengers.

Guidelines

2.5.78. Detectable Warning Detectable warnings shall be provided where pedestrians will cross into the vehicle area.

2.5.79. Paving Shall be marked by use of a distinct paving treatment or match the paving of the pedestrian throughway.

2.5.80. Grading & Drainage Grading and drainage design should take into account impact of raised crosswalks on drainage and provide adequate stormwater collection infrastructure.



Accessible crossings meet code



Truncated domes at edge of vehicular zone



Bulb-outs create safe crossings

Tree Pits: Surfacing Palette



Type A:
Decomposed Granite



Type B:
Planting



Type C:
Stone

POTENTIAL SIGNAGE OR STREETSCAPE ELEMENT LOCATION



TYPICAL TREE PIT

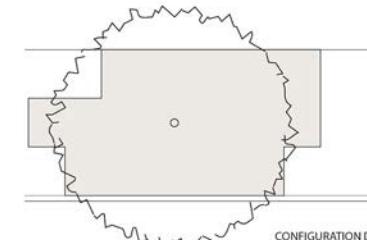
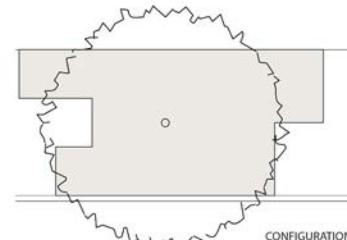
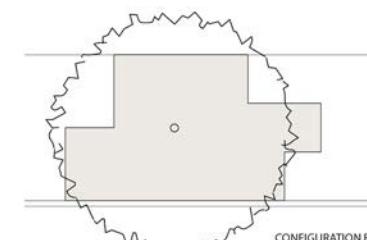
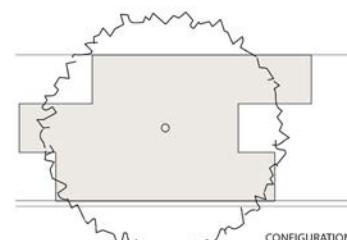


FIGURE 2.68: TREE PIT CONFIGURATION

Tree Pit Configuration

The India Basin tree pit configuration allows for variation in tree pit layouts that will contribute to the unique streetscape character while creating space for placement of signage and other streetscape elements. Streets should employ multiple tree pit configurations and no two adjacent tree pits should utilize the same configuration. Figure 2.72 shows examples of design variation.

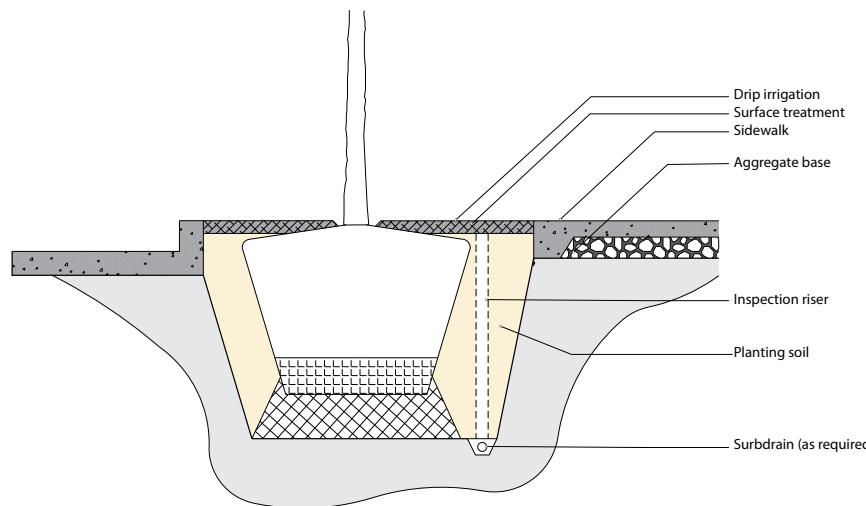


FIGURE 2.69: STANDARD TREE PIT

Type A: Standard

The standard tree pit should only be used where structural cell system is not possible. Ensure adequate soil quality and volume for tree health. Include irrigation and sub-drainage where required

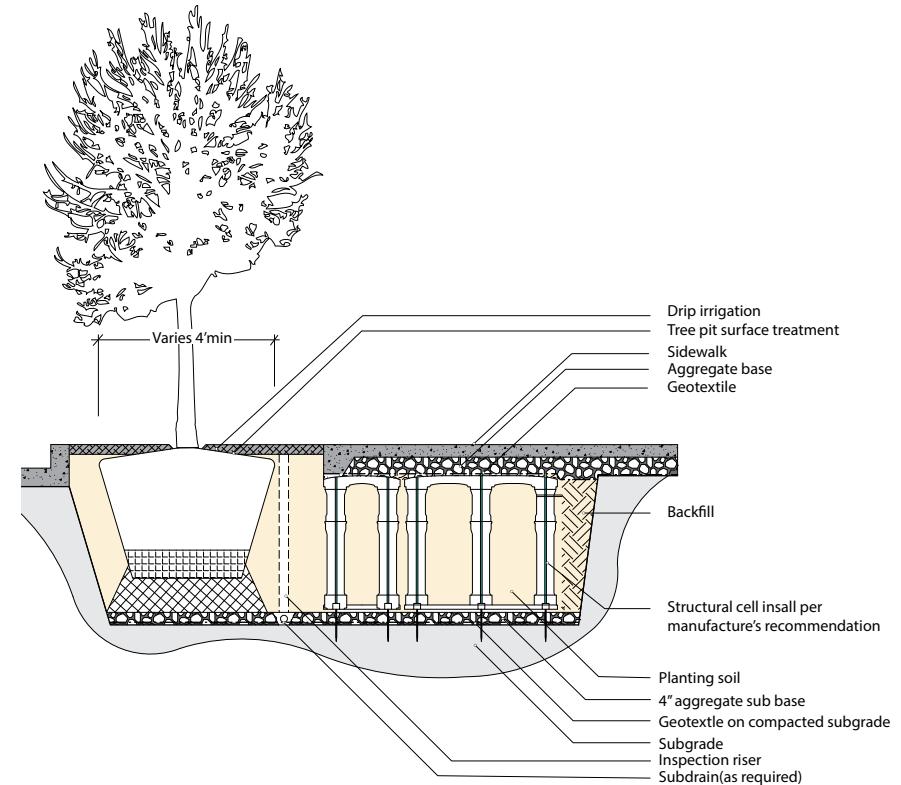


FIGURE 2.70: MODULAR STRUCTURAL CELL

Type B: Structural Cell

Modular structural cell support system allows for paving above planting soil, increasing volume of planting soil that can be provided for trees, which is extremely beneficial for long term tree health and viability.

Bioretention Areas

Bioretention areas are included throughout the Flats to treat all stormwater generated in the Flats and limit and/or eliminate the need for on-podium stormwater treatment. Within Bioretention areas, rooted water tolerant plantings are encouraged to improve filtration and nutrient control benefits.

Standards

2.5.80. Dimensions Minimum planter width shall be 2 to 3 feet to accommodate under drain systems, allow for planting room and allow for constructability.

2.5.81. Drainage Bioretention facilities shall be designed to drain stormwater within 48 hours after a rain event to avoid concerns about mosquitos. Ponding depths shall be limited to 6 inches or less. An overflow riser with a domed grate shall be included for larger storm events.

2.5.82. Underdrain System An underdrain system shall be included where subsoil infiltration rates are less than .5 inches/hour.

Guidelines

2.5.83. Roadway Runoff Roadway runoff shall be directed into bioretention features by installing flush ribbon curbs on the street edge or small evenly spaced curb cuts.

2.5.84. Location Planters shall be structurally separate from the adjacent sidewalk to allow for future maintenance without disturbing the sidewalk. An expansion joint satisfies this requirement.

2.5.85. Soil Horizons Bioretention areas shall contain a surface layer of organic mulch, underdrain by an amended soil plant bed supporting appropriate grasses, shrubs and trees.

Swales

Standards

2.5.88. Width The preferred width for swales is 5 to 11 feet but swales may be as narrow as 3 feet.

2.5.89. Check Dams For swale slopes over

6% check dams shall be provided. Check dams shall be constructed of durable, non-toxic materials such as rock, brick, concrete, or soil by integrating them into the grading of the swale.

2.5.90. Filtration Deep rooted grasses and forbs shall be planted to improve filtration benefits of swales. Side slopes shall be minimized and shall not exceed 3:1.

Guidelines

2.5.91. Side Slopes Swales shall have shallow side slopes and depth to avoid safety risks and prevent erosion. This may include use of a vertical edge.

2.5.92. Flush Ribbon Curbs Flush ribbon curbs on the street edge of a swale or evenly spaced small curb cuts into the existing raised curb shall be used to allow roadway runoff to enter swales.

2.5.93. Topsoil Amended topsoil shall be installed to increase filtration and to improve infiltration and retention of runoff. In locations where there is low soil permeability, an underdrain should be considered.

2.5.94. Plant Species Vegetation shall be selected to improve infiltration functions, protect the swale from rain and wind erosion and enhance overall aesthetics. Selected species

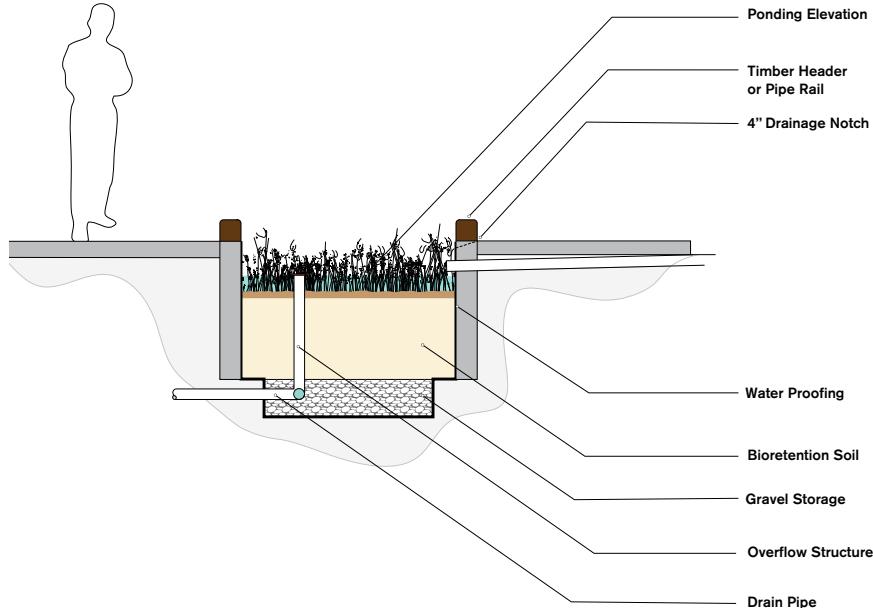


FIGURE 2.71: BIORETENTION TYPE A SECTION (NTS)

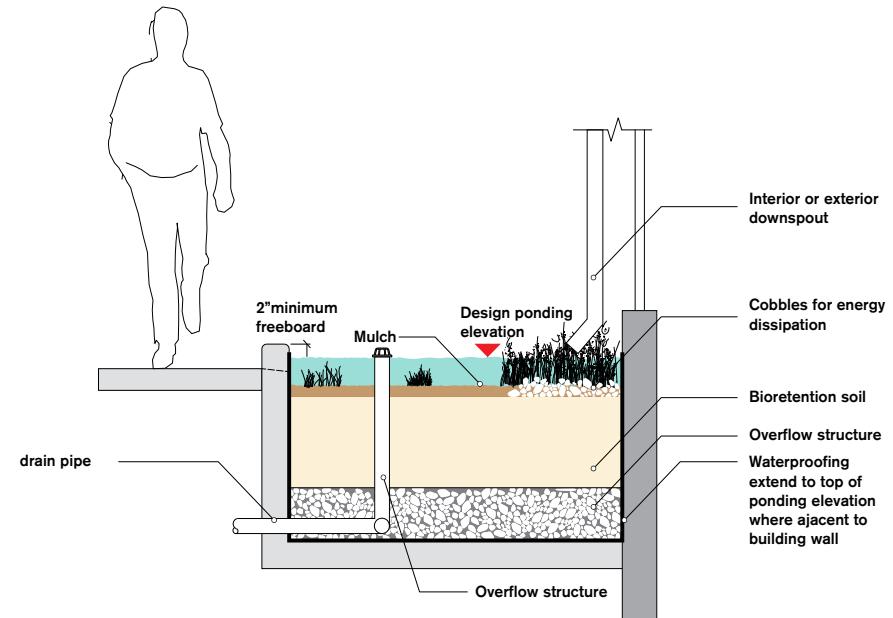


FIGURE 2.73: ROOF BIORETENTION SECTION (NTS)

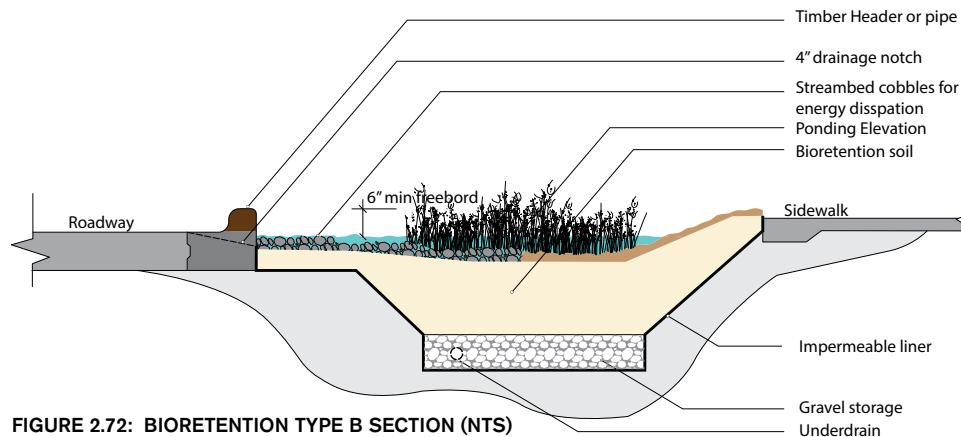


FIGURE 2.72: BIORETENTION TYPE B SECTION (NTS)

2.6 Ecology & Biodiversity

Ecology and Biodiversity

India Basin is composed of 7 adjacent waterfront sites proposed to become a continuous waterfront open space. The physical continuity of India Basin is its greatest asset for promoting diverse ecologies. While each site varies in its topography, materials, and relationship to the Bay, all can contribute to a larger ambition for diverse ecologies at a Basin-wide scale.

This site represents a unique ecological opportunity within the basin. The existing site assets, including a vegetated tidal marsh shoreline and extensive upland make it well positioned to support a broad array of flora and fauna. These features and the site's location in the Basin offer a unique opportunity to strive for the optimal cross section of vertical habitat continuity and enhanced urban biodiversity. Species should be selected to optimize habitat potential and create habitat niches across the site.

The intent is to keep the plant palette and character of the site wild and feral. This section outlines the recommended plant palette, standards and guidelines for creating the most optimal horticultural conditions to create a wild, ephemeral, adaptive, and sustainable landscape with diverse ecologies. The ambitions serve as a replicable model for habitat creation across all sites in India Basin.



FIGURE 2.74: HABITAT CONTINUITY THROUGHOUT INDIA BASIN



Seasonal



Feral



Native



Adaptive



Dynamic

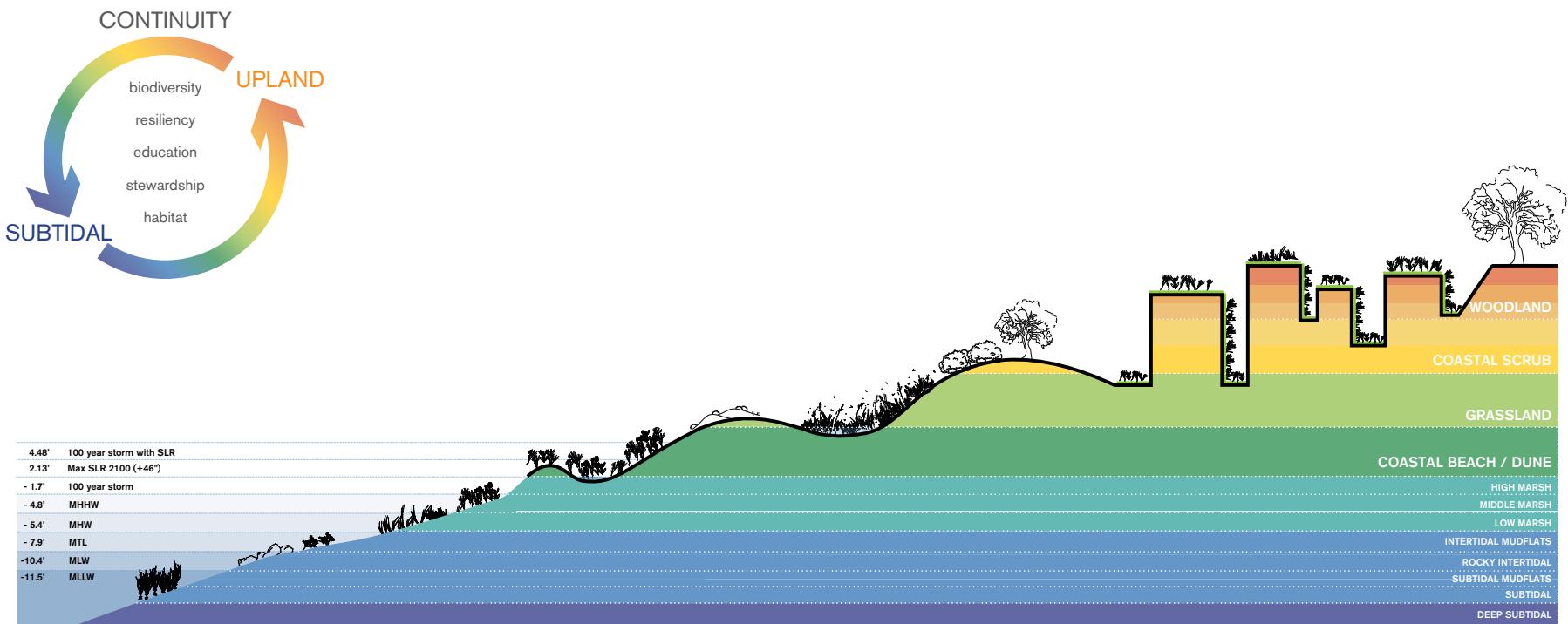


FIGURE 2.75: URBAN BIODIVERSITY

Ecology & Biodiversity

All interventions in the landscape serve an ecological purpose to promote diverse site ecologies that persist and evolve. The longterm success of these interventions will rely on the cultivation of a knowledgeable and committed community of stewards and advocates.

This is underpinned by a foundation of ecoliteracy—an appreciation of the ecological functions that make this place wild and unique across the site, as well as a deep understanding of how to preserve these conditions through both formal and informal environmental education.



Urban

The urban zone is the uppermost, developed portion of the site. The habitat types here range from woodland to coast scrub.

Upland

The upland zone is below the urban zone in elevation, and above the tidal zone. The habitat type ranges from woodland to coastal beach/dune.

Tidal

The tidal zone is lowest portion of the site and includes all of the shoreline that sits at or below the high tide line. The habitat types in this zone range from high marsh to deep subtidal.

Habitat Types



Coastal Dune

Ambrosia chamissonis, Abronia latifolia, Fragaria chiloensis, Artemisia pycnocephala, Tanacetum camphoratum, Ericameria ericoides, Lupinus chamissonis, Lotus scoparius, Cirsium occidentale, Ambrosia chamissonis



Coastal Scrub

Ceanothus thyrsiflorus var. repens, Baccharis pilularis, Eriophyllum staechadifolium, Erigeron glaucus, Mimulus aurantiacus, Rubus ursinus



Freshwater Marsh

Scirpus pungens, Salix lasiolepis, Aster latus, Lathyrus jepsonii



Mixed Forest

Notholithocarpus densiflorus, Umbellularia californica, Corylus cornuta, Rubus parviflorus, Rhododendron occidentale, Rosa gymnocarpa, Asarum caudatum, Trillium ovatum, Oxalis oregana, Petasites frigidus, Aralia californica, Polystichum munitum



Coastal Prairie

Agrostis pallens, Deschampsia cespitosa ssp. Holciformis, Elymus glaucus, Festuca rubra, Iris douglasiana, Leymus triticoides, Stipa pulchra, Sisyrinchium bellum



Annual Grassland

Allium dichlamydeum, Triteleia laxa, Danthonia californica, Elymus glaucus, Stipa pulchra, Grindelia hirsutula, Hesperolinon congestum, Clarkia franciscana, Triphysaria floribunda

**Oak Woodland**

Quercus agrifolia, Arctostaphylos spp., Adenostoma fasciculatum, Ribes spp., Ceanothus spp., Heteromeles arbutifolia, Rhamnus californica

**Rocky intertidal**

Fucus gardneri, Mytilus californianus, Ulva spp.

**Subtidal**

Zostera marina

**Tidal Flat**

Microalgae, diatoms, blue green algae

**Salt Marsh**

Atriplex prostrata, Distichlis spicata, Frankenia salina, Grindelia stricta var. angustifolia, Jaumea carnosa, Limonium californicum, Sarcocornia pacifica, Spartina foliosa, Triglochin maritima

Speciality Landscapes & Niche Habitats

India Basin is a prime location to establish rare and/or experimental habitats. The size of the available open space lends the site flexibility to go beyond meeting ecological imperatives while still ensuring that enough space is allotted to preserve and enhance existing habitat. Its location on the Bay positions it to receive strong wave energy and rising tides, which in turn call for innovative solutions.

In addition, the dual identity of India basin as a soft-edged urban waterfront makes it well-suited to support and test hybrid ecologies. Some of these would reintroduce niche habitats endemic to the region that have all but disappeared in the wake of urbanization and invasive species.

Living shoreline strategies have the potential to create and improve habitat in the tidal zone while providing erosion control and wave attenuation at the water's edge. These projects may include tidal marsh and brackish marsh, floating wetlands, eel grass beds, oyster reefs, engineered dunes, and artificial reef/tide pools.

See Section 3.8 for living shoreline habitats.

Reference www.SFPlantfinder.org as a tool to select habitat supportive and climate appropriate plant species.

Bird Baths

Bird baths are recommended as a niche habitat for local and rare species. Water from building system can be reused for habitat creation and treatment.

Standards

2.6.1. Site Location See Ch. 2 for locations.

2.6.2. Height Choose designs that have the basin at or near ground level, up to a maximum of 3 feet above the ground.

Guidelines

2.6.3. Form Basins shall have shallow, gently sloped saucer-shaped form, not vertical sidewalls.

2.6.4. Water Source Bird baths shall use non-potable water sources, such as building condensate water, and/or recycled water.

2.6.5. Substrate Sand, stones, or some other object/form that emerges above the water level shall be used in order to allow birds to drink without getting wet.

2.6.6. Material Non-concrete materials shall be used if possible, for ease of cleaning.

2.6.7. Proximity to Vegetation Bird baths shall be located in the shade, near trees or shrubs if possible to provide nearby vegetation for refuge.



Bird Baths

Bird baths are an excellent way to provide urban habitat, add character to the public realm, and reuse building refuse streams. Bird baths should be located on stairs, shared back yard, town triangle, and at the field center where feasible.



Floating Wetlands

Seasonal wetlands terraced at different elevations up the bank will afford a wider range of inundation conditions and the potential for wetland habit to migrate up the bank as sea level rises.



Serpentine Grasslands

It is anticipated that serpentinite will be found in existing site soils. Excavated serpentinite should be retained onsite to create a niche habitat for serpentine grassland species. Many are endangered and San Francisco endemic species.



Eelgrass Beds

Eelgrass beds serve as nurseries for fish and crustaceans, provide food for waterbirds, and protect shorelines against erosion.



Constructed Tide Pools

Precast concrete tide pools fill up with water during high tide to provide habitat to shallow water marine organisms while also acting as breakwater structures.



Seasonal Wetlands

Seasonal wetlands are ephemeral niche habitats that occur during the wet winter months. They promote micro-organisms and flora species on an annual cycle.

Urban Zone

The urban zone is the uppermost portion of the site and connects the open space of the Big Green to the hillside across Innes Ave. The habitat types within the urban zone range from coastal scrub to woodland.

India Basin represents an unusual opportunity to create rich habitat on-structure at a district scale. The urban zone habitat consists of green roofs, green walls, on-podium planting beds, and streetscape planting at-grade.

Where building refuse streams generate greywater and excess heat, priority shall be given to reuse on-site to create habitat. See Ch. 6 for green roofs and walls.



Standards

2.6.8. Diversity Green roofs shall use initial plant palettes that include at least 20 species to maximize biodiversity and plant survival.

2.6.9. Soil Volume For trees in paving, provide at least 1000 cubic feet of soil per tree. Where multiple trees share a trench, provide at least 700 cubic feet of soil per tree.

Guidelines

2.6.10. Habitat function criteria For green wall and roof applications, select species with a habitat function, that may include: A. Pollinator species, B. Species for nesting, C. Species as food source. These may include plants producing melliferous flowers, fruits or seeds appreciated by birds and insects.

2.6.11. Resilience criteria For streetscape application, select durable, low maintenance species that are compatible with street trees,

provide seasonal interest, and habitat value.

2.6.12. Better Streets Streetscape planting in the urban zone shall meet or exceed the City of San Francisco Better Streets guidelines.

2.6.13. Siting Green roofs and walls shall be located to maximize habitat value and support the biodiversity of the site, and away from highly glazed facades for bird safety.

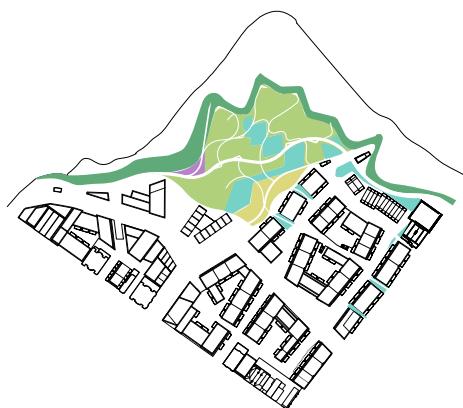
2.6.14. PV panels Green roofs shall be located on roofs housing PV panels where feasible, in order to provide areas of shade and wind protection to plants and wildlife.

