



GREEN INFRASTRUCTURE  
AND OPEN SPACE  
MASTER PLAN

*For Thimphu Thromde and  
its Peripheral Areas*



2023

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# 1.1 Programme

## 01 Baseline

The baseline analysis will present a robust and rigorous understanding of the landscape context, considering the natural systems that exist across Thimphu and the wider study area beyond the Thromde administrative boundary. This was achieved through a combination of site visits, desktop analysis and engagement with relevant stakeholders.

## 02 Design Vision

Together with the key city stakeholders, we will run and facilitate a landscape visioning workshop to co-create a vision for Thimphu's open and green spaces. The vision will build on the analysis phase to further explore, develop and structure key landscape opportunities. The workshop will employ brainstorming and vision-setting techniques that can be used to capture and codify opportunities.

## 03 Design Plan

In this task, we will articulate the landscape design vision and develop a landscape masterplan. The landscape masterplan will identify key design strategies, landscape typologies and a long list of location specific landscape design opportunities, which will be assessed using multiple criteria to undertake preliminary prioritisation. A prioritisation and phasing workshop will support in the identification of a pilot site, for which the team will develop landscape design to concept level to demonstrate application of appropriate design principles.

## 04 Delivery Plan

We will undertake a high-level assessment on the drivers for delivery and implementation. This will set the next steps for the delivery of the landscape masterplan and the list of shortlisted projects.



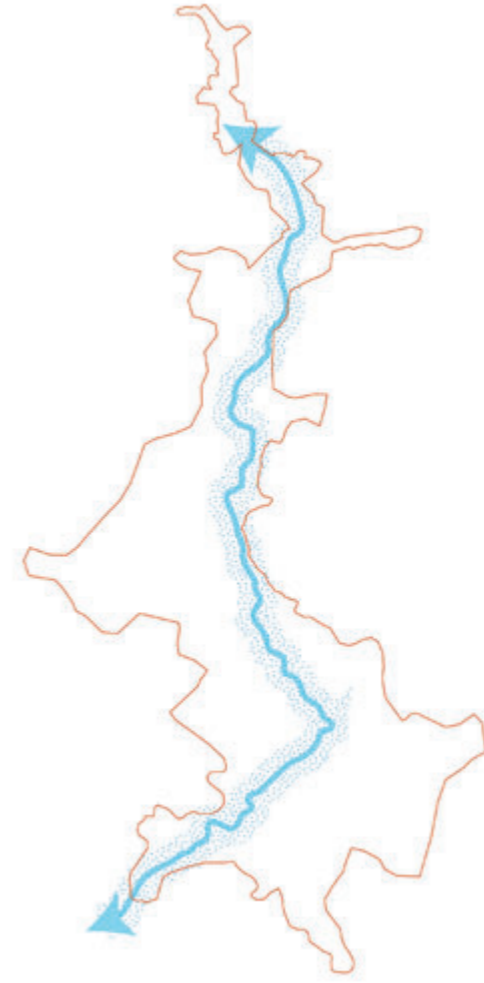
# 1.1 Key moves

The following key moves have been developed to underpin the Green Infrastructure and Open Space vision, respond to challenges highlighted in the baseline analysis, and support the identification of specific landscape, open space and public realm projects.



## 1. DEFINE A GREEN BELT

The Thimphu green belt will halt urban sprawl by restricting urban growth and protecting the unique setting of Thimphu, providing inclusive access for leisure and recreation, and improving climate resilience through mitigation of hazard risks.



## 2. ESTABLISH THE WANG CHHU CORRIDOR

The Wang Chhu Corridor is a visionary urban regeneration project that aims to establish an ecological, movement and recreational spine through the city. It will combine flood resilience with new and enhanced public open spaces and active travel routes that connect communities.



## 3. EXTEND EAST - WEST GREEN CORRIDORS

New Valley Parks will extend along major tributaries to provide east-west ecological and movement corridors, seeking to establish a shared amenity between communities and facilitate improved access between forested hillsides and the Wang Chhu.



#### 4. DELIVER A HIERARCHY OF OPEN SPACES

A hierarchy of open spaces will ensure equitable access to urban landscapes at a range of scales and catchments, providing amenity space within the city and contributing to the climate resilience of Thimphu.



#### 5. PROTECT AREAS OF NATURAL FOREST

The protection of pockets of natural forest across the city will support climate resilience through mitigation of landslide risk across high hazard zones. It will ensure the preservation of important habitats in areas of high biodiversity value and provide people with the opportunity to engage with nature.



#### 6. CONNECT THROUGH URBAN CORRIDORS

The retrofit of key north-south street corridors will embed connected green infrastructure initiatives - in the form of tree planting and SuDS - to promote walking and cycling whilst supporting water infrastructure networks and mitigating urban heat across the city.



#### 7. PROVIDE A SETTING FOR HERITAGE STRUCTURES

Protections to heritage structures and their landscape settings will strengthen cohesion, identity and unity of Thimphu's cultural heritage for the benefit of present and future generations, preserving important view corridors for wayfinding and orientation.

# 1.2 Vision

*To deliver a well-connected, inclusive and beautiful network of multifunctional green infrastructure that restores harmony between people and nature, celebrates traditional Bhutanese identity, supports sustainable economic growth and delivers resilience benefits for the City.*

## OBJECTIVES

The vision statement above was co-created through engagement with key city stakeholders across a number of workshops. This was done to ensure that the green infrastructure vision is relevant in the context of global challenges but specific to the environmental and cultural heritage of Thimphu.

The following objectives have been identified to underpin the green infrastructure approach and support the vision of the project:

**Landscape protections** to preserve existing landscapes, habitats and places of ecological and amenity value. This relates primarily to riparian zones, pockets of pristine natural forest and areas at risk from natural hazards. Proposals will be developed with the aim of:

- Protecting people from hazard and climate risks;
- Celebrating Bhutanese culture and identity;
- Supporting livelihoods, health and wellbeing;
- Providing access to nature and educational opportunities for communities;
- Preserving existing valuable habitats and biodiversity.

**The provision of new open and green spaces** for public use and for nature. Proposals will be developed with the aim of providing:

- New open and green spaces for people and wildlife;
- Job opportunities;
- Spaces for people to engage with nature;
- Places to grow food;
- Safe spaces for everyone;
- A natural environment for the future population.

**Connecting people and landscapes.** Proposals will be developed with the aim of connecting:

- People with each other;
- People and nature;
- People and heritage;
- Habitats and ecosystems.

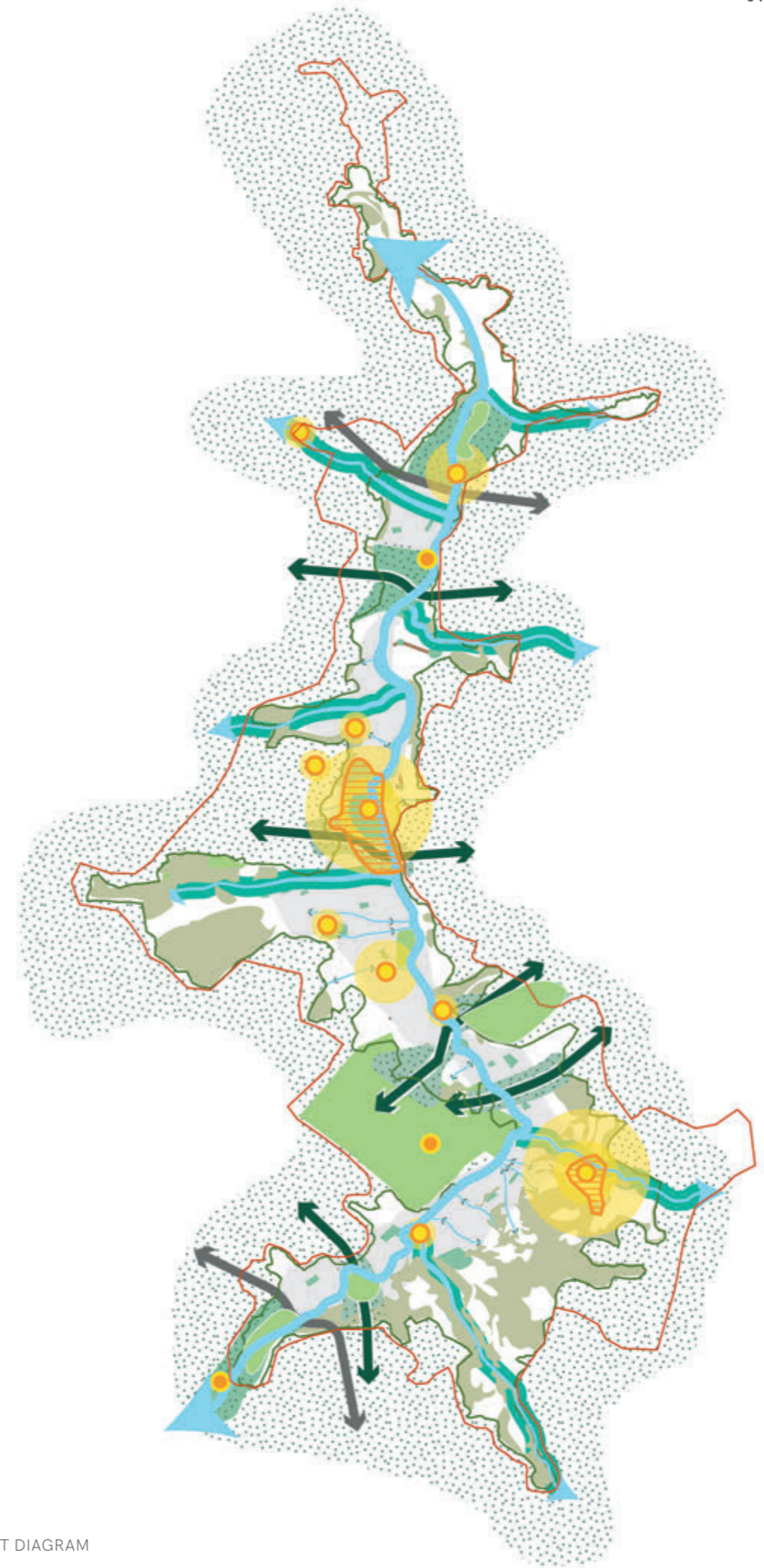


FIGURE 1 CONCEPT DIAGRAM

02

Landscape  
Design  
Framework



## 2.1 Reconnecting landscape systems for climate resilience

*“Parks and gardens have always engaged our Edenic fantasies. In a world under strain these places must also do considerable work, absorbing stormwater, filtering air pollution, and providing refuge”*

Alan G. Brake, “Landscape Architecture’s Ascendance” (2012)

Prioritising the interconnectivity between ecological, hydrological, soil, carbon, energy and waste systems at the city scale is critical to deliver multifunctional climate resilience benefits. A coherent network of green infrastructure will form a healthy and high functioning ecosystem. This will comprise of a variety of connected spaces and corridors that link to core objectives of protecting the natural environment and protecting people, providing new and enhanced public spaces, and connecting communities and nature. The green infrastructure network will aim to control urban sprawl, increase flood resilience, improve air quality, reduce urban heat and improve access to natural open space. It will support other critical infrastructures, such as stormwater drainage and transport networks, and deliver economic, social and environmental benefits to Thimphu and its communities.

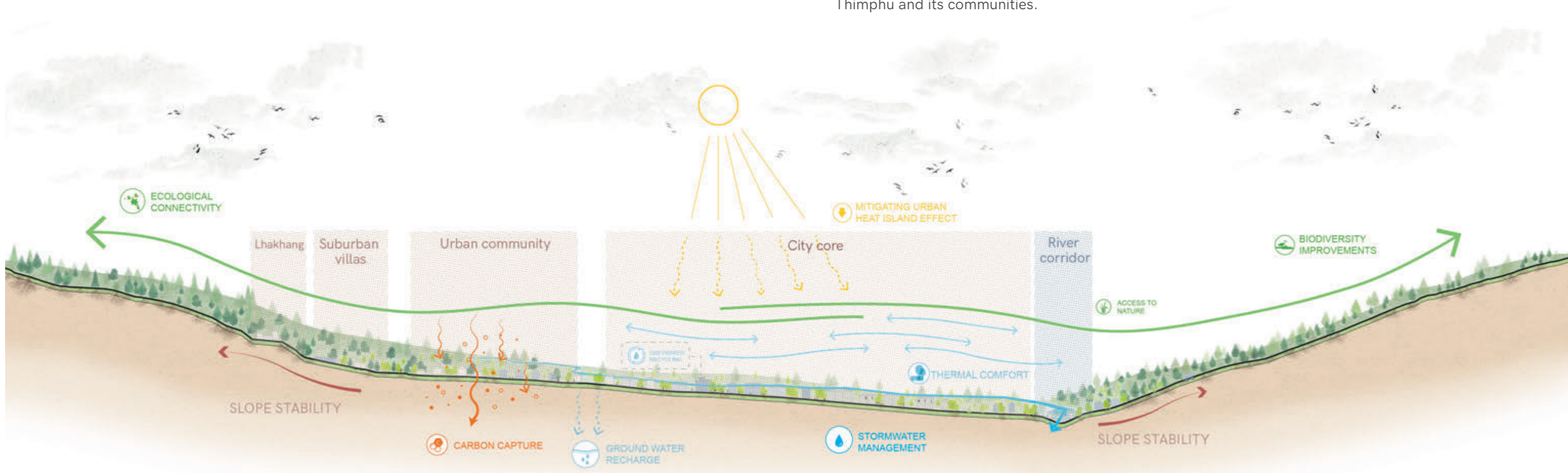


FIGURE 2 RECONNECTING LANDSCAPE SYSTEMS

## 2.2 Key components

The green infrastructure network is comprised of distinct, overlapping landscape systems. Considering Thimphu's landscapes and open spaces through this lens helps to deliver an approach specific to local context and underpin key spatial strategies that support the project's objectives of preserving habitats of ecological value, protecting people from the risk of climate hazards, connecting people and ecology to and through the city, and providing green open spaces for its communities.



### NATURAL SYSTEM

The natural system of Thimphu comprises the rivers, forests and marshland environment that make up its distinctive natural environment. It provides a host of valuable functions, supporting unique ecosystems, contributing to slope stability, filtering the air and maintaining soil health. These natural systems have been eroded and disrupted over time by unmanaged urban growth and extensive hard infrastructure, and the green infrastructure and open space plan aims to guide a reconnection between city and nature, presenting a vision for a contemporary green city befitting of its environmental context.



### CULTURAL SYSTEM

Wetland paddy fields form a unique backdrop to the Wang Chhu, framing Thimphu's urban extents to the north and south and wrapping Tashichhodzong at the heart of the city. A network of heritage structures – composed primarily of Chortens and Lhakhangs – are distributed across the valley slopes in prominent locations, structuring a network of historic trails and walking routes. The green infrastructure and open space plan aims to cherish and celebrate Thimphu's cultural heritage, looking confidently towards a contemporary future whilst being sensitive to the past.



### URBAN SYSTEM

The urban system incorporates the streets and spaces between buildings, and should seek to provide public amenity for everyday use, promote active travel, improve biodiversity, support other critical infrastructure and ensure climate resilience benefits. The delivery of green infrastructure along linear assets will achieve multiple economic, social and environmental benefits, whilst new and enhanced urban green spaces will provide inclusive amenity and recreational opportunities for all the community.

# 2.3 Green Infrastructure Framework

## STRUCTURING THE LANDSCAPE SYSTEMS

The following systems have been identified to support the objectives of the Green Infrastructure and Open Space Plan and establish an overarching framework:

1. Open Spaces
2. Green Corridors
3. Cultural and Ecological Landscapes
4. Wang Chhu Corridor

These will be explored further in Section 3 of the report.

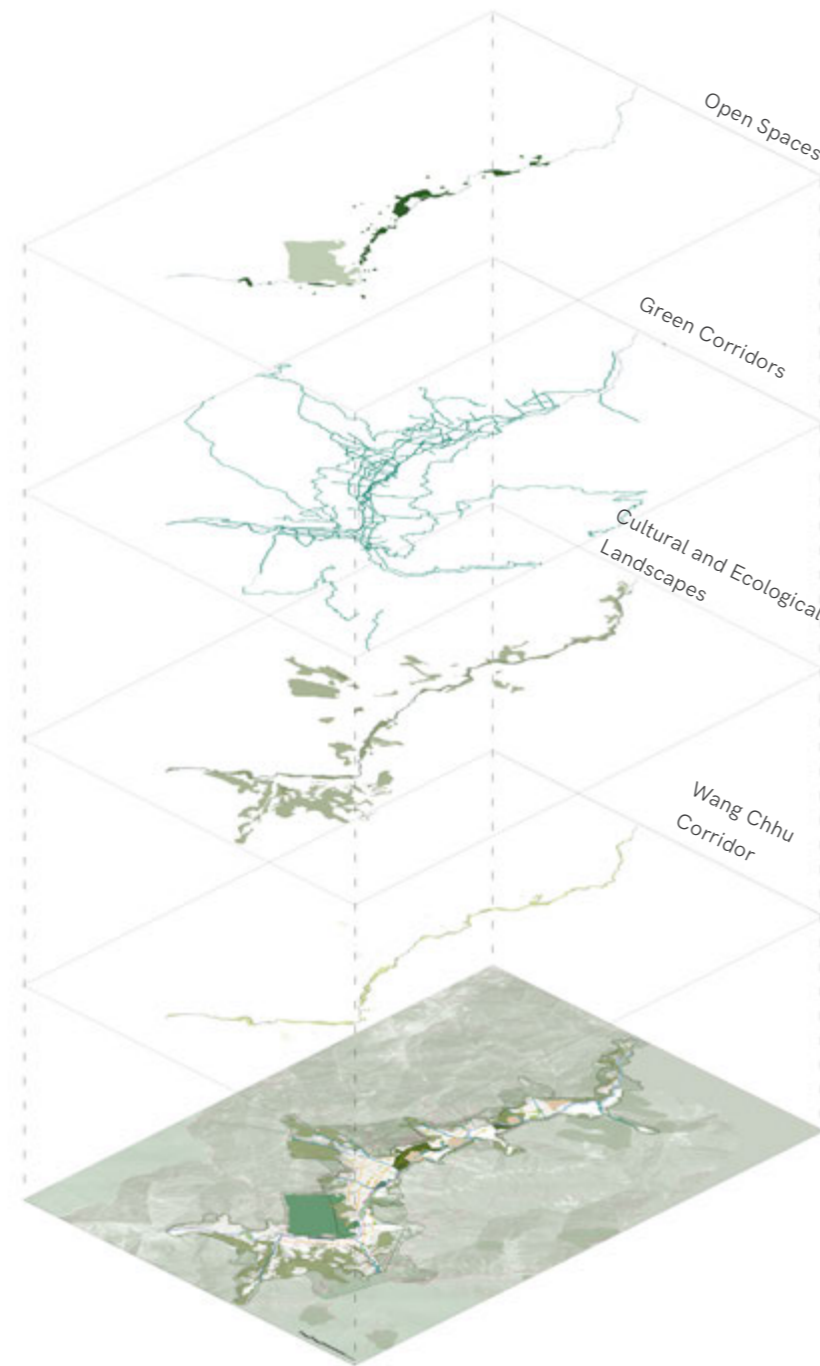


FIGURE 3 LANDSCAPE SYSTEMS

- KEY
- Thimphu Thromde boundary
  - Study area
  - Green Belt boundary
  - Open Spaces
  - Green Corridors
  - Cultural and Ecological Landscapes
  - Wang Chhu Corridor

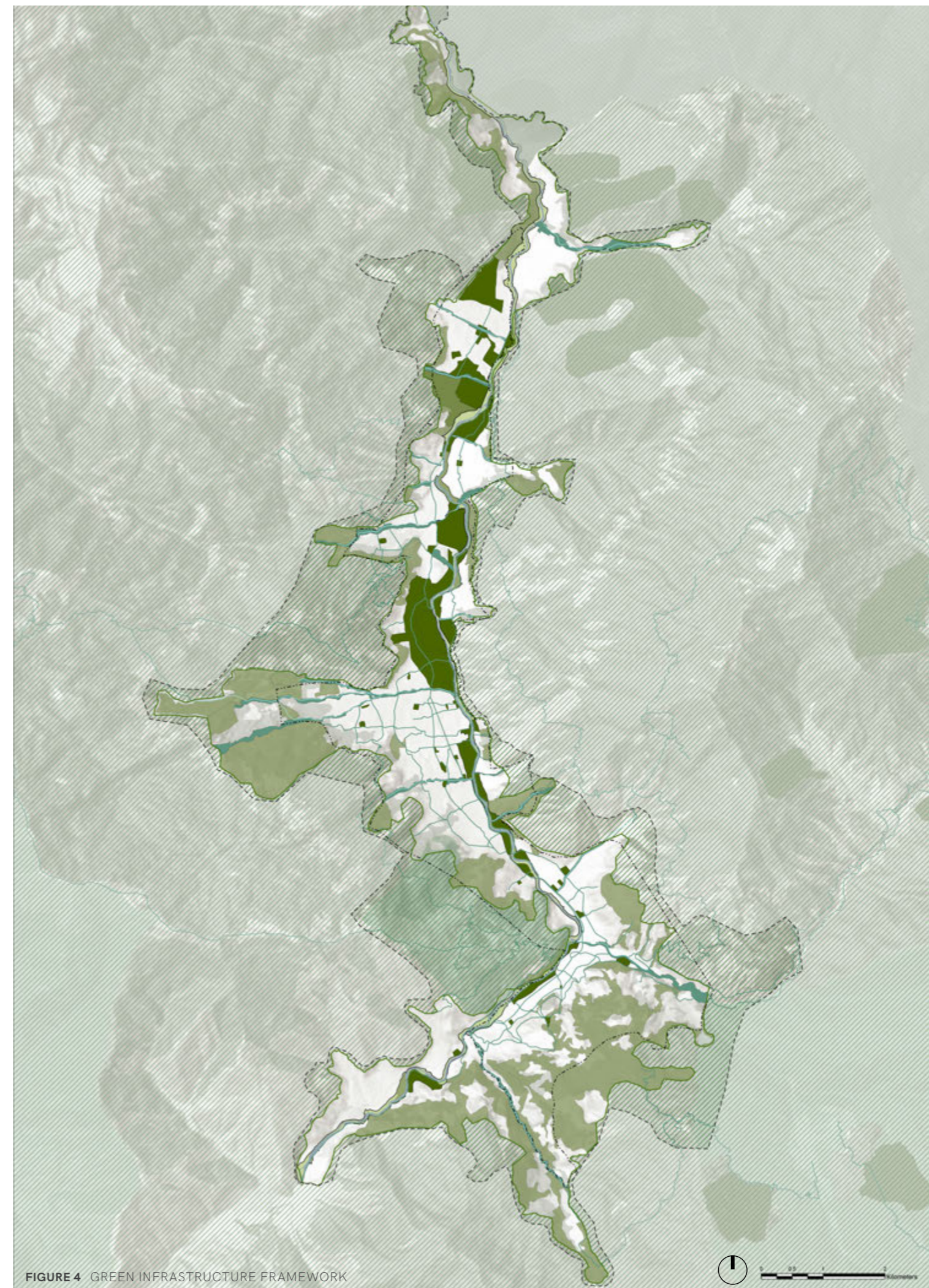


FIGURE 4 GREEN INFRASTRUCTURE FRAMEWORK

## 2.4 Connected network of open spaces

The green infrastructure network will deliver a range of benefits greater than the sum of its parts. The interconnectivity between open spaces, green corridors, riverine environments and forested hillsides will establish biodiversity corridors, contribute to climate resilience, and create an environment for people and for nature. Neighbourhoods will be framed by densely planted valley parks which connect ancient forests extending across the upper slopes with the Wang Chhu as it winds through the valley floor. Green corridors will permeate into the urban environment, with tree lined streets linking key destinations with new and enhanced neighbourhood parks that support multifunctional outdoor uses such as play, recreation and relaxation.

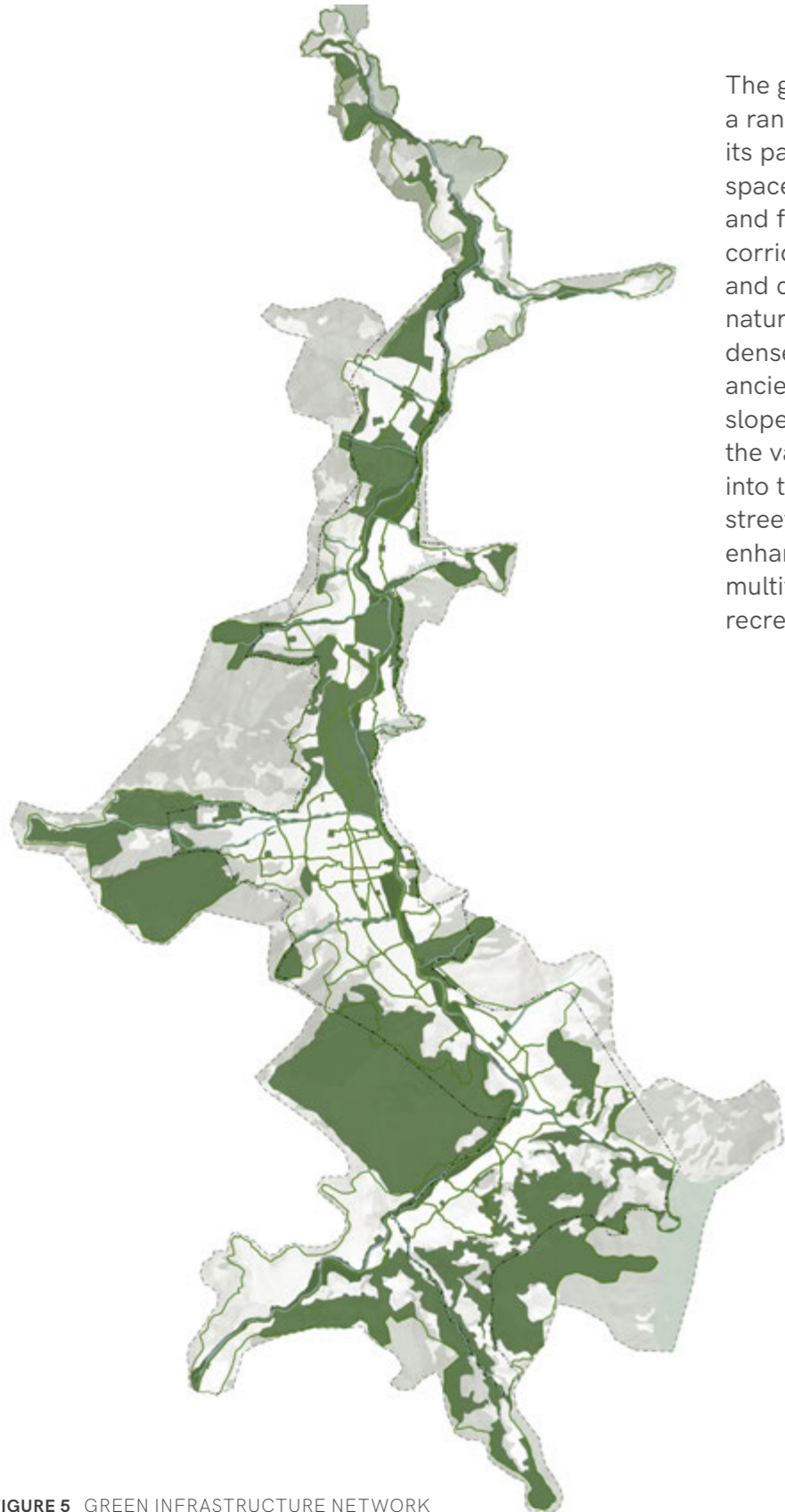


FIGURE 5 GREEN INFRASTRUCTURE NETWORK

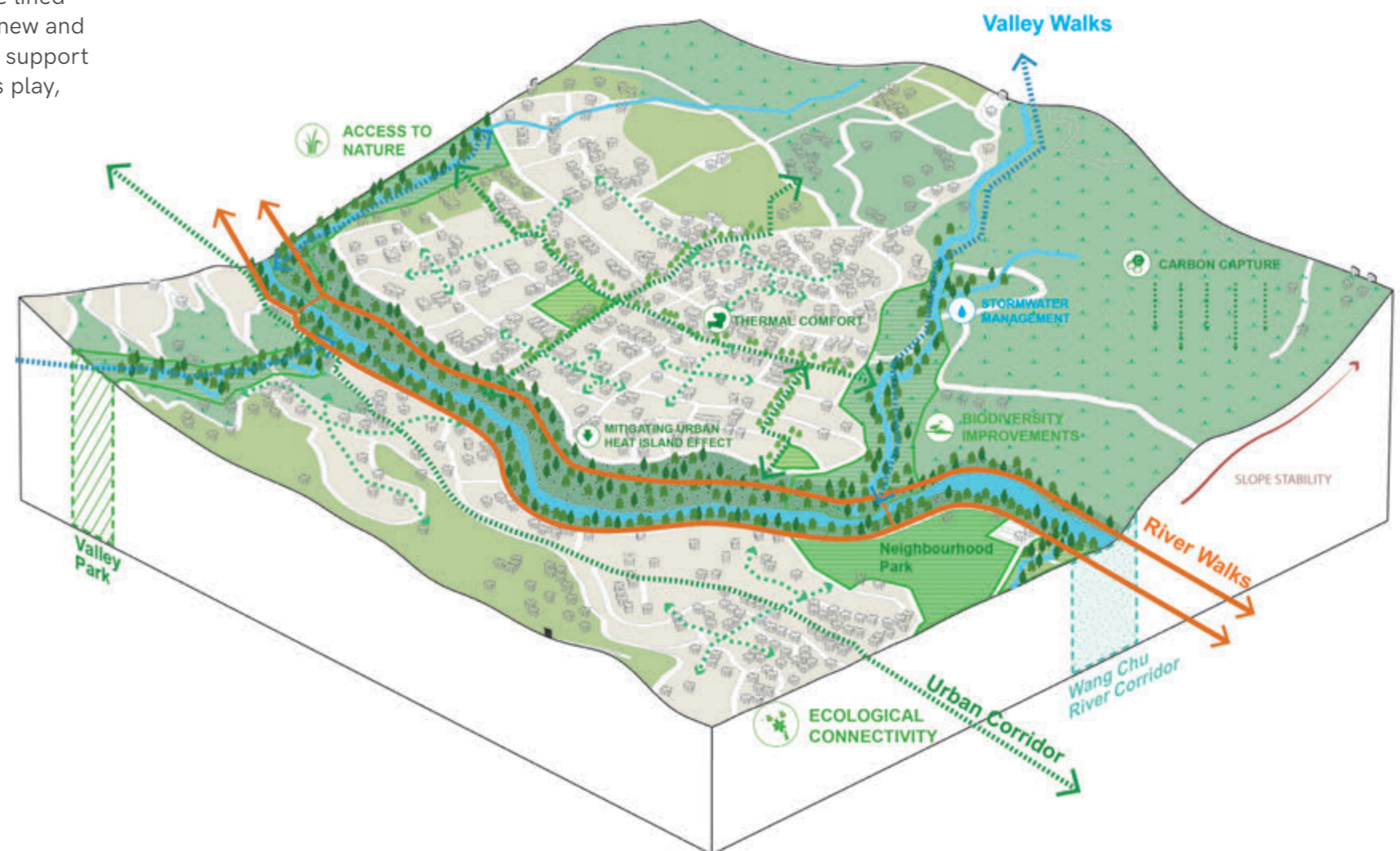
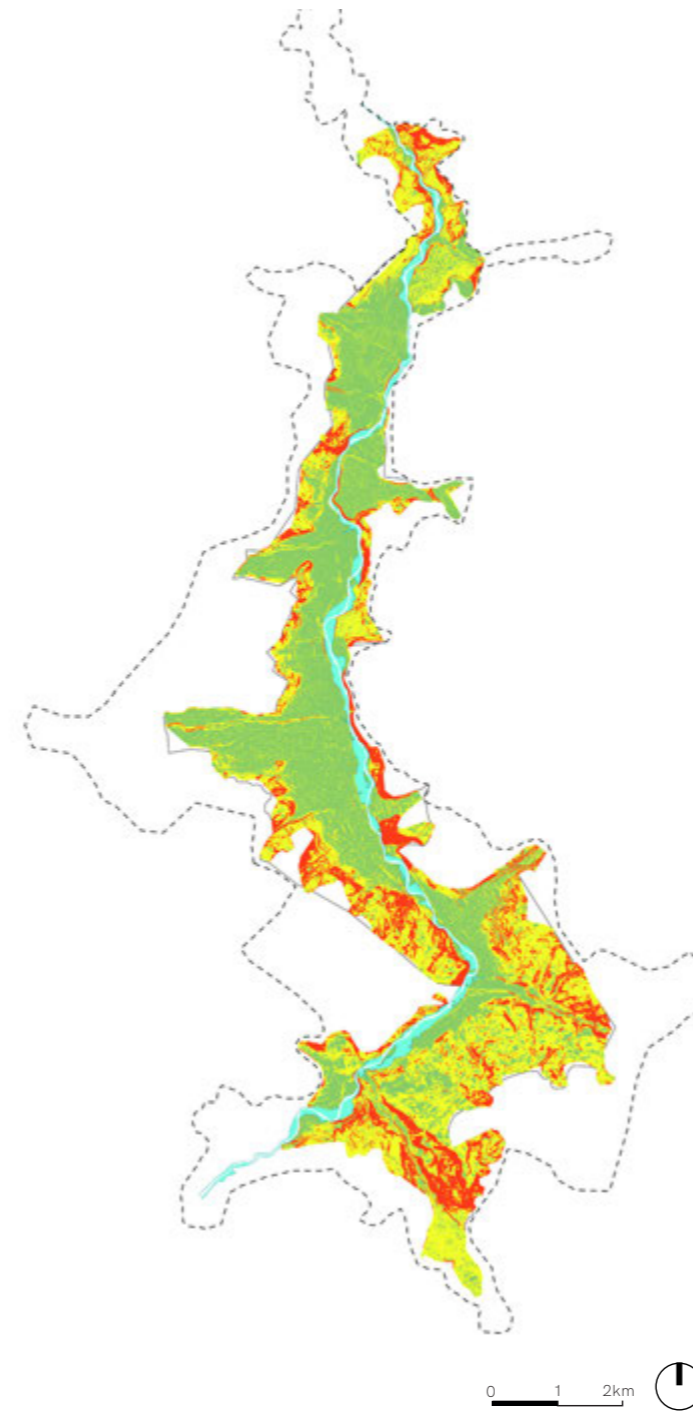


