# Decoding the components of waterfronts people love

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## Abstract

Waterfronts have become integral to urban landscapes globally, representing both a city's identity and its inhabitants' well-being. Their significance extends to ecological and natural systems, making their design, management, and enjoyment pivotal for creating livable and resilient cities. Defining a world-class waterfront involves understanding the elements that contribute to sustainable, transformative urban spaces while addressing the challenges of a changing climate.

To assess the success of waterfronts, a framework of six essential qualities has been developed. These qualities, devised by Hassell Research Lead Camilla Siggaard Andersen, encompass originality, compactness, diversity, networking, dynamism, and regeneration. By integrating these qualities, vibrant and environmentally responsible urban destinations are crafted, aligning with global best practices in urban design. The interplay of these qualities creates captivating spaces that enrich people's lives.

Hassell has actively engaged in revitalizing waterfront areas worldwide. Regardless of scale, the common threads of resilience and connectivity underscore the success of these projects. Notable examples include the West Bund in Shanghai, Colma Creek in San Francisco, and Longgang River in Shenzhen. Each project's unique blend of the essential qualities contributes to their accomplishments, illustrating the synergy required to ensure thriving waterfronts.

## Keywords

Waterfronts, Urban Resilience, Livable Cities

Today, across the world, waterfronts are as fundamental to cities as water is to life. How we design, manage and enjoy these is central to the design of liveable and resilient cities.

Waterfronts are public assets – central to a city's identity and to the amenity of its people. They're also crucial to urban ecology and natural systems.

But what makes a waterfront world class? What common elements in planning, design and execution create sustainable, city-shaping waterfronts? And how can designers mitigate the dangers of a changing climate for the world's waterfront communities? What kind of waterfronts appeal to them most and why? To answer these fundamental yet complex questions, there are some matrix we can use to measure the place and success.

Figure 1. Resilient South City, San Francisco

## Six qualities of great urban places[1]

We all love different parts of the city, and the best cities have something for everyone to love. Sounds simple but not exactly. Cities are complex, living organisms, shaped and reshaped on a daily basis by their users and their needs. By putting spaces, buildings, and activities together, we create places that capture our hearts and minds and become – in every sense of the phrase – integral to our lives.

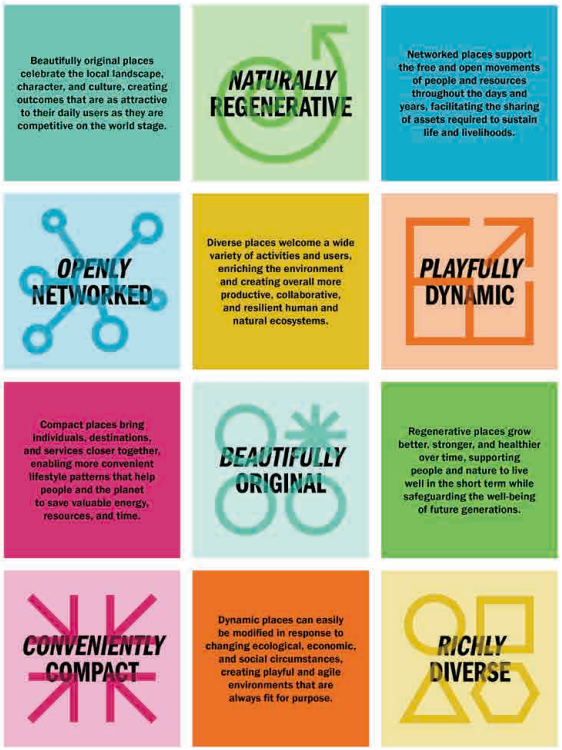


Figure 2. Six qualities of great urban places

[1] Andersen, C. (2022) Six qualities of great urban places: Decoding the components of places that deliver for people and planet

Six qualities of great urban places is a framework developed by Hassell Research Lead Camilla Siggaard Andersen, revolving around six essential qualities to unpack the complexity of great places. Drawing on global best practice in urban design, the framework contributes to designing ecologically sustainable, economically vibrant, and socially responsible destinations in cities and neighbourhoods – places people love and the qualities are: **Beautifully original, Conveniently compact, Richly diverse, Openly networked, Playfully dynamic** and **Naturally regenerative**. Many pieces make a whole – these qualities have to come together to make a great place.

