

Thimphu Structure Plan



PRIOR
+PTNRS

ARUP

GERALDEVE 

Contents

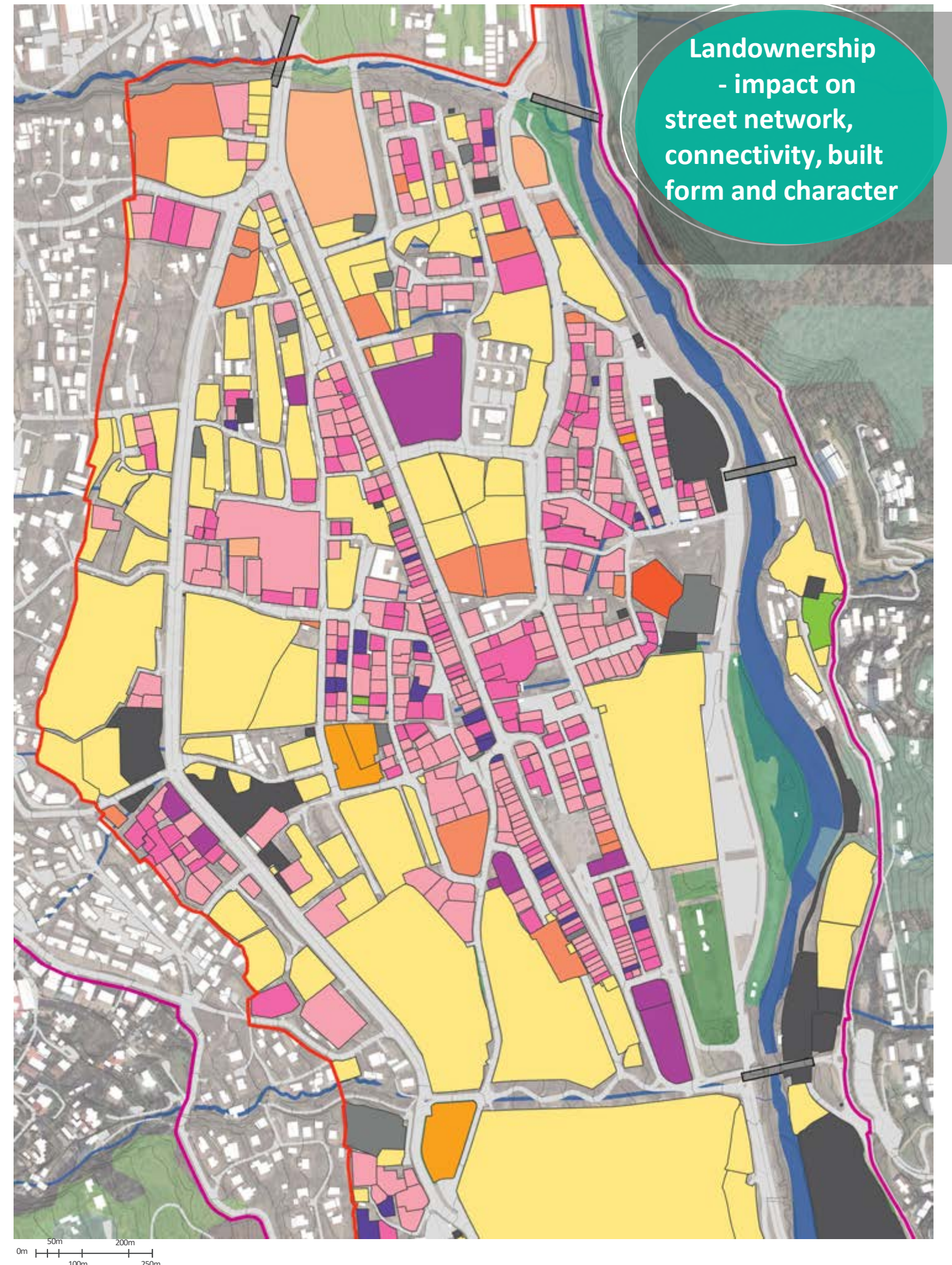
City Core Action Plan	p. x
Case Study 1 At the City Centre	p. x
Case Study 2 Clock Tower Square	p. x
Case Study 3 At Kabesa/Dechencholing	p. x

Case Study 1
At the City Centre

Challenges at the City Core

Land Ownership

- Land ownership in the core is a mix of public and private land. Owing to the small sized private land parcels the development has happened in a piecemeal manner.
- Impact on public realm - limited outdoor spaces for people to gather in and use
- Impact on forming a coherent and connected network of streets - lack of legibility, direct connections and accessibility
- Impact on built form - difficult to achieve a street based, urban townscape
- Impact on forming diverse character - similar point blocks with setbacks and maximum permissible height everywhere.



KEY

- City Centre Action Plan Boundary
- City Centre Context Boundary

PRIVATE OWNERSHIP

- Individual Person
- Joint Owner
- Private Corporation
- Family Land

OTHER

- Religious Institution
- Government Institution
- Gerab Dratshang
- Crown Property
- Corporation
- Civil Society Organisation
- Unknown

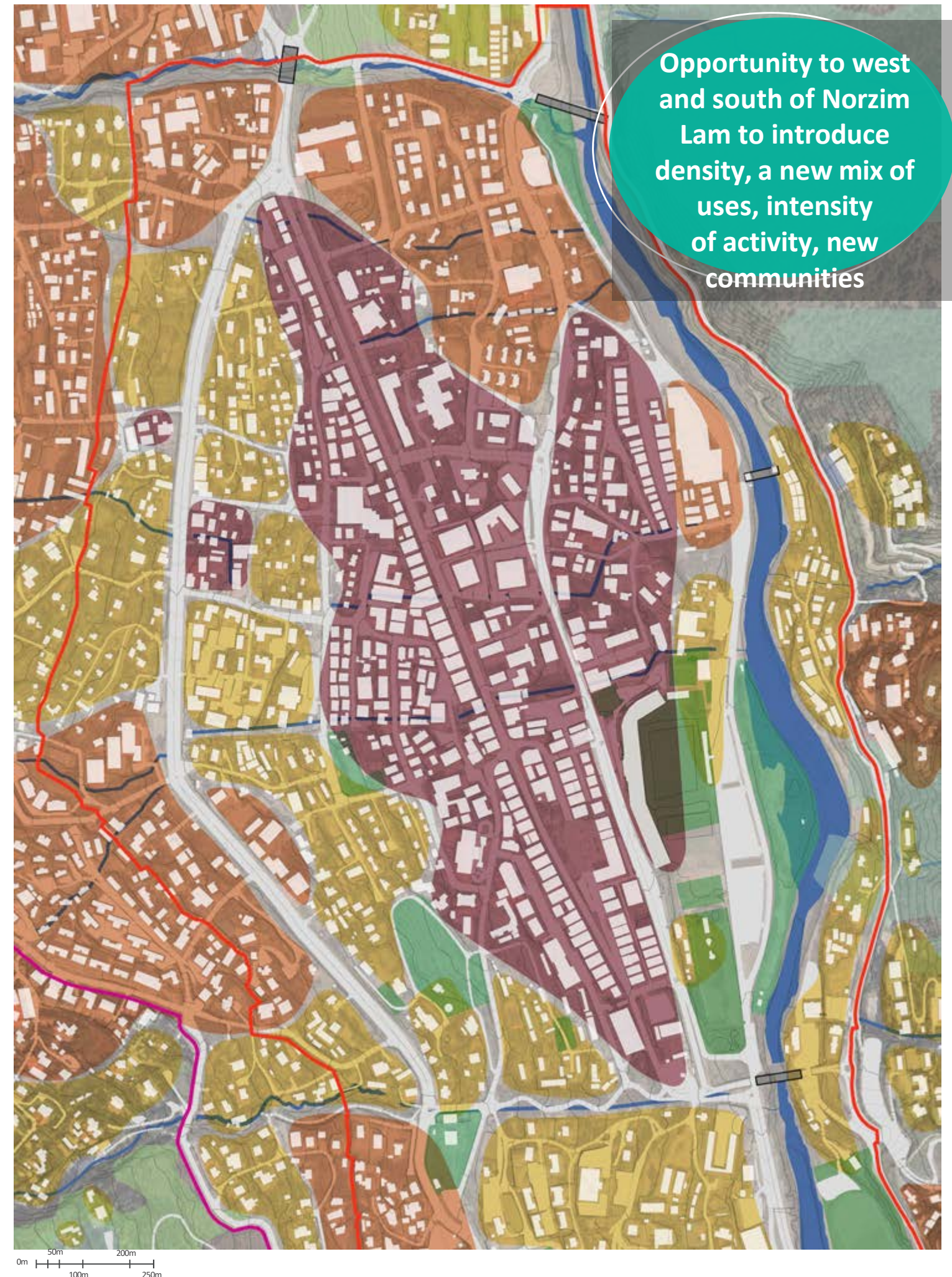
Challenges at the City Core

Under-utilisation of land - Massing and Density

- Buildings around Norzim Lam tend to be the tallest in the city. They are typically 4-6 storeys tall.
- Areas to the east of Norzim Lam are also relatively dense with heights varying from 3-5 storeys.
- Areas to the west of Norzim Lam are of low density and height.



- KEY
- City Core Action Plan Boundary
 - City Core Context boundary
 - 1 storey
 - 2 storey
 - 3 storey
 - 4 storey
 - 5 storey
 - 6 storey
 - Unknown



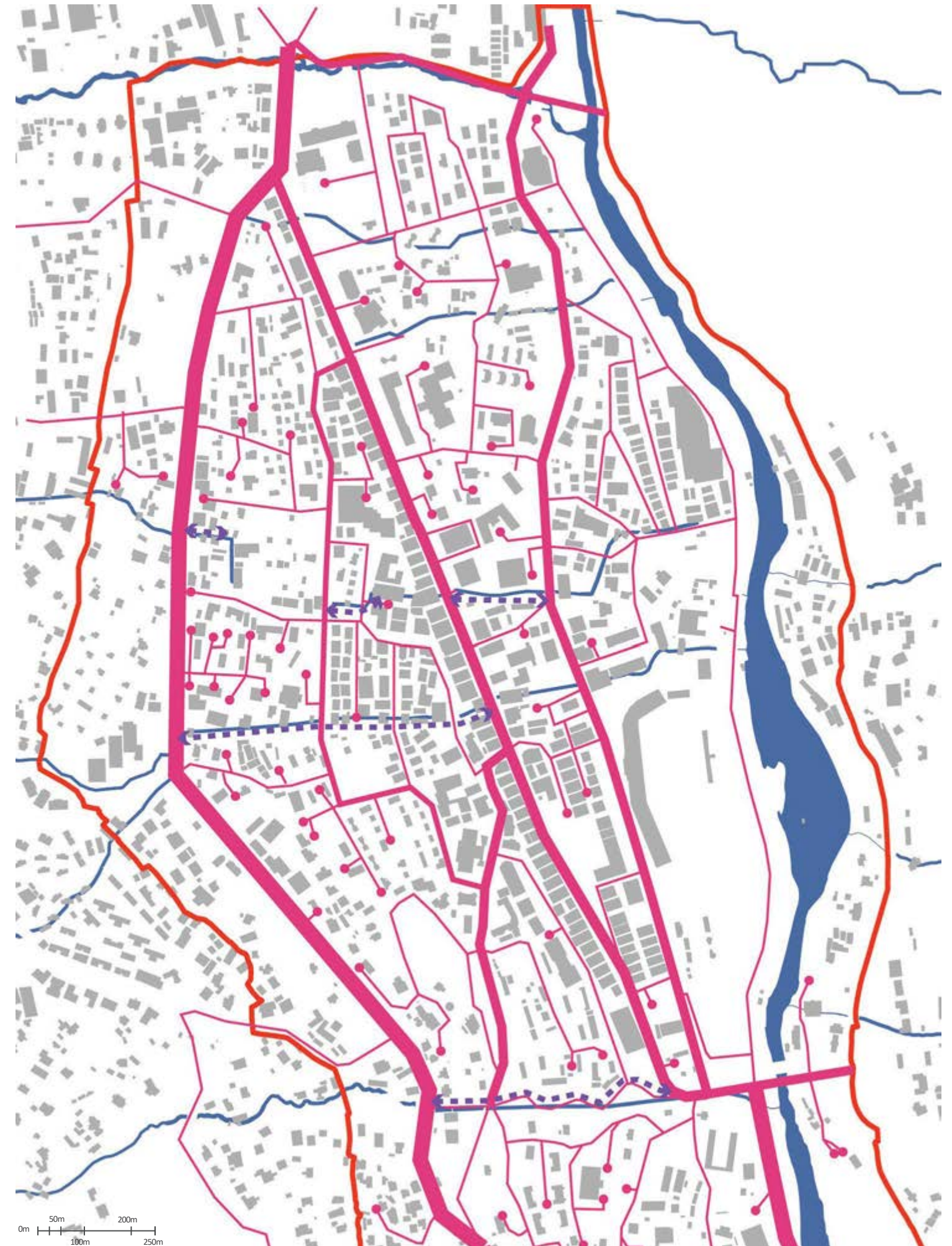
Challenges at the City Core

Street Network

- Streets do not form continuous connections.
- High number of dead ends and cul-de-sacs, especially to the west of Norzim Lam.
- Parking is not rationalised on a city or urban block level. Each individual building provides large areas of parking within respective compounds.
- Space for cars take precedent over spaces for people
- The topography provides a significant challenge to improve pedestrian linkages across the city and limit the use of cars.
- Some pedestrian EW routes exist which need to be enhanced.



- KEY
- City Core Action Plan Boundary
 - Vehicular Routes
 - Dead ends
 - Pedestrian Routes



Challenges

Failings of the existing DCR

- Under-utilisation of land leads to lack of density, activity and vibrancy in large parts of the city core.
- Where ownerships are fragmented and development intensified there is a lack of privacy, amenity and light for residents.
- Development pattern does not form streets and spaces well - lack of enclosure and overlooking.
- Land ownership pattern combined with topography challenges form an incoherent street network, impacting accessibility through the city.
- Lack of varied building typologies and no 'flex' according to specific use, context and any local character.
- Lack of variety in how people can live and no 'flex' for different lifestyles and age groups.
- General lack of diverse character and defined places within the city.
- Lack of a pedestrian focussed public realm.
- Lack of access and proximity to nature, greenspace and water.



Opportunities

DCR Reform

- An urban density that provides vibrancy and diversity: that forms streets and spaces well.
- Standards for daylight, privacy and amenities for higher performance and resilience of buildings
- A new, continuous and accessible street network that connects communities and integrates neighbourhoods with their city and its setting.
- Building on the existing character and activity pattern to build identity and legibility of place.
- A new public realm that prioritises people over vehicles.
- An urban realm that promotes active travel, recreation, health and sport.
- A new Green Infrastructure that brings people closer to nature and integrates well-being, bio-diversity and resilience.



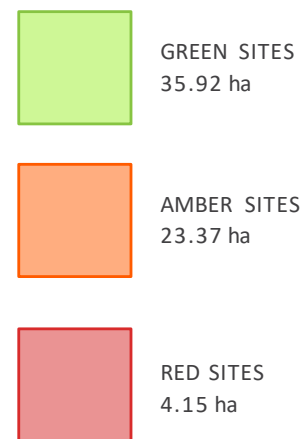
Opportunities at the City Core

Strategic Sites







- There are a lot of green sites within the city core which can help deliver significant amounts of development.
- Together these strategic sites will have a significant impact on the character, intensity and activity within the city core.