FIGURE 6 CONNECTED GREEN INFRASTRUCTURE NETWORK ACROSS A TYPICAL NEIGHBOURHOOD

## 2.5 Terrain Analysis and Hazard Zones

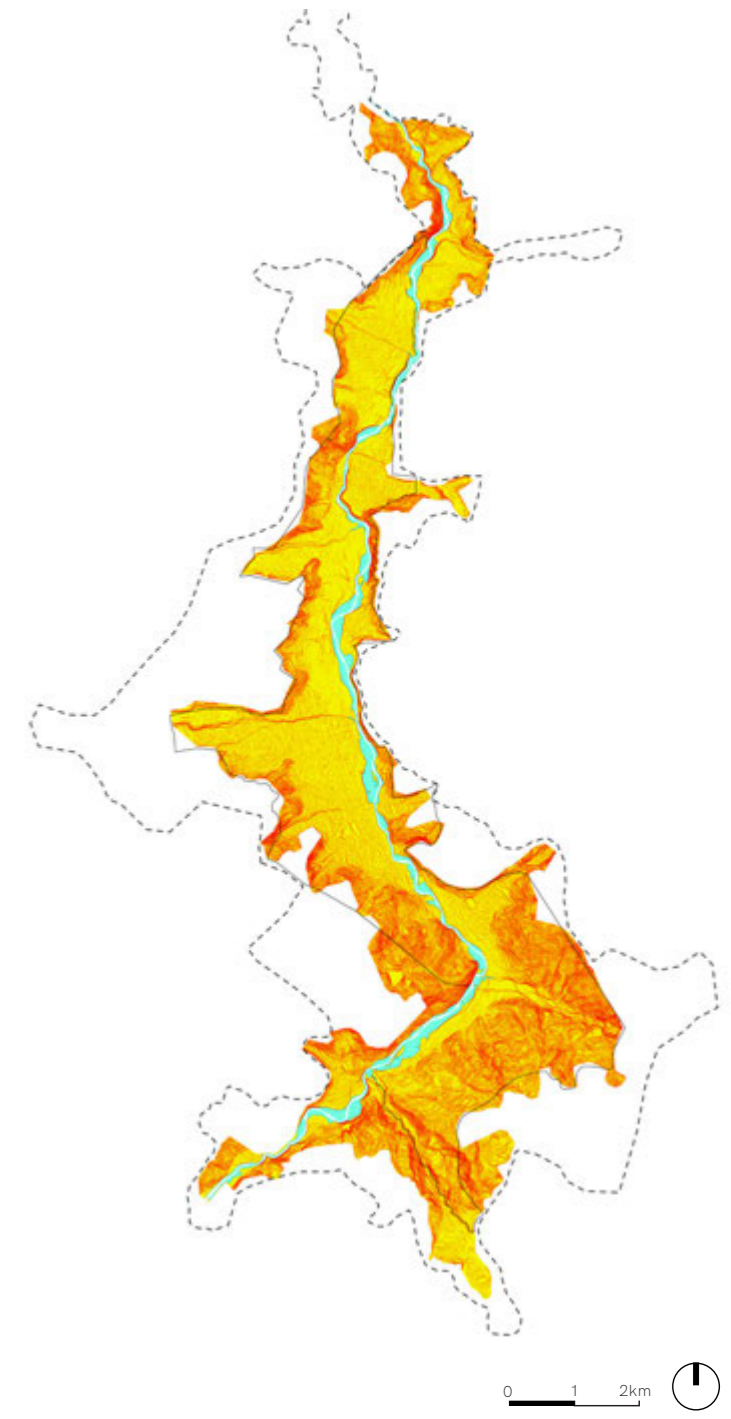
The natural setting, steep topography and geological history of Thimphu means that it is prone to a number of natural hazards. Indicative Hazard Zones have been identified (refer to Figure 7), based on available data, to ensure that critical developments and infrastructure are located within Low Hazard zones. The aim is to ensure that the Thimphu development strategy is mindful of existing hazards, reduces the risk of societal and economic loss, and protects the natural landscape and associated biodiversity across the city. The adjacent plans indicate areas of high hazard risk and very steep slopes, where development should be restricted and the protection of natural landscapes should be promoted.



KEY

- Thimphu Thromde boundary
- Study area
- Low Hazard Risk
- Medium Hazard Risk
- High Hazard Risk
- Flooding Area

FIGURE 7 INDICATIVE HAZARD ZONES



KEY

- Thimphu Thromde boundary
- Study area
- 0-10% Slope
- 10%-20% Slope
- 20%-30% Slope
- 30%-40% Slope
- Above 40% Slope
- Flooding Area

FIGURE 8 GRADIENT MAP

## 2.6 Functions of the landscape

### FOR PEOPLE AND NATURE

Enhanced green infrastructure in and around Thimphu has the potential to deliver the valuable functions of providing for, protecting and connecting both people and nature.

Through this lens, the framework will explore strategies that establish a new dialogue between people and nature that does not harm the environment, promote health and wellbeing and deliver a nature-positive Thimphu.

The following questions begin to interrogate possible options for design strategies and interventions.

- How can **landscape protect people**, and how can **people protect the landscape**? (*Protect*)
- How can the landscape strengthen, connect, and celebrate **cultural heritage**? (*Connect*)
- How can the landscape provide **employment opportunities**? (*Provide*)
- How can we **design nature back** into the city to connect forests and rewild habitats? (*Connect*)
- How can **urban food growing** be formalised and scaled up? (*Provide*)

### 01 Provide...

...social benefits to the people that visit, live and work in Thimphu through the provision of high quality, multifunctional public open space with amenity and recreational value.

...employment and skills-building opportunities to support diversification of the economy and job creation. This includes the establishment of productive landscapes within urban areas.

### 02 Protect...

...people from natural hazards, including landslides, flooding and earthquakes, and ensure future resilience.

...nature from over development, encroachment and habitat loss.

### 03 Connect...

...people, through improved walkability, shaded and safe active travel routes.

...nature through the establishment of green corridors and spaces for rewilding.

# 2.7 Landscape design plan

The plan opposite illustrates the proposed Green Infrastructure and Open Space design plan, with the framework layers broken down into individual typologies. Key proposals include the following:

- A new River Corridor along the Wang Chhu, preventing further urban encroachment, promoting preservation of the natural environment and incorporating a series of interconnected parks and gardens for public use.
- Tashichhodzong Gardens as a significant Royal Park in the heart of the City; a multifunctional public space and landscape setting for the Dzong.
- Taba Forest Park, the Changlimithang Central River Park and Babesa Ecological Park will function as new City Parks. Each will have a distinctive character and design approach in respond to adjacent land use and environmental characteristics.
- A hierarchy of new and enhanced open spaces across the City to ensure appropriate provision for both current and future needs, to include the following typologies:
  - Metropolitan Park
  - City Park
  - Neighbourhood Park
  - Small Open Space and Pocket Parks
  - Heritage Open Spaces
- East-west Valley Parks along primary tributaries that connect hillside neighbourhoods with the Wang Chhu, facilitating east-west movement and provide public amenity.
- Connected 'Green Streams' along secondary tributaries that provide uninterrupted walking routes, opening up the channels in appropriate locations to integrate nature-based solutions, improve public amenity and support new aquatic habitats.
- 'Reveal Thimphu' Heritage Project, aimed at improving the landscape setting of heritage structures and re-connecting walking trails.

- Appropriate provision of play space, local parks and growing spaces at the neighbourhood scale, associated with new urban developments.
- Transformation of the existing expressway into a 'Royal Boulevard' that integrates green infrastructure and promotes active travel.
- Streetscape improvements to integrate street tree planting, interconnected footways, removal of clutter and improved crossings.
- Appropriate designations and policies for the protection of open spaces and habitats, including the following:
  - Pockets of natural forest to preserve and connect through biodiversity corridors.
  - A protective buffer along key tributaries, with the aim of preserving riparian habitats and mitigating flood risk.
  - Network of Local Nature Reserves to protect areas of high biodiversity and provide people with access to nature within the urban environment.
  - Cultural and heritage landscapes, including open spaces around key structures and agricultural wetlands.

KEY

	Thimphu Thromde boundary
	Study area
	Green Belt boundary
	Regional Park
	Metropolitan Park
	City Park
	Neighbourhood Park
	Private landscape
	Forest Pocket
	Local Nature Reserve
	Agricultural Landscapes
	Urban Green Corridor
	River Walk
	Valley Park
	Valley Walk
	Green Stream
	Trails

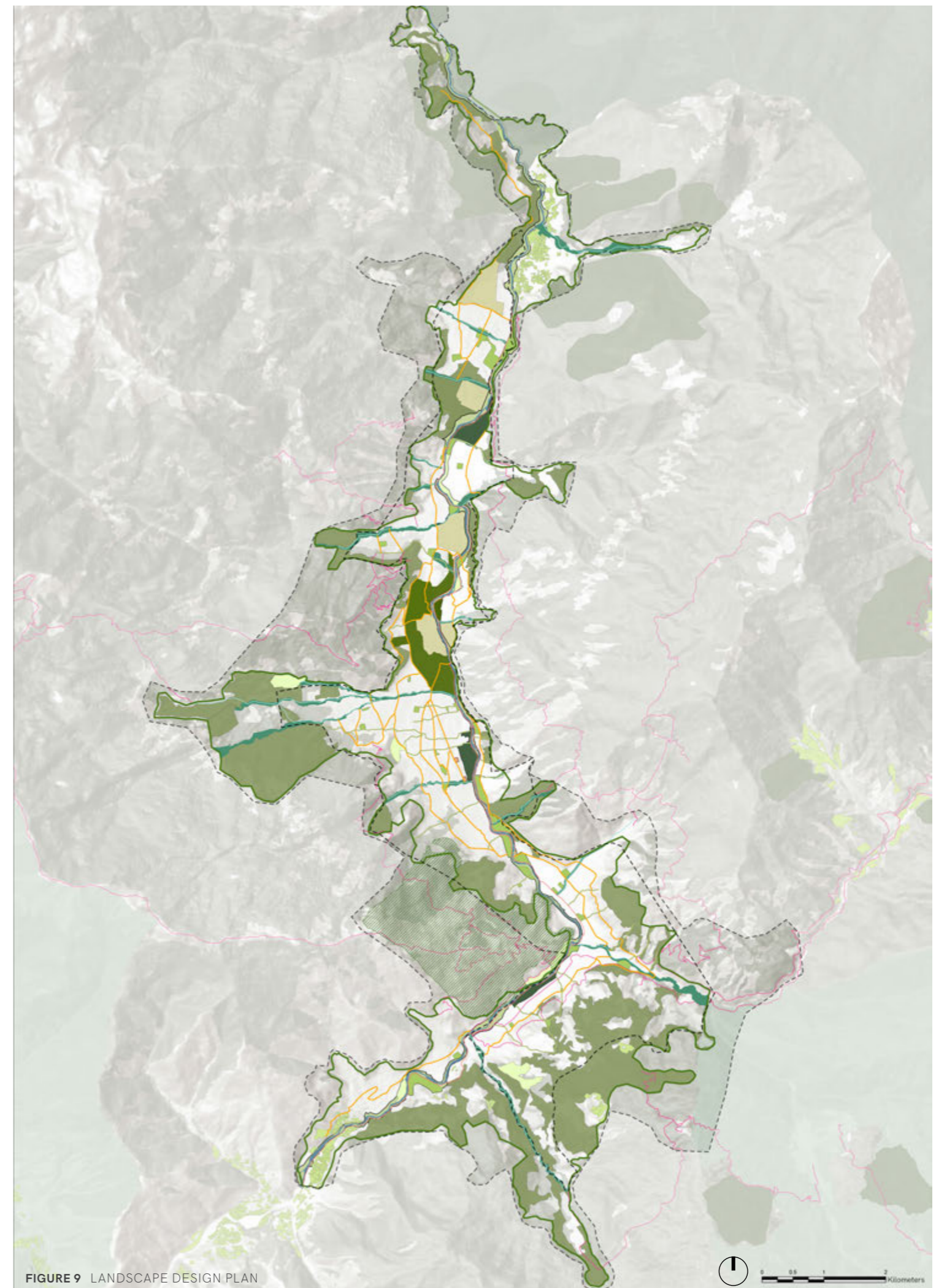


FIGURE 9 LANDSCAPE DESIGN PLAN

## KEY PROPOSALS

- 1 Dechencholing Neighbourhood Park
- 2 Dechencholing Recreational Park
- 3 Fitness Park
- 4 Dechencholing Valley Park
- 5 Dangrina
- 6 Chokhor Rongchhu Valley Park
- 7 Dechencholing Urban Corridor
- 8 Northern Thimphu River Walk
- 9 Dechencholing River Island Conservation
- 10 Kabesa wetlands
- 11 Dechencholing Palace Forest
- 12 Taba Forest City Park
- 13 Taba Neighbourhood Park
- 14 Butterfly Park
- 15 Hedrong Park
- 16 Food Park
- 17 Jungshina Neighbourhood Park
- 18 Hejo-Samteling Neighbourhood Park
- 19 Babena Neighbourhood Park
- 20 Langjophakha Neighbourhood Park
- 21 Samteling Valley Park
- 22 Northern Taba Valley Park
- 23 Taba Nature Reserve Park
- 24 Babena Green Stream
- 25 Northern Thimphu Royal Boulevard
- 26 Taba Urban Green Corridor
- 27 Samteling Urban Green Corridor
- 28 Langjophakha River Island Conservation

## NORTHERN THIMPHU

Across the North of Thimphu, the following interventions have been identified to underpin the delivery of high quality and accessible green infrastructure, manage pressures of continued urban growth, and achieve sustainable and resilient urban development.

### KEY

- Thimphu Thromde boundary
- - - Study area
- Green Belt boundary
- Regional Park
- Metropolitan Park
- City Park
- Neighbourhood Park
- Private landscape
- Forest Pocket
- Local Nature Reserve
- Agricultural Landscapes
- Urban Green Corridor
- River Walk
- Valley Park
- Valley Walk
- Green Stream
- Trails

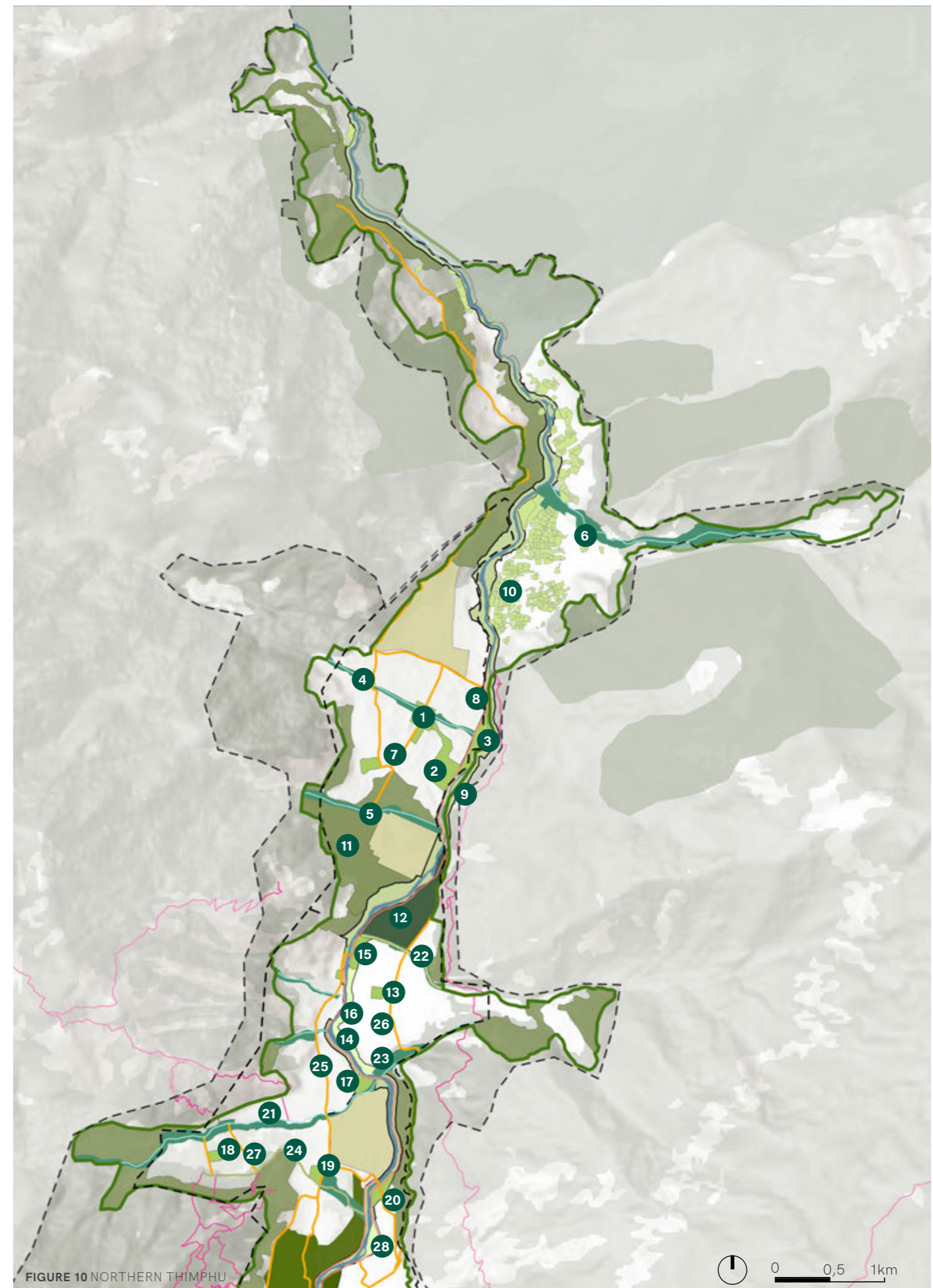


FIGURE 10 NORTHERN THIMPHU



## KEY PROPOSALS

- 1 Tashichhodzong Gardens
- 2 Royal Happiness Gardens
- 3 Arboretum
- 4 Rhododendron Gardens
- 5 Wetland Conservation
- 6 Hejo River Park
- 7 Ludrong Park enhancements
- 8 Changlimithang Central River Park
- 9 Changzamtog Park
- 10 Changjiji Park
- 11 Changbangdu Neighbourhood Park
- 12 Kawajangsa Neighbourhood Park
- 13 Motithang Neighbourhood Park
- 14 Tarayana Park
- 15 Ozone Park enhancements
- 16 Clock Tower Square enhancements
- 17 Bhutan Olympic Ground enhancements
- 18 Samarzingkha Forest Link
- 19 Lungten Zam Square
- 20 Thai Park
- 21 Changankha Park
- 22 Changbangdu Health Gardens
- 23 Culture Park
- 24 Chubachhu Valley Park
- 25 Memorial Chorten Valley Park
- 26 Tashichhodzong Gardens Greenway
- 27 City Centre Green Stream 1
- 28 City Centre Green Stream 2
- 29 City Centre Green Stream 3
- 30 City Centre Green Stream 4
- 31 Yangchenphug Green Streams

- 32 Changgidaphu Green Stream
- 33 Changzamtog Green Stream
- 34 Changbangdu Green Stream
- 35 City Centre Royal Boulevard
- 36 Norzin Lam Pedestrian Priority
- 37 Rabten Lam Urban Green Corridor
- 38 Dondrup Lam Urban Green Corridor
- 39 Motithang Urban Green Corridors
- 40 City Centre River Walk
- 41 Takin Preserve enhancements

## CITY CORE

Across the City Centre, the following interventions have been identified to underpin the delivery of high quality and accessible green infrastructure, manage pressures of continued urban growth, and achieve sustainable and resilient urban development.

### KEY

- Thimphu Thromde boundary
- - - Study area
- Green Belt boundary
- Regional Park
- Metropolitan Park
- City Park
- Neighbourhood Park
- Private landscape
- Forest Pocket
- Local Nature Reserve
- Agricultural Landscapes
- Urban Green Corridor
- River Walk
- Valley Park
- Valley Walk
- Green Stream
- Trails

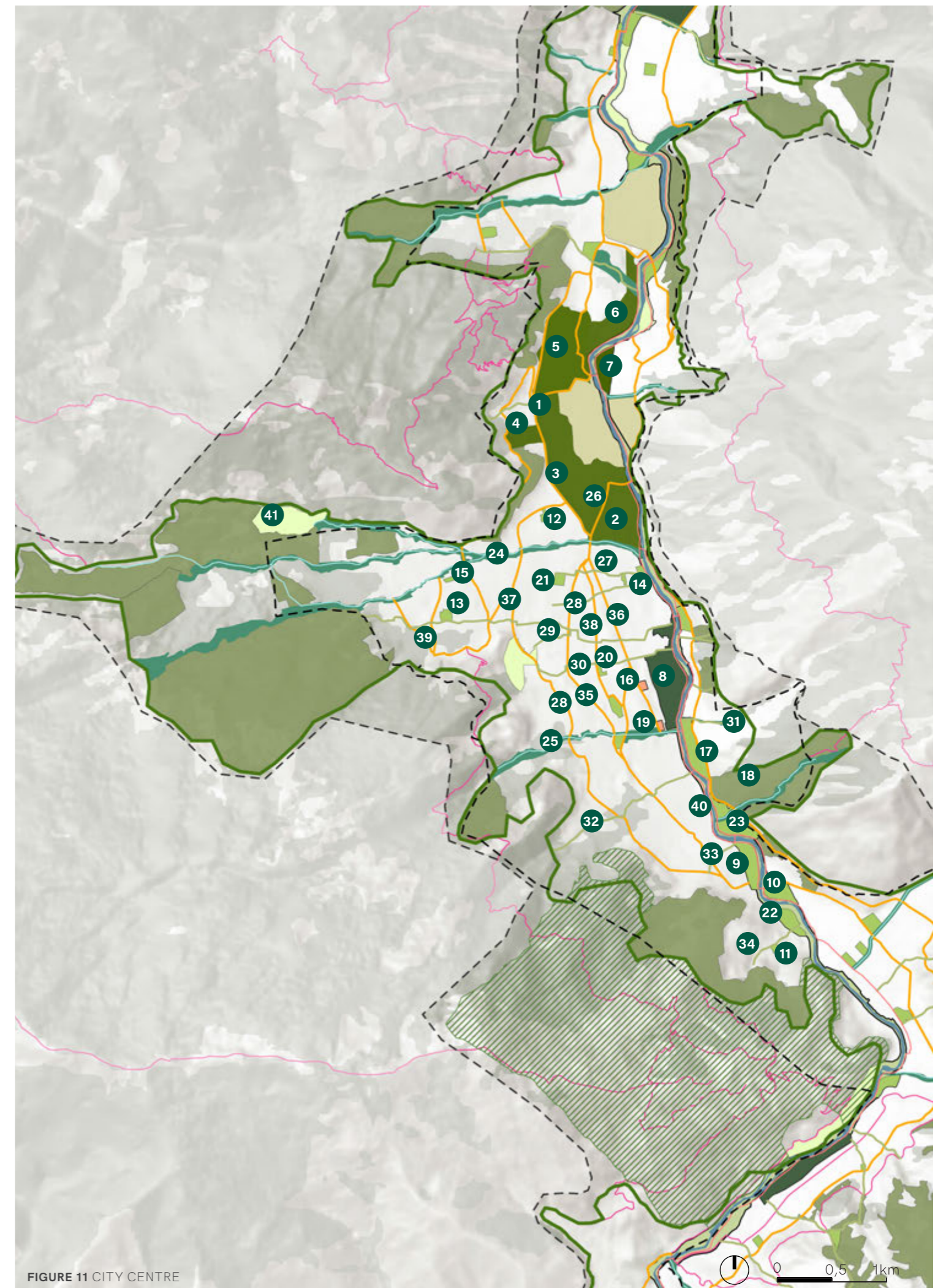


FIGURE 11 CITY CENTRE

## KEY PROPOSALS

- 1 Kuenselphodrang Regional Park
- 2 Babesa Ecological Park
- 3 Lungtenphu Recreation Parks
- 4 Olakha Riverside Park
- 5 Tsalumarphy Water Gardens
- 6 Maze Park
- 7 Simtokha Park
- 8 Tshalumarphy Neighbourhood Park
- 9 Babesa Neighbourhood Park
- 10 Olakha Neighbourhood Park
- 11 Olarongchhu Valley Park
- 12 Ngabiphu Valley Park
- 13 Southern Thimphu Royal Boulevard
- 14 Olakha Green Streams
- 15 Babesa Green Streams
- 16 Tshalumarphy Green Streams
- 17 Olakha Urban Green Corridor
- 18 Tshalumarphy Urban Green Corridor
- 19 Babesa Urban Green Corridor
- 20 Southern Thimphu River Walk
- 21 Royal Botanical Gardens
- 22 Marshland Conservation Zone
- 23 Lubding Forest Corridors
- 24 Serbithang-Simtokha Forest
- 25 Welcome Gate Park
- 26 Rama River Park
- 27 Depsi River Park
- 28 Depsi Nature Reserve
- 29 Rama Wetlands

## SOUTHERN THIMPHU

Across Southern Thimphu, the following interventions have been identified to underpin the delivery of high quality and accessible green infrastructure, manage pressures of continued urban growth, and achieve sustainable and resilient urban development.

### KEY

- Thimphu Thromde boundary
- - - Study area
- Green Belt boundary
- Regional Park
- Metropolitan Park
- City Park
- Neighbourhood Park
- Private landscape
- Forest Pocket
- Local Nature Reserve
- Agricultural Landscapes
- Urban Green Corridor
- River Walk
- Valley Park
- Valley Walk
- Green Stream
- Trails

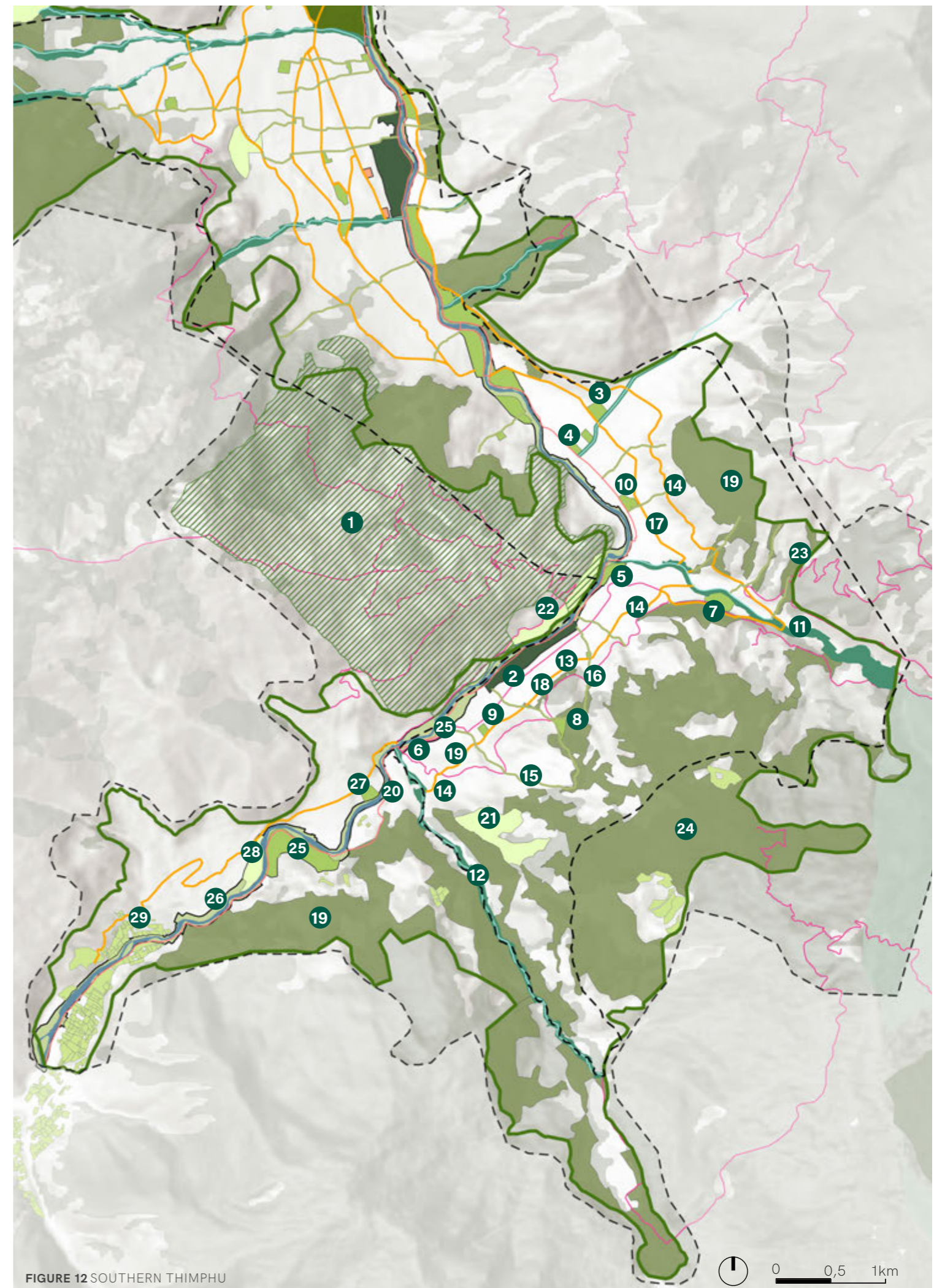


FIGURE 12 SOUTHERN THIMPHU



# 3.1 Wang Chhu Corridor

A new River Corridor along the Wang Chhu, preventing further encroachment, promoting the preservation of the natural environment and incorporating a series of interconnected parks and gardens for public use. Extents have been defined based on the following parameters:

- Extents of existing development and 'hard' infrastructure
- Areas of riparian habitat
- Flood risk zone
- Areas of new and existing public open space

The Wang Chhu Corridor will be designated to address its strategic importance within the City and to maximise its multifunctional social, economic and environmental benefits.