1. *Arctostaphylos uva-ursi*2. *Carex praegracilis*3. *Juncus patens*4. *Layia platyglossa*5. *Ceanothus 'Yankee Point'*6. *Polystichum munitum*7. *Sisyrinchium bellum*8. *Lasthenia californica*9. *Heuchera maxima*10. *Salvia spathacea*11. *Erigeron glaucus 'Bountiful'*12. *Dudleya cymosa*13. *Asarum caudatum*14. *Ceanothus 'Ray Hartman'*15. *Iris PCH 'Canyon Snow'*16. *Solidago 'Leraft'*17. *Sesleria autumnalis*18. *Sedum rupestre 'Angelina'*

Upland Zone

The upland zone makes up the core of India Basin's open space, including all of the Big Green. The site's wide, continuous upland zone is a unique asset within the basin and has the potential to enhance and expand existing habitat to support a healthy and highly diverse ecosystem.

As the site's main active recreation zone, upland plantings play a significant role in balancing its function as a beautiful and inviting experience for human visitors while providing refuge to wildlife.



Horticultural Specifications

UPLAND				
TYPE	ASPECT	SLOPE	SOIL	HYDROLOGY
Dune Scrub			Sandy, Nutrient-poor	Well-drained
Coastal Scrub			Diverse	
Coastal Prairie / Perennial Grassland	South	Slopes and Ridges		
Freshwater Marsh		0-10%	Sand / Clay	Seasonal Saturation
Willow Riparian		gentle		
Coast Oak Woodland			Deep, Low-med Fertility	Moderate to Well-drained

Standards

2.6.15. Oak Spacing Locate oak trees no more than 150 feet apart. This distance is based on the optimal distance that key bird species will fly across open grassland between cover vegetation.

Guidelines

2.6.16. Noxious Species Do not plant species known to cause human irritation or harm adjacent to paths or trails.

2.6.17. Specialty Habitats Specialty habitat patches shall be located where horticultural conditions allow, prioritizing those that are endangered and/or endemic to the San Francisco Bay Bioregion.



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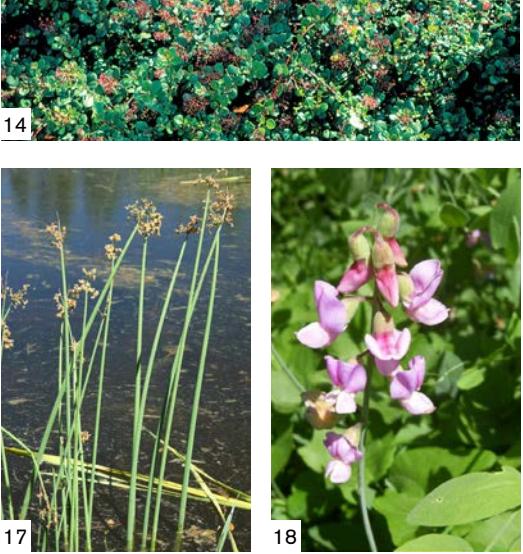
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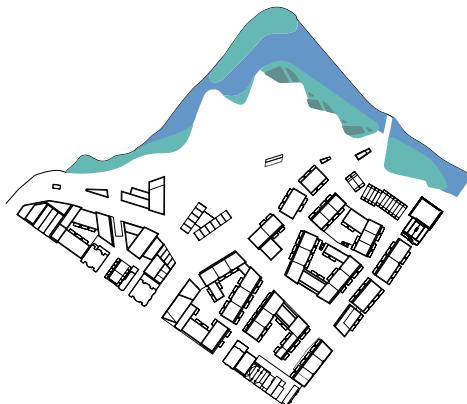
1. *Agrostis pallens*
2. *Mimulus aurantiacus*
3. *Danthonia californica*
4. *Stipa pulchra*
5. *Lupinus chamissonis*
6. *Elymus glaucus*
7. *Eriogonum fasciculatum*
8. *Baccharis pilularis*
9. *Artemisia californica*
10. *Salvia mellifera*
11. *Eschscholzia californica*
12. *Trichostema lanatum*
13. *Frangula californica*
14. *Ribes viburnifolium*
15. *Achillea millefolium*
16. *Quercus agrifolia*
17. *Schoenoplectus acutus*
18. *Lathyrus jepsonii* var. *jepsonii*

Tidal Zone

The tidal portion of the site exists from the high tide line down to low tide line (open water). The site contains the largest area available for this habitat in India Basin and one the largest in the southeastern waterfront of San Francisco.

The continuous transition habitat between tidal zone and the large adjacent upland zone is uncommon in urban contexts and makes it a valuable asset to species that thrive at this confluence.

A complete marsh should be created that includes all zones, including a high marsh and transitional wetland-upland habitat along the upland fringe. (See Shoreline Permits)



Guidelines

2.6.18. Grading Earthwork shall be graded to promote the evolution of a complex tidal drainage system, particularly to support invertebrates, fish and birds.

2.6.19. High tide refuge Provide areas for high tide refugia with abundant cover.

2.6.20. Marsh plain isolation Isolate the marsh plain from predators such as red fox, raccoons, and domestic and feral cats. Separation may include grade change, planted buffer, fencing. (See Section 2.5 for fence standards.)

2.6.21. Human disturbance Limit public access in sensitive areas with a grade change, planted buffer, or low fence.



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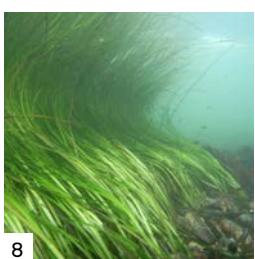
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1. *Frankenia salina*
2. *Grindelia stricta* var. *angustifolia*
3. *Atriplex prostrata*
4. *Sarcocornia pacifica*
5. *Spartina foliosa*
6. *Distichlis spicata*
7. *Bolboschoenus maritimus*
8. *Zostera marina*
9. *Jaumea carnosa*
10. *Limonium californicum*
11. *Triglochin maritima*
12. *Juncus xiphiooides*
13. *Leymus triticoides*
14. *Suaeda californica*
15. *Baccharis douglasii*
16. *Carex pansa*
17. *Lythrum californicum*
18. *Juncus balticus*

Tree Planting

Trees provide a wide variety of benefits, including providing urban habitat, microclimatic moderation (wind break and shading), reduction of urban heat island, and reduction of stormwater runoff. Trees will be an integral part of India Basin and will be incorporated into streetscapes and open spaces.

Growing conditions are vital to the health and longevity of trees and the India Basin standards and guidelines will ensure that best practices will be employed to ensure the viability of trees over time. Tree plantings must take into account local conditions. At India Basin, microclimatic factors such as wind and coastal exposure will be important considerations in species selection and tree layout.



FIGURE 2.76: CONCEPTUAL TREE PLAN

- Entry street
- Lane/laneway
- Commercial corridor
- Above grade
- Open space
- Oaks



FIGURE 2.77: CONCEPTUAL UNDERSTORY PLANTING PLAN

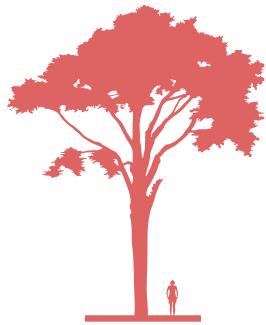
- Subtidal
- Tidal zone & coastal dune
- Seasonal wetland/low marsh
- Freshwater marsh/stormwater
- Coastal scrub
- Coastal prairie

- Annual grassland/wildflower meadow
- Perennial & annual mix
- Native & adaptive garden
- Green roof/wall
- Native lawn

1" = 400'-0"
0' 200' 400' 600'

Understory Planting

Understory planting is an important aesthetic and ecological component of the India Basin public realm. Understory planting provides a range of benefits, including reduction of impervious surface, habitat and ecological function, buffering pedestrian areas from vehicular zones, and helping define the character and identity of India Basin.

Tree Type Palette**Entry Street**

Character: Large and broad canopy, at least 30' at maturity, single or alternating species similar in form, should not produce fruit/litter

- ZELKOVA SERRATA
- PLATANUS X ACERIFOLIA 'LIBERTY'
- JACARANDA
- LYONOTHAMNUS FLORIBUNDUS

**Lane / Laneway**

Character: Small to medium size, seasonal interest in leaves or flowers, mix of multiple species, including those suitable for bioretention areas

- ARBUTUS 'MARINA'
- PRUNUS ILICIFOLIA SSP. LYONII
- ALNUS RUBRA

**Commercial Corridor**

Character: Large and broad canopy, seasonal interest in leaves or flowers, should not produce fruit/litter

- GINKGO BILOBA 'AUTUMN GOLD'
- GLEDITSIA TRIACANTHOS 'SUNBURST'
- LAGUNARIA PATERSONII





Above Grade

Character: Compact canopy, fine leaf texture to allow light through, small to medium size, specimen tree

- *OLEA EUROPAEA 'SWAN HILL'*
- *ACER PALMATUM 'SANGO-KAKU'*
- *LAGERSTROEMIA 'TUSCARORA'/ 'NATCHEZ'*
- *ULMUS PARVIFOLIA 'DRAKE'*



Open Space

Character: Variable, seasonal interest in leaves or flowers, mix of multiple species

- *AESCULUS CALIFORNICA*
- *GEIJERA PARVIFOLIA*
- *MELALEUCA QUINQUENERVIA*
- *PITTOSPORUM CRASSIFOLIUM*
- *LYONOTHAMNUS FLORIBUNDUS ASPLENIFOLIUS*



Oak

Character: Dense canopy capable of acting as windbreak, should provide nesting habitat and food for wildlife

- *QUERCUS AGRIFOLIA*
- *QUERCUS LOBATA*
- *QUERCUS VIRGINIANA*



Understory Palette**Type A - Green roof/wall**

Character: Varies. These should have a sturdy base of compact plants that can thrive in exposed conditions with low soil volume, but should take advantage of meadow- or forest-like qualities where climatic conditions permit.

Type B - Native/adaptive garden

Character: May be somewhat finer and more manicured than other spaces. Plants may be in more formal arrangements and may be more showy than elsewhere on the site. Seasonal interest and/or specimen plants are appropriate here.

Type C - Perennial/annual mix

Character: The most variable- from annual grasses and flowers to various herbaceous perennials and even succulents. This spans from streetscape to the informal shared yards adjacent to the Big Green. This category has the flexibility to respond to adjacent architecture while advancing habitat goals.

Type D - Annual grassland

Character: emphasis on wildflowers here, mixed into a base of annual grasses. Plantings should have an informal meadow arrangement.

Type G - Coastal scrub

Character: emphasis on wildflowers here, mixed into a base of annual grasses. Plantings should have an informal meadow arrangement.

Type E - Coastal prairie

Character: Dominated by California perennial grasses with other herbaceous and woody perennials present. The scale of these plants is important to properly emphasize the earthworks of the Big Green.

Type H - Seasonal wetland/low marsh

Character: Dominated by California perennial grasses with other herbaceous and woody perennials present. The scale of these plants is important to properly emphasize the earthworks of the Big Green.

Type F - Freshwater marsh/stormwater

Character: Upright in form with a minimum height of 24" since these planting beds will be below grade from adjacent paths and surfaces. Plants must tolerate intermittent inundation and irregular irrigation frequency.

Type I - Native lawn

Character: The only lawn space area, this should be soft and comfortable for picnics and recreation, but resilient to foot traffic and events.

Tree Planting

These spacing requirements should be considered general targets that may be adjusted to local street conditions such as setbacks from corners, utilities, driveways, bus stops and building entries. To the greatest extent feasible, trees shall be aligned to minimize interference with building entries, driveways, and utilities. Where site constraints prevent maintaining an exact spacing, it is favorable to place a tree slightly off the desired rhythm than to leave a gap in the planting pattern.

Standards

2.6.22 Trunk Size Caliper (trunk diameter) of trees to be planted shall be a minimum of 2" at 8' of height. Exceptions shall be considered for desired species that may not attain this caliper size, such as a 24-inch box specimen.

2.6.23. Box size Minimum tree size at installation shall be a 24 inch box. 15 gallon container may be allowed for volunteer efforts and property owner initiated replacement

2.6.24. Path of travel Tree branches that extend into the path of travel shall maintain 80 inches of vertical clearance.

2.6.25. Distance from paving Trees shall be planted at minimum 5' from pavements walls, and structures.

2.6.26. Conflicts Where a conflict arises with tree placement and other streetscape elements such as curb cuts and vaults, a gap of no more than 1 tree shall be permitted.

Guidelines

2.6.27. Spacing Street tree spacing shall be determined by the expected mature size of the tree. Generally, trees should be planted with the following spacing:

Small Trees (<20 feet crown diameter at maturity) shall be planted 15 to 20 feet on center.

Medium Sized Trees (20-35 feet crown diameter of maturity) shall be planted 20 to 25 feet on center.

Large Trees (>35 feet crown diameter at maturity) shall be planted 35 feet on center.

2.6.28. Water quality Irrigation water quality shall not preclude selection of species to meet habitat requirements. Consider improving water quality to expand potential plant palette range.

2.6.29. Tree staking Trees at India Basin shall be staked or guyed with rigid adjustable system such as Greensleeves Tree Staking System at installation.

2.6.30. Soil volume and depth Adequate planting depth and soil volume shall be provided for all trees to ensure the soil's ability to store moisture and allow room for roots to grow.

Understory Planting

Standards

2.3.31. Distance from paving Place the center of all shrubs away from edges 1/2 diameter of the typical spacing plus 12 inches. Place the center of all perennials 1/2 diameter of the typical spacing plus 6 inches to prevent overhang of plants on trail.

Guidelines

2.6.32. Water Quality Irrigation water quality shall not preclude selection of species to meet habitat requirements. Consider improving water quality to expand potential plant palette range.

2.6.33. Soil Volume & Depth Provide 1,000 cubic feet of soil volume per tree or 700 cubic feet of soil where trees are located in same trench to maximize habitat potential.

03



District Sustainability + Resilience

Chapter 03: District Sustainability + Resilience

- 3.1 Stormwater
- 3.2 Water
- 3.3 Energy and Greenhouse Gas Emissions
- 3.4 Materials
- 3.5 Refuse
- 3.6 Healthy Environment and Lifestyle
- 3.7 Interim Activation and Pilot Projects
- 3.8 Coastal Adaptation

Chapter 3 summarizes India Basin's aspirations and approach to district-wide sustainability and resilience. The project has established goals for water reuse, electricity distribution and storage and on-site renewable production. The following chapter also outlines India Basin's approach to conserving material resources, creating healthy environments and adapting to changing coastal conditions.

Chapters 3 and 6 have 'Goals' in addition to 'Standards' and 'Guidelines'. Goals are aspects of the project which the developer will diligently pursue and seek to finance, but they are ultimately non-binding. Many of the sustainability goals outlined in Chapter 3 and 6 are dependent upon the integration of rapidly evolving technologies which will likely change over the course of the project's relatively long timeline.

District-wide sustainability goals are closely linked to building-scale performance goals. Please refer directly to Chapter 6.5 for building-scale performance requirements and goals.

The project goals reflect the project's pursuit of a high level of environmental performance while allowing flexibility to adapt to changing conditions and evolving technologies.

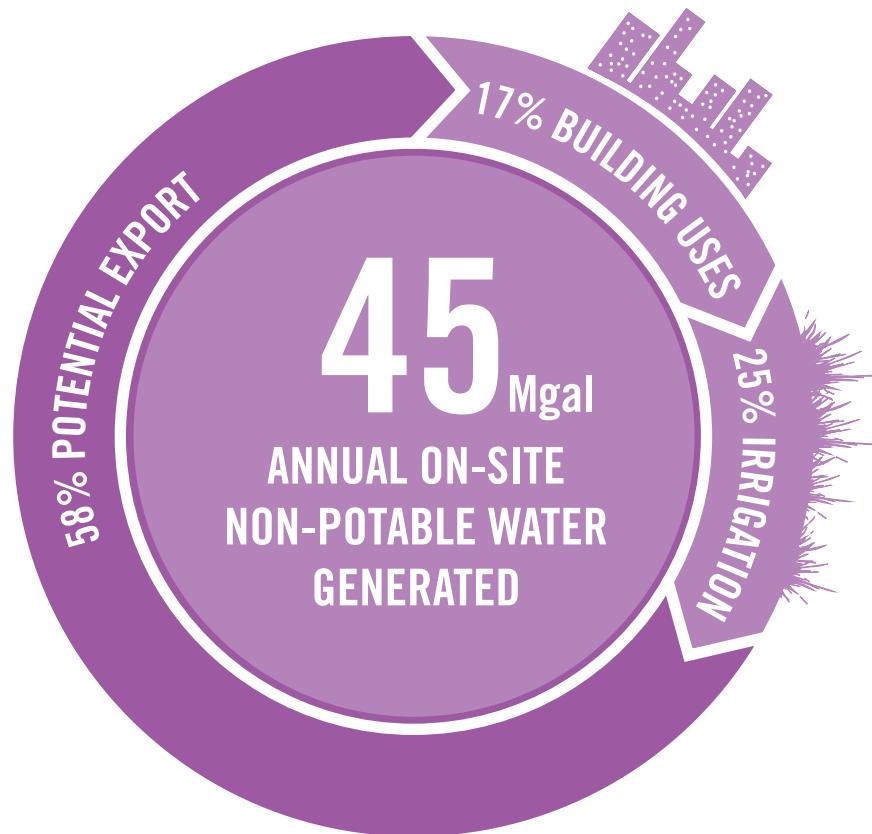


FIGURE 3.01: POTENTIAL NON-POTABLE WATER GENERATION AND USES

Water and Stormwater

India Basin aspires to manage stormwater and wastewater resources on-site and produce non-potable water for the project's use. India Basin's district-wide water balance was studied to quantify the overall water consumption and potential for on-site production of recycled water at full project build-out. The analysis suggests that India Basin can produce more non-potable water than will be used on-site for toilet flushing, irrigation and cooling demands. As such, the project has an opportunity to be a net exporter of recycled water at a district scale, and can potentially offset potable water consumption in neighboring developments.

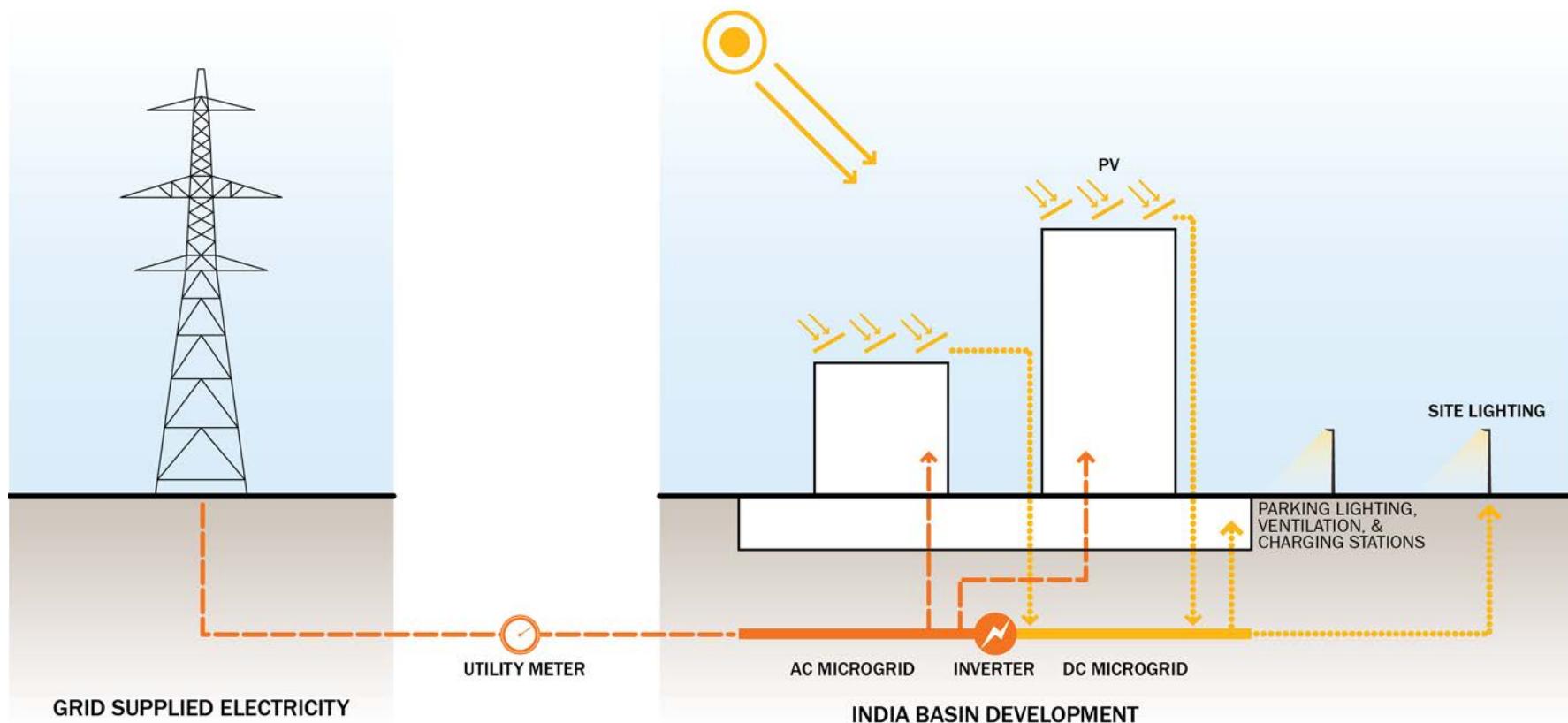


FIGURE 3.02: POTENTIAL MICROGRID CONFIGURATION

Energy and Greenhouse Gas Emissions

India Basin aspires to minimize greenhouse gas (GHG) emissions from building operations and to produce electricity on-site to increase community resilience in the event of a disaster.

India Basin's district-wide energy approach was informed by a district-scale energy analysis. As a result of this study (details of which can

be found in section A.4 of the appendix), the project prioritized investment in electricity infrastructure and building efficiency rather than a centralized thermal energy plant.

This analysis concluded that heating and cooling make up only a small portion of the site-wide energy consumption. This percentage will only decrease with increasingly stringent energy codes. A decentralized approach to energy

efficiency encourages higher quality buildings and enables future flexibility by allowing buildings to adapt to future technological innovations without tying them to a district plant relying on today's technology.

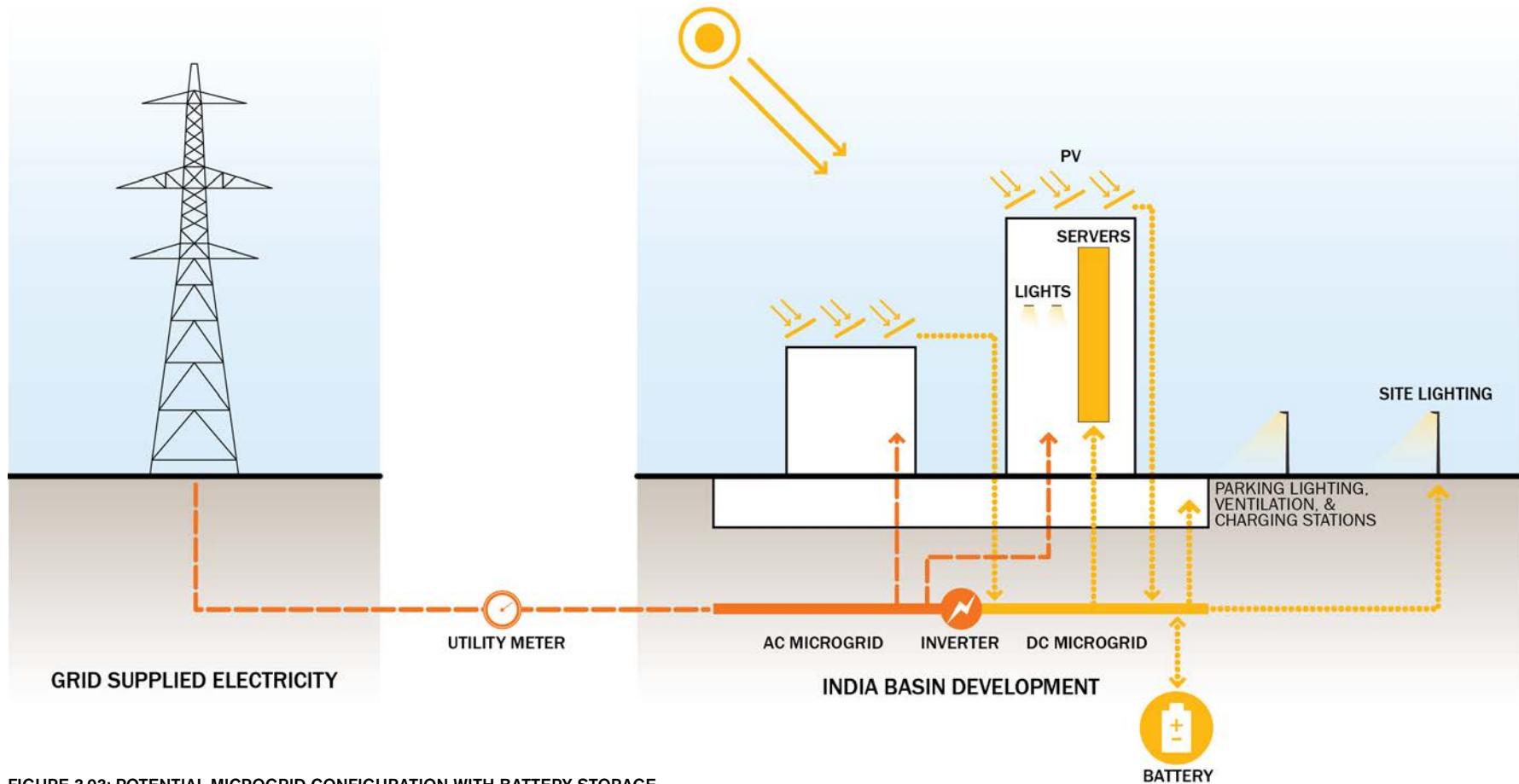


FIGURE 3.03: POTENTIAL MICROGRID CONFIGURATION WITH BATTERY STORAGE

One of the energy goals for India Basin is to implement a microgrid that includes direct current (DC) electricity distribution to provide increased control over distributed renewable resources, minimize conversion losses and increase community energy resilience.

A microgrid is a semi-independent electric grid that can distribute alternating current (AC) and

potentially direct current (DC) electricity within the site.

The microgrid may be split into two parts: a DC portion which will distribute energy generated on site directly to DC loads, and an AC portion which will increase flexibility with regard to on-site energy distribution. The DC portion of the microgrid eliminates conversion from AC to DC

losses at any DC loads like motors, fans, LED lighting, and vehicle charging stations. Batteries can also be included on the grid. Batteries will increase the resilience of the grid and will provide cost savings by shifting electrical loads from peak demand times. See figures 3.02 and 3.03 depicting a potential microgrid configuration.

