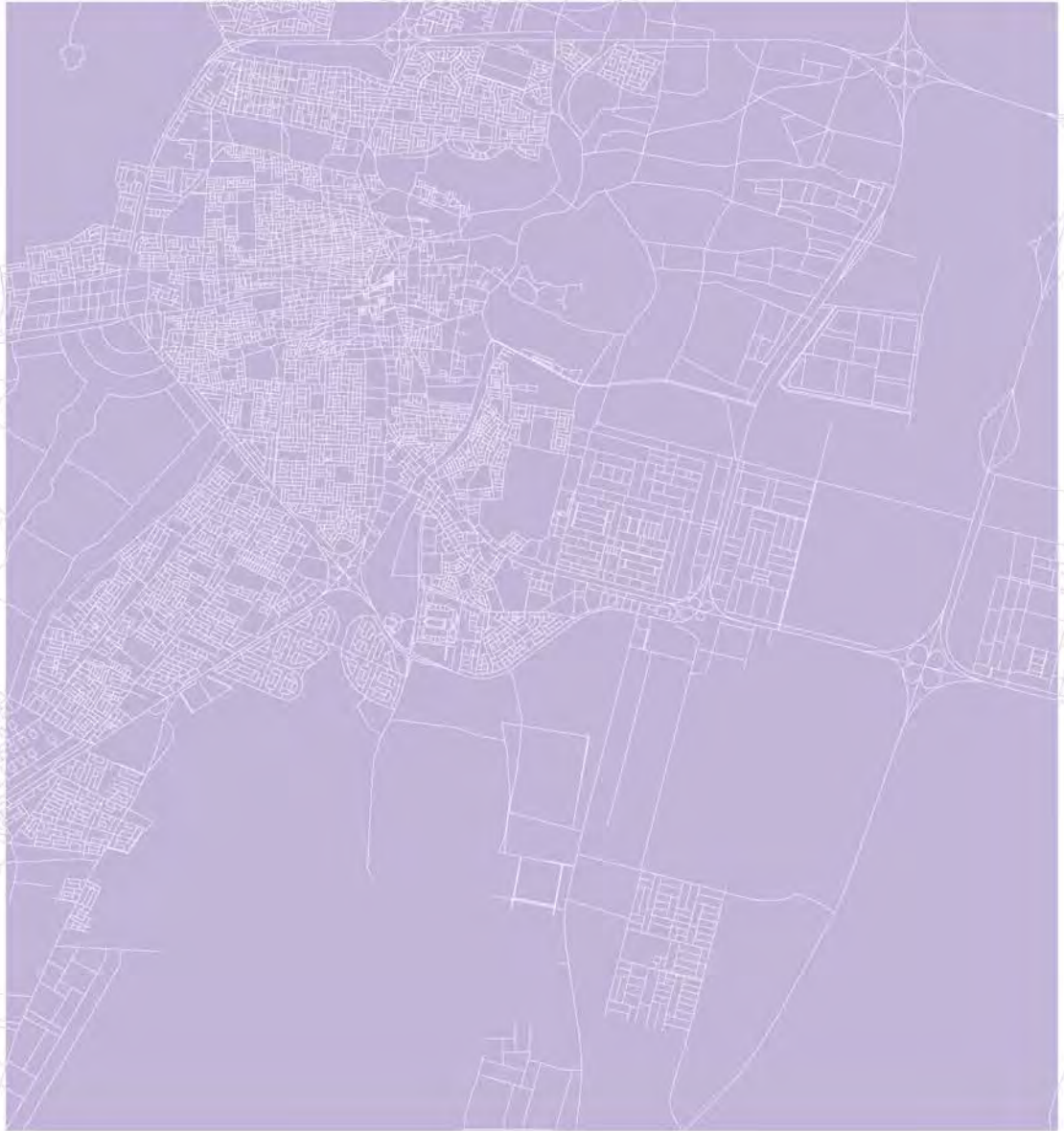




وزارة الشؤون  
البلدية و القروية  
Ministry of Municipal & Rural Affairs

# HAEEL

## City Profile



Future Saudi Cities Programme  
City Profiles Series: **Hael**

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Ministry of Municipal and Rural Affairs  
P.O. Box : 935 - King Fahd, Riyadh, 11136  
Tel: 00966114569999  
www.momra.gov.sa

United Nations Human Settlements Programme  
(UN-Habitat)  
P.O. Box 30030, 00100 Nairobi GPO KENYA  
Tel: 254-020-7623120 (Central Office)  
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وزارة الشؤون  
البلدية و القروية  
Ministry of Municipal & Rural Affairs

مستقبل المدن السعودية  
FUTURE SAUDI CITIES



**UN HABITAT**  
FOR A BETTER URBAN FUTURE

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#### City Profiles Series Editors:

*Herman Pienaar*  
*Salvatore Fundarò*  
*Costanza La Mantia*

#### Contributing Authors:

*David Vogel (urban planning & design)*  
*Maysho Prashad (urban planning & design)*  
*Saud Alotaibi (urban planning & design)*  
*Pinar Caglin (content editor)*  
*Dennis Mwawati (regional planning)*  
*Anne Klen-Amin (legal & governance)*  
*Samuel Njuguna (legal & governance)*  
*Emad Qurunflah (legal & governance)*  
*Giuseppe Tesoriere (economy & finance)*  
*Elizabeth Glass (economy & finance)*  
*Abdulkarim Alhowaish (economy & finance)*  
*Rayan Alrefaei (GIS)*  
*Solomon Karani (GIS)*

#### Layout Design:

*Hai Anh Nguyen*

#### Cover Page:

*UN-Habitat*

The Future Saudi Cities Programme is a jointly implemented project managed by the Deputyship of Town Planning of the Ministry of Municipality and Rural Affairs of the Government of the Kingdom of Saudi Arabia and the United Nations Human Settlements Programme (UN-Habitat).

#### For UN-Habitat:

*Mr. Robert Lewis-Lettington*  
*Mr. Ayman El-Hefnawi*  
*Ms. Manka Bajaj*



# HAEL

حائل



FUTURE SAUDI CITIES PROGRAMME

CITY PROFILE







# Contents

<b>1 INTRODUCTION .....</b>	<b>9</b>
1.1 <i>About the Future Saudi Cities Programme .....</i>	10
1.2 <i>Saudi Initiatives for Sustainable Urban Development.....</i>	10
1.3 <i>Objectives of the City Profile Report.....</i>	10
1.3.1 <i>Scope of the city profile .....</i>	10
1.3.2 <i>Objectives of the city profile.....</i>	10
1.4 <i>City Profile Methodology.....</i>	12
1.4.1 <i>Evidence-based input approach.....</i>	12
1.4.2 <i>The reviews.....</i>	13
1.4.3 <i>The City Prosperity Index assessment report.....</i>	13
1.4.4 <i>The GIS spatial analysis.....</i>	13
<b>2 NATIONAL AND REGIONAL SPATIAL CONTEXT .....</b>	<b>15</b>
2.1.1 <i>Historical background .....</i>	16
2.1.2 <i>Geography and location.....</i>	18
2.1.3 <i>Demographic background.....</i>	18
2.1.4 <i>Socio-economic background .....</i>	18
2.1.5 <i>National Connectivity.....</i>	19
2.2 <i>Regional Structure and Dynamics .....</i>	19
2.2.1 <i>Regional organisation.....</i>	19
2.2.2 <i>Regional structure and resources.....</i>	20
<b>3 GOVERNANCE AND FINANCIAL FRAMEWORKS.....</b>	<b>25</b>
3.1 <i>Legal and Institutional Context.....</i>	26
3.2 <i>Planning Instruments and Procedures .....</i>	27
3.2.1 <i>Hierarchy of plans - Hael .....</i>	27

3.2.2 Regional Plan for the Hael Region .....	27
3.2.3 The Hael Plan .....	30
3.2.4 The Hael Urban Growth and Development Protection Boundaries .....	34
3.2.5 Land Subdivision Plans .....	36
3.3 Institutional Framework .....	36
3.3.1 Urban institutions in KSA .....	36
3.3.2 Regional context: Hael Region .....	36
3.3.3 Local context: Hael .....	37
3.3.4 Legal and institutional implications for Hael .....	38
3.4 Financial Context .....	38
3.4.1 Hael's financial system .....	38
3.4.2 Municipal revenue .....	39
3.4.3 Financing municipal operating costs .....	39
3.4.4 Capital investment .....	39
<b>4 THE CURRENT CITY .....</b>	<b>43</b>
4.1 Urbanisation Patterns .....	44
4.1.1 The city's development patterns .....	44
4.1.2 Administrative boundaries .....	48
4.1.3 Urban density .....	50
4.1.4 Land use .....	52
4.1.5 Vacant land .....	54
4.2 Structuring Elements .....	54
4.2.1 Major infrastructure and economic nodes .....	54
4.2.2 Environmental and topographic elements .....	58
4.2.3 Movement and accessibility .....	60
4.3 Urban Density Scenarios .....	66

<b>5 STRATEGIC DIAGNOSIS .....</b>	<b>69</b>
5.1 <i>Identifying and Defining Main Strategic Issues</i> .....	70
5.1.1 <i>Unbalanced growth and development patterns</i> .....	70
5.1.2 <i>Division and lack of cohesion in city structure</i> .....	70
5.1.3 <i>Socio-ecological and economic imbalance</i> .....	70
5.1.4 <i>Endangered historic and vernacular urban patterns</i> .....	70
5.2 <i>Analysing Hael's Four Issues in Depth</i> .....	72
5.2.1 <i>Hael's unbalanced growth and development patterns</i> .....	72
5.2.2 <i>Division and lack of cohesion in Hael's city structure</i> .....	74
5.2.3 <i>Socio-ecological and economic imbalance in Hael</i> .....	76
5.2.4 <i>Hael's endangered historic and vernacular urban patterns</i> .....	78
<b>6 THE FUTURE CITY .....</b>	<b>81</b>
6.1 <i>Strategic Responses</i> .....	82
6.1.1 <i>The Compact City</i> .....	82
6.1.2 <i>The Connected City</i> .....	82
6.1.3 <i>The Resilient City</i> .....	82
6.1.4 <i>The Historic City</i> .....	82
6.2 <i>Appropriate Models for Hael's Urban Development</i> .....	84
6.2.1 <i>The Compact City: Consolidating development and densifying centres in Hael</i> .....	84
6.2.2 <i>The Connected City: Linking Hael through public transport</i> .....	86
6.2.3 <i>The Resilient City: Rebalancing Hael's socio-ecological and economic systems</i> .....	88
6.2.4 <i>The Historic City: Preserving the cultural and historic assets of Hael</i> .....	90
6.3 <i>An Action Plan for Hael</i> .....	92
6.3.1 <i>From strategy to action</i> .....	92
6.4 <i>Four Systemic Actions for Structural Change</i> .....	94
6.4.1 <i>Action 1: Create an efficient public transportation backbone</i> .....	94
6.4.2 <i>Action 2: Densify, connect and create new centers</i> .....	96
6.4.3 <i>Action 3: Enhance a well-integrated blue and green network</i> .....	98
6.4.4 <i>Action 4: Protect historic landmarks and create a connected heritage trail</i> .....	100



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<b>7 FINAL RECOMMENDATIONS: THE THREE-PRONGED APPROACH .....</b>	<b>103</b>
7.1 <i>Spatial Recommendations</i> .....	104
7.1.1 <i>A strategic view for Hael Region</i> .....	104
7.1.2 <i>Towards Hael Heritage Eco-City</i> .....	106
7.2 <i>Institutional and Legal Recommendations</i> .....	106
7.3 <i>Financial Recommendations</i> .....	107
<b>8 ANNEX .....</b>	<b>111</b>
8.1 <i>Picture Credits</i> .....	112
8.2 <i>List of Figures</i> .....	113
8.3 <i>Notes and References</i> .....	114



# INTRODUCTION **1**





## 1.1 About the Future Saudi Cities Programme

The Future Saudi Cities Programme is a joint programme developed by the Saudi Ministry of Municipal and Rural Affairs (MoMRA) and UN-Habitat, implemented in close cooperation with the municipalities of 17 major Saudi cities. The cities have been selected based on their different population sizes, geographic distribution, and a range of criteria based on capacities and economic potential to create a more balanced regional development among the cities of Saudi Arabia. The chosen cities include Riyadh, Makkah, Jeddah, Taif, Madinah, Tabuk, Dammam, Qatif, Al-Ahsa, Abha, Najran, Jazan, Hael, Arar, Al Baha, Buraidah, and Skaka.

After undertaking city-level reviews in the 17 cities, five cities were chosen as a representative cross-section, for in-depth analysis. The city-level reviews considered the linkages between urban and territorial planning by examining the city within the relational context of its sub-region and exploring specific issues at the neighbourhood level. These reviews, when referenced with City Prosperity Index reports and validation processes in the Rapid Planning Studio workshops, were used to extrapolate strong, evidence-based conclusions that relate to the planning system as a whole.

Applied research, with a strong focus on action-oriented conclusions, was used to collect evidence to diagnose the strengths and weaknesses of the planning system and local planning practices in each city. The methodology utilised design tests and demonstration projects as avenues to apply and analyse potential solutions, before concluding on policy recommendations.

UN-Habitat's three-pronged approach considers spatial planning in relation to legal and institutional frameworks, in addition to financial mechanisms. In this way, success criteria for the sustainable implementation of a spatial plan should include flexible but enforceable rules and regulations, in addition to a financing strategy and projections.

As a pragmatic explication of this approach, three local demonstration projects, representing essential elements of a strengthened and improved planning system, have been developed. These were elaborated to include schematic designs and feasibility studies, that can later be transformed into implementation plans. Such implementation plans are projected to be undertaken by MoMRA, in collaboration with other partners in the Kingdom.

In order to facilitate this process, a joint "FSCP Urban Lab" was created as a vehicle to strengthen endogenous capacities and to develop tailored tools, and instruments. The Lab, composed of international expertise from the planning, legal and economy branches of UN-Habitat Nairobi office, has been working with Saudi-based staff in the UN-Habitat Riyadh office (selected by MoMRA), to enhance knowledge exchange and to apply a learning-by-doing method to the programme.

As such, all 17 cities have been simultaneously engaged in a capacity-building strategy that included foundational learning, and 'on the job' training, culminating in Saudi-specific advanced training. This training was based on the planning-system conclusions and recommendations, that the FSCP produced. Thus, the Urban Lab functions as a tool to generate evidence whilst additionally strengthening capacities through a process of learning-by-doing.

## 1.2 Saudi Initiatives for Sustainable Urban Development

The Saudi Government, along with the respective Ministries, and in line with a larger country-wide transformation process, has made several efforts aimed at the sustainable development of its growing cities. These contributions vary from plans at the national level, like the National Spatial Strategy (NSS), to strategies and plans at the regional level, cutting across various sectors towards realising Vision 2030. The FSCP recognises these efforts as positive, supporting Vision 2030 goals to realise a sustainable urban environment for the Kingdom of Saudi Arabia. The FSCP acknowledges and builds upon the current tools, plans, and strategies as part of a comprehensive assessment and suggests variations and improvements where appropriate.

## 1.3 Objectives of the City Profile Report

### 1.3.1 Scope of the city profile

The city-profile combines MoMRA's new strategy, with a review of existing studies, plans, and strategic documents, such as the review of the Kingdom of Saudi Arabia (KSA) National Spatial Strategy (NSS) to identify and address the root causes of problematic conditions outlined in the preliminary findings. The report acknowledged low uptake of the NSS by regions, utilities and ministries, as a key weakness. The issue of horizontal (sectors) and vertical (scales) integration is thus a key challenge that the FSCP aims to address going forward.

Policy recommendations for improving urban planning frameworks and practice shall be structured through a multi-scalar lens, considering the city as a continuum in the urban fabric, that should grow from the neighbourhood to the wider city-region, whilst influenced by dynamics and regulations at the national and supranational levels. This ensures that policy recommendations for these cities do not operate in isolation from the city's envisioned role in the administrative region and the national system of cities.

### 1.3.2 Objectives of the city profile

The City Profile Report brings together diagnostic urban analysis and aligns that analysis with the UN-Habitat sustainable development framework and the Saudi Vision



© FSCP

*Landscape in the metropolitan area of Hael*



2030. It performs as a thinking tool that constitutes together an assessment tool and guidance for the current and future planning of the city, whilst defining a clear strategy for sustainable development.

The definition of an ad-hoc strategy is rooted in an evidence-based approach to the issues, building upon both primary and secondary data collection and analysis. The profile, as well as the Programme as a whole, uses the data collected by the City Prosperity Initiative (CPI), to identify significant trends and challenges at the city level. This evidence is then combined with reviews of existing planning documents, and cross-referenced with multi-scalar GIS spatial analysis, to define the above-mentioned ad-hoc strategy.

## 1.4 City Profile Methodology

### 1.4.1 Evidence-based input approach

The evidence-based planning approach creates a deeper understanding of the spatial dynamics of the urban area, by combining and comparing urban datasets such as demographics, density, land use, natural features, and accessibility analysis.

The evidence (data) is reflected in the form of indicators that can be compared with best practice standards and benchmarks

for sustainable urban development. Not only does this provide a clear perspective on the main developmental issues, but it also quantifies the projected effect of future development proposals on the indicators applied in the analysis.

The programme recognises that the methodology, on which policy recommendations guiding improvements and adjustments in the planning system are based, needs to be evidence-based. For this purpose, different methods were integrated to first provide the necessary body of evidence on which to build an understanding, and full assessment of issues before making recommendations for the respective cities.

The elements constituting the evidence-based approach are primarily constituted of the following:

- Reviews of existing policy documents and plans;
- CPI index;
- GIS spatial analysis.

All of these elements are utilised in a cross-scalar diagnostic methodology that incorporates quantitative and qualitative evidence. The method used to generate evidence-based policy recommendations, which develops capacities and engages stakeholders in all 17 cities, provides conclusions derived from both top-down and bottom-up approaches, cross-cutting all scales of planning.



Workshop in Hael with stakeholders and FSCP



By analysing how the structures of spatial, socio-environmental and economic issues interact at different scales of influence, the diagnostic methodology moves from the national to the neighbourhood scale, tracking the interdependencies within the city's physical development patterns, and seeking to decrypt the reasons behind them.

### 1.4.2 The reviews

Several reviews of existing policy documents and plans were undertaken with the purpose of a) extracting information useful to the understanding of the context, and the city itself, and b) assessing their contents based on three criteria: content relevance, process integration, and effectiveness. The reviews focused on assessing the:

- National Spatial Strategy;
- Hael Regional Plan;
- Hael Structural Plan;
- Hael Local Plan.

### 1.4.3 The City Prosperity Index assessment report

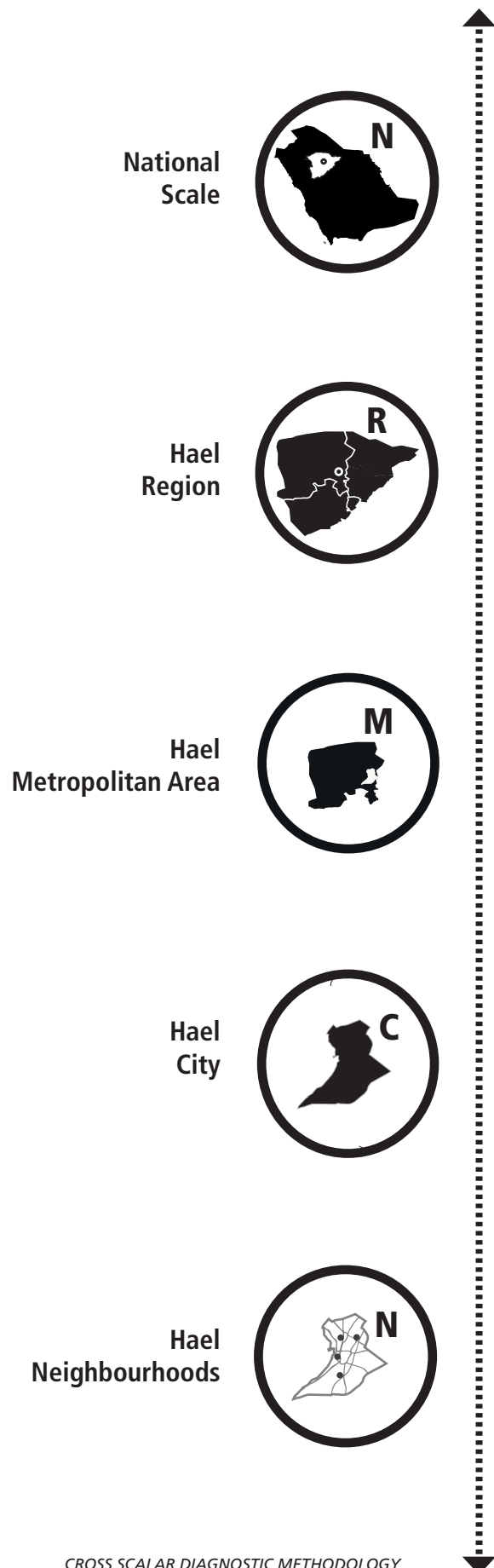
The City Prosperity Index is made up of six dimensions that serve to define targets and goals that can support the formulation of evidence-based policies. These include the definition of city-visions and long-term plans that are both ambitious and measurable. The six dimensions are:

- Productivity;
- Infrastructure;
- Quality of life;
- Equity and inclusion;
- Environmental sustainability;
- Governance and legislation.

These dimensions have been assumed as guiding principles in the spatial assessment of Hael. There are ten detailed spatial indicators at the FSCP city profile level that link into the 72 flexible indicators of the CPI assessment.

### 1.4.4 The GIS spatial analysis

The spatial reflection of the above indicators highlights detailed patterns of development and the interactions and dynamics associated with movement, densities, and land use within the urban system. This process enables a dynamic understanding of the physical expressions of weaknesses and strengths in the urban system and the main issues to be addressed. The effect of proposals for future development can also be assessed by use of the same indicators.





# NATIONAL AND REGIONAL SPATIAL CONTEXT

# 2





## 2.1 The Region’s Role in the Kingdom of Saudi Arabia

### 2.1.1 Historical background

Hael is bordered to the North by the Northern Border and Al Jouf Regions. To the South and East is the Al Qassim Region; to the West are the Tabouk and Madinah Regions. For centuries, Hael was the “key to the desert” because it was the main transit point for pilgrims heading to the Holy Cities of Makkah and Madinah and for traders traveling North or South in the Arabian Peninsula.

Hael’s past has played an important role in the centre of the Arabian Peninsula, and its location afforded the city and region contact with outsiders, not as conquerors but as traders, writers, poets, and religious pilgrims, ultimately resulting in a vibrant tapestry of historical moments and built assets.

The landscape and geology have also played a role in the city’s celebrated past, namely the sand dunes of Nefud-Al-Kebir, the mountainous landscape of Jebel (mount) Aja on the West, and the sharp granite rocks of mount Salma on the Southeast of the city. The natural features protected the city from invaders while at the same time allowed it to grow and prosper.

Some of the early inhabitants left tracks of their presence with tools and ancient rock art that are approximately ten thousand

years old. The city region currently has two UNESCO listed sites, Jubbah and Ash-Shuwamis.

From the 1<sup>st</sup> millennium BC, the Region of Hael was a crossroad for caravans, coming from both the East-West route across the peninsula and the North-South route between Mesopotamia and Yemen. In the 12<sup>th</sup> century, it became an important pilgrim route from Iraq and Syria to Madinah and Makkah. As the city modernised and developed over the past 50 years, many of these historic points of interest have disappeared.

As with other cities across the Kingdom, rediscovering history, rehabilitating historical physical assets and linking them to modern strategic assets such as public transportation, public facilities, and commercial activities is resurging. This impacts not only on the city’s past glory and importance but also on its economic fortunes and sustainability.

A system of a highly restrictive set of regulatory controls should be applied to historic buildings and points of interest across the city. Preserving and upgrading these historical assets would enshrine the identity of the city as the crossroads of the past and future.