The Wang Chhu Corridor should be protected from further encroachment and its natural environment should be preserved. Opportunities to incorporate a series of interconnected parks and gardens for public use should be maximised.

The Wang Chhu River is the ecological, movement and recreational spine running through the City. The River Corridor project is a visionary urban regeneration project that seeks to transform Thimphu by combining improved flood protection with the creation of public spaces and active travel routes that connect communities. The project will support community cohesion and interactivity, economic development, health and wellbeing, a cleaner river and flood resilience.

The designation of the Wang Chhu Corridor seeks to address the strategic importance of the River, through the following purposes:

- To protect the River Corridor from further encroachment and inappropriate development or uses.
- To preserve the River Corridor's natural environment.
- To connect the Green Belt to the north and south.

- To incorporate a network of public open spaces, green corridors and interconnected walking routes.
- To link urban villages to the City Centre.
- To ensure essential flood mitigation measures.
- To preserve the River Corridor's heritage and cultural significance and its setting.

## PRINCIPLES

The establishment of a Wang Chhu Corridor should be based on the following principles and used to inform future plan-making and development proposals:

- Identify appropriate forms of development or uses to steer future proposals.
- Ensure future uses and development are be informed by the flood risk zones.
- Establish land use zones to respond to local character and heritage of the River as well as adjacent land uses; ranging from vibrant to passive uses that cater to different demographic groups.
- Identify areas for river restoration.
- Identify existing areas of habitat and biodiversity value and link to a network of proposed Local Nature Reserve and Green Corridor designations.
- Link to a network of proposed Open Space designations.
- Deliver uninterrupted walking route(s) along the River Corridor.
- Identify medium to high flood risk zones and requirements for mitigation.
- Identify opportunities to integrate and celebrate areas of heritage and cultural significance.

### KEY

- Thimphu Thromde boundary
- - Study area
- Wang Chhu Corridor
- Neighbourhood Park
- Local Nature Reserve
- River Walk

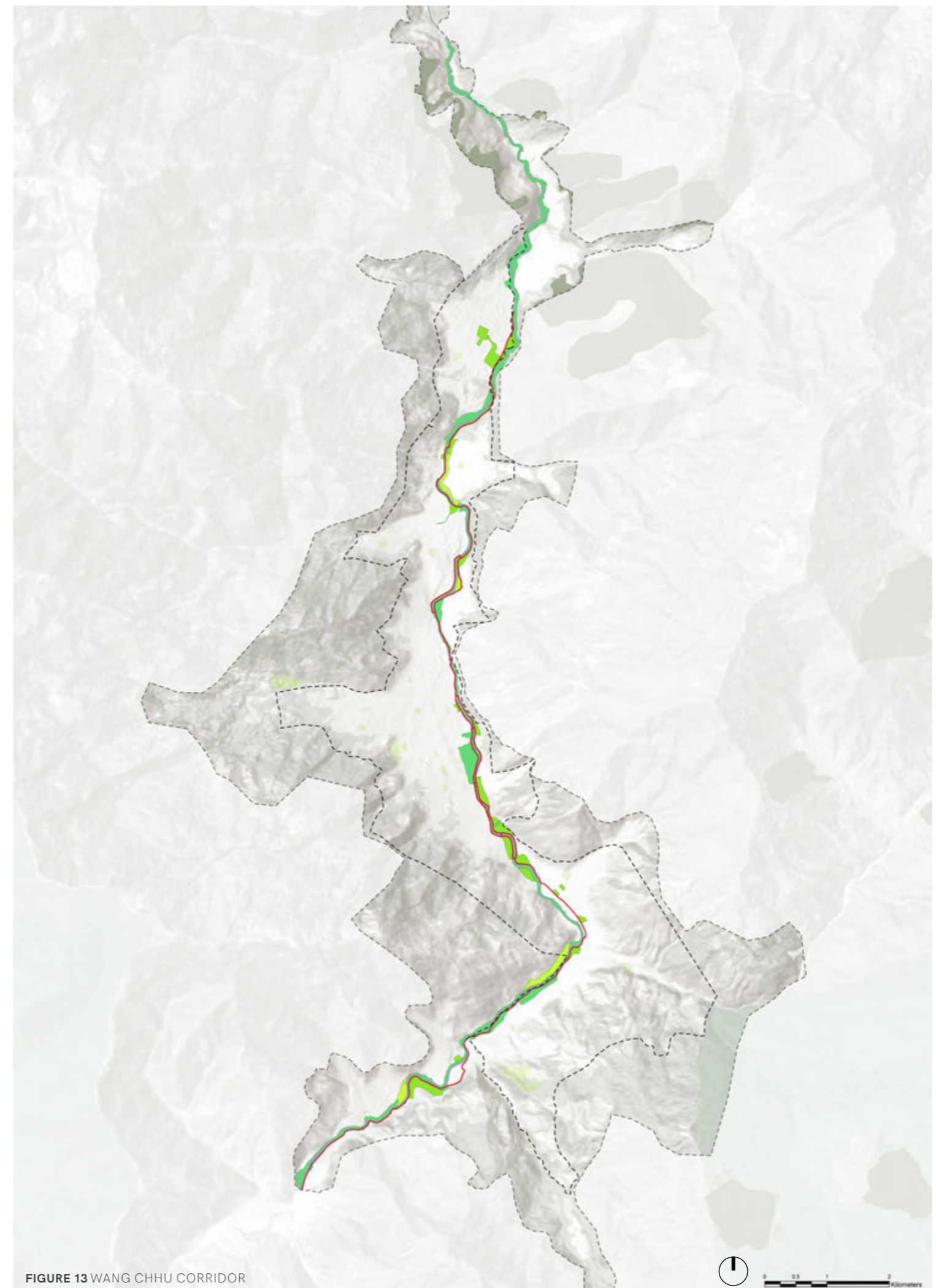


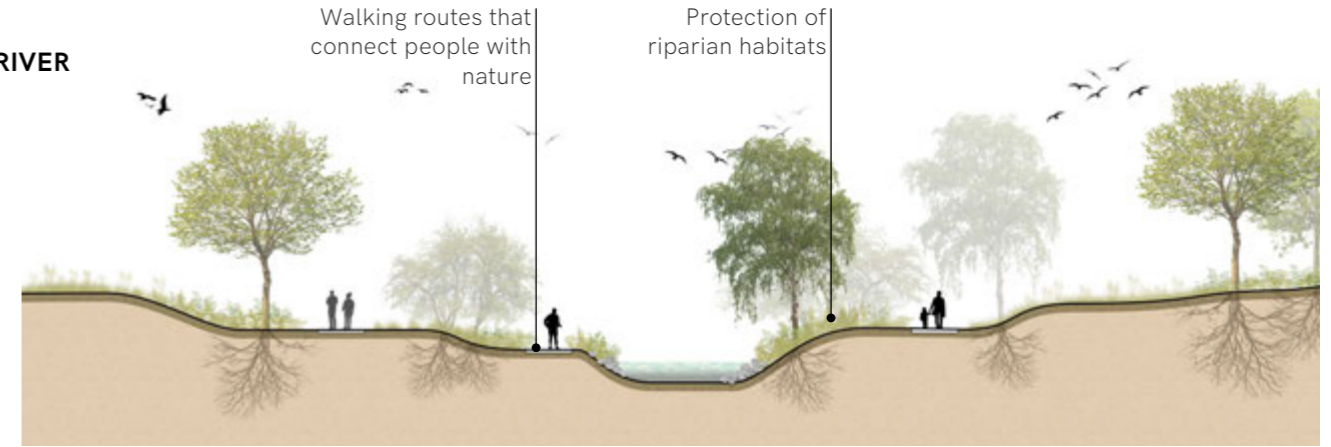
FIGURE 13 WANG CHHU CORRIDOR

### RIVER CONDITIONS

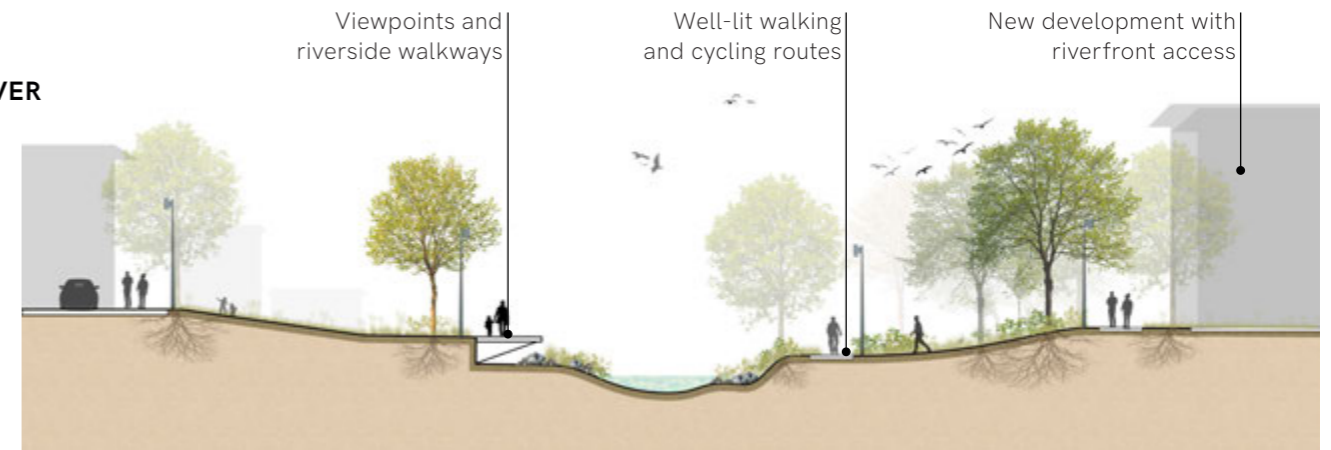
Along the Wang Chhu Corridor, the project has identified a variety of conditions and adjacencies that can be established. Renaturalisation and protection of **natural** areas by the river are relevant conditions to enable the ecological functioning of this corridor. In **urban** areas the river must consider its access and allow people to interact with the water. In the northern and southern areas of Thimphu, the presence of agricultural wetlands establishes a productive landscape to be protected. Water is also considered an important **cultural** asset and part of the city's heritage to be promoted.

The River Walk will be a series of interconnected walking routes that provide uninterrupted access along the River from Northern to Southern Thimphu. Inclusivity and accessibility principles should be at the core of the design approach to ensure that the river environment is an asset for all to enjoy

#### 1. NATURAL RIVER



#### 2. URBAN RIVER



#### 3. CULTURAL/HERITAGE RIVER



## 3.2 Green Corridors

Thimphu's Green Corridors are continuous areas of linear open space and streets that provide important connections through the urban centre, acting as a link between areas of open space, heritage assets, residential communities, Green Belt and public amenities. By permeating into the urban centre, they provide ecological and transport links to the natural forest landscapes beyond the city boundary. The city's Green Corridors predominantly follow river courses, however they also consist of a network of streets, cycleways, footpaths, and recreational trails.

Green infrastructure along key streets and corridors should be encouraged to contribute to health and wellbeing and promote active travel, and delivered in an integrated way to achieve multiple benefits including stormwater drainage, climate change mitigation and adaptation, biodiversity improvements, public amenity and connecting people with nature.

The Green Corridors designation seeks to encourage a strategic approach to their creation, protection, management and enhancement. The city's proposed Green Corridors can be categorised according to the following typologies:

- Valley Park
- River Walk
- Green Stream
- Urban Corridor
- Trail

The management, protection, and future development of Thimphu's Green Corridors should achieve the following purposes:

- To support health and wellbeing of Thimphu's communities.
- To promote active travel.
- To establish green infrastructure along linear assets, as connected corridors for biodiversity and the movement of people.
- To support stormwater drainage systems.
- To ensure inclusivity and accessibility.

- To link green spaces, neighbourhoods and centres.
- To introduce nature-based solutions through the re-naturalisation of waterways.

### PRINCIPLES

A framework for green corridor requirements across the city is provided below:

- Establish a hierarchy of major river / stream corridors, streets and active travel routes.
- Consider provision of street tree planting along all primary pedestrian and cycle routes.
- Consider suitable locations for SuDS along drainage corridors to maximise rainwater attenuation.
- Examine options to enhance accessibility of footways.
- Identify suitable locations for dedicated cycle infrastructure.
- Develop a coherent material palette to improve way-finding and legibility.
- Encourage the consolidation of furniture and reduced clutter to enhance visual amenity.

#### KEY

- Thimphu Thromde boundary
- - - Study area
- Urban Green Corridor
- River Walk
- Valley Park
- Valley Walk
- Green Stream
- Trails

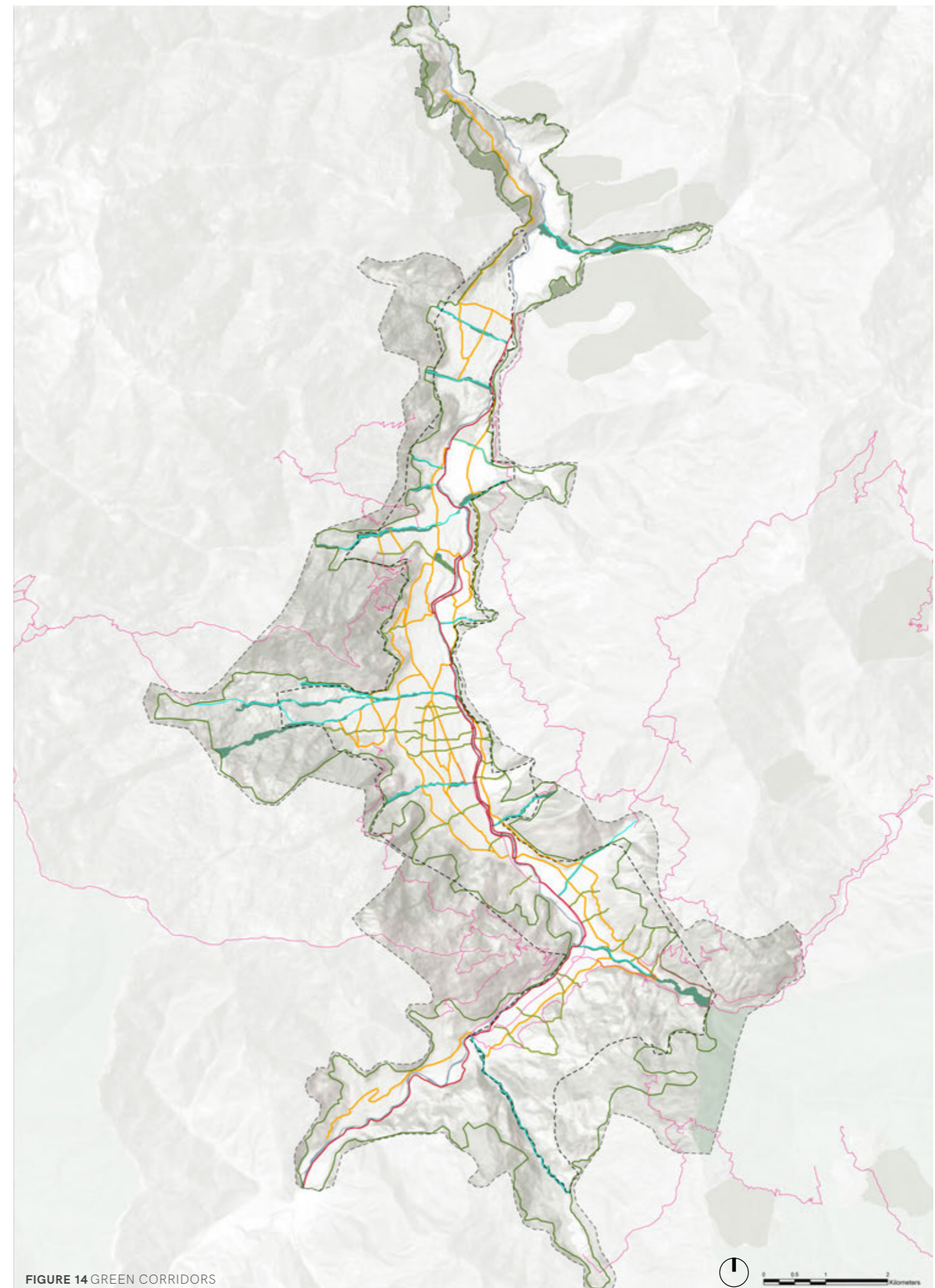
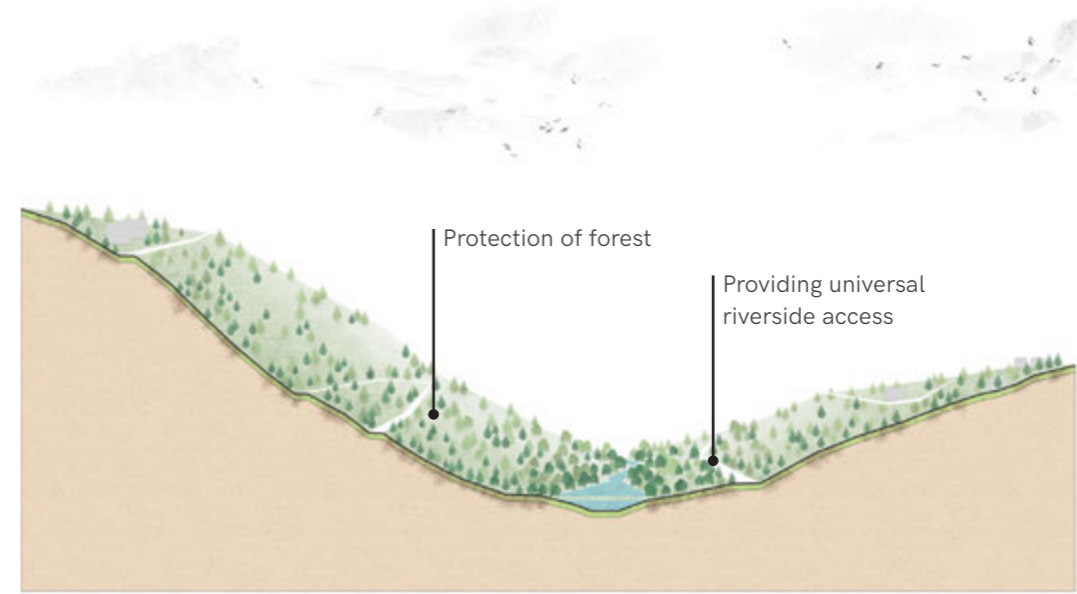
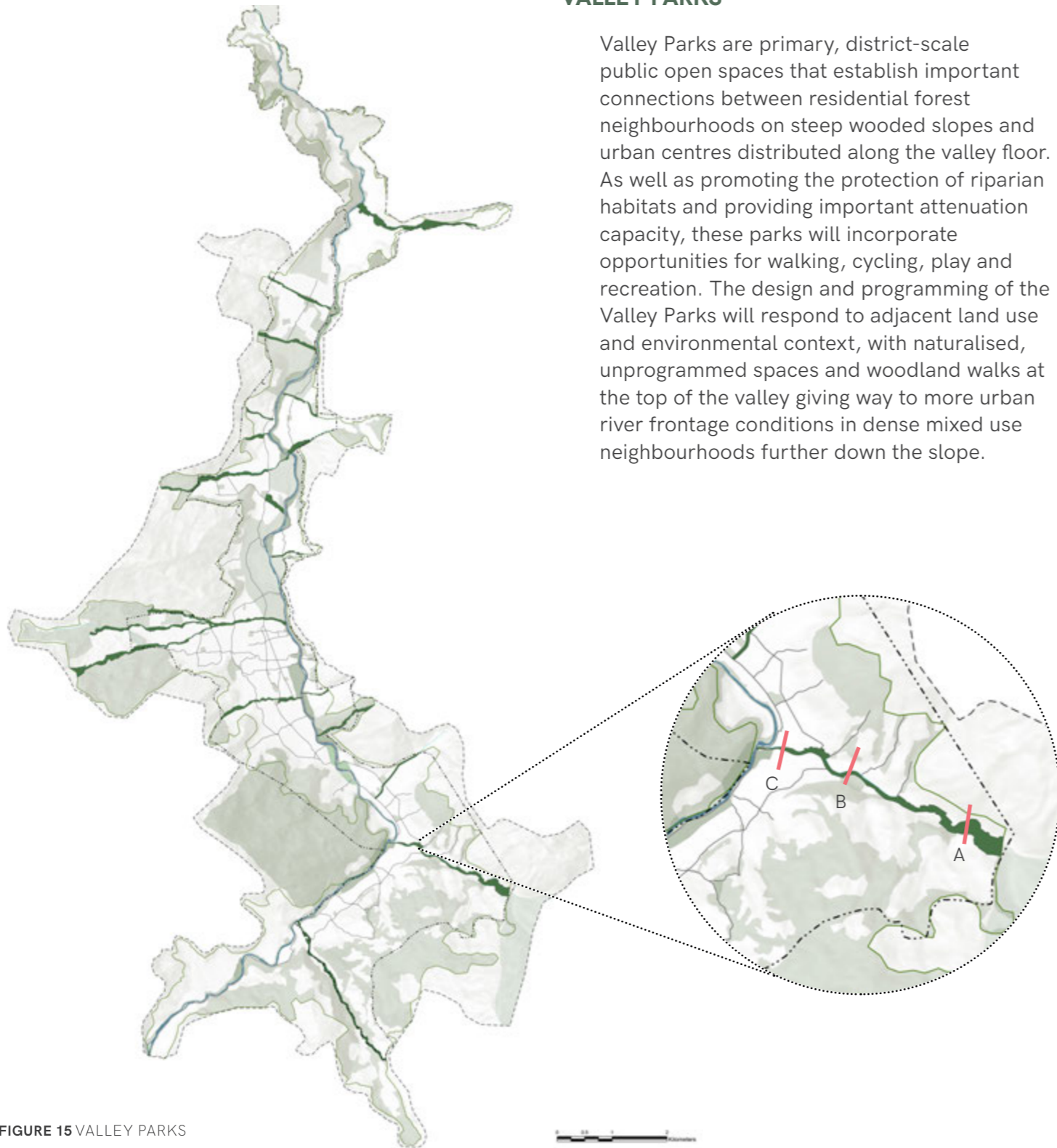


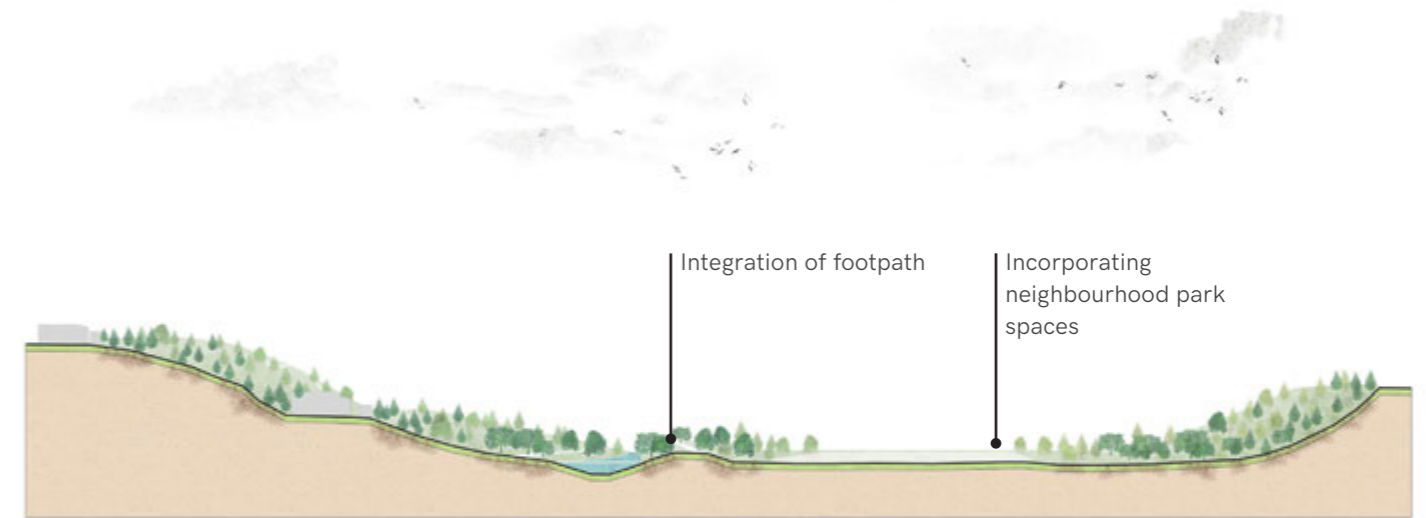
FIGURE 14 GREEN CORRIDORS

**VALLEY PARKS**

Valley Parks are primary, district-scale public open spaces that establish important connections between residential forest neighbourhoods on steep wooded slopes and urban centres distributed along the valley floor. As well as promoting the protection of riparian habitats and providing important attenuation capacity, these parks will incorporate opportunities for walking, cycling, play and recreation. The design and programming of the Valley Parks will respond to adjacent land use and environmental context, with naturalised, unprogrammed spaces and woodland walks at the top of the valley giving way to more urban river frontage conditions in dense mixed use neighbourhoods further down the slope.



**SECTION A - NATURAL CONTEXT**

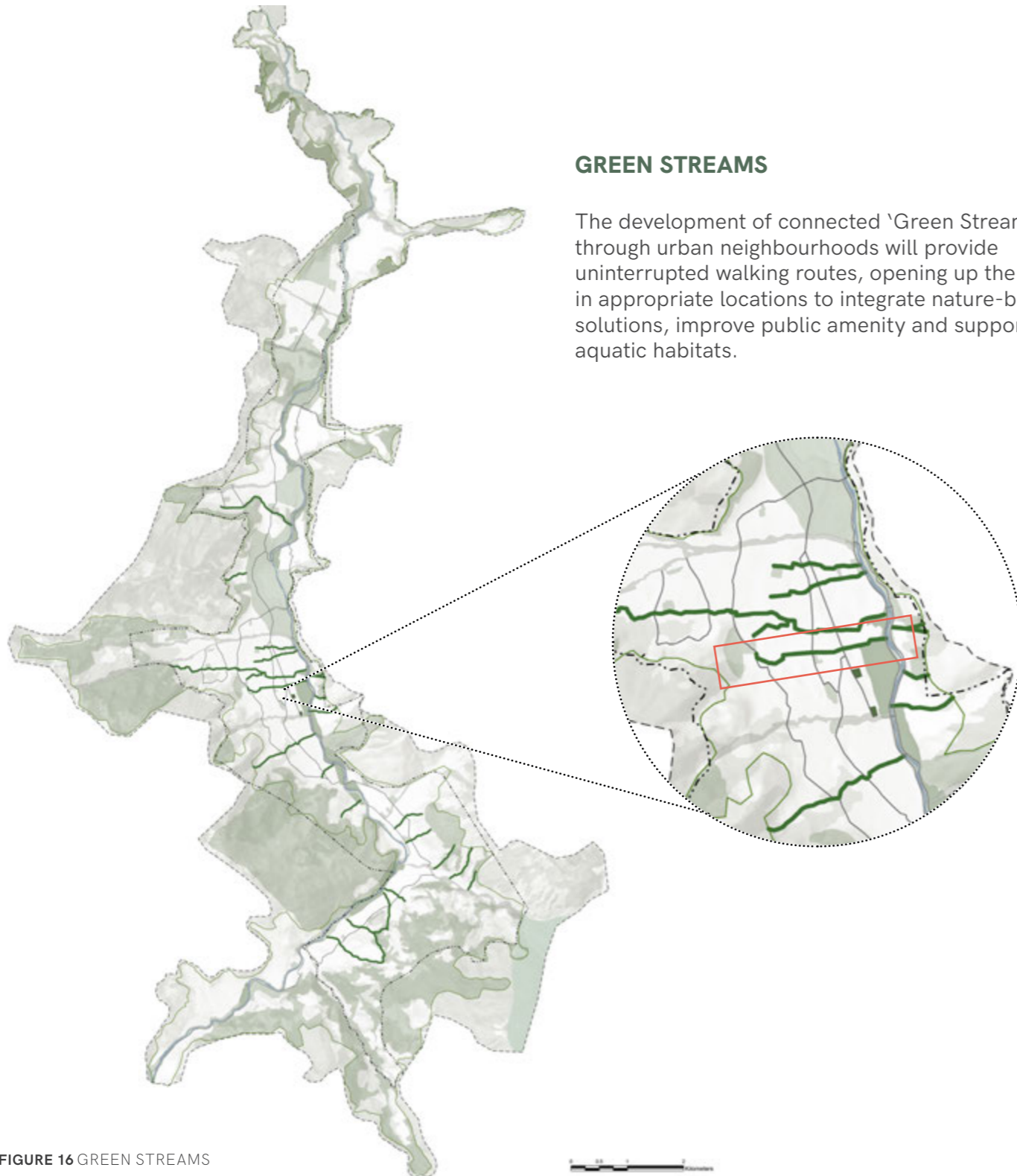


**SECTION B - SUBURBAN CONTEXT**



**SECTION C - URBAN CONTEXT**

FIGURE 15 VALLEY PARKS



**GREEN STREAMS**

The development of connected 'Green Streams' through urban neighbourhoods will provide uninterrupted walking routes, opening up the channels in appropriate locations to integrate nature-based solutions, improve public amenity and support new aquatic habitats.