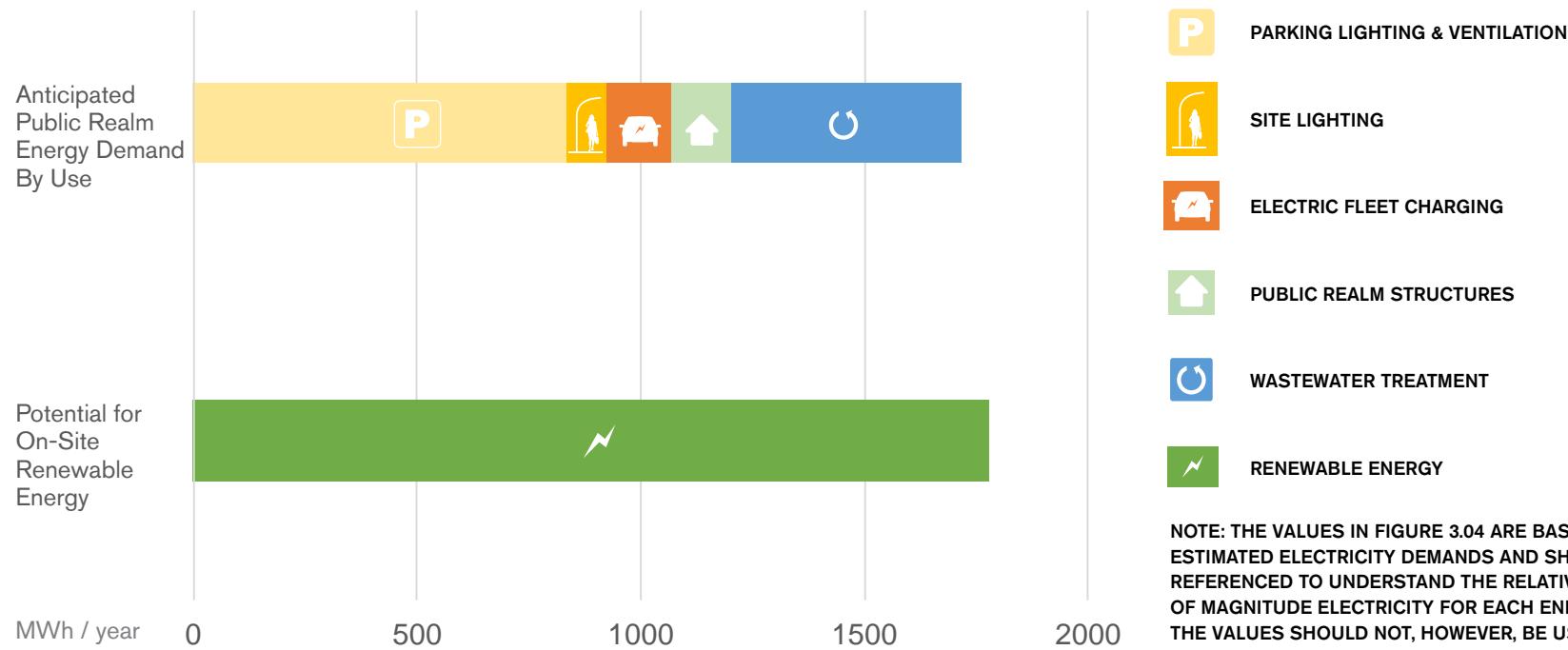


FIGURE 3.04: POTENTIAL FOR PUBLIC REALM ENERGY BALANCE

Another goal for India Basin is to use renewable electricity produced on-site to achieve a zero net energy public realm. An energy balance was prepared to determine the feasibility of achieving this goal. The calculation included a rough estimate of the total energy available from on-site renewable electricity generation and compared it to the anticipated energy demand in the public realm, including parking structure lighting and ventilation, site lighting, electric fleet charging, public realm structures and wastewater treatment. The total anticipated

energy generation and demand are shown in Figure 3.04. Based on the comparison of on-site renewable energy potential and demands, it should be possible to offset the public realm energy demand with on-site solar electricity generation.

The project's district-wide emphasis on electricity production and distribution is complimented by a goal at the building scale (see Chapter 6) to minimize on-site combustion and to limit the use of natural gas

for cooking needs only. This movement towards a predominantly electric site allows the project to take advantage of future GHG reductions through a cleaner grid and potential investment in on-site and off-site renewable electricity generation.

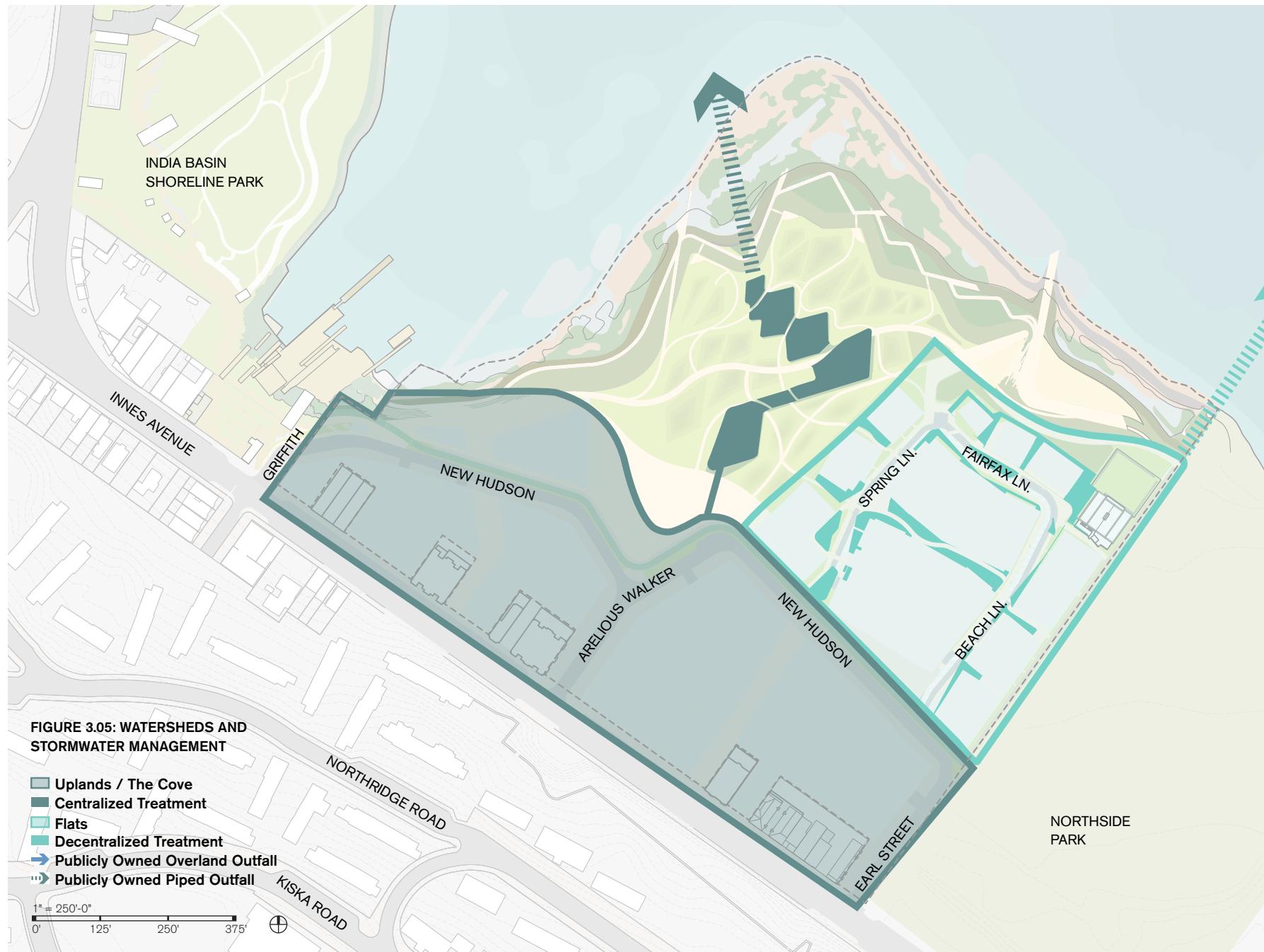
3.1 Stormwater

The India Basin project site is located within its own watershed, of which the majority is designated within the San Francisco Separate Sewer area. The project will collect and manage its stormwater entirely on-site, with new outfalls to the San Francisco Bay and, as such, will avoid burdening the City and County of San Francisco's aging combined sewer system.

The project's intent is to employ natural stormwater management strategies to manage the runoff quantity and rate and improve water quality by removing metals, sediment, and other pollutants of concern through landscaped-based stormwater treatment features (biotreatment).

In addition, the Project will intelligently leverage stormwater resources to support a resilient landscape that mitigates and is adaptable to the impacts of future changes in climate, including less frequent, but larger and more intense storm events and sea level rise.

The natural topography and development approach divides the site into two primary watersheds. The project will employ a combination of centralized and decentralized stormwater biotreatment facilities designed in accordance with the requirements of the San Francisco Public Utilities Commission (SFPUC) Stormwater Management Requirements and Design Guidelines (SMR). Private development parcels and public streets within the Cove and Uplands (Figure 3.05) will rely primarily on centralized stormwater treatment facilities within the Big Green. Within the Flats, decentralized stormwater management features will be integrated alongside roadways, pedestrian pathways and between buildings to meet stormwater quality requirements. Both centralized and decentralized stormwater facilities will prioritize the use of biotreatment methods, including but not limited to, bioretention areas, flow through planters and treatment wetlands.



Stormwater Management



Drainage



Intersperse Permeability



Bioretention

Stormwater Management

The project's stormwater management approach will mimic pre-development drainage patterns and hydrologic processes, thereby limiting the need for pumping and increasing retention, detention, infiltration, and treatment of stormwater at its source. It should be noted that the site's underlying soil conditions highly restrict the potential for infiltration and therefore infiltration is not pursued as a primary strategy for stormwater management.

Standards

3.1.1. On-site Stormwater Management

Designate the entire project site within the City's MS4 Separated Sewer Area and manage 100% of stormwater on-site with no discharge to City and County of San Francisco combined sewer system at full build-out.

3.1.2 Water Quality Treat 100% of the water quality storm event, in accordance with SMR

requirements (currently the 90th percentile, 24-hour storm). Stormwater treatment features shall prioritize biotreatment methods and comply with all ordinances and design guidelines applicable at the time of construction.

3.1.3. Ongoing Maintenance Stormwater and drainage facilities shall be maintained to remove debris before storm events to prevent clogging and potential ponding of surface water.

Habitat Support



Biodiversity



Diverse Planting



Visible Infrastructure

Guidelines

3.1.4. Runoff Reduction Intersperse permeable areas, such as pavers, planters and green roofs, within large areas of hardscape to increase stormwater retention and reduce runoff rate and volume.

3.1.5. Phasing In areas where stormwater management features are centralized to support multiple phases of development, storm water infrastructure shall be constructed to meet the

management requirements of each new phase, while minimizing impact to previously built features.

Habitat Support

Promote natural patterns of stormwater flow and capture stormwater on-site to support biodiversity through a diverse planting palette that supports a variety of habitats.

Guidelines

3.1.6. Ephemeral Landscape Establish planting types supported by both freshwater and recycled water that are able to adapt to changes in seasonal and local climate.

3.1.7. Visible Connections Create visible connections between building rooftops, architecture, streetscapes, and public spaces to emphasize the patterns of water flow within the India Basin public realm.

3.2 Water

India Basin is located within a water-stressed region with a rapidly growing population that will only increase pressure on the region's water resources. The project intent is to reduce reliance on municipally provided freshwater to the maximum extent feasible by promoting conservation and leveraging on-site water resources. This holistic water management approach will allow the project to be more resilient to regional and global climate change and support the preservation of freshwater in times of drought.

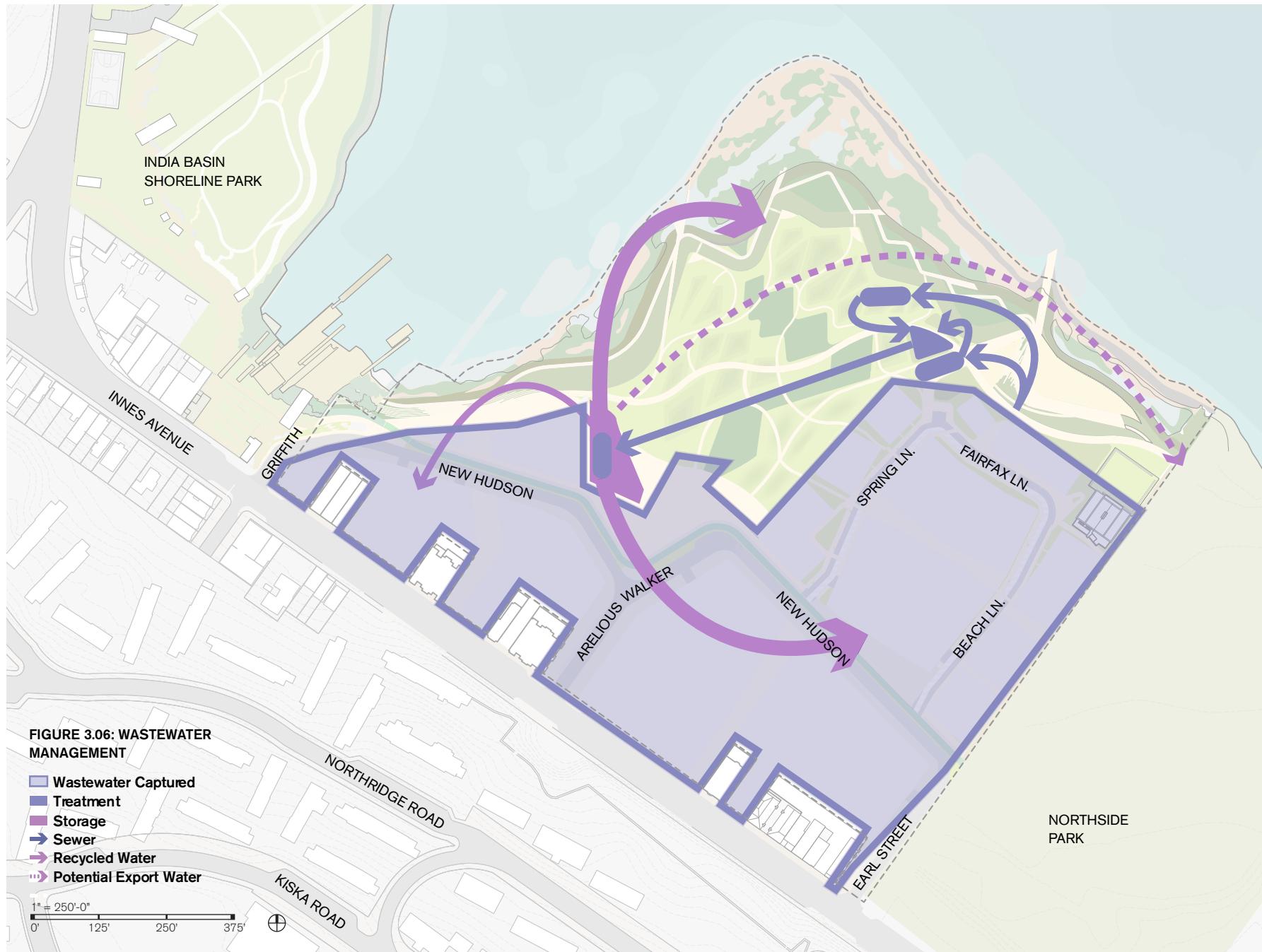
Water Conservation

Conservation measures and efficient water systems are the first priority at India Basin. All buildings will be required to utilize state-of-the art and water efficient fixtures, as further described in Chapter 6 (High Performance Buildings). Planting palettes described in Chapter 2 will be climate appropriate and efficient irrigation systems will be utilized throughout the development.

On-site Water Supply

The City of San Francisco recently implemented a Non-Potable Water Ordinance that requires developments of this size to collect and treat available supplies from on-site rainwater, greywater and foundation drainage sources to meet the site's non-potable demands (toilet flushing and irrigation). Alternatively, projects can utilize treated wastewater or stormwater to meet non-potable water demands. This progressive policy sets a high bar for water systems.

The project intends to go above and beyond the requirements of the Ordinance by promoting district-scale wastewater treatment and reuse to enhance on-site water supplies and reduce reliance on municipal infrastructure. Localizing wastewater treatment and water supply indirectly benefits the site's carbon and energy balance as well.



Water Sources



Non-Potable Distribution



Signage



Recycled Water

Standards

3.2.1 Signage All recycled water systems shall be signed in conformance with San Francisco Department of Public Health (SFDPH) Article 12.

3.2.2 Non Potable Water All water used for toilets, urinals, irrigation and cooling systems shall be supplied with non-potable water in accordance with the Non-potable Water Ordinance.

3.2.3 Storage The project will build on-site water storage to reduce the impacts to municipal infrastructure and enhance system resilience.

On-site recycled water storage shall be sized for at least one peak day demand volume.

Guidelines

3.2.4. Diversification of Water Supply The project will consider all water supplies on-site including stormwater, recycled water and

foundation water to offset the municipal potable supply. The available non-potable water supplies on site will be treated and distributed in alignment with its end use.

3.2.5. Future Ready The expansion of district water treatment systems and non-potable water distribution will be incremental and appropriately sized for each development phase and will consider compatibility of available technologies to optimize treatment efficiency and maximize performance during the full build-out of the project.

On-Site Water Recycling



Water Hub



Blackwater Treatment



Infographic

3.2.6. Public Engagement The project shall provide educational materials and signage visible to the public to display the potable water offset over time.

Goals

3.2.7. Decentralized Wastewater Treatment and Reuse All wastewater generated from toilets, sinks, showers and other fixtures from private development parcels will be treated at a decentralized water recycling facility within the

vicinity of India Basin. This facility will include a series of treatment processes to comply with the San Francisco Department of Public Health (DPH) Article 12 requirements and treat wastewater to Title 22 Standards to supply the India Basin non-potable water distribution system. The India Basin project has ambitions to pursue distribution of non-potable water to adjacent parcels and will coordinate with the SFPUC to enhance the recycled water network within this region.

The location, ownership and operation of such a facility is dependent on future unknowns and will be evaluated further at the time of development. Potential arrangements include, but are not limited to:

- Third-party entity as a private owner-operator
- Ownership by Project
- Partnership with City

3.3 Energy and Greenhouse Gas Emissions

Site-Wide Greenhouse Gas Emissions

The India Basin development is focused on reducing the environmental impact of energy consumed on site. To achieve this, the project has a goal of zero net energy public realm by producing enough on-site renewable energy to power the public realm structures, central wastewater treatment, charging for an all-electric maintenance and refuse management fleet, parking garage energy demands and site lighting.

Additionally, the project is focused on operating without producing GHG in the future by minimizing on-site combustion, exploring the feasibility of an all-electric site, setting energy performance targets for each building type, and providing a portion of the project's energy through GHG-free technology.

The project has a goal to eliminate GHG emissions associated with building operations. High performance buildings, predominantly electric buildings and investment in renewable energy production all contribute to this goal. Refer to Section 6.5 for Goals, Standards and Guidelines related to building performance.

Standards

3.3.1. Public Realm Energy Efficiency The following public realm components shall exceed the minimum energy performance requirements of Title 24 at the time of construction: site lighting fixtures, parking garage lighting, parking garage ventilation equipment and on-site amenity buildings.

3.3.2. Maintenance Vehicles Maintenance vehicles shall be all-electric and appropriately scaled to the site, such as electric carts. Vehicles shall meet the needs of the operations and maintenance team.

3.3.3. Electric Vehicle Charging Stations EV charging stations shall be provided for at least 50% of street level parking spaces within the public realm.

Guidelines

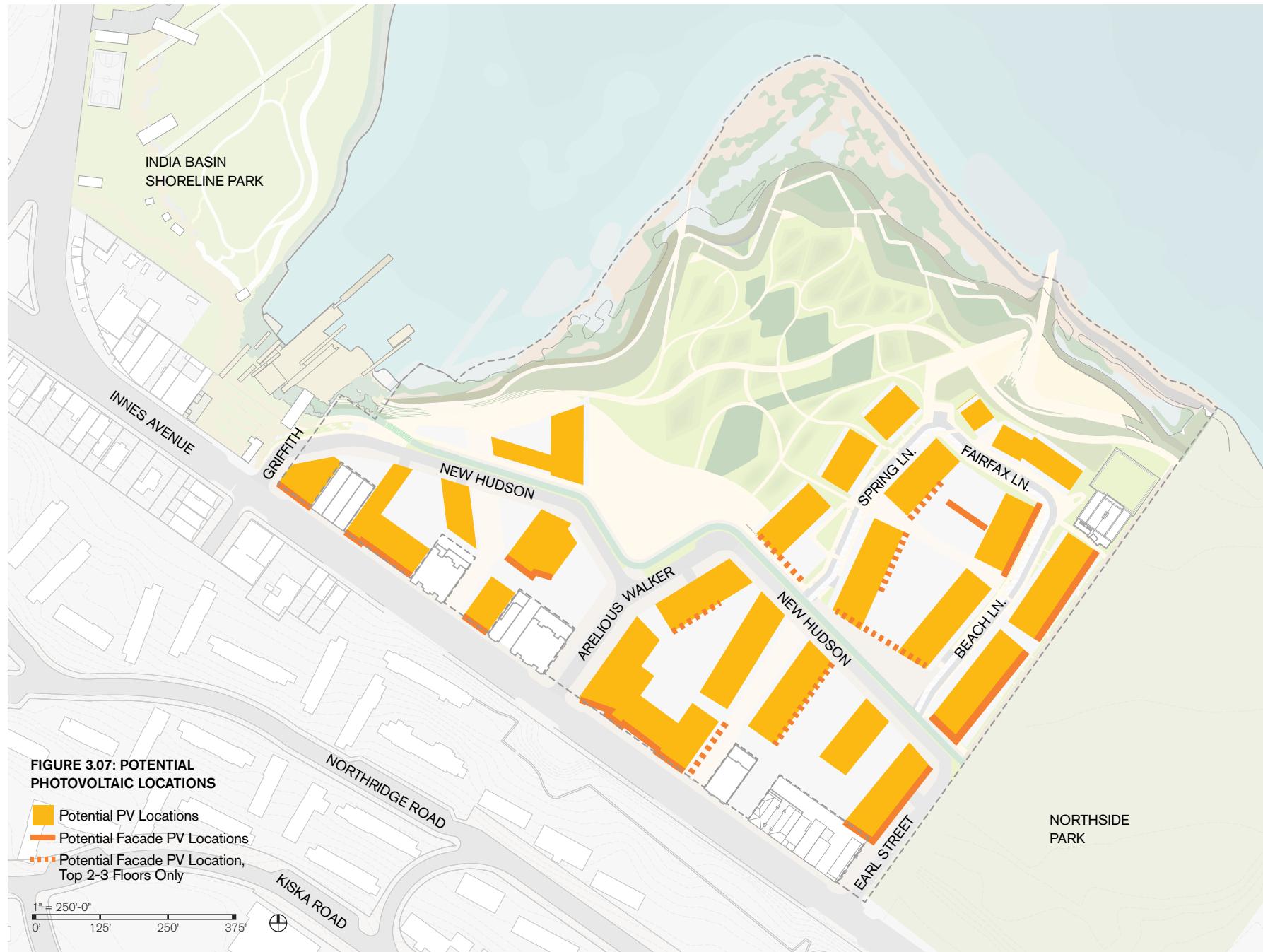
3.3.4. Maintenance Vehicle Charging Stations Stations for charging and storing maintenance vehicles shall be provided in parking garages. Maintenance vehicles and storage shall not be stored in the park.

Goals

3.3.5. Net zero energy public realm Provide on-site renewable energy production sufficient to offset energy consumption of site lighting, parking structures, amenity buildings, wastewater treatment and fleet vehicle charging.

3.3.6 Microgrid Provide a microgrid with AC and DC distribution on-site to serve the public realm and all buildings.

3.3.7 Public Realm Direct DC Power Select equipment capable of being powered directly by a DC grid. This equipment may include, but is not limited to: site lighting, parking garage lighting and parking garage mechanical ventilation systems.



Energy Resilience

India Basin strives to be a leader in energy and community resilience and the development has the potential to be a national example of a resilient community. In order to achieve this goal, the project has established Goals, Standards and Guidelines that will enable the community to leverage on-site energy production to provide community support in a disaster event.

The large area of public open space on the India Basin site will be a natural gathering place in the event of an emergency. Providing resilience resources, including power, lighting and supplies will allow India Basin to serve more effectively in an emergency. Storing emergency supplies nearby would also allow a swifter response following a disaster.

Combining the site-wide microgrid with battery storage could allow electricity to remain available to site occupants and the surrounding community during a disaster. In the event of regional electricity service disruption, the on-site microgrid could be disconnected from the regional grid, allowing the microgrid to continue to provide electricity to the community.

Estimates for the potential number of people supported in a disaster and a table of critical emergency loads can be found in Section A.4 of the appendix.

Standards

3.3.8. Battery Storage Area Allocate space for battery storage sufficient to store peak electricity produced by on-site photovoltaics to provide a constant source of electricity for consecutive 24 hour periods.

Guidelines

3.3.9 Battery Storage Capacity Provide battery storage to power critical electric loads in the event of an emergency. Critical electrical loads may include, but are not limited to: water treatment system, refrigeration, emergency lighting and medical equipment, charging for electric communication devices, message boards, way finding and refuse management services.

3.3.10 Emergency Supply Storage Area Allocate space for on-site storage of critical emergency supplies. Coordinate with San Francisco Department of Public Health (SFDPH) and/or San Francisco Department of Emergency Management (SFDEM) to identify emergency supplies.

Goal

3.3.11. Leader In Energy Resilience Power critical emergency services on site and act as a resiliency asset to the immediate and surrounding community. Coordinate with SFDPH and/or SFDEM and pursue grant funding as a Community Disaster Response Hub.





PS41 Solar Roof Garden

3.4 Materials

The industry-wide approach to healthy building materials is anticipated to evolve significantly during the India Basin project timeline. India Basin strives to use less and select sustainable materials to reduce the need for extraction of virgin materials, reduce the project's overall carbon footprint, support the local economy, prevent environmental contamination and limit GHG emissions. This involves evaluating material content and selecting materials with reduced toxic chemicals, that limit the impact of emissions in the environment, that are low maintenance, durable, sustainably produced and sourced, that are appropriate for the unique site conditions and exposures, and have a reduced embodied energy.

Understanding the health impacts of various materials and using these attributes to prioritize material selection requires extensive research and a detailed knowledge of chemical contents and their health implications. The India Basin Trust will complete this research to identify alternatives for common products in residential and commercial construction.