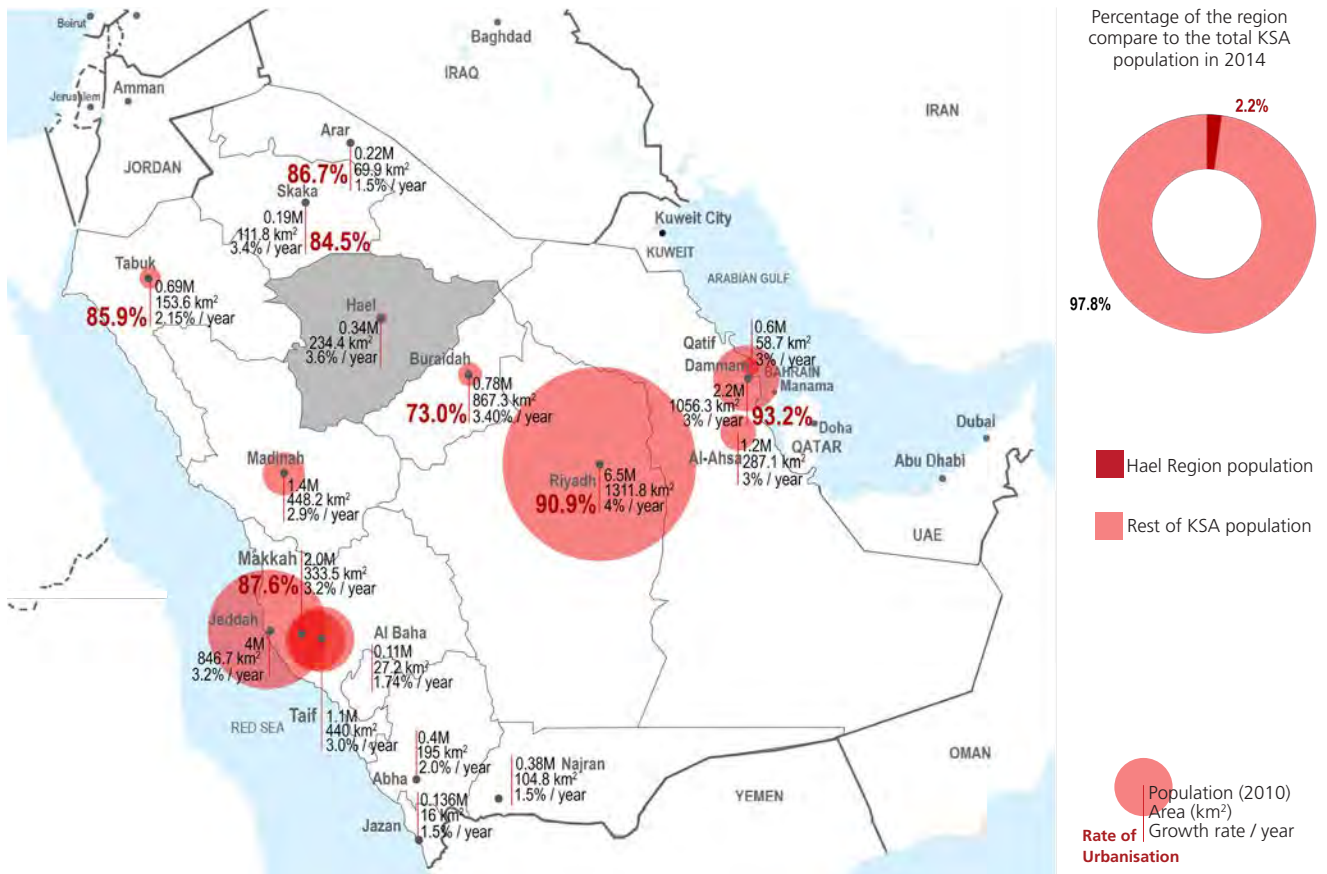


Fig. 1. Population distribution, growth rate and urban areas within the Kingdom of Saudi Arabia

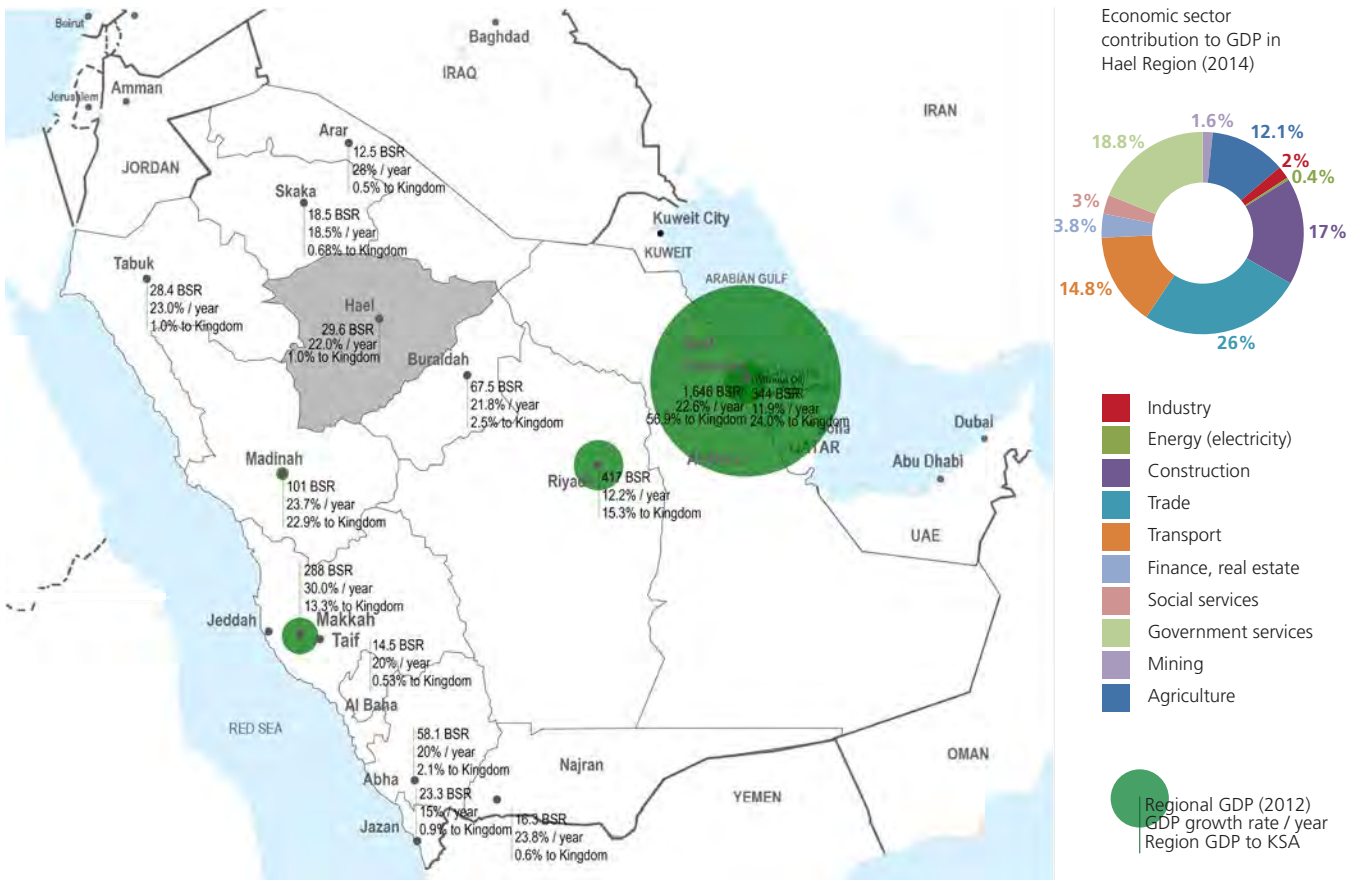


Fig. 2. Regional Gross Domestic Product and economic sector contribution

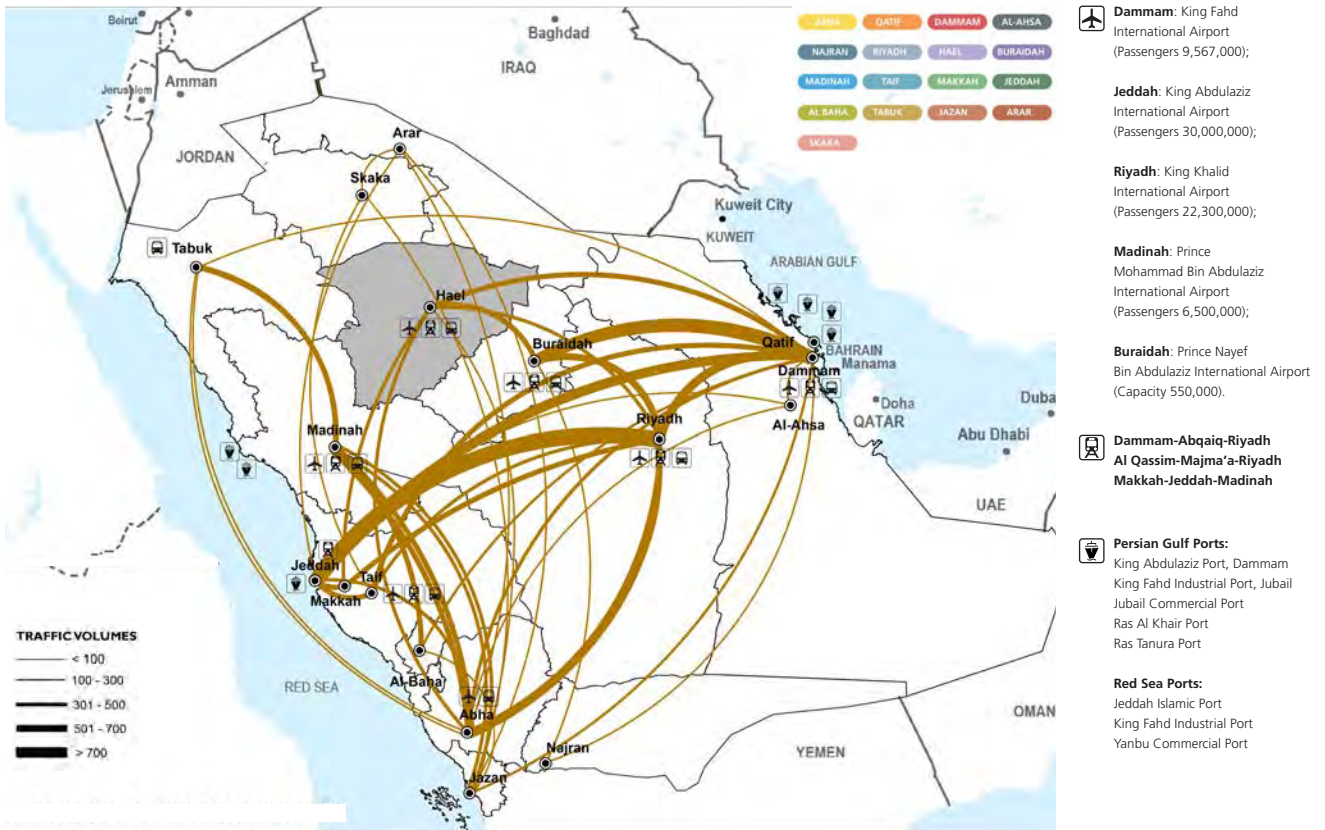


Fig. 3. Transport connectivity between Saudi cities





### 2.1.2 Geography and location

The Hael Region is located in the Northern central part of the Kingdom of Saudi Arabia. The extent of the region is 118,232 square kilometres. Hael is located in the centre of the region and is the only significant city in the area. It is relatively well-connected to other regional centres and is approximately 600 kilometres away from Riyadh, 450 kilometres from Madinah, and 650 kilometres from Tabuk. Hael is approximately 915 metres above sea level and therefore has a moderate climate. Hael is bordered by two dominant mountain ranges in the region, namely the Aja Mountains to the West and the Salma Mountains to the Southeast. The length of Aja Mountains is about 100 kilometres, and the width is about 25 to 30 kilometres. The highest top is about 1,350 metres. Salma Mountain's length is about 60 kilometres, with a width of 13 kilometres and the highest point being 1,200 metres above sea level. The geographic location of Hael provides many advantages such as a moderate climate and scenic mountains and desert environments.

### 2.1.3 Demographic background

The Hael Region has a population of 670,000 according to the 2010 census. It represents 2.18% of the total population in the Kingdom, and 19.5% of the regional population is made up of non-Saudi expats. A significant proportion of the regional population, 69.2%, is concentrated in the governorate of

Hael, followed by Al Gazala with 17.1%, Al Shanah 7%, and Baq'a with 6.7%. This reflects a strong concentration of resources within an otherwise sparsely populated region.

### 2.1.4 Socio-economic background

Hael Region is characterised by a strong centrality position and a concentration of people and production capacity within the city and its surroundings. The locational advantages of the region provide it with a strong basis for growth in agricultural production and tourism. The most historic trail in the Arabian Peninsula, the Zubaida Trail, traverses through the Eastern part of the region. The presence of archaeological and heritage sites along this ancient pilgrimage trail provides an opportunity for the development of a strong tourism industry within the region. It is important to develop these sectors further to generate job opportunities given that the population profile of the region is mostly young people under the age of 30 years.

The proposed Prince Abdulaziz Bin Mousaed Economic City (PABMEC) (announced in 2006), is located on the Northern fringe of the city, at the intersection of national highways connecting the region to Riyadh and Madinah, and further North. The main objective is to position the new city as the premier commerce, industry, transportation, and logistics hub in the Middle East Region.

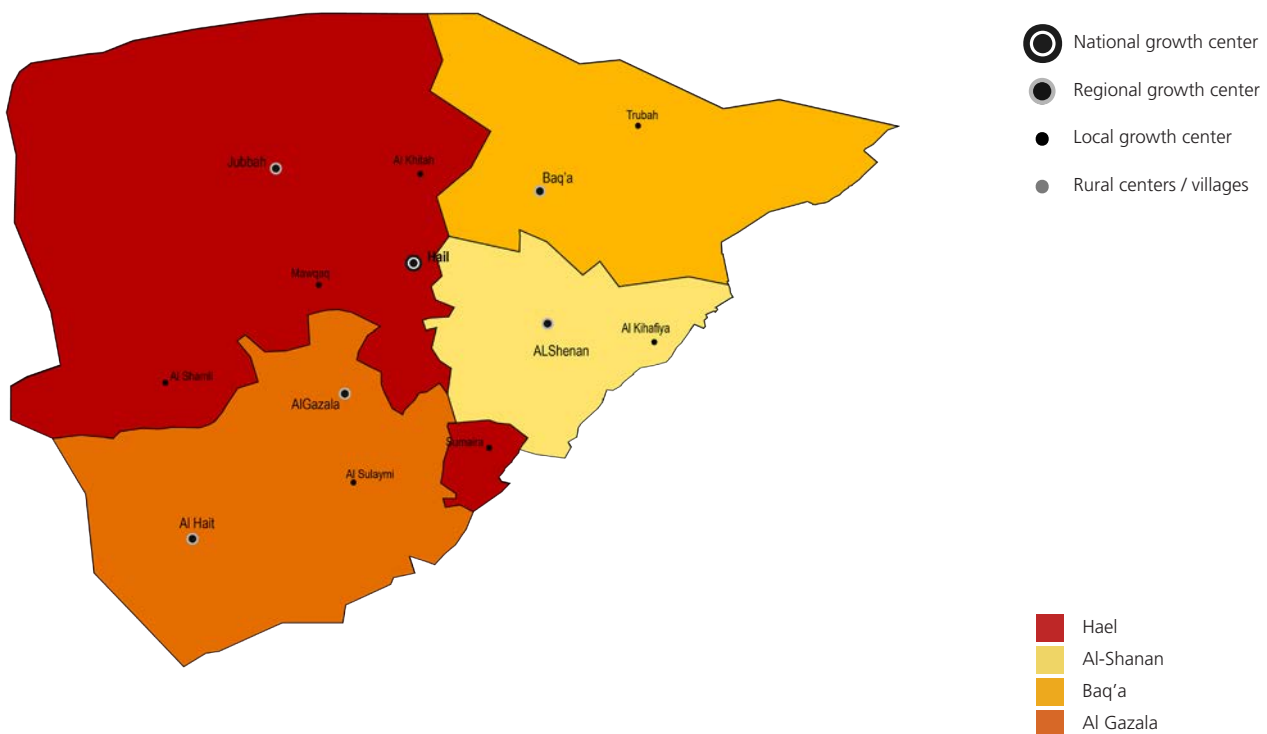


Fig. 4. Administrative boundaries



### Gross Domestic Product

The gross domestic product (GDP) of the Hael Region (2012) was 29.6 billion riyals, representing 1% of the GDP of the Kingdom and 2.07% of the GDP without crude oil and gas. The trade sector ranks first in terms of contribution to the output of the Hael Region with 26%, followed by construction and building sector by 17%, transport, and communications sector by 14.8%, agricultural sector by 12.1%, social, and personal services 3.8%, and financial and real estate services sector by 3.8%.

### 2.1.5 National Connectivity

#### Air Transport

The Hael Regional Airport, the only airport in the region to serve the transportation of passengers and goods. It provides an important link to other cities and regions in the Kingdom. The number of passengers using the airport was about 465,000 in 2012.

The quantities of goods transported through this airport were about 1,261,000 and 1,157,000 tonnes in 2011 and 2012, respectively, representing about 0.27% and 0.22% of total air cargo in Saudi Arabia. This airport plays an important role in the future growth and development of the region.

### Railways Transport

Hael is the central point along the recently introduced railway line that links Riyadh to Al Haditha on the border with Jordan. The rail service transport both goods and people, and connects Hael with markets far beyond the region. The railway infrastructure provides a further opportunity for expansion of the agriculture sector and the distribution of products and goods across wider regions. The planned construction of a number of secondary rail links would improve the connection to adjoining regions and enhance the potential of the Hael Region to act as an important growth point in the Northern parts of the Kingdom.

## 2.2 Regional Structure and Dynamics

### 2.2.1 Regional organisation

#### Administrative Boundaries

The area of the Hael is 118,000 square kilometres or approximately 6% of the total area of the Kingdom. The region is divided administratively into the Principality of Hael and three governorates: Baq'a, Al Shanan, and Al Gazala.

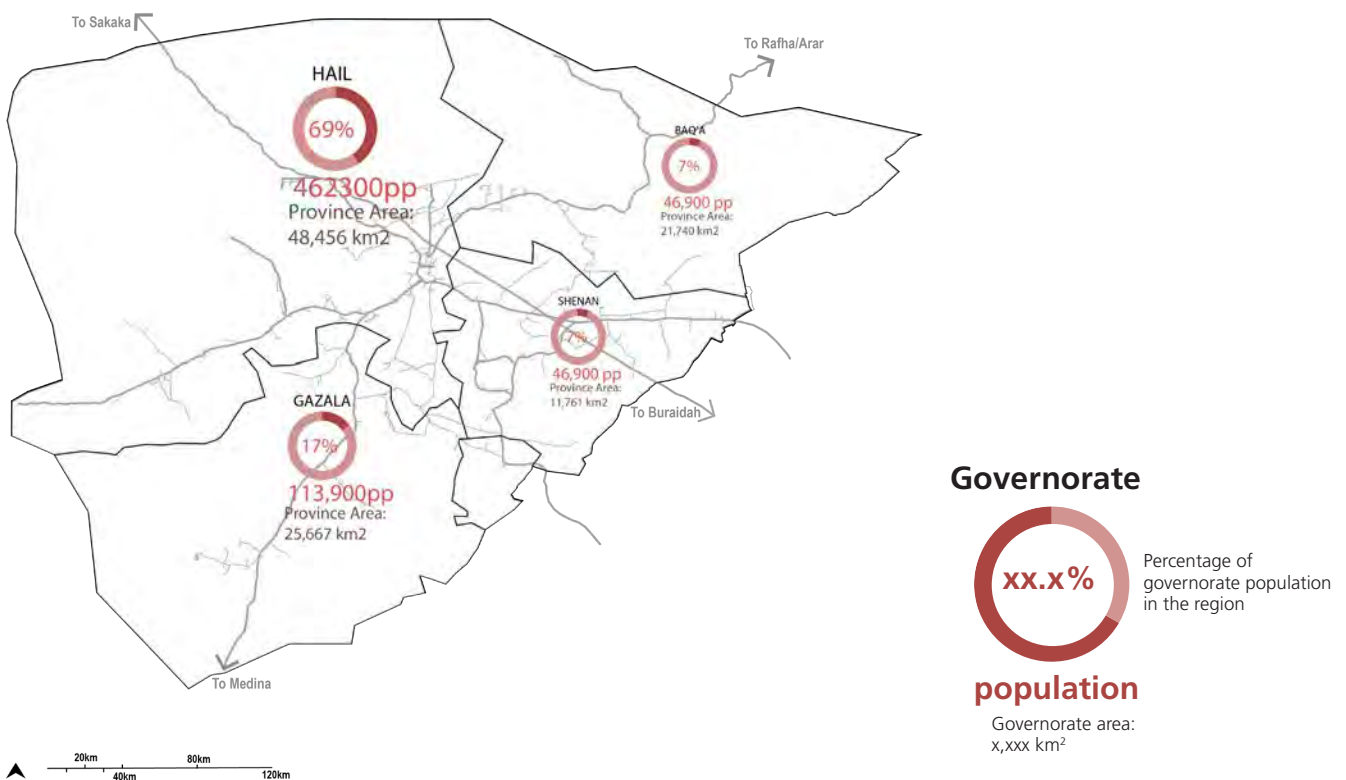


Fig. 5. Population distribution in the governorates according to 2010 Census



### Development Corridors

The Regional Plan for Hael proposes a hierarchy of growth centres for promoting development. Hael City, as the National Growth Centre is linked to other regional and local growth centres like Ba'qa, Al Shanan, and Al Gazala, among others.

### 2.2.2 Regional structure and resources

#### Movement Infrastructure

Hael has a good network of national, regional, and local roads linking its governorates, major cities, facilities, various agricultural, commercial, and industrial activities, as well as linking Hael to the neighbouring regions. The lengths of regional connecting roads are 1,258 kilometres, representing 7.9% of the total roads under the jurisdiction of the Ministry of Transport.

The total lengths of agricultural and earth roads in the region amounted to 12,400 kilometres at the end of 2012. The region is currently witnessing new projects, and expansions in its internal road network, as well as the roads linking the region with other areas, as the implementation of several new projects, are currently underway.

#### Economic Resources

The economic base of Hael Region is largely agricultural, with significant grain, olive, date, and fruit production. A large percentage of the Kingdom's wheat production comes from

Hael Region. The four leading economic sectors in Hael Region are as described below.

#### Agriculture

This is one of the most important economic sectors in Hael, influencing many other segments of the society in the region. It has significant comparative advantages, including water quality and availability, soil suitable for cultivation and appropriate climate for the cultivation of most crops, which has led to a significant increase in the rates of production of many important crops such wheat, vegetables, olives, fruits, dates, and green fodders. The total crop area in the region amounted to about 84,000 hectares in 2011, representing about 10.7% of the total crop area in the Kingdom, which corresponds to 788,000 hectares in the same year.

In Hael, there is a large number of specialised agricultural projects and agricultural landholdings, the most important of which is the Hael Agricultural Company. The region also features large pastoral areas and breeders of livestock with a high level of expertise in breeding sheep and camels.