FIGURE 16 GREEN STREAMS

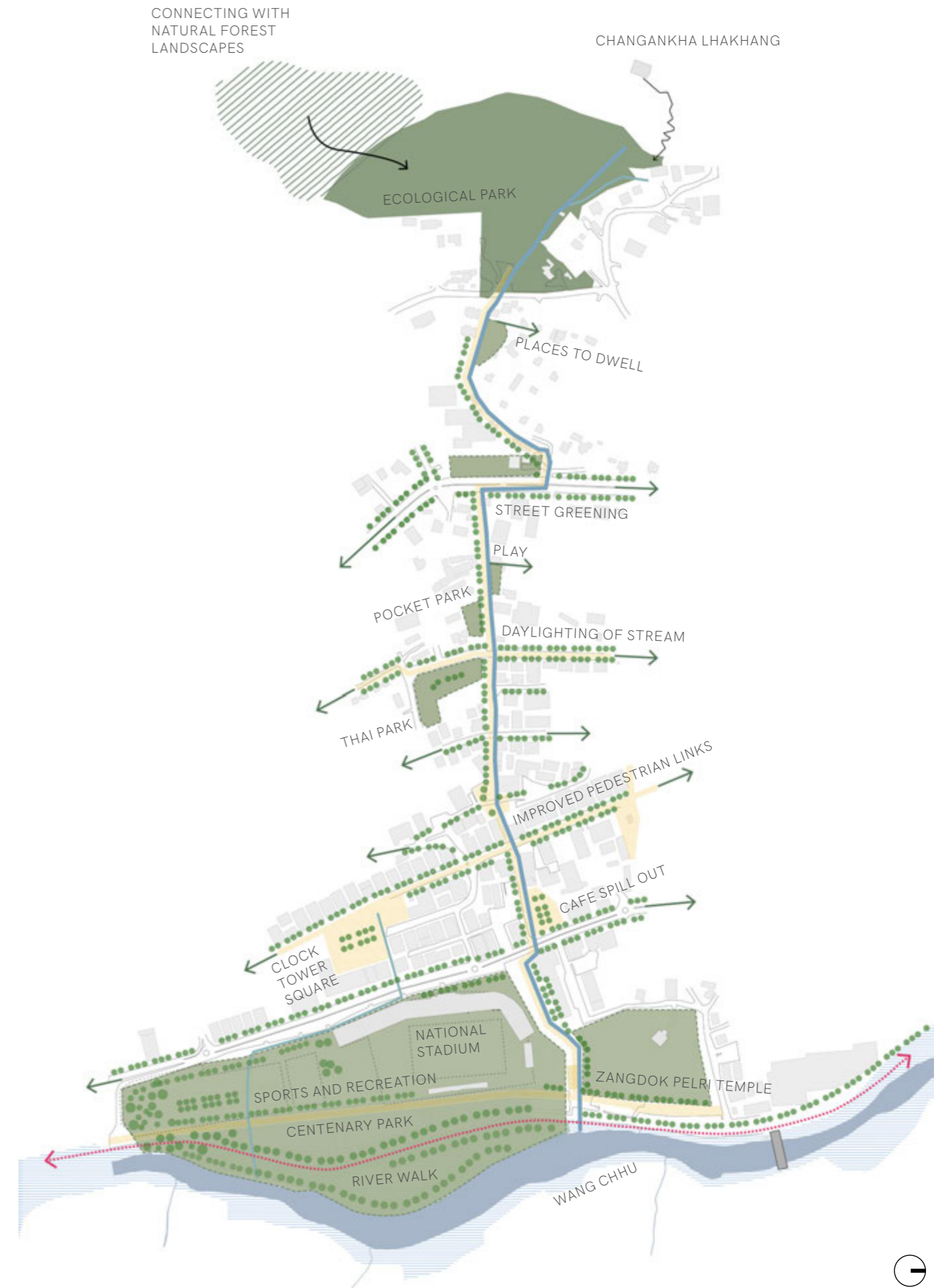
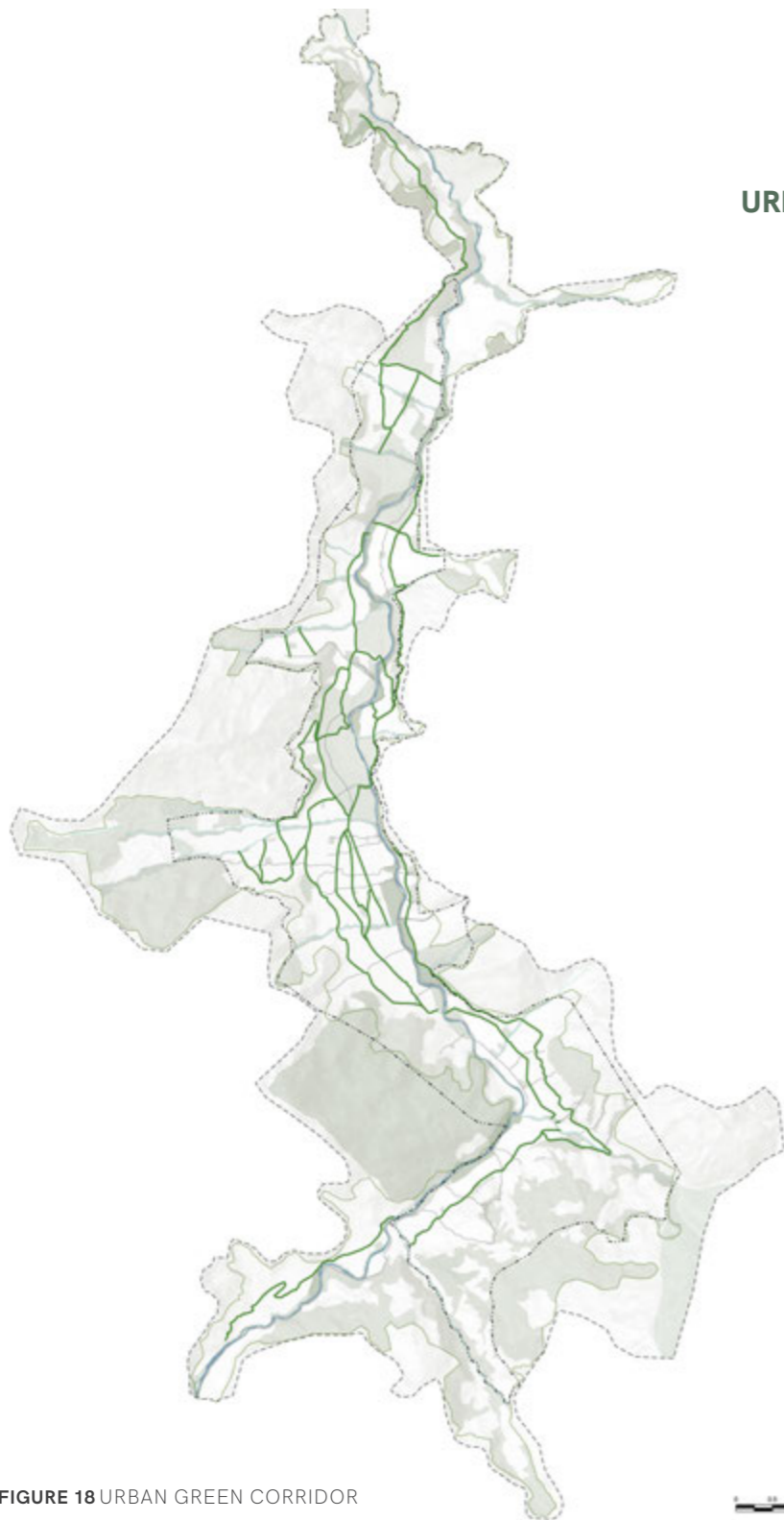


FIGURE 17 CITY CENTRE GREEN STREAM



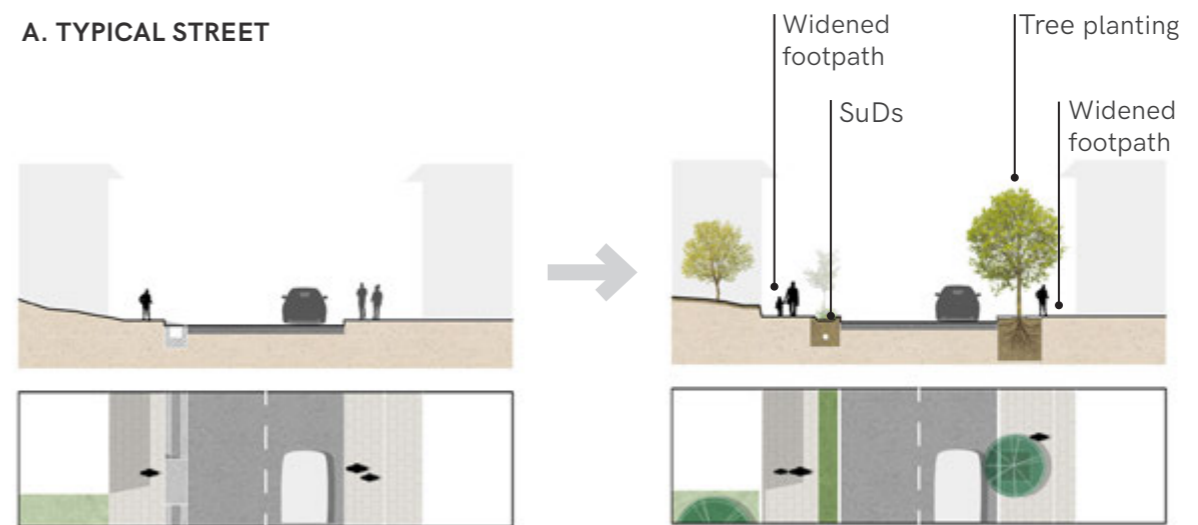


**URBAN GREEN CORRIDOR**

Urban Green Corridors will be designed to prioritise non-motorised and public transport. Street trees will provide shade and a pleasant environment to walk and cycle, and SuDS will provide nature-based solutions to stormwater drainage challenges, helping to slow runoff whilst supporting new urban plant communities. Wider pavements, coherent surface finishes and improved crossing points will combine to establish a permeable, walkable environment that incorporates truly accessible routes inclusive to all.

FIGURE 18 URBAN GREEN CORRIDOR

**A. TYPICAL STREET**



**B. THIMPHU ROYAL BOULEVARD**

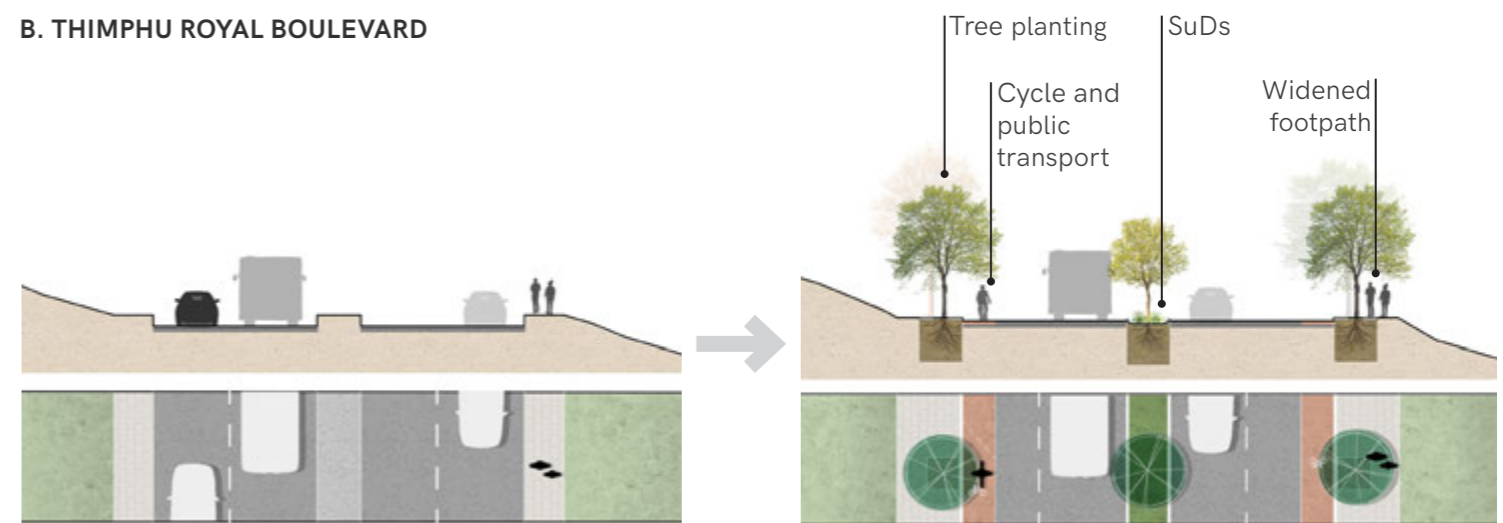


FIGURE 19 PROPOSED STREETScape IMPROVEMENTS TO DELIVER URBAN GREEN CORRIDORS

# 3.3 Open Spaces

Open Spaces in Thimphu will be designated according to the following hierarchy to provide a network of multi-functional green infrastructure that serves the needs of the City:

- Metropolitan Park
- City Park
- Neighbourhood Park
- Small Open Space and Pocket Parks
- Heritage Open Space
- Small Open Spaces and Pocket Parks

New and enhanced green open spaces will support the health and wellbeing of Thimphu’s communities and provide public amenity for people of different ages. All types of open space are essential for providing climate change adaptation and mitigation, particularly in relation to improving air and water quality, mitigating urban heat island effect, reducing GHG emissions and serve as a vital refuge in the case of natural disasters.

The Open Space designations for Thimphu seek to promote the creation and protection of green open spaces to achieve the following purposes:

- To meet the needs of the current and future population through addressing deficiencies and ensuring that future open space needs are planned for, especially in areas with the potential for substantial change.
- To ensure all residents, wherever they live, have access to different types of green open space and are within reasonable walking distance of high quality provision.
- To achieve net increase in provision through promoting the creation of new areas of publicly accessible green open space and improve existing open spaces.
- To secure appropriate management and maintenance of open spaces to improve perceptions of quality and safety of urban green space.
- To ensure that a wide range of benefits can be achieved, including - to restore harmony

between people and nature, celebrate traditional Bhutanese identity, support economic growth and deliver resilience benefits for the City - and to ensure any conflicts between uses are minimised.

- To ensure future park projects contribute to local temporary job creation during design and construction, and permanent or seasonal jobs during use; and maximise skills training opportunities for local people.
- To deliver appropriate provision of play space, local parks and growing spaces at the neighbourhood scale.

## PRINCIPLES

- Ensure appropriate uses and forms of development within designated open spaces.
- Ensure Open Spaces adhere to accessibility and inclusive design principles.
- Ensure sensitively designed facilities associated with sport, recreation, heritage, religion and culture.
- Ensure provision of Sustainable Drainage Systems.
- Promote habitat creation.
- Promote the consolidation of parking and ‘hard’ infrastructure to unlock space for provision of small open spaces and pocket parks.
- Ensure appropriate management and maintenance of all Open Spaces.

### KEY

- Thimphu Thromde boundary
- - Study area
- Regional Park
- Metropolitan Park
- City Park
- Neighbourhood Park
- Private landscape

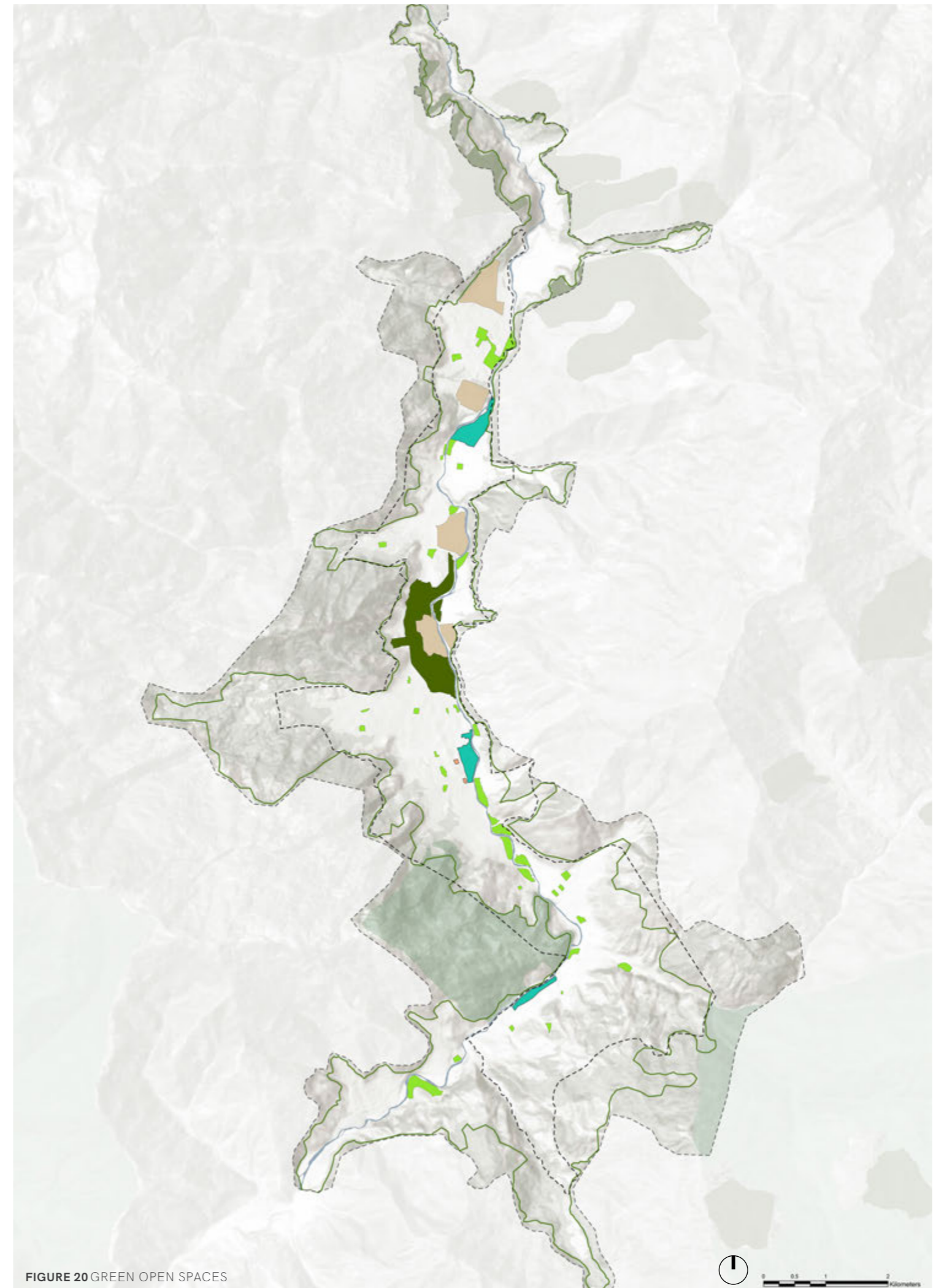


FIGURE 20 GREEN OPEN SPACES



Pathway and ornamental planting within the Gardens



View across the wetlands towards TashichhoDzong



Lake at the heart of the Gardens

### METROPOLITAN PARK - TASHICHHODZONG ROYAL GARDENS

Tashichhodzong Gardens, Thimphu's first Royal Park, will be an international destination, multifunctional public space and landscape setting for the Dzong. People will be able to visit and experience the historical, cultural and environmental heritage of Bhutan. The Gardens will incorporate new areas of parkland, extensive river frontage and provide managed access to protected wetland landscapes. 4 key objectives have been identified to underpin the delivery of the Garden:

1. Provide climate resilience and restore an important cultural landscape;
2. Form part of a wider park system across Thimphu;
3. A symbolic project that reflects the values of GNH;
4. Support local capacity building and job creation.

#### KEY

- Primary Access Route
- Secondary Access Route
- Tashichhodzong Private Landscape
- Tashichhodzong Royal Gardens
- Green Open Spaces
- Phase 1 of the Gardens
- Wetland Park
- River Island Conservation
- Gateways
- River viewpoints

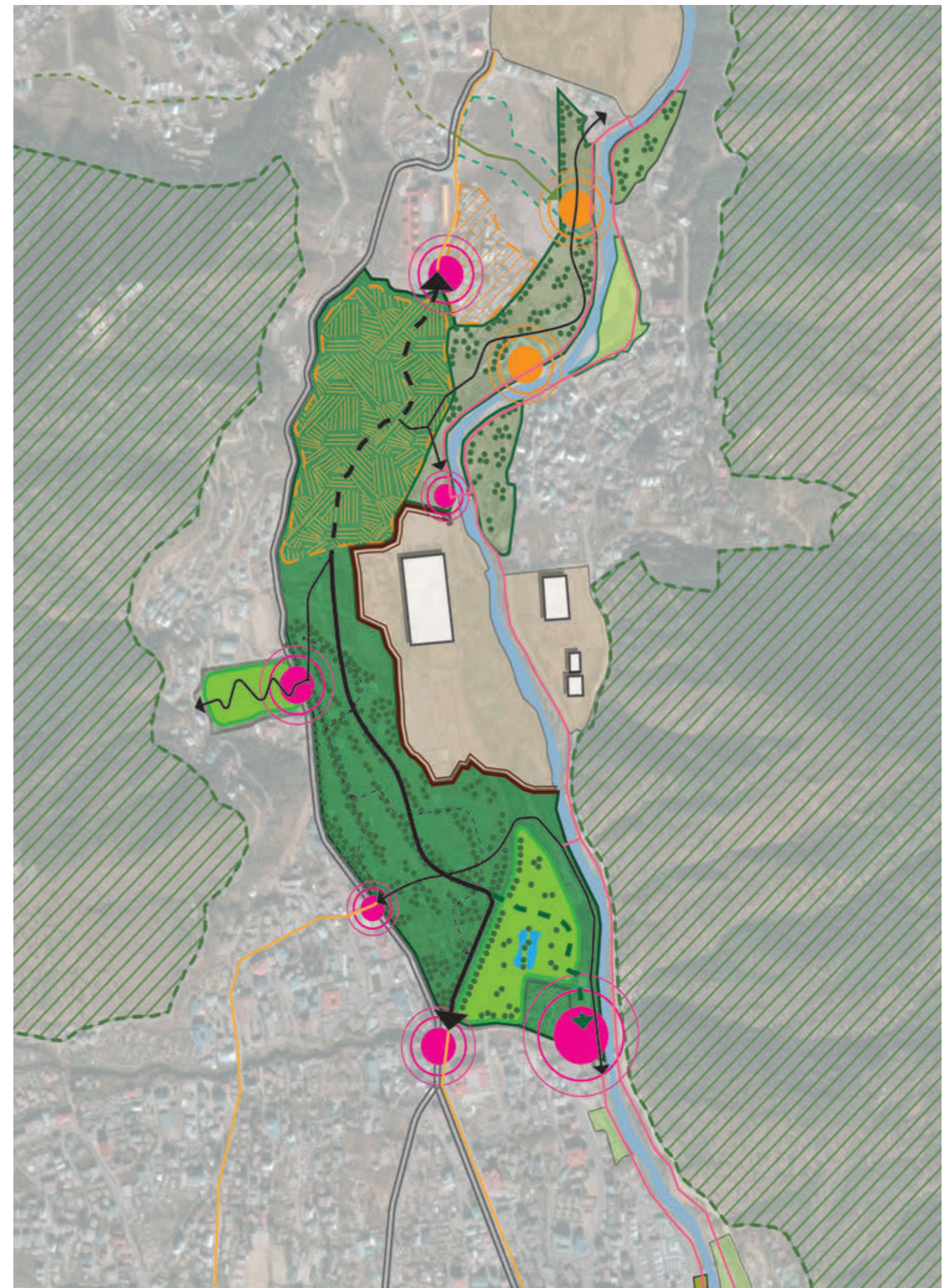
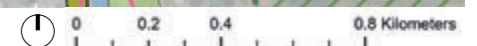


FIGURE 21 TASHICHHODZONG ROYAL PARK



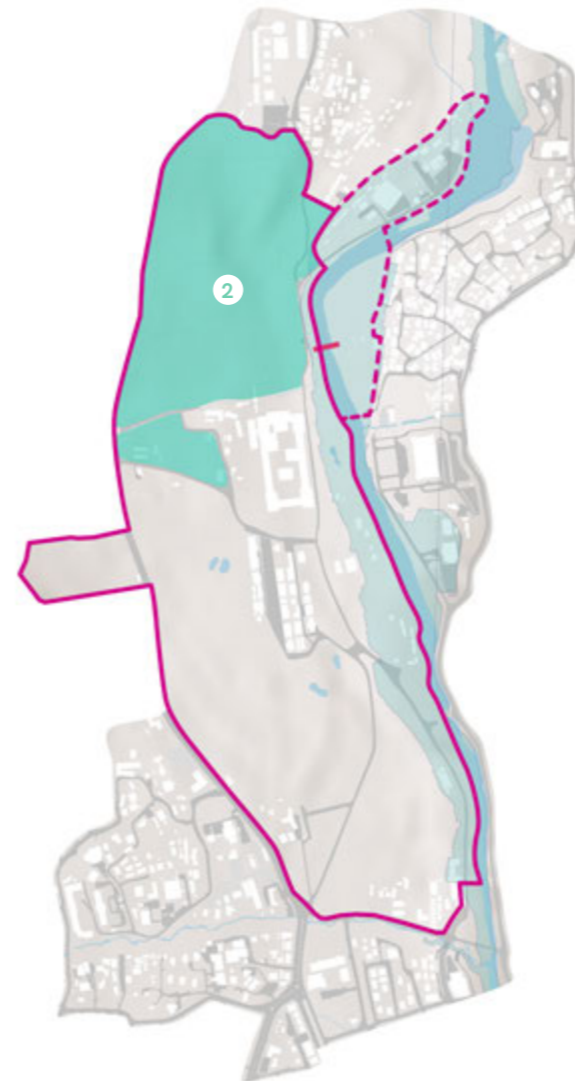
## TASHICHHODZONG ROYAL GARDENS - A PHASED APPROACH TO DELIVERY

An incremental approach to the implementation of Tashichhodzong Gardens will ensure that individual components of the wider vision can deliver benefits in the short to medium term whilst maintaining function of the existing golf course until an alternative site can be identified. During Phases 1+2 of the project, options to provide a public route through the golf course should be explored, to ensure that all parts of the site can be accessed easily. We recognise the value and recreational amenity provided by the golf course, both as a resource for local residents as well as visitors to Thimphu. A feasibility study on alternative sites would determine whether the offer can be provided elsewhere, perhaps as a full, 18 hole course. When such a site and funds to deliver the project have been identified, the final phase of Tashichhodzong Gardens can be implemented to ensure that the park functions as an interconnected whole in keeping with the design vision, with uninterrupted walking and cycling routes linking Northern Thimphu with the City Centre. It should be demonstrated that the Royal Happiness and Rhododendron Gardens can be delivered, programmed and maintained to a high quality prior to any further expansions of the park.



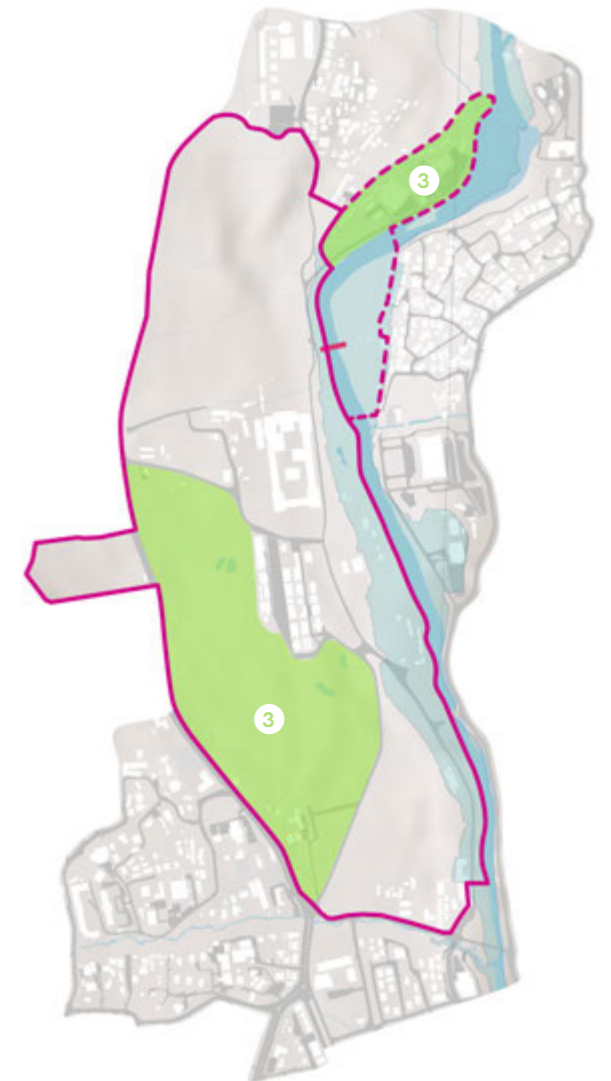
### PHASE 1 - ROYAL HAPPINESS AND RHODODENDRON GARDENS

Deliver the Royal Happiness Gardens and Rhododendron Gardens as exemplar spaces that celebrate Bhutan's botanic heritage and provide new public open space amenity at the heart of Thimphu.



### PHASE 2 - WETLAND PARK

Transform the existing wetlands into accessible parkland with the aim of showcasing Bhutan's agricultural heritage. A sensitive network of routes and carefully curated wayfinding and interpretation strategy will contribute to an immersive and educational experience of cultural landscapes.



### PHASE 3 (SUBJECT TO ADDITIONAL FEASIBILITY) - ARBORETUM AND HEJO EXTENSION

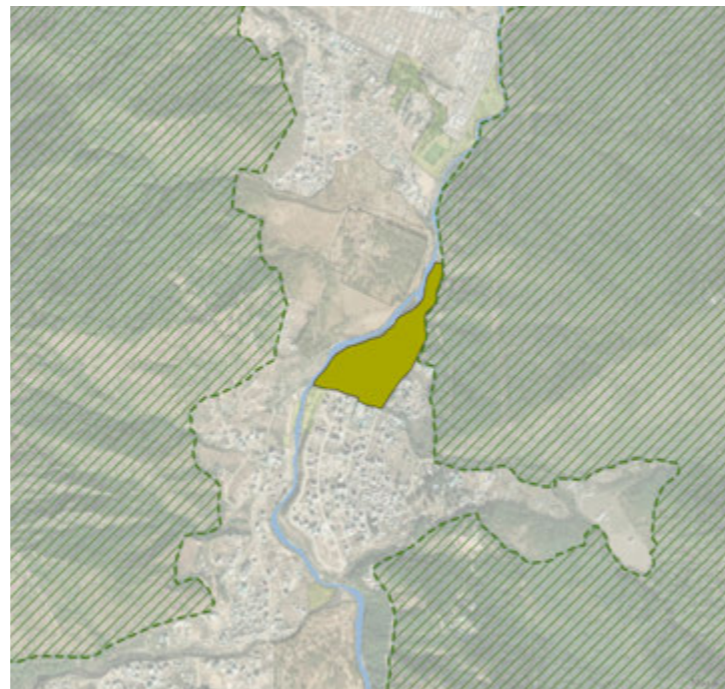
Following a feasibility study to identify appropriate alternative site to establish a golf course, create a new arboretum that dovetails with wider Garden areas and provides an extensive amenity core that can accommodate a range of programmed and flexible uses. Relocation of the Crematorium would provide opportunity to extend the Garden further and deliver Hejo River Park, a contemplative and reflective riverside park that sits within the flood zone and contributes to climate resilience.

#### KEY

- Tashichhodzong Gardens
- Future extension to include Hejo River Park
- Phase 1
- Phase 2
- Phase 3

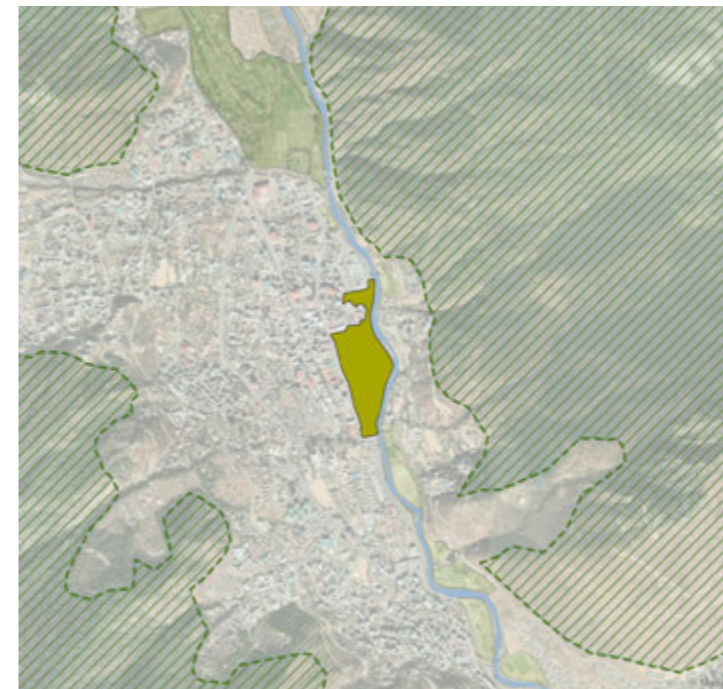
## CITY PARKS

Taba Forest Park, the Changlimithang Central River Park and Babesa Ecological Park will function as new City Parks. Each will have a distinctive character and design approach in respond to adjacent land use and environmental characteristics.