Hassell has been part of major initiatives to revive and strengthen waterfront areas in cities around the world. Across all waterfront projects – whatever their scale – resilience and connectivity are success factors that come up time and again. Some notable waterfront projects in-

Figure 3. **Beautifully original** places celebrate the local landscape, character, and culture, creating places attractive to daily users.

clude the West Bund along the Huangpu River in Shanghai, Colma Creek in San Francisco and Longgang River in Shenzhen have the essential qualities in common and the synergy of these qualities works differently for each individual project to ensure the success of waterfronts.

## An evolving waterfront – West Bund Waterfront[2]

Since opening in 2021, the West Bund has been attracting up to 40,000 visitors in a single day, becoming a truly must-visit riverfront destination in Shanghai, and one of the most beloved public spaces in the city. And critically, it's retained much of the existing landscape and materials in its transformation.

Once a significant industrial cradle on the Huangpu River and the site of the 2010 World Expo, the under-utilised West Bund had immense potential to be transformed into a much-needed series of vibrant, flexible and nature-filled open spaces in high-density Shanghai.

The visionary West Bund Group is committed to providing enjoyable and accessible spaces for the public that promote a healthy lifestyle. In early 2021, The Group commissioned Hassell to regenerate a series of waterfront nodes spanning 11.4km along the West Bund.

Central to our design strategy was retaining as much of the existing landscape and materials as possible. Together with our client, we have worked to revive this area and create a place that will serve the community now and well into the future.

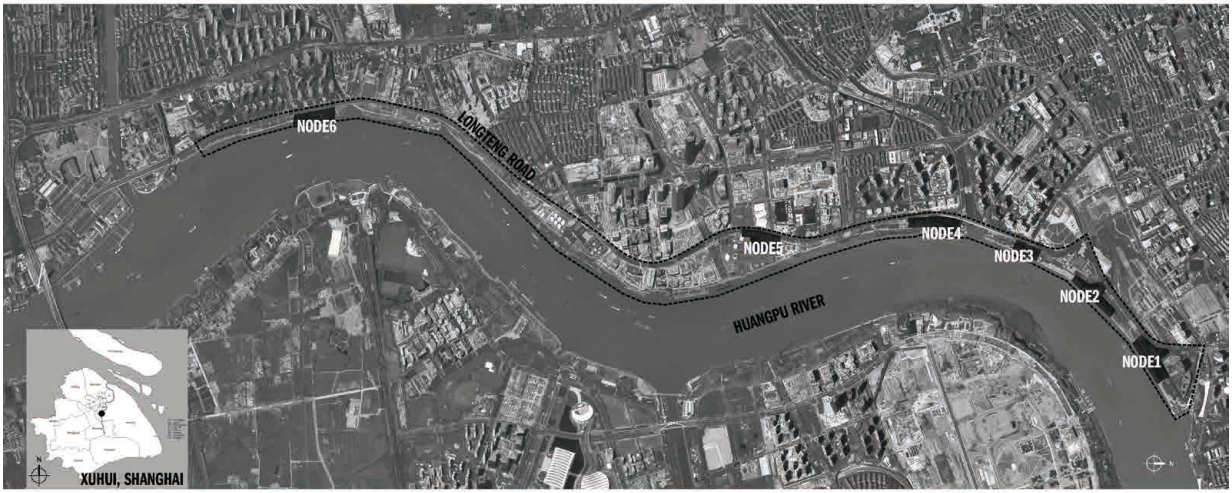


Figure 4. West Bund Waterfront Public Realm, Shanghai (Phase 1)

[2] Hassell (2023) West Bund Waterfront Public Realm. Available at: https://www.hassellstudio.com/project/west-bund-waterfront-public-realm (Accessed: 7 July 2023)

Our key design driver for this previously inaccessible waterfront area was to create spaces open to all (including pets!) both during the day and night. We imagined a place where people gather, take part in exercise and activities, engage in pop up events, or simply enjoy the connection to the river, the surrounding nature and stunning views of the city—a true place of respite and wellbeing.