#### Industry

In Hael, 45 productive factories are representing about 0.7% of the total number of productive factories in the Kingdom, totaling to 6,364 at the end of 2013. The total investments in Hael factories amounted to 2.36 billion riyals, representing 0.27% of the total funding of productive plants

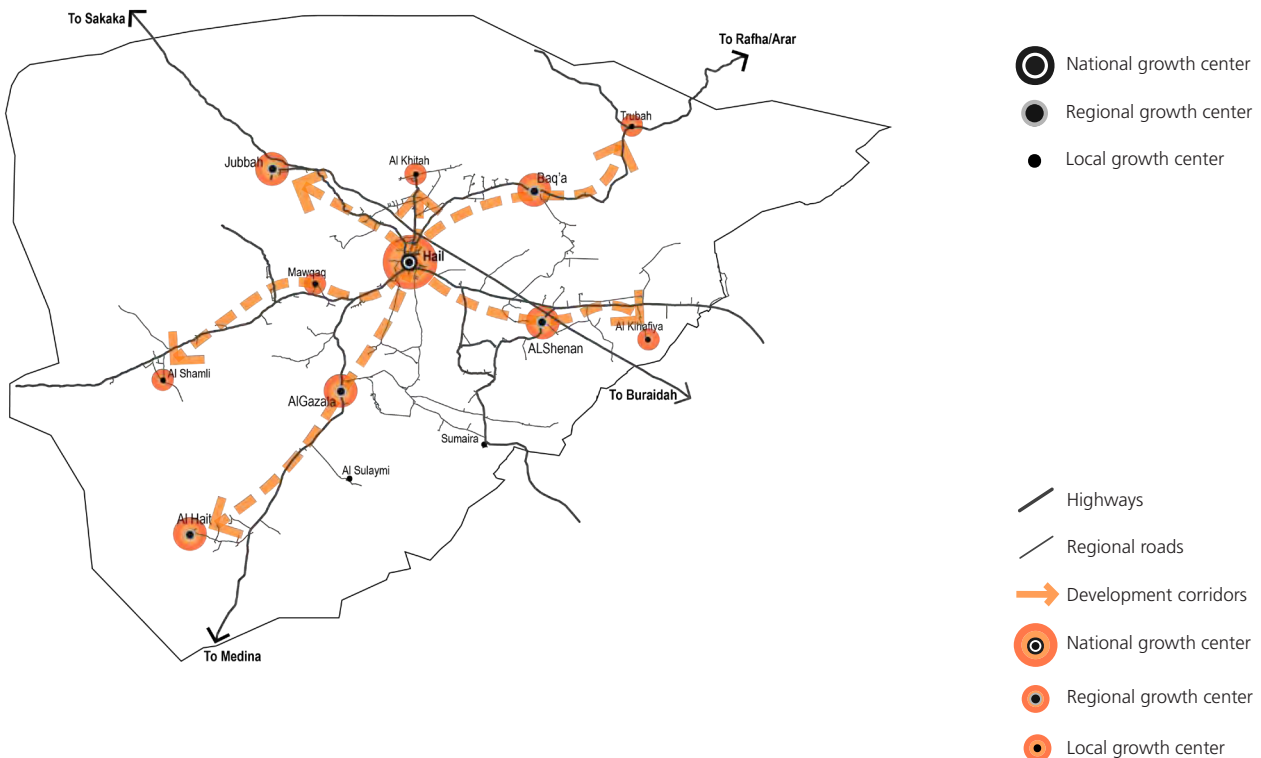


Fig. 6. Development corridors according to the Regional Plan for the Hael Region



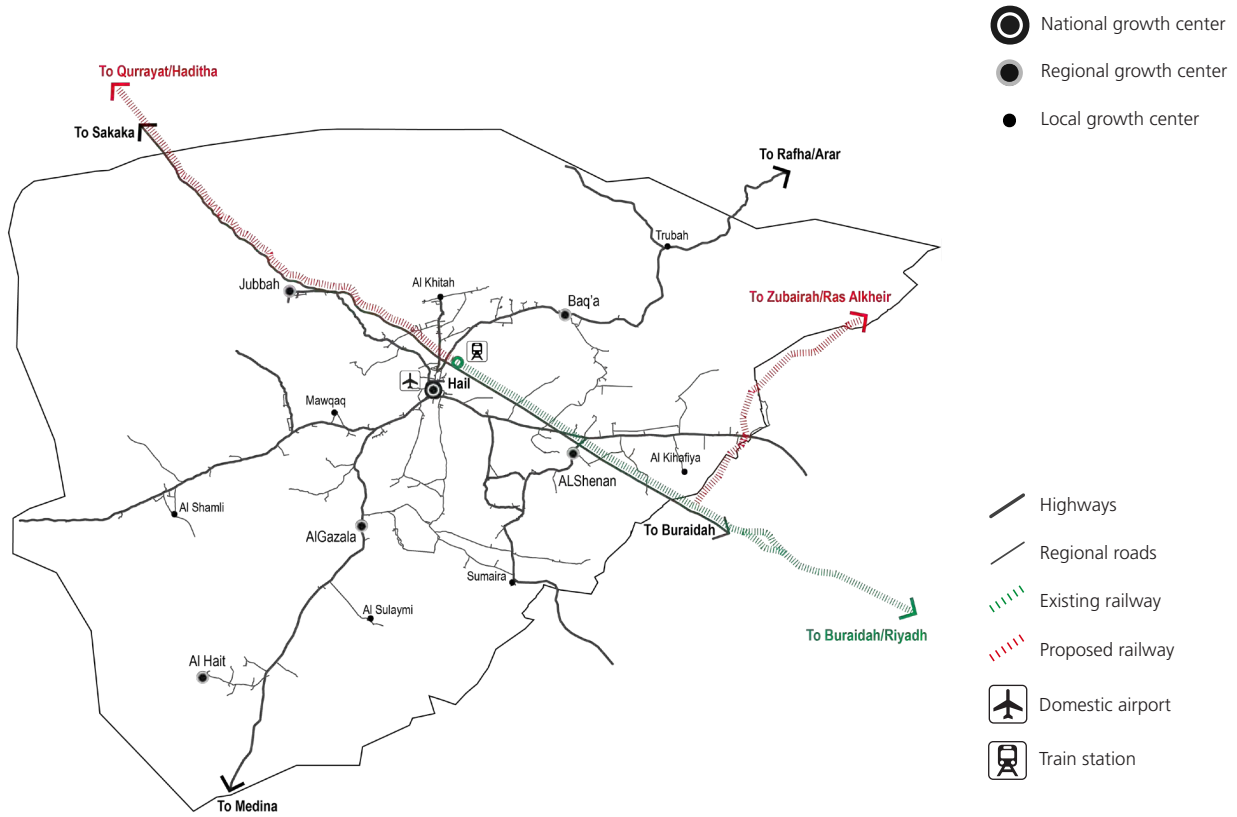


Fig. 7. Movement infrastructure

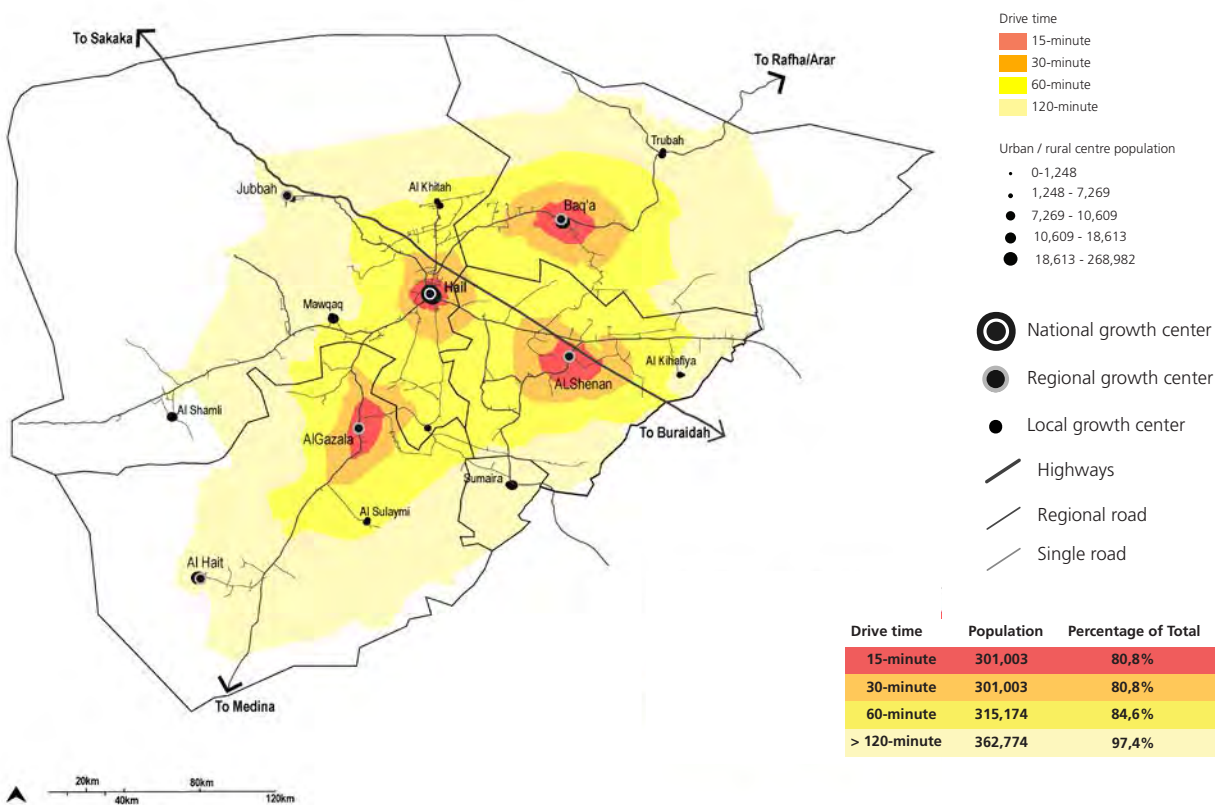


Fig. 8. Access and connectivity in the Hail Region



in the Kingdom. The number of factory workers in Hael was recorded at 6,200, representing 0.75% of the total industrial manpower in the Kingdom by the end of 2013.

In addition, there is a modern industrial city, located South of Hael city, with a total area of 2.5 million square metres. The industrial city includes a large number of productive factories in addition to many new factories that are under construction.

#### *Mining and Quarrying*

The mining and quarrying sector in Hael is one of the important and promising activities which can contribute to the exploitation of the natural resources in the Region, and cover the needs of the construction and industrial sectors of raw materials, and others.

There are other activities in the Hael Region, such as mining and quarrying, working on raw materials such as limestone, used for manufacturing cement and clay ore, kaolin, and magnesium. The main natural resources and their sites in the region include limestone mined at Teraba, clay in Baq'a, and magnesium in Dharqat.

#### *Trade*

The total number of various establishments and businesses in Hael amounted to about 42,000 in 2012, representing 3.5% of the total trading establishments in the Kingdom. The annual average increased due to the number of new enterprises in Hael during 2004-2012, which were 2,862 enterprises.



*Hael City view from the mountain*

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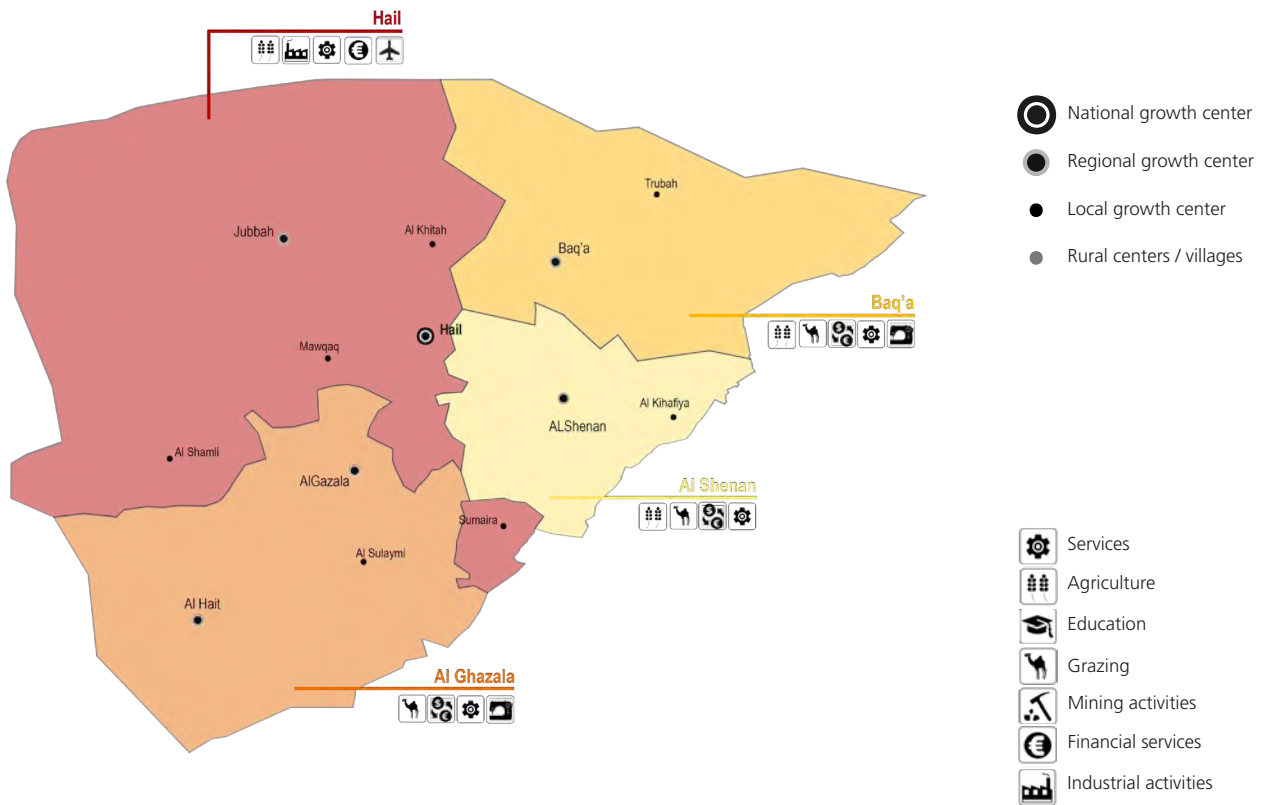


Fig. 9. Economic resources in the governorates of the Hail Region

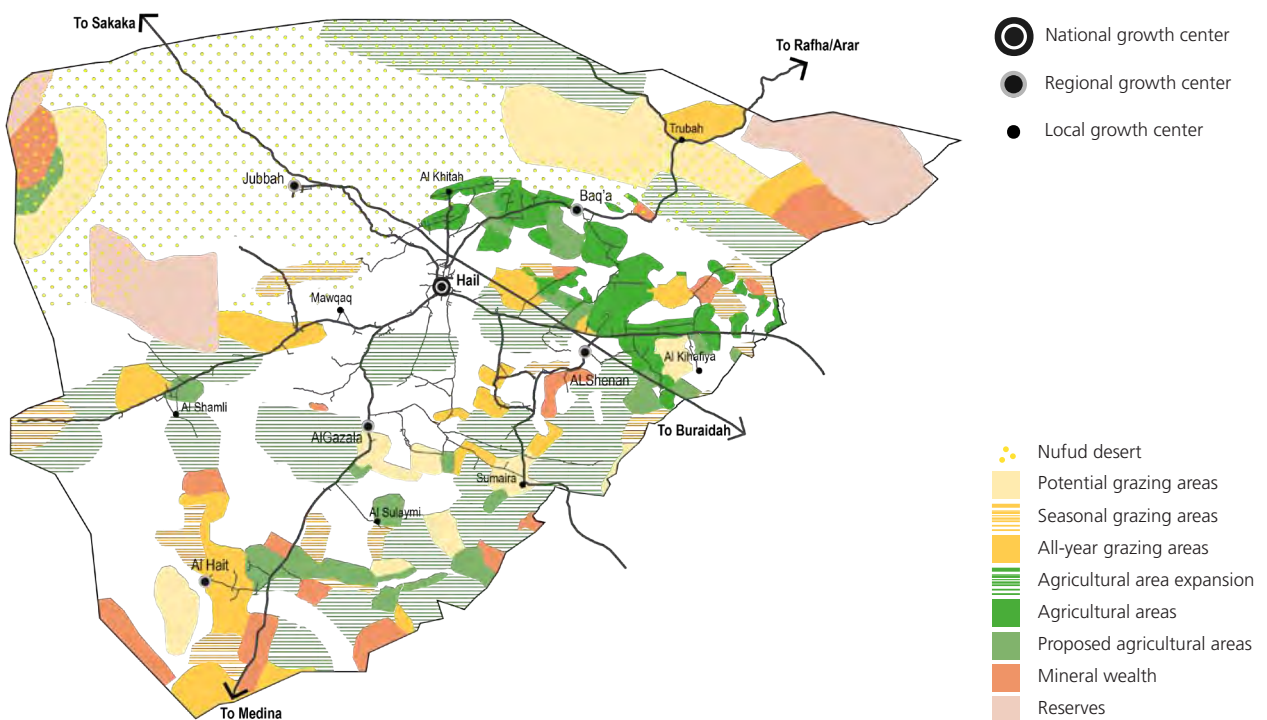


Fig. 10. Land use and environmental resources



# 3

## GOVERNANCE AND FINANCIAL FRAMEWORKS



### 3.1 Legal and Institutional Context

The planning legal framework of Hael is shaped by the Kingdom's legislative environment, which is based on Islamic Sharia Law. The law-making authority is vested in four entities; the King, the Shura Council, the Council of Ministers and the Ministerial departments. Consequently, there are five legislative instruments (Royal Order, Royal Decree, Supreme Order, Council of Ministers Resolution, and Ministerial Decree) that function in a hierarchical order, underpinning their authority and validity.

Given this non-centralised law-making process, the city of Hael is guided by over 500 existing urban planning related instruments with most of these having been promulgated at the lowest administrative level (Circulars),<sup>1</sup> that lack authoritative legal force.

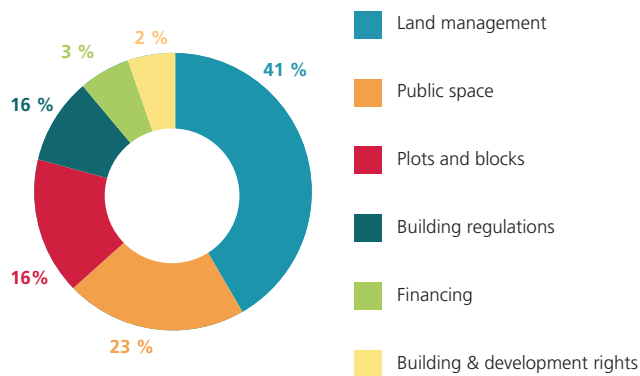


Fig. 11. Number of urban laws in KSA based on the Main Themes of Urban Planning Legislations (UN-Habitat)

The Ministry of Municipal and Rural Affairs (MoMRA) plays a significant role in Hael's growth and development patterns because it is legally entrusted with the task of conducting urban planning of the Kingdom's cities, including the permitting of all types of construction activity. Consequently, the Municipality of the Hael Region (Amanah), as the local level actor for Hael, merely acts as an implementing arm for MoMRA. The institutional budgetary system is also centralised, meaning that Hael's development intervention is reliant on funds allocation from MoMRA through an annual line item budgeting, which is the sole fiscal means available.

The Kingdom's planning system, which follows a hierarchy of spatial level and is predominantly top-down, influences the spatial system of Hael. The National Spatial Strategy (NSS) of 2001 is the guiding plan for the Kingdom. Only the Structural Plan of 1997 has been approved and implemented for Hael. The other two plans (Regional Plan for Hael Region and the Local Plan), have been prepared but not endorsed.

The three phases of the Urban Growth Boundary (2014, 2019, and 2030), aim to prevent urban sprawl on the outskirts of cities without adequate urban infrastructure. The Land

Subdivision Plans are the basic building blocks that guide Hael's development.

Apart from NSS, these planning instruments are defined by procedural manuals within MoMRA, rather than by Law, and thus they lack legitimacy. By their nature, these instruments cannot construct a system of legal accountability and transparency of the relevant actors.

Moreover, land use and building control regulations have facilitated urban sprawl within Hael. For example, the total built-up area for the city is 7,634 hectares, which has a population density of 50 p/ha in the urban footprint (321.68 hectares).

In addition, within the same area, residential districts are not only scattered but have a low-density typology. Therefore, it appears that the in-force building regulations have instigated urban sprawl within Hael, despite the call from residents, specialists, and the private sector to regularise high density residential housing within the city.<sup>2</sup>

In terms of reform, Hael would benefit from both fiscal and jurisdictional decentralisation to facilitate independent and innovative solutions to urban social problems at the Amanah level. This should entail:

- The transfer of local planning power, authority and function from MoMRA to the Amanah with provision for independent action without recourse to effectively address community needs. This is supported by the New Urban Agenda, which specifies that territorial urban design and planning processes should be led by sub-national and local governments, but their implementation will require coordination with all spheres of governments as well as participation of the civil society, the public sector and other relevant stakeholders.
- Fiscal decentralisation, which gives autonomy to the Amanah to source funds to finance development activities. Revenue generation activities in cities may also include taxes and levies. Urban areas should be allowed to collect some form of property taxes to fund development activities. The recent White Lands Act that imposes fees on undeveloped plots in urban areas to tackle land speculation, housing shortage and indiscriminate land development shows that regulatory mechanisms can be leveraged to generate revenue while fostering an efficient development framework.
- Opening of avenues for actors, including the private and voluntary sector and the general community, to participate in decisions regarding projects that affect them.

Administratively, the Legal Department within the Amanah of the Hael Region, which is involved in assessing the efficacy of planning laws, should be strengthened through staff



training initiatives so that it is functionally equipped for its role. Moreover, a supervisory body is needed, to enhance the application and implementation of these laws. The legal framework also needs to enshrine an acceptable mode of public participation in public decision making to foster equality and inclusion. The consolidation of the urban legislation would also give legitimacy to the plans that Hael relies on.

Revising the Urban Growth Boundary (UGB) Law to include clear criteria on how it is set would enhance technical and vertical accountability. The law also needs to place more emphasis on establishing the Development Protection Boundary as a no-development zone to prevent not only haphazard development but also avert private interests from taking advantage of the laxity in the legal text.

Additionally, a systematic review of the land subdivision process in Hael Region is also needed, as land subdivision plans have been approved outside the growth boundary.

These initiatives will strengthen policy formulation designed to make the city more sustainable, compact and dense. Primarily, post-legislative scrutiny of the UGB Law should be done to assess if it has met its policy objectives. This could, in turn, inform the legal reform process as well as the planning policy options.

## 3.2 Planning Instruments and Procedures

### 3.2.1 Hierarchy of plans - Hael

The planning system of Hael is derived from the de facto planning hierarchy of the Kingdom. In this framework, there are four different levels of spatial plans: national, regional, local and district. Figure 12, highlights the planning instruments in force in Hael.

### 3.2.2 Regional Plan for the Hael Region

Regional planning represents the second-tier of spatial planning in the KSA, which aims to address the natural, urban, social and economic regional development aspects. The regional plan for the Hael Region was prepared in 1983 and updated in 2004. Regional planning represents the second-tier of spatial planning in the KSA, which aims to address the natural, urban, social, and economic regional development aspects.

The Urban Development Strategy and the Hael Regional Plan advance the city of Hael as a National Growth Centre with central services and activities to offer region-wide services. The strategy focuses on directing growth factors towards Hael, taking into consideration that it is one of the urban centres. The others being Madinah in the South, Tabuk in the East, Buraidah in the West, and Al Jouf in the North.