Sustainable wood source - bamboo forest



Certified sustainable wood used for construction

Standards

3.4.1. Zero to Low VOCs Material with VOC content shall meet the current San Francisco Green Building Code requirements. Paints and coatings shall comply with South Coast Air Quality Management District Rule (SCAQMD) #1113. Caulks, adhesives, and sealants shall comply with SCAQMD #1168.

3.4.2. Recycled Content 80% of all construction materials shall contain recycled content. This may include post- and pre-consumer materials for use in paving and utilities.

3.4.3. Rapidly Renewable Materials Use products manufactured from materials that can be harvested within 10 years. These include bamboo, wool, cotton insulation, agrifiber, linoleum wheatboard, strawboards and cork.

	Arsenic	Asbestos	Bisphenol-A	Cadmium	CFCs	Creosote	Formaldehyde	Halogenated flame retardants	HFCFs	Lead	Mercury	Pentachlorophenol	Phthalates	PVC	VOCs
Division 03 - Concrete													x	x	
Division 04 - Masonry													x	x	
Division 06 - Wood and Plastics	x				x	x					x				x
Division 07 - Thermal and Moisture Protection		x	x			x			x		x	x	x		
Division 08 - Doors and Windows		x									x	x			
Division 09 - Finishes		x	x			x	x				x	x	x		
Division 10 - Specialties		x									x	x			
Division 11 - Equipment											x	x			
Division 12 - Furnishings							x				x	x			
Division 13 - Special Construction	x										x	x			

Existing Materials Transformed for Reuse On-Site

1. Reuse steel beams in installations and furnishings.
2. Convert concrete debris and shoreline rubble to paving, aggregate, and/or gabion wall fill material.
3. Transform cracked paving into fill material and/or aggregate, or crushed stone surfacing.

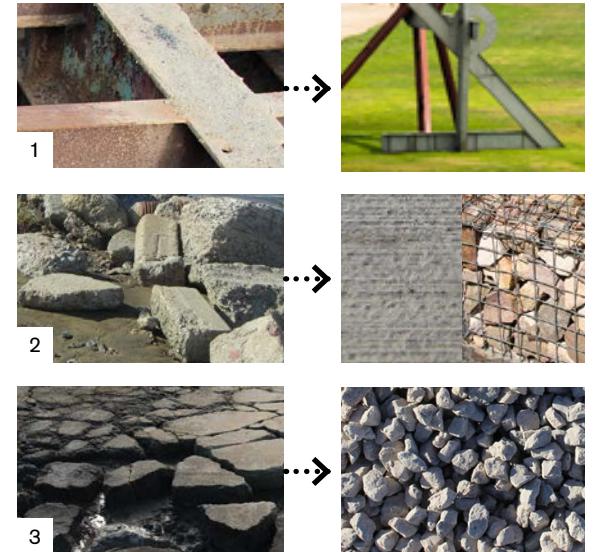


FIGURE 3.08: PRODUCT SELECTION

Guidelines

3.4.4. India Basin Healthy Materials Research Initiative Leverage the India Basin Trust to complete materials research and provide vertical developers with purchasing guidelines or a preferred vendor list. Partner with relevant City agencies in this effort.

Goals

3.4.5. Reuse Reuse all on-site demolition and salvaged materials unless deemed unsafe for human contact.

3.4.6. Regional Materials Select materials that are manufactured in the Bayview, or within the greater Bay Area.

3.4.7. Certified Wood Use only wood that is certified in accordance with the Forest

Stewardship Council (FSC) to support responsible forest management.

3.4.8. Laminated Wood Use only laminated wood for mass timber construction.

3.4.9. CO₂e Capture in Concrete Utilize concrete materials that are produced through the process of CO₂e capture.

3.5 Refuse

San Francisco has an ambitious, city-wide goal to achieve Zero Waste by 2020. The project strives to minimize refuse streams leaving the site by valuing refuse as a resource for reuse on-site, and through responsible material selection and disposal at all project phases. At the time of this draft document, CALGreen 2016 requires a minimum of 65% Construction & Demolition (C&D) refuse diversion. Requiring early phases of India Basin to divert 75% C&D refuse, and increasing refuse diversion over time, will limit refuse sent to landfill and benefit each vertical developer's path to LEED certification.

Similarly, at the time of this document, San Francisco has achieved an 80% diversion rate. The SF Department of the Environment estimates that the city's diversion rate could increase to 90% if all refuse was sent to the correct collection bins. The India Basin Trust will provide educational programs for occupants and visitors to support correct sorting for on-site refuse. In addition, the Trust will look for other ways to reduce refuse, such as a 'fee-bate' system.

Standards

3.5.1. Increased Construction Refuse Diversion

The project shall exceed CALGreen required construction refuse diversion rate by at least 10%.

Guidelines

3.5.2. Soil Management Plan The project sponsor shall prepare a comprehensive plan to manage the soil capacity, construction phasing, staging and sequencing of soil placement. Coordinate this plan with the erosion and sedimentation control plan (See Section 3.6).

3.5.3. Responsible Purchaser Policy India Basin Trust shall secure funding to complete materials research with the goal of drafting an India Basin Purchaser Responsibility Policy and provide regular education for occupants and residents.

Goals

3.5.4. Zero Off Haul Reuse all cut soils either on-site or within the India Basin district for a net-zero off-haul within the Basin.

3.5.5. Salvage & Recycle Salvage and recycle all construction refuse on-site.

3.5.6. Soil Compaction Place and compact soils in early phases for long-term stability.

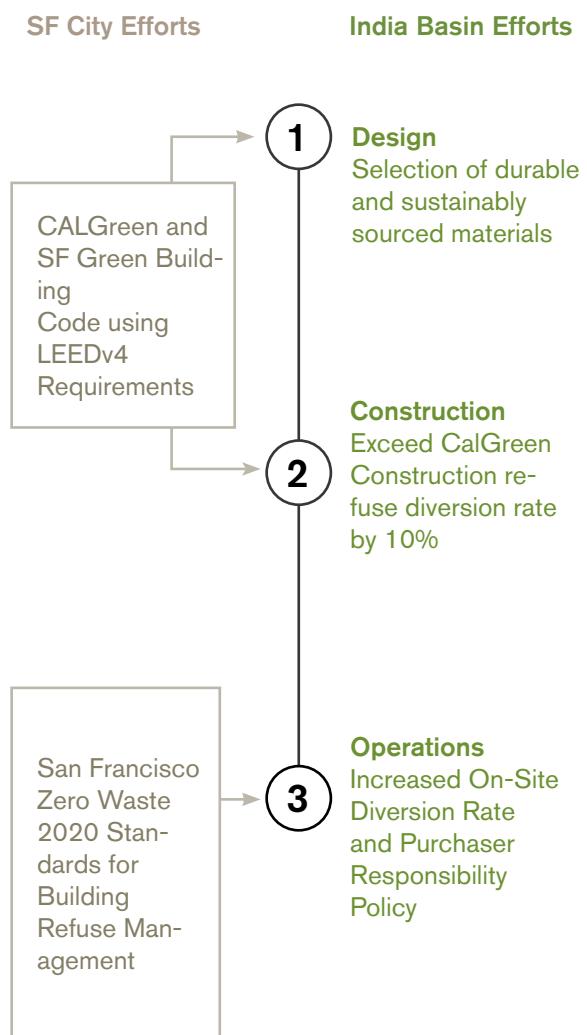
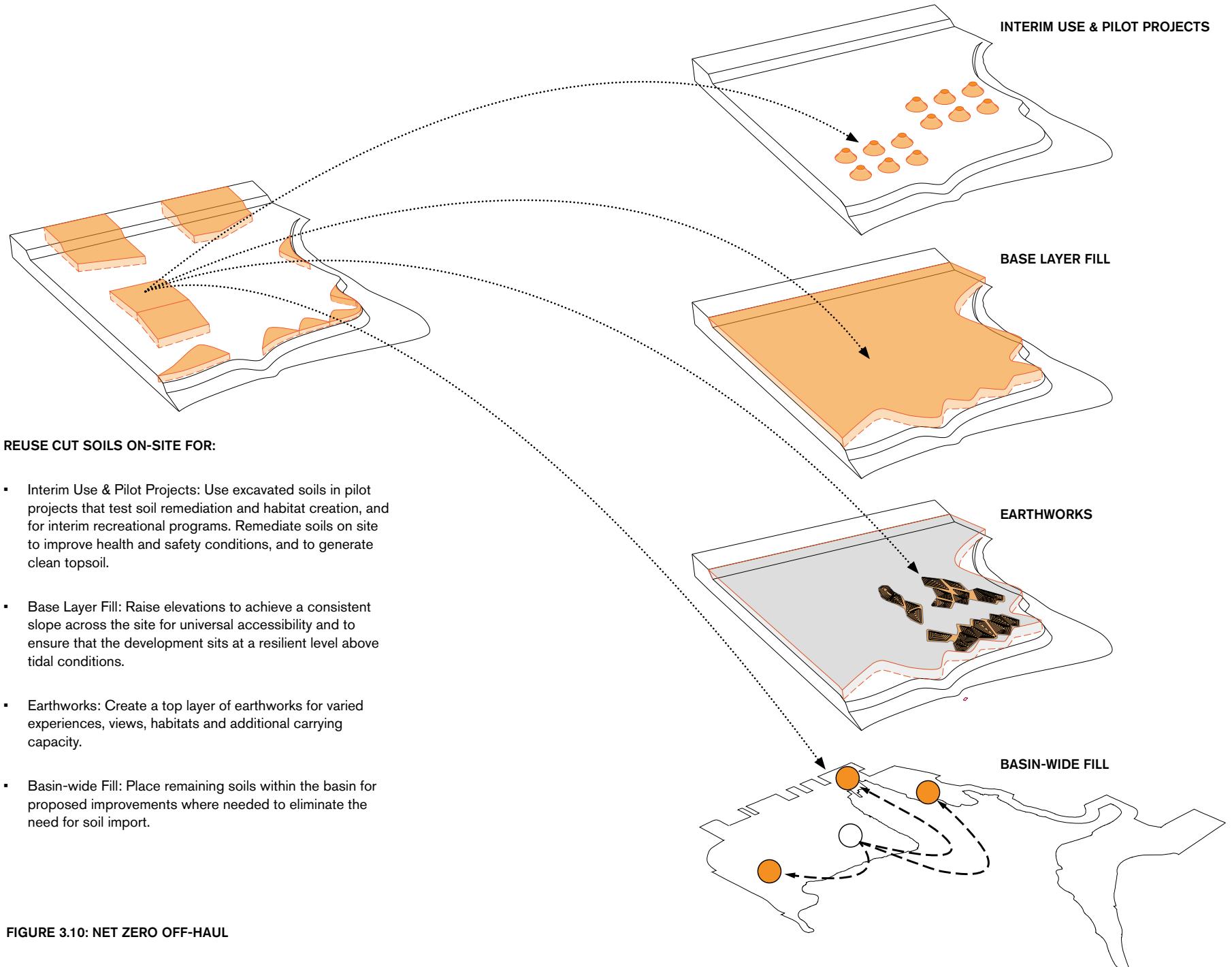


FIGURE 3.09: SAN FRANCISCO CITY AND INDIA BASIN EFFORTS



3.6 Healthy Environment & Lifestyles

San Francisco is at the forefront of building healthy environments for a robust city, and India Basin strives to be an exemplary model for the city through 3 primary means:

1. Responsible construction management and soil remediation techniques to reduce overall energy consumption, reduce noise and pollution, limit greenhouse gas emissions, limit overall impacts on the environment and ensure the stamina of existing and future habitats, residents and employees.
2. Building healthy soil biology to ensure public safety, improve soil stamina for healthy plant growth, sequester carbon and reduce off-haul costs.
3. Creation of the India Basin Trust that will be responsible for operations, programming, social capacity-building and community resilience to encourage healthy and active lifestyles, volunteerism, stewardship, adaptive management, and post-occupancy evaluation.

Standards

3.6.1. Pile Driving All piles shall be driven during non-nesting seasons to limit impact to habitats and species patterns.

3.6.2. Construction Noise Construction shall occur during defined hours and within controlled areas only.

3.6.3. Serpentine All serpentine soils found on-site shall be reused on-site to establish rare, endemic, and endangered habitat, or encapsulated.

3.6.4. Fertilizer Use only organic fertilizers.

3.6.5. Mulching Mulch all leaves and grass clippings in situ to promote nutrient uptake and reduce irrigation and fertilizer demand.

3.6.6. Public Safety Augment San Francisco Police Department by providing 24 hour site patrols for public safety.

Guidelines

3.6.7. Erosion & Sedimentation Control Plan Prepare a plan to limit construction related pollution, dust generated from soil excavation and stockpiling and sedimentation into the

Bay. Utilize soil stabilization techniques that may include seeding, mulching, filter socks, stabilized site entrances, and the preservation of existing vegetation. Plan shall comply with the Maher ordinance and dust control ordinance.

3.6.8. Remediation Employ phytoremediation techniques using sunflowers, alfalfa, and other known accumulators to remove and reduce metal content making soil safe for human contact and exposure, and to manufacture a healthy growing medium for plants.

3.6.9. Integrated Pest Management (IPM)

Employ IPM techniques to limit the use of pesticides to an economically justified level and reduce or minimize risks to human health and the environment.

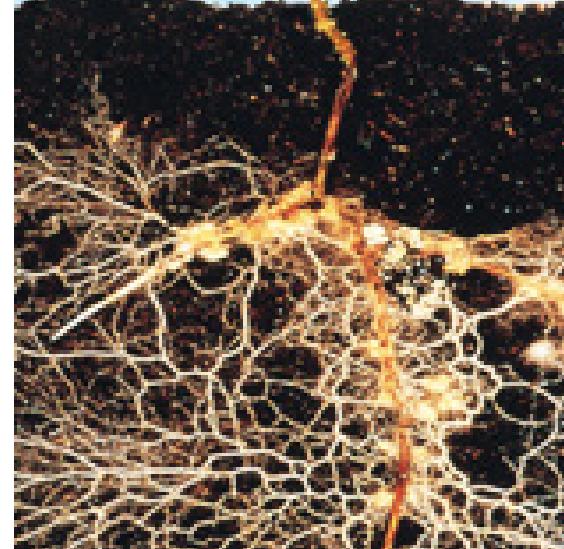
3.6.10. Prioritize Mobility & Activity (See Ch. 2)

3.6.11. Adaptive Management Plan Implement an adaptive management plan.

3.6.12. Education Offer a range of educational programs for people of all ages and abilities to learn about the historical, cultural, environmental and innovative proponents of the project. Topics may include the unique habitats, water systems, living shorelines, sea level rise, site morphology, energy, refuse reduction, product use, health and wellness and history and culture.



Pile driving during appropriate times of the year.



Soil health for long-term biodiversity.



Education, stewardship, and on-going maintenance.

3.6.13. Stewardship Offer a range of opportunities for stewards to volunteer and engage in the maintenance and management of the site.

3.6.14. Maintenance Perform on-going maintenance of all public spaces. (See Ch. 2)

3.6.15. Post-Occupancy Evaluate each phase of construction through post-occupancy surveys to

inform future phases of development.

Goals

3.6.16. Fungi All soil mixes will include mychorrizal fungi to increase nutrients and micro-organisms that improve plant health and growth.

3.6.17. School Meals All school meals will be made with local and organic produce.

3.6.18. Food Sell affordable organic, non-GMO and locally produced and sourced foods at

farmers markets and supermarket.

3.6.19. Compost Conduct on-site compost generation for reuse in the landscape. (See Section 2.8)

3.6.21. Gardens Provide space for school and community gardens.

3.7 Interim Activation & Pilot Projects

The time and physical space dimensions of the site are its greatest assets enabling the project to engage users early and start now. The site is deep, wide, and relatively flat. It is primarily un-occupied and development will occur over time. The site lends itself to a range of interim activation projects ranging from storage for future improvements, to experimental projects testing the feasibility of landscape strategies to inform long-term resilience. Recreation, attractions and educational programs will also bring users to the site and promote early stewardship, volunteerism and educational opportunities. Pilot projects may include:

Soil Remediation: Improve soil quality to ensure public safety, enable plant growth and reduce off-haul costs. (See Healthy Environment and Lifestyles, Section 3.6)

Test Plots: Test the success rate of recycled water with plant palette, phytoremediation, proposed plant species, use of mycorrhizal fungi, and metals removal in experimental landscapes as small as 100 sq ft.

Dirt Bike Course: Excavated soils not used for site grading can be used to create recreational amenities in the interim.

Art & Concessions: Sculpture pieces can be temporarily located and stored on-site as an interim attraction in advance of permanent installation. This may include reuse of Bay Bridge Steel.

Living Shorelines: Incorporate the following types of living shorelines to test the viability and success rate of these materials to create habitat: reef balls, constructed tide pools, floating wetlands, engineered reefs, eel grass, and enhanced shoreline protection materials. Grants may be available for these pilot projects. (See Chapter 3.8)

Temporary School: Provide facilities for a temporary school using existing streets and utilities in early phases.

Nursery: Plant and nurture trees on-site in early phases to grow a resource of mature trees that are conditioned to the coastal environment for future planting success. Trees could also be sold to adjacent properties as a revenue source.

Storage: If there is a cost savings in acquiring large quantities of materials in early phases of the project, store materials on-site for future phases of construction and to reduce total number of truck trips.

Education & Stewardship: Initiate the "Trust" in early phases to lead on-site park related programing, education, maintenance, volunteerism and stewardship for long-term commitment.

Guidelines

3.7.1. Placement Coordinate placement of interim projects with phasing to limit relocation of programs and interference with construction.

3.7.2. Phasing Implement activation and pilot projects in the early phases of the project to provide recreational and educational programs and to test landscape strategies for future implementation.

3.7.3. Temporary Access Provide temporary pedestrian, bicycle, and vehicular access to the site for users to engage with interim projects.

3.7.4. Range Early implementation projects shall be designed for all ages and abilities.

3.7.5. Signage Provide signage with pilot projects for education and wayfinding. (See Chapter 7)

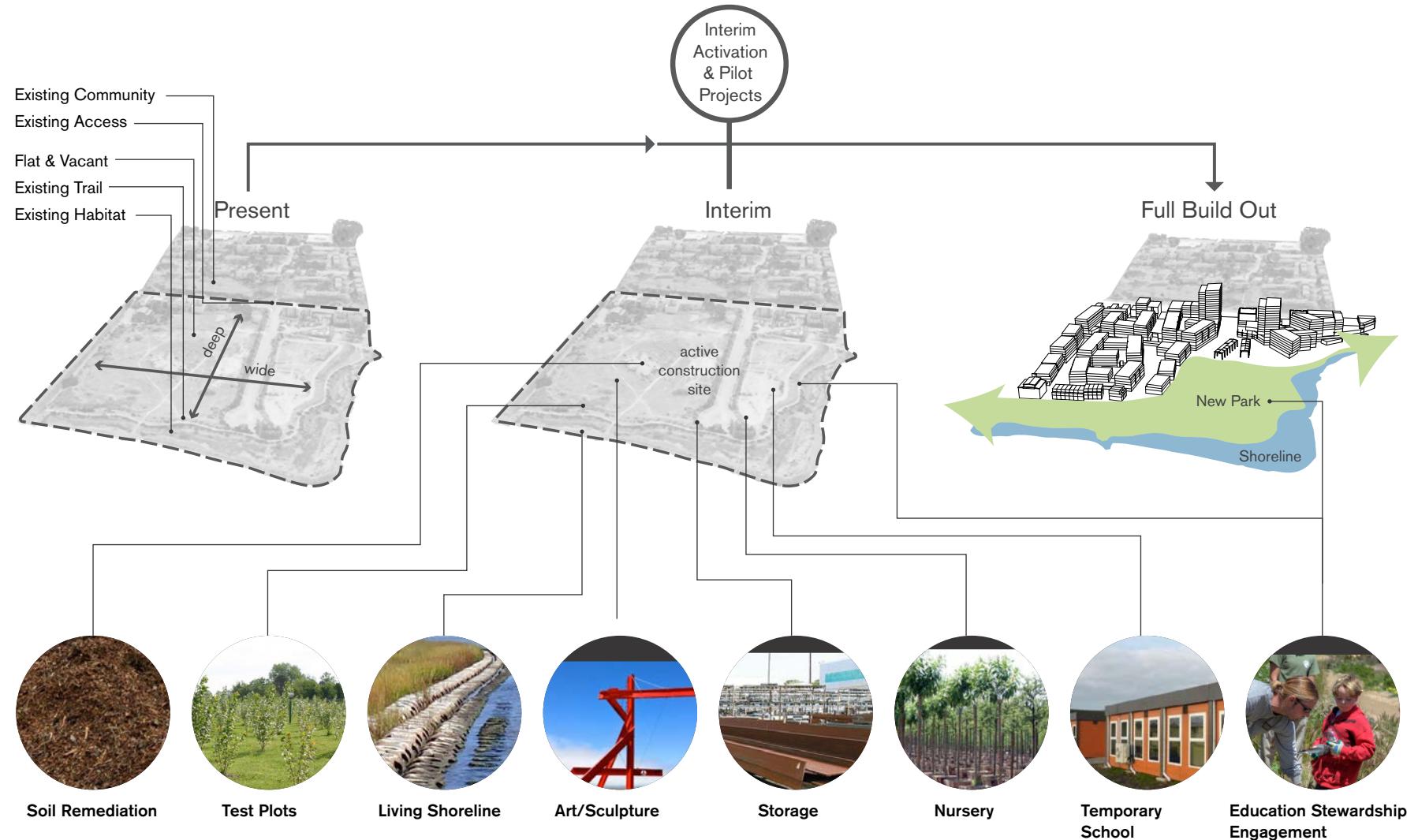


FIGURE 3.11: SITE ASSETS & INTERIM ACTIVATION

3.8 Coastal Adaptation

“Sea level rise may be a slow moving threat to our city but it demands our action now... Proactive and thoughtful adaptation planning will continue the innovation, creativity, and inclusivity that have always inspired growth, development, and jobs in San Francisco... It demands our attention now.”

– Mayor Edwin M. Lee, San Francisco Sea Level Rise Action Plan

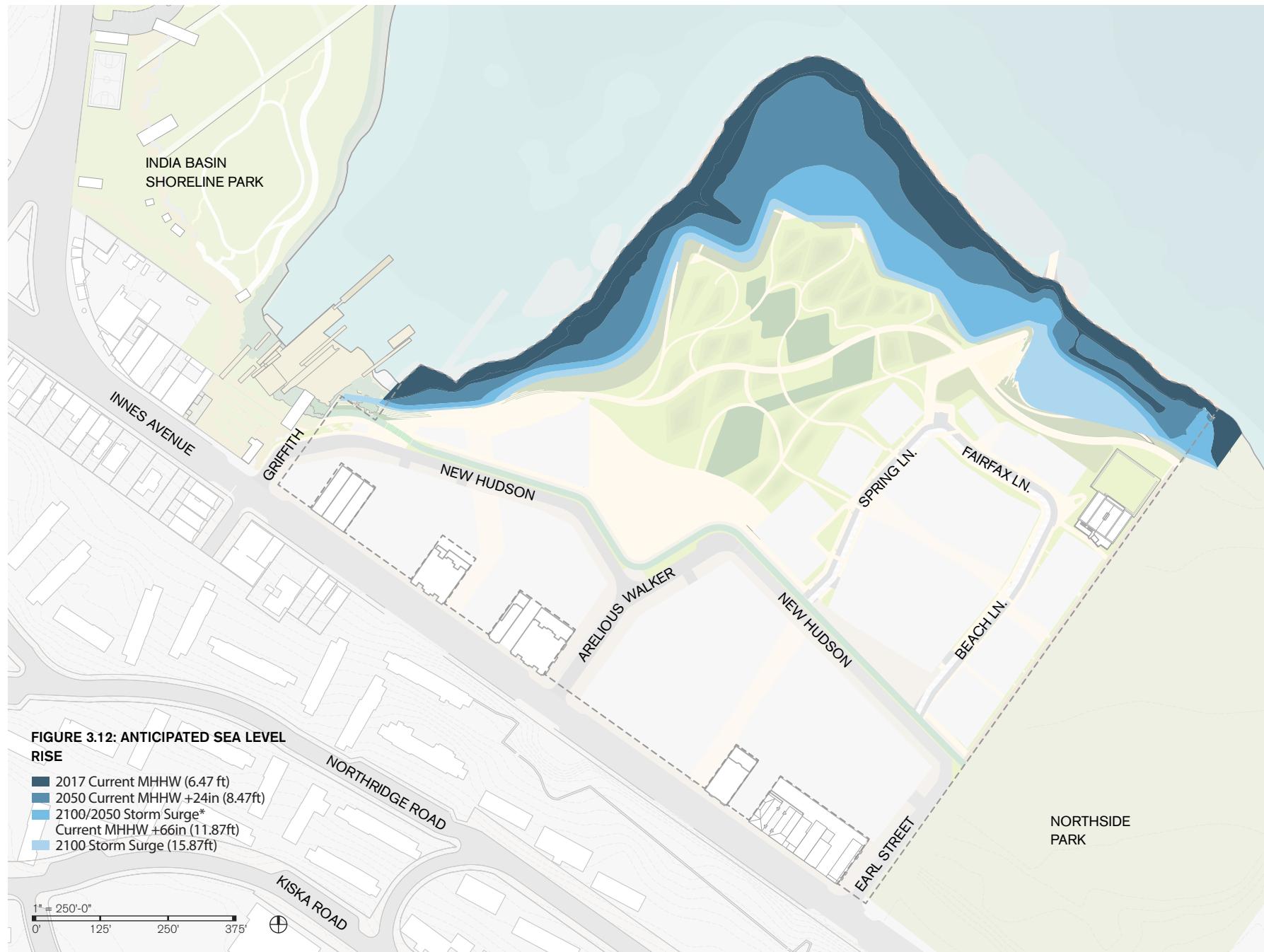
Located at the edge of the San Francisco Bay, the site is constantly responding to changing coastal conditions and rising tides. Existing low lying areas and habitats are regularly submerged at high tide, and increasingly inundated at king tides and with sea level rise. Over the next century, sea level rise will likely transform the site's shoreline, causing habitat loss and greater potential for erosion and shoreline damage.

The shoreline design proposes a suite of living shoreline devices from pilot projects to long-term solutions, to test new technologies and methods for habitat creation, upland habitat migration, and shoreline protection, and to serve as a precedent for Bay Area resilient development.

This section includes standards, guidelines, and goals for coastal adaptation to create habitats and protect the development in the near and long-term and to adapt as conditions evolve.

See section 2.8 for standards and guidelines to promote diverse ecologies.