The West Bund now boasts grassy areas for picnics, gatherings and quiet time, exercise spots and cafes, a skate ramp, bicycle lanes, pop up event spaces, sitting platforms and in a true connection to place, a long table for activities such as drawing, created by our team and inspired by the way the Huangpu River curves and flows.

The landscape is designed to complement the four types of functions and activations that are dotted along the riverfront: cultural venues, retail, food and beverage outlets, independent buildings and temporary facilities. Importantly, no buildings along the West Bund are single-use and the spaces around them are accessible to everyone.

At the core of our design strategy was preserving and celebrating the existing landscape and materials. There were already many fully-grown trees along the 11.4km riverfront which we retained, along with several existing buildings. In addition to the environmental benefits, this retention is important for people who have many cherished memories of the area.

Retention also plays a key role in addressing many of the site's challenges, such as the im-

Figure 5. **Richly diverse** places welcome a wide variety of activities and users

Figure 6. **Beautifully original** places increase their competitiveness simply by embracing their inherent originality.

Figure 7. **Playfully dynamic** places can easily be modified in response to changing ecological, economic, and social circumstances, creating playful and agile environments.

Figure 8. Design Principals – **Conveniently compact** places bring individuals, destinations, and services closer together, enabling more convenient lifestyle patterns.

pact of typhoons and floods. In addition to the trees, we preserved as many existing plants as possible, with their deep and stable roots that can resist natural disasters. We also designed a detailed plan for selecting a vast array of plant species that will be positioned near flood control walls and on over-river platforms, creating a more resilient environment that can cope with extreme weather. Such a beautifully diverse landscape changes with the seasons allowing urban dwellers to connect to shifts in nature while providing an important habitat for birds and animals to rest and nest. And by applying

Figure 9. **Openly networked** places support the free and open movement of people and resources.

Figure 10. Reuse of the existing concreate panels

sponge city principles of preserving, keeping and purifying water at its origin, the plants have access to water and flooding is managed.

A large portion of existing concrete panels and paving were reused and in keeping the hard-edge riverfront structure intact, we incorporated it into our design, using trees and plants to soften the edge.

Since the various nodes of the West Bund started opening, there are many anecdotes about how much Shanghai visitors and residents are loving the new landscape. Because the spaces are so enjoyable, people opt to take the longer route to cycle or walk along the riverfront, rather than shortcuts that would get them to their destination faster. The transformative power of this newly regenerated landscape is drawing people together as they form communities and connections.

## Colma Creek, South San Francisco[3]

'Colma Creek Connector' looks to adapt an urban waterway in South San Francisco to manage flooding and restore ecology and community access, using creative storytelling to engage the creek's future custodians. It brings the community and experts together to imagine – and create – a brighter future for an urban waterway in South San Francisco.

Community was brought into this new vision for Colma Creek, forming strong partnerships with local groups. Together we hosted events and broadened the audience for our study, even cre-

Figure 11. **Naturally regenerative** places grow better, stronger, and healthier over time.

Figure 12. **Naturally regenerative** places support people and nature to live well in the short term while safeguarding the wellbeing of future generations.

[3] Hassell (2022) Colma Creek, South San Francisco. Available at: https://www.hassellstudio.com/project/colma-creek-adaptation-planning (Accessed: 13 May 2022)

ating a children's storybook to distil complex ideas into a compelling narrative for families.

The adaptation study continues our work for Resilient by Design, a collaborative challenge to address the impacts of rising sea levels in the Bay Area. The aims are to manage flooding, restore ecology and access to the water, and build environmental stewardship.

Running from San Bruno Mountain to the bay, much of Colma Creek's channel is concrete, bordered by flood control walls. With limited public access, it's little more than a barrier to the surrounding community, while sea-level rise projections tell us it will flood more often unless we start mitigation work.

But the corridor has enormous potential to connect people with the creek and the bay. Both a priority conservation area and a key link to the Bay Trail, the creek could be restored to bring back wildlife and create healthy, public open spaces for people to enjoy.

## Community engagement

We engaged the South San Francisco community over an 18-month period to raise awareness of flood risk and the potential to transform Colma Creek into a public and ecological asset. Continuing earlier engagement for Resilient South City to reconnect people to the water, we built a supporter base of local families through online and offline channels.