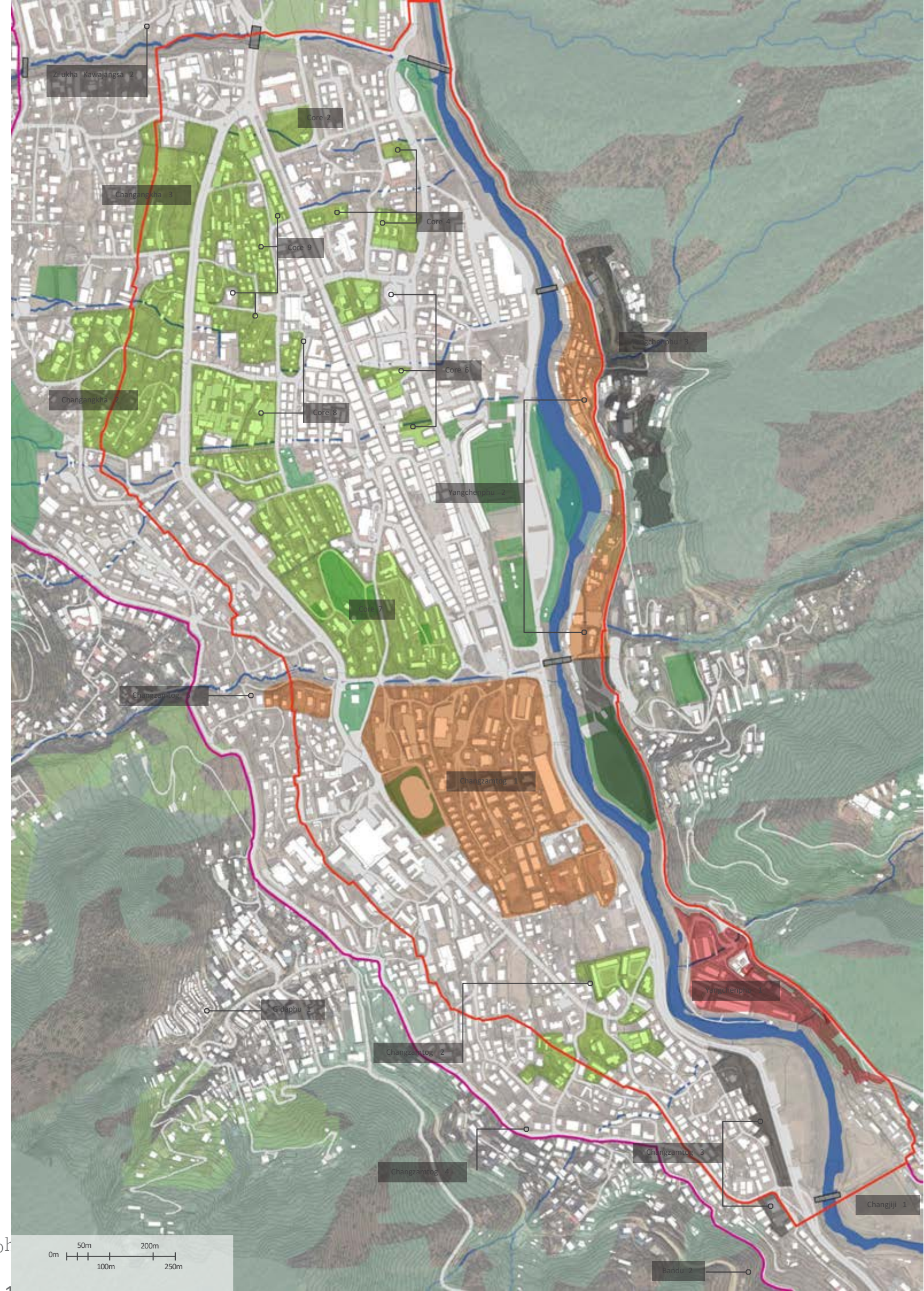


TOTAL LAND TAKE



KEY

-  City Core Action Plan Boundary
-  City Core Context boundary
-  Green Site
-  Amber Site
-  Red Site
-  Black Site



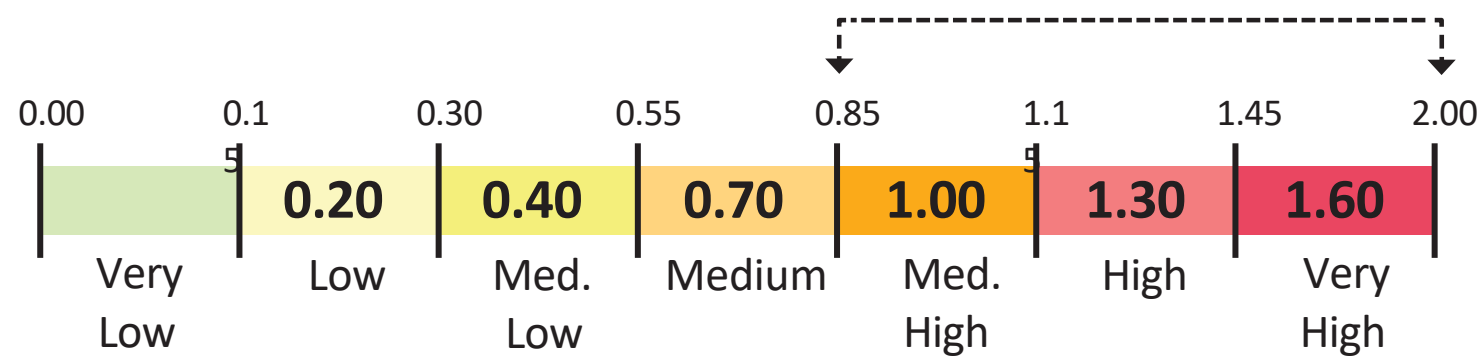
Opportunities at the City Core

A new living and working population

- Capacity assumptions based on Rev1 Draft TSP (issued 27th Jan)
- Bringing the existing FAR at the City Core to 1.00 - 1.60.



City Core proposed gross FAR ranges between 1.00 - 2.00



Employment, light industrial and mixed uses
*excludes non-spatial jobs

8,400-9,600 new jobs

total jobs gain within City Core



Residential uses

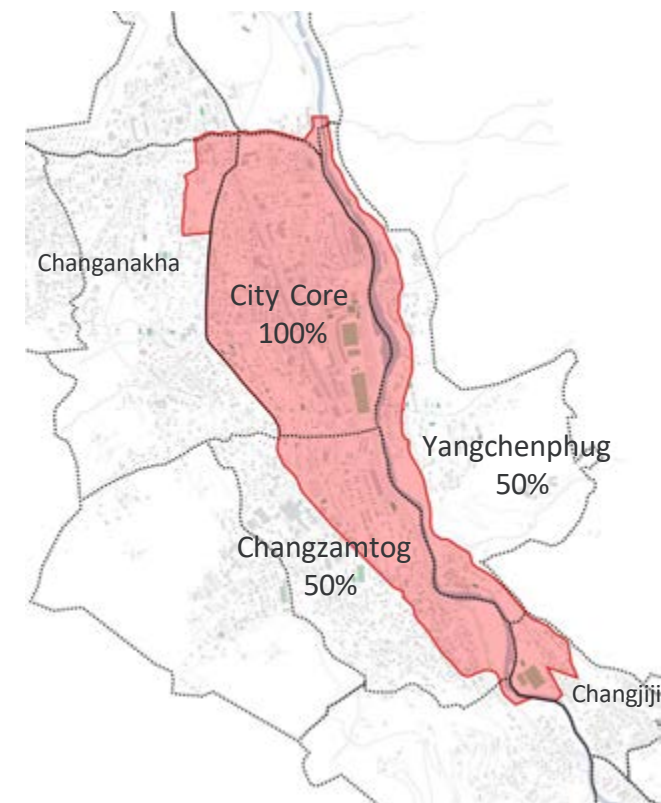
6,500 - 7,500 new homes

homes gain within City Core

20,000 - 23,000 people

population gain within City Core

*Initial areas and amounts - under ongoing review



Regeneration of the City Core

A Case Study

- The site is located west of Norzim Lam, adjacent to the Royal Boulevard and close to the Swimming Pool Complex.
- The southern edge of the site has an urban stream running along it with an existing pedestrian pathway.
- The site is primarily government owned with a commercial strip on the western edge that has a fragmented mix of private ownerships.



KEY

City Centre Action Plan Boundary

City Centre Context Boundary

PRIVATE OWNERSHIP

Individual Person

Joint Owner

Private Corporation

Family Land

OTHER

Religious Institution

Government Institution

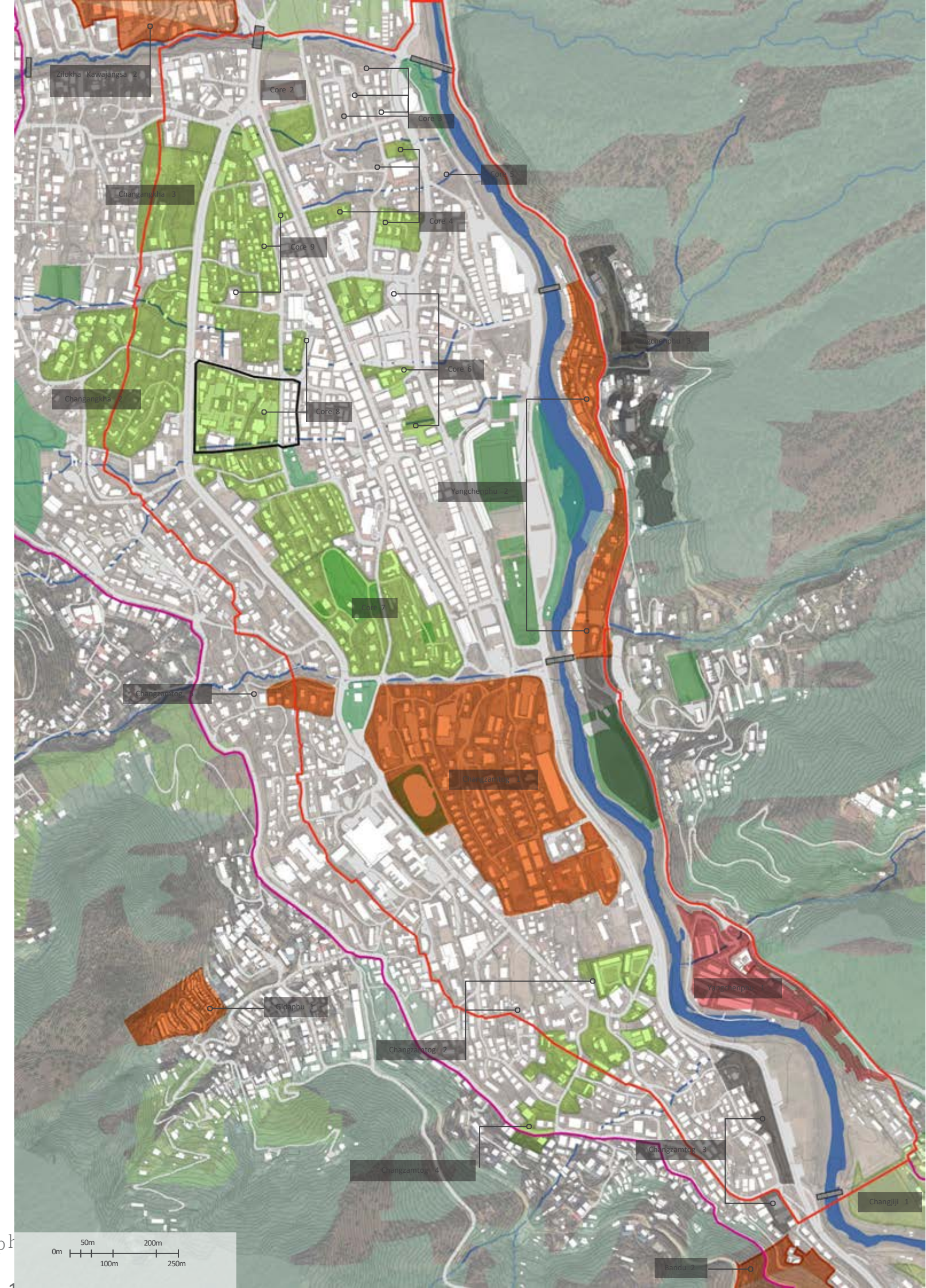
Gerab Dratshang

Crown Property

Corporation

Civil Society Organisation

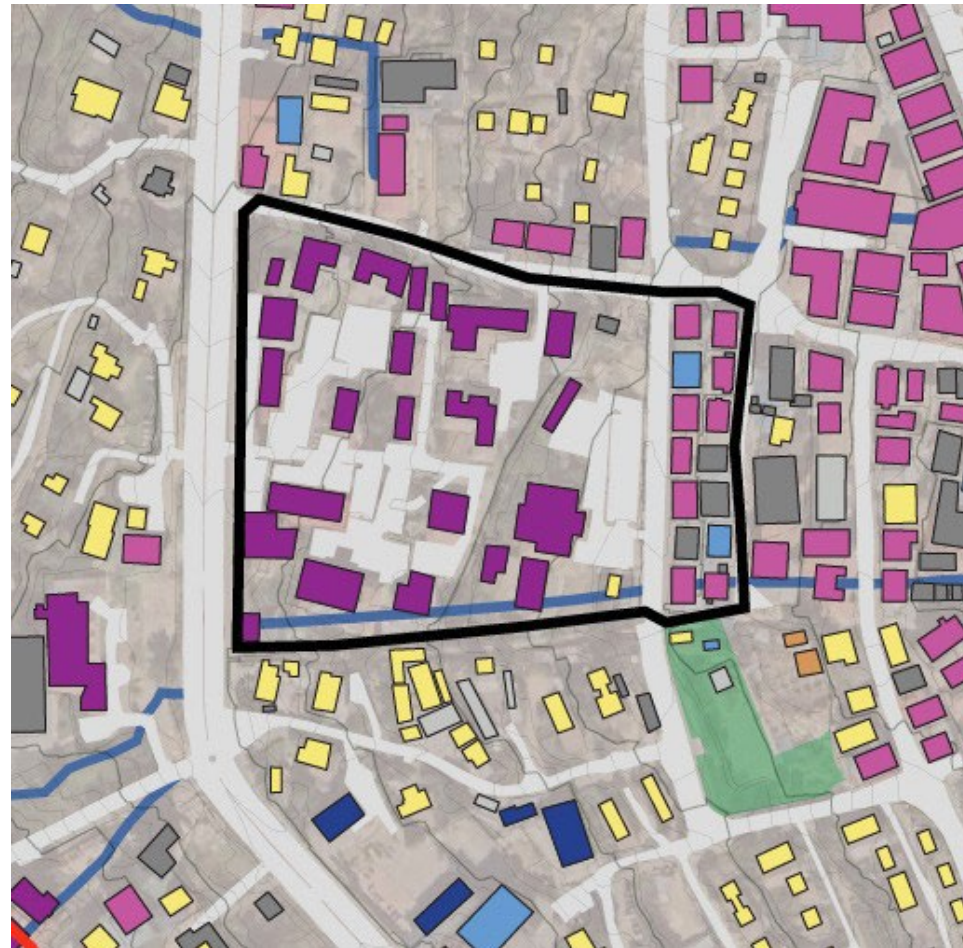
Unknown



Regeneration of the City Core

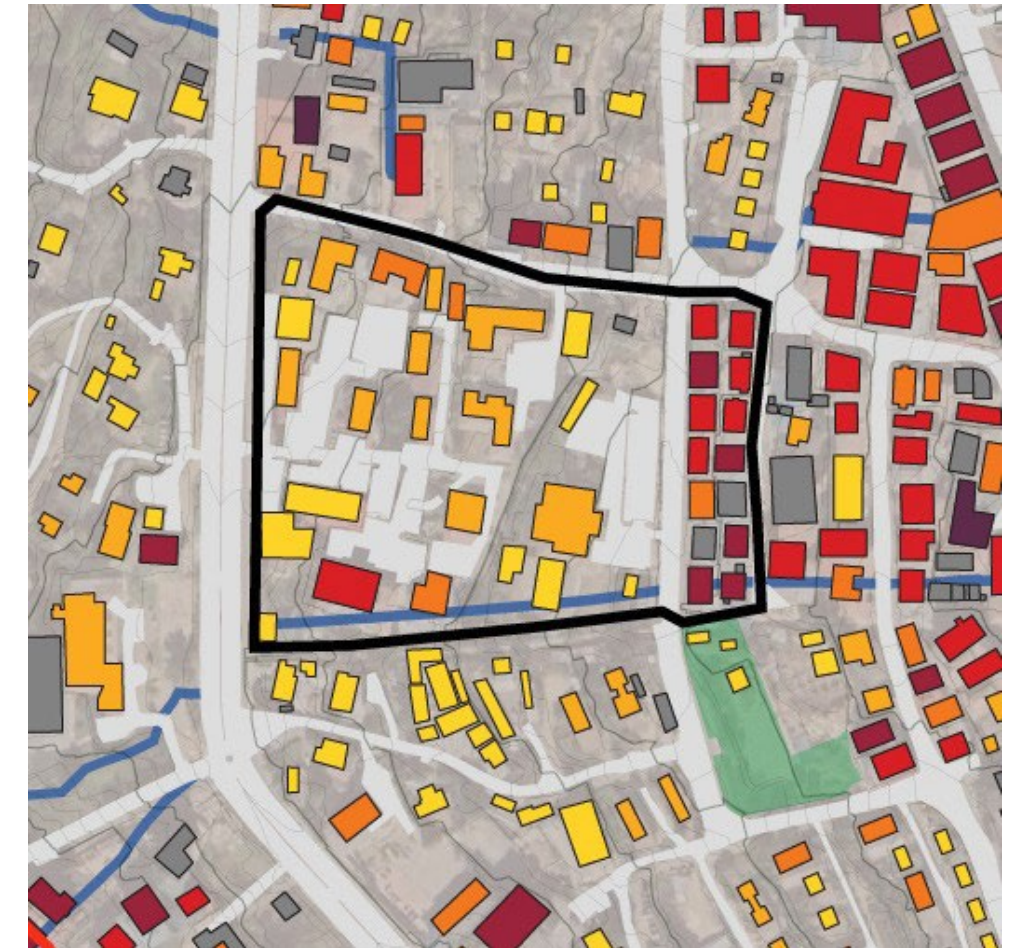
A Case Study - the existing site

- The site primarily has government offices within it (towards the western side) and a mixed use cluster in the east.
- The western part of the site has low density with most of the buildings being 1-2 storeys tall.
- The eastern part of the site under private ownership have high densities with buildings typically 4-6 storeys tall.