See section 3.7 for the India Basin Trust that will support the longterm success of proposed ecological interventions through adaptive management, monitoring, research, data collection, education and stewardship.





Shoreline Adaptation Strategies

These renderings illustrate anticipated future conditions given current sea level rise projections. As available science and data improves, these conditions may vary. The standards, guidelines and goals in this section are intended to promote habitat creation and adaptation, respect necessary areas of retreat and provide continued public access within shoreline areas. See Section 3.7 for the India Basin Trust for monitoring and adaptation planning.

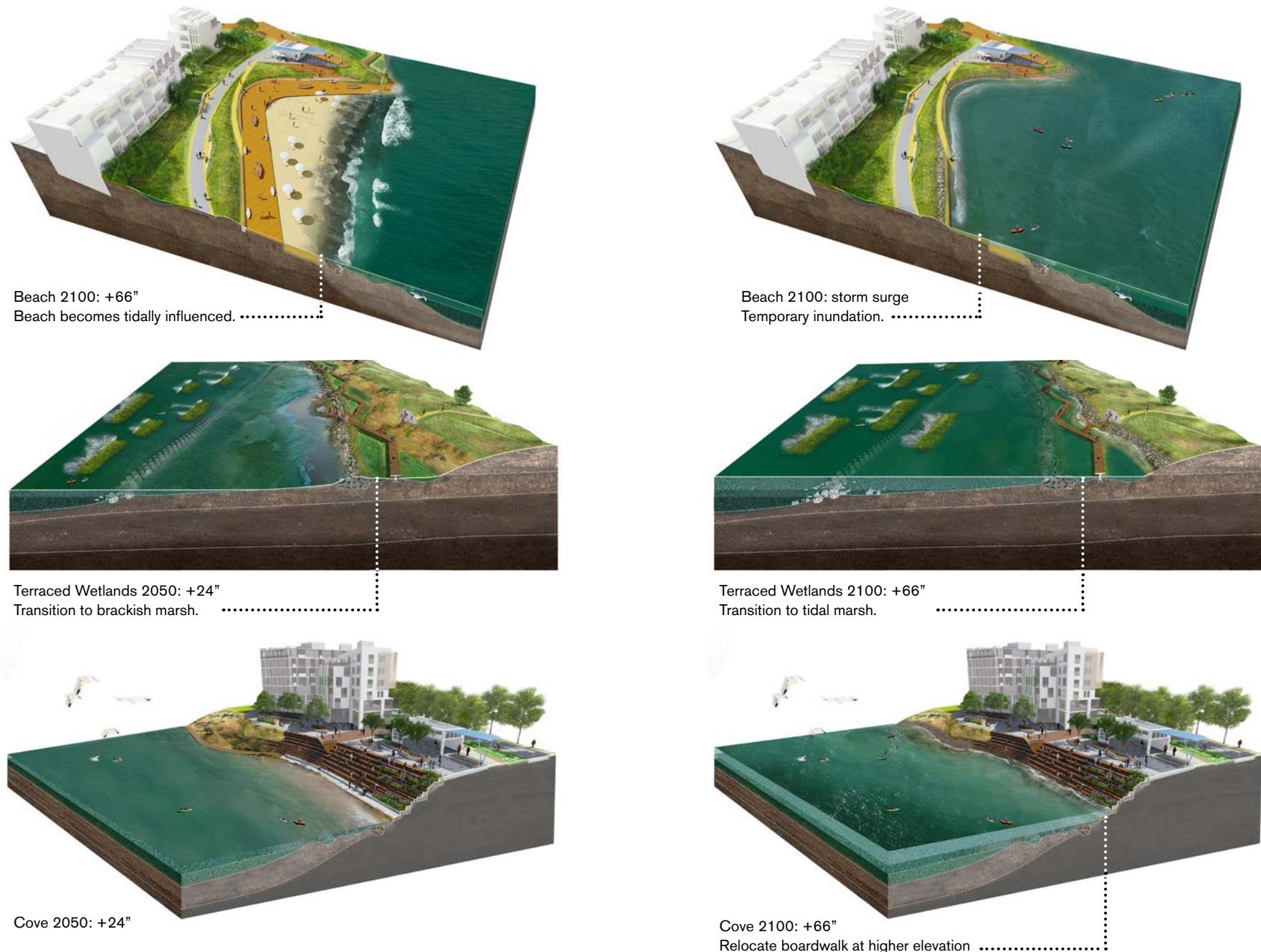


FIGURE 3.13: PROPOSED SHORELINE ADAPTATION (SEE CH. 2 FOR PROPOSED CONDITION)

To accommodate changing coastal conditions and rising tides, the shoreline area will protect the development and major infrastructure from inundation by situating these improvements at upland elevations. It will also create habitats in both the short-term and long-term through material selection for enhanced sea life, pilot projects, and upland habitat migration (Figure 3.14). Reference Shoreline Permits for more detailed description and requirements for the Shoreline areas.

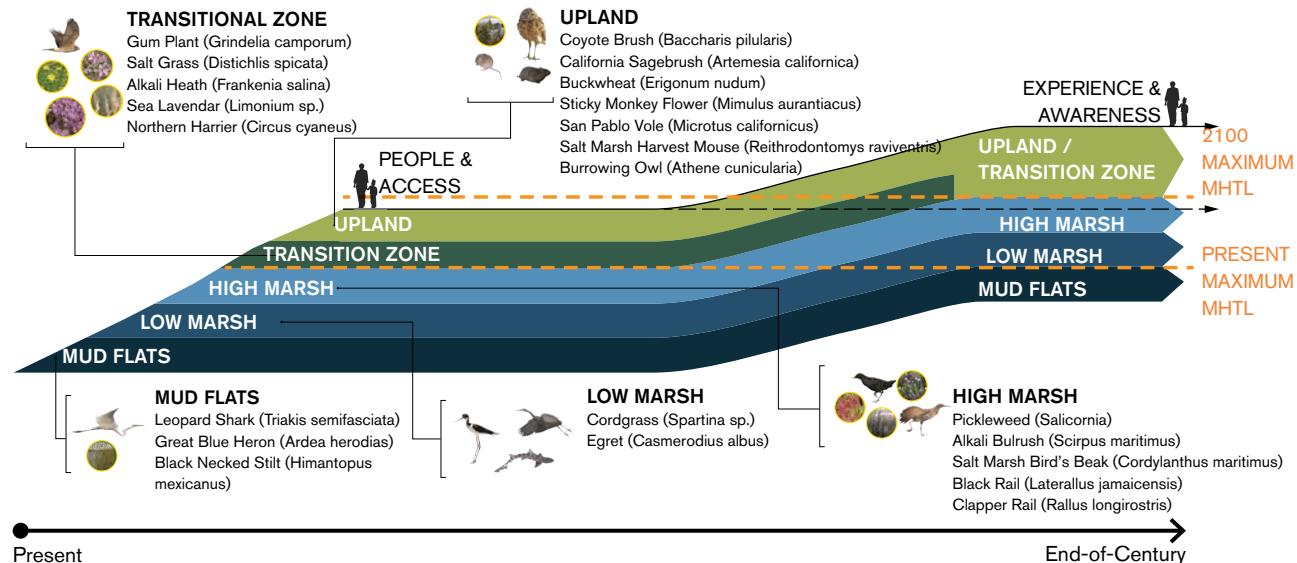
Standards

3.8.1. Major Infrastructure All major

infrastructure shall be located above worst case predictions for end of century, including a buffer area of at least 20 horizontal feet from top of bank for additional increases in tide levels levels.

3.8.2. Terraced Wetlands Terraced wetlands shall be located at an elevation in the northeast shoreline such that occasional inundation will occur no later than the year 2050, and frequent inundation will occur no later than the year 2075. (See Section 2.4)

3.8.3. Eel Grass Restoration The project sponsor shall pursue grant funding to install at least 3 test plots on the northwest shoreline. If pilot eel grass plots survive 2-year monitoring



period, pursue grant funding for large-scale eel grass restoration bed.

3.8.4. Floating Wetlands The project sponsor shall pursue grant funding to install at least 2 floating wetlands on west shoreline as pilot project to test habitat creation and wave energy dissipation. If wetland species survive 2-year monitoring period, pursue grant funding to install as permanent habitats.

3.8.5. Shoreline Protection

toe of slope to prevent erosion. The shoreline protection installation shall be at least 80% softscape.

3.8.6. Adaptation Plan The India Basin Trust will conduct frequent monitoring, and prepare an adaptation plan every 5 years including replanting, relocation of elements to higher elevations and maintenance as relevant for the shoreline to evolve and adapt over time.



Terraced seasonal wetland transition to brackish/tidal marsh



Reef Balls provide shoreline protection and niche habitats



Enhanced marine life shoreline protection

Guidelines

3.8.7. Watershed Convey treated stormwater from the site to the terraced wetlands to provide a consistent flow of water during wet seasons.

3.8.8. Habitat Select a diverse range of tidal species and habitats to increase biodiversity. (See Section 2.8)

3.8.9. Tidal Marsh Existing tidal marsh and dunes shall be retained in situ.

3.8.10. Structures All low-lying structures will be constructed using durable and resilient materials that can be frequently inundated for temporary periods of time.

3.8.11. Aggregate All structures in the shoreline shall include an aggregate that supports enhanced marine life to increase habitat potential in a range of conditions. (See Ch. 2 for structures and elements.)

3.8.12. Supplemental Water Supply If ground water supply is available, convey to terraced

wetlands for an increased year-round water supply.

Goals

3.8.13. Substrates Use substrates and base aggregates in soil profiles throughout shoreline areas that can support tidal marsh and dune habitats in future inundated conditions.

04



Land Use

Chapter 04: Land Use

- 4.1 Land Uses
- 4.2 Permitted Uses
- 4.3 Other Uses
- 4.4 Ground Floor Use Requirements
- 4.5 Parking

San Francisco is a city of vibrant mixed-use neighborhoods. Most neighborhoods in San Francisco offer residents a variety of services and amenities with a comfortable, attractive pedestrian environment and convenient access via public transit. The land use Standards and Guidelines detailed in the following pages support the goal of creating a vital, distinctive and walkable neighborhood.

In order to create a complete neighborhood, India Basin includes allowance for a variety of social amenities and services including a grocery store, small scale retail and commercial spaces, food and beverage options and a school in addition to a spacious public park with recreational facilities and waterfront access. A Public Market is the centerpiece of the neighborhood with the flexibility to accommodate a range of social activities including: farmers and craft markets, music and art festivals and large community gatherings. The land use strategy for India Basin focuses social interaction along main routes and around key open spaces. Within a comfortable walking distance for all residents, these spaces encourage neighbors and visitors to engage with and inhabit the public realm, experience the San Francisco Bay ecosystem and enjoy community-serving amenities and services without needing to use a car.



FIGURE 4.01: STRATEGY FOR EXPANDING NEIGHBORHOOD AMENITIES.

Complete the Neighborhood

The term Neighborhood Completeness refers to the proximity of residents to daily goods, public services and other basic amenities within a walkable distance. A growing body of evidence suggests that proximity to a critical mass of public and retail services increases the likelihood that residents and workers will walk or bike to access those services—boosting physical activity, enhancing social interactions and even improving public health. For example, research has found the presence of a supermarket in a neighborhood correlates with higher fruit and vegetable consumption and a reduced prevalence of obesity. In addition, neighborhoods with diverse and mixed uses create closer proximity between residences, employment and goods and services. The result is reduced vehicle trips and miles traveled which in turn, reduces air and noise pollution.

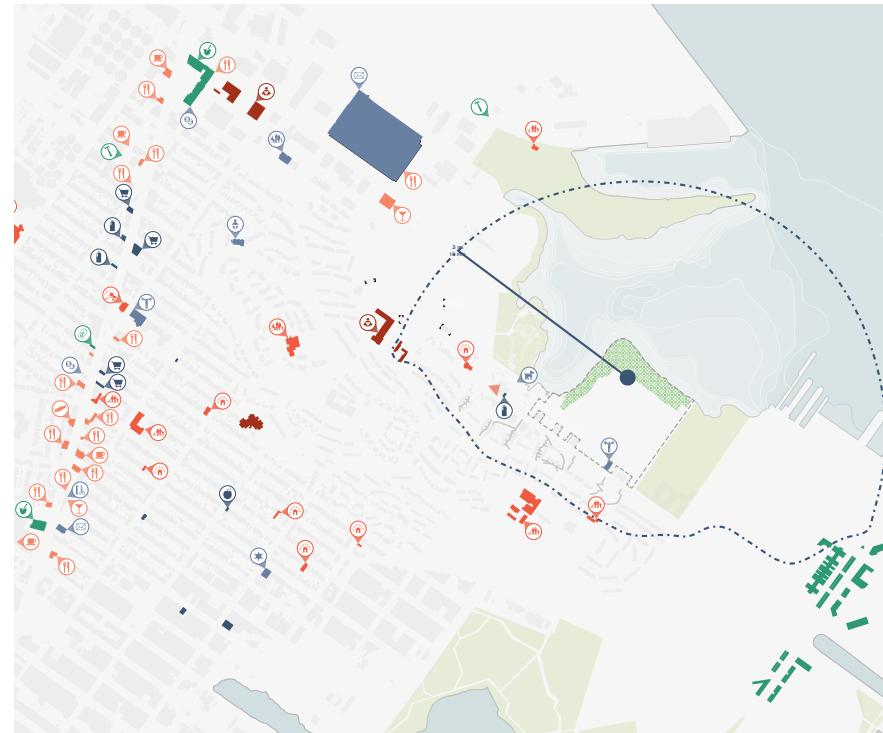
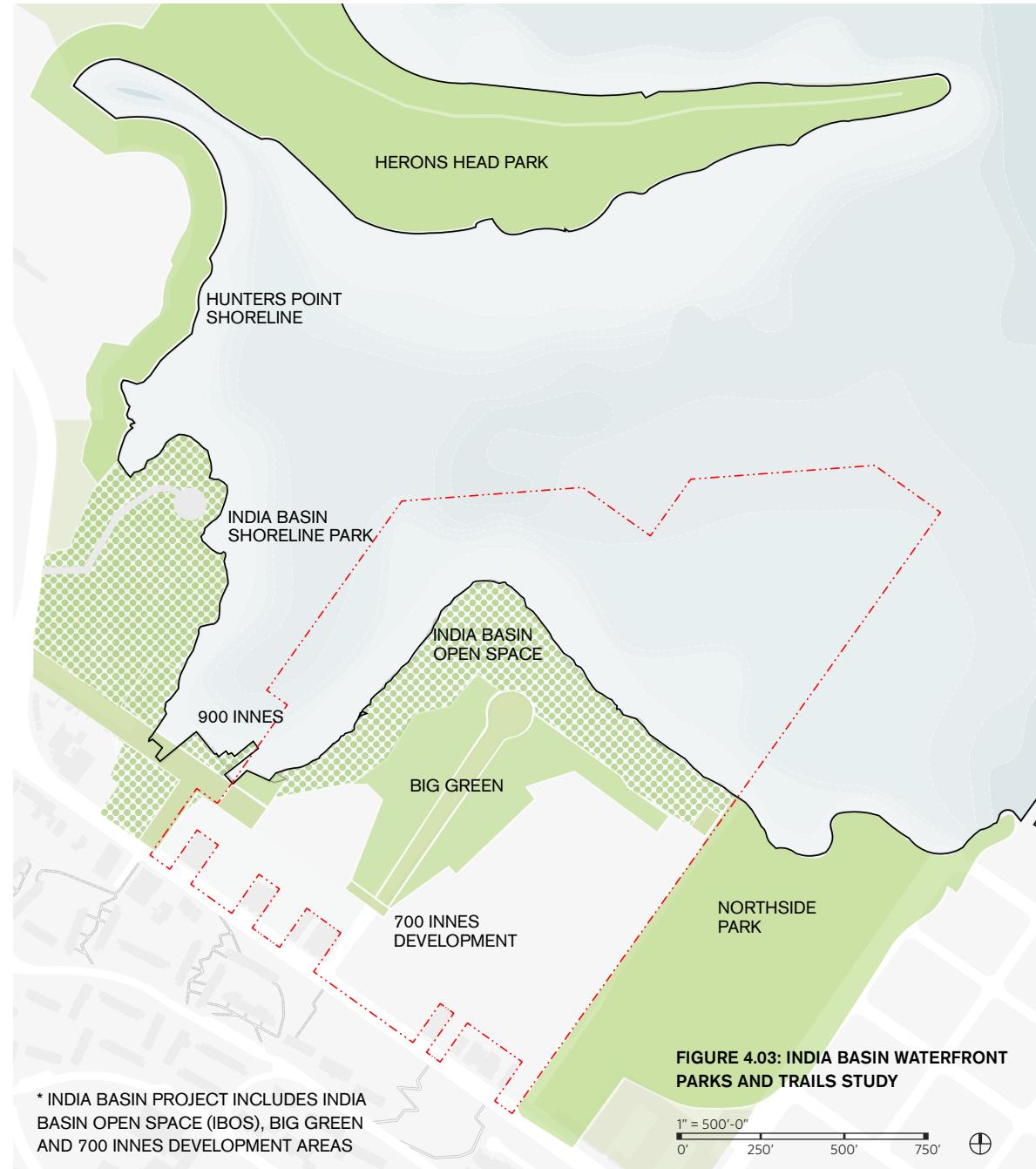


FIGURE 4.02: EXISTING NEIGHBORHOOD AMENITIES.

The Hunter's Point neighborhood (of which the site is a part) currently lacks many of the basic amenities commonly found in San Francisco's walkable communities. The project connects into and completes the neighborhood by adding a wide range of key public and retail services and open space assets so that the surrounding community can meet basic needs within a 10–15 minute walk. Housing, Transportation and Recreation options are expanded as well.

Amenities and Open Space Programming

Open Space and amenity programming at India Basin incorporates a Basin-wide approach. To this end, the India Basin Waterfront Parks and Trails study was undertaken in 2014 to envision the future of the seven linked sites that surround the Basin: Heron's Head Park, the Hunter's Point Shoreline, India Basin Shoreline Park, 900 Innes, India Basin Open Space, 700 Innes "Big Green", and Northside Park. All property owners were engaged in the study process.



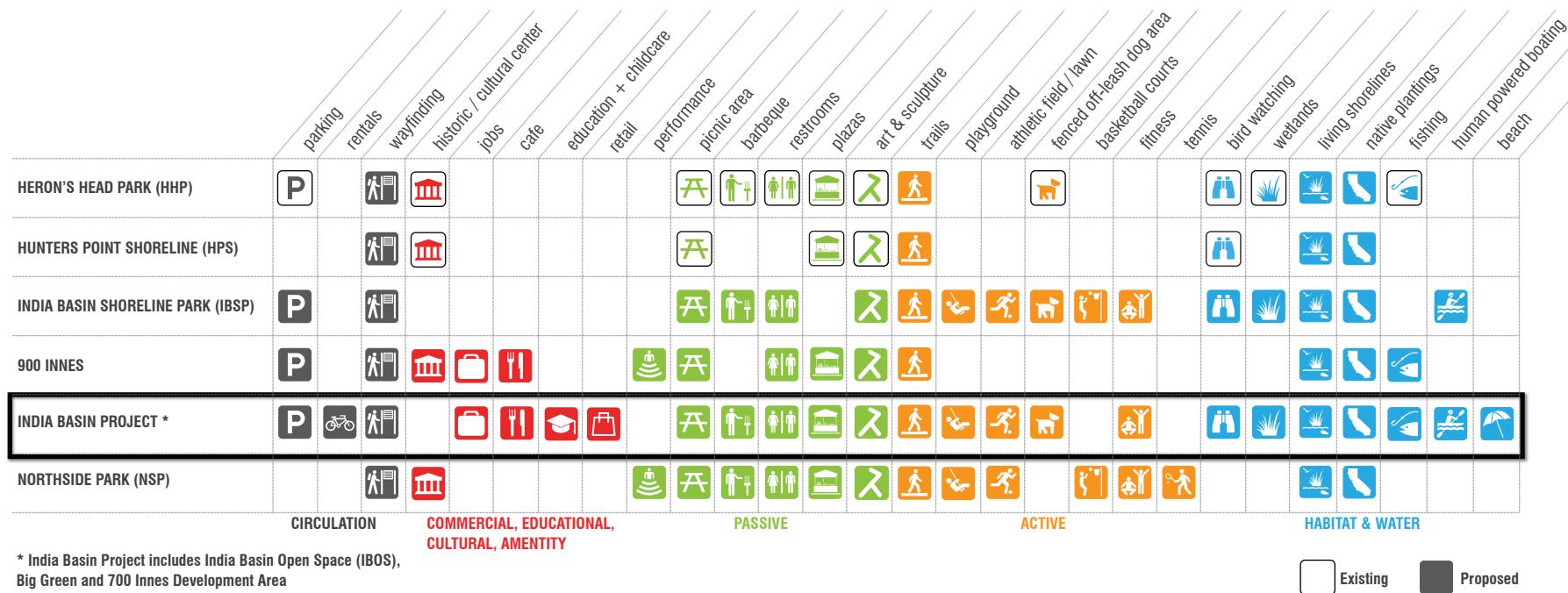
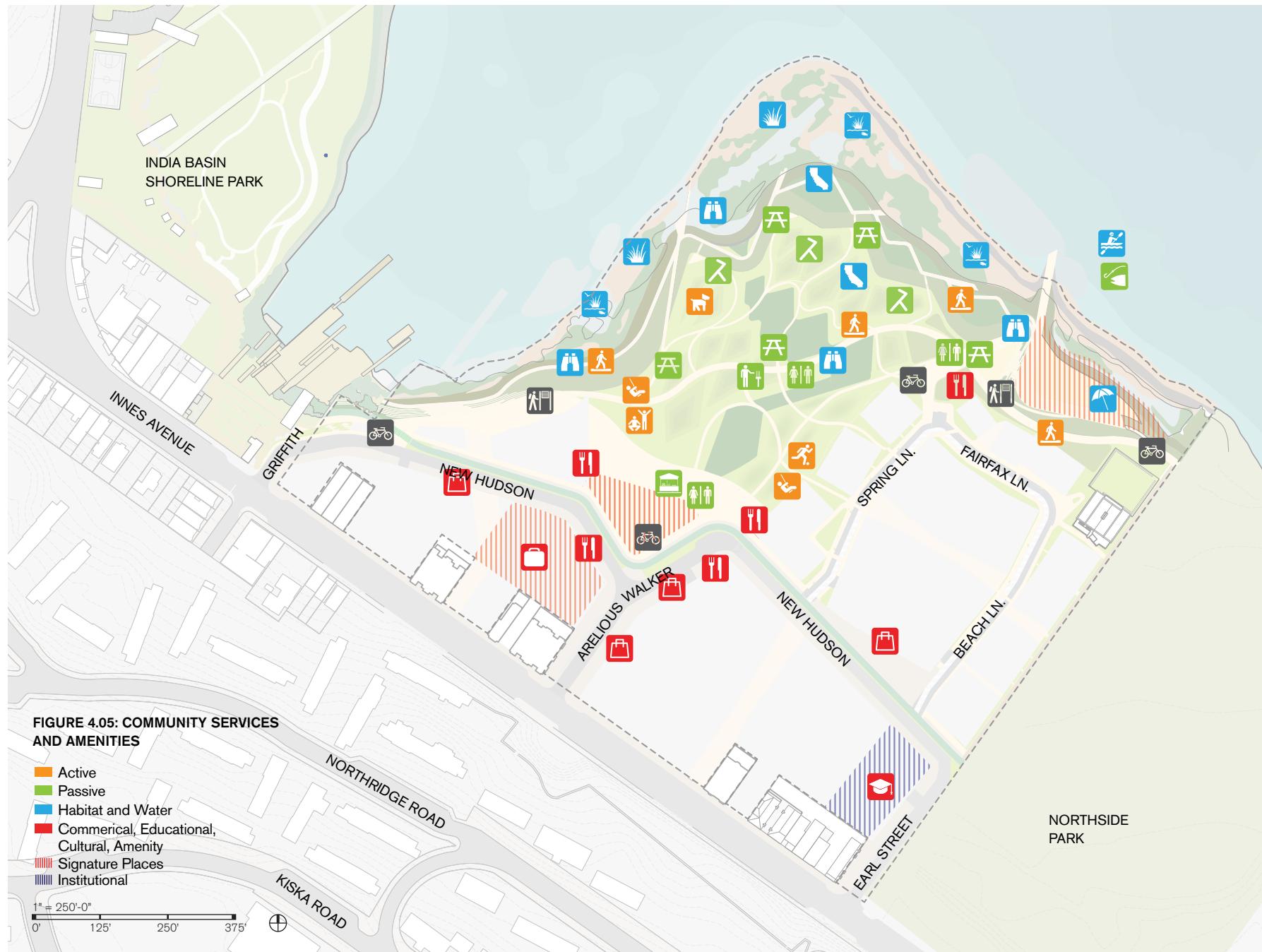


FIGURE 4.04: EXISTING AND PROPOSED COMMUNITY SERVICES AND AMENITIES

The objective of the India Basin Waterfront Parks and Trails study was to provide a comprehensive blueprint for the future of the park system and adjacent development and to ensure a complimentary mix of recreational, educational, ecological and public services across all seven properties. The study also recommends the design of a “shared palette” for all sites so that signage/wayfinding, furnishings, lighting and pathway design are coordinated for a seamless user experience. Other coordination benefits include building a landscape that is adaptive and resilient in the face of anticipated sea level rise, expanding public access to the Bay and accelerating the development of the Blue Greenway.

The recommended open space, public service and neighborhood amenities programming for each of the seven India Basin Waterfront Parks and Trails sites is shown in Figure 4.04, above. Recommended open space, public service and neighborhood amenities for the India Basin Project – which includes the India Basin Open Space (IBOS), Big Green and 700 Innes Development Areas – are mapped in Figure 4.05, shown left. These active uses are encouraged, and have been incorporated into the Land Use Standards and Guidelines on the following pages.

In addition, interim, temporary and early activation uses are permitted per Section 4.2 Permitted Uses.



4.1 Land Uses

“Intricate minglings of different uses in cities are not a form of chaos. On the contrary, they represent a complex and highly developed form of order.”

—Jane Jacobs

Land Use

The land use designations for India Basin advance a 21st Century model for a healthy, vibrant and complete neighborhood. A complete neighborhood is one that offers services and amenities to residents and visitors that are convenient and pedestrian-accessible. The project connects into and completes the Hunters Point neighborhood by adding a wide range of essential public services and retail amenities so that the surrounding community can meet basic needs within a 10-15 minute walk. Employment, Recreation options and access to open space are expanded as well. In light of San Francisco's housing crisis, it is envisioned that the development of India Basin will include a significant quantity of new, multi-family residential units in a mixed-use setting.