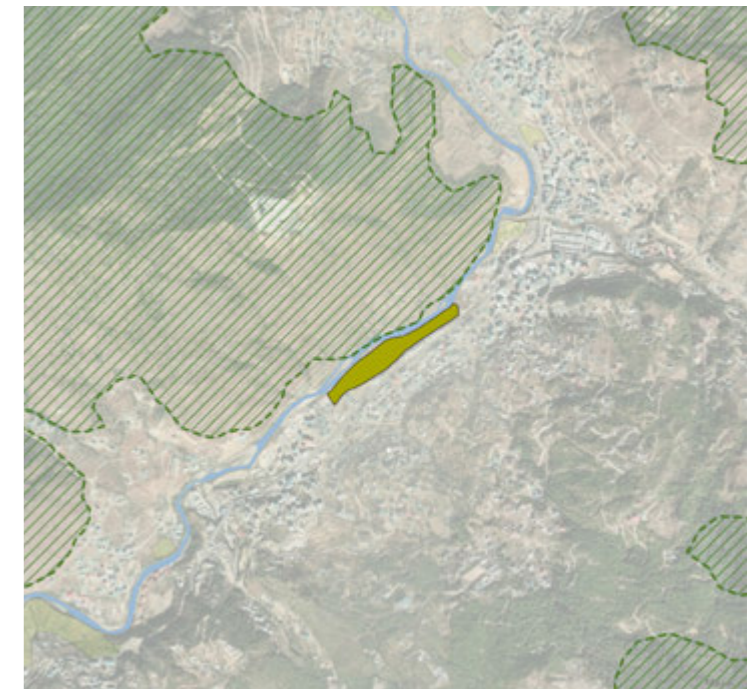
### 1. TABA FOREST PARK

Taba Forest Park will be an expansive open space between Taba and Dechencholing that provides uninterrupted riverfront access in a contemplative woodland environment. A network of walking trails will connect activity nodes distributed through the park. These will range from active to passive uses, providing opportunities for sitting and relaxation as well as active recreation. The Forest Park will preserve the natural transition between riparian habitats along the Wang Chhu and ancient pine forests that extend up the hillside.



### 2. CHANGLIMITHANG CENTRAL RIVER PARK

The Central River Park will be a new, vibrant destination that anchors the heart of the city to the Wang Chhu River. Incorporating Centenary Park, Zangdok-Pelri Temple and upgraded recreational facilities around the National Stadium, a coherent park of distinctive individual spaces and gardens of varying character will provide a seamless transition between riverside walking routes and the upgraded Chang Lam.



### 3. BABESA ECOLOGICAL PARK

Babesa Ecological Park will be a new open space destination in Southern Thimphu that explores the interplay between water, landscape and people. New wetland spaces full of the sights and sounds of nature will support aquatic habitats and bird populations, providing educational and learning opportunities. Spaces for flexible use in a cool, shaded environment will allow visitors to escape bustling city life and relax in on the banks of the Wang Chhu River. A new bridge connection will provide pedestrian access across the Wang Chhu to the lower slopes of Kuenselphodrang Regional Park.

0 0.25 0.5 1 Kilometers

### NEIGHBOURHOOD PARKS

A network of new and enhanced neighbourhood parks to provide accessible public space amenity for everyday use, ensuring that all of Thimphu's residents have high quality open space within walking distance. Design approach should be based on the following drivers:

- Celebrating tradition and local vernacular
- Providing shade and thermal comfort
- Balancing active and passive uses
- A park that is accessible to all the community
- Showcase and celebrate native flora



FIGURE 22 NEIGHBOURHOOD PARKS



FIGURE 23 NORTHERN THIMPHU NEIGHBOURHOOD PARKS 0 1 2km



FIGURE 24 CITY CENTRE NEIGHBOURHOOD PARKS 0 1 2km

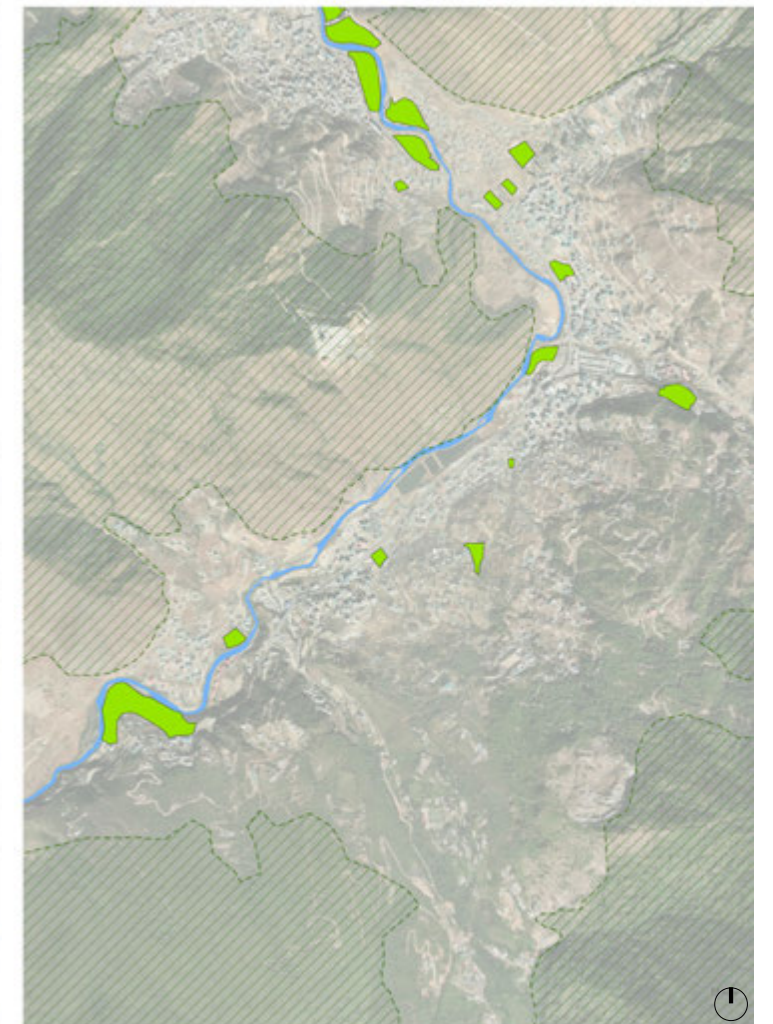


FIGURE 25 SOUTHERN THIMPHU NEIGHBOURHOOD PARKS 0 1 2km

# 3.4 Cultural and Ecological Landscapes

Thimphu is rich in biodiversity. There are a wide variety of important wildlife habitats including marshlands, riparian habitats along rivers and streams, and ancient coniferous, broadleaf and mixed forests. Despite this, Thimphu's habitats have undergone significant degradation due to rapid expansion of the City. The city's key cultural and ecological landscapes should be protected under three biodiversity designations - Forest Pockets, Riparian Corridors, and Local Nature Reserves - and two cultural designations - Heritage Landscapes and Wetlands.

Together, these designations have the following aims:

- To celebrate and cherish Thimphu's unique environmental setting by protecting valuable habitats
- To ensure areas of forest are preserved to mitigate the risk of landslides
- To protect areas of river banks to mitigate the risk of flooding and river bank erosion
- To enhance the management of existing habitats, including through habitat restoration and avoiding habitat fragmentation
- To facilitate greater and more equitable access to nature
- To protect designated sites from further degradation due to urban sprawl or encroachment
- To protect Thimphu's cultural heritage.

## PRINCIPLES

Forest Pockets - Areas of high value forest habitat or forests on steep slopes:

- Densification of planting should be encouraged in appropriate locations utilising native species.
- Areas of very steep forested slopes that exceed 30% gradient should be prohibited

from development.

- Areas of medium and high hazard risk should follow restrictions as recommended in the hazard zonation plan and retained as natural forest where appropriate.

Riparian Corridors: A buffer zone along stream and river banks:

- No development within defined extent of watercourse of major rivers and streams
- Natural landscape features should be protected
- No roads or utilities infrastructure shall be permitted
- Explore opportunities to open culverts and naturalise channels

Local Nature Reserves - Areas of high habitat and biodiversity value:

- Protect areas of high habitat and biodiversity
- Provide people with access to nature within the urban environment
- Link to educational programmes and the school curriculum

Cultural Landscapes - spaces around heritage structures and agricultural wetlands:

- Protect Thimphu's cultural landscapes to safeguard the city's cultural heritage.

### KEY

- Thimphu Thromde boundary
- - - Study area
- Green Belt boundary
- Forest Pocket
- Local Nature Reserve
- Riparian Corridor
- Wetlands (Chhuzhing)
- Main heritage site
- Lhakhang
- Chorten

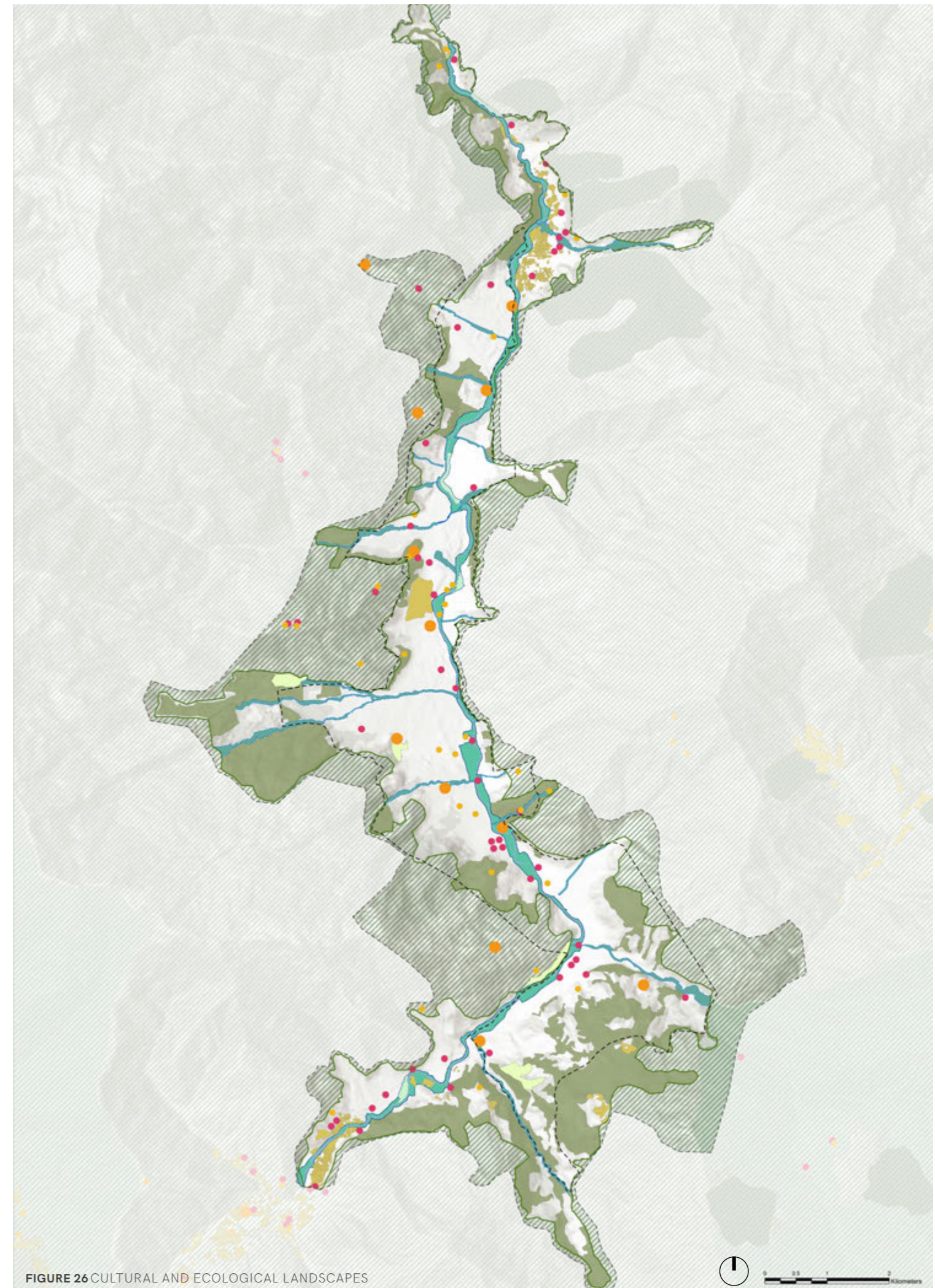
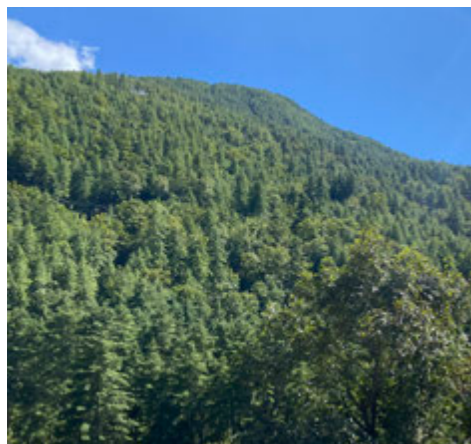


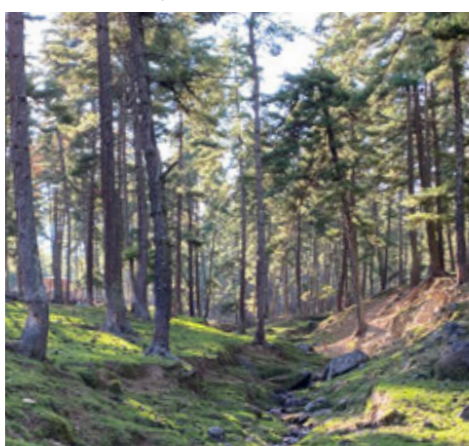
FIGURE 26 CULTURAL AND ECOLOGICAL LANDSCAPES



Coniferous forests across the Thimphu Valley







View from the upper slopes north of Thimphu



Natural forest in the Takin Preserve

### FOREST POCKETS

Forest Pockets have been defined with the aim of preserving and connecting areas of natural forest and the provision of public amenity and recreational opportunity beyond the Green Belt boundary.

- KEY
-  Thimphu Thromde boundary
  -  Study area
  -  Green Belt boundary
  -  Forest Pocket

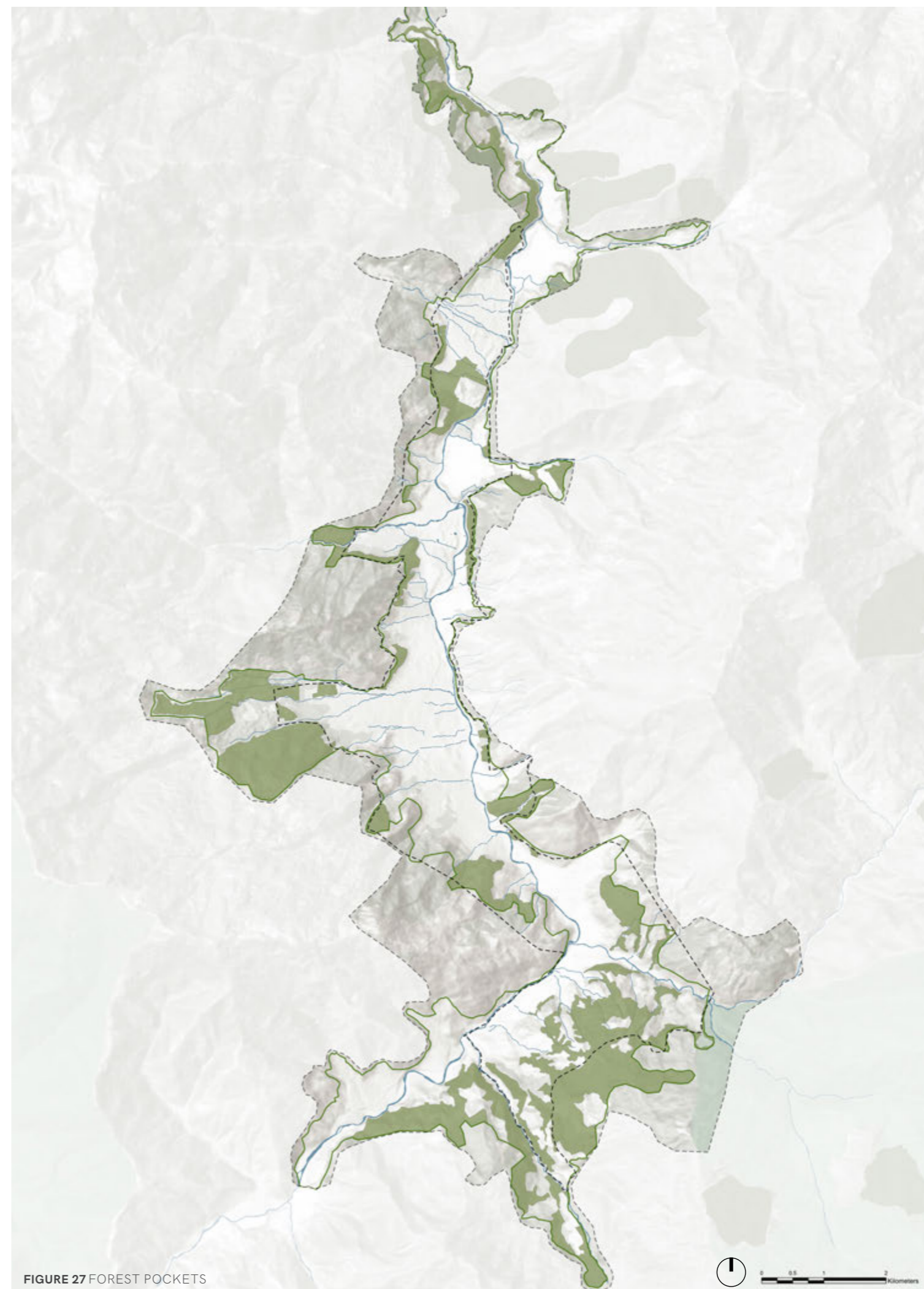
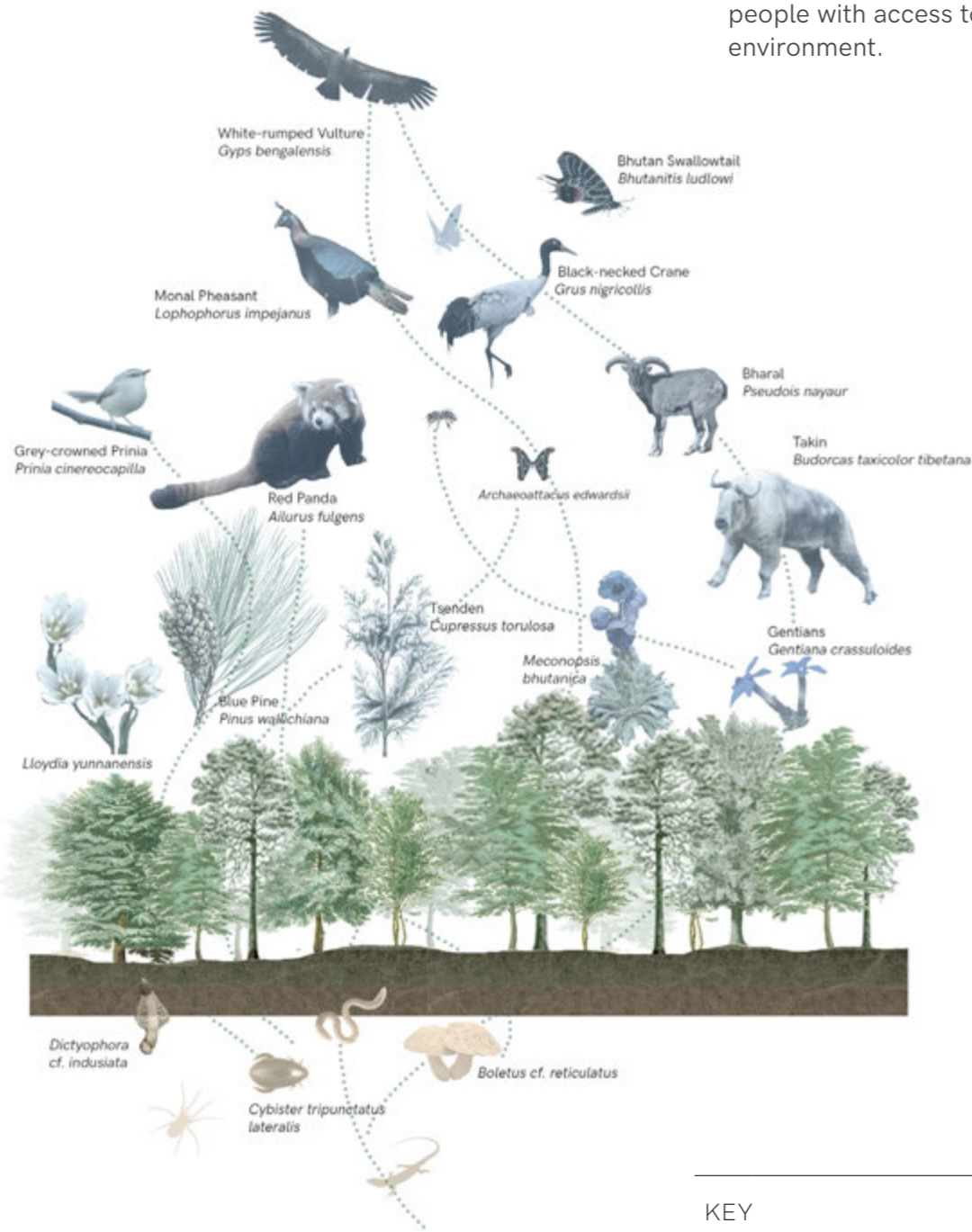


FIGURE 27 FOREST POCKETS



## LOCAL NATURE RESERVES

A new network of Local Nature Reserves aims to protect areas of high biodiversity and provide people with access to nature within the urban environment.



- KEY
- Thimphu Thromde boundary
  - - - Study area
  - Green Belt boundary
  - Local Nature Reserve

FIGURE 28 PROTECTING THE FLORA AND FAUNA OF THIMPHU

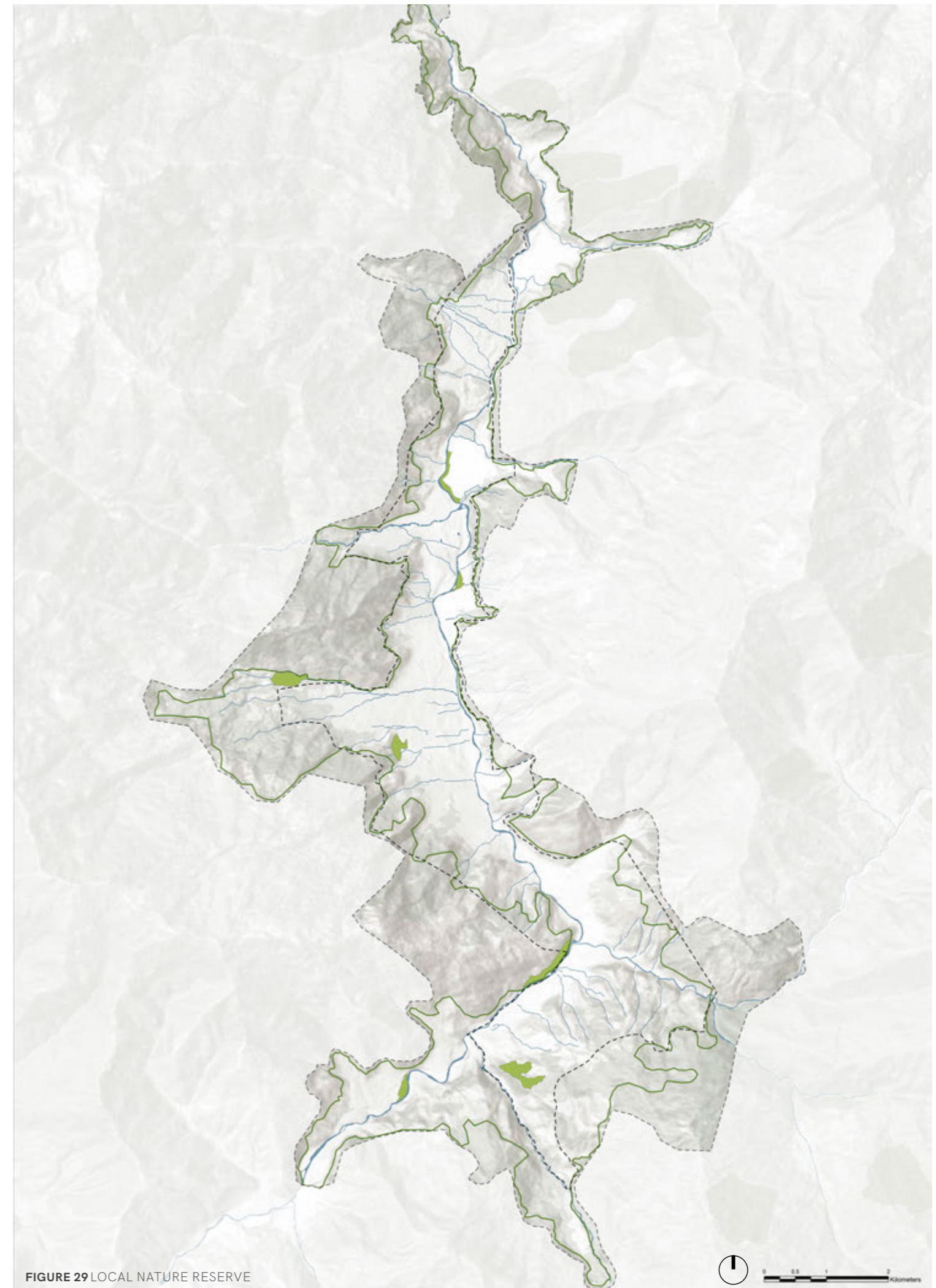


FIGURE 29 LOCAL NATURE RESERVE



The Wang Chhu



Riparian habitats in Southern Thimphu



Chubachhu Valley

### RIPARIAN ZONE

The Riparian Zone will act as a protective buffer along the Wang Chhu and its primary tributaries, with the aim of restricting urban encroachment, preserving riparian habitats and mitigating flood risk. Safeguarding the Riparian Zone will be an important contributor to the future climate resilience of Thimphu.

- KEY
- Thimphu Thromde boundary
  - - - Study area
  - Green Belt boundary
  - █ Riparian Corridor

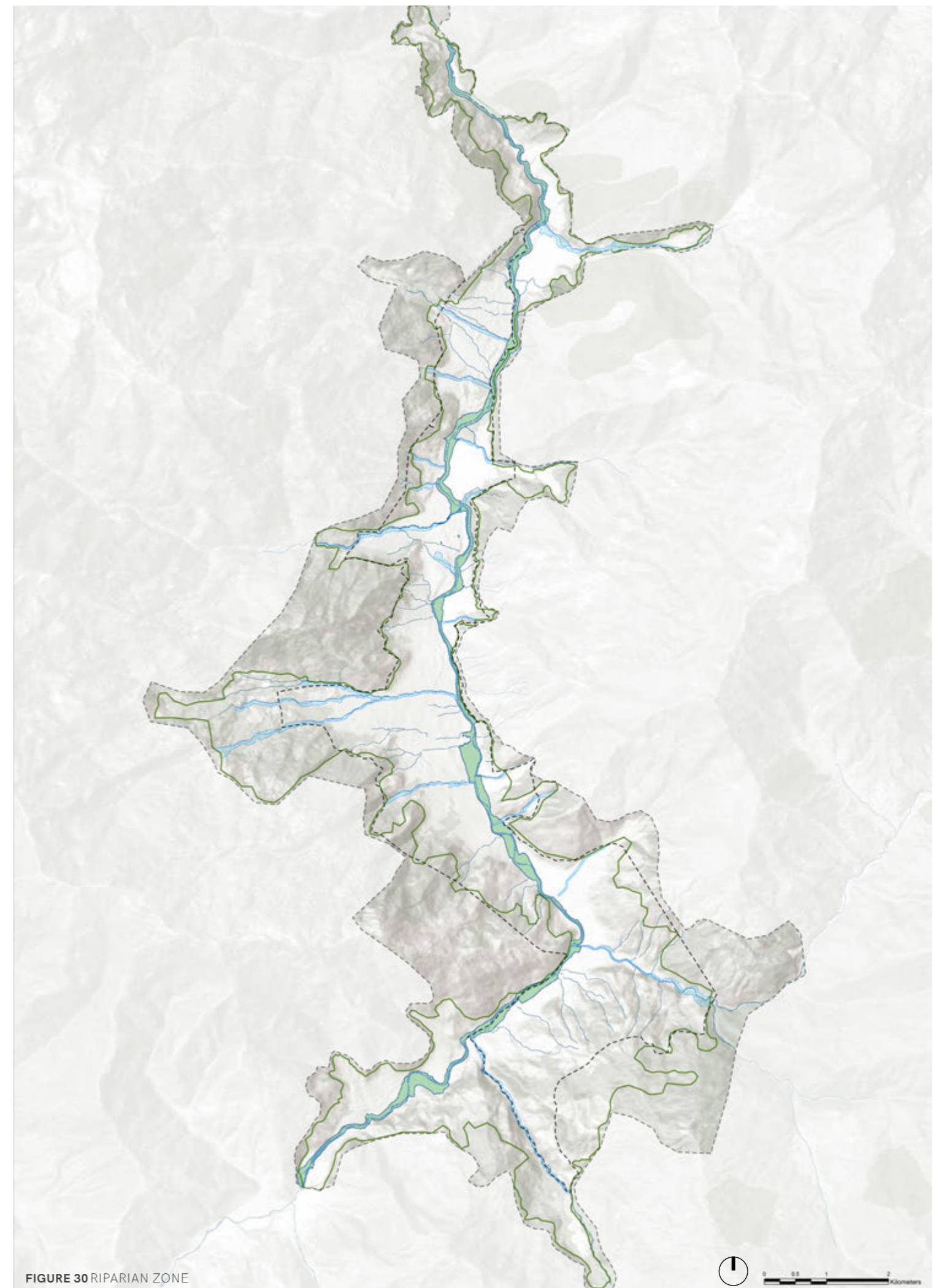


FIGURE 30 RIPARIAN ZONE



Wetlands in Kabesa



Wetlands in Rama



Wetlands around Tashichhodzong

## CULTURAL LANDSCAPES

Historic structures, such as Dzongs, Lhakhangs and Chortens, are often located in prominent locations on peaks, ridges and hillsides. Views towards these features support orientation through the city and contribute to the cultural heritage of Thimphu and an appreciation of harmony between people and nature. The landscape setting around these structures should be protected to preserve key view corridors, and enhanced to provide contemplative public amenity for those who visit. Wetlands in Kabesa, Depsi, Rama and around Tashichhodzong Gardens are important landscapes that represent the historic relationship between the people of Thimphu, the land and water systems. These environments should be cherished and preserved in key locations, with a sensitive approach to providing public access transforming them into multifunctional open spaces that incorporate walking routes and places to dwell on the riverside. The wetlands around Tashichhodzong can be used to showcase the variety of grains grown across Bhutan, as a demonstration garden which represents the country's diverse agricultural heritage.