With community partners, we organised creekside events with the city's Parks & Recreation Department for their 'Streets Alive! Parks Alive' program and youth summer camps. With San Bruno Mountain Watch, we shared the project with visitors to Mission Blue Nursery, which cultivates native plants.

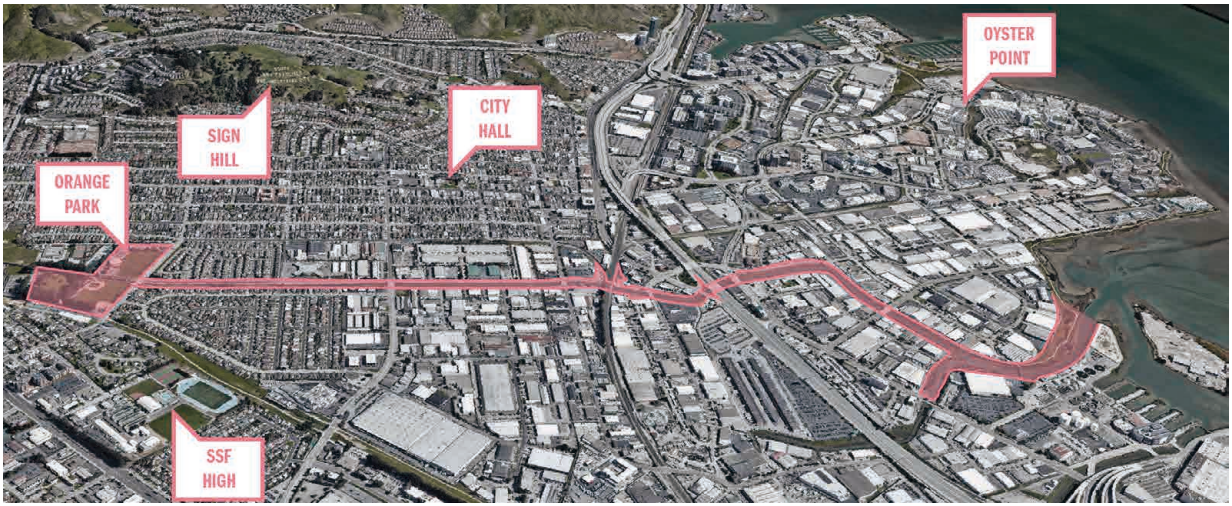


Figure 13. Colma Creek, South San Francisco – Master Plan

With the global pandemic, we cancelled other planned events to focus on engaging young people online with activities to do at home. A children's storybook, Christina Lives by a Beautiful Creek, spoke to families about the project. A video of Council Member Mark Nagales reading to his children featured on online media, and hundreds downloaded the storybook in English, Spanish, Tagalog and Mandarin.

## Design toolkit

Our design principles cover three themes based on the project objectives: water, ecology and access. The report explores a range of adaptation options, assessed for cost and impact, that

Figure 14. Colma Creek storybook in four community languages shows embracing the inherent originality helps creating **originally beautiful** places.