The allowable development program for the site is being studied through the Environmental Impact Report (EIR). Development program limits and land use provisions will be confirmed through the Special Use District (SUD).

Guidelines

4.4.1. Land Uses Project Land Use Designations shall be as mapped in Fig. 04.06, and as further described on pages 266-267.:

- Mixed Use
- Residential Mixed Use
- Multi-Family Residential
- Public Market
- Public – Parks / Plaza Overlay
- Public – Shoreline Overlay

Permitted Uses within each category are described in Section 4.2.

Additional Ground Floor Use Requirements are described in Section 4.4.





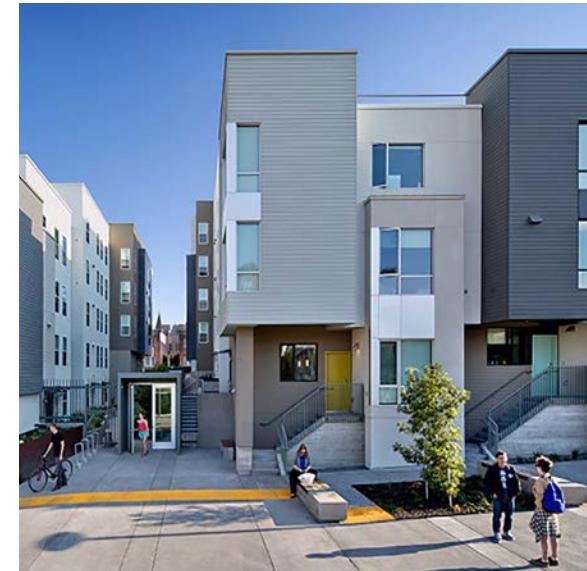
Mixed Use

The Mixed Use designation allows a wide range of retail, restaurant, food & beverage, grocery, commercial, institutional, entertainment and multi-family residential uses. Home and business service, arts activities, professional office space and large-floor-plate office space are also permitted. Dwellings with integrated work and/or arts space are permitted as an Accessory Use, subject to the provisions of San Francisco Planning Code Section 204.0-204.1.



Residential Mixed Use

The Residential Mixed Use designation encourages a combination of mixed-density and multi-family residential dwelling, with compatible commercial uses on the ground floor, to provide a vibrant active neighborhood with a mixed-use character. Dwellings with integrated work and/or arts space are permitted as an Accessory Use, subject to the provisions of San Francisco Planning Code Section 204.0-204.1.



Multi-Family Residential

The Multi-Family Use designation is intended for mixed-density, multi-family and single-family attached (townhouse) residential dwellings. Dwellings with integrated work and/or arts space are permitted as an Accessory Use, subject to the provisions of San Francisco Planning Code Section 204.0-204.1.



Public Market

The Public Market is a privately-owned and managed, but publicly-accessible area at the center of the project adjacent to the Big Green. The Public Market provides the social heart of the neighborhood with the flexibility to accommodate a range of activities. Emphasis for this land use designation is on retail, food and beverage uses and civic and cultural events to activate the adjacent open space. Design of and programming for the Public Market are further detailed in Chapter 2: Public Realm.



Public - Park / Plaza Overlay

The Public Use – Parks and Plazas Overlay is designated for the Big Green and the Town Triangle, areas which will be owned by the city and provide public open space use, but will be managed by the India Basin Trust. These areas are focused on active recreation, sports and fitness uses, as well as community gathering, and environmental functions. Design of and programming for the Big Green and Town Triangle are further detailed in Chapter 2: Public Realm.



Public - Shoreline Overlay

The Public Use – Shoreline Overlay area is designated for the India Basin Shoreline which will be owned by the City and provide public open space use with an emphasis on passive recreation and waterfront access. Areas within the Shoreline that fall under BCDC Jurisdiction shall comply with BCDC standards for use and shall include a range of accessible water-oriented recreational activities and facilities. Design of and programming for the Shoreline is further detailed in Chapter 2: Public Realm.

4.2 Permitted Uses

Guidelines

4.2.1. Permitted and Conditional Uses

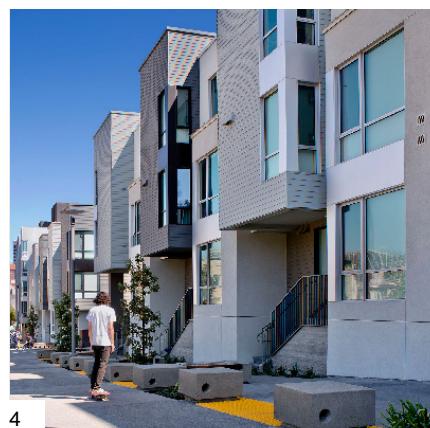
Permitted and Conditionally permitted uses in India Basin are detailed in the Permitted and Conditional Use Table on the following pages. This table indicates the land uses that are permitted “by right” (P), by conditional use permit (C), or not permitted (NP), according to each Land Use category designated in the Land Use Plan (Figure 4.06). Land Uses are as defined in City of San Francisco Planning Code Section 102: Definitions.

Conditional use authorization, for those uses so designated, may be granted by the Planning Commission upon determination that the proposed use is necessary or desirable to the neighborhood, has no negative impact to the neighborhood and complies with the San Francisco General Plan and the intent of the India Basin Design Standards and Guidelines.

Procedures, criteria and other provisions pertaining to Conditional Uses are detailed in the City of San Francisco Planning Code Section 303: Conditional Uses.

4.2.2. Accessory Uses Accessory Uses shall comply with the provisions of San Francisco City Planning Sections 204.0-204.2. and Section 204.4. An Accessory Use is a related minor use that is either: necessary to the operation or enjoyment of a lawful principal use or conditional use; or appropriate, incidental, and subordinate to any such use when located on the same lot. Such incidental uses shall not exceed one-third of the total floor area occupied by such use and the principal or conditional use to which it is accessory. A Zoning Administrator Letter of Determination can be requested for potential Accessory Uses that have not been listed in the Permitted and Conditional Use Table or are not included in any Planning Code Interpretations.

4.2.3. Temporary and Interim Uses Temporary Uses shall comply with the provisions of San Francisco City Planning Code Sections 205.0-205.4: Temporary Uses. A Temporary Use may be authorized for a limited period of time on a specified parcel. Temporary Use Authorizations are not associated with significant construction activity; they authorize short-term uses such as mobile food facilities, seasonal pumpkin sales, construction trailers and festivals or exhibitions. A Temporary Use Authorization may be granted by the Zoning Administrator for temporary uses that are neither listed in the Permitted and Conditional Use Table, nor specified in San Francisco City Planning Code Sections 205.0-205.4: Temporary Uses, upon determination that the proposed use is necessary or desirable to the neighborhood, has no negative impact and adheres to the San Francisco General Plan and the intent of this Design Standards and Guidelines document.



1. Residential Mixed-Use
2. Mixed-Use
3. Public Use - Plaza
4. Multi-Family Residential
5. Public Market

Use	Mixed Use	Residential Mixed Use	Multi-Family Residential	Public			Notes and Exceptions
				Public Market	Open Space Overlay	Shoreline Overlay	
Agriculture	P^{1,2}	P^{1,2}	P^{1,2}	P¹	P¹	P¹	1 Large Scale Urban Agriculture not permitted 2 Greenhouse not permitted
Automotive Use	NP³	NP³	NP³	NP	NP	NP	3 Public and Private Parking facilities (and other automotive uses) permitted per Accessory Use provisions of San Francisco City Planning Code §204.-204.2.
Entertainment, Arts & Recreation Use	P^{4,5}	P^{4,5}	P^{5,6}	P^{5,6}	P^{5,6,7}	P^{5,6,7}	4 Movie Theater, maximum three screens 5 Livery Stables, Sports Stadiums not permitted 6 Movie Theater, Nighttime Entertainment not permitted 7 Open Recreation and Outdoor Entertainment, see Temporary and Interim Uses
Industrial Use	P⁸	P^{8,9}	NP	NP	NP	NP	8 Cat Boarding, Kennel, Light Manufacturing, Metal Working, Parcel Trade Office, Trade Shop, Animal Processing 1, Food Fiber and Beverage Processing 1 permitted 9 Permitted on Ground Floor only
Institutional Use	P¹⁰	P¹¹	P^{11,12}	NP¹³	NP¹³	NP¹³	10 Cannabis Dispensary Conditional 11 Cannabis Dispensary, Hospital not permitted 12 Job Training, Trade School, Post-Secondary Educational Institution not permitted 13 Exception: Public Facilities Permitted

FIGURE 4.07: PERMITTED AND CONDITIONAL USE TABLE

KEY:

- (P) PERMITTED BY RIGHT
- (C) PERMITTED BY CONDITIONAL USE PERMIT
- (NP) NOT PERMITTED

Use	Mixed Use	Residential Mixed Use	Multi-Family Residential	Public			Notes and Exceptions
				Public Market	Open Space Overlay	Shoreline Overlay	
Residential	P ¹⁴	P ¹⁴	P ^{14,15}	NP	NP	NP	14 Residential Hotels not permitted 15 Student Housing not permitted
Sales and Services, Non-Retail	P ¹⁶	P ¹⁶	NP	NP	NP	NP	16 Laboratory, Life Sciences, Commercial Storage, Wholesale Sales, Wholesale Storage not permitted
Sales and Services, Retail	P ¹⁷	P ^{17,18}	NP	NP ¹⁹	NP ¹⁹	NP ¹⁹	17 Adult Business, Mortuary, Limited Financial Service, Motel, Self-Storage and Tobacco Paraphenalia Store not permitted 18 Animal Hospital, Fringe Financial Services not permitted 19 Exception: Grocery, Food and Beverage uses permitted.
Utility and Infrastructure	C ^{20, 21}	C ²¹	20 Internet Service Exchange, Wireless Telecommunication Services (WTS) Facility permitted with Conditional Use permit 21 Utility Installation permitted with Conditional Use permit				
Temporary Uses	P ^{22,23,24,25}	P ^{22,23,24,25}	P ²³	P ^{22,23,24,25}	P ^{22,23,24,25}	P ^{22,23,24,25}	22 Sixty-Day limit activities permitted per Planning Code § 205.1. 23 One- or Two-year limit activities permitted per Planning Code § 205.4. 24 Twenty-Four-Hour limit activities permitted per Planning Code § 205.3. 25 Intermittent Activities permitted per Planning Code § 205.4.

KEY:

(P) PERMITTED BY RIGHT

(C) PERMITTED BY CONDITIONAL USE PERMIT

(NP) NOT PERMITTED

4.3 Other Uses

Guidelines

4.3.1. Site for Potential School To encourage families with young children to live at India Basin, a site has been identified for the potential creation of a child care facility, pre-school or K-8 school. If a school or child care facilities locate here, such facilities shall be permitted to use the proximate public open space in order to meet open space requirements mandated by relevant licensing authorities.

4.3.2. Other Uses If a use is not specifically identified in the Permitted and Conditional Use Table and is not listed as an Excluded Use, the Zoning Administrator shall have the authority to determine whether such use is compatible with the intent of the district and consistent with the approach to Land Use. The determination shall be based upon the use characteristics and compatibility of that use with the intent of the Design Standards and Guidelines. The Zoning Administrator shall interpret the meaning and appropriateness of uses.

4.3.3. Neighborhood Compatibility Non-residential uses must not pose a nuisance to surrounding residential users with regard to incompatible hours of operation, noise, light pollution, smell, reduction of air quality or construction related activities or else they are prohibited. No use shall be permitted which by reason of its nature or manner of operation creates conditions that are hazardous, noxious or offensive through emission of odor, fumes, smoke, cinders, dust, gas, vibration, glare, refuse, water-carried waste or excessive noise.

4.3.4. Prohibited Uses Excluded uses, as listed below, are uses that might have fit within a broad category listed in the Permitted or Conditionally Permitted Use table but are expressly prohibited:

- Drive-through facilities
- Adult entertainment
- General advertising

4.3.5. State Lands and BCDC Jurisdiction

Lands designated as State Lands – held in trust by the State for the benefit of the people

of California – shall comply with State Lands regulations. State Lands shall be generally accessible to the public and use shall be focused on water-oriented recreation, including commercial facilities that must be located on or adjacent to water, and environmental preservation and recreation, such as natural resource protection, wildlife habitat and study, and facilities for fishing, swimming and boating. Ancillary or incidental uses that promote use or accommodate public enjoyment of State Lands - such as hotels, restaurants and specialty retail - may be permitted.

Lands within BCDC jurisdiction shall comply with BCDC standards for use and shall include a range of accessible water-oriented recreational facilities.

At the time of approval of these Design Standards and Guidelines, a State Trust Lands Settlement Agreement and determination of BCDC jurisdiction are in process. Final land uses and designs shall be approved by these and other Authorities Having Jurisdiction (AHJs) prior to implementation.



1. Special Event
2. The Yard at Mission Rock
3. Food Trucks
4. Temporary Event Space
5. Temporary Retail

4.4 Ground Floor Use Requirements

Ground Floor Use Requirements

The character of a neighborhood is most visible in the activity of the street. India Basin features streets of varying types and levels of activity, differentiated by function within the circulation network, as well as by configuration and adjacent uses. The purpose of this section is to promote clearly-defined, active, pedestrian-oriented street frontages. The character of India Basin is reinforced by the ground floor use, which affects the degree of activity and the range of likely users.

Standards

4.4.1. Where Required Figure 04.08 illustrates required locations for Active Ground Floor Use that focus street activity along major routes and in key public spaces.

4.4.2. Active Ground Floor Use Depth Where required by Figure 04.08. With the exception of space allowed for parking and loading access, building egress and access to mechanical systems, Active Ground Floor Uses shall be provided in the first 25 feet of building depth from any façade fronting directly onto a street, right-of-way, or major gathering space. Building systems including mechanical, electrical and plumbing features may be exempted from this requirement by the Zoning Administrator in instances where those features are provided in such fashion as to not negatively impact the quality of the ground floor.

4.4.3. Ground Floor Height Where required by Figure 04.08: Active Ground Floor Uses, Type A and Type B shall have a minimum floor-to-floor height of 15 feet.

4.4.4. Street-facing Access Requirement

Street-facing ground-level space housing non-residential active uses in hotels, office buildings, shopping centers, and other large buildings shall open directly onto the street. Such required street-facing entrances shall remain open to the public during business hours.

Guidelines

4.4.5. Active Ground Floor Uses Defined An Active Ground Floor Use shall mean a principal, conditional, or accessory use that by its nature does not require non-transparent walls facing a public way or involve the storage of goods or vehicles. Active Ground Floor Uses at India Basin are specified as follows:

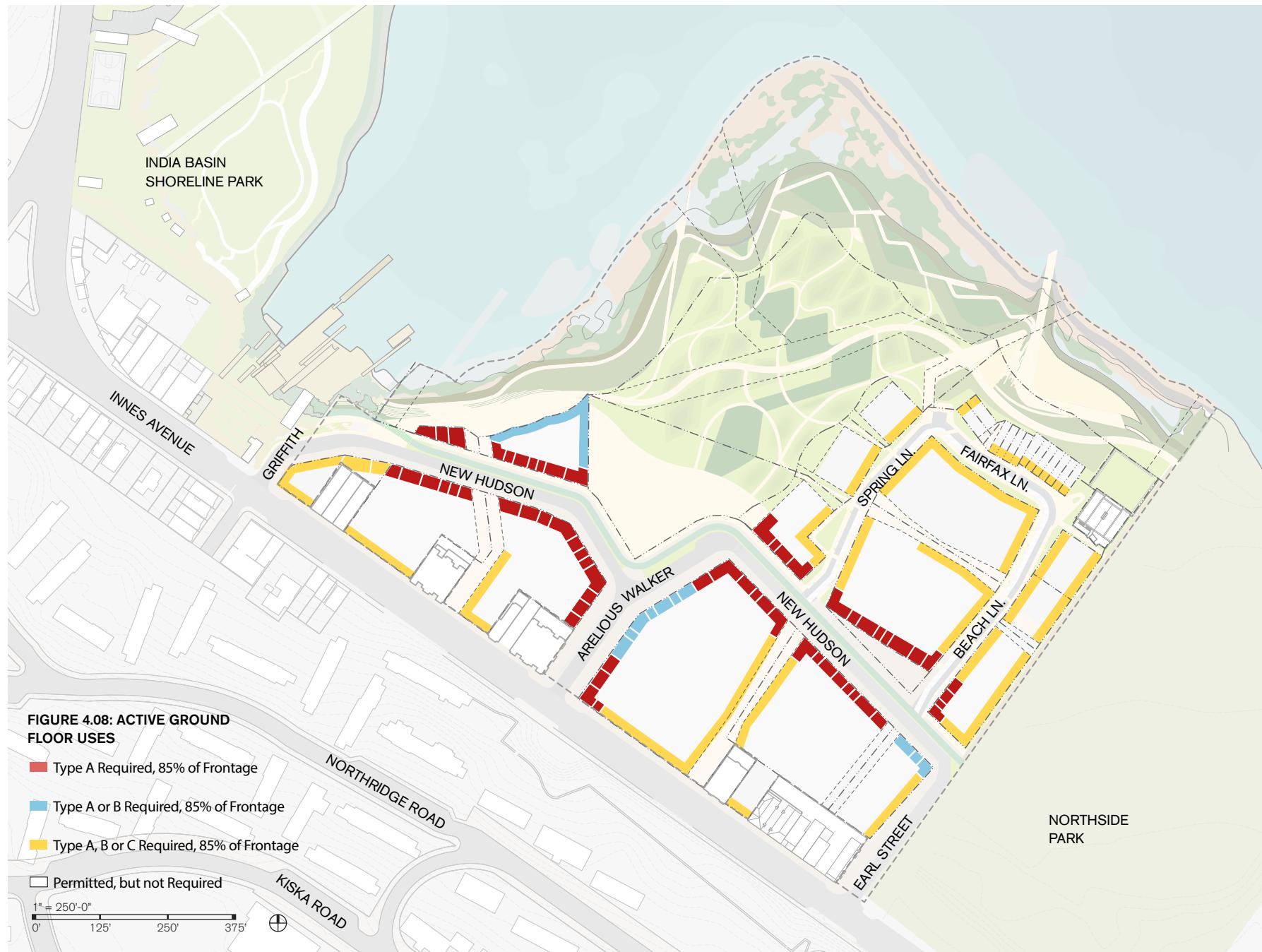
Type A: Generally these are public-serving establishments providing consumer sales of goods, food and beverage, or entertainment. Type 1 includes permitted principal, conditional, and accessory uses within the Entertainment, Arts and Recreation Use and the Retail Sales and Services Use categories.

Type B: Generally these are other (non-retail) commercial uses. Type B includes permitted principal, conditional and accessory uses

within the Non-Retail Sales and Services and the Institutional Use categories. Ground Floor building lobbies are active uses, so long as they do not exceed 40 feet or 25 percent of building frontage in width, whichever is smaller.

Type C: Residential Uses are Active Ground Floor uses in this category if more than 50% of the linear residential street frontage at the ground level features private terraces, stoops, or walk-up dwelling units with direct, individual pedestrian access to a public sidewalk, and frontage design is consistent with the Ground Floor Residential Design Guidelines, as adopted and periodically amended by the Planning Commission. Ground Floor space accessory to residential uses (such as fitness or community rooms) are active uses if they meet the intent of this section and have access directly to the public sidewalk or street. Ground Floor building lobbies are active uses, so long as they do not exceed 40 feet or 25 percent of building frontage in width, whichever is smaller. The select Industrial Uses allowed in each Land Use Zone also qualify as Active Ground Floor Uses in this category.

4.4.6. Street-Facing Ground Level Space The floor level of street-fronting, non-residential Active Ground Floor Uses and lobbies shall be as close as possible to the level of the adjacent sidewalk at the principal entrance to these spaces.



4.5 Parking

Parking

Parking supports urban functions, but can also detract from the experience of place. Reducing the presence of automobiles in the public realm makes streets and open spaces more comfortable, attractive and welcoming for pedestrians. Adequate parking, loading and servicing is provided to accommodate demand, but in a manner that minimizes the visible presence of cars. Figure 04.09 describes the location of garages, perimeter treatment and entrance/egress strategies used to conceal parking from view, while providing comfortable, intuitive access to garages for pedestrians. Access locations are prioritized to activate main routes and public spaces, channeling pedestrian flows to and from parking through public plazas and along commercial corridors.

Standards

4.5.5. Off-Street Parking Quantity Off-street parking shall not be required for any use. The quantity of parking appropriate for the site is being studied through the EIR. Quantity of parking to be provided is specified in the Special Use District.

4.5.6. Parking Entrances The total street frontage dedicated for vehicular access to parking and loading shall be minimized, and the placement of parking and loading entrances shall limit interference with street-fronting active uses as well as with the movement of pedestrians, cyclists,

transit, and autos. Vehicular entrances and exits to parking facilities shall have a maximum linear width of 10'-0" parallel to the street if accommodating one-way travel, and maximum linear width of 20'-0" parallel to the street if accommodating two-way travel. Entrances and/or exits that are shared with loading and service access may be 12'-0" wide when accommodating one-way travel and 24'-0" wide when accommodating two-way travel.

4.5.7. Placement and Spacing No more than one-third of the width or 24 feet, whichever is less, of any given blockface shall be devoted to parking and loading ingress or egress. Street-facing garage structures and garage doors may not extend closer to the street than a primary building façade. Entrances to off-street parking shall be located at least 15 feet from a lot corner located at the intersection of two rights-of-way.

4.5.8. Above-Grade Parking Setback Where shown in Figure 04.09, off-street parking at street grade shall be set back at least 25 feet on the ground floor from any facade facing a street, public open space or pedestrian easement. Parking above the ground level shall be screened from public rights-of-way and easements in a manner that accentuates ground floor uses, minimizes mechanical features and is in keeping with the architectural vocabulary of the building.

Guidelines

4.5.1. Parking Location Off-street parking may

be located where indicated in Figure 04.09. Off-street parking shall be below grade, except where permitted to be above grade as indicated in Figure 04.08.

4.5.2. Unbundled Parking Any off-street Public parking provided for non-residential use shall be unassigned and shall be shared among such uses within the project. Off-street parking spaces for residential uses shall be leased or sold separately from, and in addition to, the rental or purchase fees for dwelling units for the life of the unit. The Planning Commission may grant an exception from this requirement for projects which include financing for affordable housing that requires costs for parking and housing be bundled together.

4.5.3. Ground Level Parking So as not to preclude the conversion of parking space to other uses in the future, parking at the ground-level shall not be sloped, the floor shall be aligned as closely as possible to sidewalk level along the principal pedestrian frontage and/or to those of the street-fronting commercial spaces. Ground Level parking structures shall have a minimum clear ceiling height equal to that of street-fronting commercial spaces.

4.5.4. Egress to Public Realm A minimum of one separate, dedicated pedestrian entrance, visible and accessible from a public right-of-way, public easement or public open space shall be provided for the users of each off-street parking facility, as shown in Figure 04.09.



4.6 Loading

Loading

Adequate loading spaces and facilities are necessary to the operations of a complete neighborhood. India Basin will accommodate loading in a seamless, space-efficient manner that services its range of program effectively while upholding the pedestrian-focused design of the neighborhood.

Standards

4.6.1. Shared Loading Spaces Loading spaces shall be shared across uses and may not be assigned to any particular use.

4.6.2. Off-Street Loading Space Quantities Off-street loading spaces shall be provided in the quantities specified on Figure 4.10: Loading Space Table and allocated as shown in Figure 4.11: Loading, except as provided in Guideline 4.6.10: Active Loading Management Plan.

4.6.3. Off-Street Loading Locations Off-street loading spaces shall be located in the same project sub area (Hillside, Cove, and Flats) as the uses they serve.

4.6.4. Loading Entry Locations Loading entries shall be located no closer than 45 feet to the corner of an intersection.

4.6.5. Subterranean Loading Where subterranean service delivery loading is provided, the loading space shall be located no lower than the first subterranean level. The first subterranean level is defined as one story below the point of entry at grade.

Guidelines

4.6.6. Loading Access Points To minimize conflicts with pedestrians and bicyclists, the number of loading access points per building shall be kept to a minimum.

4.6.7. Pedestrian Right-of-Way Pedestrian movement shall be prioritized at curb cuts through the use of a continuous material treatment extending from the sidewalk or pedestrian path over the vehicular path.

4.6.8. Exterior Loading Docks Exterior loading docks shall be prohibited.

4.6.9. Waste Collection Exterior waste collection shall be prohibited.

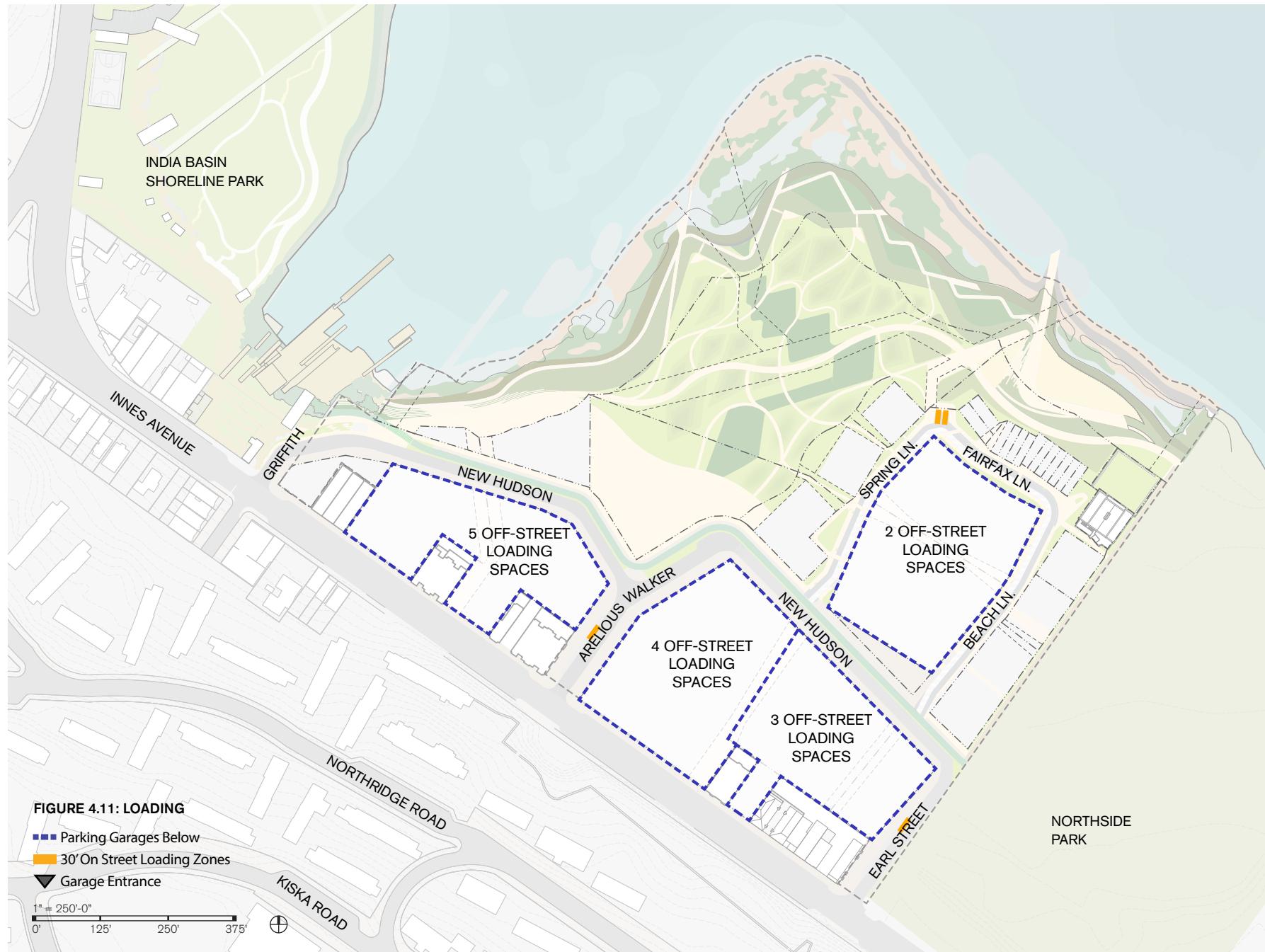
4.6.10. Active Loading Management Plan

The project sponsor can seek exception and/or modifications to Standards and Guidelines 4.6.1-4.6.9 by submitting at Active Loading Management Plan to the Planning Department and SFMTA for their review and approval. The Active Loading Management Plan shall, at a minimum:

- a) Indicate location of loading spaces.
- b) Coordinate loading hours of joint use.
- c) Satisfy the loading demands equal to or better than the Standards and Guidelines.