Road infrastructure in Hael

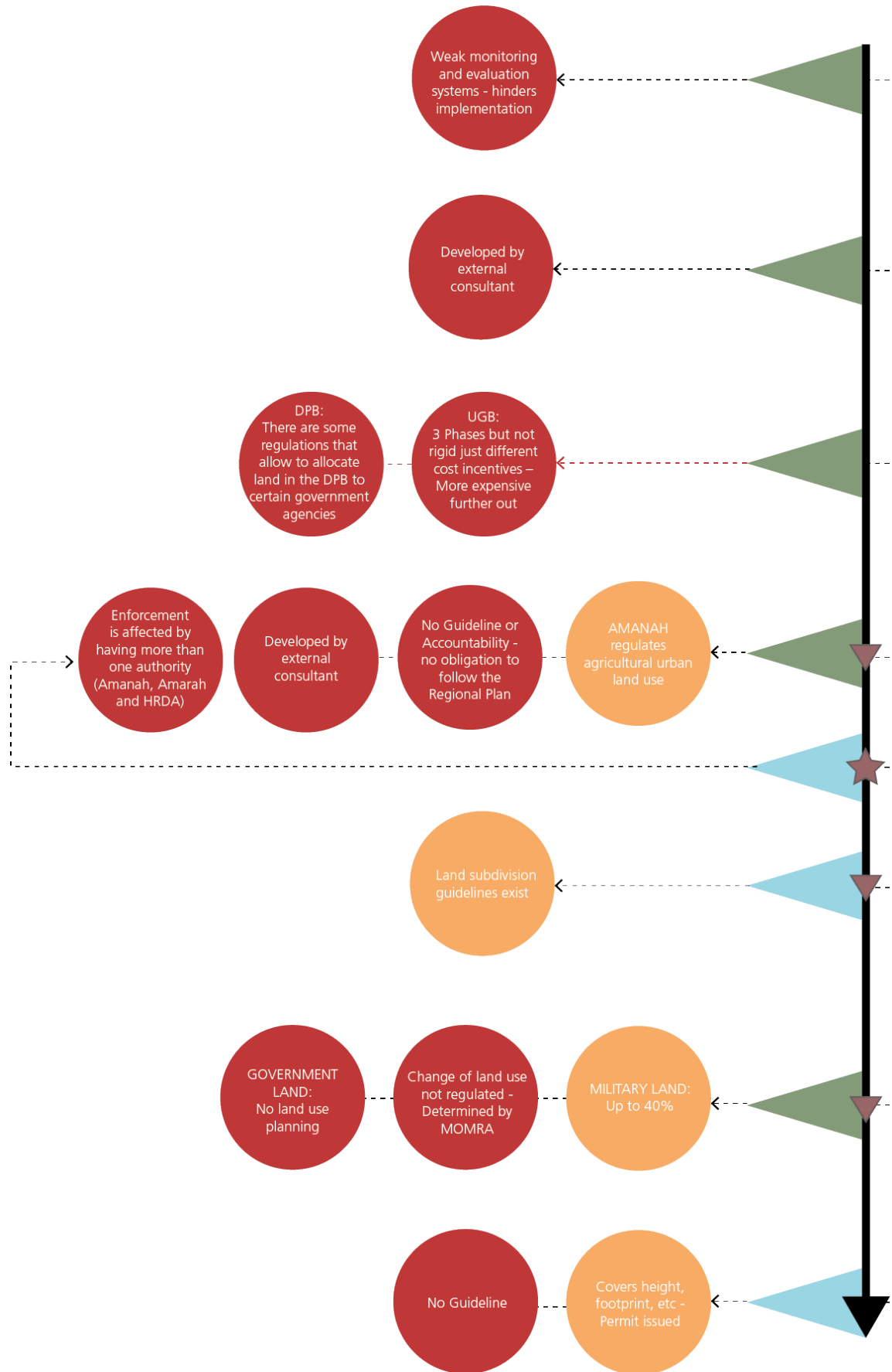
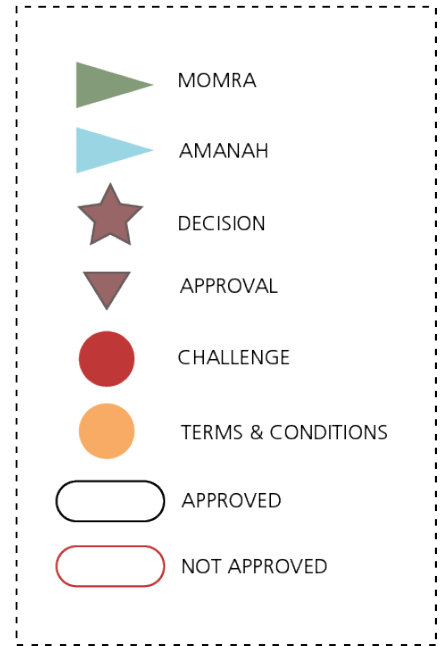
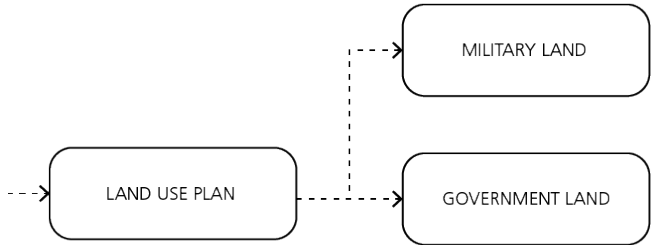
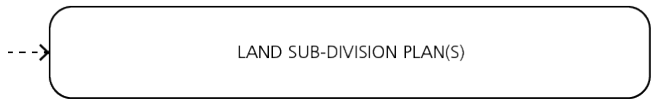
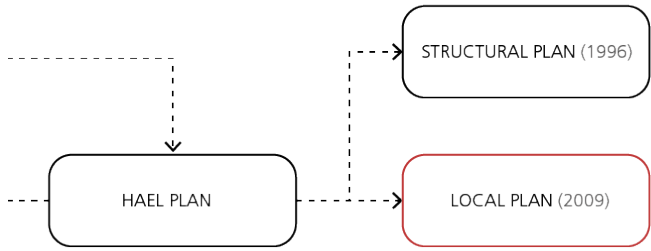


Fig. 12. FSCP simplified representation of hierarchy of plans and planning instruments for the city of Hael





The regional plan outlines the following development objectives:

- To enhance the region's tourism sector as it has several tourist attraction sites. This includes the preparation of an integrated tourism program;
- To support the agricultural sector, which is the main productive economic activity sector in the region;
- To rely on the industrial zone in the Eastern part of Hael as a good nucleus for the establishment of an industrial sector that depends on available raw materials, such as agricultural products;
- To focus on the manufacturing industry (car assembly, IT equipment) that depends on the availability of free labour and not hindered by the availability of raw materials;
- The establishment of five higher learning institutions to compliment Hael University;
- To call for the application of environmental standards to new development activities to prevent their negative environmental impacts;
- To increase city-wide employment opportunities;
- To develop the science and technology system by giving more attention to information systems; and
- To support the trade and services sector, and other sub-sectors that can carry out large development projects, to raise the standard of living of the Hael community.

### 3.2.3 The Hael Plan

The Hael Plan<sup>3</sup> is a planning tool composed of a strategic component (the Structural Plan) and of a regulatory document, (the Local Plan). The scope of these plans includes:

- A long-term strategy for the city;
- Identification of relevant development areas;
- Identification of urban/not urban land;
- Main mobility system;
- Environment protection;
- Infrastructure provision;
- Detailed land use;
- Urban regulations; and
- Detailed proposals for selected areas.

#### **Structural Plan of Hael**

The Structural Plan aims to identify key spatial structures as those provided for in the Regional Spatial Strategy. The Amanah prepared the Hael Structural Plan (1996-2030). This plan, in line with the Regional Plan, highlights different objectives for the different cities that are located within the metropolitan area.

The structural plan of Hael strengthens the city's regional role as one of the most important centres for national economic growth because of the city's strategic location. Hael is situated at the junction of all major roads in the region such as Hael-Al Qassim Road, Hael-Al Qassim-Al Jouf Road, and Hael-Madinah

Road. It is also a major agricultural centre (land amounts to 84 hectares, 10.7% of the Kingdom's agricultural base), as well as an industrial hub of 45 factories processing silica sand and granite.

Therefore, the plan has the following guidelines for the city:

- To strengthen the touristic, archaeological and historical role of the city due to the existence of several areas of historical and cultural importance, which establish a base for cultural tourism;
- To enhance industrial activity such as the vehicle, electrical and electronic equipment assembly industry in the Southeast of the city, with the possibility of having craft workshops in the industrial planning area East of the first ring road, while providing green belts to isolate industrial from residential areas; and
- To concentrate industrial development on three main corridors by:
  - Prioritising development of the industrial plan at the Eastern part of the city through the provision of infrastructure networks;
  - Developing agricultural industries (poultry farms and silos) in the designated sites within the industrial schemes; and
  - Rehabilitating (medium and technical) industrial facilities which are considered the future nucleus of the city.

In terms of land use, the Structural Plan identifies strategic land uses and infrastructure networks within the metropolitan area of the 1450 Urban Growth Boundary. Within this growth boundary, 27.1% of the land is reserved for military uses whereas 26.9% of the urban area is preserved for residential use and about 25.6% of land allocated for government uses. Within the city's geographical extent, 3.51% of the land is kept for agricultural use, which means that the definition and separation of buildable vis-a-vis non-buildable areas is strong in Hael.

This Plan also does not promote a clear mixed land use strategy as it encourages a mono land use typology instead. Mixed land uses (5.4% - commercial and residential) are only proposed along the major corridors. Other uses such as industrial, have a land allocation of 3.6%, while 5% of the city's urban land is earmarked for public facilities.

#### **Local Plan**

The Local Plan represents the third level of the urban planning system in KSA and is largely focused on those areas of a municipality, which are contained within the UGB with a special focus on housing. The Local Plan contains the Urban Atlas which details the allowed land uses for every part of the city. It is complemented by a report of regulations which contains specifications on the permissible development rights such as floor area ratio, street dynamics, building heights, areas of special building regulations, etc.



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*FSCP workshop in Hael with stakeholders*

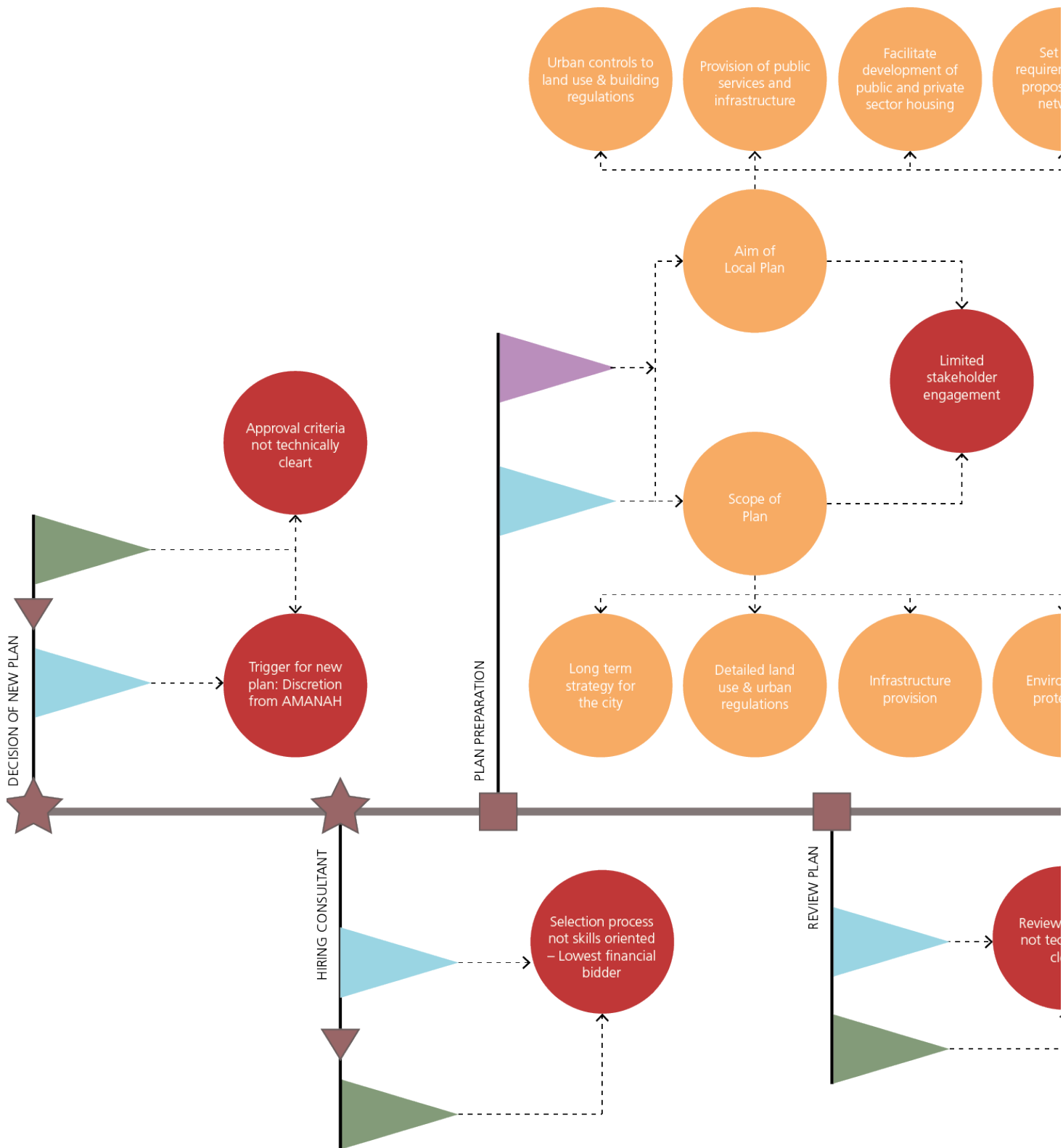
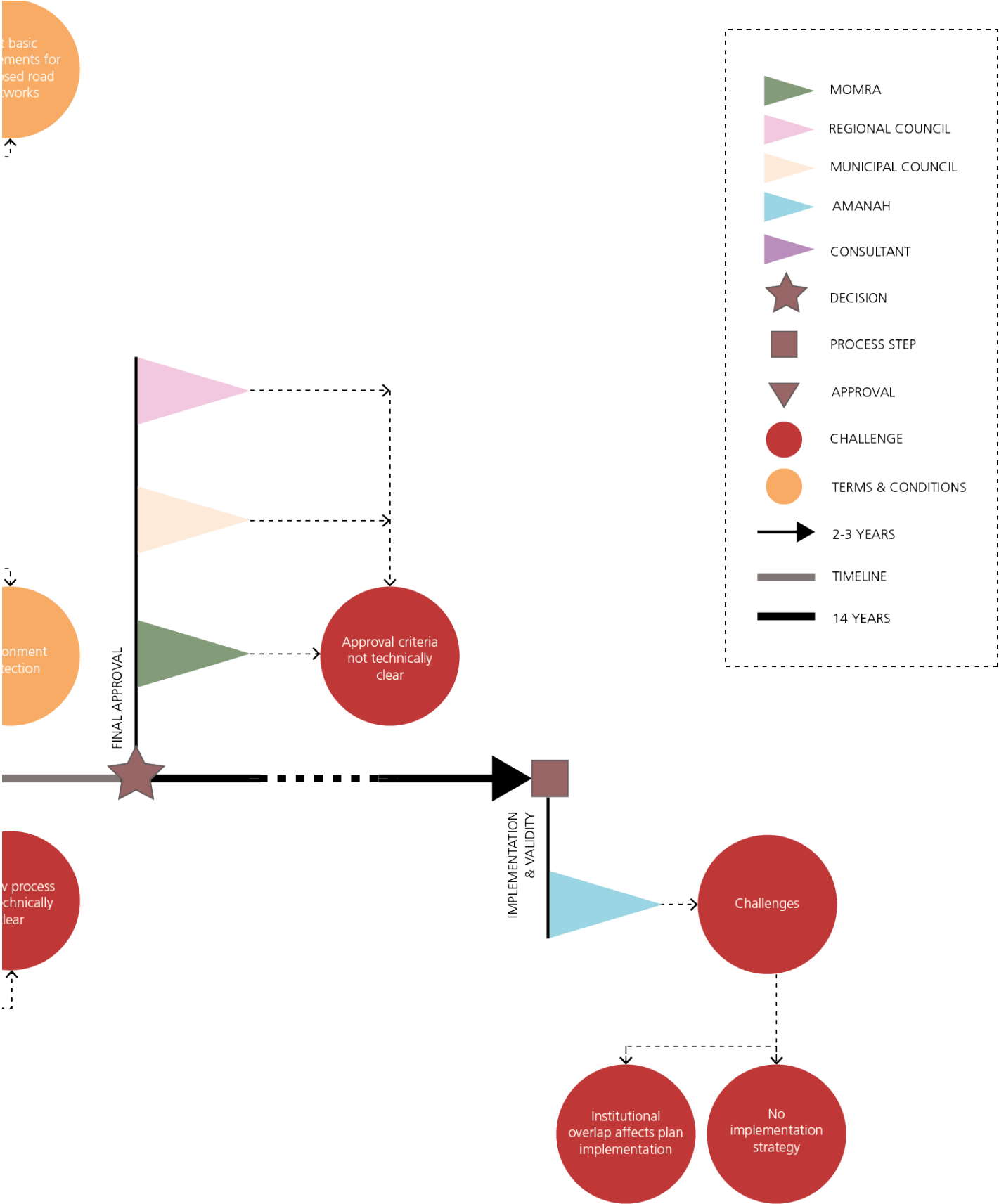


Fig. 13. FSCP simplified representation of actors and processes involved in the preparation of the Hael Local Plan





### 3.2.4 The Hael Urban Growth and Development Protection Boundaries

The aim of the Local Plan is to a) apply urban controls to urban land use and building regulations; b) to provide public services and infrastructure in a cost-effective and integrated manner; c) set basic requirements for proposed road networks; and d) help facilitate the development of public and private sector housing. There is no legal framework to direct the preparation and implementation of local plans. Rather, it is prepared by various consultants following the "Booklet of the Terms of Reference for the Preparation of the Local Plan," which is formulated by MoMRA. This Booklet was updated in 2015, and one key technical change is the requirement that the lifespan of new plans should be 14 years (2015-2029).

The development of the Local Plan is complicated by the fact that there are parallel structures set up by MoMRA and the Ministry of the Interior. While the legal mandate for planning lies in the Municipalities (under MoMRA), there are jurisdictional overlaps with newly established Hael Regional Development Authority (HRDA), as well as with the Mohafezat (Governates, sub-regional) and Markaz (Districts), which are set up under the Ministry of Interior. However, while MoMRA is the central spatial planning institution, there still lacks a clear coordination mechanism across the different planning authorities. This frequently leads to decision-making impasse which affects the delivery of technical standards within municipalities such as Hael. The Hael Local Plan is yet to be approved, but it was prepared in 2009 by MoMRA in coordination with the Amanah.

#### Legal Framework

In 2008, the Prime Minister issued decree No. 157, which sets the overall regulations for both the Urban Growth Boundary (until 2030) and the Development Protection Boundary. The executive regulations were issued in 2010 by the MoMRA Ministerial Decree No. 11769 followed by the current revision (MoMRA Ministerial Decree No. 66000) which was enacted in 2014. The UGB is meant to control urban expansion, whereas the DPB is meant to prevent urban sprawl in the outskirts of cities without adequate infrastructure, by demarcating a no-development zone. This boundary has the function of preserving land for future urban development beyond the 2030 Urban Growth Boundary, while supporting the role of the urban growth boundary in preventing sprawl.

The 2014 Decree stipulates several general development principles including:

- Strategic development projects that are part of the spatial strategies, including major road and railway networks passing through private lands, should be prioritized over any other development projects;
- Development projects outside of the boundary are only permitted with the approval of MoMRA; and
- Large-scale development projects should follow specified detailed standards.

URBAN BOUNDARY CLASSIFICATION OF LAND SUBDIVISION APPROVALS AND THE URBAN BOUNDARY PHASES		
EXECUTIVE REGULATION ISSUED BY THE MINISTERIAL DECREE NO 66,000 IN 20/12/2014		
1 <sup>ST</sup> PHASE (2014-2018)	2 <sup>ND</sup> PHASE (2019-2024)	3 <sup>RD</sup> PHASE (2025-2030)
NATIONAL GROWTH CENTERS (HAEL, TABUK, BURAIDAH, UNAYZA, ARAR, NAJRAN, JAZAN, AL BAHA, SKAKA, ABHA, TAIF AND AL-AHSA)		
MORE THAN 500,000 SQM		
- Tarmacking of internal roads - Sanitation and electricity - Water if available - Storm water infrastructure	- Tarmacking of internal roads - Sanitation and electricity - Water if available - Storm water infrastructure - Connect to closest main road - Percentage of residential area completed not less than 50% - Provide land for social services (schools, kindergartens, hospitals, etc.)	- Tarmacking of internal roads - Sanitation and electricity - Water if available - Storm water infrastructure - Connect to closest main road - Percentage of residential area completed not less than 50% - Provide land for social services (schools, kindergartens, hospitals, etc.)
- Tarmacking of internal roads - Sanitation and electricity - Provide land for social services (schools, kindergartens, hospitals)	-	-

Fig. 14. Matrix showing the development options within the phases of the urban boundary in the National Growth Centres (including Hael)

The Law also defines development standards that a developer is obliged to comply with, based on strategic categories of national, regional and local centres, and on the size of the plot. Hael is categorised as a National Growth Centre, (see figure 14).

Legally, the area between the Development Protection Boundary and the 1450 (2030) Urban Growth Boundary is protected and not earmarked for development, but the law also outlines mechanisms for building mega or national-regional economic projects therein. Moreover, given the law, certain agencies have rights to land situated in such areas, where approval of development projects is routinely by set of regulations in this regard. Additionally, given the legal flexibility around the definition of “mega” or “strategic” projects, private residential developments exist outside the 1450 (2030) Urban Growth Boundary. These factors have undermined the functional effectiveness of the regulations, the rule of law, as well as compact development of urban areas, such as Hael.

#### Setting the Boundary

The Urban Growth Boundary for Hael was set simultaneously, along with other cities, by MoMRA, through a Committee under the Unit of Coordination and Projects. The composition of the committee is not yet clear, for instance, it did not involve the municipality of Hael Region, which is responsible for planning at the city level. There is an understanding that the calculations were based on selective factors, such as historical growth and expected population growth in the city; however, there is no accurate published criteria on how the size of the boundary was calculated. Spatially, the Committee was not guided by existing infrastructure and services, as the boundary was set symmetrically so that “all sides of the city” can benefit.

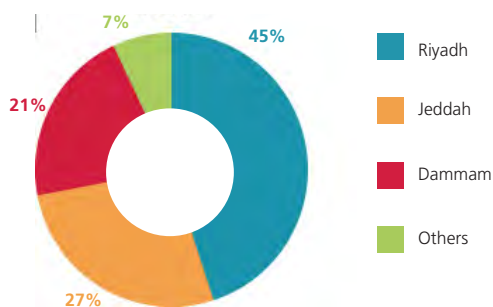


Fig. 15. Percentage of white lands – First phase of implementation of the White Lands Law

#### Challenges

Although the growth boundary regulations set very clear rules for development not to happen outside the boundaries, there are some exceptions, such as housing projects, which undermine the effectiveness of the law. In Hael, the development of the “Economic City,<sup>4</sup>” which is being undertaken by the Economic City Authority, is taking place outside the approved phase of the growth boundary.

#### Permitting

Development within the UGB is closely linked to permitting and development control. The process in Hael is as follows:

- A developer submits a land subdivision plan, including detailed implementation plans for the instalment of the requisite infrastructure to the Amanah of the Hael Region;
- The Amanah will then assess the application in accordance with the provisions of the Law on the Urban Growth Boundary; except those cases defined by MoMRA Ministerial Decree No 17777. This Decree delegates certain roles to the mayors in regards to approving land subdivision, solely in relation to the size of residential projects. The Mayor of Hael is an approval authority under this Law;
- The application is then sent to MoMRA for review in accordance with development standards and applicable building codes, and building permits are either refused or granted by MoMRA;
- A developer whose permit has been refused has two options of appeal: a) recourse to the Amanah and MoMRA calling a re-study of the application; or b) file the case in the relevant jurisdictional administrative court;
- The decision in the above appeal processes is final and binding to all the parties.

#### White Lands Act - Hael

The percentage of undeveloped land (“white lands”), in Hael, is high, there are 51,242.6 hectares which represent more than 48% of the land inside the 2030 urban boundary area. The existence of “white lands” has been a major contributor to a growing housing shortage particularly for the youth and the growing population as owners choose to hoard property to maximise value rather than develop it. The government recently issued the White Lands Tax Law<sup>5</sup> that imposes an annual land tax of 2.5% of its value on “white land,” which is defined as vacant land located in ‘populated areas’; zoned for residential or for dual residential and commercial use. This Law aims to: a) increase the supply of developed land to better address housing shortages; b) make residential land available at reasonable prices, and c) combat monopolistic practices. The Ministry of Housing, which is the implementing authority, will enforce the Law in phases. At the moment, the Act is operational only in Makkah, Riyadh, Dammam and Jeddah (see figure 15).

### 3.2.5 Land Subdivision Plans

The land subdivision plans are the basic building blocks for KSA cities' growth and development. The Mayor of the Hael Region has the power to approve the land subdivision in accordance with the following criteria (Ministerial Decree No. 17777 of 2010):

- The land must be within the approved urban boundaries;
- The land use specified for the land is consistent with the instructions and regulations governing it;
- The subdivision will not result in cancellation or modification of an approved regulation, planning or authorised land use;
- All necessary planning procedures have been completed and the Deputy Ministry for Town Planning (DMTP) has been issued with a certified copy of the plan after its approval.

There are 2,000 land subdivision plans which have been approved by the Amanah within the UGB. Moreover, 13 plans for regional and industrial uses have been approved outside the boundary, to develop the Economic City.

## 3.3 Institutional Framework

### 3.3.1 Urban institutions in KSA

Hael's growth and development pattern is impacted by the centralised planning institutional framework of the KSA, under

the Ministry of Municipal and Rural Affairs (MoMRA). MoMRA is entrusted with the task of conducting urban planning of the Kingdom's cities, as well as of licensing all types of construction activity.<sup>6</sup>

The Deputy Ministry of Town Planning under MoMRA and its departments, such as Local Planning, Studies & Research, Projects Coordination and Urban Planning & Design, is mandated to coordinate with "concerned bodies" in charge of planning, to achieve comprehensive urban development.<sup>7</sup> In practice, there is little coordination between these departments and the Amanah, and this affects service delivery and project implementation.

### 3.3.2 Regional context: Hael Region

According to the Ministry of Interior administrative classification, the Hael Region is divided into 8 governorates and 108 centres (67 are class A while 41 are class B). Hael, being the regional capital, is not included in this classification but is instead governed through a "municipality" (Amanah), and headed by a Mayor.