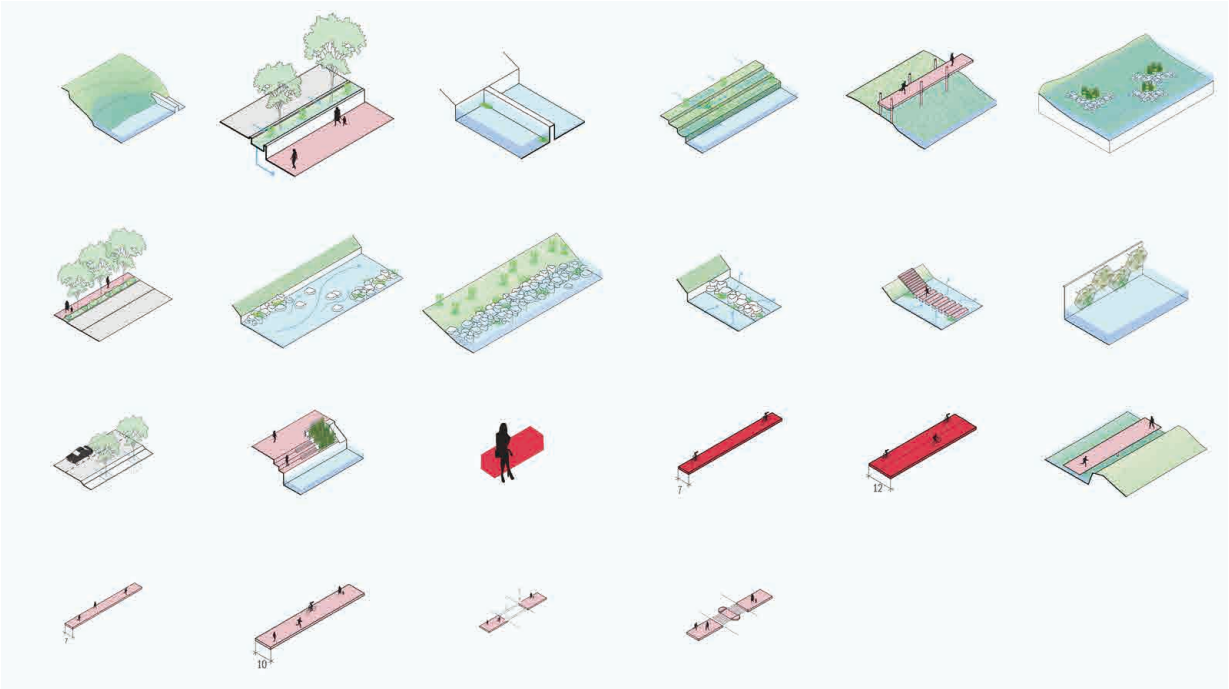

Figure 15. Design toolkit to create **conveniently compact** places that bring individuals, destinations, and services closer together, enabling more convenient lifestyle patterns that help people and the planet to save valuable energy, resources, and time.

could also apply to other waterways. A series of adaptation elements comprises a Kit of Parts that's configurable and responsive to site conditions.

The toolkit is designed for flexible application across the region, at sites with similar resilience challenges and opportunities. Historic planning of freeways and rail cut off smaller communities from the shoreline, but reviving and reconnecting main streets and creeks to the bay would create new social and ecological corridors. Our suite of solutions will be made available to communities around the Bay Area.

### Proposal highlights

- Opening the creek to Orange Park by softening the edge with new vegetation and terraced seating to bring people down to the water

- Creating floodable parkland to expand the creek capacity

- Introducing pedestrian and bike access along the creek's northern edge, with trees for shade and more green places to dwell near the water

- Creating habitat in a green corridor, adding rocky edges and outcrops to the creek, and planting native flowers for birds and butterflies

- Retro-fitting streets with more trees, swales and rain gardens to collect and treat runoff

- New brackish marshland for diverse salt and freshwater species in a dynamic tidal habitat that's one of the creek's most valuable ecological zones

- At the bay, a widened and restored marsh prepares for sea-level rise, and a shoreline boardwalk features structures for outdoor teaching and birdwatching

Recently, we have started a restoration project amid the tidal banks of Colma Creek, regenerating the home of the endangered Ridgway's Rail bird[4] - a bird on America's federal endangered species list—follows a migration pattern that stretches from the tech-savvy enclave of Silicon Valley to the bustling industrial hub of South San Francisco.

## A protected waterfront for Longgang River[5]

Known as a major tech hub, Shenzhen is also a city rich in waterways and biodiverse environments. Through initiatives like Two Rivers and One Lake, which includes the Shenzhen Longgang Blueway project, the government is working to revitalise and protect this natural diversity – beyond Shenzhen to the wider Guangdong Province.

[4] Hassell (2023) Radical restoration: regenerating the home of the endangered Ridgway's Rail bird. Available at: https://www.hassellstudio.com/news-event/radical-restoration-regenerating-the-home-of-the-endangered-ridgways-rail (Accessed: 19 April 2023)

[5] Damien H. (2020) 'Longgang River Blueway – A protected waterfront for growing 'local' Longgang', WLA, 20 October. Available at: https://worldlandscapearchitect.com/tag/longgang-river-blueway (Accessed: 20 October 2020).