Land Use

KEY	
	Test site boundary
	Residential
	Commercial
	Mixed Use
	Religious
	Education
	Institutions
	Hospital



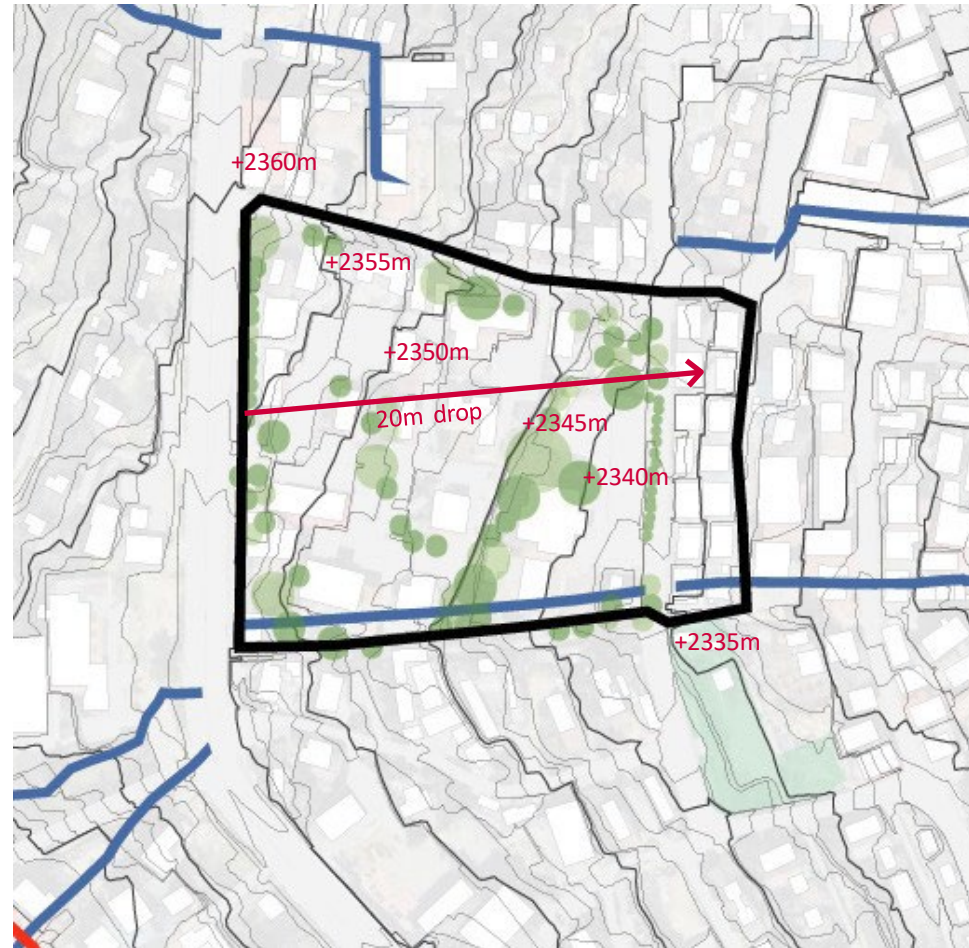
Building Heights

KEY	
	Test site boundary
	1 storey
	2 storey
	3 storey
	4 storey
	5 storey
	6 storey
	Unknown

Regeneration of the City Core

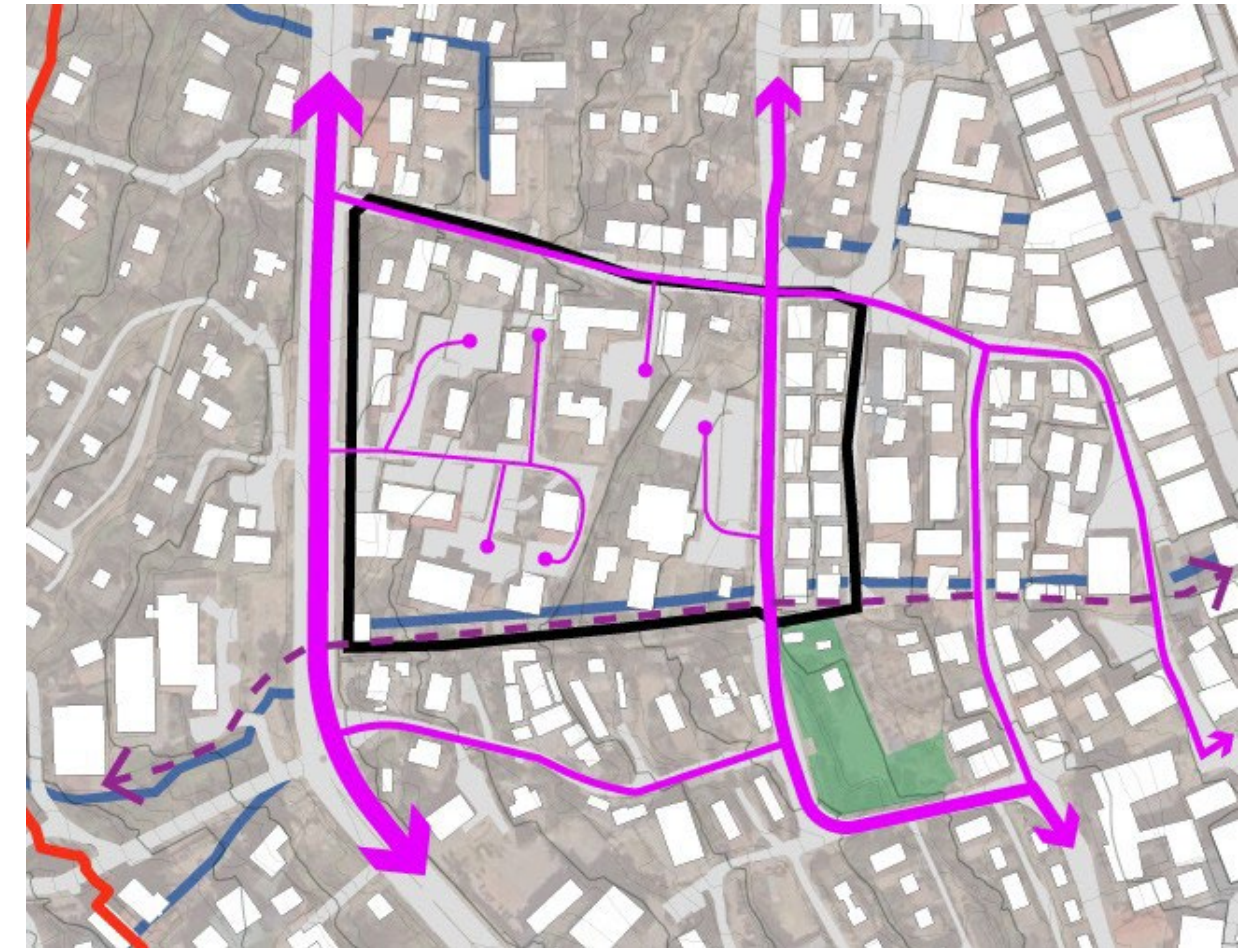
A Case Study - the existing site

- There is a 20m level drop across the site from west to east.
- The vehicular movement within the site is not continuous with numerous cul de sacs and dead ends.
- The southern edge of the site has an existing pedestrian path along the culverted water stream.
- The site is very close to Norzim Lam with some existing east west vehicular routes.
- Public transport links along the Royal Boulevard will greatly benefit the site, making it easily accessible from the larger city.



Topography

- KEY
- Test site boundary
 - Major Contour- 5m
 - Minor Contour- 1m



Existing Movement

- KEY
- Test site boundary
 - Vehicular movement
 - Dead end
 - - - Pedestrian Walkway

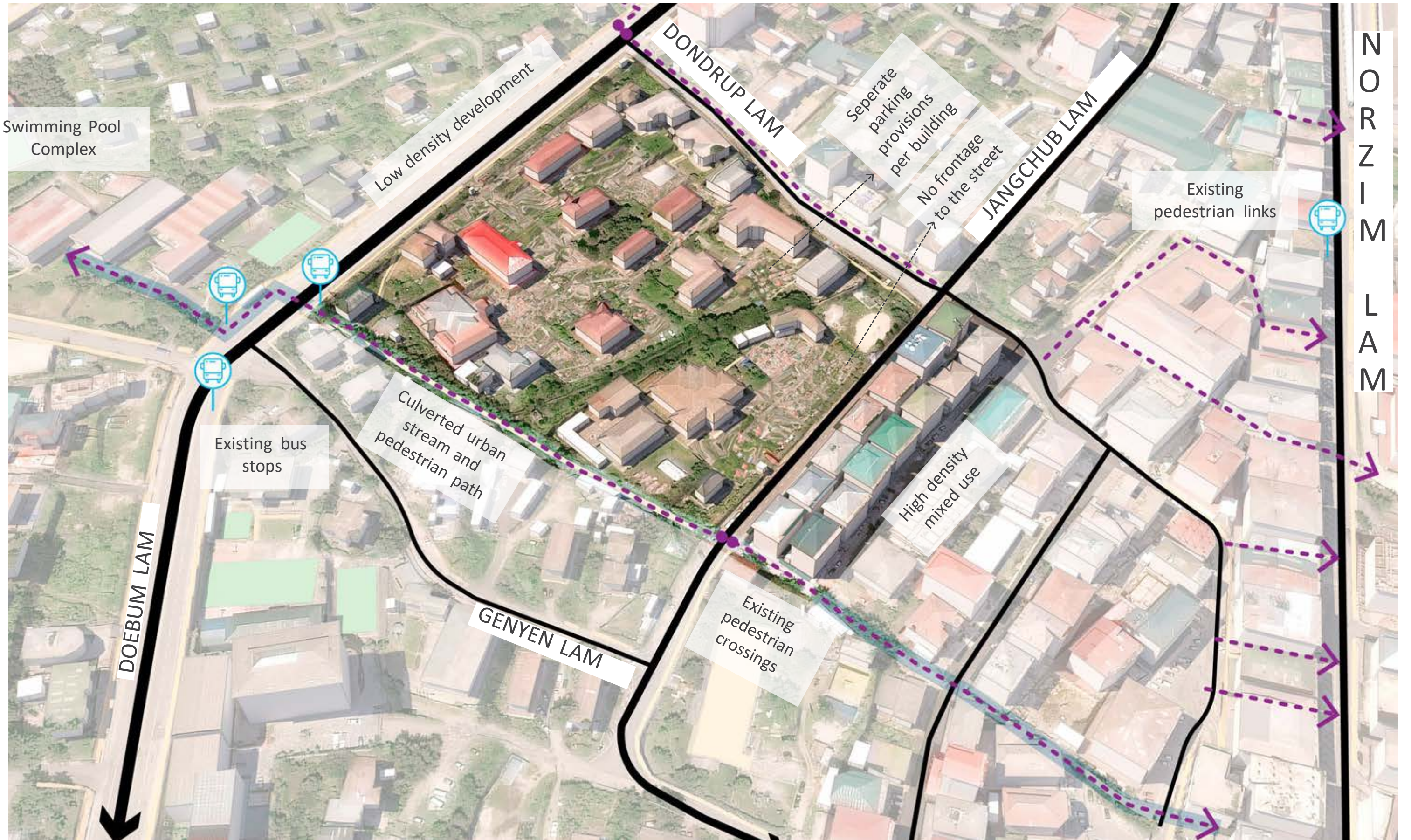
Regeneration of the City Core - a Case Study

Existing Gross Site Density



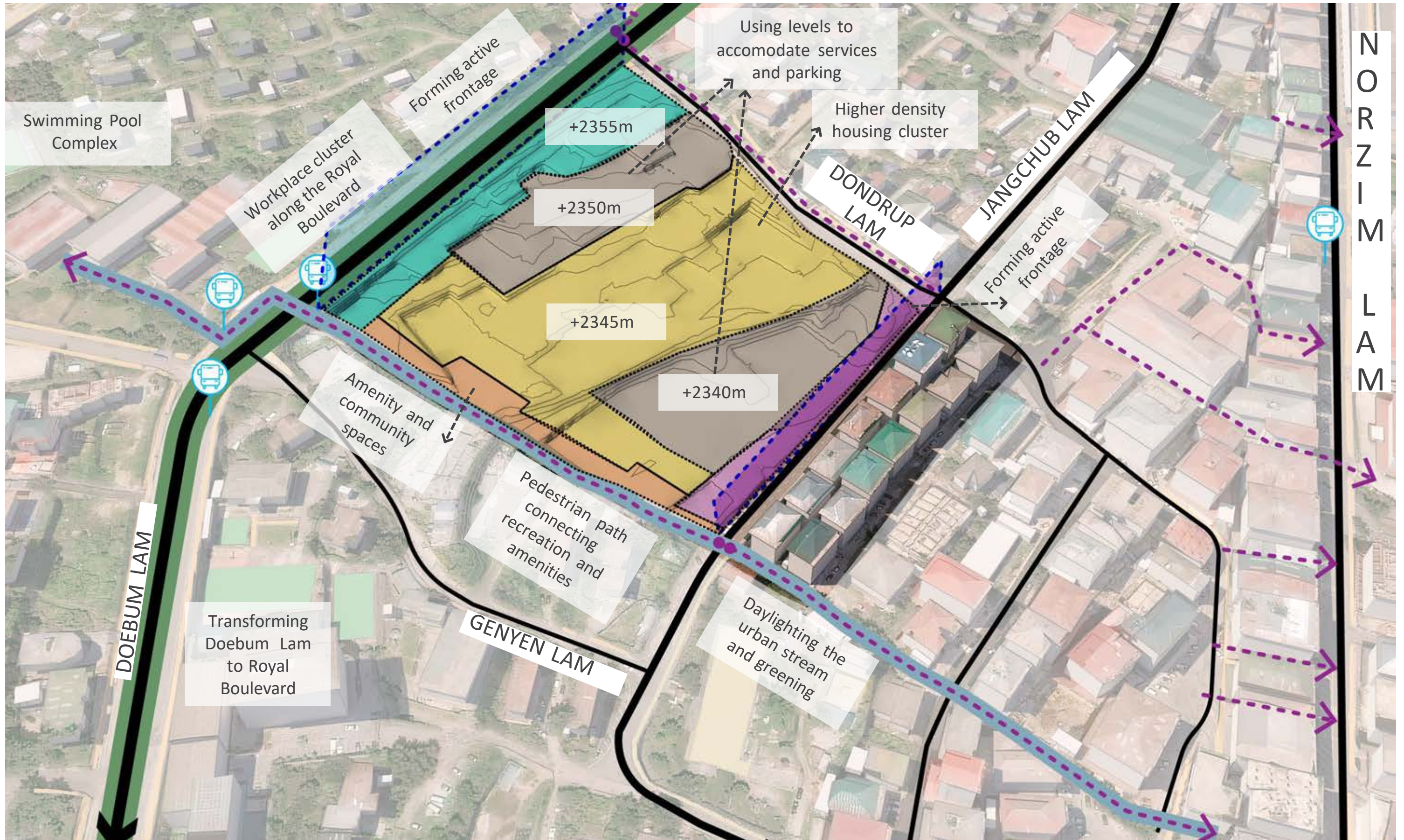
Regeneration of the City Core - a Case Study

Existing Site Conditions



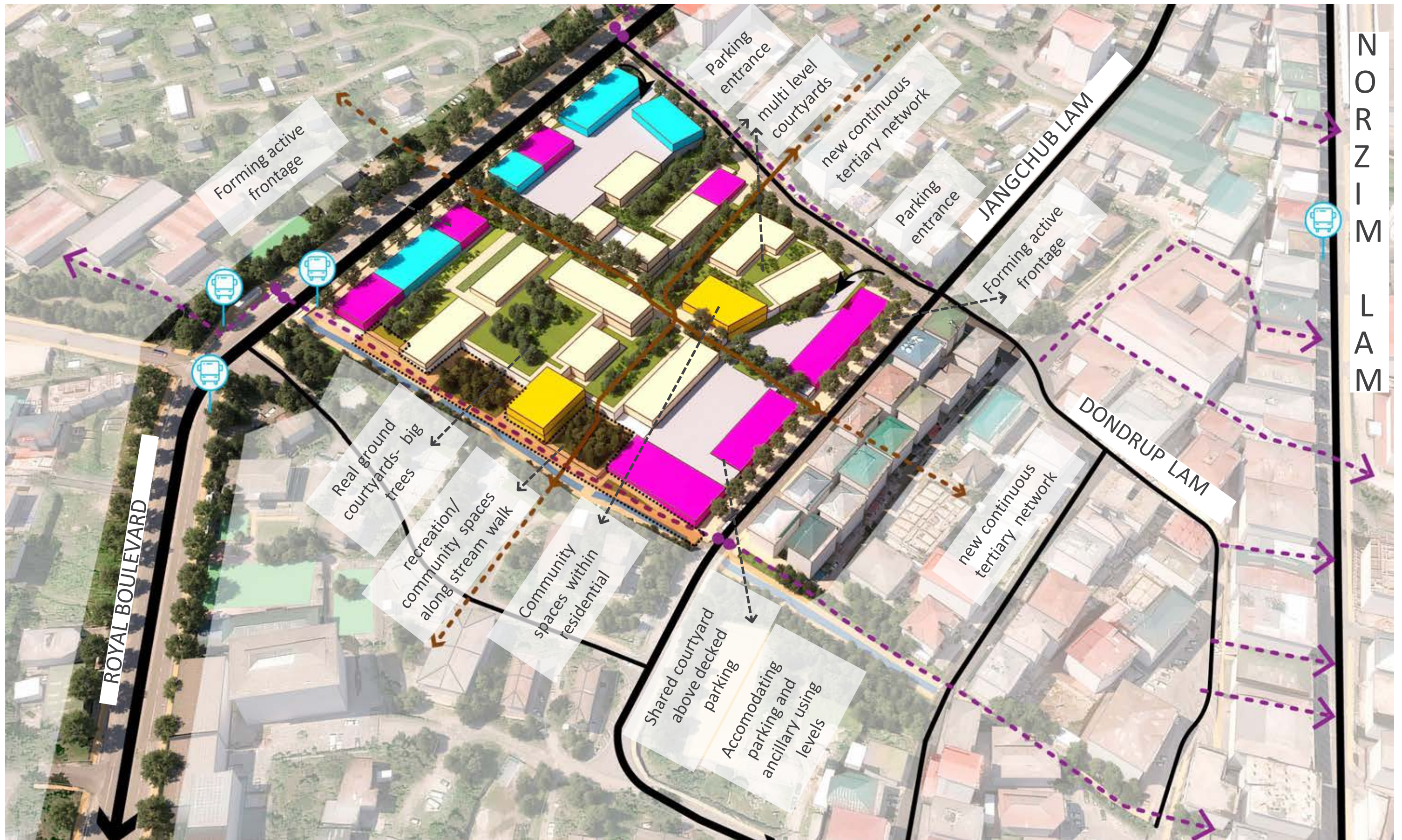
Regeneration of the City Core - a Case Study