This delineation is provided for by MoMRA with Hael's actual status being a 1<sup>st</sup> class Amanah. Given this structure, the Amanah is allocated funds by MoMRA for development action and municipal services through an annual line-item budgeting, which is the sole fiscal means available to Hael.



FSCP Workshop in Hael with stakeholders



There are additional institutions in the Hael Region that manage and regulate the development process. The Amarah of the region, headed by the Regional Prince who, pursuant to the Regional Law<sup>8</sup> reports to the newly established Regional Development Authority.

The Regional Council is based in the Amarah and is required to:

- Identify the needs of the region and propose their inclusion in the National Development Plan;
- Identify beneficial projects for the region and submit these as activities requiring funding. These requests are vetted, and viable projects selected for funding. Funding is provided as part of the National Development Plans and annual budget of the country, which is the sole means available to municipalities;
- Study the organisational arrangement of the regional administrative centres, follow up implementation of any modifications; and
- Implement the provisions of the development and budget plan, and carry out the needed coordination.

The Municipal Council, located in the Amanah, with two-thirds of its members elected by citizen's votes while MoMRA appoints the rest, supervises the activities of the Amanah and municipalities to make sure that they conform to the Local Plan, as well as meet the current needs of the region. It approves:

- The municipal budget sourced from the cash allocation from the national government. This is constantly subject to revision as it is based on the agreed priorities between the Council and the Mayor;
- Examines the residential plans focusing on whether any procedural violation occurred;
- The scope of municipal services; and
- Expropriation projects based on the priorities of the Mayor.

### 3.3.3 Local context: Hael

The Hael Region is composed of several cities including Hael, which is the capital and largest city. As earlier mentioned, the city is managed by the Amanah, which is headed by a Mayor. The Minister of MoMRA appoints the Mayor.

The organisational structure of the Hael Amanah was updated during 2009, and the revision process is ongoing after the current appointment of a new Mayor. However, within the administrative structure and under the Mayor's office there are four important main deputies/agencies concerned with the administrative, organisational, and planning aspects of the Amanah of Hael as follows:

- Deputy of Reconstruction and Projects;

- Services Agency;
- Agency for Regional Affairs (under its administration there are 17 sub-municipalities); and
- Amanah Agency for Planning and Budget.

Various challenges are facing the Amanah in relation to the administration of Hael, such as:

- The legal department within the Amanah has a weak role in assessing the impact of urban planning law;
- The role of the Amanah is mainly to apply the regulations and legislation, especially those issued by the higher authorities. It has a limited role mainly providing developmental suggestions. Despite the fact that the Amanah has a direct role in the preparation of building regulations/systems of the city of Hael, often the unapproval of local plans impedes this important role;
- Many governmental agencies, and especially their departments operating within Hael city, overlap with the Amanah of Hael Region which are including the following departments: Transportation, Electricity Company, Water, Agriculture, Civil Defence, Traffic, Civil Service, and Notary public.
- There is limited vertical coordination between the Amanah and the Ministerial departments, except for the Ministry of Finance, where there are continuous and direct coordination and communication, especially with respect to budgets, financial claims, and preparation of budgets;
- Only a few employees are specialised in urban planning, in addition to the recruitment and selection process is bureaucratic and time-consuming;
- Insufficient budget, which does not compliment the magnitude of work to be undertaken within the Amanah. This affects among others, the hiring of qualified consultants to prepare the plans; and
- The procedures to monitor violations of planning regulations and enforcing administrative actions, such as penalties is cumbersome hence ineffective as a deterrent mechanism.

### 3.3.4 Legal and institutional implications for Hael

Most of the technical decisions and approvals in the local governance (Amanah), including planning decisions, are made on a discretionary basis based on the priorities set for the city. Therefore, the system lacks technical accountability, predictability, and practical clarity.

## 3.4 Financial Context

Hael is located in the central part of Saudi Arabia, toward s the North. The region represents one of the main agricultural hubs of KSA with more than 84,000 hectares of cropland, representing about 11% of Saudi Arabia's total annual crop harvest.<sup>9</sup> There are a number of specialised agricultural projects and landholdings, the largest of which is the Hael Agricultural Company. In addition, agricultural, mining, retail, and services, (public services, education, training, transportation) are important economic sectors.

Following Saudi Arabia's Vision 2030,<sup>10</sup> the region economic goal of the government is to diversify the local economy. As a result, the government has been exploring new economic activities in strategic industries that will support job creation, business development, and innovation. Consequently, the development of public infrastructure, (e.g., transportation, and water treatment facilities) that serve Hael's key economic sectors is a priority, as the municipal government pushes to increase market access, spur competition, and harness the productive capacity of the region, and its contribution to the national

economy.<sup>11</sup> Part of the government's strategy to achieve its economic goals includes a renewed commitment to strengthen the feedback loop between (1) regional and local needs, (2) education and training, and (3) the economic landscape. This will enable the government to foster growth in human capital and improve market conditions that are conducive to research, innovation, and economic diversification.

### 3.4.1 Hael's financial system

Sound fiscal management is key to supporting local development goals and establishing a solid financial base that strengthens the public sector's role in supporting local economic development. Currently, the National Development Plan guides Haels public finance system. This system is highly centralised and dependent on intergovernmental transfers (vis-à-vis line-item budgeting in the National Development Plan), to fund local development activities and projects.

In 2017, the central government allocated 5% of the total budget to municipal services, which also covered projects and programs managed by the Ministry of Municipal and Rural Affairs (MoMRA). MoMRA, via the Amanahs, is responsible for financing activities categorised as "municipal services," such as urban planning, building licensing, sanitation, and road maintenance. In addition to MoMRA, several other government ministries and entities, such as the emir and regional councils fund, implement projects at the local level

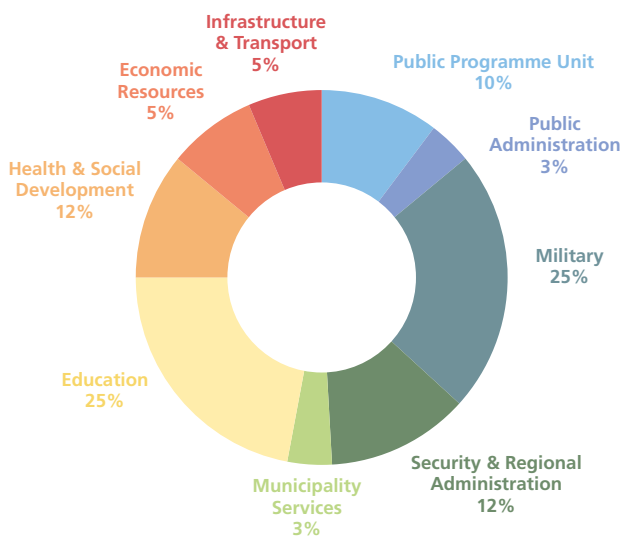


Fig. 17. Saudi Arabia national expenditure by sector, 2016

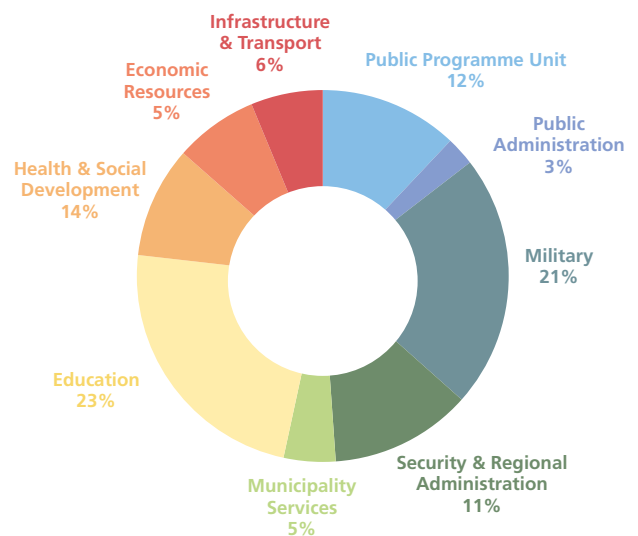


Fig. 16. Saudi Arabia national expenditure by sector, 2017

(e.g., the Ministry of Education provides direct funding for city schools). In any given city, different ministries alongside those of MoMRA manage various projects and activities separately.

### 3.4.2 Municipal revenue

Currently, the Amanah only has a few sources of revenue and limited authority to collect fees. MoMRA has recently introduced municipal fees, which expanded their own-source revenue base, but local revenues continue to be insufficient. Consequently, the Amanah continues to be reliant on support from the central budget.

Intergovernmental transfers from the MoF are based on annual budget proposals submitted by the various ministries. In MoMRA, the budget drafting process tends to be influenced by both local municipalities' and Amanah's needs and priorities; municipal governments submit project proposals for the next budgetary cycle, which are then submitted to MoMRA's leadership for final approval. The projects that are approved are included in the MoF's budget review and submitted for approval to receive funding.

### 3.4.3 Financing municipal operating costs

In 2016, approximately 12% of the Amanah budget for Hael came from own-source revenue.<sup>12</sup> Consequently, Hael continues to be heavily reliant on intergovernmental transfers. In order to reduce

dependency on transfers from the central government, the National Transformation Program 2020 (NTP), directs the local government to establish sound fiscal policies through the introduction of new financing instruments.<sup>13</sup>

In 2016, Hael was only able to finance a small portion of their budget with only SAR 73 million in own-source revenue.

### 3.4.4 Capital investment for urban development of Hael

The demand for capital to diversify the funds for local infrastructure, services, and facilities in emerging countries is becoming a priority, especially in cities like Hael. To fill the financing gap and address these new development challenges, the financing options available to countries like Saudi Arabia has been rapidly expanding.

This is strategic for the city to create the right conditions to increase the contribution of the region to national GDP, reinforcing local comparative advantages, developing new firms (e.g. tourism industries and agro-processing industries), and attracting talents. In these terms, Hael economy will have a direct benefit from new capital financing options, experiencing economic returns for local key sectors like agriculture and tourism. Besides, they present great chance to create employment and boost national and foreign direct investment (FDI) to achieve the goals of Vision 2030.

Budget Category	SAR (thousands)
Salaries	104,300
Operation Expenses	13,584
Operation and Maintenance Programmes and Contracts	109,900
Projects	315,000
<b>Total Budget</b>	<b>615,984</b>

Fig. 18. Amanah budget, Hael (2016)

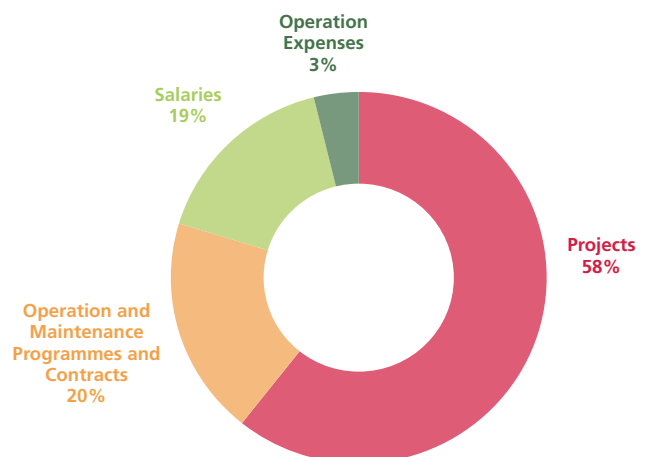


Fig. 19. Amanah budget breakdown (2016)

To fill the financing gap and address these new development challenges, the financing options available to countries like Saudi Arabia have been rapidly expanding as a priority. Recent reforms are aiming to improve the Saudi capital market through increased market capitalisation. For example, the Capital Market Law, the Securities and Exchange Commission, and a privately-owned Stock Exchange were recently launched in Saudi Arabia with the goal of improving the domestic capital market.

Between 2011 and 2016, Saudi equities increased in value from just over 50% of GDP to almost 70% of GDP. Today, Tadawul is the sole Saudi stock exchange market and the largest equities exchange market in the Arab World.<sup>14</sup> In addition to Tadawul, Saudi Arabia introduced Nomu, an equity market for small and medium-sized enterprises (SMEs). With fewer listing requirements, Nomu is a good option for SMEs that are interested in going public.

In addition to providing traditional banking services, Saudi Arabia's domestic banks went through a series of mergers and acquisitions, diversified their assets, and began to offer both conventional and Islamic investment products to a diversified investor base.<sup>15</sup> The Saudi Arabian capital market is becoming an example of efficient capital allocation driven by strategic reforms and increased market capitalisation.<sup>16</sup>

Regarding Saudi Arabia's debt market, the government began issuing bonds for debt financing in 1988. In the last 15 years, the debt market underwent a series of reforms, which changed the process for issuing bonds, pricing bonds, and setting bond maturity terms. One major buyer of government bonds is the group Investors in Government Development Bonds (GDBs), which is made up of domestic financial institutions, banks, and foreign investors.<sup>17</sup> GDBs are Zakat deductible for domestic investors and exempt from withholding tax on income for foreign investors.

This approach creates competitive and attractive conditions for capital and equity investors and is expected to have wide-ranging impacts on the local economies of cities like Hael in the future, increasing the availability of capital to expand current economy, foster new local firms, and fund local development of small and medium size cities in the long run.



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*Vernacular architecture in Hael*





# 4

## THE CURRENT CITY





### 4.1.1 The city's development patterns

The city of Hael is the capital of the Hael Region and is also a National Growth Centre that strategically serves the Kingdom of Saudi Arabia. The city derived its wealth from being on the camel caravan route of the Hajj pilgrimage and was a city known for its trading, which absorbed many of the travelers that were bound to Makkah from Iraq and Syria.

Traditionally speaking, the area is rich in agricultural produce, as it was a city that relied heavily on trade with the Hajj pilgrimage. The construction of the Hejaz railway between Damascus and Madinah, and together with new steamship routes to Jeddah, undermined the traditional camel caravan economy and slowed down development of the city. However, with help from the government, the city has been modernised.

Hael's central location situates it in an advantageous area due to major highways passing through the city. Additionally, there is a major ring road, designed as a defining feature of the city, to tie all the major roads that serve the city together. These roads and highways feed directly into the city's central urban fabric, influencing the development pattern of the city. Other major development pattern influencers are the regional railway station, located approximately 20 kilometres North of the city centre and the regional airport, located approximately 8 kilometres towards the South.

Geographically, the city's spatial growth is also influenced by four major land features. First, the 200 year old Airif Fort sits on a hill just East of the urban core, the fort in its prime was used as a military observation point as well as a resting place for pilgrims, and some early settlements spun off this hill. Second, the Wadi Ader runs through the city centre in a North-South direction, and currently has a strong and distinctive presence in the Northeast of the city but has disintegrated as it meanders towards the South. Thirdly, the Al Samara Mountain located in the centre of the city, just East of the urban footprint, is a major natural feature of the city as it acts as a barrier for development towards the Eastern side of the city within the Ring Road. Fourth, the Aja Mountain Range lies on the Western outskirts and acts as a major constraint to the growth of the city in that direction. The mountain ranges for almost 100 kilometres from North to South. The current footprint is strung along the Aja Mountain.

In the past 34 years, the city land area has grown by 540% while the population growth steadied at 300%. Breaking this down, from 1984 to 2004 the land area of the city increased by 1,550 hectares or approximately 32%, whereas from 2004 to 2009 is further increased by 27.4%. Between 2009 and 2014 rapid land development occurred where the city increased, by 62.3%, a large increase compared to the previous yearly increments. Spatially, the city has grown towards the South along Highway 70, between the highway and Aja Mountain.

#### POPULATION



#### POPULATION DENSITY on built-up area



#### AGE PROFILE

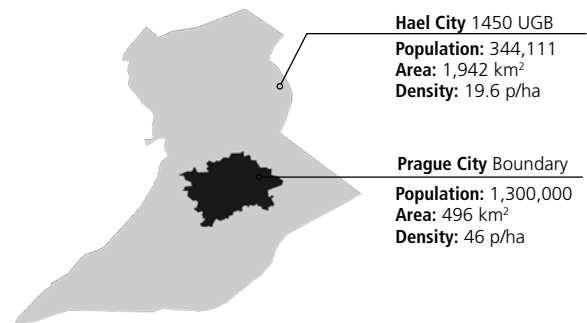


#### POPULATION GROWTH RATE



586,152 Expected population by 2030

#### HAEL CITY COMPARED TO PRAGUE



**Hael City** 1450 UGB  
Population: 344,111  
Area: 1,942 km<sup>2</sup>  
Density: 19.6 p/ha

**Prague City** Boundary  
Population: 1,300,000  
Area: 496 km<sup>2</sup>  
Density: 46 p/ha



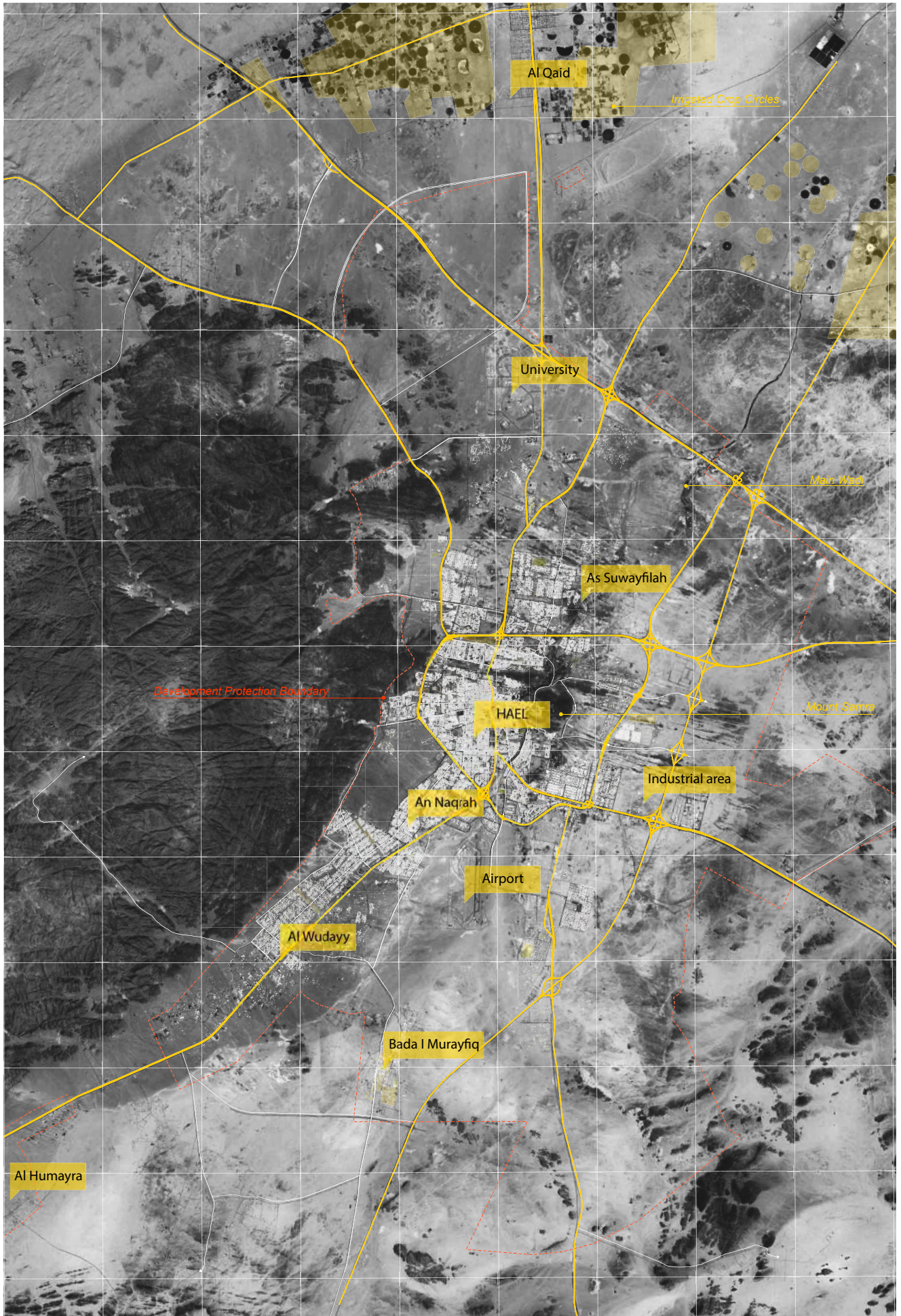
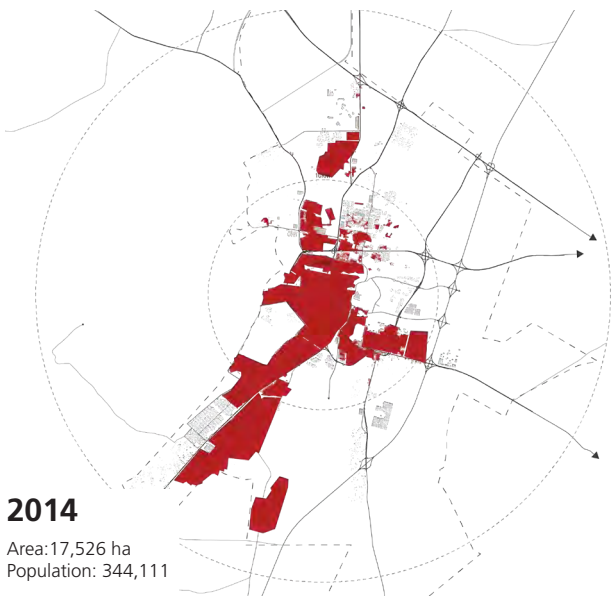
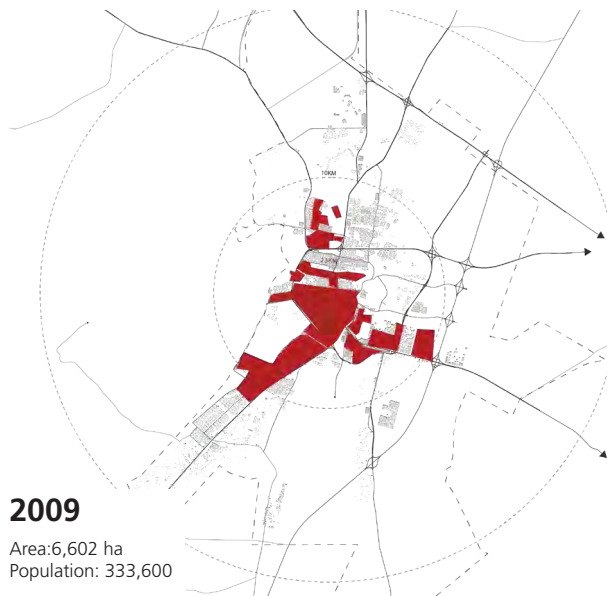
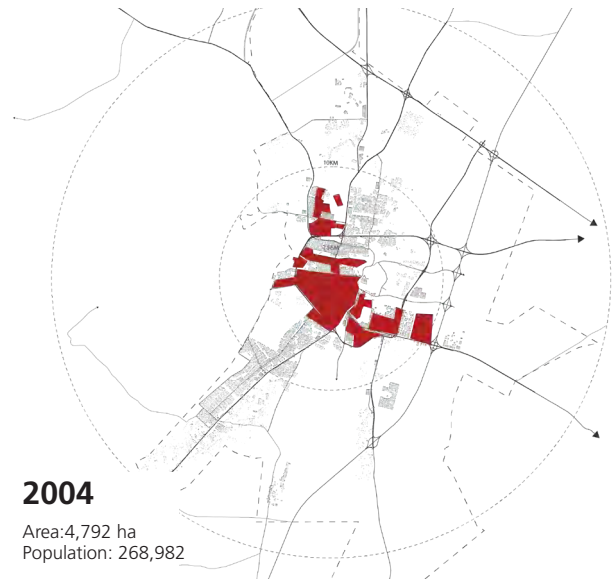
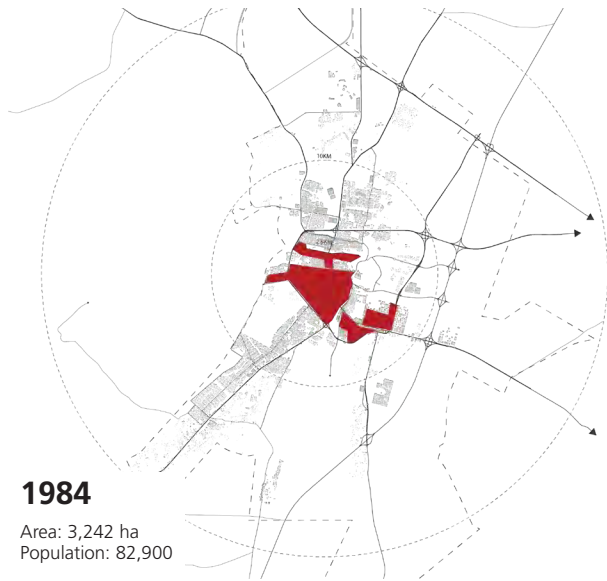


Fig. 20. Boundaries, neighbourhoods and key infrastructure



Square metre  
per capita

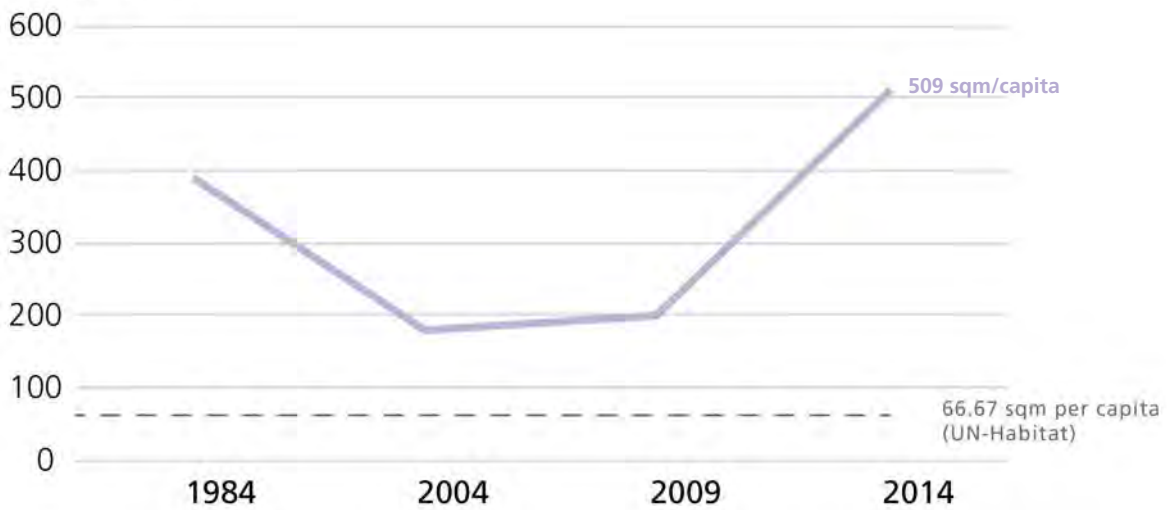


Fig. 21. Land allocated per capita





Fig. 22. Urban growth stages



From 2009 to 2014 development gravitated South towards the airport along Highway 70. During this same period development occurred in the North, on the Ring Road and beyond.