	Off-Street Loading Spaces	On-Street Loading Spaces	Total
Cove	5	1	6
Hillside	7	1	8
Flats	2	2	4
Total	14	4	18

FIGURE 4.10: LOADING SPACE TABLE



05

An aerial view of a modern urban neighborhood. The area features a mix of residential and commercial buildings with green roofs. There are several parks and green spaces, including a large grassy area with a curved path and a smaller area with a pond and a red bridge. The buildings are colorful and have solar panels on their roofs. People are seen walking on the sidewalks and in the parks.

"We are continuously engaged in the attempt to organize our surroundings, to structure and identify them. Various environments are more or less amenable to such treatment. When reshaping cities it should be possible to give them a form which facilitates these organizing efforts rather than frustrates them."

— Kevin Lynch, *The Image of the City*

Urban Form

Chapter 05: Urban Form

- 5.1 Parcels and Easements
- 5.2 Building Heights
- 5.3 Tower Controls
- 5.4 Setbacks
- 5.5 Massing Directional Emphasis
- 5.6 Stepbacks
- 5.7 Streetwall Requirements
- 5.8 Massing Illustrations

This chapter delineates the Standards and Guidelines for Urban Form, including parcels and easements, protected view corridors, height limits, massing and bulk controls, streetwall requirements, setbacks and stepbacks.

As a pedestrian-priority community, India Basin is intended to be experienced at a walkable pace. This requires the calibration of Form, Proportion, Articulation, Variation, Modulation, Depth, Materiality, Texture and Color of physical elements to the speed, range and capabilities of human sensory perception. Detail has been focused on the zone of experience in the public realm – to the open space edges, rights-of-way, lower-floors of buildings and to the threshold interface between public and private.

Collectively, the Urban Form requirements focus density near transit and amenities, create places that are appropriately scaled, shield public spaces from prevailing winds to promote comfort and form a varied and visually appealing skyline. Massing and scale of development steps down gradually from Innes Avenue towards the waterfront, accentuating India Basin's topography, intuitively guiding people to the San Francisco Bay.

5.1 Parcels and Easements

Parcels and Easements

Development Parcels and Easements at India Basin are configured to connect with public rights-of-way and open spaces to create an intuitive and highly-permeable circulation network, featuring a variety of engaging routes. To achieve a diversity of uses, typologies and scales within the development, the site is subdivided into parcels that vary in size and shape.

Figure 5.01 identifies Parcels and Easements organized by project subareas: Cove (C), Hillside (H), Flats (F) and Open Space (OS). Precise configurations and dimensions will be confirmed through the Tentative Subdivision Map.

Standards

5.1.1. Parcels Parcels delineating the limits of properties are shown in Figure 5.01. The minimum and maximum development program (where required) is summarized in Figure 5.02: Parcel Table. Land Uses are described in Section 4.1: Land Uses, with locations shown in Figure 4.06: Land Use. Precise configurations and dimensions will be confirmed through the Tentative Subdivision Map.

5.1.2. Easements Public easements through private property are shown in Figure 5.01. Public easements increase the connectivity of the pedestrian network and are aligned to link though private property to rights-of-way, public open spaces and other signature places. Maintenance Access easements through Public Open Spaces are also shown in Figure 5.01. These easements are provided for maintenance of landscape, infrastructure and utilities within Public Open Spaces. Precise configurations and dimensions will be confirmed through the Tentative Subdivision Map.

5.1.3. Minimum Clear Width Easements shall maintain a minimum clear width of no less than 10'-0".

Guidelines

5.1.4. Access Easements serve as dedicated throughways and shall provide an unobstructed way at all times.

5.1.5. Encroachments With the exceptions of permitted overhangs, canopies, changes in plane and other provisions for streetwall variation (per Section 5.7), facade modulation (and pedestrian comfort) and easements shall be open to the sky. Upper level bridges across pedestrian easements are not permitted.

5.1.6. Accessibility Easements shall comply with Accessibility standards for public routes.

5.1.7. Limited Vehicular Access Although primarily intended for pedestrian access, Public Easements may be used for limited vehicular access. Vehicular use for maintenance and inspection purposes is permitted.



Figure 5.02 Parcel Table

PARCEL GROUP	PROGRAM RANGE
HILLSIDE	
H1	186,700 GSF - 485,000 GSF
H2-H4	90,900 GSF - 348,300 GSF
COVE	
C1	126,700 GSF - 223,800 GSF
C2-C3	84,700 GSF - 183,200 GSF
C4-C5	51,700 GSF - 78,300 GSF
FLATS	
F1-F2	140,500 GSF - 368,200 GSF
F3-F5	54,600 GSF - 86,600 GSF
F6, F8-F9	61,900 GSF - 138,700 GSF
F10-F22	16,400 GSF - 23,500 GSF

PARCEL GROUP	PROGRAM RANGE
OPEN SPACE	
OS1 - OS5	N/A

PARCEL GROUP: FOR THE PURPOSE OF PROGRAM ALLOCATION, PARCELS WITHIN EACH SUB-AREA (HILLSIDE, COVE AND FLATS) ARE GROUPED AS SHOWN IN FIGURE 5.02: PARCEL TABLE.

PROGRAM RANGE: THE PROGRAM RANGE ACCOUNTS FOR RETAIL, OFFICE/GENERAL COMMERCIAL AND RESIDENTIAL AS A LUMP SUM. IT DOES NOT ACCOUNT FOR PARKING, MECHANICAL, STORAGE, OR OTHER GSF.

THE PROGRAM RANGE REPRESENTS THE MINIMUM AND MAXIMUM GSF ALLOCATED FOR EACH PARCEL GROUP. EACH PARCEL GROUP SHALL CONTAIN NO LESS THAN ITS RESPECTIVE MINIMUM GSF NOR EXCEED ITS RESPECTIVE MAXIMUM GSF AT FULL BUILDOUT. A DEVELOPER MAY REQUEST A TRANSFER (RE-ALLOCATION) OF PROGRAM, PENDING APPROVAL OF THE PLANNING DEPARTMENT, PROVIDED THAT AT NO POINT THE PROJECT EXCEEDS THE TOTAL PROJECT ALLOWABLE GSF. THE TOTAL PROJECT ALLOWABLE GSF SHALL BE DEFINED AS THE SUM OF ALL PARCEL GROUP MAXIMUM GSF AS LISTED UNDER THE PARCEL RANGE COLUMN IN FIGURE 5.02: PARCEL TABLE.



Amsterdam Borneo Sporenburg

Micro-Parcels

To further accentuate the variety of building types and scales and to promote the character of individually-articulated residential units, micro-parcels are incorporated along the northern edge of the Flats. These micro-parcels provide opportunity to express diversity and design creativity. As shown in Figure 5.03, the location of micro-parcels along the shoreline completes the transition in scale from Innes Avenue down to the waterfront.

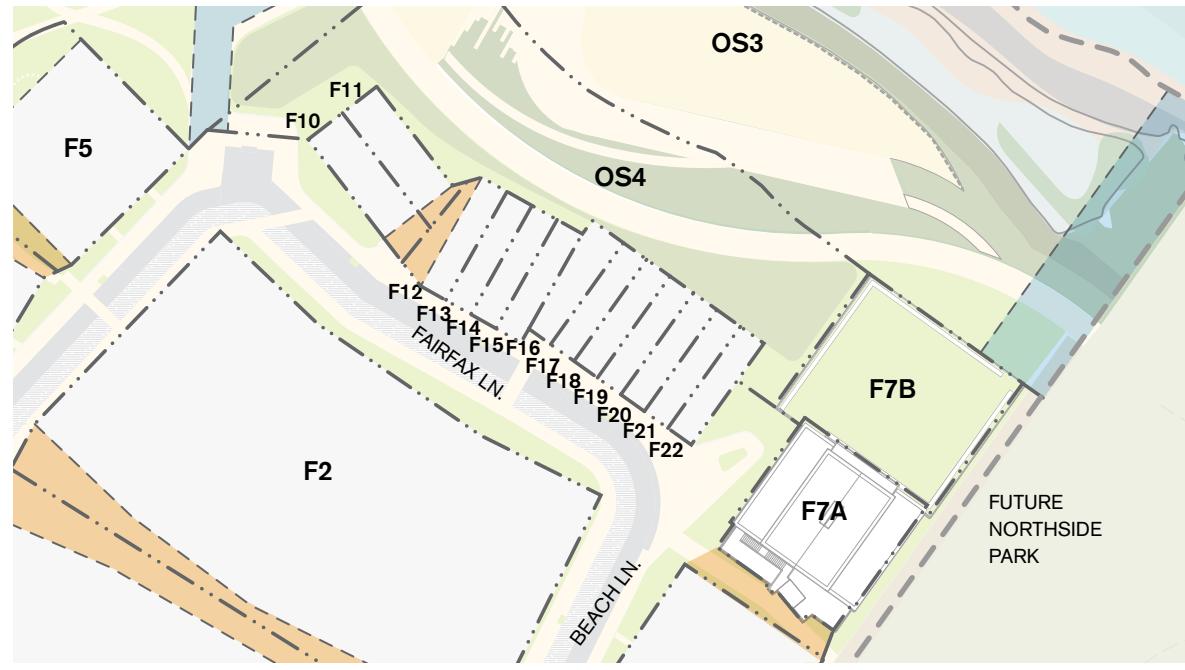


FIGURE 5.03: PARCELS AND EASEMENTS - SMALL PARCELS

- Parcel Boundary
- Public Easement
- Open Space Maintenance Access Easement
- - - Build Out Line

5.2 Building Height

Building Height

Maximum height zones at India Basin focus the tallest buildings near transit, provide a comfortable and engaging pedestrian environment and protect views for abutting and uphill neighbors. Maximum height zones shown in Figure 5.05, describe the three-dimensional maximum height envelopes without defining specific locations, numbers or shapes of buildings or parcels. Tower zones locate specific areas where buildings taller than the neighborhood height limit are allowed. More precise guidance regarding the buildable envelope for each parcel is provided in the bulk and massing controls (Massing Illustrations) in Section 5.8.

Standards

5.2.1. Maximum Height The height of structures shall not exceed the maximum height as shown in Figure 5.05.

5.2.2. Measurement The height of a building shall be defined as the upper limit of the roof structure. Building height shall be measured from an average grade line connecting the base of the building at the bottom or downhill side to the top or uphill side, as illustrated in Figure 5.04. For sloped or pitched roofs the height shall be measured at the mid-point between the eave and ridge line of the roof.

Height measurement shall follow finish-grade; building height shall be measured from new street elevations.

The parcel segment from which the measurement of height is to be taken for each parcel is shown in Figure 5.07. Within the first 100' of parcel depth from Innes Ave, height shall be measured from the Innes frontage. At the Tower Zone fronting Innes Ave, this 100' limit shall extend to align with the edge of the Tower Zone as shown in Figure 5.07. Otherwise, height for buildings fronting onto New Hudson Street shall be measured from the New Hudson frontage. For buildings facing onto Spring Lane, Beach Lane and Fairfax Lane, height shall be measured per Figure 5.07

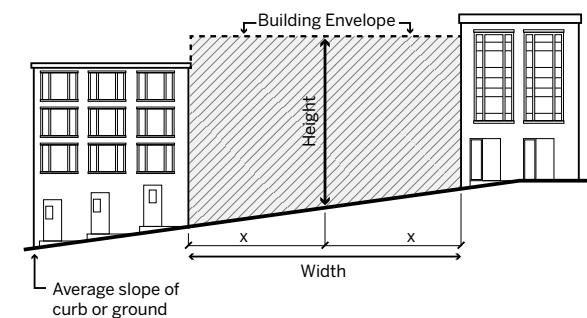
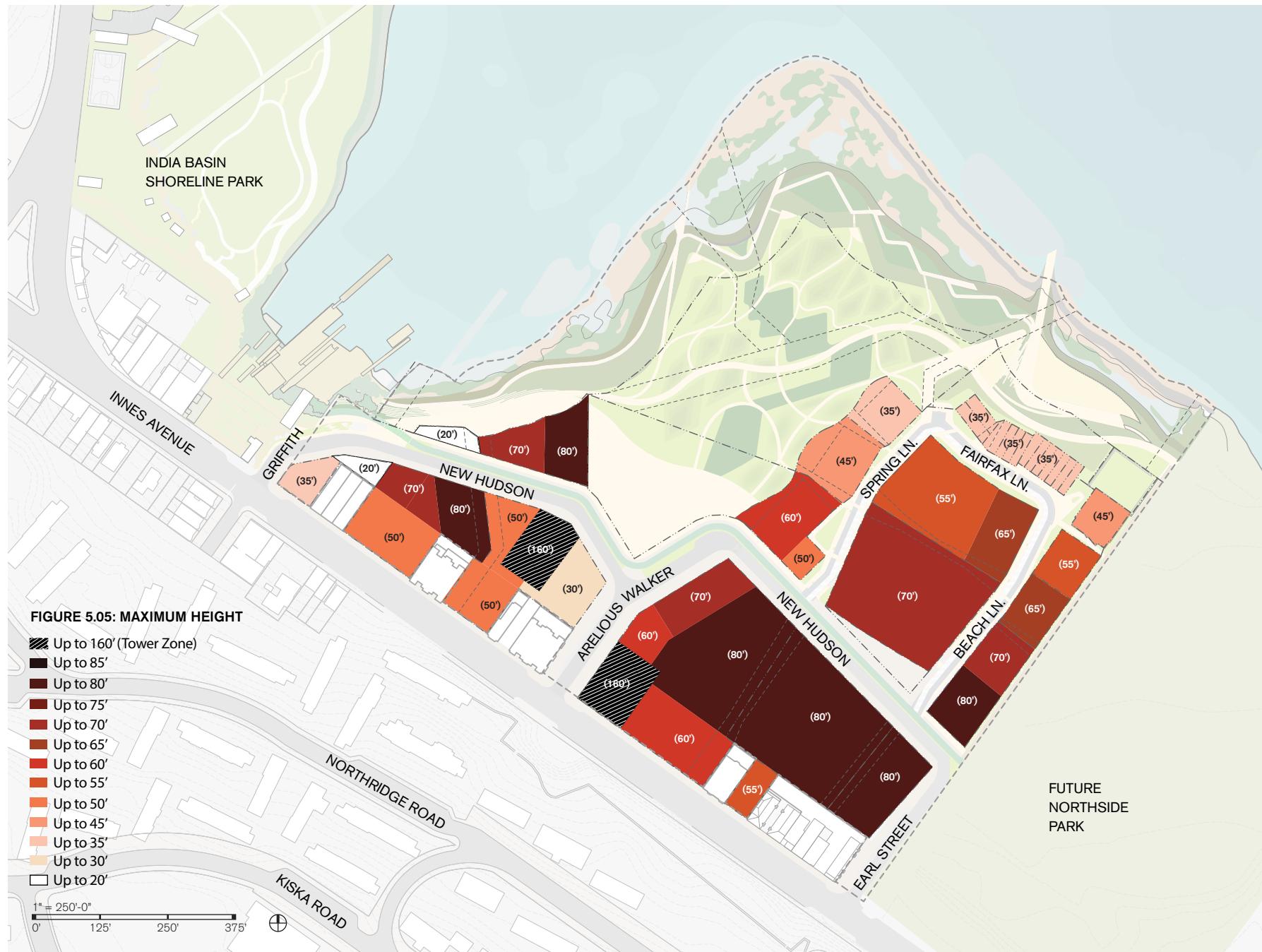


FIGURE 5.04: BUILDING HEIGHT MEASUREMENT

5.2.3. Screening of Rooftop Features Rooftop mechanical equipment and appurtenances to be used in the operation or maintenance of a building shall be arranged so as not to be visible from any point at or below the roof level of the subject building. The features so regulated shall be either enclosed by outer building walls or parapets, or grouped and screened in a suitable manner – with screening exceeding by at least 1'-0" in height the elements thereby screened – or designed in themselves so that they are integrated with respect to the design of the building.



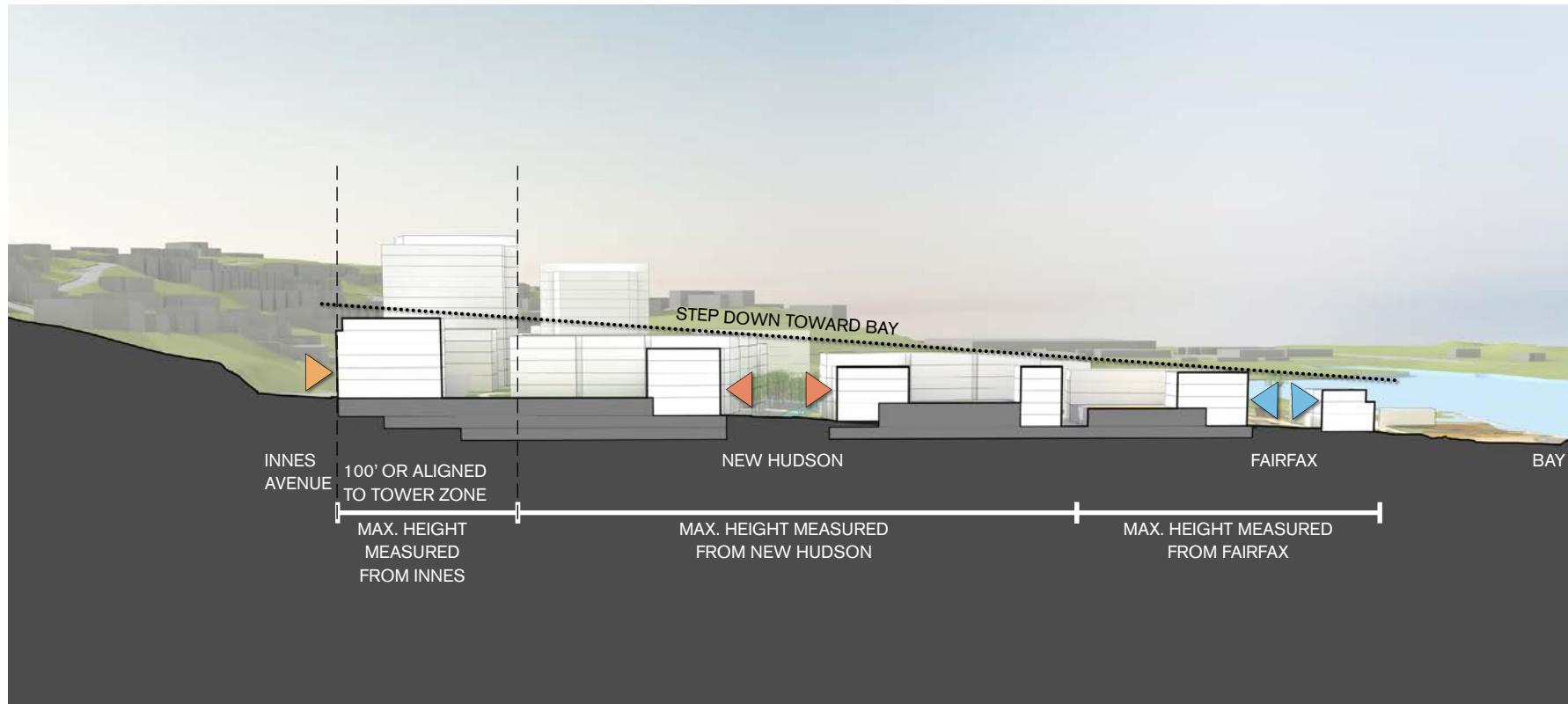


FIGURE 5.06: BUILDING HEIGHT MEASUREMENT CONCEPT - STREETS FROM WHICH THE MEASUREMENT OF HEIGHT IS TO BE TAKEN.

5.2.4. Parapets Parapets may project above the applicable maximum height limit up to 5'-0" above the roof of the last habitable floor.

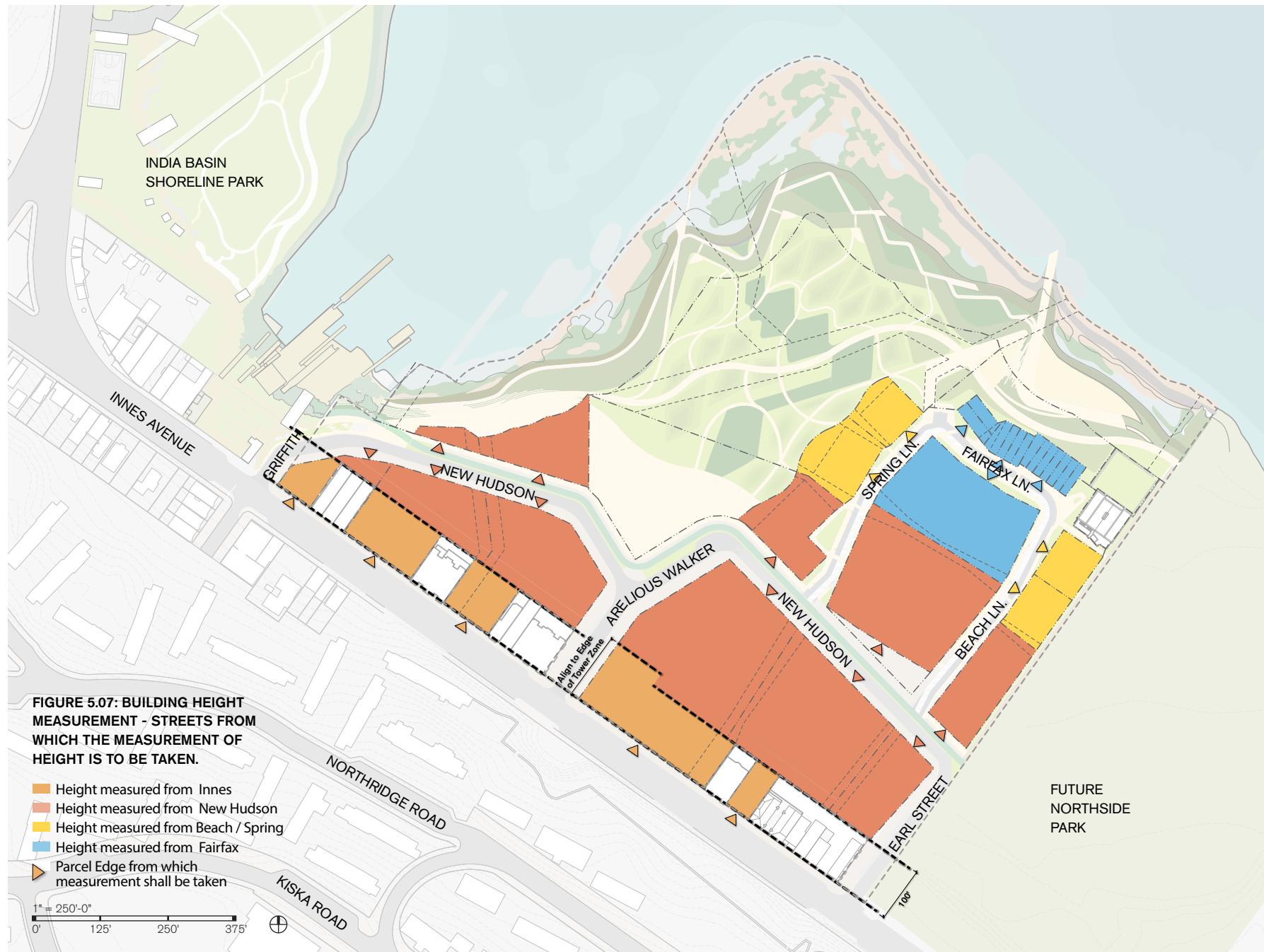
5.2.5. Allowable Projections The following additional features may project above the applicable maximum height limit, provided the sum of the areas of such features is less than or equal to 20% of the total roof area:

- Mechanical equipment and appurtenances necessary to the operation or maintenance

of the building or structure itself, including chimneys, ventilators, plumbing vent stacks, cooling towers, water tanks, and window-washing equipment, together with visual screening for any such features. Projection above the roof of the last habitable floor shall not exceed 20'-0".

- Elevator, stair and mechanical penthouses, skylights and dormer windows. Projection above the roof of the last habitable floor shall not exceed 20'-0".

- Habitable enclosed space (such as a community room) that supports the use of communal rooftop outdoor space (such as a roof terrace or deck).
- Panels or devices for the collection of solar or wind energy.
- Buildings taller than 85'-0" shall be limited to 15% of the total roof area with projections up to 10'-0", and 5% of the total roof area with projections up to 20'-0".