Opportunities



Regeneration of the City Core - a Case Study

Forming coherent public and private realm



Regeneration of the City Core - a Case Study

Forming an urban development



Regeneration of the City Core - a Case Study

Preserving Bhutanese identity and culture



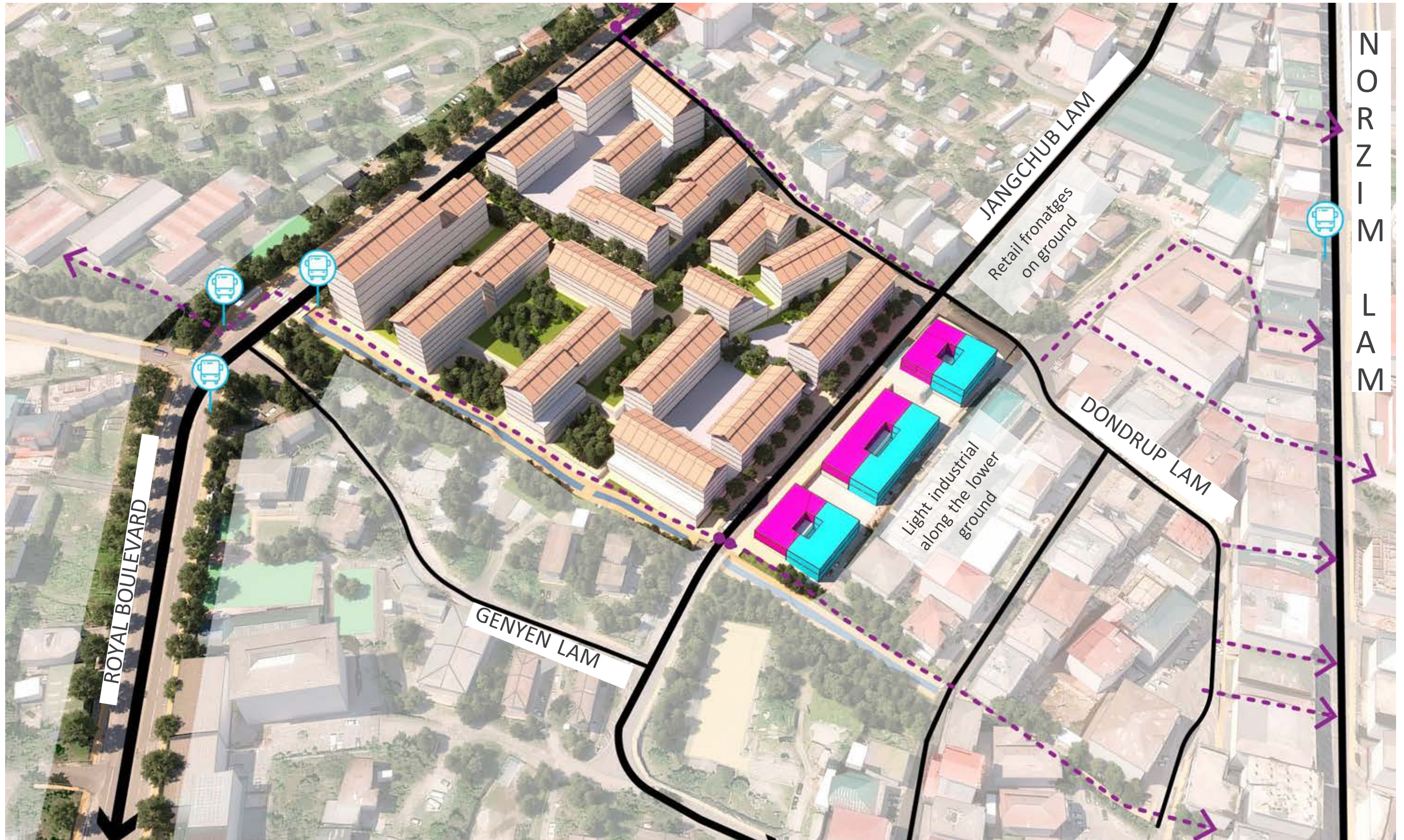
Regeneration of the City Core - a Case Study

Encouraging future development



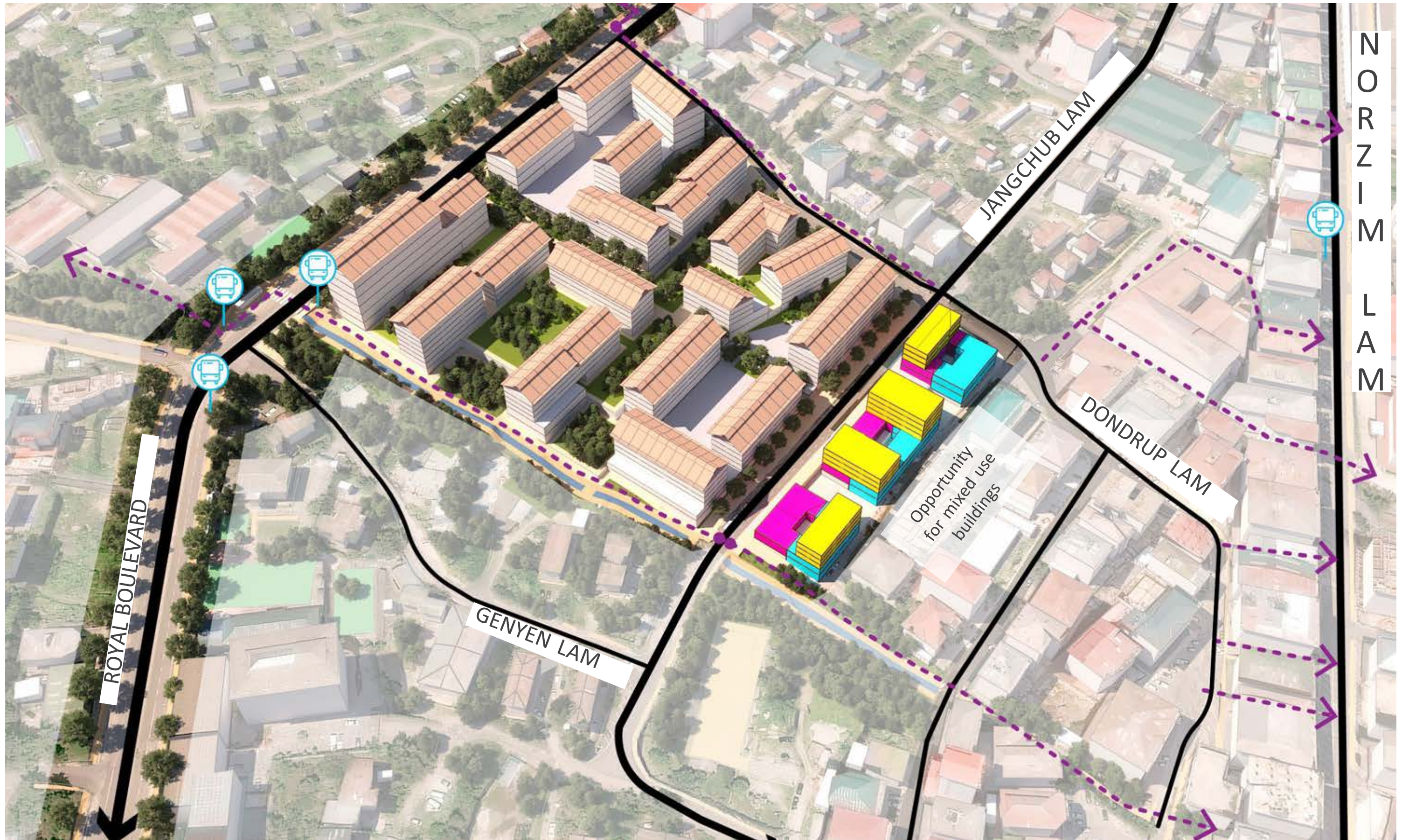
Regeneration of the City Core - a Case Study

Encouraging future development



Regeneration of the City Core - a Case Study

Encouraging future development



Regeneration of the City Core - a Case Study

Encouraging future development



Regeneration of the City Core - a Case Study



Regeneration of the City Core - a Case Study



Regeneration of the City Core - a Case Study



Regeneration of the City Core - a Case Study



Low density development
Site area: 3.90ha (gross)
FAR: 0.33 (gross)



High density development
Site area: 3.90ha (gross)
FAR: 1.7 (gross)

Total GEA : 70,400 sqm
380 homes
41,000 sqm Residential area
14,000 sqm Office
5,000 sqm Retail
2,000 sqm community uses
Parking Ratio 0.4

Implementation

Collaboration

There are a number of models for land ownership which could be considered.

- **Landowners group** – an organised forum where the landowners meet to discuss issues. Membership is voluntary and decisions are non-binding. The aim of the group is to co-ordinate interests and improve transparency.
- **Collaboration agreements** – a more formalised agreement where land owning parties work to a common goal. Often these agreements address issues around values (typically equalisation) across a site. A collaboration agreement is negotiated though the commitment level is relatively low.
- **Options agreements** – these are agreements to buy land at a future date which is either triggered by a date or an event (such as planning permission). The option price is normally a notional sum with the landowner benefiting from land value uplift at a date in the future. For a developer, this minimises the capital at risk early in a complex project and enables them to progress.
- **Consolidated ownership** – This assumes full ownership by one entity. Land is pooled or acquired through negotiation or where appropriate through CPO.

Case Study 2
Clock Tower Square

Scale Comparision

Clock Tower Square and Tashichho Dzong

- The Dzong is a carefully crafted space that offers an archetype to public spaces in Thimphu.
- It forms a well contained space with interlocking squares.
- The lower part of clocktower square is about 68m X 40m which is comparable to the 65mX 42m space in the Dzong.
- The clocktower square is not enclosed on all its sides.
- The NW and SW edges can be better contained using the vacant sites there.



Clock Tower Square

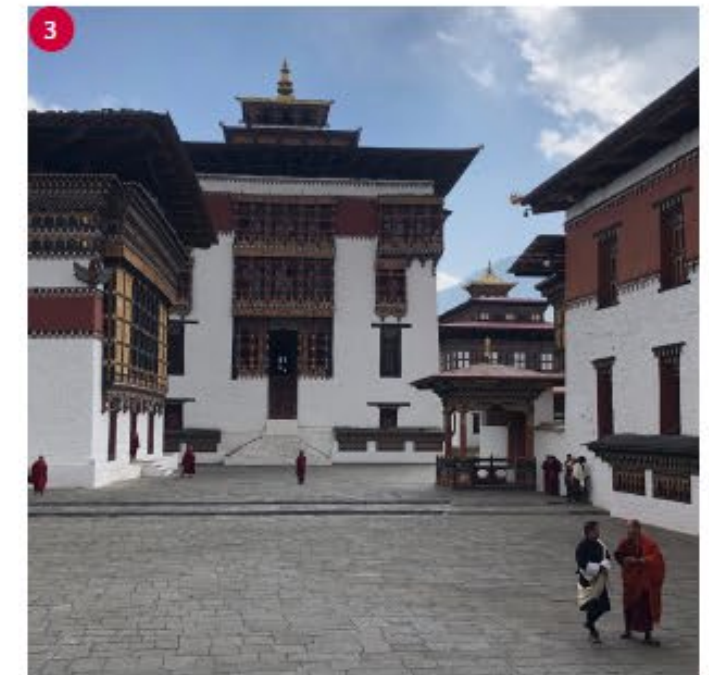
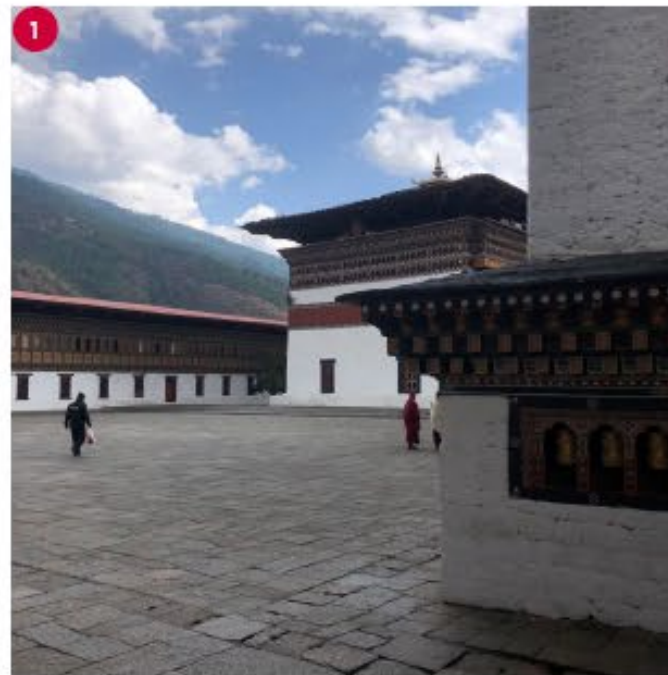
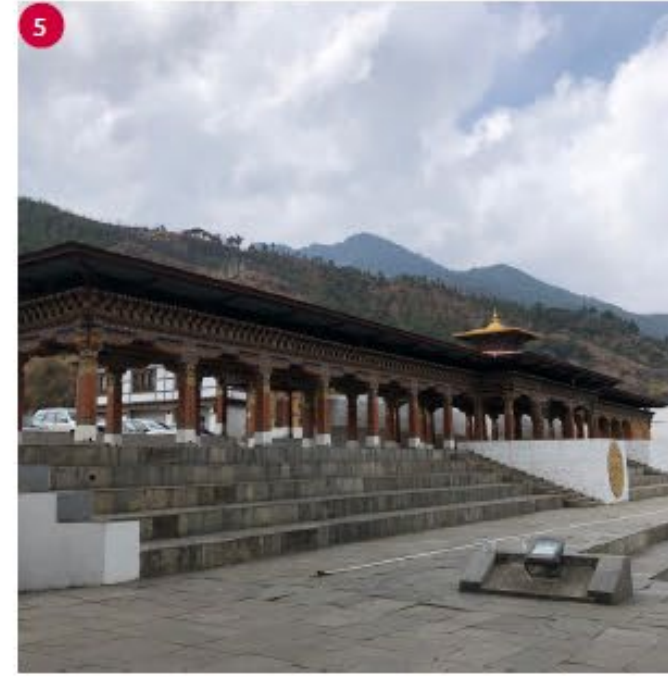


Tashichho Dzong

Tashichho Dzong

Sequence of Spaces

- The inner courtyards is bounded by built form on all sides.
- 1 The buildings in the periphery are of lower height, thereby allowing the mountains to be visible from within the courtyards.
- 2 The Utse and the other taller elements have a subtle, but dynamic tension as one moves through this well contained space.
- 3 The views keep shifting, allowing different elements to be seen leading one through these interlocking squares.
- 4 The outer courtyard has a raised collanade running around its perimeter, forming the shape of the space and a sense of enclosure.
- 5 This is also of a lower height of human scale, once again allowing the mountain landscape to become part of the experience.



Clocktower Square

A comparison with Tashichho Dzong



Clock Tower Square

- The edges of Clocktower Square are quite loose with no sense of enclosure.

- The sequential spaces within Tashichho Dzong have very strong enclosure and definition.
- Key views are formed and framed by buildings