However, as there was a population boom in the beginning, it subsequently tapered to modest increases over time. From 1984 to 2004, it grew by 69.1%, and from 2004 to 2009 it grew by 19.3%. Between 2009 to 2014 it modestly registered a 3% increase. The growth pattern reflects a sprawling trend that results in more land required, as the city grows. This growth trend will result in an inefficient and unsustainable urban form into the future.

Comparing the land area of the 1435/1450 boundaries of Hael with the land area used by various capital cities around the world shows that the same amount of land that Hael is using for its 344,111 inhabitants is greater than the area of Prague, which has a population of more than 2.5 million inhabitants. This means that the same infrastructure, utilities, and facilities for Hael are costing the Saudi Arabian government and the Saudi community much more than the cost of other successful cities around the world, with a significantly higher number of population. Population projection for the future does not improve the outlook, in twelve years (2030) the population is

projected to be 586,152 inhabitants, and this is still significantly less than the 2.5 million of Prague.

### 4.1.2 Administrative boundaries

The Hael Region is divided administratively into the Principality of Hael, as the capital and three governorates, Baq'a, Al, Shanan, and Al Gazala. The city of Hael is the National Growth Centre of the region.

Hael's Development Protection Boundary (DPB) covers an area of 1,942 square kilometres and is set by MoMRA. This area is sparsely populated and incorporates natural features such as mountains, open desert, wadis, and patches of agricultural farming. These landscapes are an integral part of the urban ecosystem and are under threat of urban growth. The purpose of having such a boundary is to manage development and city extensions to prevent urban sprawl and inefficient infrastructure networks. It further protects and preserves key ecological assets and agricultural land. UN-Habitat proposes to maintain the urban expansion within the 1450 UGB and to preserve the rest of the DPB.

The other two boundaries are the Urban Growth Boundary for 1435 and 1450. These two boundaries are closely tied to current and future urban trends of the city, as they are

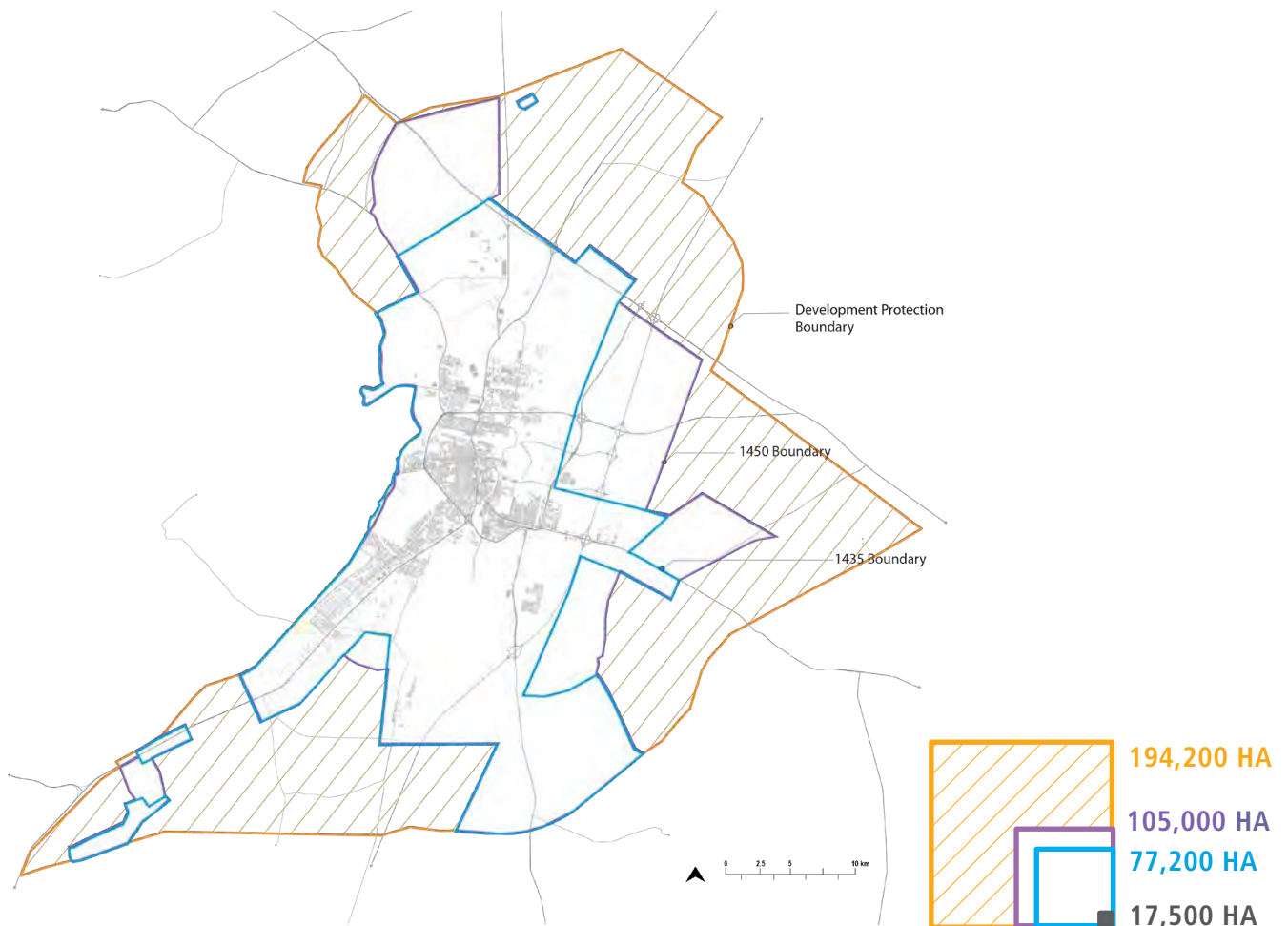


Fig. 23. Administrative boundaries





© FSCP

*Landscape in Hael*



established with the intention to support current and future growth patterns, land uses, economic development, and strategic governance. Like the DPB, the UGBs need to be carefully planned with its strategic vision and goals closely aligned.

The current 1435 UGB covers an area of 772 square kilometres, and with current population projections it will take more than 100 years to fill this boundary, at the UN-Habitat recommended density of 150 p/ha. The current urban footprint is 76 square kilometres and covers a mere 9.8% of this boundary area. Similarly, the 1450 UGB covers an area of 1,050 square kilometres, and with current population projections, it will take more than 108 years to fill at the recommended UN-Habitat density.

The extensive nature of the current growth boundaries renders it ineffective as a growth management tool and in many ways encourages urban sprawl and ineffective infrastructure investment.

### 4.1.3 Urban density

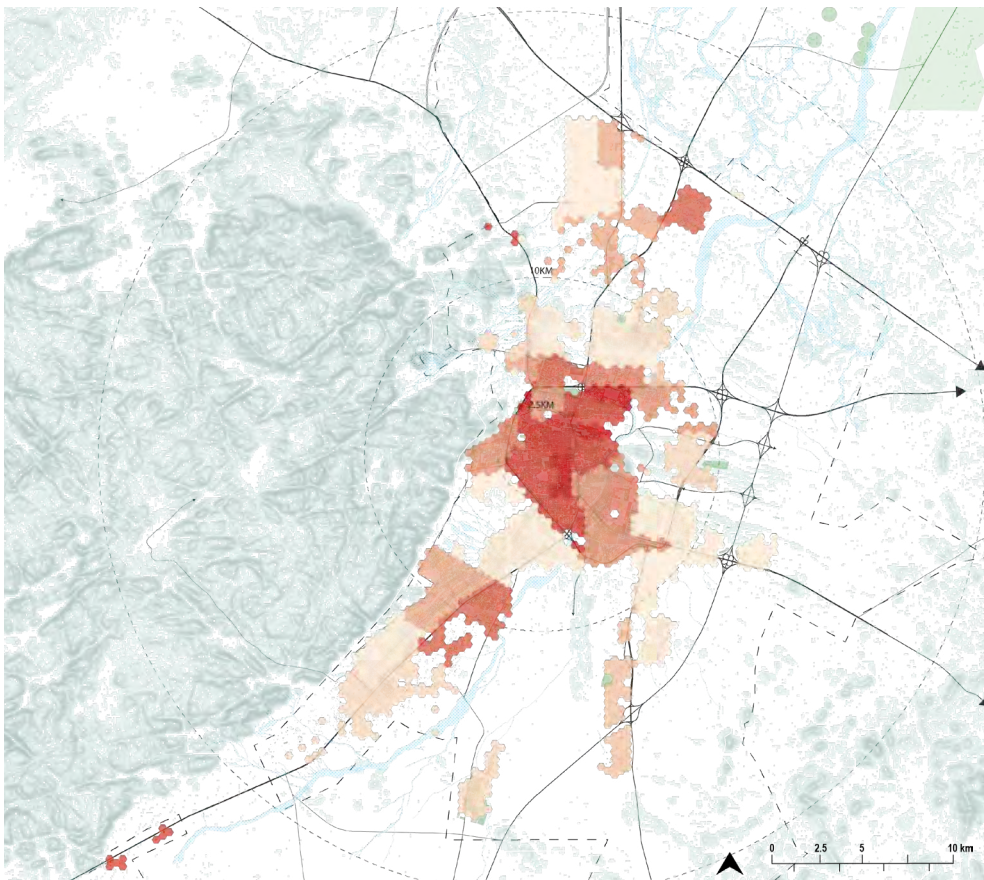
Hael has a population of 344,111 inhabitants and an average population density of 19.63 p/ha within the current built-up area. The total built-up area of the city covers 7,634 hectares. Only 4% of the built-up area supports a density above 50 p/ha and accommodates 13% of the population; whereas 3.7% of the total built-up area has a population density between 30 to 50 p/ha and accommodates a further 9% of the population. The remaining 78% of the population lives in very low-density areas that is lower than 30 p/ha. The highest concentration of people is recorded in the city centre, then concentrically decreases towards the outskirts. However, a noticeably low-density population can be seen on the South, and North beyond the ring road.

Hael has a land use plan that projects a population of 586,000 and covers an area of about 89,000 hectares, with a built-up area of 63,000 hectares. At the UN-Habitat recommended density of 150 p/ha, the area could accommodate more than 9 million people. Needless to say, there will be copious amounts of vacant land in the new proposal with low density, sprawling neighbourhoods.



Hael City aerial view



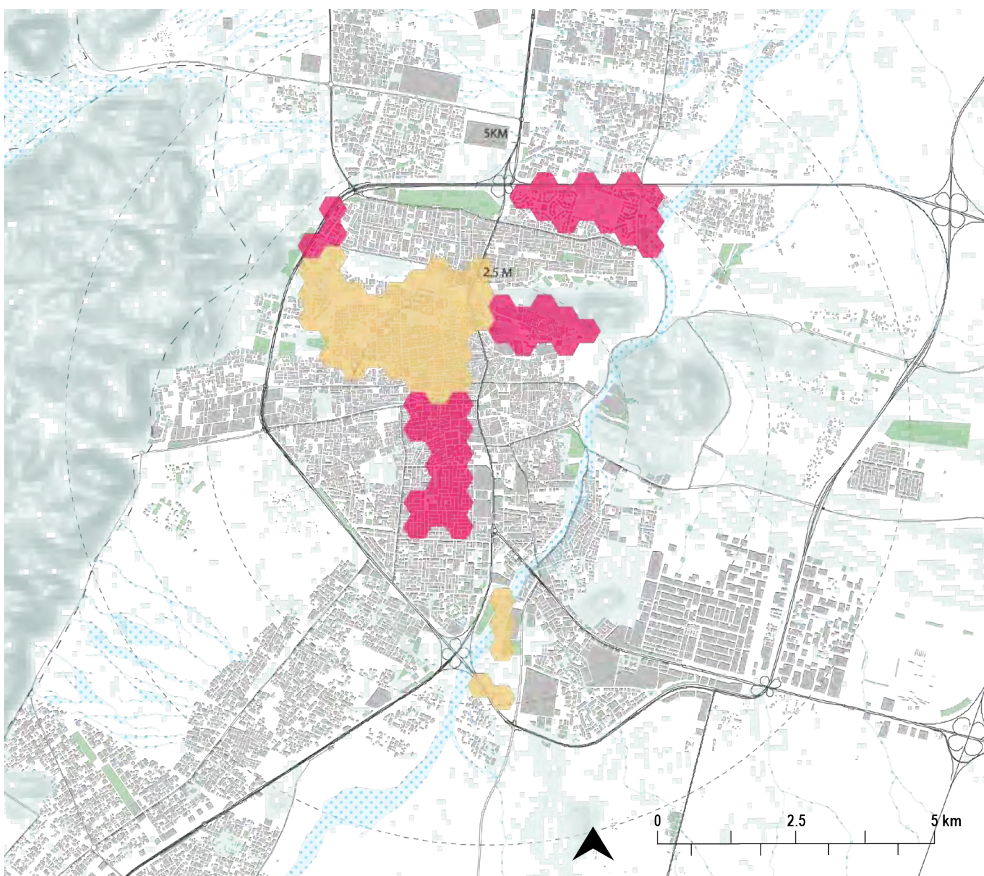


Residents:  
**344,111**

Average population density:  
**19.63 p/ha**

- 1 - 3 p/ha
- 3.1 - 5 p/ha
- 5.1 - 7 p/ha
- 7.1 - 12 p/ha
- 12.1 - 17 p/ha
- 17.1 - 21 p/ha
- 21.1 - 27 p/ha
- 27.1 - 32 p/ha
- 32.1 - 50 p/ha
- 50.1 - 83 p/ha

Fig. 24. Current distribution of population density



- above 50 p/ha
- Above 32 p/ha

Fig. 25. Higher population density within the Ring Road



#### 4.1.4 Land use

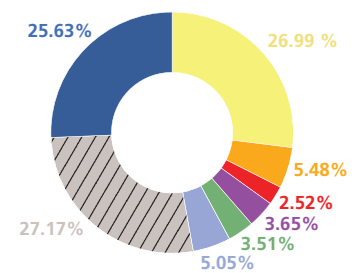
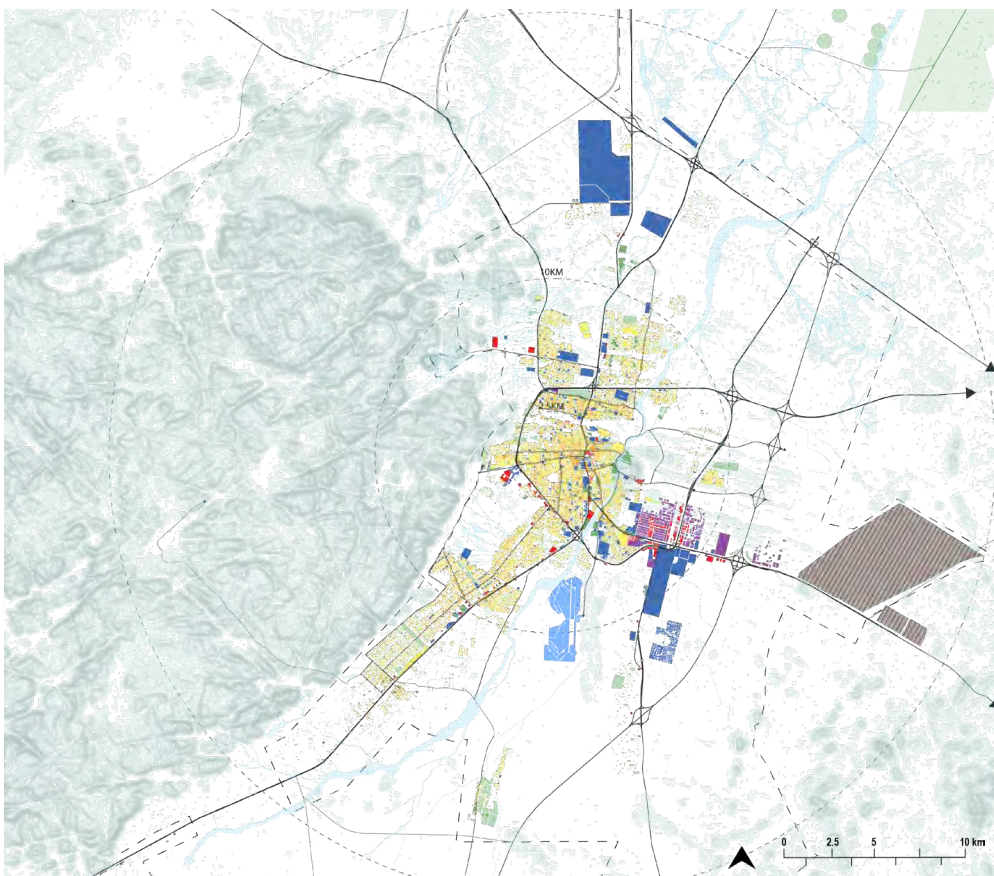
Currently, the largest land use in Hael is reserved for the military services that account for nearly 27% of the urban footprint. This military land is located on the Eastern edge of the city, with no major presence in the city centre, unlike most Saudi cities.

The second largest land use is residential, occupying slightly less than 27% of the urban footprint, distributed along the North-South axis, near the Aja Mountain base on the East. Within the Ring Road, most of the residential structure is concentrated in the Western side. In the approved land use plan, residential areas increase to over 56% of the total area, which represents the single most dominant land use. Residential land uses are distributed throughout the 1450 boundary, as well as on the perimeter of the airport. This important increase in the land use percentage designated to residential areas indicates an increased urban sprawl together with the exacerbating tendency to expand the city following monofunctional planning.

Government institutions and public facilities occupy the third largest area of the urban footprint at around 26%. Institutional facilities are distributed across the city, with a higher concentration on the Southeast quadrant within the ring road. However, in the land use plan, the area occupied by these facilities significantly decreases to under 5%. This significant decrease indicates a risk of lack of public services in the future.

Agricultural and open spaces are present in the extreme South and North of the 1450 Urban Growth Boundary, accounting for 3.5% of the urban footprint. Small inner-city parks and open spaces, such as the wadi offers residents some leisure and recreational value. The approved land use plan embraces more agricultural area especially in the South of the city, resulting in 9% of land classified as agricultural in addition to the open spaces representing only around 1% of the total planned area.

The approved land use plan consolidates industrial land uses to the North of the city within the 1450 Urban Growth Boundary and proposes a large industrial city. A smaller portion of industrial land use is kept within proximity of the city centre, outside of the ring road on the East and Southeast directions. The industrial land use in the land use plan totals to about 16%. Currently, Hael has a very small area designated to mixed-use, representing 5.5% of the city's area. The proposed land use does not provide an increment to this figure; instead it designates only 0.13% of total land use as mixed-use. The lack of consistent and diffused mixed land use puts the overall socio-economic performance of the city at risk. According to the UN-Habitat international recommendation, a prosperous city has to allocate at least 40% of the floor space for economic and commercial uses, including residential areas. This stimulates local jobs, promotes local economic opportunities, and helps to reduce social gaps.