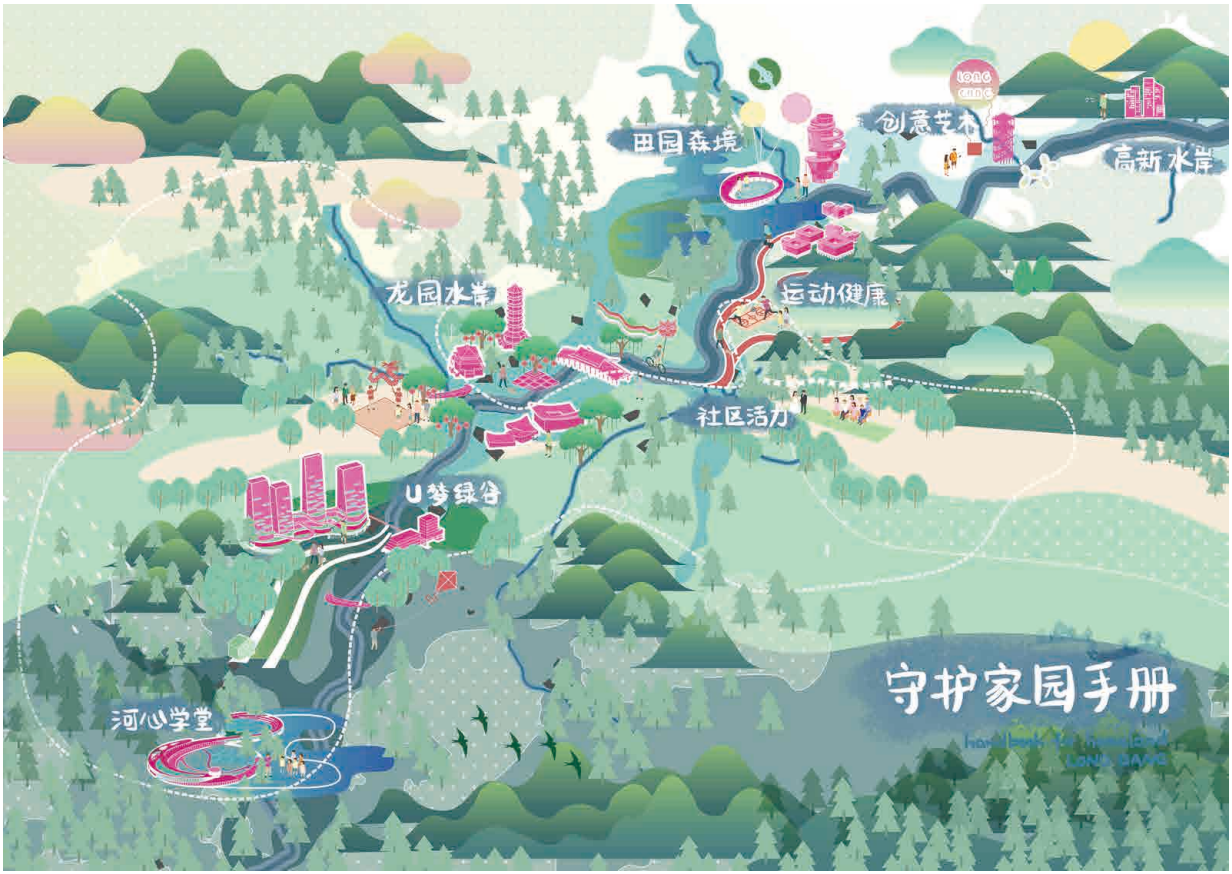


Figure 16. A **beautifully original** place returns to more locally driven outcomes – inspired by local communities and appropriate for the natural conditions.

As a major municipal civil project, Shenzhen Longgang Blueway will protect and enhance 1,000 kilometres of waterways in the southern Chinese city of Shenzhen. In 2020, a consortium comprising Hassell and UPDIS together with ecology engineering designers E2Designlab was selected as the winner of an international design competition organised by the Water Authority of Shenzhen, among a strong selection of international contenders.