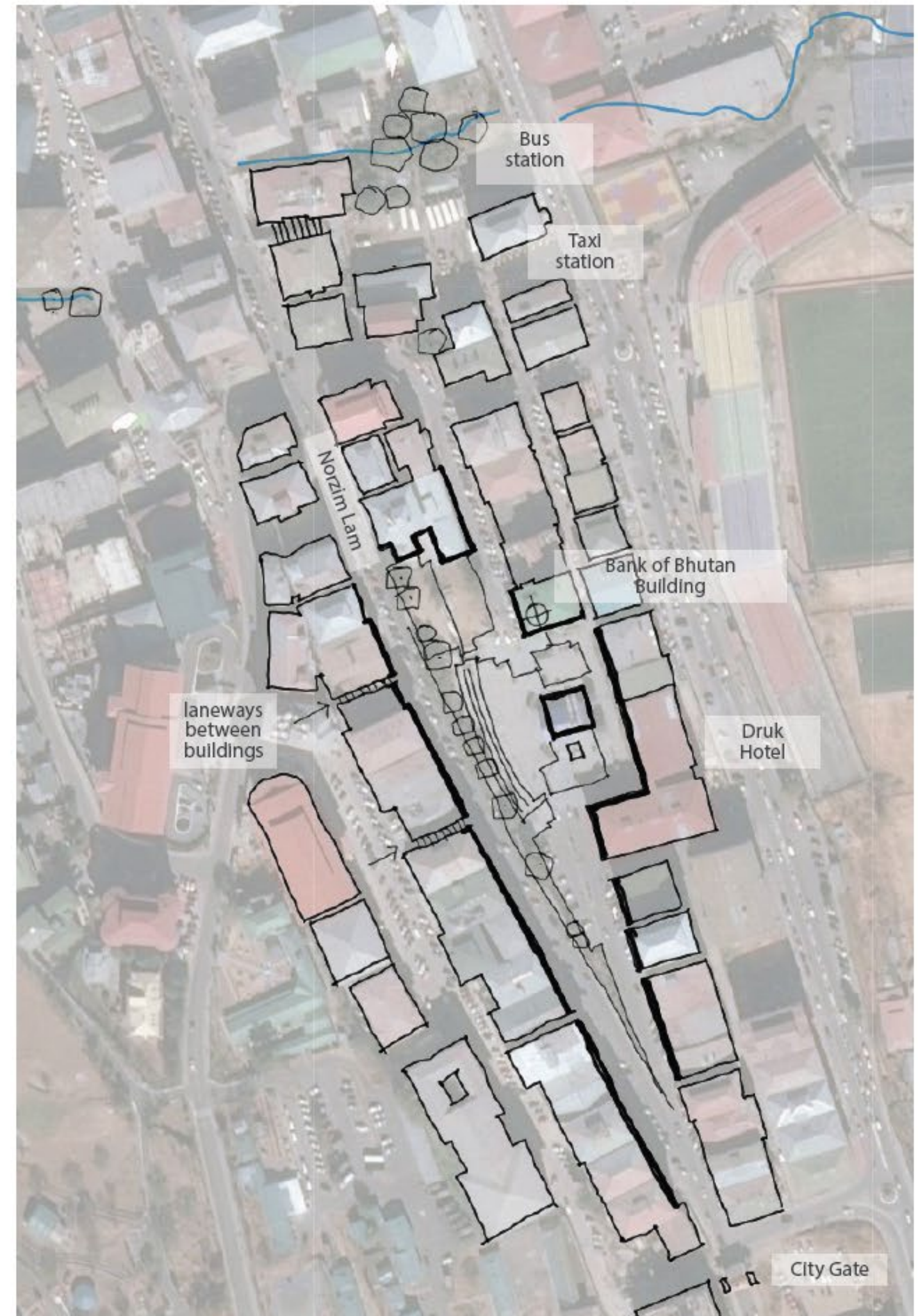


Tashichho Dzong

Clocktower Square

Existing condition

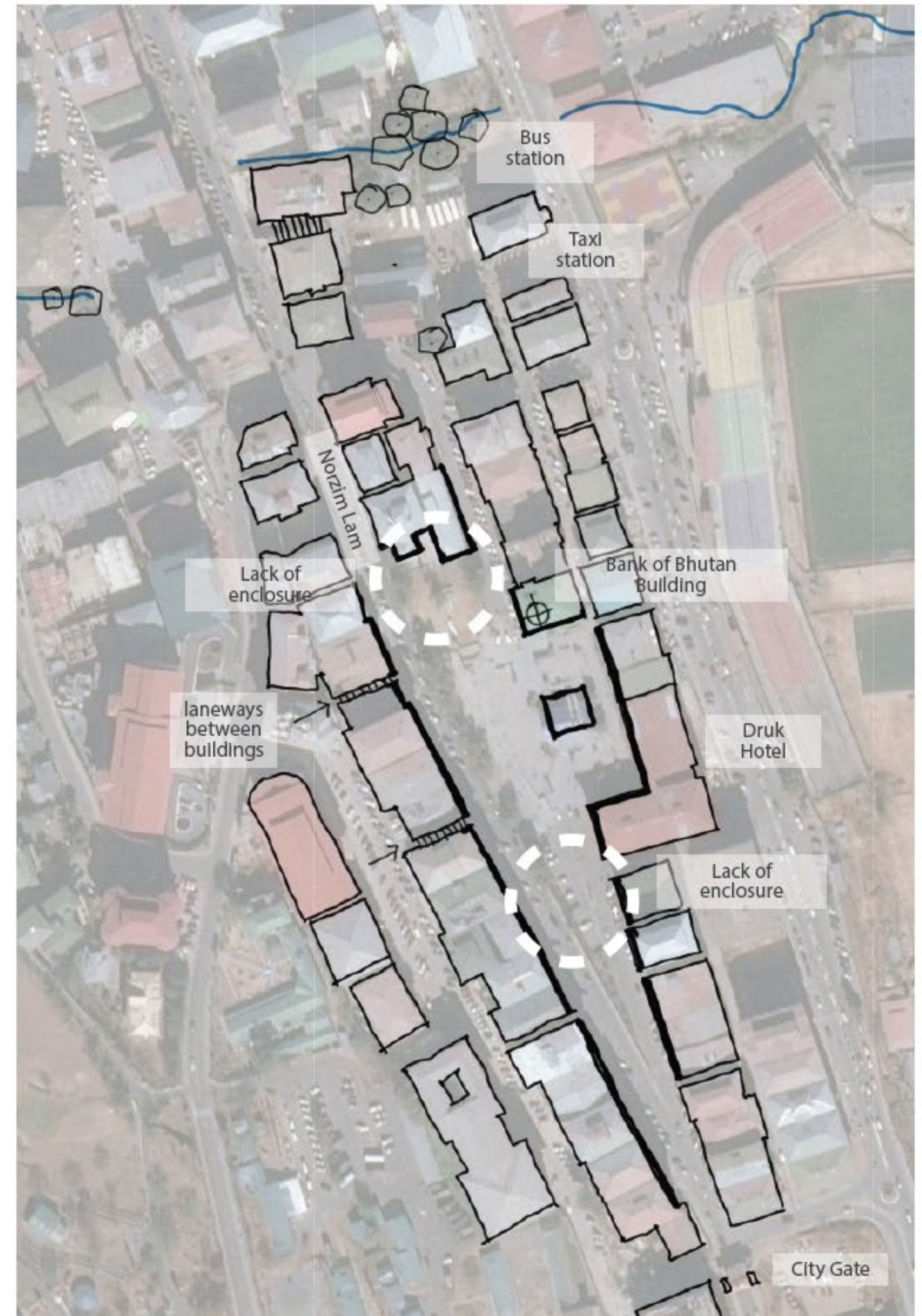
- Clocktower Square is at a lower level with Norzim Lam raised on an upper level.
- Druk Hotel forms enclosure to the south and east.
- Norzim Lam buildings form enclosure to the west.



Clocktower Square

Existing condition

- Clocktower Square is at a lower level with Norzim Lam raised on an upper level.
- Druk Hotel forms enclosure to the south and east.
- Norzim Lam buildings form enclosure to the west.
- The Bank of Bhutan Building form a 'landmark' building on the Square and forms good enclosure.
- Poor enclosure to the north and south.



Clocktower Square

Opportunities for creating enclosure



Clock Tower Square- SW edge



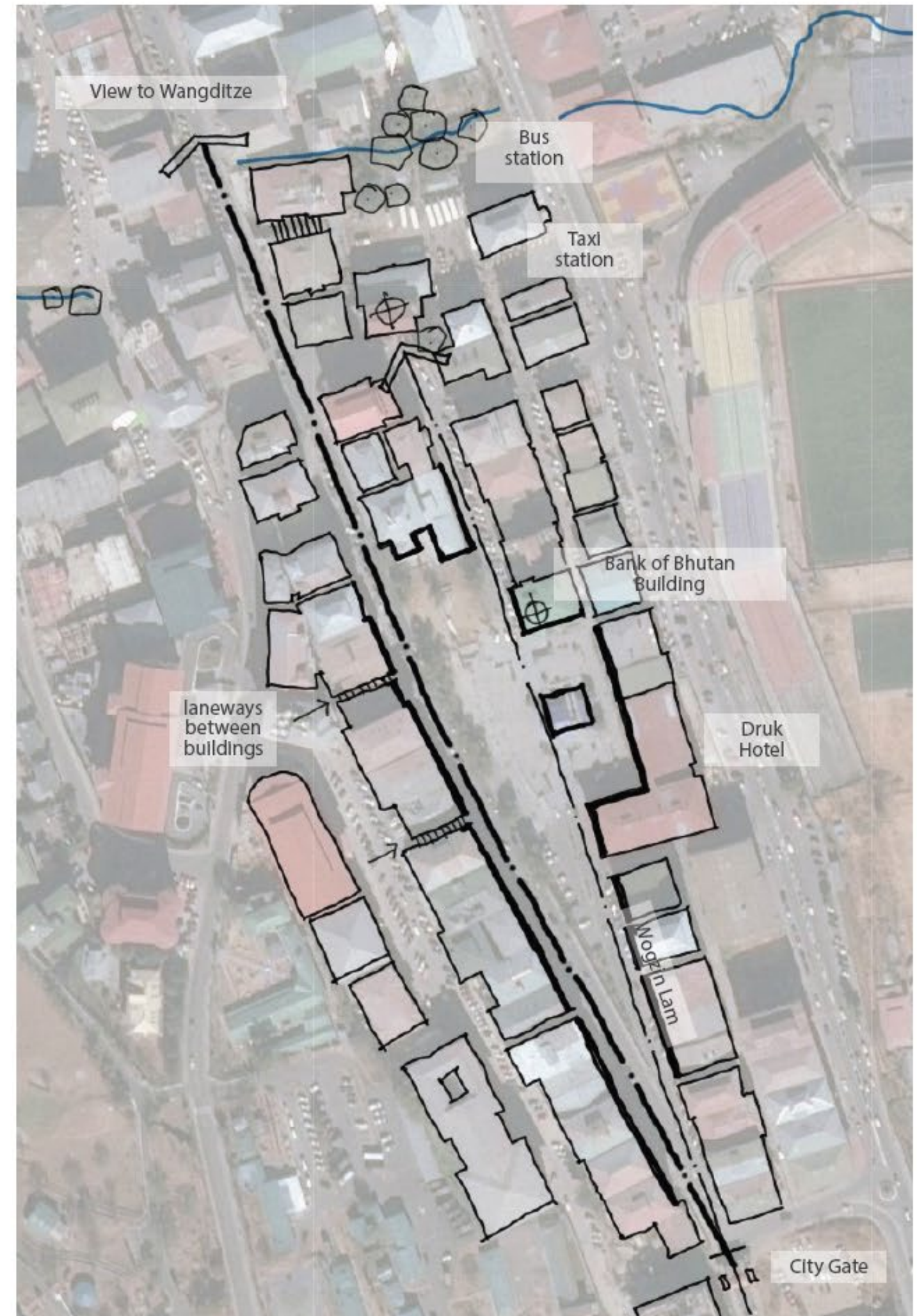
Clock Tower Square- NW edge

- The northern and southern edges of the square need to be stronger to form a well contained and strongly defined space.

Clocktower Square

Defining views

- There are two key views associated with Clocktower Square
- Norzim Lam is rotated on an axis so that Wangditze is visible from within the street
- A second local view is created along Wogzin Lam, through the Square and terminating at the city gate.
- Both views originate at the city gate.



Clocktower Square

Retaining views

- The lower scaled elements to the east and south of the Square allow the surrounding landscape to be a part of the experience.
- The mountains form the backdrop and extension of the square. This has to be maintained.



Clock Tower Square

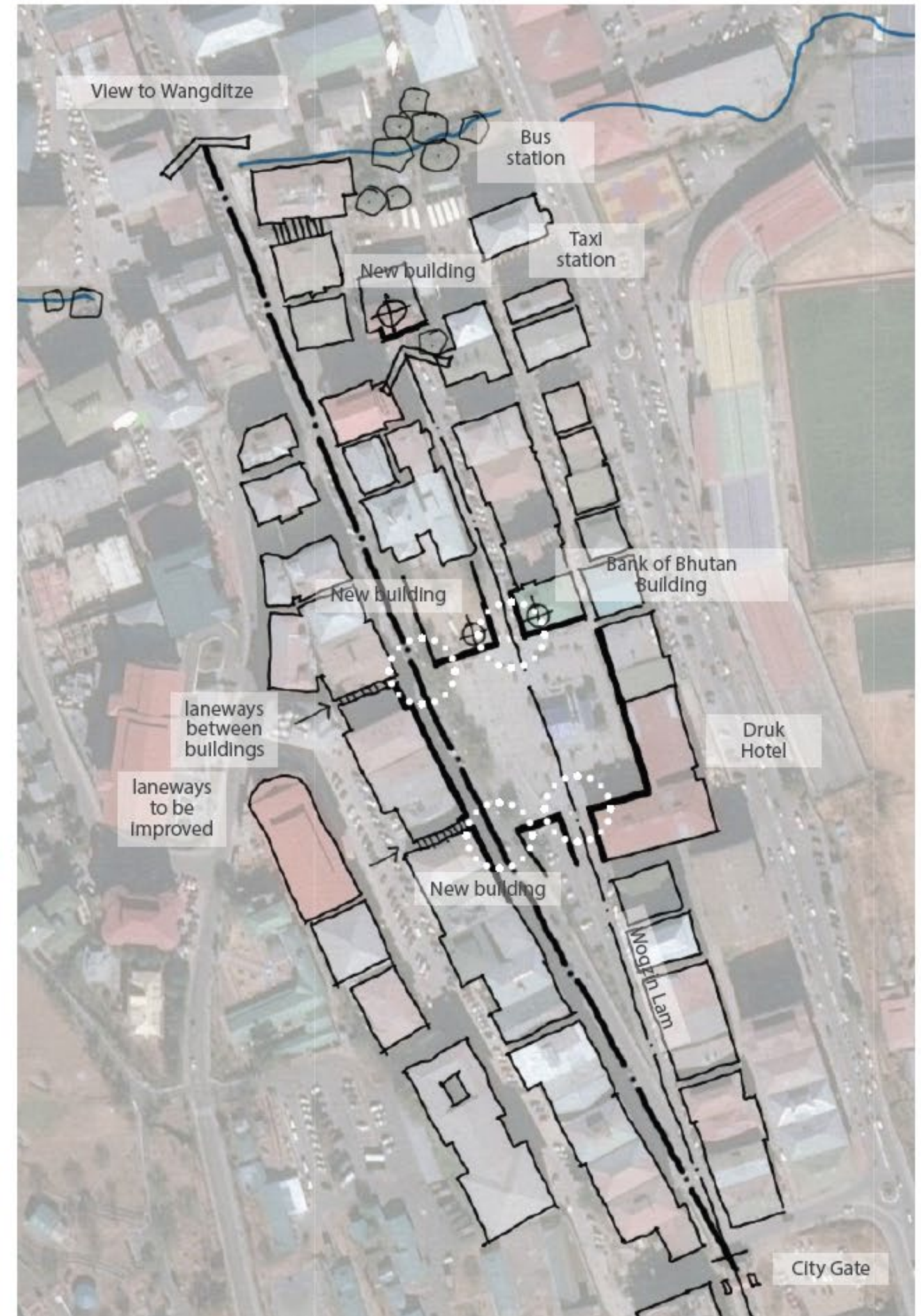


Tashichho Dzong

Clocktower Square

Forming enclosure and threshold

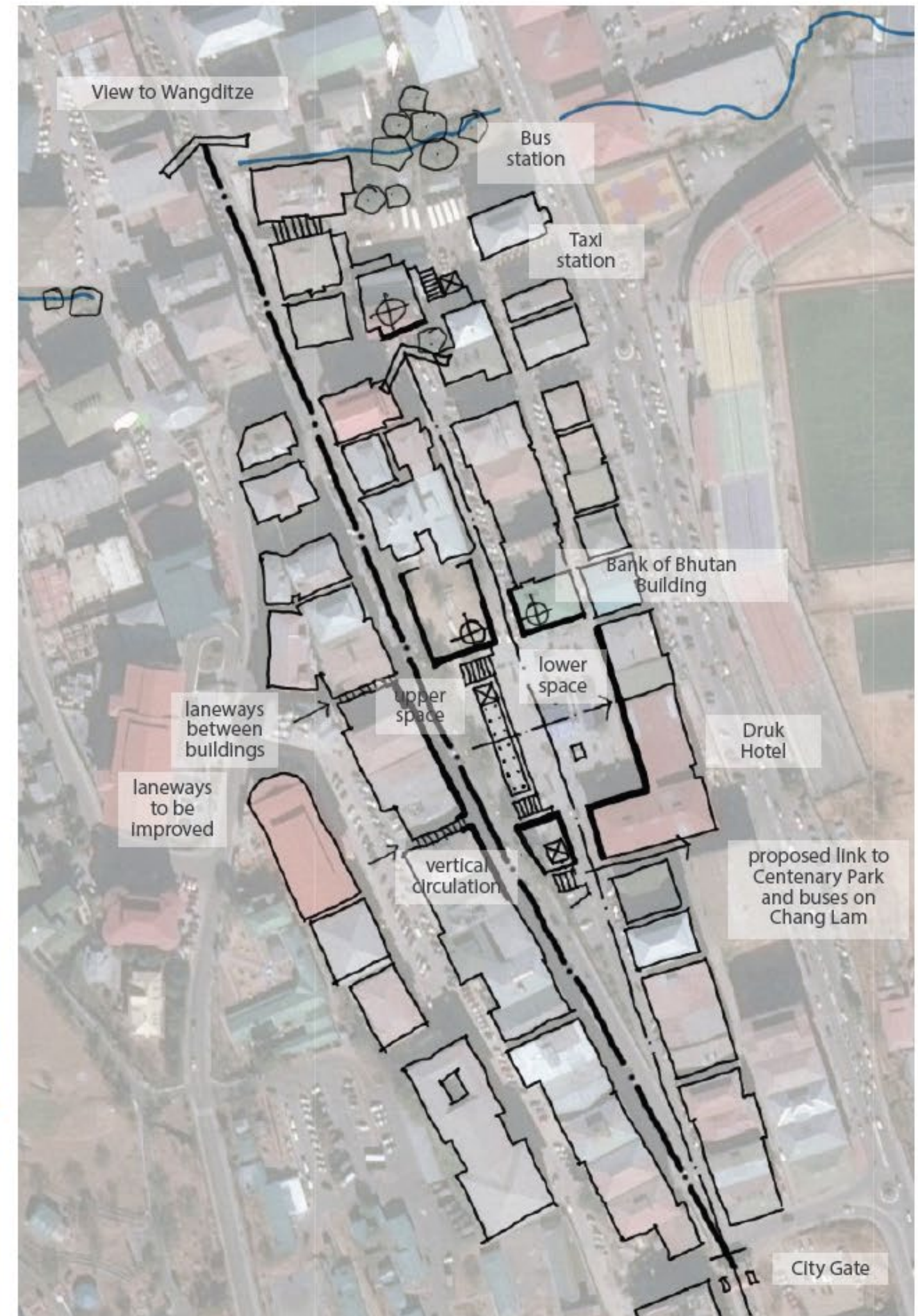
- New development and strong frontage can be introduced to the north and south of the Square.
- This strongly defines the space on all four sides.
- New development allows the two key views to be retained through the Square.
- The northern development can become the 'twin' of the Bank of Bhutan Building - making an entrance/threshold into the space.
- A new building could be developed at the north of Wogzin Lam to terminate the local view.