### KEY

- Thimphu Thromde boundary
- Study area
- Green Belt boundary
- Wetlands (Chhuzhing)
- Main heritage site
- Lhakhang
- Chorten

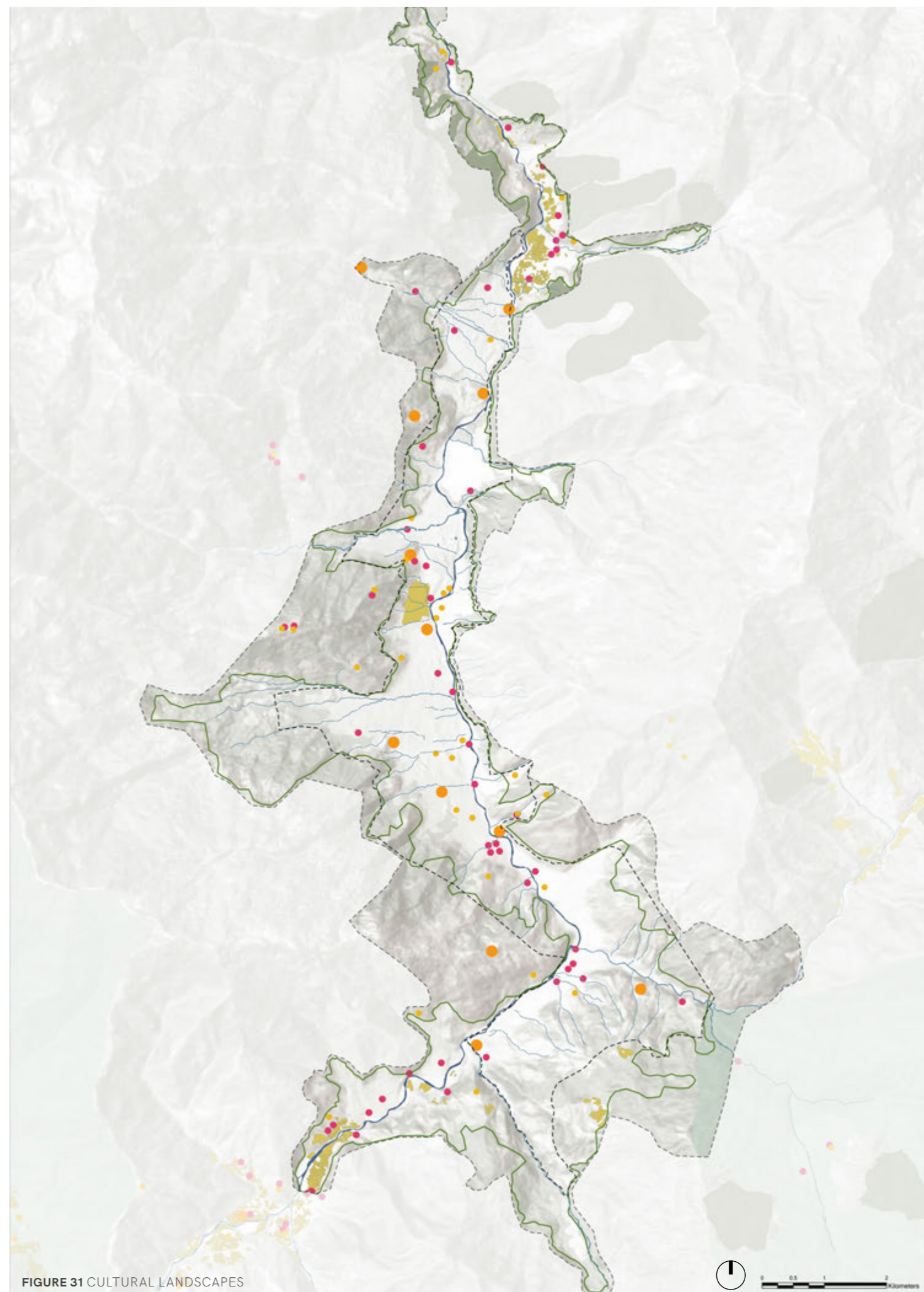


FIGURE 31 CULTURAL LANDSCAPES

# 3.5 Existing vs. Proposed



FIGURE 32 EXISTING GREEN INFRASTRUCTURE NETWORK

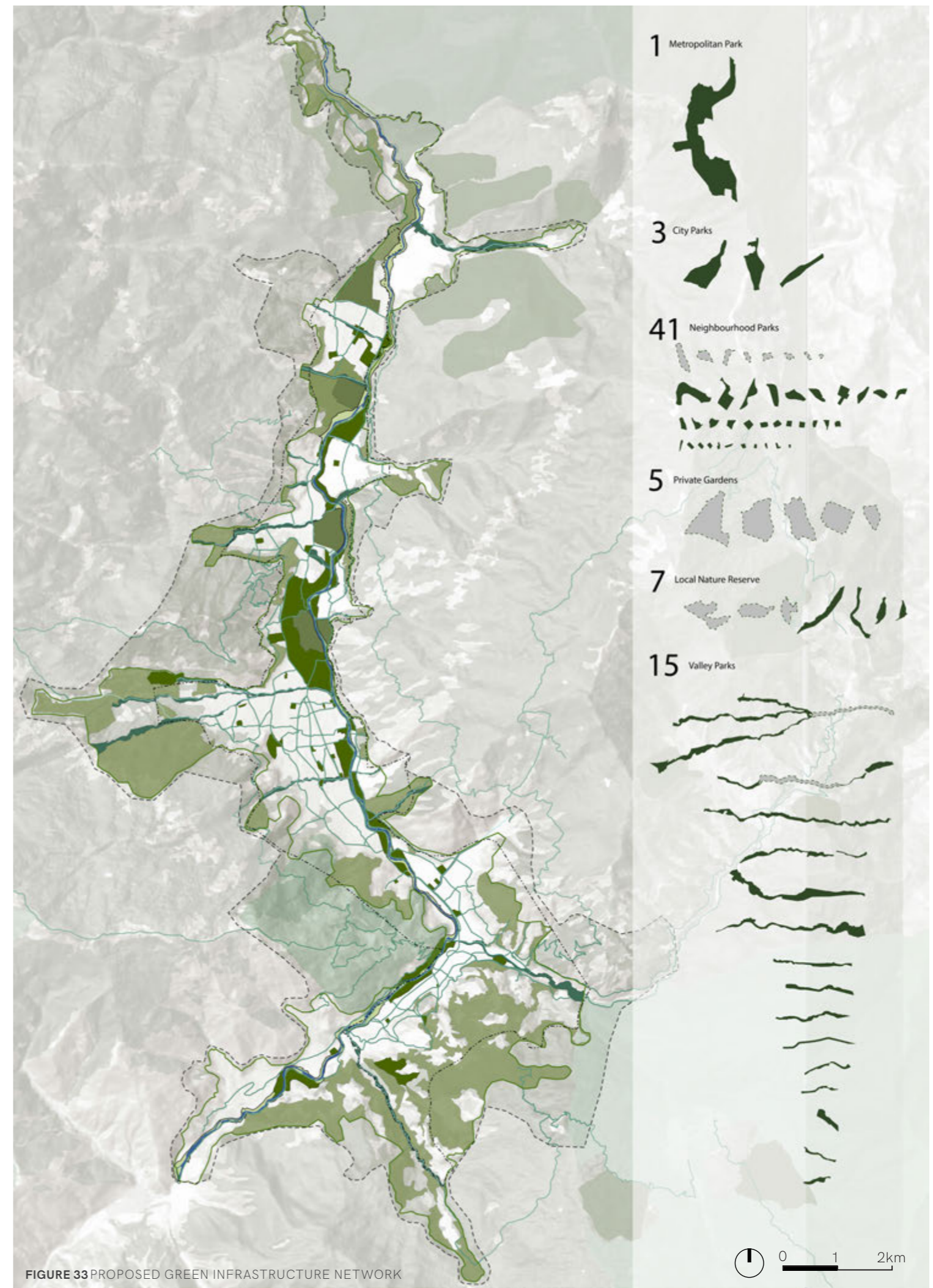


FIGURE 33 PROPOSED GREEN INFRASTRUCTURE NETWORK

04

# Changzamtog Park Concept Design

# 4.1 Brief and project parameters

*Changzamtog Park, a new riverside neighbourhood park for all the community.*



FIGURE 34 LOCATION OF CHANGZAMTOG PARK

Together with the project team and city stakeholders, Changzamtog Park was identified as a pilot area to develop a landscape design to concept level. The aim of this is to illustrate, up to RIBA 2 level, application of appropriate landscape design principles that demonstrate the notion of a contemporary, riverside neighbourhood park in Thimphu. The project aligns with the structuring principles of the Thimphu Green Infrastructure and Open Space Plan. A visioning workshop was held with key stakeholders to capture aspirations for the park, with outcomes forming key drivers for the project.

Key project and site parameters include the following:

1. Drainage and surface water flooding/runoff
2. Existing bore holes and water main
3. Aspiration for a new 1km running and leisure track
4. Access challenges due to proximity of expressway
5. Existing areas of parking
6. Relationship with the river and riparian habitats along its banks
7. Existing tree planting

## CROSS SECTION OF PROPOSED JOGGING TRAILS ALONG THE PARK

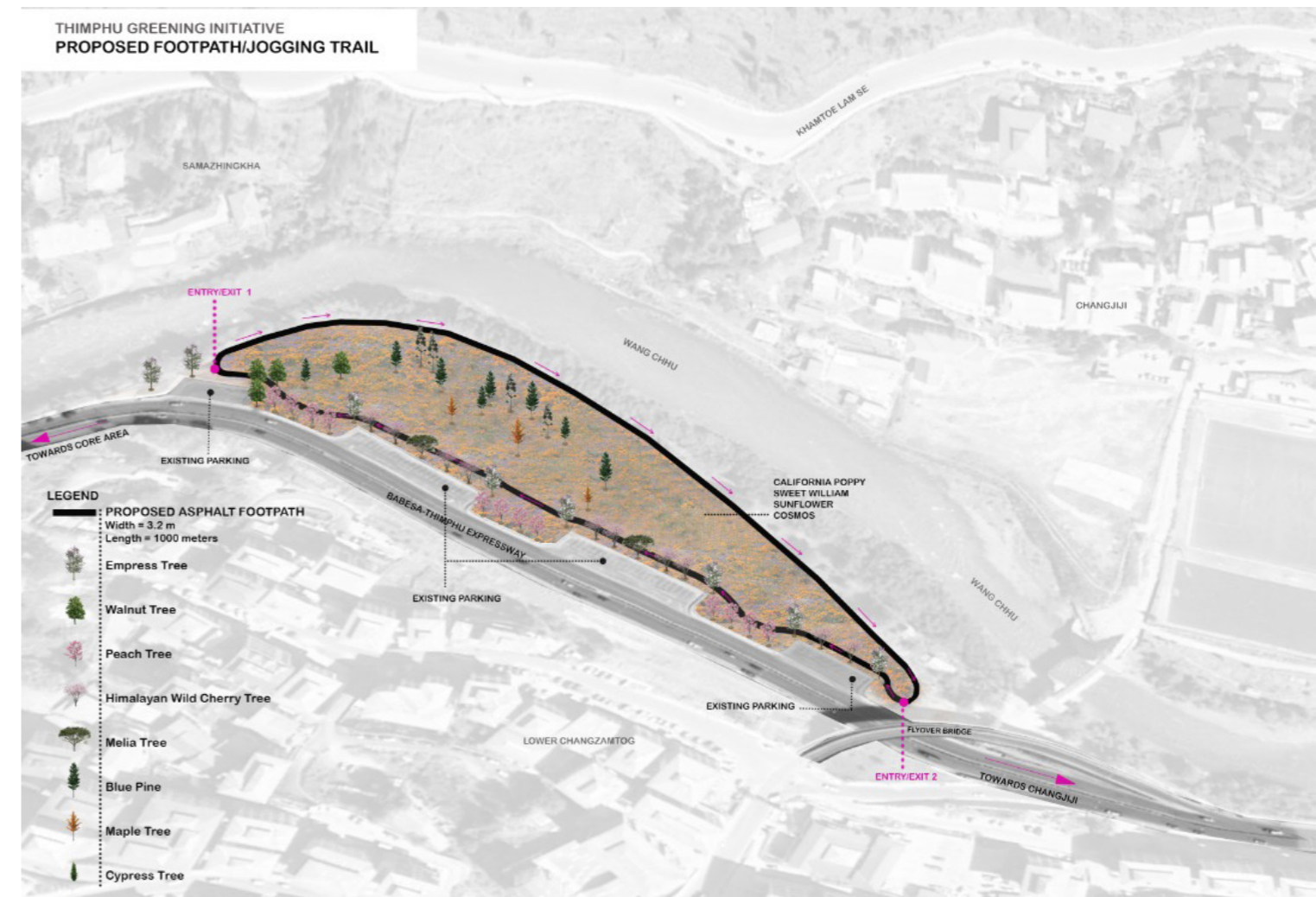
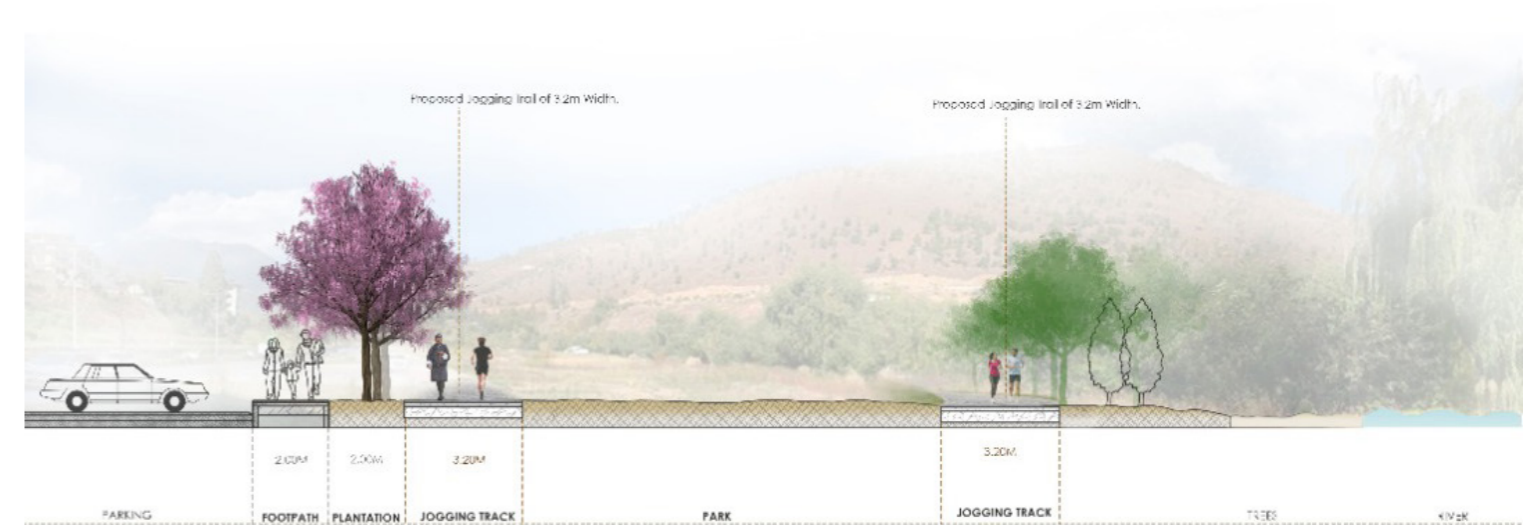


FIGURE 35 EXISTING PROPOSALS

## SPATIAL CONTEXT

Changzamtog Park is a 2.8ha vacant site adjacent to the Thimphu Chhu, with 450m of riverside frontage along its eastern edge. It is bounded by the busy expressway to the west. Beyond this major thoroughfare is the neighbourhood of Changzamtog, a stone's throw from the park yet relatively inaccessible due to the severance caused by the expressway. An existing buried stormwater drain passes through the southern end of the site, serving a catchment of ~30ha across the neighbourhood. Despite recent tree planting initiatives, the site is predominantly open grassland, though the embankment corridor along the river edge presents a rich mix of mature willow trees and riparian habitat. The park is accessible to the south from Changjiji via an existing heritage bridge and to the north via the river walk that links back to the Centenary Park and the City Centre.

The adjacent plan illustrates the spatial context of Changzamtog Park. Key considerations include the following:

- Relationship with adjacent neighbourhood
- Edge conditions; both river and expressway
- Heritage structures and trails around the site
- Existing flyover bridge
- Tsendengshing cypress tree
- Adjacent school and associated recreational facilities
- Flood risk zone for 1 in 100 year floods (subject to confirmation)
- Existing stormwater drain

## 4.2 Understanding the site

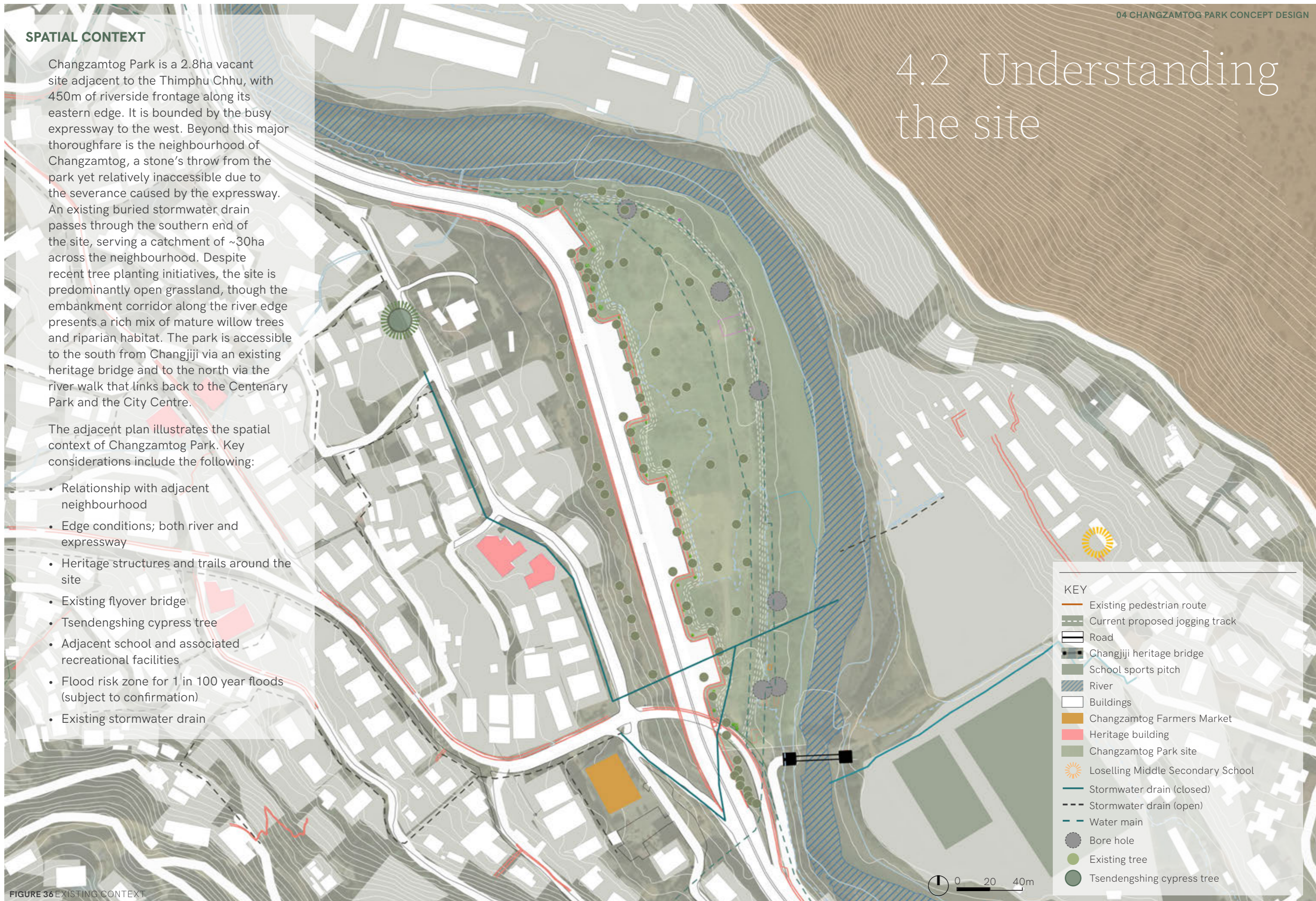


FIGURE 36 EXISTING CONTEXT

## 4.3 Evolution of the landscape

2003



2011



2022



### UNLOCKING THE SITE

As illustrated in the adjacent sequence of aerial photos, the Changzamtog site has undergone significant change over the past two decades. From wetland agricultural uses to supporting road and parking infrastructure, the realignment of the expressway has unlocked this parcel of land as an opportunity site for the delivery of a new neighbourhood park, serving the communities of Changzamtog and Changjiji. Valuable riparian habitat and willow trees have matured along the banks of the Thimphu Chhu.



# 4.4 Design drivers



## ◀ 1. CELEBRATING TRADITION AND LOCAL VERNACULAR

Whilst looking to the future, the park design will be sensitive to local culture, tradition and materiality. It will also aim to tell the story of how plants and people have lived in harmony across Bhutan.

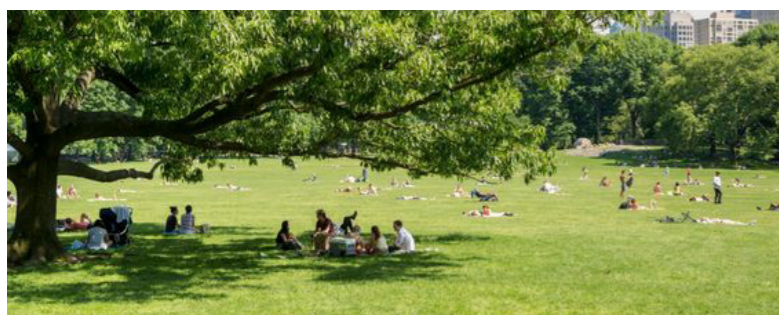
## 2. PROVIDING SHADE AND THERMAL COMFORT ▶

Shade and shelter is a crucial aspect of our design, ensuring comfortable environments that work through the day and the changing seasons. Planting and structures are distributed along key walking routes and seating areas to provide shade.



## ◀ 3. BALANCING ACTIVE AND PASSIVE USES

Changzamtog Park will be an environment that amazes and inspires visitors during every repeat visit, with both active and passive uses distributed throughout the site. The park will change with the seasons and evolve over time as planting matures and art, installation and events change.



## 4. A PARK THAT IS ACCESSIBLE TO ALL THE COMMUNITY ▶

With the potential for nature to provide value to all members of the community, the park will embed inclusive design at its core. Accessible routes will connect spaces that are programmed to cater for users of all ages.



## ◀ 5. SHOWCASE AND CELEBRATE NATIVE FLORA

Parts of the site will be dedicated to showcasing Bhutan's unique plant diversity through exciting displays and engaging communication. Planting arrangements will explore the relationship between plants and people - ethnobotany.

## 6. ENABLE THRESHOLDS AND TRANSITIONS ▶

The park will consider the thresholds between spaces, ensuring that the transition between areas of distinct character and programme is designed to create variety and interest for visitors whilst maintaining a coherent 'look and feel' to the overall garden character.



## 4.5 The concept

*Changzamtog Park, sited at the intersection between the river and the community, provides the opportunity to bring people, nature and water together and establish the notion of a neighbourhood park in Thimphu. The design approach will be sensitive to cultural context and Bhutanese identity whilst looking confidently towards a contemporary, resilient future.*

### CHANGZAMTOG PARK CONCEPT

Through the establishment of an inclusive, varied and rich parkland environment, Changzamtog Park presents a unique opportunity to establish a benchmark for riverside parks in Thimphu. Proposals advocate for an inclusive, safe and vibrant environment, promoting healthy living and providing amenity for all the community to enjoy. Key strategies include:

- Connecting Changjiji with Changzamtog through a new pedestrian priority route;
- Defining distinct parkland environments, or 'garden rooms' which balance active and passive uses;
- Prioritising nature-based solutions through the naturalisation of the existing stormwater drain;
- Creating 'moments' along the river's edge which allow people to experience the water in engaging yet safe ways.

The design aims to put people and nature first. A carefully considered movement strategy prioritises pedestrian mobility to and through the site, considering the arrival sequence of those visiting. The planting design will be both beautiful and functional, showcasing the wondrous and varied flora of Thimphu and its surroundings. The park will embed regenerative and resilient design, with principles of water treatment, storage and reuse as part of an integrated SuDS strategy. It will also be a space for art and creativity, with an evolving programme of installation, events and activities.

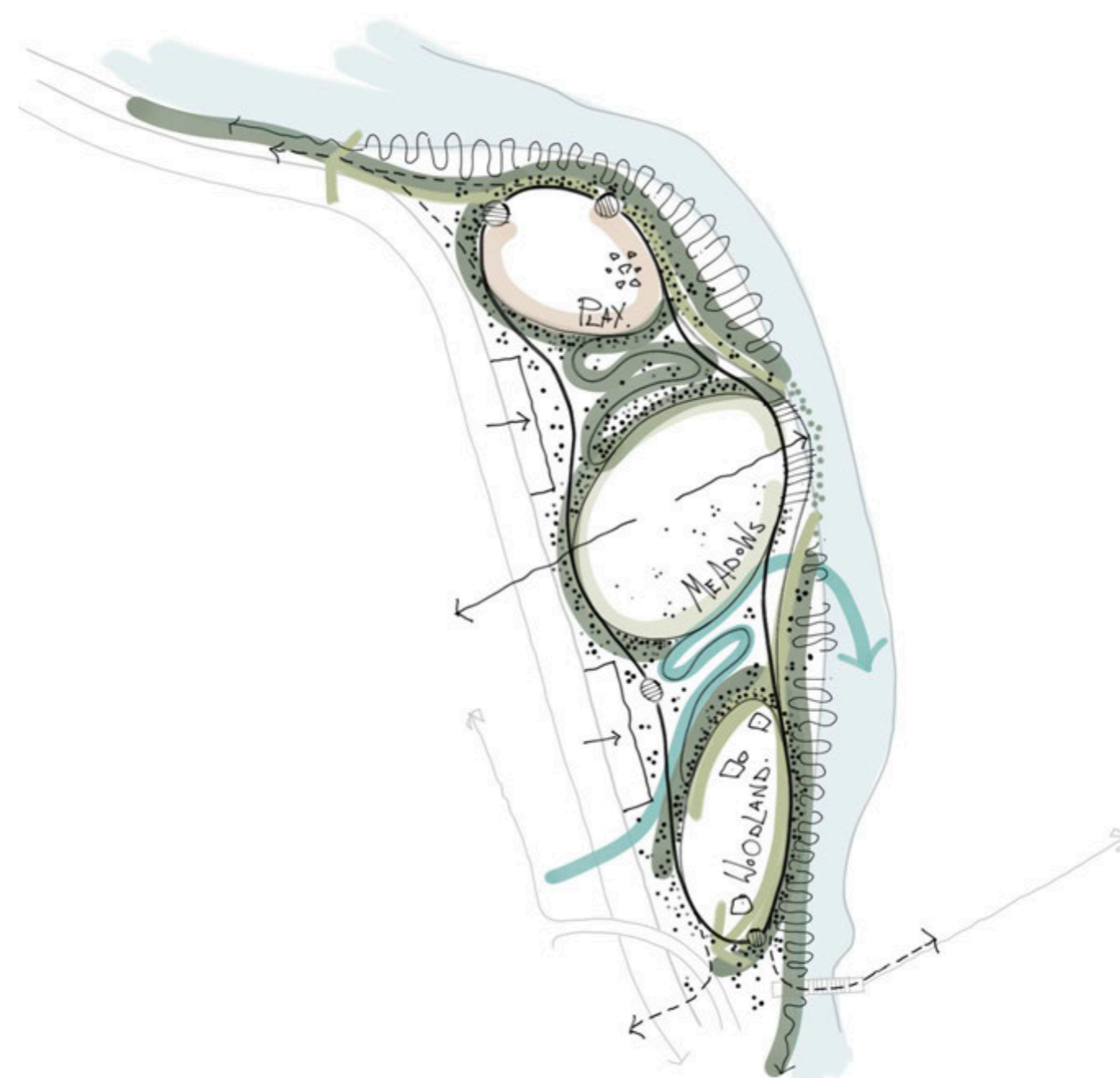
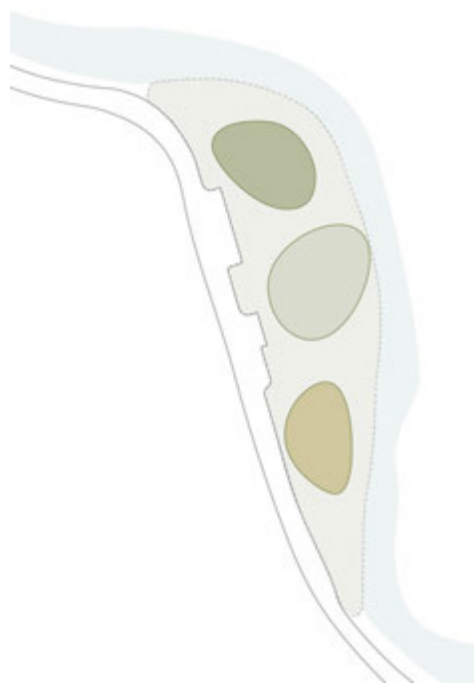


FIGURE 37 EARLY CONCEPT SKETCH

## 4.6 Key moves



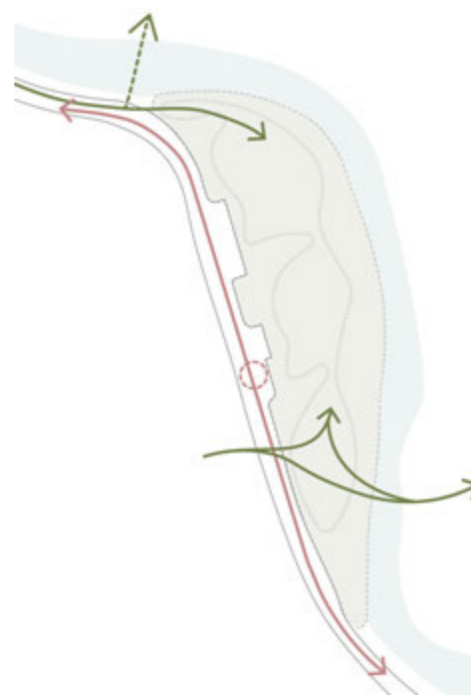
### 1. ESTABLISH DISTINCT GARDEN 'ROOMS'

The design will be structured around three core areas, each with its own unique character and programme, providing inclusive spaces for all the community.



### 2. CONNECT THROUGH A PERIMETER LOOP

The primary aim of this strategy is to provide a 1km long jogging track whilst also promoting walking and providing flexibility of journey lengths in comfortable microclimatic conditions.



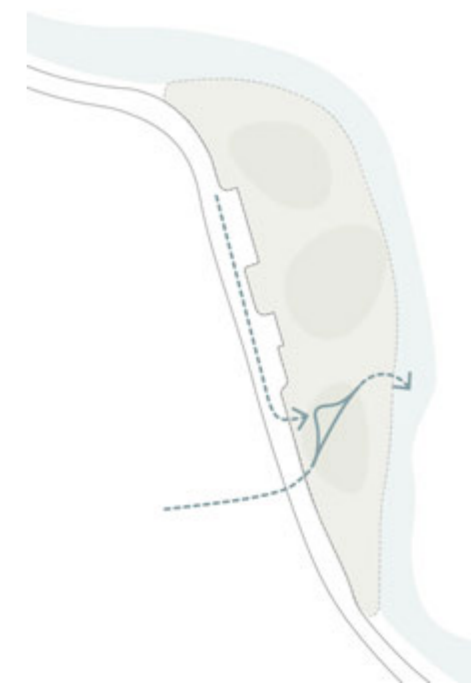
### 3. LINK WITH THE COMMUNITIES

Equally important to delivering a high quality, multifunctional park is ensuring that people can access the site. New walking routes will connect to Changjiji and Changzamtog, with improved public transport and river walk connecting to the City Centre.



### 4. CREATE RIVERSIDE MOMENTS

Each character space will address the river in a different way, providing a sequence of reflective 'moments' that frame views and allow visitors to re-connect with the river environment.



### 5. IMPLEMENT NATURE-BASED SOLUTIONS

The site has the potential to deliver an exemplary, natural water management scheme, with rain gardens and a bioswale polishing the water before it enters the river, supporting aquatic habitats and providing public amenity.



### 6. OVERLAY PLAY, ART AND PROGRAMME

A rich and varied sequence of play, art, educational, adventure and recreational uses will contribute to a multifunctional and engaging park landscape.

# 4.7 Concept plan



- 1 Future bridge connection
- 2 Jogging track
- 3 Primary walking route
- 4 Public art installation
- 5 Expansive lawn
- 6 Gravel beach
- 7 Terraced access
- 8 Woodland seating pocket
- 9 Parking area
- 10 Rain garden
- 11 Woodland play space
- 12 Elevated boardwalk
- 13 Feature deck
- 14 Seating mound
- 15 Play and adventure zone
- 16 Outdoor gym
- 17 Flexible market space
- 18 Plaza and gathering space
- 19 Western gateway
- 20 Shade canopy
- 21 Cafe and outdoor seating
- 22 Community orchard
- 23 Barbecue lawn
- 24 Secondary walking route
- 25 Mobility hub
- 26 Arboretum
- 27 Retained riparian habitat
- 28 Water garden
- 29 Swale
- 30 Observation deck
- 31 Sensory Gardens
- 32 Arrival space
- 33 Access to Changjiji
- 34 New pedestrian priority crossing
- 35 Northbound bus stop
- 36 New pedestrian route
- 37 'Balcony' and hanging gardens

FIGURE 38 CONCEPT PLAN

# 4.8 Character spaces



The Meadows



The Community Hub



The Sensory Gardens

## THREE CORE ZONES

Three distinct character spaces have been defined within the park, each of which presents a unique programme, look and feel, and ecological condition.