The Longgang River originates from the northern slopes of Wutongshan Mountain and flows in a southwest to northeast direction, traversing the central region of Longgang. The river has experienced the consequences of development, both beneficial and detrimental, along its banks. This specific 23.6km stretch of the Long-

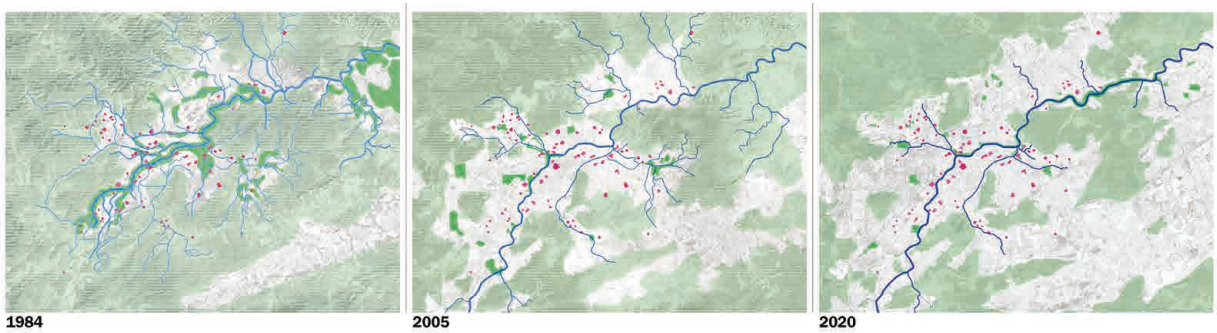


Figure 17. Changing of Longgang River

Figure 18. Handbook for Homeland Longgang guides our design for creating **naturally regenerative** places aim to restore the ecosystem holistically while also enhancing its capacity to thrive.

gang River winds its way through cutting-edge tech centers, urban areas, sites of historical significance, and natural landscapes.

The design transforms the public waterfront along the Longgang River into multifunctional green infrastructure, turning the district into an

even more liveable area of Shenzhen. The river has faced many challenges which our design scheme addresses: improving the river water quality, recycling water resources, protecting the fragile eco-environment, enabling public access to the riverfront, improving the quality and diversity of public spaces and protecting the historic features of the area such as its architecture. All of this is based on our team's deep understanding and appreciation of the local cultural features.

The project design brief presented three primary challenges that needed to be addressed: dealing with fluctuating water levels throughout different seasons, enhancing access to the waterfront, and managing diverse and occasionally conflicting development projects along the waterfront. The ultimate design proposal aims to address these challenges by implementing measures to recover and enhance sediment-accumulated flood discharge in waterways, safeguard eco-fragile areas, improve waterfront accessibility, create appealing amenities to encourage public enjoyment, and foster stronger connections between the Longgang Blueway and neighbouring urban developments.

The Longgang River Blueway concept is based on five fundamental pillars: water safety, wa-