- Residential
- Commercial
- Mixed-use
- Industrial
- Agriculture / open spaces
- Public facilities
- Governmental
- Cemeteries
- Military reserves

Fig. 26. Existing land use



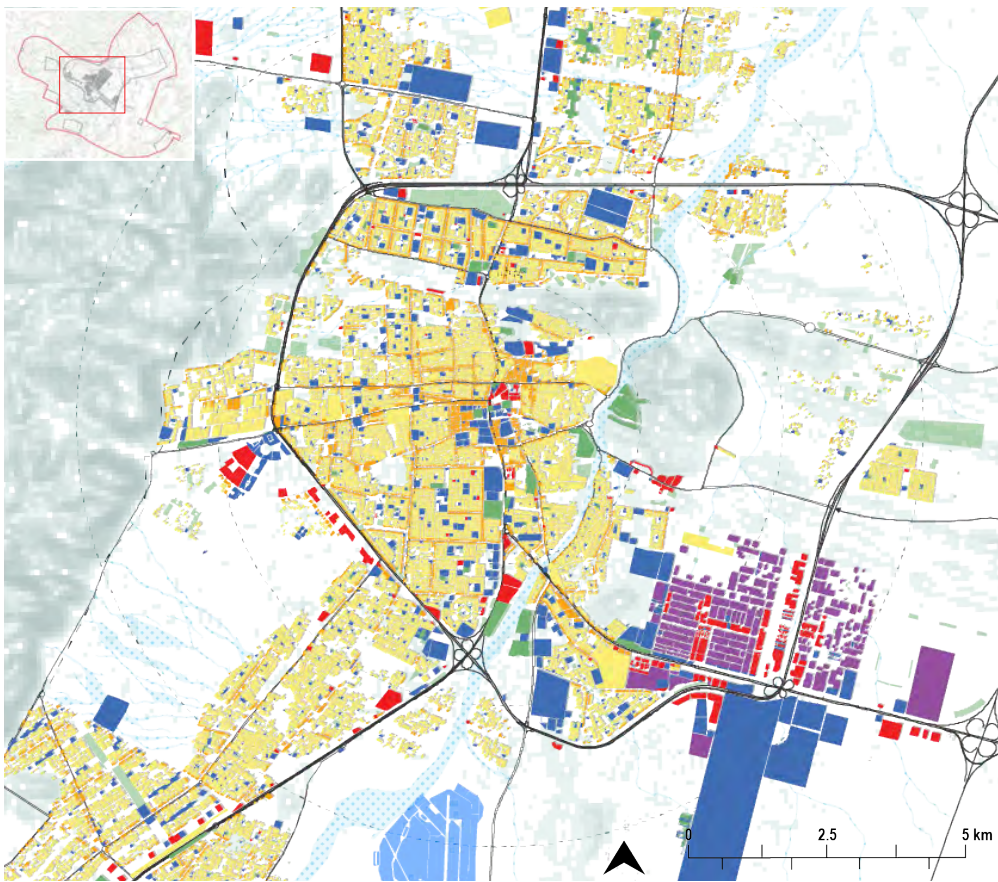


Fig. 28. Existed land use within the Ring Road

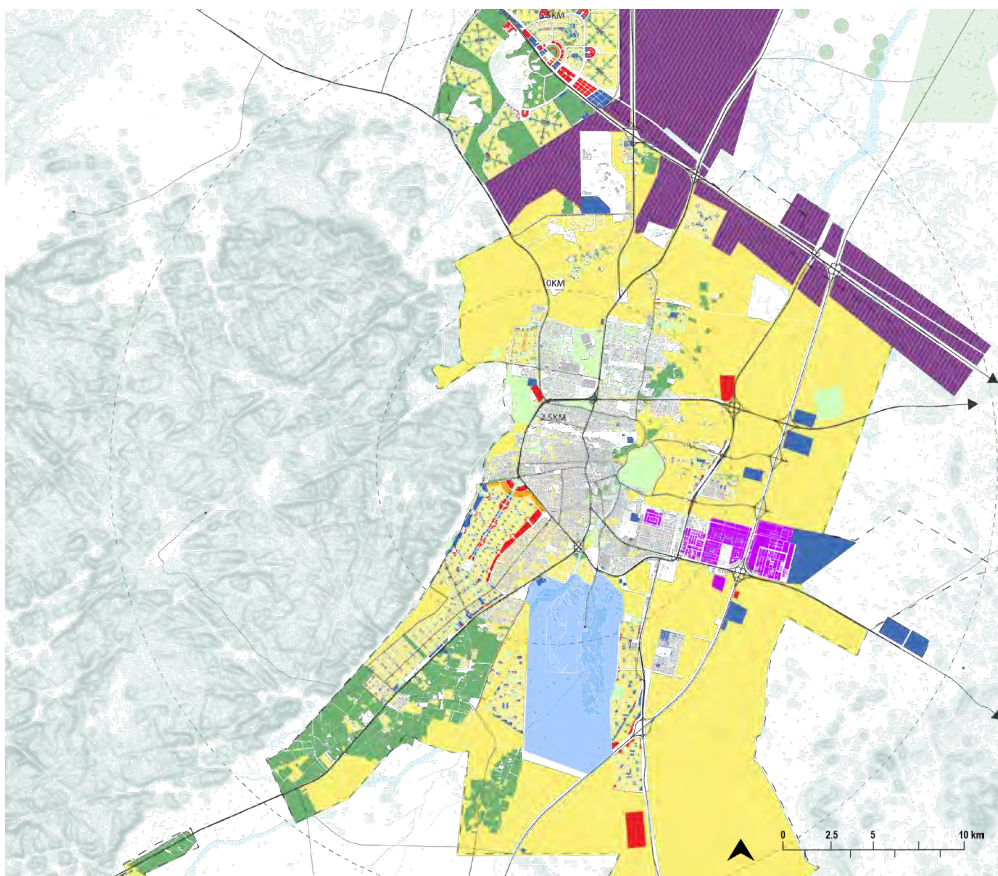
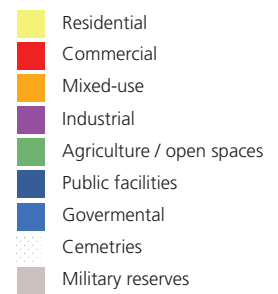
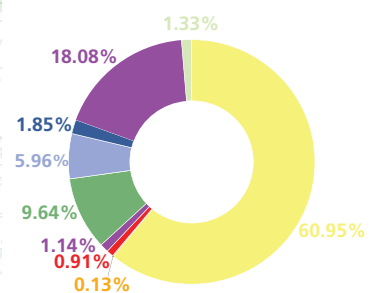


Fig. 27. Proposed land use by the Hael Plan (2009)





### 4.1.5 Vacant land

The city of Hael is characterised by a very high percentage of vacant land within the built-up area. Vacant land represents 55% of the land area within the ring road alone. The 4,326 hectares of vacant land can accommodate an additional population of 648,900 people at the UN-Habitat recommended density of 150 p/ha. If one takes into consideration the land area within the 1450 boundary, then 89.9% or 94,395 hectares of land is vacant, and can potentially accommodate 14 million people, at the recommended UN-Habitat density.

The amount of vacant land within the built-up area has a negative impact on the city structure as it results in high costs of operations and services for the city due to the spread of development. It will negatively affect the environment, the economy, and the social structure of the city, and increase pollution levels by creating car-dependent communities.

## 4.2 Structuring Elements

### 4.2.1 Major infrastructure and economic nodes

Hael's location in the centre of the region and close proximity to the other National Growth Centres is advantageous as it causes the major highways to pass through the city. Additionally,

the Ring Road circulates the city and ties all major roads and economic activities together. Hael is also situated on the new 1,250 kilometres long railway line, starting from Al Qurrayat through to Al Jouf, Hael, and the Al Qassim Regions, and terminates in Riyadh. This unique spatial importance provides a comparative advantage for the region, and the city of Hael, in terms of economic activities.

The other major infrastructure is the regional airport located approximately 8 kilometres towards the South, which acts as a major connector and economic driver.

Spatially, the distribution of economic sectors is dispersed across the city. Small-scale economic activities and mixed-use areas are agglomerated mainly in the city centre along the King Abdulaziz Road, in addition to the ones located on the Southwest of the Ring Road. On the opposite side towards the North lies the university, industrial areas, railway station, and major agricultural operations. On the Eastern side of the city, the major economic sector is industrial operations.



Vacant land inside the Ring Road



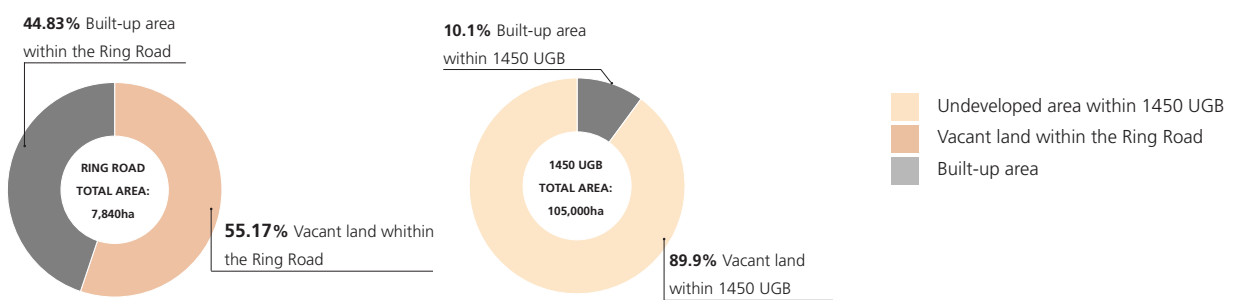
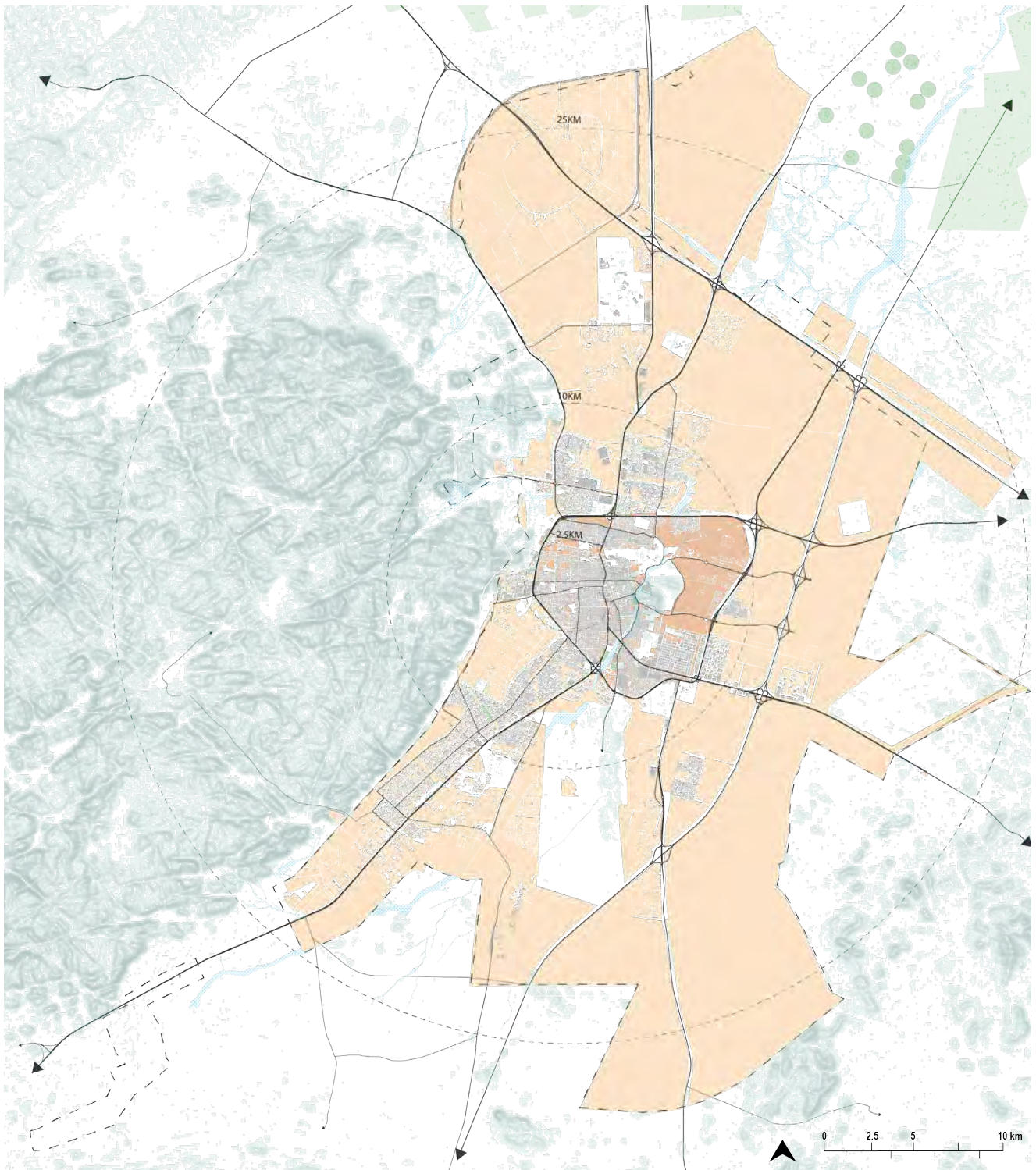


Fig. 29. Vacant land and undeveloped area



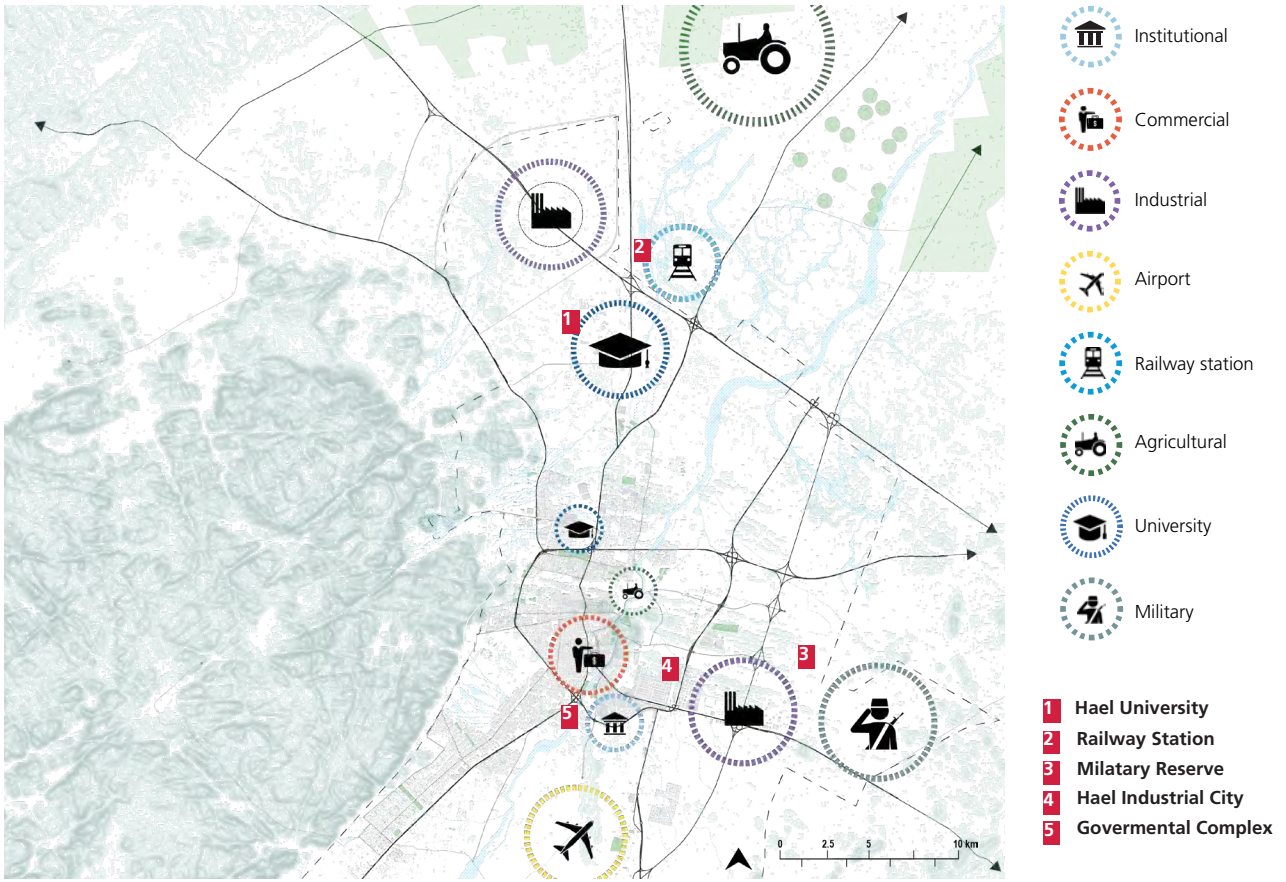


Fig. 30. Economic nodes and network



Hael City and Al Samara Park aerial view





*Vernacular architecture at the city centre*





#### 4.2.2 Environmental and topographic elements

Hael is a major agricultural hub within the Kingdom of Saudi Arabia as the city is known for producing grains, dates, and fruits. Hael is divided into two halves, by the Wadi Ader that runs North-South, and as a result, the wadi is the primary water source for the city. Other dominant natural features of the city are the Al Samara Mountains on the East and the Aja Mountain range on the West side.

As in all cities in across the Kingdom, water is a scarce resource, and it should be managed with the best practices available. Environmentally-friendly infrastructure, such as waste management and water recycling should be encouraged and supported by the city.

The wadi network is the primary water source of the city; however, due to the current development trends, multiple urban systems are at risk of flooding. For instance, 29% of the city roads are at risk of flooding, in addition to 24% of the built-up area. Proper guidelines need to be in place to preserve water sources as well as controlling development in areas that are exposed to flooding. Smart regulations and enforcement would also control the capital cost of flood-related events if dealt with from an early stage.

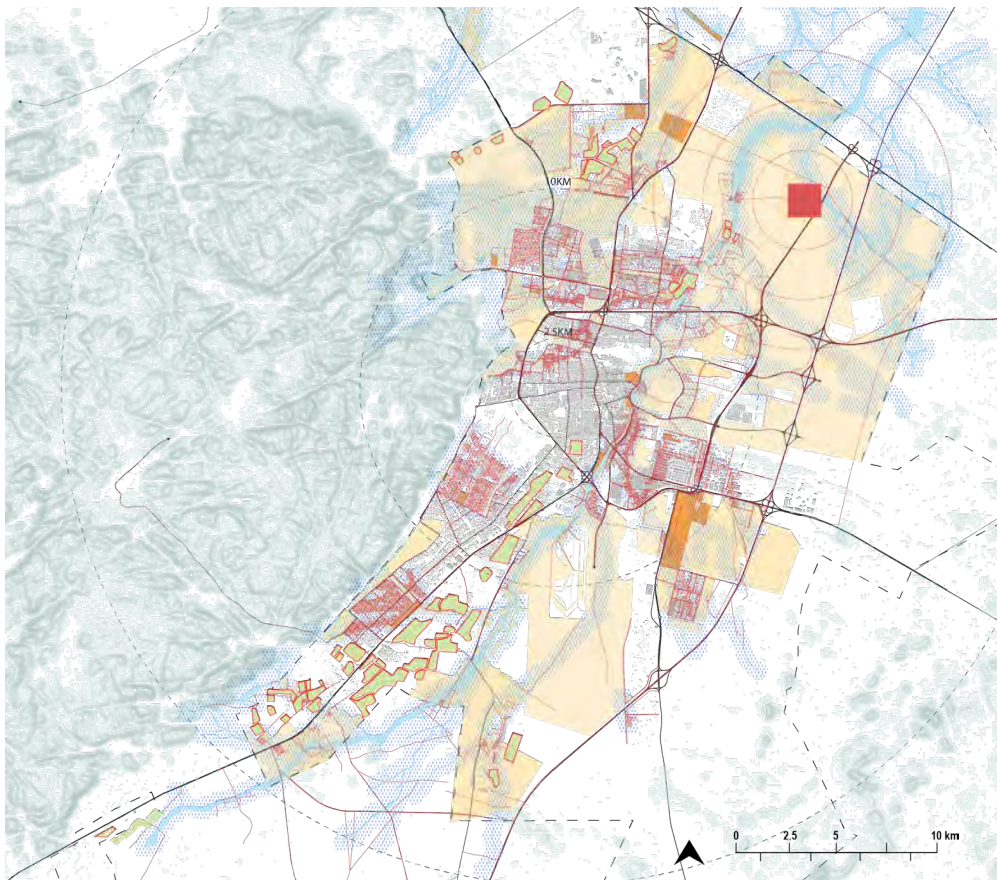
Similarly, the agricultural lands that are within the city limits are facing a risk of encroachment by the urban expansion. These lands should be protected and preserved, being both the economic drivers and identity of the city. Equally and related, Wadi Ader should be protected from development encroachment, and adequate development buffers should be employed and enforced by the city. Such regulations are needed to maintain and support the local economy as well as the quality of life for citizens.

Currently, there is a shortage of open spaces within the city, even though major wadis are crossing the city and providing potential for establishing a network of open spaces and parks. This network needs to continue expanding, particularly into the dense urban fabric to give the population access to open spaces. Such a network of green spaces will not only contribute to the health and wellness of the people but to all the costs of operating the city, for example, reducing the heat island effect, permeable surface for water absorption, etc.



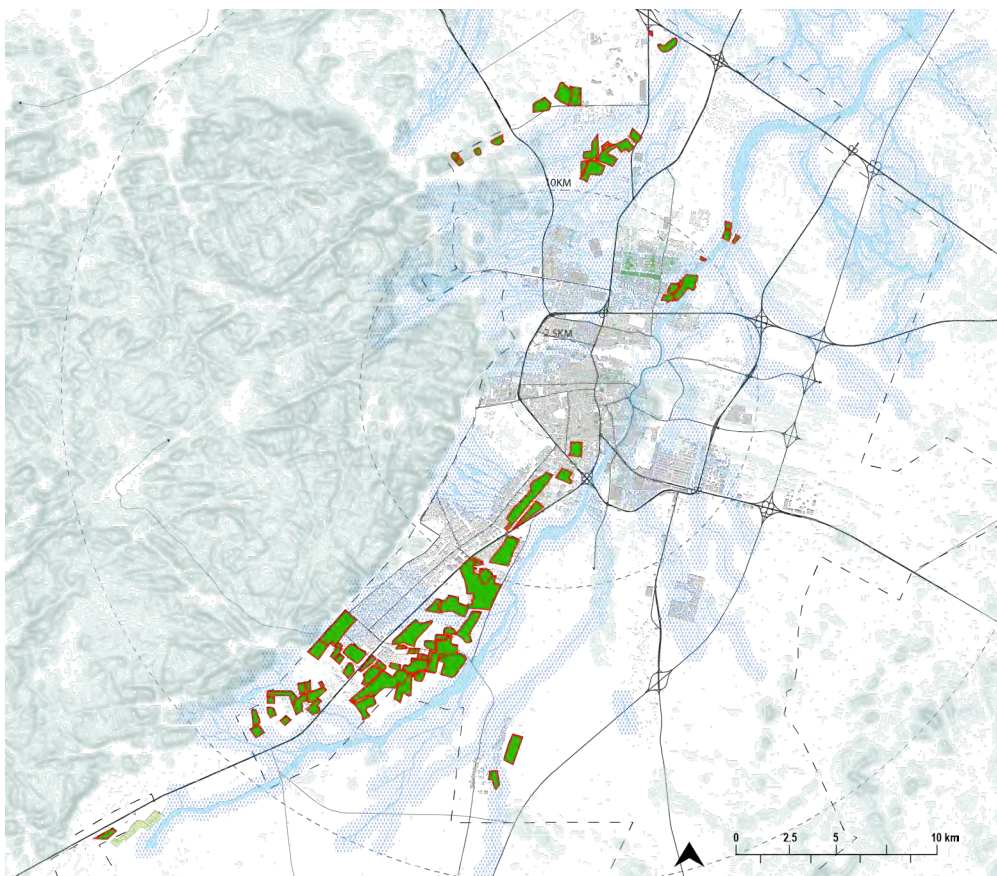
Landscape around Hael





- Existing built-up at flood risk
- Future development at risk
- Existing built-up
- Future built-up
- Existing roads at flood risk
- Existing road network
- Wadis
- Potential buffer zone approx. 100m (to be determined by flooding analysis)
- Sewage treatment plant
- Slope
- 1450 UGB

Fig. 31. Water management and sewage treatment



- Existing agriculture - sprinkler system
- Existing agriculture - drip system
- Existing agricultural land at risk of encroachment
- Pasture
- Wadis
- Potential buffer zone (approx. 100m)
- High slope
- 1450 UGB

Fig. 32. Blue and green networks



### 4.2.3 Movement and accessibility

Hael has the advantage of major highways passing through the city. Highway 70 connects the Southwest and the Northeast of the region and country, while Highway 65 connects the Southeast and the Northwest of the region and country, and Highway 400 runs from the city centre towards the East.

These three highways feed directly into the city's ring road and central urban fabric. The existing ring road supplements the accessibility and efficiency of vehicular movement across the city. It also provides a practical boundary for intensification of the fragmented and underdeveloped land within its circumference.

The regional railway station is located approximately 20 kilometres North of the city centre while the airport is located approximately 8 kilometers towards the South. Hael Regional Railway Station in the Northern Railway Project was opened in 2018. It originates from Riyadh and passes through Majmaah, Al Qassim, Hael, Al Jouf, and ends in Al Qurayyat, covering 2,750 kilometres. It is the longest continuous railway route for passenger and freight transport within the Kingdom. However, the distance from the city centre renders it ineffective as a structuring element and focal point for development.

Within the city, no public transportation options exists. The population currently relies solely on private car ownership. There is a small fleet of taxis and ridesharing options available as an alternative or to supplement to private car ownership.

There is a plan proposing a Bus Rapid Transport (BRT) and a Bus Network within the city. The BRT proposal presents three BRT lines, two lines running North-South, and the third running along the Ring Road. The intended BRT network, if fully implemented will serve approximately 139,433 residents within a 10-minute walking distance from the planned stations.

There will be eight bus lines serving the city, covering a total of approximately 103 kilometers with 154 stops. The bus network will be anchored by a central bus station located in the centre of the city, within the Ring Road.

Unique to Hael, is the integration of "Park and Ride" stations in the public transportation plan and network. "Park and Ride" stations will be located on the outer edges of the city, and these stations will have an impact on the reduction of vehicular congestion, which in turn, will minimise driving time for users, as well as have associated environmental benefits.