- **The Meadows** is an expansive, flexible lawn for picnicking and events
- **The Community Hub** is a vibrant, active space for all the community to enjoy
- **The Sensory Gardens** celebrate Bhutan's natural and cultural heritage

The adjacent reference images aim to capture the essence of each of these spaces, which are explored in more detail across the next section of the report.

These spaces will be stitched together by amenity parkland with scattered trees, which facilitates permeable movement through the site and allows for peaceful, shaded seating away from the more active and programmed spaces.

### KEY

- Study area
- Character spaces
- 1 The Meadows
- 2 The Hub
- 3 The Sensory Garden



FIGURE 39 CHARACTER SPACES

### 1. THE MEADOWS

The Meadows will be an expansive lawn space designed for flexible use; as an everyday picnic spot, for community events, and for sports and recreation. The clearing will be framed by tree planting of a variety of species, which give shade to the looping track and walking route that provides access around the space. Existing planting along the river edge will be thinned to frame key views, and steps will provide access to a gravel beach and the water's edge.



Lawn for picnicking and passive uses



Opportunities for informal sport and recreation



Stepped access to the water's edge



FIGURE 41 THE MEADOWS PLAN

- 1 Access from northern gateway and river walk
- 2 Perimeter route
- 3 Access from the Community Hub
- 4 Flexible lawn space for picnicking, events and recreation
- 5 Seating terraces and step access to the river's edge
- 6 Gravel beach
- 7 Jogging track

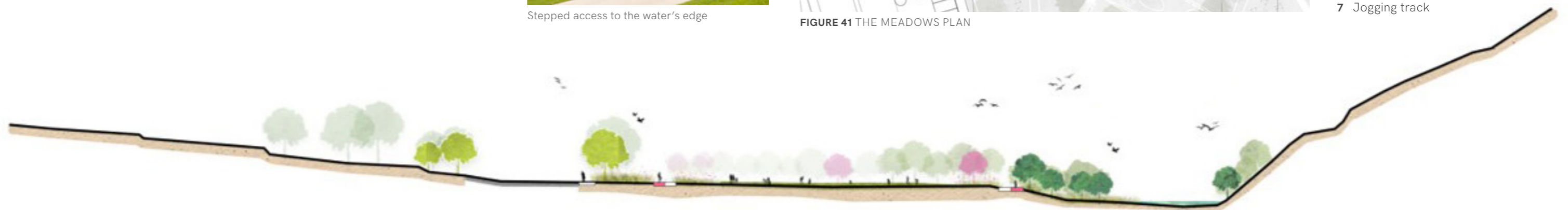
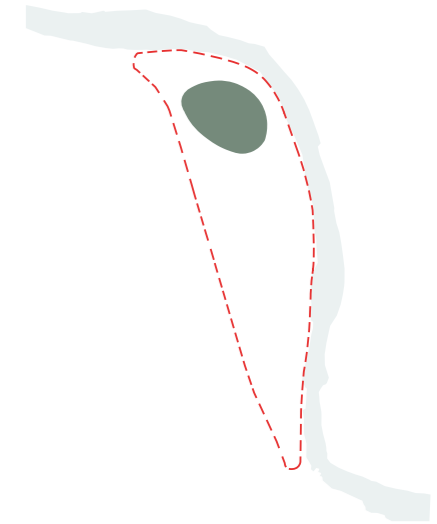


FIGURE 40 THE MEADOWS SECTION

## 2. THE COMMUNITY HUB

The Community Hub will be a new destination at the heart of the site. Bookended to the north and south by more naturalistic, passive environments, the Hub will act as a vibrant core and meeting place. Inspired by the success of Kaja Throm in both Paro and Thimphu, the Hub will incorporate a new café building and associated external seating within a bustling natural stone plaza. A contemporary canopy structure can provide shade and a focal point within the space, as well as a unique visitor attraction that represents local craftsmanship and art. The central space will be framed by zones of active use, including an outdoor gym, children’s play area and barbecue lawn. Spoil excavated from the new stormwater channel will be used to create vegetated landform that will allow park users to perch and gaze out across different areas of the park and river. A feature observation deck will extend to the river’s edge, framing views and connected to the hub via a new elevated boardwalk structure. The Community Hub will incorporate sculpture and installation, providing local artists and fabricators with an opportunity to showcase their work. This will form part of a wider art trail that provides interest through the park and contributes to the project’s wayfinding strategy.



Engaging play spaces



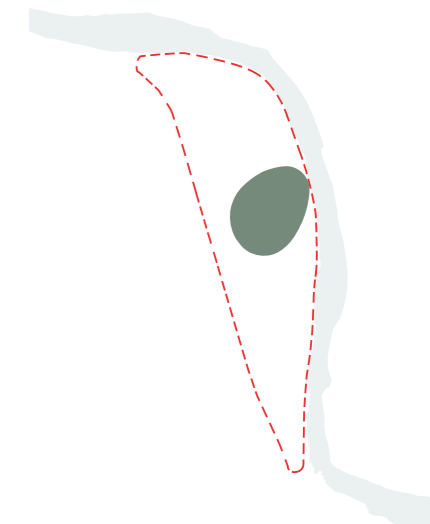
Cafe and shaded outdoor seating



Observation deck



FIGURE 43 THE COMMUNITY HUB PLAN



- 1 Western gateway
- 2 Feature planting
- 3 Woodland play space
- 4 Adventure play space
- 5 Seating mound
- 6 Elevated boardwalk
- 7 Feature deck
- 8 Outdoor gym
- 9 Jogging track
- 10 Cafe and outdoor seating
- 11 Central plaza and gathering space
- 12 Flexible area for temporary markets
- 13 Shade canopy installation
- 14 Seating area and performance space
- 15 Barbecue lawn
- 16 Community orchard
- 17 Primary walking route
- 18 Secondary walking route



FIGURE 42 THE COMMUNITY HUB SECTION

### 3. THE SENSORY GARDEN

The Sensory Gardens will celebrate Bhutan's special natural and cultural heritage. They will explore the relationship between plants and people, showcasing useful plants in medicine, craft, agriculture and spirituality. This, combined with a carefully considered wayfinding strategy, will provide educational experiences for visitors, school children and the local community. It can link with the school curriculum, and provide physical space for outdoor learning, allowing young people to engage with nature. A textured reflexology path, framed by immersive planting, should be incorporated to provide a multi-sensory experience. The naturalised swale will frame the northern extent of the gardens, where rockwork, aquatic planting and natural play features will ensure this ephemeral landscape provides interest all year round. Proposed gardens include the following:

1. Garden of Useful Plants (related to manufacturing and crafts)
2. Edible Plants Garden
3. Medicinal Garden
4. Water Gardens



Educational landscape



Immersive garden spaces



Celebrating the relationship between plants and people



FIGURE 45 THE SENSORY GARDENS PLAN

- 1 Pedestrian crossing linking with Changzamtog
- 2 Arrival space
- 3 Bridge across swale
- 4 Bioswale and wetland habitat
- 5 Water gardens and play amenity
- 6 Garden of useful plants
- 7 Edible plants garden
- 8 Medicinal garden
- 9 Seating deck in willow woodland
- 10 Connection to Changjiji via heritage bridge
- 11 Reflexology path

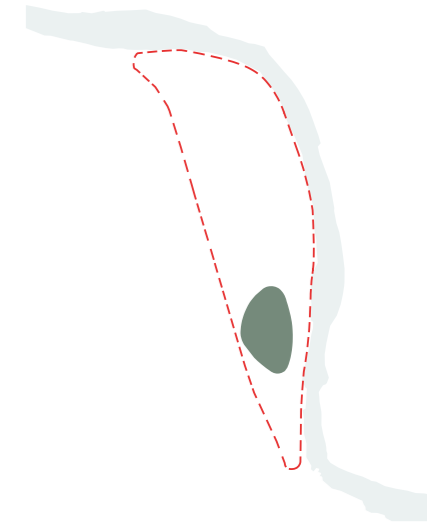
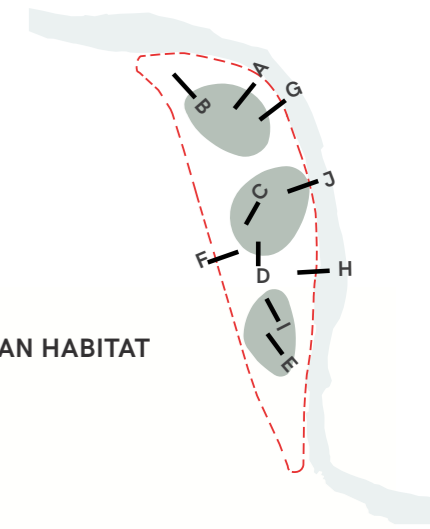


FIGURE 44 THE SENSORY GARDENS SECTION

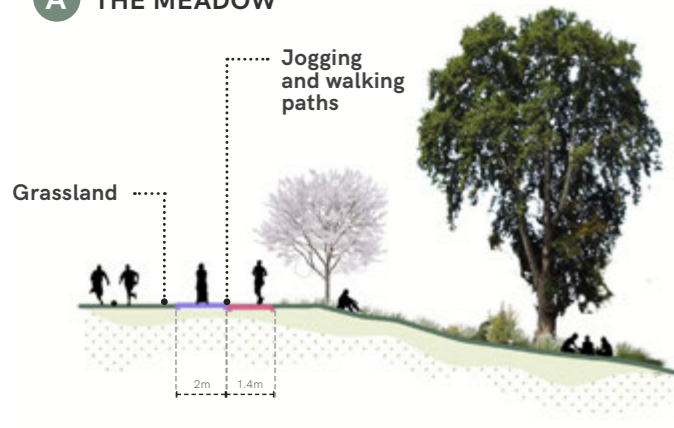


# 4.9 Key design components

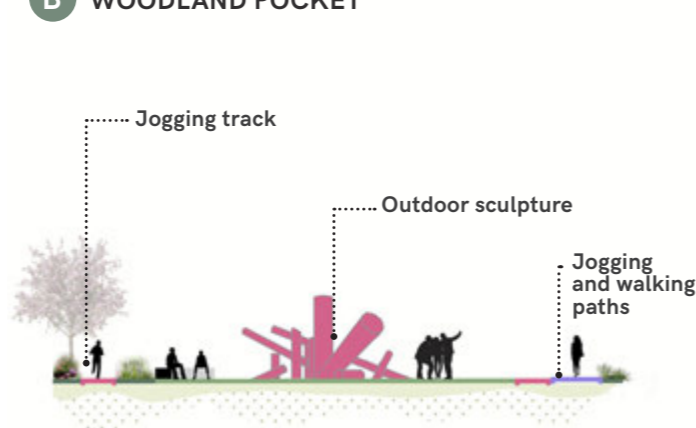
The following section diagrams explore key components of the design, providing dimensions and description where relevant to articulate the concept proposals further and highlight important adjacencies and interfaces.



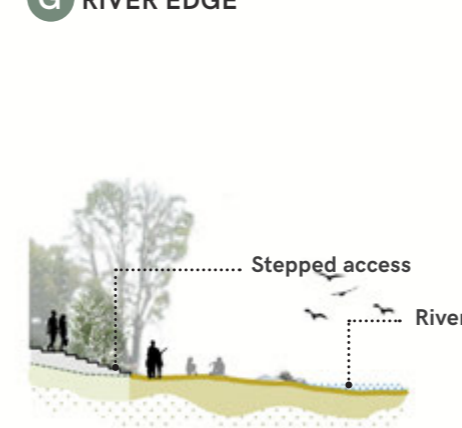
**A THE MEADOW**



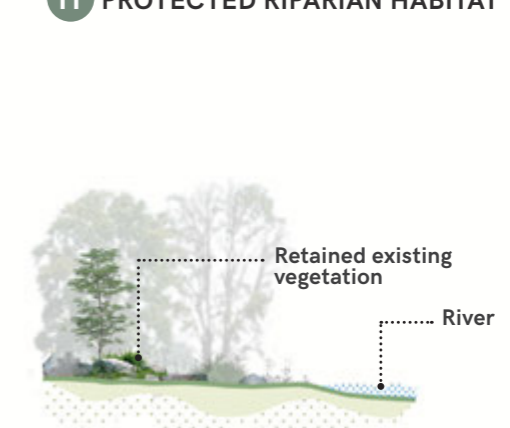
**B WOODLAND POCKET**



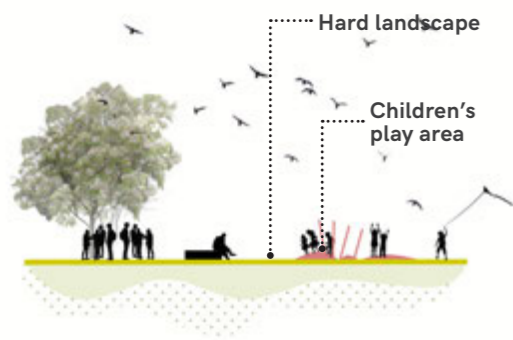
**G RIVER EDGE**



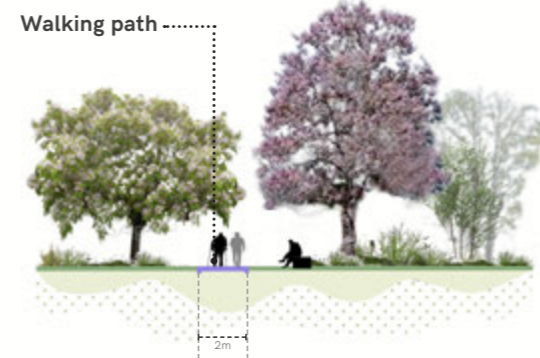
**H PROTECTED RIPARIAN HABITAT**



**C COMMUNITY HUB**



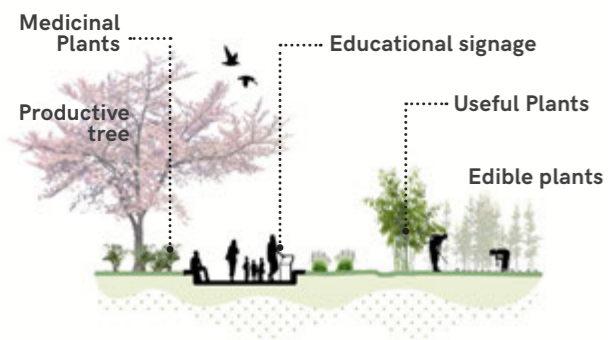
**D SECONDARY WALKING ROUTE**



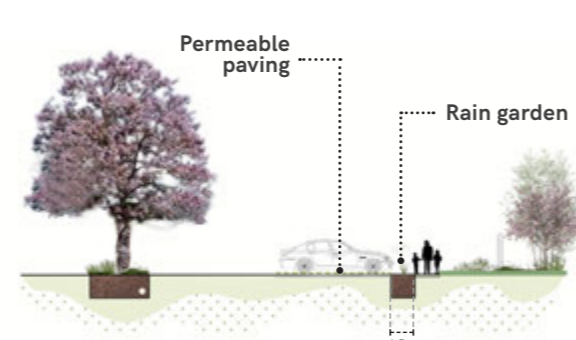
**I BIOSWALE**



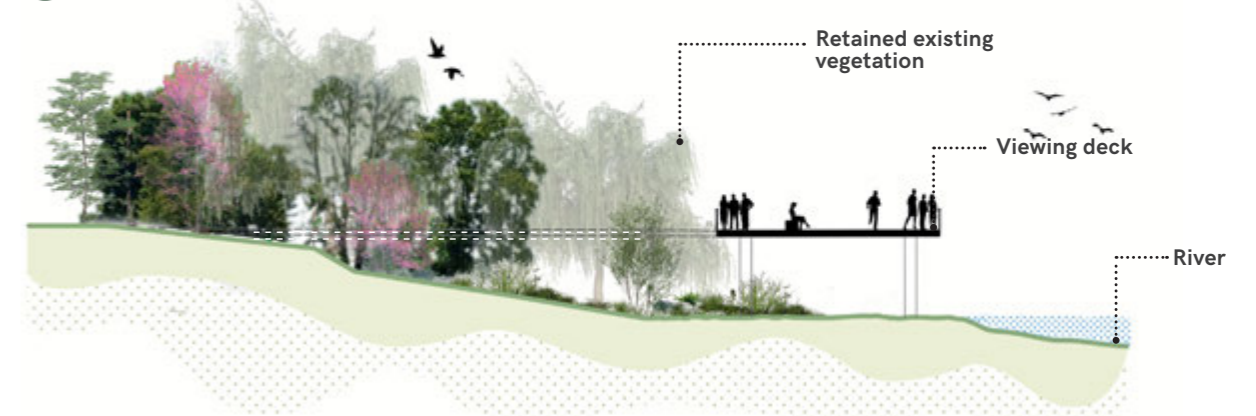
**E SENSORY GARDEN**



**F PARKING AREA**



**J VIEWING DECK**



# 4.10 Strategies



New mobility hub



Primary walking and jogging route



Secondary network of routes and spaces

## ACCESS & MOVEMENT

A carefully considered movement strategy prioritises pedestrian movement, active travel and the use of public transport. Interconnected walking routes provide accessible circulation within the site, and new links beyond the site boundary will ensure that people can get to the park easily. The design facilitates permeable movement between Changjiji and Changzamtog, and the northern gateway will link to the existing river walk that connects back to Centenary Park and the heart of the City. A new mobility hub in an existing area of parking will function as a multimodal interchange, providing a new bus shelter and cycle parking. A secure perimeter will restrict access during night-time hours and ensure that the management and maintenance regime can be carried out effectively. Gateways will be established at strategic locations to provide access into the park. The design has been developed to accommodate a future bridge connection to the north.

- KEY**
- Study area
  - Jogging track
  - Primary route
  - - - Secondary route
  - Mobility hub
  - ⋯ 24hr access
  - Future bridge connection
  - Bus route
  - Connecting beyond the site
  - Gateway into the site



FIGURE 46 ACCESS AND MOVEMENT PLAN





Permeable paving across parking areas



Ephemeral bioswale



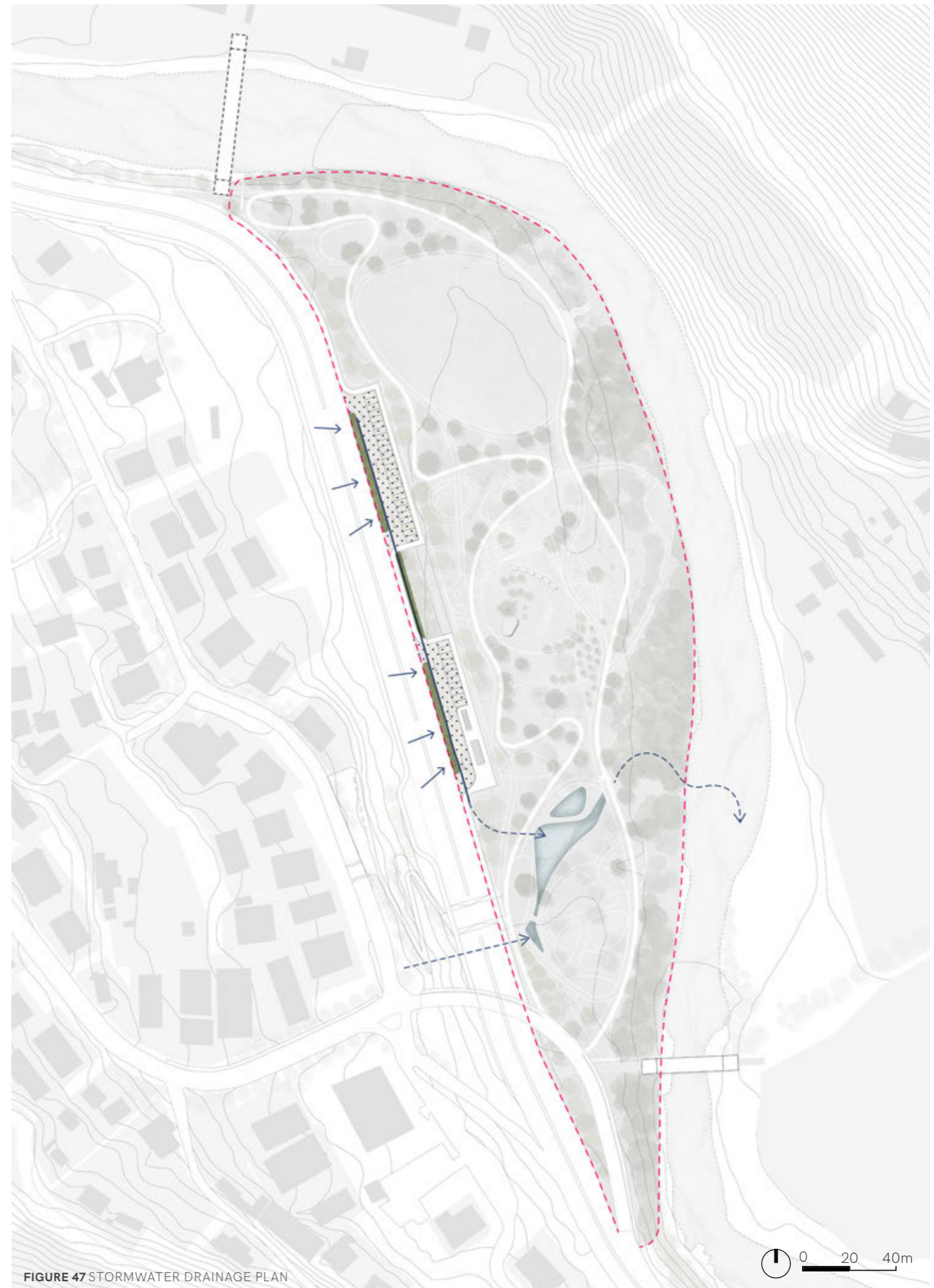
Rain gardens

### STORMWATER DRAINAGE

We have worked closely with our civil engineers to ensure the design can provide an exemplary natural water management scheme, opening up the existing stormwater drain to deliver a new bioswale which has the role of cleaning and filtering water at a critical junction with the Thimphu Chhu, also providing amenity value and habitat creation. Playful features such as stepping stones will be integrated across the swale to allow children to engage in natural play. In addition, a series of raingardens along the roadside and areas of parking will capturing surface runoff from the expressway and direct it into the swale. Proposals for sustainable urban drainage systems (SuDS) were included in the Integrated Stormwater Management Plan and Water Roadmap (2022). This information should be referred to during detailed and technical design of the park and its drainage systems.

#### KEY

- Study area
- Stormwater capture in rain gardens
- Surface run-off
- - - Direction of flow
- Permeable paving
- Rain gardens
- Bioswale





Children's play



Family spaces for people to meet



Accessible routes and spaces

## DESIGNING FOR INCLUSIVITY

Green space and nature provides value to all members of the community. Ensuring open spaces are inclusive and accessible to all is critical, particularly to those who face social and health challenges. For this reason, inclusivity has been a core driver of the park's design and programming, balancing vibrant and tranquil spaces, as well as activities and programme that cater to different user groups. These are structured within overarching themes of community, sport, play, nature and adventure. An overlay of education and learning will encourage visitors of all ages to think about our relationship with nature and the importance of cherishing and protecting the natural environment. Improved access at key gateways, as well as interconnected accessible routes within the site, will ensure that all the community can enjoy what Changzamtog Park has to offer. Flexible spaces will accommodate a changing calendar of events and uses through the seasons.

### KEY

- Study area
- 1 The Meadows
- 2 The Community Hub
- 3 The Sensory Gardens



FIGURE 48 COMMUNITY FACILITIES PLAN

# 4.11 Material palettes

The following material palettes are indicative and have been developed to illustrate and support project design strategies. Detailed specification of planting and hard landscape materials to be undertaken at the next stage of works.

## Pathways



Jogging track  
Asphalt (red)

Primary pathway  
Asphalt (warm grey)

Secondary pathway  
Self binding gravel

## Key Spaces



Gathering spaces  
Natural stone

Boardwalks and decks  
Timber

Woodland pockets  
Self binding gravel

## Miscellaneous



Play spaces  
Rubber wetpour

Edging  
Aluminium

Various  
Painted elements

## HARD SURFACING

A simple, robust approach to hard surfacing has been developed to ensure that the scheme is aesthetically pleasing, easy to maintain and sensitive to context and availability of materials. Materials have been selected based on durability and the ease with which they can be sourced for future replacements and for other, similar park environments. A limited palette provides a greater sense of continuity and cohesiveness, and it is important that tones complement one another. Asphalt is proposed for the primary circulation and jogging track to ensure robustness and also accommodate maintenance vehicle circulation. To mitigate cracking, aluminium edging is proposed to allow a clean, easy to install finish that works well the curved geometries of the design. Higher quality, bespoke natural stone is proposed to define key spaces and establish a hierarchy. Self-binding gravel is proposed for secondary routes and seating pockets to provide a soft, natural appearance. Permeable pavers across parking areas will provide better infiltration capacity and contribute to the stormwater management approach.

### KEY

- Study area
- Asphalt (red)
- Asphalt (buff)
- Self-binding gravel
- Natural stone
- Rubber wetpour
- Timber decking



FIGURE 49 HARD SURFACING PLAN

**Park trees**



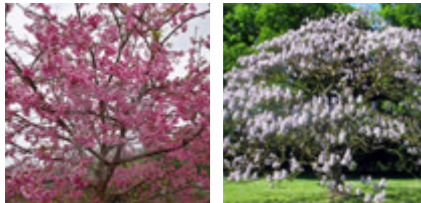
Blue Pine *Pinus wallichiana*    Sisishing *Quercus griffithii*    Walnut *Juglans regia*    BjiShing *Quercus semecarpifolia*

**Walking and running path trees**



Chinar *Platanus orientalis*    Melia *Melia azedarach*

**Street buffer trees**



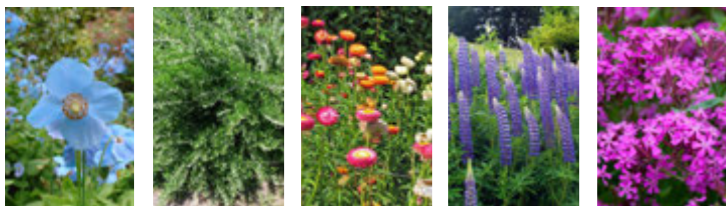
Himalayan Cherry *Prunus cerasoides*    Empress Tree *Paulownia species*

**Orchard**



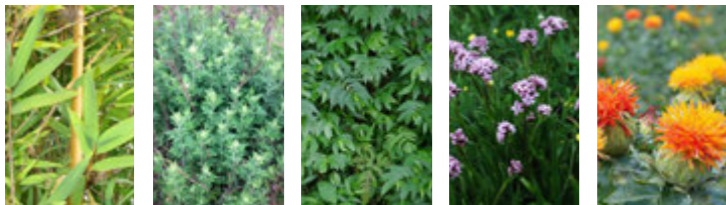
Crabapple Tree *Malus spp*    Peach *Prunus persica*    Cherry *Prunus nepalensis*

**Shrubs and flowers**



Blue Poppy *Meconopsis galydiana*    Prinsepia *Prinsepia utilis*    Straw Flower *Xerochrysum bracteatum*    Lupinus *Lupinus spp.*    Sweet William Catchfly *Silene armeria*

**Sensory Garden**



Bamboo *Bamboo spp.*    Damroo *Elatostema lineolatum*    Kemppha *Salvia nubicola*    Agar *Salvia nubicola*    Safflower *Carthamus tinctorius L.*

**PLANTING**

The planting strategy has been designed to provide year-round interest, with dramatic, naturalistic planting areas establishing colour, vibrancy and sensory benefits to users of the park. As well as public amenity value, the aim is to enhance local biodiversity through the creation of a stepping stone corridor for local wildlife, drawing from local plant communities and delivering a mix of species. The park will function as an arboretum, an outdoor living museum which displays a diverse collection of native tree species. Associated signage will provide educational benefits, allowing people to learn about the variety and value of Thimphu's flora. Existing riparian habitats and willow trees along the river's edge will be protected. Buffer planting will provide visual separation between the park and the expressway, mitigating sound and ensuring a peaceful, immersive environment within. The Sensory Gardens will showcase and celebrate Bhutan's unique environmental and cultural heritage.

- KEY**
- Study area
  - Open grassland
  - Amenity planting
  - Vegetated mound
  - Retained riparian habitat
  - Sensory Gardens
  - Park trees
  - Buffer planting
  - Community orchard

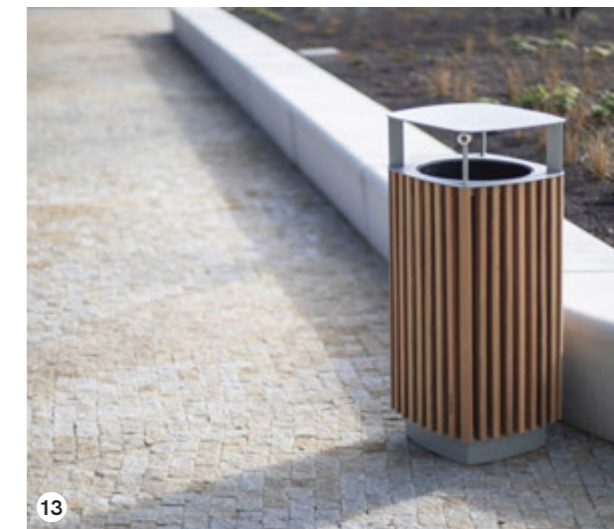
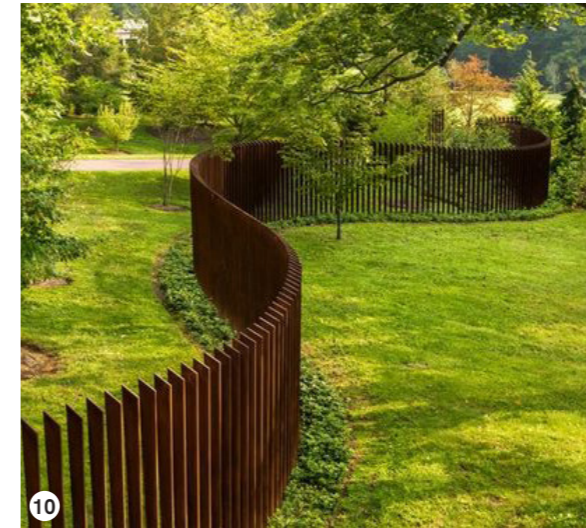
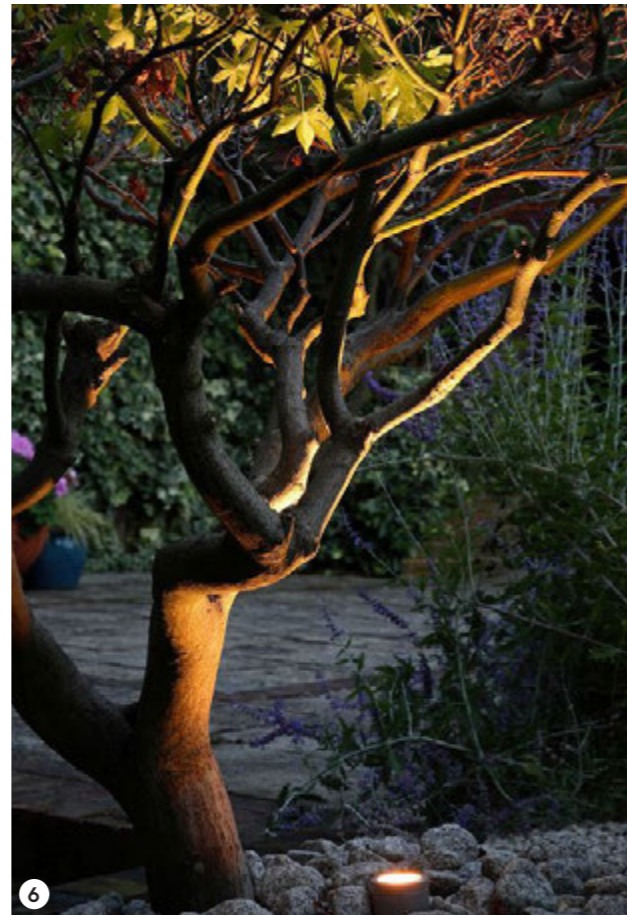
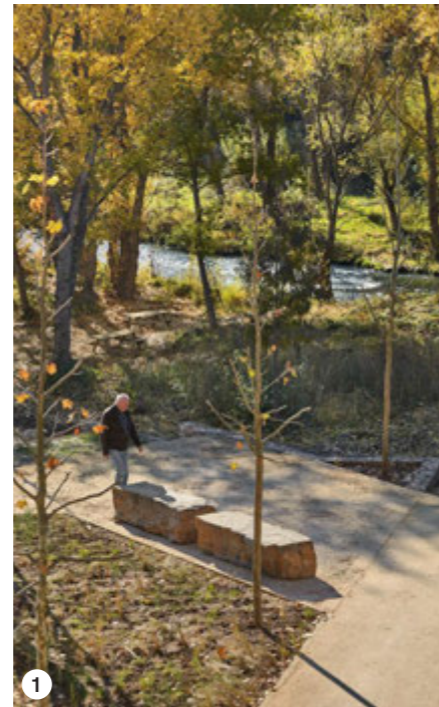
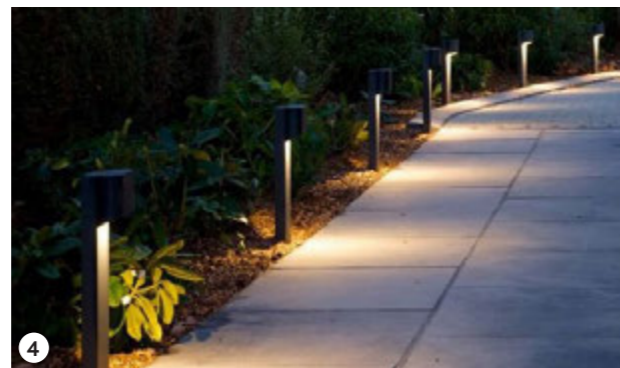


**FIGURE 50** PLANTING PLAN

## FURNITURE AND LIGHTING

A well considered furniture strategy is critical to making the park accessible, engaging and functional. Key considerations include the following:

- Furniture should be placed strategically and spaced appropriately to minimise clutter and maximise functionality;
- The materiality of furniture should be in a contemporary style that remains reflective of Thimphu and its setting, complementing the proposed hard and soft surfacing;
- Materials should be robust and able to withstand the seasonality of Thimphu;
- Seating needs to work for everyone who visits the park. This can be achieved through the integration of armrests and backs, positioning at varying heights, and spacing appropriately to ensure rest points are easily accessed from anywhere in the park;
- Lighting should be integrated to ensure safe and secure walking routes and allow the park to be used during evening hours.