Clocktower Square

Forming stronger enclosure

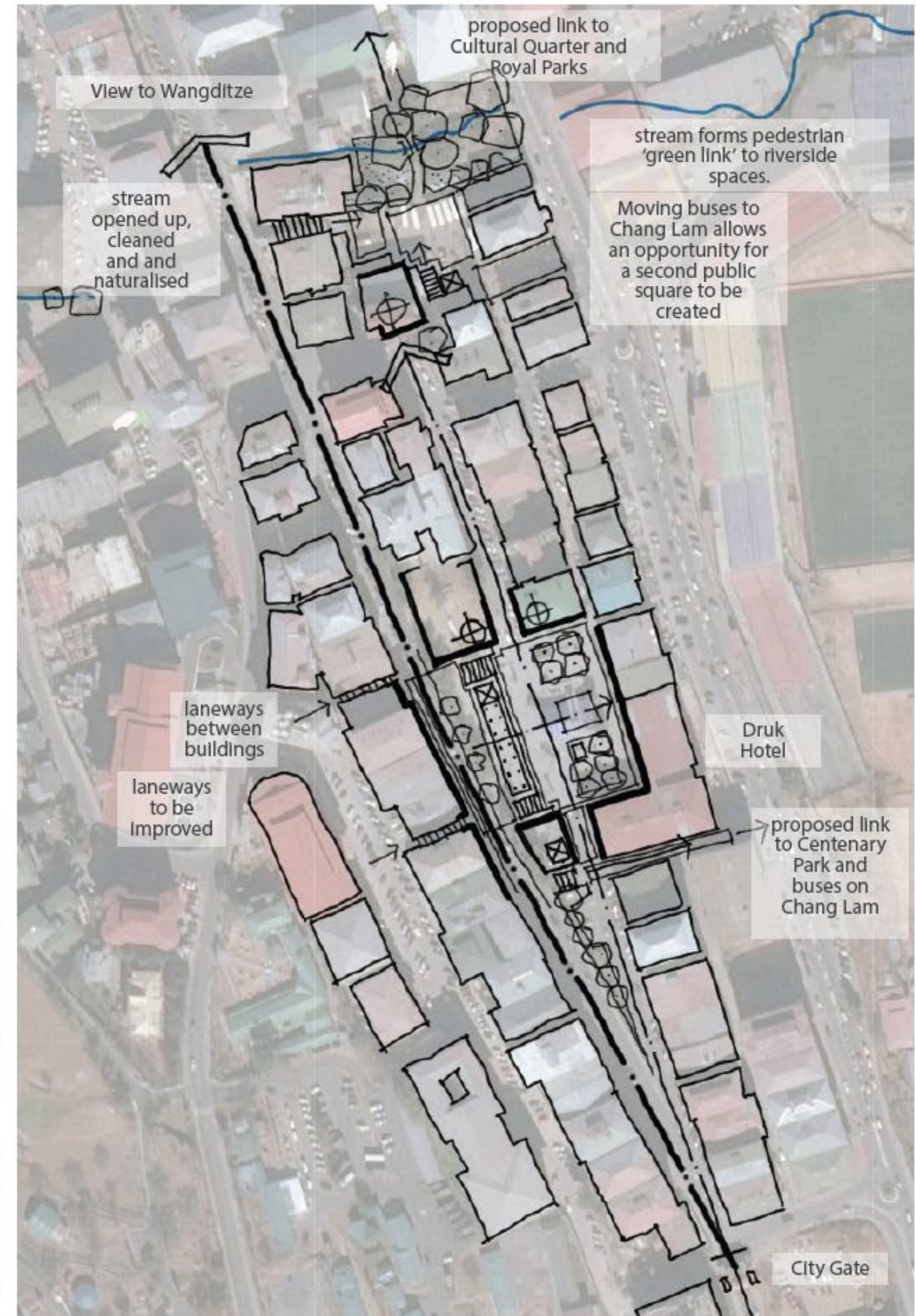
- A new colonnade could be introduced at upper level associated with Norzim Lam.
- Creates a public realm space at the lower level as well as a new space at upper level.
- Colonnade and new southern development could incorporate vertical circulation (lifts) and grand staircases between the two levels.
- Colonnade allows over views into the lower Square from Norzim Lam.



Clocktower Square

Forming a sequence of spaces

- Moving buses to Chang Lam provides the opportunity for a second public space to be created to north of Wogzin Lam.
- These can form a 'sequence of spaces' connected by formed views and walking routes.
- New building that terminates the local view can incorporate vertical circulation.
- Stream can be daylighted, cleaned and naturalised, introducing nature into the city.
- This second space collects people moving along the stream from east-west and forms the starting point of the north-south link to the Cultural Quarter and the Royal Parks.
- Opportunity to introduce trees into Clocktower Square at both levels - to bring additional definition, shade and nature.



Clocktower Square

Activation at different levels

- The multiple levels offer an opportunity to form active frontage onto Norzim Lam as well as onto Clock Tower Square at lower level.
- This encourages more activation and makes the square a vibrant, multifunctional space.
- Storage spaces, public toilets can be accommodated behind active frontage to support events in the lower level of the Square.



Clock tower Square



Trees providing places to dwell and occupy in shade



Coal drops yard- a multi level space with active frontage and overlooking



Trafalgar Square- multi leveled square with viewing platforms

Case Study 3
At Kabesa/Dechencholing

Dechencholing and Kabesa

Context

- The two Strategic Sites identified in Dechencholing add up to 63.7 ha
- The Kabesa LAP-1 total area is about 100 hectares (247.5 acres)
- Dechencholing currently holds a significantly larger population than Kabesa:

Existing

	Existing (2015/2017)
Dechencholing <i>(Source: MoWHS)</i>	6,490 people 1,600 homes
Kabesa <i>(Source: Kabesa SP)</i>	3,964 people 922 homes
Kabesa LAP-1 <i>(Source: Kabesa LAP-1)</i>	2,606 people 606 homes



Dechencholing and Kabesa

Rev1 Draft Structure Plan

- Opportunity for a new centre at Dechencholing, creating a northern focus for local residents
- Opportunity to intensify RBG site and deliver additional housing
- Dechencholing as a suburban neighbourhood creating a transition between the denser neighbourhoods to the south and the more rural neighbourhoods to the north (Kabesa)

Existing

Proposed

	Existing (2015/2017)	Rev1 Draft TSP
Dechencholing <i>(Source: MoWHS)</i>	6,490 people 1,600 homes	+6,700 people +1,450 homes
Kabesa <i>(Source: Kabesa SP)</i>	3,964 people 922 homes	
Kabesa LAP-1 <i>(Source: Kabesa LAP-1)</i>	2,600 people 600 homes	

KEY

- Thromde Boundary
- Southern Extension Boundary
- Neighbourhood Boundary
- Inner Green Belt Boundary

CENTRES HIERARCHY

- City Centre
- Sub-district Centre
- Neighbourhood Centre
- Local Centre

RESIDENTIAL AREAS

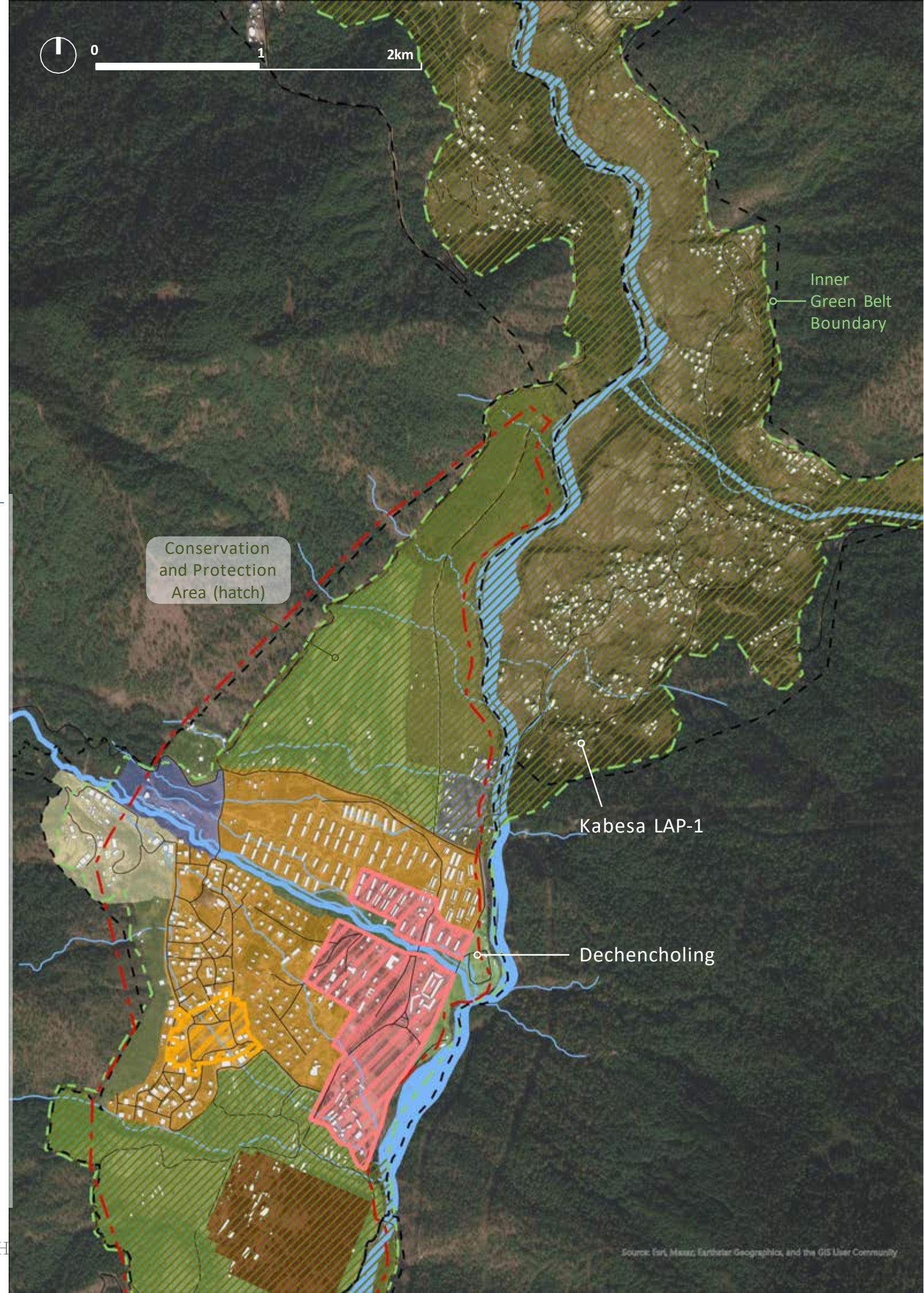
- Residential Urban
- Residential Suburban
- Residential Rural

OTHER LAND USES

- Traditional Village
- Major Social Infrastructure
- Religious
- Heritage & Culture
- Workplace
- Government
- Royal Estate

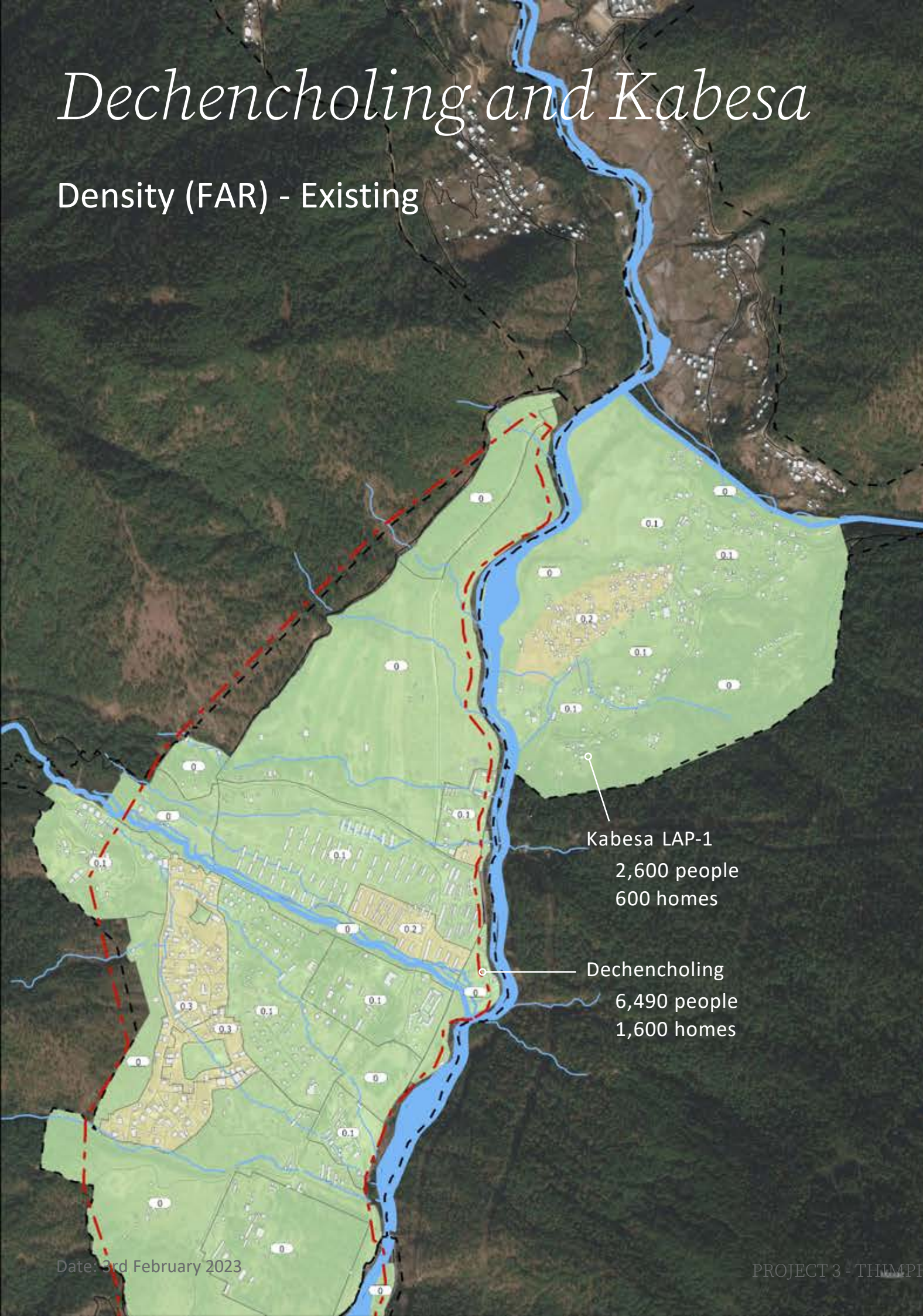
GREEN INFRASTRUCTURE

- Protect
 - Forest
 - Agriculture
- Provide
 - Park
- Water System
 - River
 - Stream

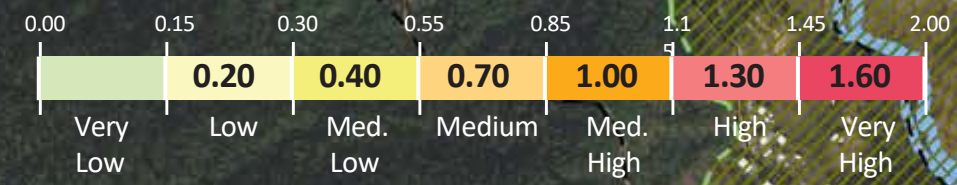


Dechencholing and Kabesa

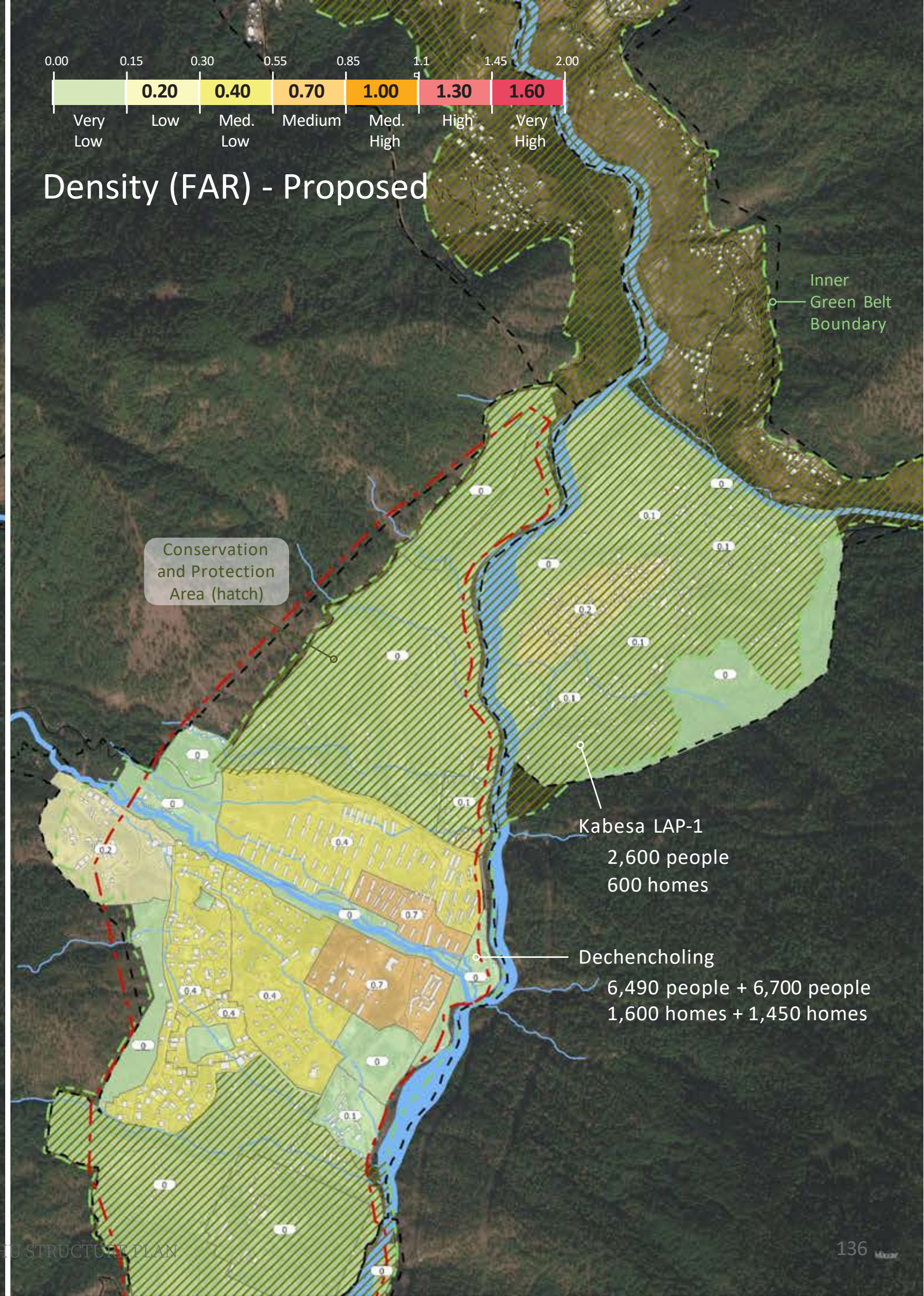
Density (FAR) - Existing



Date: 3rd February 2023



Density (FAR) - Proposed



Dechencholing and Kabesa

Land Ownership

- Dechencholing parcels are mostly consolidated under government ownership and Crown property
- Kabesa parcels are fragmented and under private ownership