5.3 Tower Controls

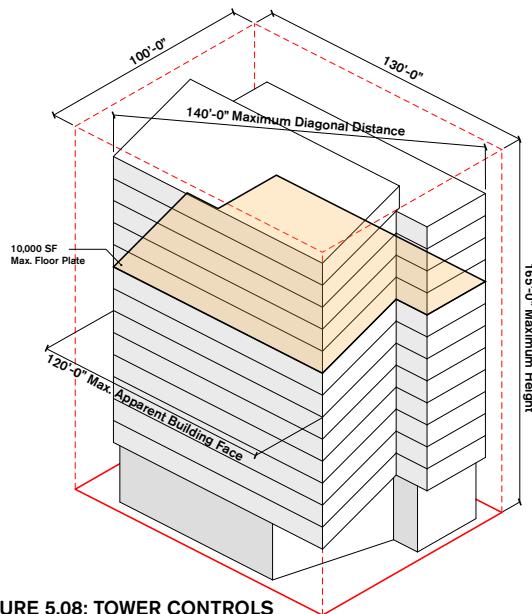


FIGURE 5.08: TOWER CONTROLS

Tower Controls

Special design consideration is appropriate for buildings that appreciably exceed the height of the predominant neighborhood fabric. When designed well, towers elevate architectural expression – celebrating human ingenuity, creativity and optimism. Towers reinforce legibility, often becoming highly-regarded landmarks synonymous with neighborhood identity. Towers have been located to mark the gateway at Arelious Walker and to anchor the Public Market. Consistent with the guiding principle to “Craft a Human-Scale Village” Towers shall comply with the following

Standards and Guidelines.

Standards

5.3.1. Tower Height Buildings with a height over 85' from grade shall be considered towers.

5.3.2. Location Tower Zones are shown in Figure 5.09. Within these Zones, buildings taller than the surrounding height limit are permitted.

5.3.3. Ground Floor Towers shall incorporate Active Ground Floor Uses consistent with the requirements in Figure 4.07.

5.3.4. Floor Plate Tower floor plates shall not exceed a maximum area of 10,000 gsf (excluding balconies) and a maximum diagonal distance 140'-0".

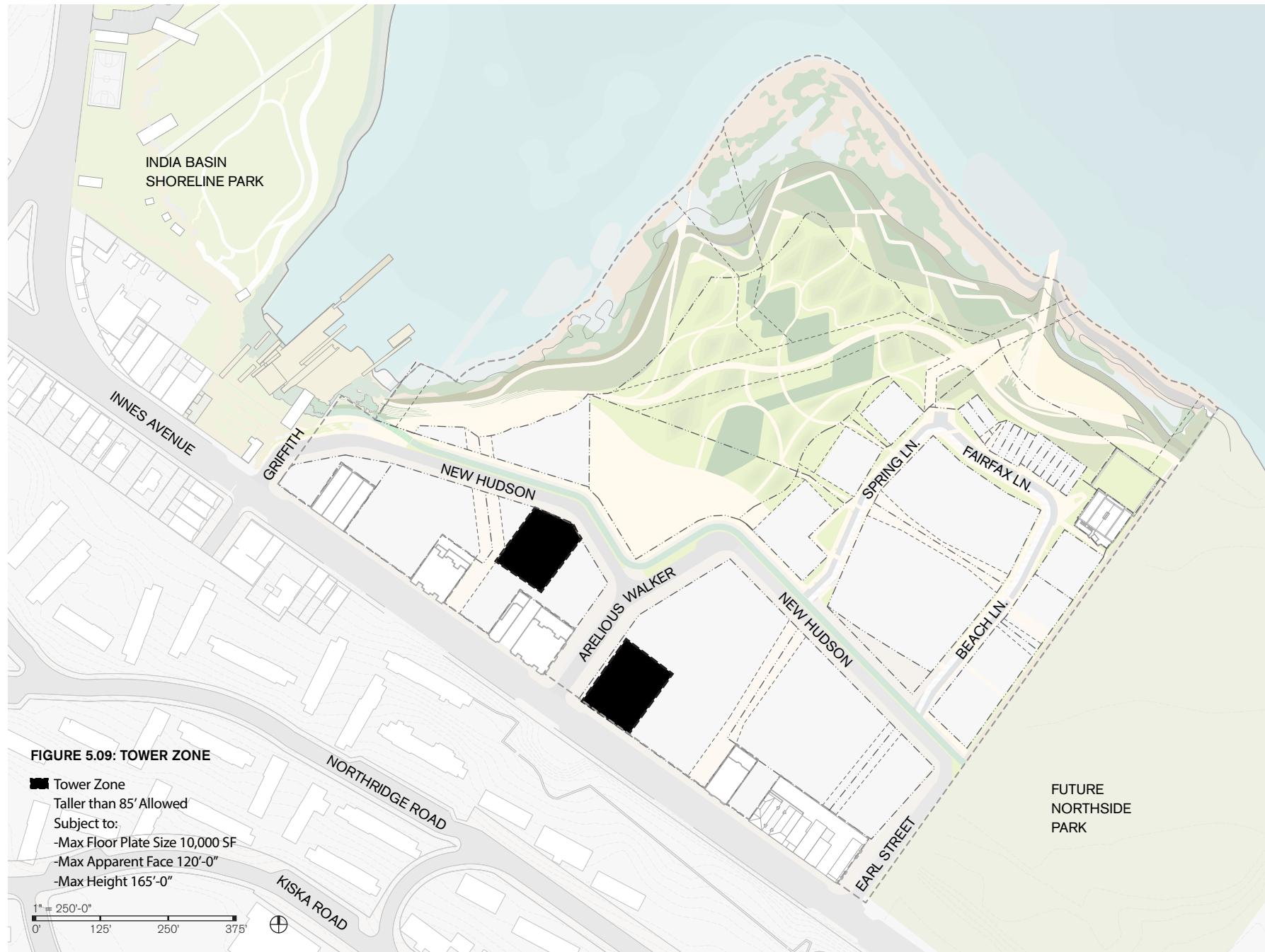
5.3.5. Maximum Apparent Face Tower facades shall not exceed a maximum apparent face of 120'-0". See Figure 5.08.

Guidelines

5.3.6. Façade First story above grade of Tower facades shall feature articulation of rhythm, modulation and proportion, as well as high-quality materials that contribute to the pedestrian experience. See Chapter 6 for Architectural Guidelines and Standards.

5.3.7. Tower Form The form of the tower shall incorporate suitable means to compliment the scale and proportion of neighboring buildings. This may include, but shall not be limited to:

- Stepped, tapered or sculpted tower forms encouraging slender buildings and emphasizing smaller volumes that reinforce the distinctive identity of India Basin.
- Vertical and horizontal articulation of lower tower floors through façade modulation, materiality, depth and/or color.
- Podium generally aligned to adjacent building heights with tower setback from property line.
- Canopy or other overhang to mitigate wind.



5.4 Setbacks

“Buildings that provide an active and transparent interface between their interior uses and the street support well-being and safety through natural surveillance. Intentionally-designed ground floors with residential stoops, setbacks, retail, lobby entrances and upper levels with balconies create an engaging street level experience.”

—San Francisco Urban Design Guidelines, August 2016 Draft

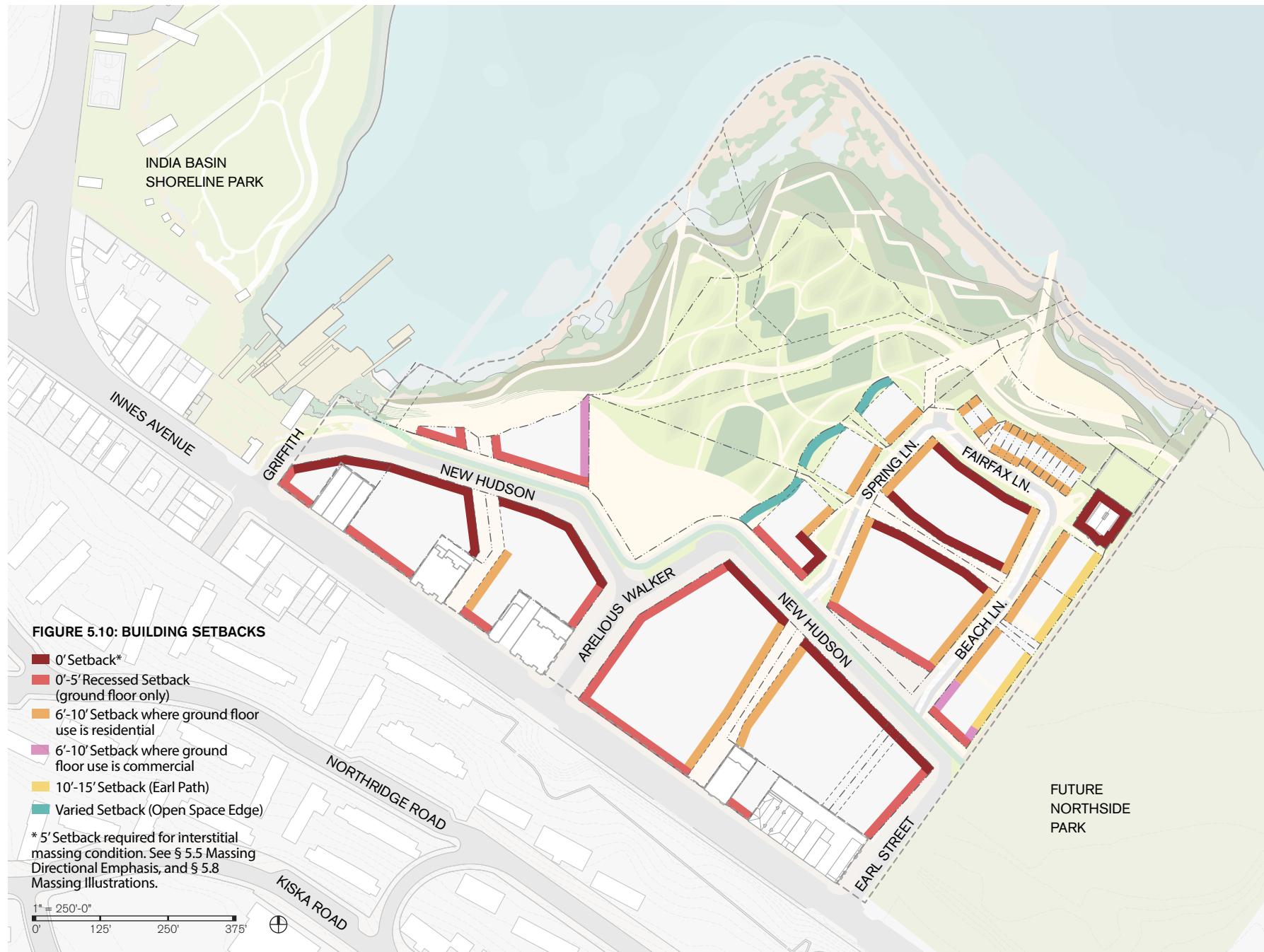
Setbacks

Setbacks provide a transition zone between the public and private realms and offer comfortable occupiable space that encourages the simple act of dwelling “in public.” Thoughtfully-designed setbacks provide a physical infrastructure for the social functioning of the community. They are the space in which ground floors engage the street with pedestrian-oriented and welcoming frontages that enhance the vitality of the public realm. Non-residential setbacks are located along high-activity routes to provide ample space for terraces, retail stands, outdoor seating and dining areas that activate the private edge of the public realm. Residential setbacks include stairs, stoops, private gardens, patios and planted buffers that support comfort and foster social interaction among neighbors.

Standards

5.4.1. Setbacks Development shall comply with the Setbacks illustrated in Figure 5.10.

5.4.2. Measurement The extent of the setback of each building or structure shall be taken as the horizontal distance, measured perpendicularly, from the property line to the predominant building face closest to such property line. Setbacks shall allow for permitted variations, projections and recesses as described in the Fig. 5.10, Figs. 5.11-5.19 (Setback Controls), and Section 5.7 (Streetwall Requirements).



Non-Residential Setbacks

Non-Residential Setbacks are located along primary routes with the heaviest foot traffic. They are designed to incorporate retail stands, outdoor seating and other elements that allow occupation and activation of the public realm.

Refer to Section 4.3 Ground Floor Use Requirements for additional guidance on Active Ground Floor treatment.

Standards

5.4.3. Controls Non-Residential Setbacks shall comply with the controls illustrated in the Non-Residential Setback Control Sections, Figures 5.11-5.14.

Guidelines

5.4.4. Palette Materials, surface treatments, planting, furnishing and other elements within Non-Residential Setbacks shall coordinate with those specified for the Public Realm in Section 2.5 Public Realm Elements.



Non-Residential Setback

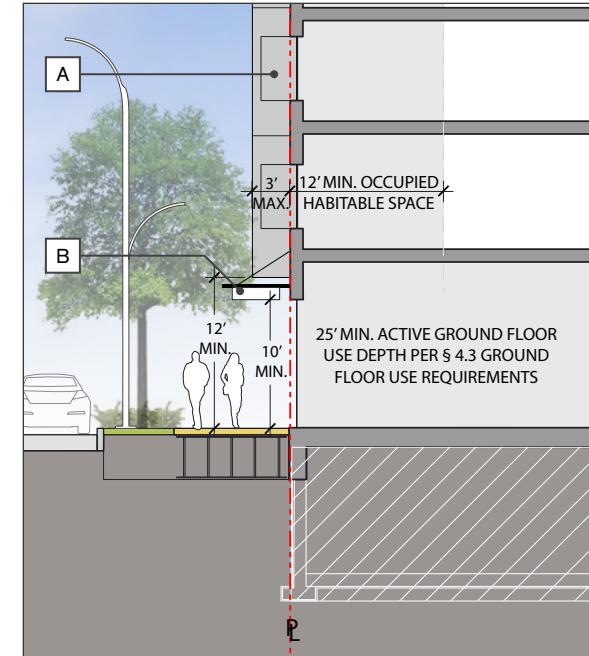


FIGURE 5.11: 0'-0" SETBACK

Non-Residential Setback Key

- A** ENCLOSED BUILDING AREA OR BALCONY, 12' MINIMUM ABOVE GRADE
- B** FAÇADE PROJECTIONS INCLUDING SIGNAGE, CANOPY, AWNING, SHADING DEVICE, LIGHTING, 10' MINIMUM ABOVE GRADE
- P** PROPERTY LINE
- S** SETBACK LINE

0'-0" Setback

The 0'-0" setback provides the strongest definition of streetwall, with direct adjacency of public and private realms. This condition is used to promote a vibrant urban character with active ground floor uses providing neighborhood-serving amenities. This setback condition is also used to establish the primary massing directional emphasis, as described in Section 5.5.

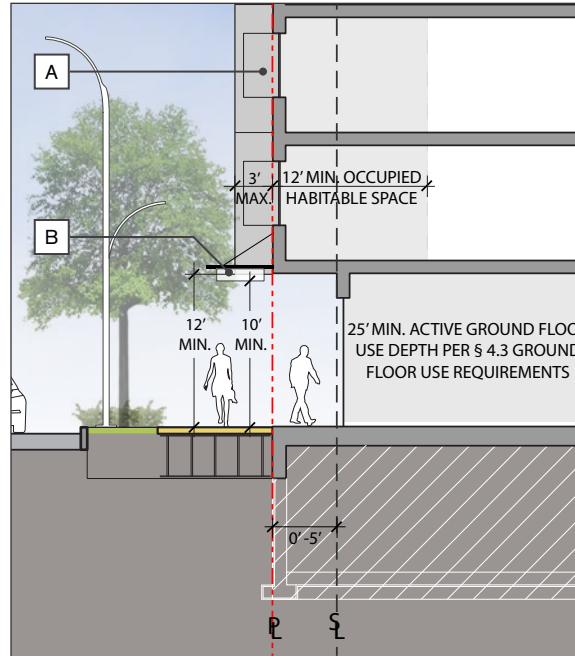


FIGURE 5.12: 0'-5' SETBACK - RECESSED GROUND FLOOR

0'-5' Setback - Recessed Ground Floor

The 0'-5' setback provides a strong definition of streetwall, while allowing for weather-protected entries and terraces, spill-out spaces and outdoor seating to promote interaction between the public and private realms. This condition is used to promote a vibrant urban character with active ground floor uses providing neighborhood-serving amenities and food and beverage facilities.

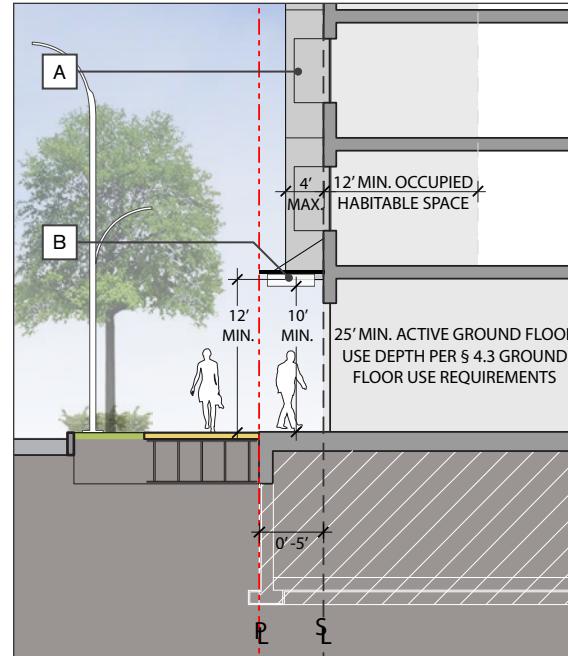


FIGURE 5.13: 5' SETBACK - FULL HEIGHT

5' Setback - Full Height

The 5'-0" setback is used to establish the transverse massing directional emphasis, as described in Section 5.5. This condition extends the street and allows an extra buffer space that acts as an extension of the public realm.

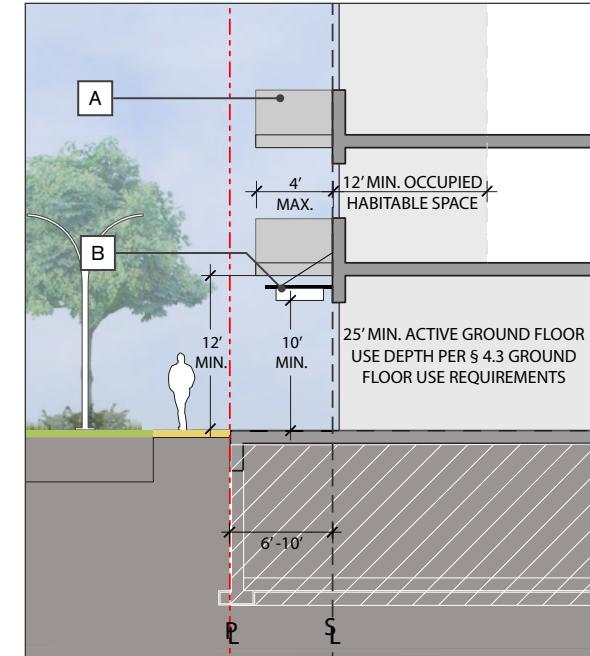


FIGURE 5.14: 6'-10' SETBACK - COMMERCIAL GROUND FLOOR

6'-10' Setback - Commercial Ground Floor

The 6'-10' setback is a special condition, where non-residential use faces onto a public plaza or other open space. It allows for a generous zone of privately-owned space to feel like part of the public realm. This setback encourages weather-protected entries and terraces, spill-out spaces and outdoor seating to promote interaction between the public and private realms.

Residential Setbacks

Residential setbacks include stairs, stoops, private gardens, patios and planted buffers that provide supplementary usable private open space for residents in a way that facilitates social interaction among neighbors. Units built immediately up to a sidewalk edge with no transition or buffer space reduce the habitability of ground floor residential space, and consequentially diminish the pedestrian experience. Adequate transition space from a public sidewalk or open space to the ground floor of a residential unit is needed to maintain a level of privacy, promote passive surveillance and enhance the pedestrian experience.

Standards

5.4.5. Controls Residential Setbacks shall comply with the controls illustrated in the Residential Setback Control Sections, Figures 5.15-5.17.

5.4.6. Planting Depth Basement levels of buildings are permitted to project into the setback; however, projections must be a minimum of three feet below grade to allow for adequate planting depth.



Residential Setback

Guidelines

5.4.7. Applicability Residential Setbacks shall comply with these Guidelines and Standards, and shall demonstrate consistency with the City of San Francisco "Guidelines for Ground Floor Residential Design," as adopted and periodically amended by the Planning Commission. Where discrepancies exist between the two, these Guidelines and Standards shall take precedence.

5.4.8. Common and Private Areas Residential Setbacks are divided into common and private

Residential Setback Key

- [A] ENCLOSED BUILDING AREA OR BALCONY, 12' MINIMUM ABOVE GRADE
- [B] FAÇADE PROJECTIONS INCLUDING SIGNAGE, CANOPY, AWNING, SHADING DEVICE, LIGHTING, 10' MINIMUM ABOVE GRADE
- [C] STOOPS, TERRACES, STAIRS, PATIOS, YARDS, FENCES, GUARDRAILS, FREE-STANDING SIGNAGE AND LIGHTING
- [D] WHERE BELOW-GRADE BUILDING AREA (SUCH AS GARAGE OR BASEMENT) ENCROACHES INTO SETBACK ZONE, MINIMUM OF 3' SOIL DEPTH FROM GRADE TO TOP OF STRUCTURE
- [E] VEGETATED BUFFER OR RAISED PLANTER, MINIMUM OF 18" WIDTH FOR 50% OF REQUIRED LINEAR PARALLEL FRONTEAGE
- [P] PROPERTY LINE
- [S] SETBACK LINE

setback areas (Figures 5.15-5.17). Private setback areas are for use by adjacent residential dwelling units. Common setback areas provide a landscape buffer that shall be implemented and maintained by the building owner or owner association (OA). Stairs and stoops are excluded from the common area requirement and may extend into the common area. Materials, surface treatments, planting and other elements within the common area of Residential Setbacks shall coordinate with those specified for the Public Realm in Section 2.5 Public Realm Elements.

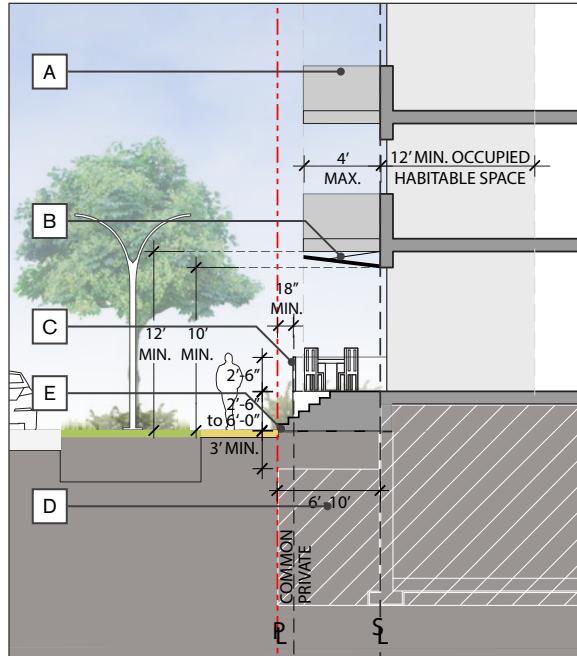


FIGURE 5.15: TYPICAL RESIDENTIAL SETBACK - 6'-10'

Typical Residential Setback - 6'-10'

The 6'-10' Typical Residential Setback provides a physical and psychological comfort buffer between sidewalk activity and residential uses at lower levels. This condition allows ample space for entry steps, stoops, porches, patios or terraces that afford supplementary usable private open space for residents in a way that also enhances community social interaction and passive surveillance.

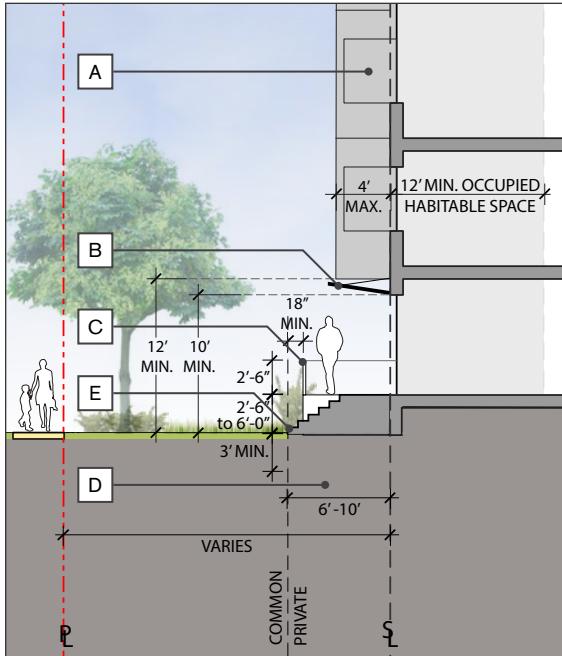


FIGURE 5.16: OPEN SPACE EDGE SETBACK - VARIES

Open Space Edge Setback - Varies

The variable Open Space Edge Setback occurs where the Flats meet the Big Green. Here, the alignment of pathways, in concert with topography and other landscape elements, provides clear separation between the public and private realms. This transition space serves as a buffer that allows direct connection of residences to nature while also maintaining a degree of privacy from the public activity of the Big Green.

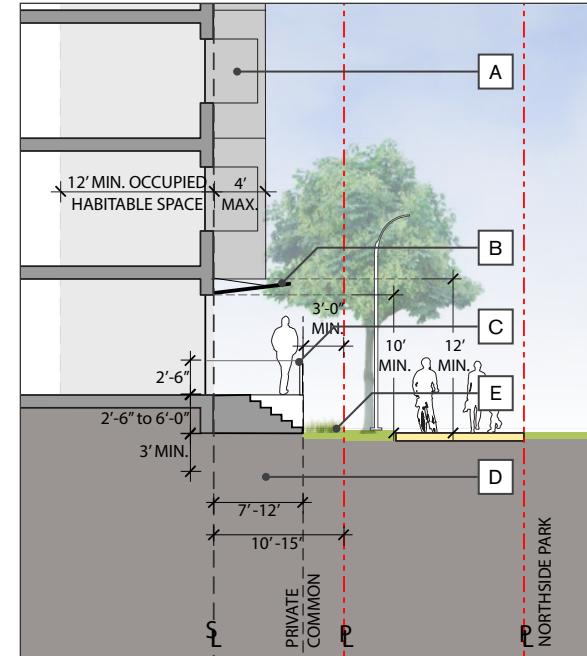


FIGURE 5.17: EARL'S PATH SETBACK - 10'-15'

Earl's Path Setback - 10'-15'

The 10'-15' Setback along Earl's Path creates a more-generous buffer space between the residential building face and the adjacent multi-use path. This setback allows the residents to utilize this zone for entry steps, stoops, porches, patios or terraces that enhance community social interaction while the landscape buffer creates a sense of privacy.