- 1 Feature benches in key locations
- 2 Timber benches for a soft, naturalistic approach
- 3 Moveable timber log seating
- 4 Bollard lighting for secondary routes
- 5 Lighting columns for primary routes
- 6 Tree uplighting
- 7 Educational signage
- 8 Catenary lighting across the Community Hub
- 9 Locally crafted shade canopies
- 10 Contemporary fence design
- 11 Coherent palette of wayfinding and signage
- 12 Digital integration
- 13 Litter bins





# 6.1 Prioritisation of projects

## PRIORITISATION PROCESS

The following process was adopted to establish a long list of green infrastructure projects and prioritise using multiple criteria to identify a shortlist of priority project:

1. Inception workshop with client and key city stakeholders to determine initial opportunities (held October 2022);
2. Establishment of project long-list through development of the landscape design plan;
3. Prioritisation workshop (held March 2023) to determine stakeholder and client priorities;
4. Development of project assessment tool to support prioritisation process;
5. Multi-criteria assessment, with scoring based on benefits and deliverability of proposed projects. The prioritising criteria includes the following parameters:
  - Benefits and alignment with project vision and objectives
  - Deliverability
  - Climate resilience benefits
6. Identification of high-scoring projects (over a threshold of 16/23) which can be delivered over the short term, ensuring a range of open space / green infrastructure typologies to deliver pilot projects associated with key strategies;
7. Review of list against stakeholder priorities as identified during the prioritisation workshop (held March 2023). These included the delivery of Nature Reserves along the Wang Chhu, Valley Parks following significant tributaries in urban areas, and City Parks to anchor each district of Thimphu (in particular the Babesa Ecological Park).
8. Establishment of project shortlist based on the above criteria



FIGURE 52 INCEPTION AND PRIORITISATION WORKSHOPS WITH KEY STAKEHOLDERS

REF	PROJECT TITLE	BENEFITS					TOTAL AVAILABLE BENEFIT SCORE	DELIVERABILITY				TOTAL AVAILABLE DELIVERABILITY SCORE	Total Score	POSSIBLE TIMESCALE	RELATED PROJECTS			
		BENEFIT 1 AVAILABLE SCORE:			BENEFIT 2 AVAILABLE SCORE:	BENEFIT 3 AVAILABLE SCORE:	BENEFIT 4 AVAILABLE SCORE:	BENEFIT 5 AVAILABLE SCORE:	15	FUNDING AVAILABLE SCORE:	GOVERNANCE AVAILABLE SCORE:		12			27		
		BENEFIT 1: Protect people from hazard and climate risks			BENEFIT 2: Protect existing landscape and valuable habitats	BENEFIT 3: Provide opportunity for creation of jobs	BENEFIT 4: Provide increased access to natural open green space	BENEFIT 5: Connected green infrastructure	Total benefit score	FUNDING	GOVERNANCE	COST	COMPLEXITY	Total deliverability score	Total benefits and deliverability score			
NT1	Dechencholing Neighbourhood Park	Low	Medium	Low	Low	Medium	Medium	Medium	8.3	No	No	No	Low	High	6.0	14.3	Long	N/A

FIGURE 51 EXTRACT FROM PROJECT ASSESSMENT TOOL

## PROJECT SHORTLIST

- 1 Samteling Valley Park
- 2 Chubachhu Valley Park
- 3 Olarongchhu Valley Park
- 4 City Centre Green Stream 4

### Wang Chhu River Nature Reserves

- 5 Dechencholing River Island Conservation
- 6 Taba Nature Reserve
- 7 Langjophaka River Island Conservation
- 8 Depsi Nature Reserve
- 9 Marshland Conservation Zone

- 10 Butterfly Park

### Tashichhodzong Gardens Phases 1-2

- 11 Royal Happiness Gardens
- 12 Rhododendron Gardens
- 13 Wetland Conservation
- 14 Changlimithang Central River park
- 15 Changzamtog Park
- 16 Norzin Lam Pedestrian Priority
- 17 Clock Tower Square Enhancements
- 18 River Walk
- 19 Babesa Ecological Park
- 20 Tsalumarphy Water Gardens
- 21 Lubding Forest Corridors

## PRIORITY PROJECTS

Across Northern, Central and Southern Thimphu, the following projects have been identified as priority projects. This shortlist was established through the multi-criteria assessment process and alignment with client priorities.

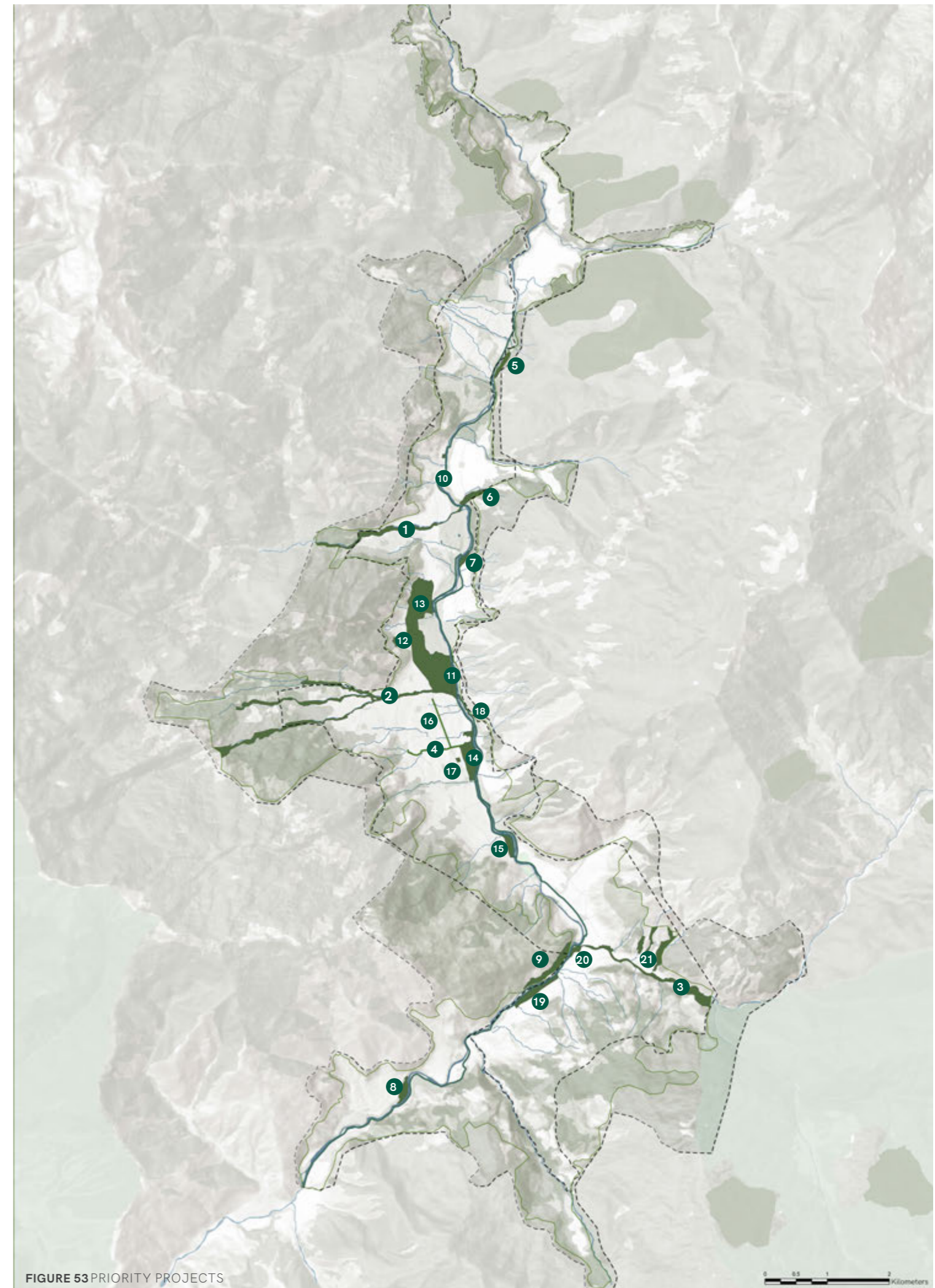


FIGURE 53 PRIORITY PROJECTS

## 6.2 Delivery Plan

### EXISTING GOVERNANCE STRUCTURE FOR IMPLEMENTATION

Central Government (MoIT) has a role in establishing policy, planning and design, and delivery of some projects. Local Government (Thimphu Thromde) has a role in planning and design, implementation, operation and maintenance, and enforcement. Management and maintenance responsibilities are often unclear. The following barriers and enablers to delivery were identified during inception workshop (held October 2022):

NO.	BARRIER	ENABLER
1	Lack of a dedicated organisation	Establishment of new Parks + Recreation institution
2	Land registration/ land substitution (state land)	Changing the registration and application of policy and regulation to protect valuable landscapes
3	Issues over management responsibilities	Inter-departmental co-ordination
4	30% of land contributions to hard infrastructure	Safeguard land pooling for open space provision
5	Fences and physical barriers	Removal of fencing, improved accessible connectivity, appropriate design strategies
6	Inconsistent planning	Multi-scalar strategic approach to establish framework
7	Haphazard development	Formal identification of urban parks / spaces, inter-departmental co-ordination
8	Capacity / knowledge pool	Capacity and skills building in both public and private sectors
9	Awareness	Community engagement and educational programmes, incentivisation, events, pilot schemes
10	Low priority of green space provision	Make a case for Green Infrastructure in budgets (demonstrable economic, social and environmental value)
11	Financial barriers	Explore revenue-generating opportunities
12	Sense of community cohesion	Establishment of community champions

FIGURE 54 BARRIERS AND ENABLERS TO DELIVERY

### DELIVERY VEHICLE TO IMPLEMENT AND MAINTAIN GREEN INFRASTRUCTURE PROJECTS

As noted in the Thimphu Structure Plan, there is opportunity to establish a new, apolitical public sector led delivery vehicle. This could take the form of a Project Management Office (PMO) with expanded capacity to deliver project, and would ensure alignment with wider Thimphu Structure Plan priorities and infrastructure projects. Risk of duplication / overlap of responsibilities would need to be carefully managed. Alternatively, a new public sector led fund to raise and distribute funding could be established, utilising existing delivery routes through local and central government. The establishment of a dedicated Parks + Recreation organisation would support in the effective management and maintenance of open spaces and provide clarity to roles and responsibilities.

### POSSIBLE FUNDING STREAMS

Possible funding sources for the delivery and maintenance of green infrastructure and open spaces include the following, ranging from public (1) to private (9):

1. Local funding, in the form of taxes, levies and user charges;
2. National funding through budget allocation;
3. Overseas Development Assistance, in the form of grants or loans;
4. Financial institutions, in the form of grants or loans;
5. Infrastructure bond;
6. Land Value Capture - policies that allow public authorities to recover increases in land value to fund urban infrastructure and public services;
7. Private sector - investors and developers;
8. Impact investors;
9. Philanthropy.



# PROJECT ASSESSMENT TOOL

PROJECT ZONE	REF	PROJECT TITLE	BENEFITS					TOTAL AVAILABLE BENEFIT SCORE	DELIVERABILITY				TOTAL AVAILABLE DELIVERABILITY SCORE	Total Score	POSSIBLE TIMESCALE	RELATED PROJECTS			
			BENEFIT 1 AVAILABLE SCORE:			BENEFIT 2 AVAILABLE SCORE:	BENEFIT 3 AVAILABLE SCORE:	BENEFIT 4 AVAILABLE SCORE:	BENEFIT 5 AVAILABLE SCORE:	15	FUNDING AVAILABLE SCORE:	GOVERNANCE AVAILABLE SCORE:		12			27		
			BENEFIT 1: Protect people from hazard and climate risks			BENEFIT 2: Protect existing landscape and valuable habitats	BENEFIT 3: Provide opportunity for creation of jobs	BENEFIT 4: Provide increased access to natural open green space	BENEFIT 5: Connected green infrastructure	Total benefit score	FUNDING	GOVERNANCE	COST	COMPLEXITY			Total deliverability score	Total benefits and deliverability score	
			Flood Resilience (fluvial and pluvial)	Mitigating Urban Heat	Other Hazards (landslides and carbon sinks)						Is there currently a dedicated organisation to deliver the project? (Yes / No / Partial)	Is there currently a dedicated organisation to manage the project? (Yes / No)	What is the anticipated cost of the project (High / Medium / Low)	How complex will green infrastructure initiatives be to plan and delivery?					
Project reference / code / priority project	Description / title of proposed project	What benefits will proposed green infrastructure project deliver for Thimphu in relation to core objectives? (High / Medium / Low)						Is there funding available (Yes / No / Partial)	Is there currently a dedicated organisation to deliver the project? (Yes / No / Partial)	Is there currently a dedicated organisation to manage the project? (Yes / No)	What is the anticipated cost of the project (High / Medium / Low)	How complex will green infrastructure initiatives be to plan and delivery?		Please indicate if this action is a quick win (0-6 months), short (6 months - 2 years), medium (2 - 5 years) or long-term (5+ years)	Please indicate other interventions or projects that this initiative may be impacted by or have an impact on				
NT	NT1	Dechencholing Neighbourhood Park	Low	Medium	Low	Low	Medium	Medium	Medium	8.3	No	No	No	Low	Medium	7.0	15.3	Long	N/A
NT	NT2	Dechencholing Recreational Park	Low	Medium	Medium	Low	Medium	Medium	Medium	8.7	No	No	No	Medium	High	5.0	13.7	Long	N/A
NT	NT3	Fitness Park	High	Medium	Low	Medium	Medium	High	Medium	11.0	Partial	Yes	Yes	Low	Low	11.0	22.0	Short	Wangchhu riverfront development or EBA
NT	NT4	Dechencholing Valley Park	High	Medium	Low	Medium	Low	High	High	11.0	No	No	No	Low	Low	8.0	19.0	Short	N/A
NT	NT5	Dangreyna Valley Park	Medium	Medium	Low	Medium	Low	High	High	10.7	No	No	No	Low	Low	8.0	18.7	Short	N/A
NT	NT6	Chokhor Rongchhu Valley Park	High	Medium	Low	Medium	Low	High	High	11.0	No	No	No	Low	Low	8.0	19.0	Medium	N/A
NT	NT7	Dechencholing Urban Corridor	Low	Medium	Low	Low	Low	High	High	9.3	No	No	No	Medium	High	5.0	14.3	Long	N/A
NT	NT8	Northern Thimphu River Walk	Low	Low	Low	Low	Low	High	High	9.0	Partial	No	No	Low	Low	9.0	18.0	Short	N/A
NT	NT9	Dechencholing River Island Conservation	High	Low	Low	High	Low	Low	High	9.7	Partial	Yes	Yes	Low	Low	11.0	20.7	Quick win	Wangchhu riverfront development or EBA
NT	NT10	Kabesa wetlands	High	Medium	Medium	High	Low	Low	Medium	9.3	No	No	No	Low	High	6.0	15.3	Long	N/A
NT	NT11	Dechencholing Palace Forest	Medium	High	High	High	Low	Low	High	10.7	No	No	No	Low	Medium	7.0	17.7	Short	N/A
NT	NT12	Taba Forest City Park	High	High	High	High	High	High	High	15.0	No	No	No	Medium	High	5.0	20.0	Long	N/A
NT	NT13	Taba Neighbourhood Park	Low	Medium	Medium	Low	Medium	High	Medium	9.7	Partial	No	No	Low	Medium	8.0	17.7	Medium	N/A
NT	NT14	Butterfly Park	Medium	Low	Low	Medium	Medium	High	Medium	10.3	Partial	Yes	Yes	Low	Low	11.0	21.3	Quick win	Wangchhu riverfront development or EBA
NT	NT15	Hedrong Park	Medium	Low	Low	Low	Medium	Medium	Low	7.3	Partial	Yes	Yes	Low	Low	11.0	18.3	Quick win	Wangchhu riverfront development or EBA
NT	NT16	Food Park	Low	Low	Low	Low	High	Medium	Medium	9.0	Partial	Yes	Yes	Low	Low	11.0	20.0	Short	Wangchhu riverfront development or EBA
NT	NT17	Jungshina Neighbourhood Park	Medium	Medium	Low	Medium	Medium	High	Medium	10.7	No	No	No	Low	Low	8.0	18.7	Short	
NT	NT18	Hejo-Samteling Neighbourhood Park	Low	Medium	Medium	Low	Medium	Medium	Medium	8.7	No	No	No	Low	Medium	7.0	15.7	Medium	N/A
NT	NT19	Babena Neighbourhood Park	Low	Medium	Low	Low	Medium	Medium	Medium	8.3	No	No	No	Low	Medium	7.0	15.3	Short	N/A
NT	NT20	Langjophakha Neighbourhood Park	Medium	Low	Low	Low	Medium	High	Medium	9.3	No	No	No	Low	Medium	7.0	16.3	Medium	N/A
NT	NT21	Samteling Valley Park	High	Medium	Low	High	Medium	High	High	13.0	Yes	No	No	Medium	Low	9.0	22.0	Short	N/A
NT	NT22	Northern Taba Valley Park	Low	Medium	Low	High	Medium	High	High	12.3	No	No	No	Medium	Low	7.0	19.3	Short	N/A
NT	NT23	Taba Nature Reserve Park	High	Medium	Low	High	Medium	High	High	13.0	No	No	No	Medium	Medium	6.0	19.0	Medium	N/A
NT	NT24	Babena Green Stream	Medium	Medium	Low	Low	Low	Medium	High	8.7	No	No	No	High	Medium	5.0	13.7	Medium	N/A
NT	NT25	Northern Thimphu Royal Boulevard	Medium	High	Low	Low	Low	Low	High	8.0	No	No	No	High	Medium	5.0	13.0	Medium	N/A
NT	NT26	Taba Urban Green Corridor	Medium	Medium	Low	Low	Low	Medium	High	8.7	No	No	No	Medium	Medium	6.0	14.7	Medium	N/A
NT	NT27	Samteling Urban Green Corridor	Medium	Medium	Low	Low	Low	Medium	High	8.7	No	No	No	Medium	Medium	6.0	14.7	Medium	N/A
NT	NT28	Langjophaka River Island Conservation	High	Low	Low	High	Medium	Medium	Medium	10.7	Partial	Yes	Yes	Low	Low	11.0	21.7	Quick win	Wangchhu riverfront development or EBA
CC	CC1	Tashichhodzong Gardens	High	High	Medium	High	High	High	High	14.7	Partial	Yes	Yes	Medium	Low	10.0	24.7	Medium	Royal Happiness Gardens, Arboretum, Rhododendron Gardens, Wetland Conservation, Hejo River Park, Ludrong Park
CC	CC2	Royal Happiness Gardens	Medium	High	Low	Medium	High	High	High	13.0	Yes	Yes	Yes	Medium	Low	11.0	24.0	Short	Tashichhodzong Gardens
CC	CC3	Arboretum	Medium	High	Medium	Medium	High	High	High	13.3	No	No	No	Medium	High	5.0	18.3	Medium	Tashichhodzong Gardens
CC	CC4	Rhododendron Gardens	Low	Medium	Low	Medium	High	Medium	Medium	10.3	Yes	Yes	Yes	Low	Low	12.0	22.3	Short	Tashichhodzong Gardens
CC	CC5	Wetland Conservation	Medium	Low	Low	High	High	High	High	13.3	No	No	No	Medium	Medium	6.0	19.3	Short	Tashichhodzong Gardens
CC	CC6	Hejo River Park	High	Medium	Low	High	High	Medium	Medium	12.0	Partial	No	No	Medium	Medium	7.0	19.0	Long	Tashichhodzong Gardens
CC	CC7	Ludrong Park enhancements	Low	Medium	Low	Medium	Medium	Medium	Low	8.3	No	No	No	Low	Low	8.0	16.3	Medium	N/A
CC	CC8	Central River Park	High	High	Low	Medium	High	High	High	13.3	Partial	No	No	High	High	5.0	18.3	Short	Wangchhu riverfront development or EBA
CC	CC9	Changzamtog Park	High	Medium	Low	Medium	Medium	Medium	Medium	10.0	Partial	No	No	Low	Low	9.0	19.0	Short	Wangchhu riverfront development or EBA
CC	CC10	Changjiji Park	Low	Medium	Low	Low	Medium	Medium	Medium	8.3	No	No	No	Low	Medium	7.0	15.3	Medium	N/A
CC	CC11	Changbangdu Neighbourhood Park	Low	Medium	Low	Low	Medium	Medium	Medium	8.3	No	No	No	Low	Medium	7.0	15.3	Medium	N/A
CC	CC12	Kawajangsa Neighbourhood Park	Low	Medium	Low	Low	Medium	Medium	Medium	8.3	No	No	No	Low	Medium	7.0	15.3	Medium	N/A
CC	CC13	Motithang Neighbourhood Park	Low	Medium	Low	Low	Medium	Medium	Medium	8.3	No	No	No	Low	Medium	7.0	15.3	Medium	N/A
CC	CC14	Tarayana Park	Medium	Low	Low	Medium	Medium	Medium	Medium	9.3	Partial	No	Yes	Low	Medium	9.0	18.3	Short	Wangchhu riverfront development or EBA
CC	CC15	Ozone Park enhancements	Low	Medium	Low	Low	Medium	Medium	Low	7.3	No	Yes	Yes	Low	Low	10.0	17.3	Quick win	N/A
CC	CC16	Clock Tower Square enhancements	Low	Low	Low	Low	Medium	Low	Medium	7.0	No	Yes	Yes	Medium	Medium	8.0	15.0	Short	N/A
CC	CC17	Bhutan Olympic Ground enhancements	High	Medium	Low	Medium	Medium	Medium	Medium	10.0	Partial	No	No	Low	Low	9.0	19.0	Short	N/A
CC	CC18	Samarzingkha Forest Link	Medium	High	High	High	Low	Medium	High	11.7	No	No	No	Low	Low	8.0	19.7	Short	N/A
CC	CC19	Lungten Zam Square	Medium	Low	Low	Low	Medium	Low	Medium	7.3	No	No	No	High	High	4.0	11.3	Medium	N/A

# PROJECT ASSESSMENT TOOL

Project ID	Project Name	Category	Soil	Water	Air	Noise	Visual	Ecology	Cultural	Historical	Archaeological	Geological	Seismicity	Climate Change	Other	Score	Weighted Score	Impact	Notes
CC20	Thai Park	Low	Low	Low	Low	Medium	Medium	Low								7.0	14.0	Short	N/A
CC21	Changankha Park	Low	Medium	Low	Low	Medium	High	Medium								9.3	16.3	Medium	N/A
CC22	Changbangdu Health Gardens	High	Medium	Low	Medium	Medium	Medium	Medium								10.0	21.0	Short	Wangchhu riverfront development or EBA
CC23	Culture Park	High	Medium	Low	Medium	Medium	Medium	Medium								10.0	18.0	Long	Wangchhu riverfront development or EBA
CC24	Chubachhu Valley Park	High	Medium	Low	High	Medium	High	High								13.0	20.0	Short	N/A
CC25	Memorial Chorten Valley Park	Medium	Medium	Low	Medium	Medium	Medium	Medium								9.7	13.7	Long	N/A
CC26	Tashichhodzong Gardens Greenway	Low	Low	Low	Low	Low	High	Medium								8.0	15.0	Medium	N/A
CC27	City Centre Green Stream 1	Medium	Medium	Low	Low	Medium	High	High								10.7	15.7	Medium	N/A
CC28	City Centre Green Stream 2	Medium	Medium	Low	Low	Medium	High	High								10.7	15.7	Medium	N/A
CC29	City Centre Green Stream 3	Medium	Medium	Low	Low	Medium	High	High								10.7	15.7	Short	N/A
CC30	City Centre Green Stream 4	Medium	Medium	Low	Low	Medium	High	High								10.7	16.7	Short	N/A
CC31	Yangchenphug Green Streams	Medium	Medium	Low	Low	Medium	High	High								10.7	16.7	Short	N/A
CC32	Changgidaphu Green Stream	Medium	Medium	Low	Low	Medium	High	High								10.7	16.7	Short	N/A
CC33	Changzamtog Green Stream	Medium	Medium	Low	Low	Medium	High	High								10.7	16.7	Short	N/A
CC34	Changbangdu Green Stream	Medium	Medium	Low	Low	Medium	High	High								10.7	16.7	Short	N/A
CC35	City Centre Royal Boulevard	Medium	Medium	Low	Low	Low	Low	High								7.7	12.7	Medium	N/A
CC36	Norzin Lam Pedestrian Priority	Medium	Medium	Low	Low	Medium	Medium	High								9.7	16.7	Short	N/A
CC37	Rabten Lam Urban Green Corridor	Medium	Medium	Low	Low	Low	Medium	High								8.7	14.7	Medium	N/A
CC38	Dondrup Lam Urban Green Corridor	Medium	Medium	Low	Low	Low	Medium	High								8.7	14.7	Medium	N/A
CC39	Motithang Urban Green Corridors	Medium	Medium	Low	Low	Low	Medium	High								8.7	14.7	Medium	N/A
CC40	City Centre River Walk	Medium	Medium	Low	Medium	Medium	Medium	High								10.7	17.7	Short	N/A
CC41	Takin Preserve enhancements	Low	Low	Medium	High	Medium	Medium	Low								9.3	17.3	Short	N/A
ST1	Kuenselphodrang Regional Park	Medium	Medium	High	High	High	High	Medium								13.3	19.3	Medium	N/A
ST2	Babesa Ecological Park	High	High	Low	High	High	High	High								14.3	23.3	Medium	Wangchhu riverfront development or EBA
ST3	Lungtenphu Recreation Parks	Medium	Medium	Low	Low	Medium	High	Medium								9.7	16.7	Long	N/A
ST4	Olakha Riverside Park	High	Medium	Low	Medium	Medium	Medium	Medium								10.0	19.5	Short	Wangchhu riverfront development or EBA
ST5	Tshalumarphy Water Gardens	High	Medium	Low	High	Medium	Medium	Medium								11.0	22.0	Short	Wangchhu riverfront development or EBA
ST6	Maze Park	Medium	Medium	Low	Low	Medium	Medium	Medium								8.7	19.7	Short	Wangchhu riverfront development or EBA
ST7	Simtokha Park	Low	Medium	Low	Low	Medium	Medium	Medium								8.3	16.3	Short	N/A
ST8	Tshalumarphy Neighbourhood Park	Low	Medium	Low	Low	Medium	High	Medium								9.3	16.3	Medium	N/A
ST9	Babesa Neighbourhood Park	Low	Medium	Low	Low	Medium	High	Medium								9.3	16.3	Medium	N/A
ST10	Olakha Neighbourhood Park	Low	Medium	Low	Low	Medium	High	Medium								9.3	17.3	Medium	N/A
ST11	Olarongchhu Valley Park	High	Medium	Low	Medium	Low	High	High								11.0	18.0	Short	N/A
ST12	Ngabiphu Valley Park	High	Medium	Low	Medium	Low	High	High								11.0	19.0	Medium	N/A
ST13	Southern Thimphu Royal Boulevard	Medium	Medium	Low	Low	Low	Low	High								7.7	12.7	Medium	N/A
ST14	Olakha Green Streams	Medium	Medium	Low	Low	Medium	High	High								10.7	16.7	Short	N/A
ST15	Babesa Green Streams	Medium	Medium	Low	Low	Medium	High	High								10.7	16.7	Short	N/A
ST16	Tshalumarphy Green Streams	Medium	Medium	Low	Low	Medium	High	High								10.7	16.7	Short	N/A
ST17	Olakha Urban Green Corridor	Medium	Medium	Low	Low	Low	Medium	High								8.7	14.7	Medium	N/A
ST18	Tshalumarphy Urban Green Corridor	Medium	Medium	Low	Low	Low	Medium	High								8.7	14.7	Medium	N/A
ST19	Babesa Urban Green Corridor	Medium	Medium	Low	Low	Low	Medium	High								8.7	14.7	Medium	N/A
ST20	Southern Thimphu River Walk	Low	Low	Low	Low	Low	High	High								9.0	17.0	Short	N/A
ST21	Royal Botanical Garden	Low	Medium	High	High	High	High	Medium								13.0	19.0	Medium	N/A
ST22	Marshland Conservation Zone	High	Medium	Low	High	Medium	Medium	High								12.0	23.0	Quick win	Wangchhu riverfront development or EBA
ST23	Lungtenphu Forest Corridors	Medium	Medium	High	High	Low	High	High								12.3	20.3	Short	N/A
ST24	Serbitang-Simtokha Forest	Medium	Medium	High	High	Medium	High	High								13.3	19.3	Short	N/A
ST25	Welcome Gate Park	Low	Low	Low	Low	Low	Medium	Low								6.0	14.0	Short	N/A
ST26	Rama River Park	High	Low	Low	Medium	Low	Medium	Medium								8.7	16.7	Long	Wangchhu riverfront development or EBA
ST27	Depsi River Park	High	Low	Low	Medium	Low	Medium	Medium								8.7	16.7	Long	Wangchhu riverfront development or EBA
ST28	Depsi Nature Reserve	High	Medium	Low	High	Medium	Medium	High								12.0	21.0	Short	Wangchhu riverfront development or EBA
ST29	Rama Wetlands	High	Medium	Low	High	Medium	Medium	High								12.0	20.0	Short	Wangchhu riverfront development or EBA