KEY

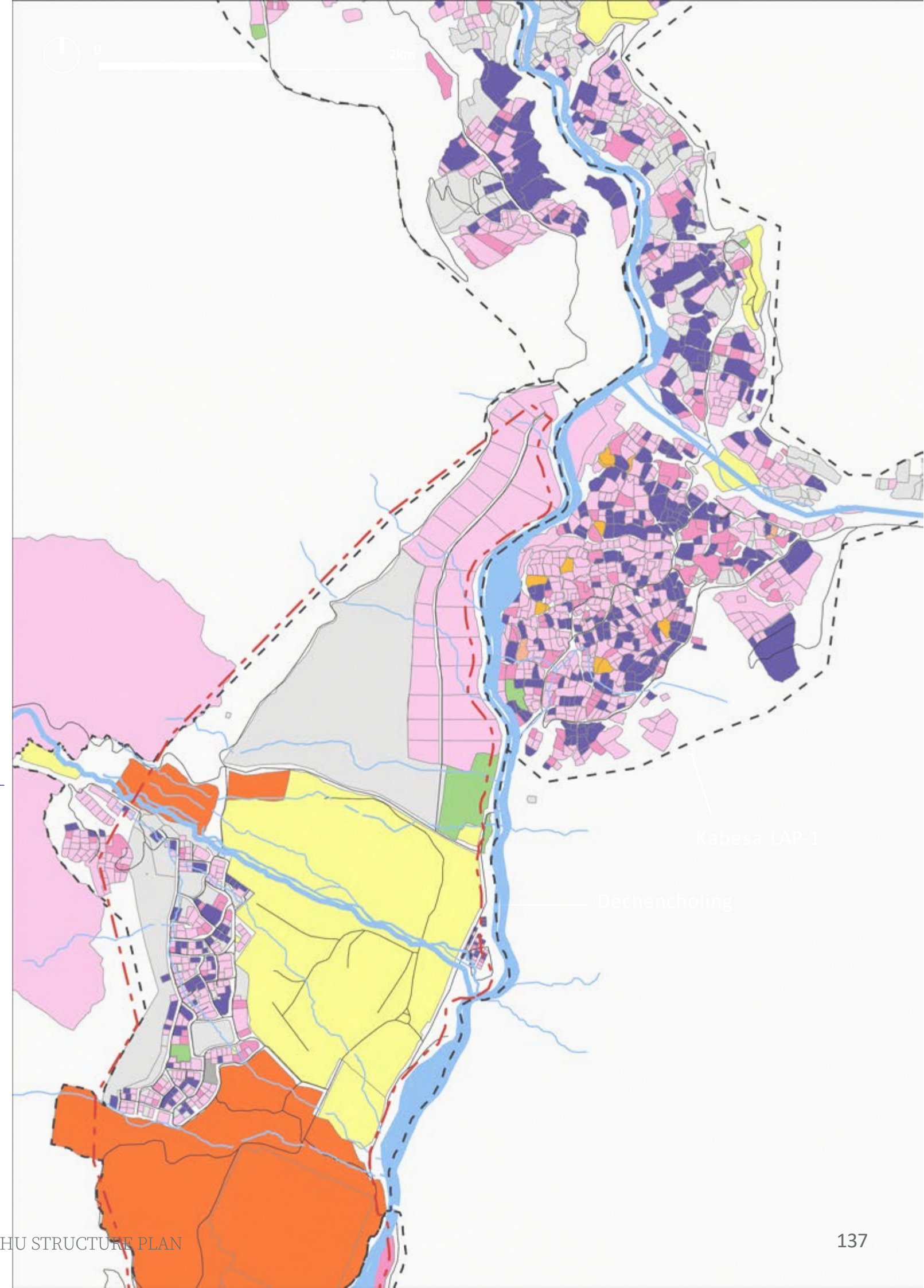
- Thromde Boundary
- Southern Extension Boundary
- Neighbourhood Boundary
- Inner Green Belt Boundary

PRIVATE OWNERSHIP

- Individual Person
- Joint Owner
- Private Corporation
- Family Land

OTHER

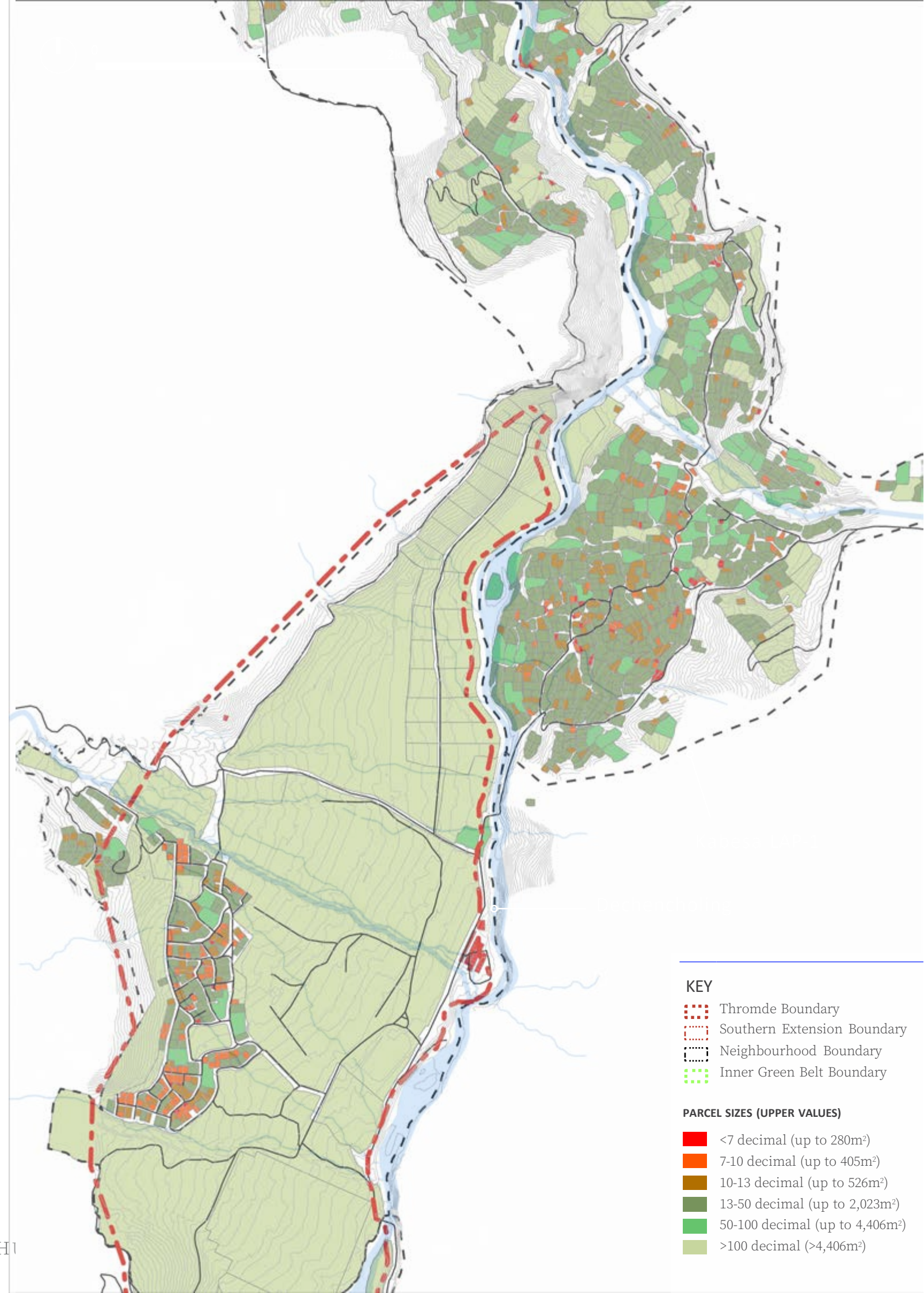
- Religious Institution
- Government Institution
- Gerab Dratshang
- Crown Property
- Corporation
- Civil Society Organisation
- Unknown



Dechencholing and Kabesa

Parcel Size

- Dechencholing parcels are mostly greater than 100 decimal (0.4 ha). A small area west of the RBG site within private ownership contains smaller parcels, under 50 decimals (0.2 ha).
- Kabesa parcels sizes are generally smaller than 50 decimals (0.2 ha).



KEY

- Thromde Boundary
- Southern Extension Boundary
- Neighbourhood Boundary
- Inner Green Belt Boundary

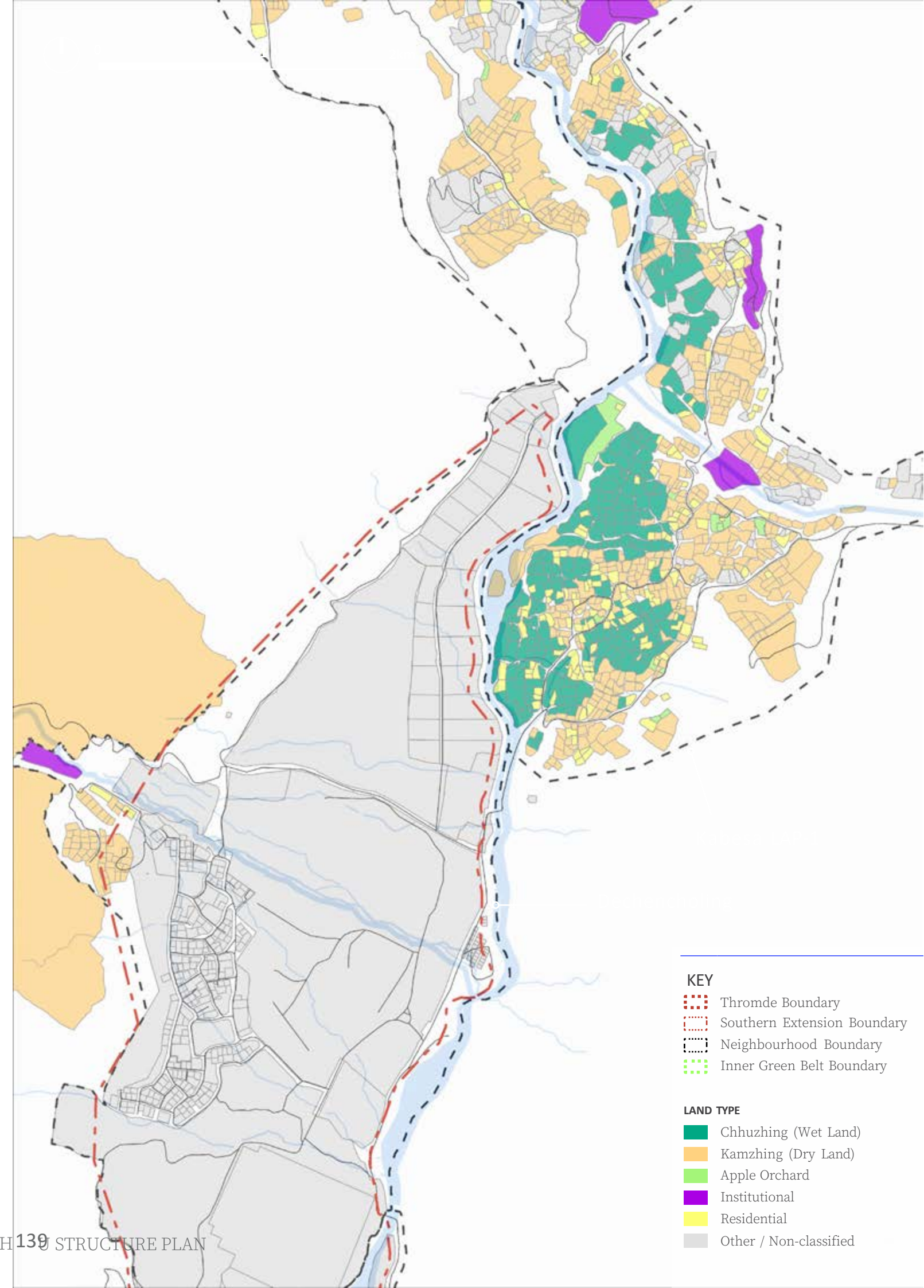
PARCEL SIZES (UPPER VALUES)

- <7 decimal (up to 280m²)
- 7-10 decimal (up to 405m²)
- 10-13 decimal (up to 526m²)
- 13-50 decimal (up to 2,023m²)
- 50-100 decimal (up to 4,406m²)
- >100 decimal (>4,406m²)

Dechencholing and Kabesa

Land Type

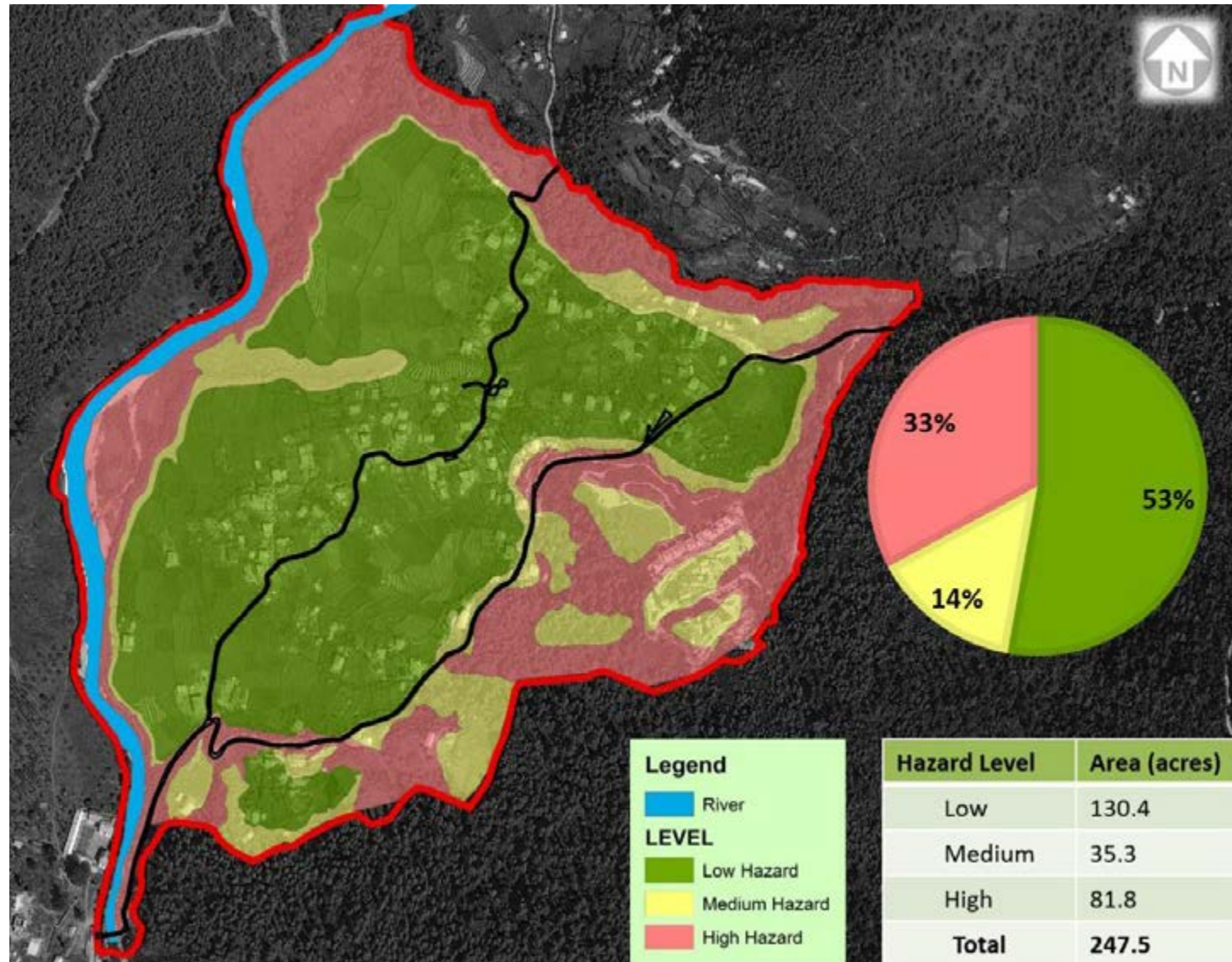
- In Kabesa, there is a greater concentration of wet paddy fields east of the river, which is an opportunity for creating riparian zones under conservation area. Dry paddy fields are interspersed with residential zones.