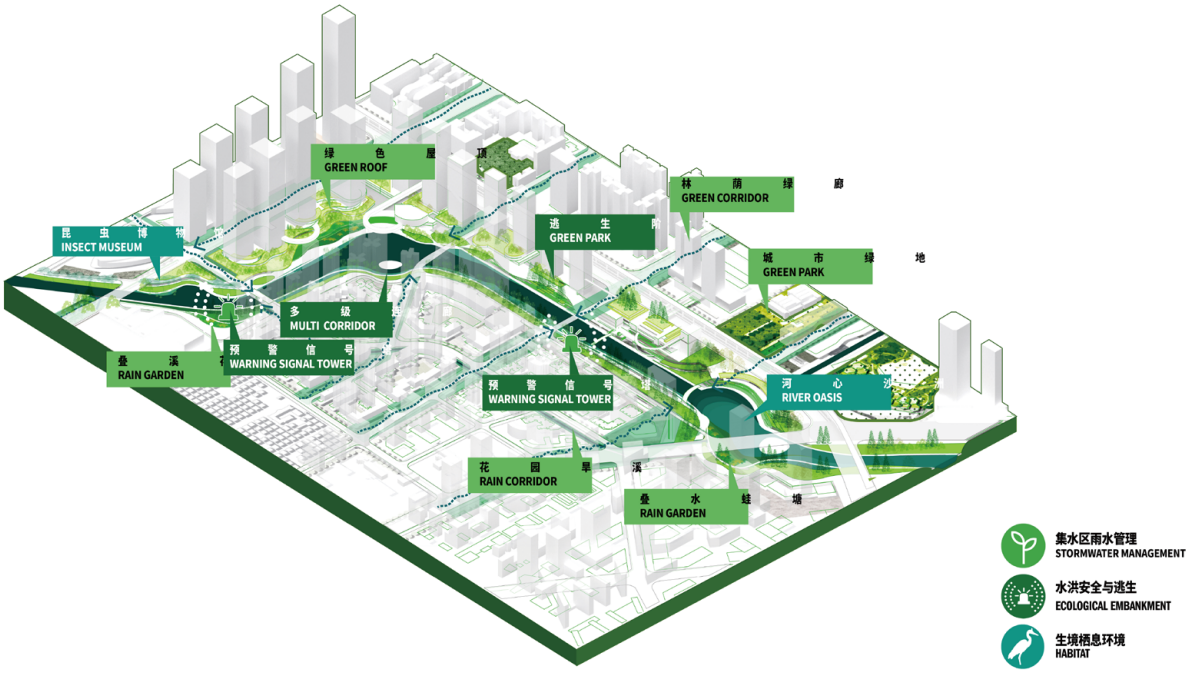


Figure 19. Reshape the city river corridor by enhancing water safety and biodiversity to create **regenerative places** that help plants and wildlife to thrive, restoring critical ecosystems, increasing biodiversity

ter environment, water ecology, water landscape, and industrial chain. Additionally, the design integrates a smart decision-making management platform known as City Brain. This innovative platform helps authorities effectively manage the interplay between nature and urban development, striving to strike the perfect balance between functionality and economic considerations.

The Longgang River serves as a crucial eco-corridor within the entire watershed, offering limited ecological space for the thriving existence of flora and fauna. The design strategy ingeniously combines the waterways and urban parklands, creating 'green infrastructure' eco-corridors that not only offer shelter to the river's plant and animal life but also play a vital role in purifying the water that is discharged into the waterways.

The Longgang River Blueway design concept incorporates a 60km pedestrian and community-oriented 'slow track' on both riverbanks, aimed at enhancing accessibility and establishing a tourism and recreation network that seamlessly connects the city with the water and neighboring urban spaces. By extending the water edge, this new pedestrian network fulfills the community's aspiration for more leisure, recreational destinations, and fitness facilities, contributing to an enhanced quality of life for residents and visitors alike.

The design not only restores the eco-system and improves the quality of the landscape and river edge public realm, it also reimagines the waterfront as a centre for city and community development, and at the same time, creates cultural and recreational destinations that respect and recognize southern Chinese Hakka cultural heritage.

A key section of the Longgang River project opened to the public recently. The area is 4.6 km long and includes two sections designed by Hassell with UPDIS – 'U-dream Valley' and 'Dragon Waterfront'. The overall landscape framework for the Longgang River is the starting point and backbone for a growing waterfront. We are excited to see people gathering and enjoying the new public spaces along the river and a program of activities and functions in this

Figure 20. Longgang River, 2020

urban context.

We instinctively know when we come upon a great place, just as we sense the missed opportunities in places that fail to deliver.

But great places are complex to unpack, difficult to fully comprehend, and even harder to assemble. Even so, within the complexity that makes urban places so remarkable, we consistently come upon six essential qualities.

Figure 21. Longgang River, 2023 **Naturally regenerative** places create better conditions for communities to thrive, with reliable access to food, water, energy, and natural materials in the long-term. Photography: Chill Shine

Figure 22. Longgang River, 2023 **Naturally regenerative** places support long-term economic opportunity and stability, based on the continued health and availability of natural resources and climate stability. Photography: Chill Shine

These may be expressed through the design of physical environments, operational processes, or everyday experiences. They may be embedded by design or they may have emerged organically over time.

By weaving the 'Six qualities of great urban places' into every dimension of a city we can help ensure that environmental, economic, and social outcomes are delivered as one.

Figure 23. Longgang River, 2023 **Naturally regenerative** places can heal past damages and add value. Photography: Chill Shine

## Reference

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