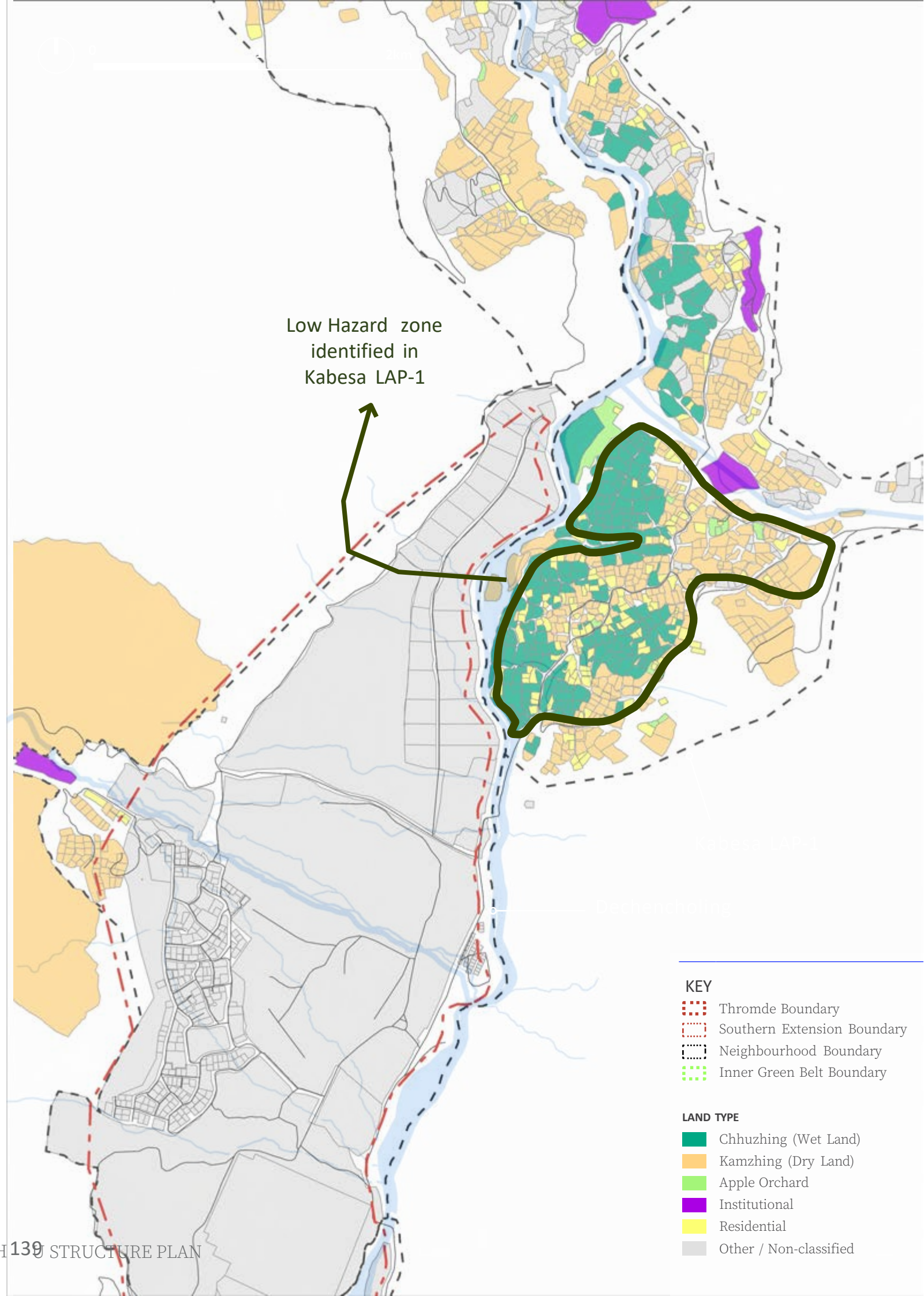
Dechencholing and Kabesa

Kabesa LAP-1 Constraints Mapping

- The Kabesa LAP-1 identifies a low-hazard zone, with slopes under 17 degrees and less susceptibility to landslide and flooding hazards.
- Together with Kamzhing plots (dry paddy fields) the low-hazard zone begins to identify land suitable for development in the LAP.



Date: 3rd February 2023

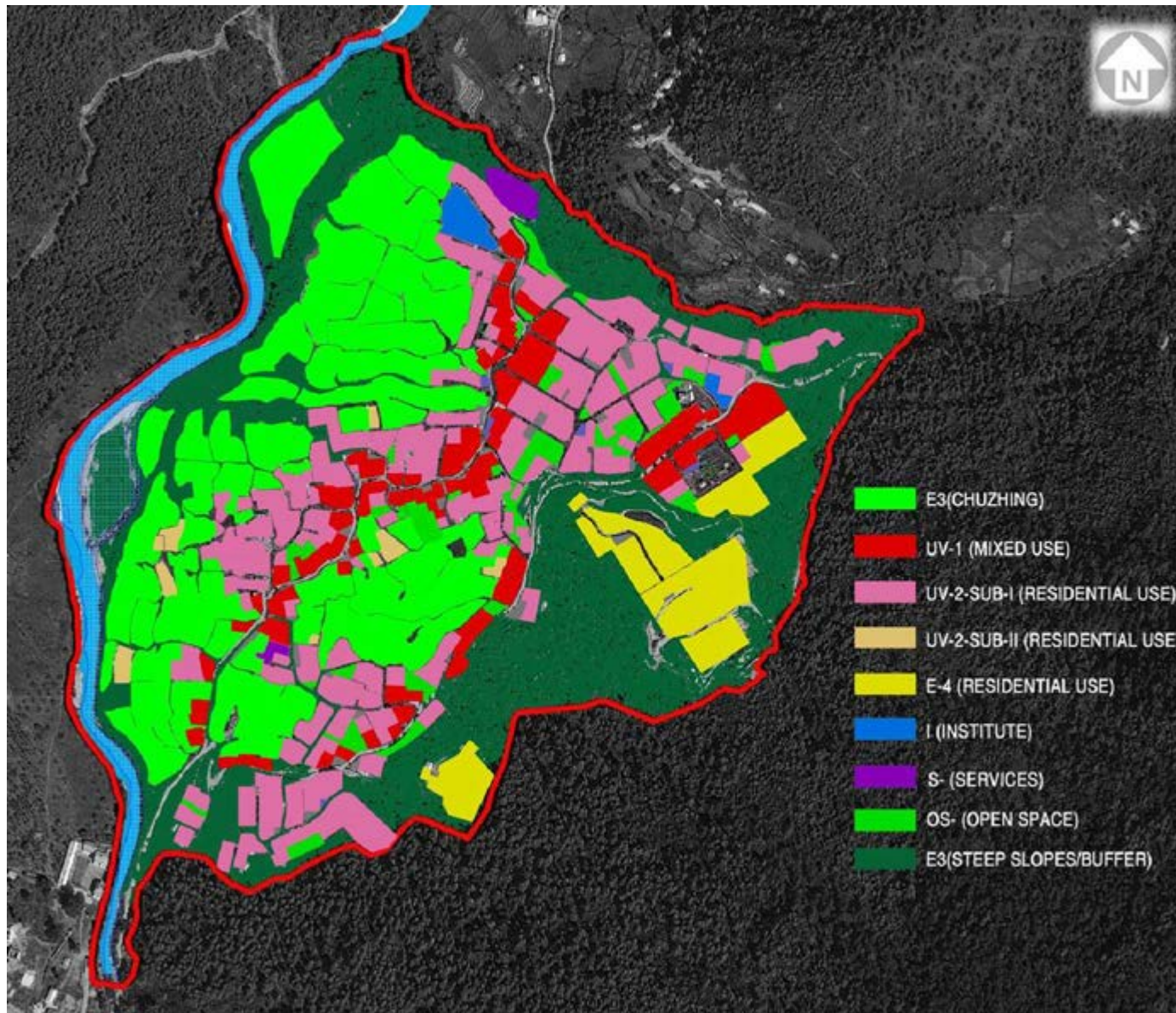


Dechencholing and Kabesa

Kabesa LAP 1 - Is this Good Growth in the Right Place?

Kabesa population projection vs. LAP-1 capacity analysis.

While the Kabesa Structure Plan suggests an overall population growth of 4.1% per annum, the LAP-1 focused analysis suggests a population growth of 8.8% per annum, with a net gain of 18,873 people.



Date: 3rd February 2023

	2015	2040	Net Gain
Kabesa population (Kabesa SP)	3,964 people	10,650 people (4.1% growth per annum)	+6,689 people
Kabesa homes (estimate)	922 homes	2,477 homes	+1,555 homes
LAP-1 population (Kabesa LAP-1)	2,606 people	21,479 people (8.8% growth per annum)	+18,873 people
LAP-1 homes (estimate)	606 homes	4,995 homes	+4,389 homes

↖ LAP-1 Net Gain 18,873 people by 2040

Population growth 8.8% per annum (25 years)

UV-1 (Mixed Use) Urban Village I	- 3 storeys max - 45% site coverage - 22% land pooling contribution
UV-2-SUB-1 Urban Village II (Sub category 1)	- 3 storeys max - 40% site coverage - 20% land pooling contribution
UV-2-SUB-2 Urban Village II (Sub category 2)	- 3 storeys max - 40% site coverage - 16% land pooling contribution
E4 Environment 4	- 2 storeys max - 25% site coverage - 16% land pooling contribution - Restricted development above 30% (max allowable slope 57%)

Dechencholing and Kabesa

Kabesa LAP 1 - Is this Good Growth in the Right Place?



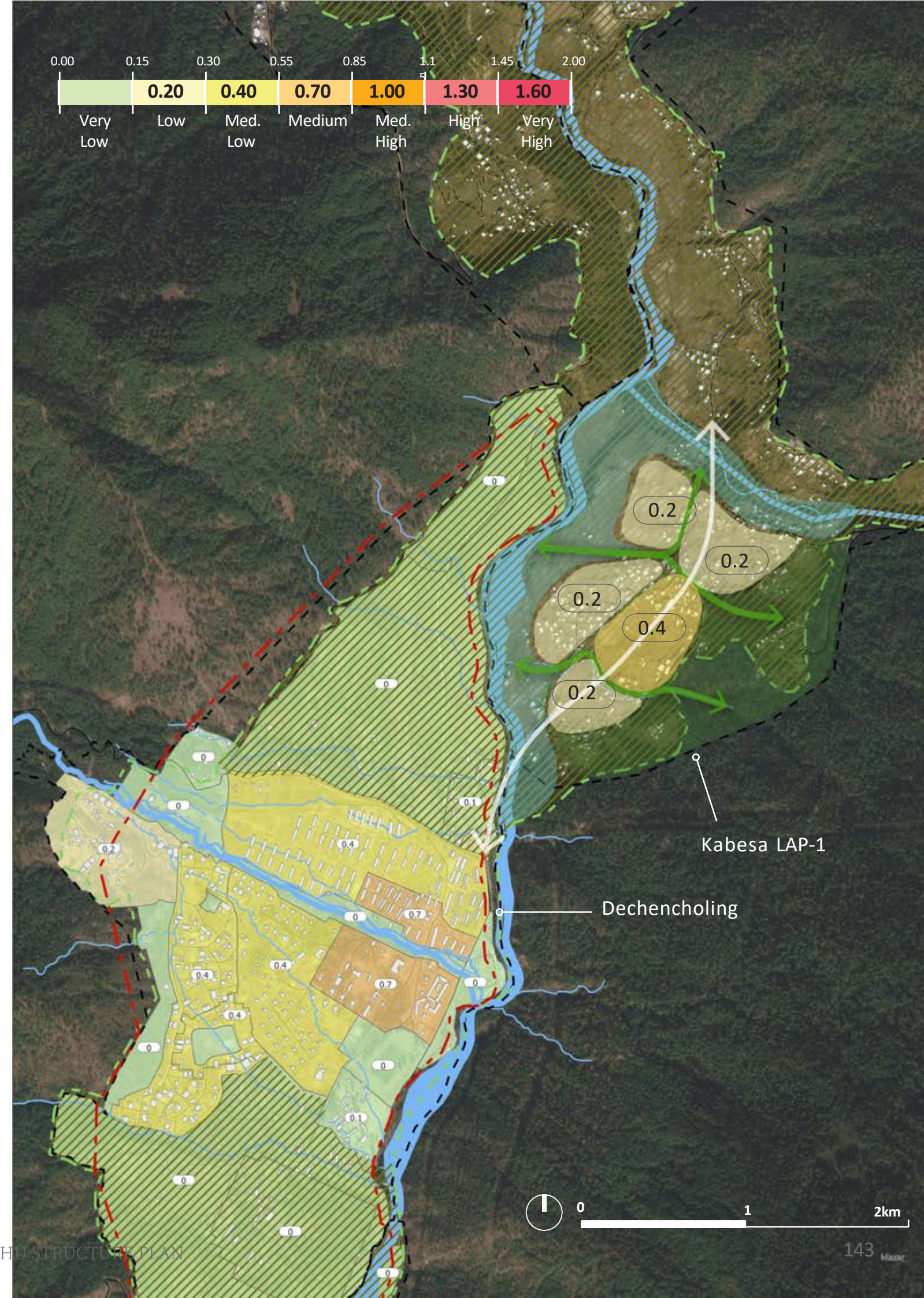
Dechencholing and Kabesa

Kabesa Option 1

- High value, low impact = higher economic potential
- Careful and compact development of up to 500 homes
- Productive/regenerative landscape
- Economically valuable jobs

Existing	Existing	Proposed
	Existing (2015/2017)	Rev1 Draft TSP
Dechencholing <i>(Source: MoWHS)</i>	6,490 people 1,600 homes	+6,700 people +1,450 homes
Kabesa <i>(Source: Kabesa SP)</i>	3,964 people 922 homes	Option 1
Kabesa LAP-1 <i>(Source: Kabesa LAP-1)</i>	2,600 people 600 homes	+2,300 people +500 homes

Date: 3rd February 2023



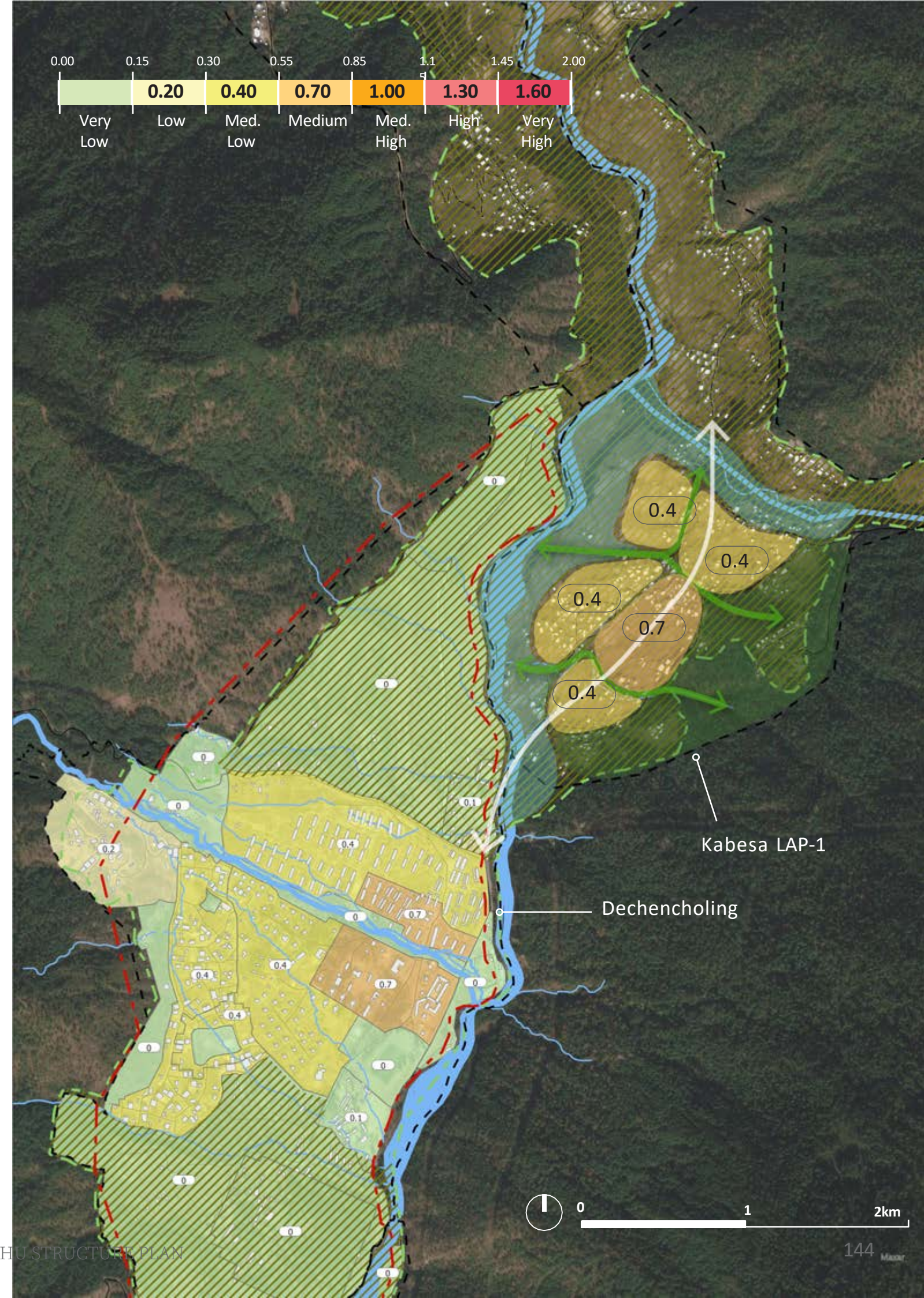
Dechencholing and Kabesa

Kabesa Option 2

- Lower value, higher impact = lower economic potential
- Comprehensive development of up to 1,000 homes
- Productive/regenerative landscape
- Economically valuable jobs
- New local centre, school and green/social infrastructure supporting new population of about 4,000 - 5,000 people

Existing	Existing (2015/2017)	Proposed
Dechencholing <i>(Source: MoWHS)</i>	6,490 people 1,600 homes	Rev1 Draft TSP +6,700 people +1,450 homes
Kabesa <i>(Source: Kabesa SP)</i>	3,964 people 922 homes	Option 2
Kabesa LAP-1 <i>(Source: Kabesa LAP-1)</i>	2,600 people 600 homes	+4,600 people +1,000 homes

Date: 3rd February 2023



Implementation

Kabesa

Public sector land acquisition

- Compulsory purchase
- Define public benefit
- Market value +10-20% (hope value)
- User charges – entry fees

Third and private sector acquisition

- Philanthropy
- Impact investor
- Carbon sink
- Payment for Ecosystem services (flood alleviation)
- User charges – entry fees

Transfer Development Rights

- Sending zones
- Receiving zones



Thank you