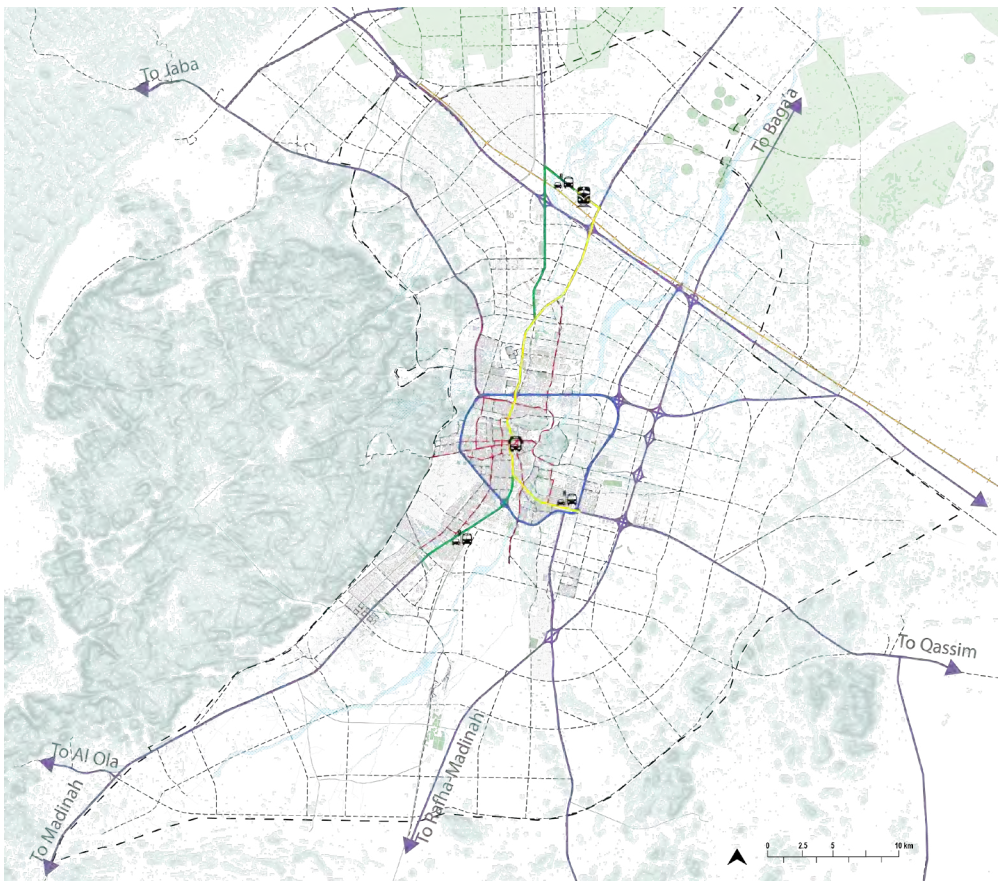
Within a 10-minute walking distance, the city centre can be accessed by 6.3% of the population or 201,669

residents. Compared to other cities of the same size, this is a low number and speaks to underdeveloped pedestrian connectivity of the built-up area and a low-density urban structure. Pedestrian routes should be designed and planned to increase and increase accessibility to the city centre and other points of interest across the city. A well-developed pedestrian accessibility plan encourages economic activities, improves health and wellness of citizens, and has a positive impact on the environment.

Similarly, the accessibility analysis to public facilities, such as education and healthcare, critical for citizens well being and quality of life, shows very positive results. Over 96% of the population is located within a 10-minute walk to an educational facility, and over 79% within a 10-minute walk to a healthcare facility.

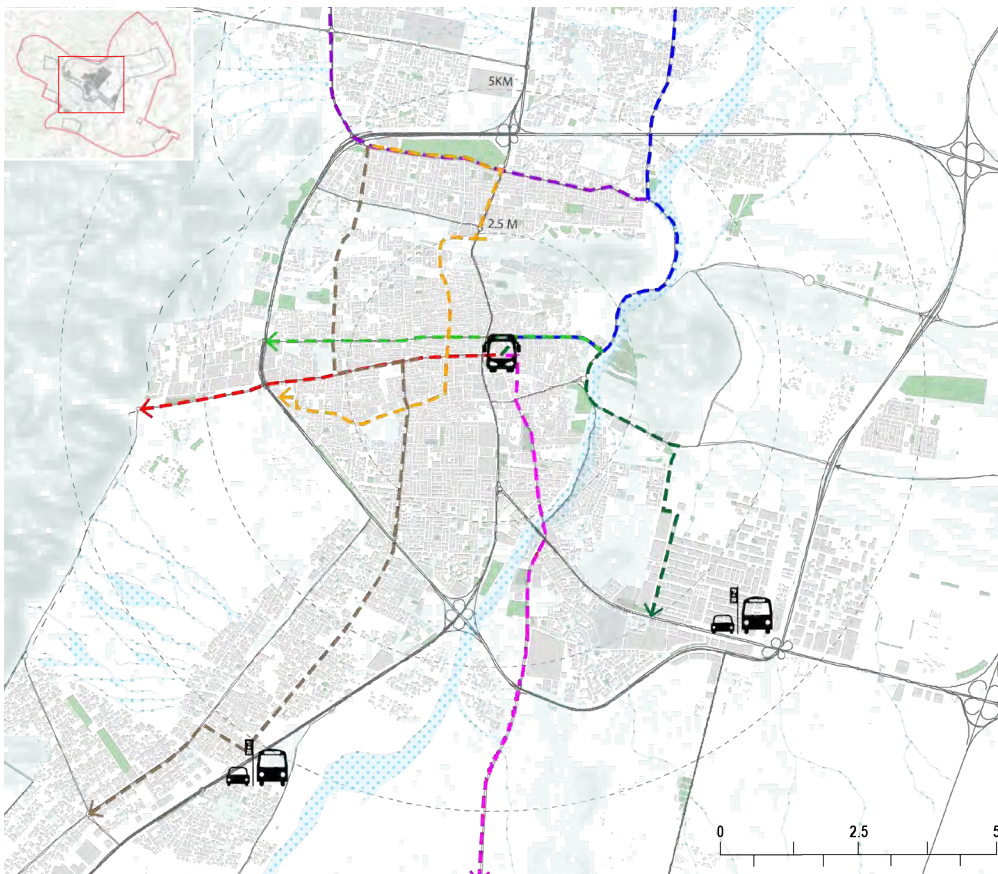
Compared to many other Saudi cities, Hael has a very high walkability rate, an advantage the city should continue to build on, and develop sensible strategies to support walkability while the city grows. Another consistent advantage that can support the shaping of a walkable and pedestrian friendly city for Hael, is the moderate climate, which makes walking tolerable for most of the year, especially when compared to other cities in the Kingdom. As such, Hael citizens are potentially able to spend extended hours outdoors, especially if a well designed public realm is shaped in a way that supports this lifestyle.





- Existing highways and regional roads
- Existing major roads
- Proposed major roads
- 1450 UGB
- Bus Rapid Transit Line 1
- Bus Rapid Transit Line 2
- Bus Rapid Transit Line 3
- Proposed bus routes
- Regional railway
- Regional railway station
- Central station
- Park and ride

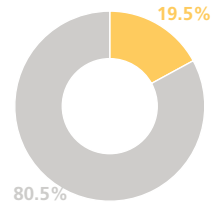
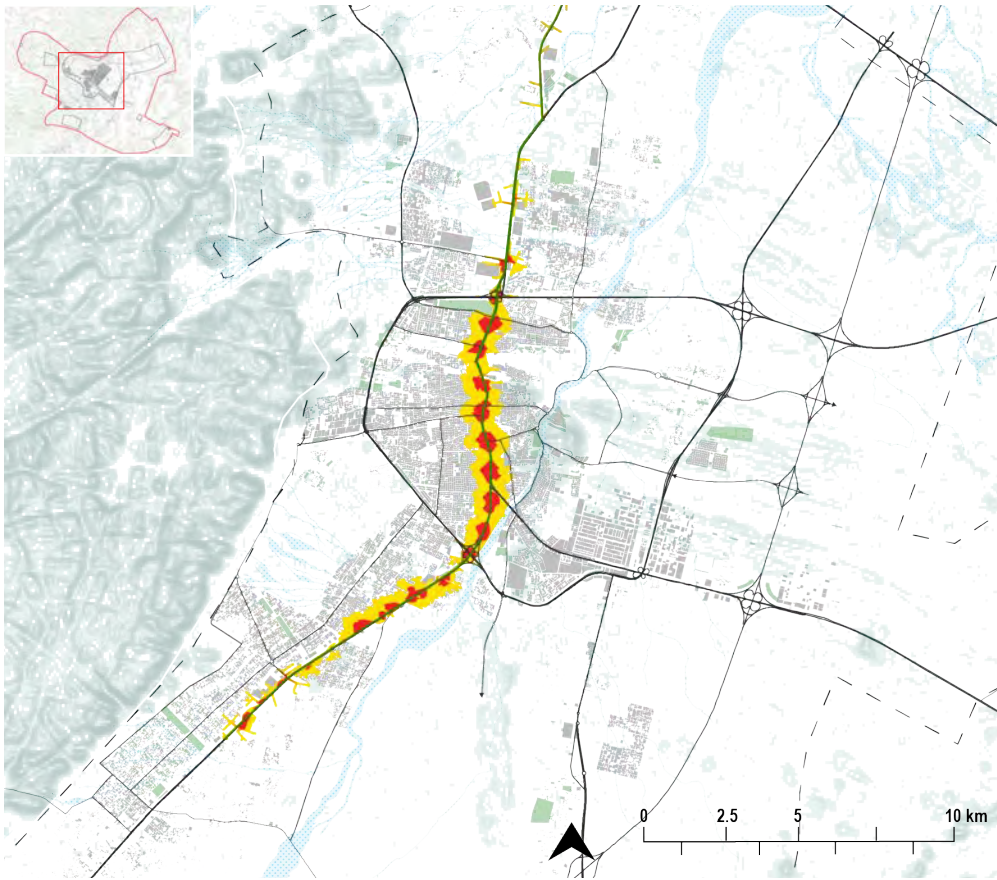
Fig. 33. Proposed road network and public transportation by Amanah



- Existing highways and regional roads
- Existing major roads
- Proposed major roads
- 1450 UGB
- Bus Rapid Transit Line 1
- Bus Rapid Transit Line 2
- Bus Rapid Transit Line 3
- Proposed bus routes
- Regional railway
- Regional railway station
- Central station
- Park and ride

Fig. 34. Proposed bus network by Amanah





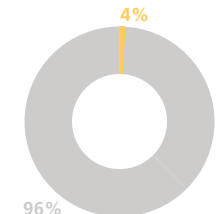
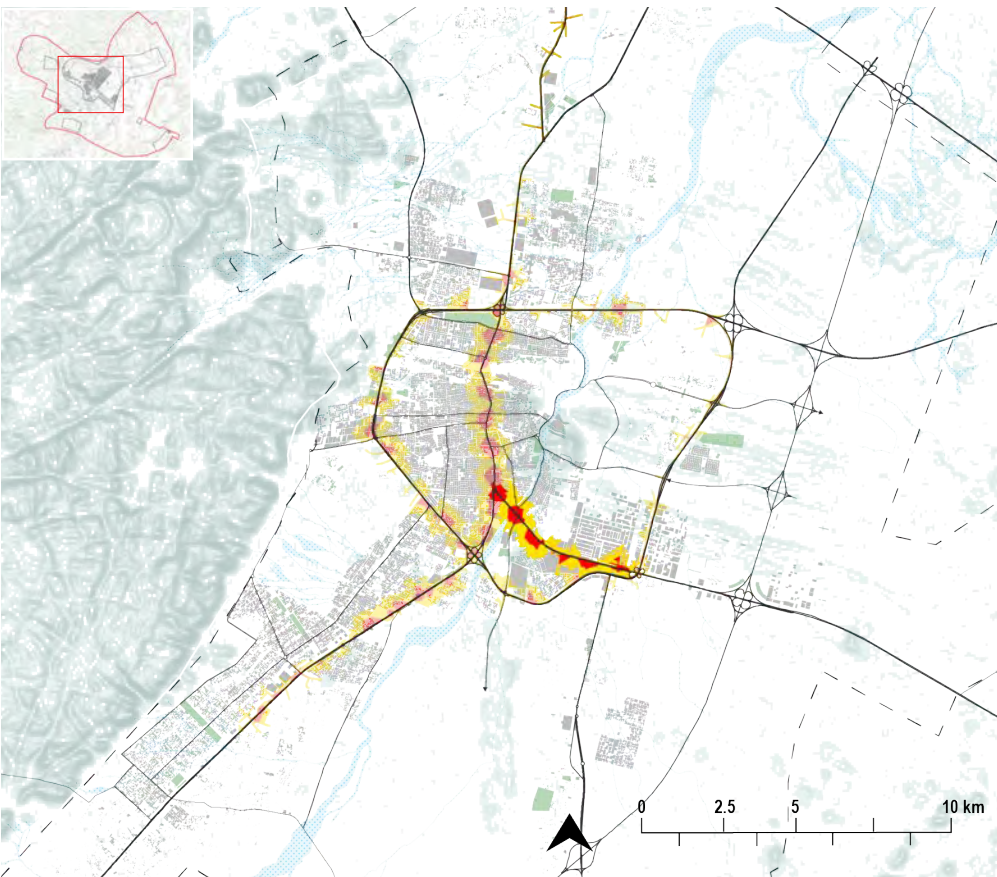
**Accessibility to BRT Line 1 within a 10-minute walk**

**BRT 1**  
32.18 km

**Number of Stops**  
32

**People served by BRT Line 1**  
5-minute walking distance  
34,864 10%  
10-minute walking distance  
67,309 19.5%

Fig. 35. Proposed BRT Line 1 by Amanah



**Accessibility to BRT Line 2 within a 10-minute walk**

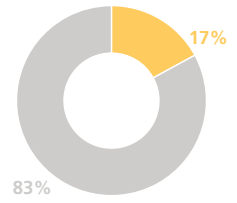
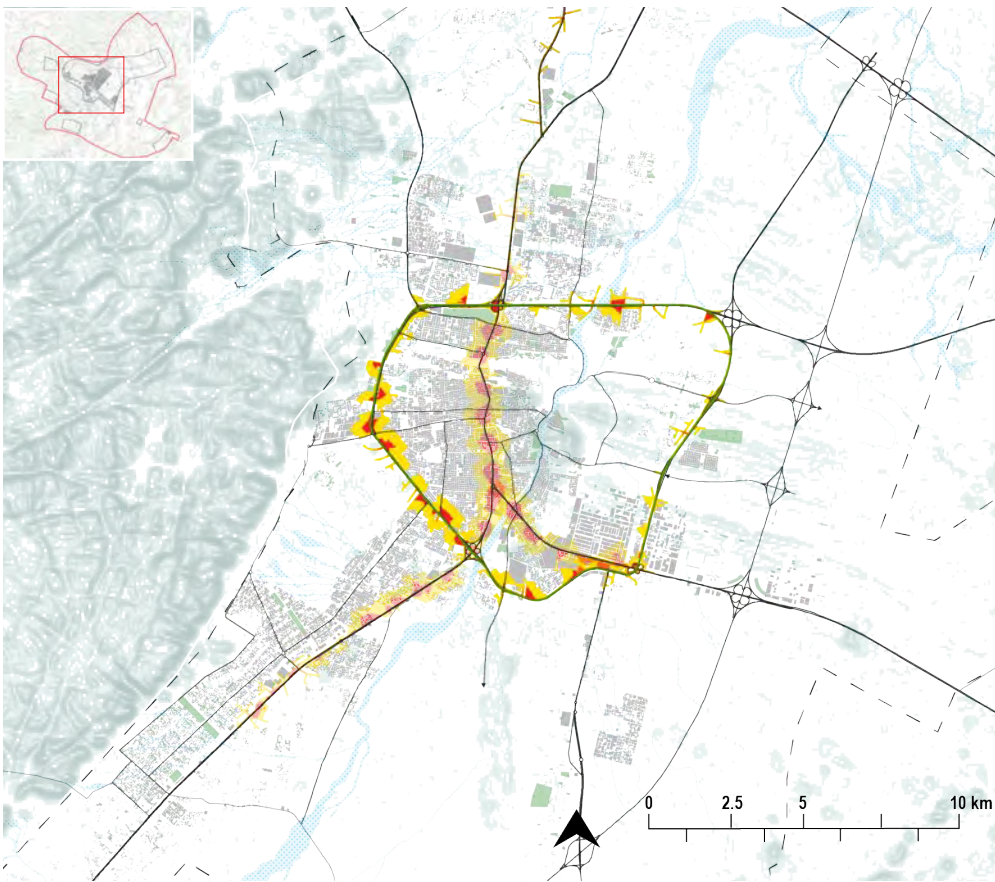
**BRT 2**  
5.55 km

**Number of Stops**  
5

**People served by BRT Line 2**  
5-minute walking distance  
6,368 1.8%  
10-minute walking distance  
13,626 4%

Fig. 36. Proposed BRT Line 2 by Amanah





Accessibility to BRT Line 3 within a 10-minute walk

**BRT 3**  
36.14 km

**Number of Stops**  
36

**People served by BRT Line 3**  
5-minute walking distance  
37,208 10.8%  
10-minute walking distance  
58,498 17%

Fig. 37. Proposed BRT Line 3 by Amanah



© FSCP

Hael Castle

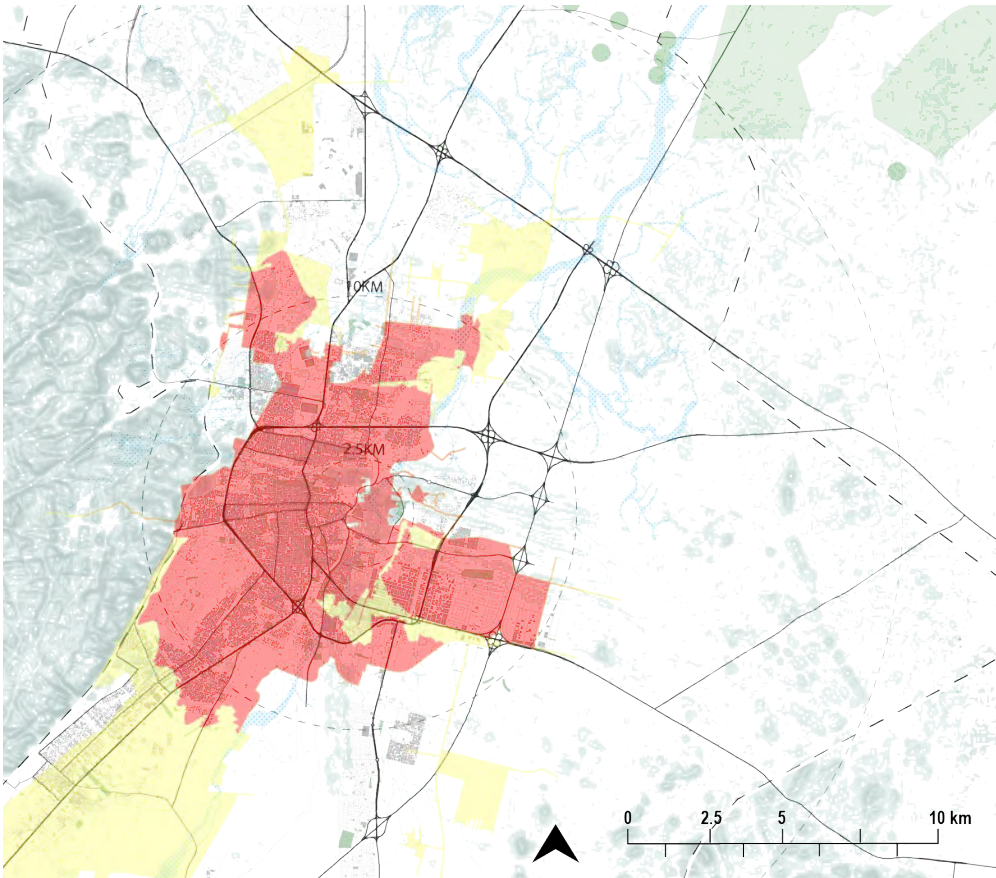


Fig. 38. Driving accessibility to the city centre

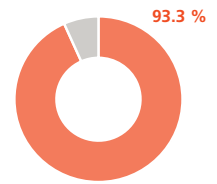
**DRIVING ACCESSIBILITY TO THE CITY CENTER**

**201,169 - 58%**

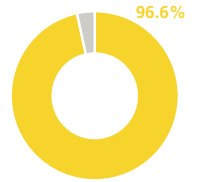
15-minute driving distance

**249,306 - 72%**

30-minute driving distance



15-minute driving distance



30-minute driving distance



**17.9% of the population has walking accessibility to the city center**

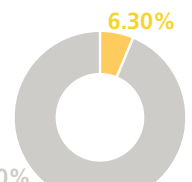
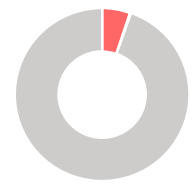
**WALKING ACCESSIBILITY TO THE CITY CENTER**

5-minute walking distance

**18,548 - 5.39%**

10-minute walking distance

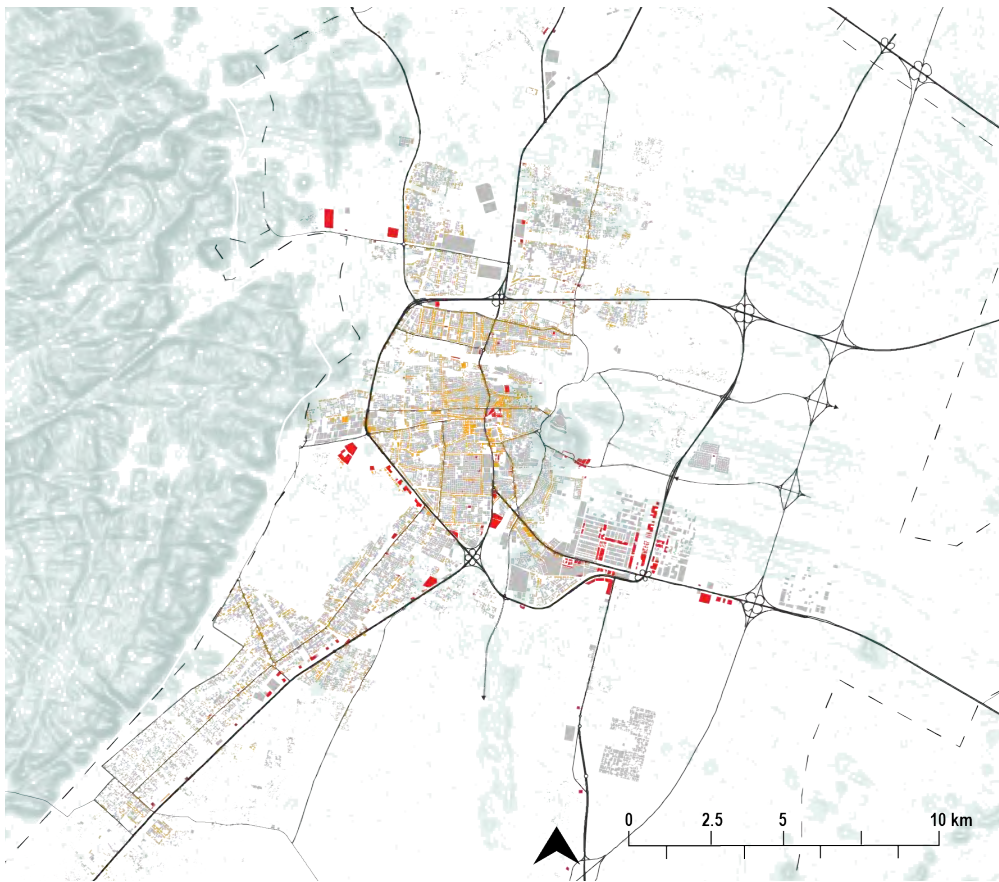
**21,669 - 6.30%**



93.70%

Fig. 39. Walking accessibility to the city centre





**MIXED-USE AND COMMERCIAL LAND USE DISTRIBUTION**

Existing commercial areas in Hael

231 ha - 1.32 %



559 ha - 3.19 %



UN-HABITAT Standards for Prosperous City

20% to 40% commercial



40% to 60% mixed-use



Fig. 40. Mixed-use and commercial land use distribution



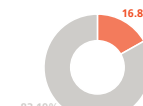
**PEOPLE SERVED BY HEALTH AND EDUCATIONAL FACILITIES**

5-minute walking distance to health facilities

57,835 PP - 16.81 %

10-minute walking distance to health facilities

78,148 PP - 22.71 %



83.19% 5-minute walk to health facilities



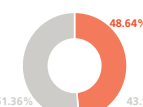
77.29% 10-minute walk to health facilities

5-minute walking distance to educational facilities

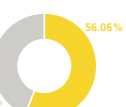
167,379 PP - 48.64 %

10-minute walking distance educational facilities

192,916 PP - 56.06 %



51.36% 5-minute walk to educational facilities



43.94% 10-minute walk to educational facilities

Fig. 41. Walking accessibility to health and educational facilities



### 4.3 Urban Density Scenarios

Crosscutting the diagnosis of the current urban conditions and the approved/submitted projects proposals, FSCP scenario-analysis for increased urban density. First, the current condition of the city has been examined to indicate conditions within a benchmark density that will form a comparative measure against which alternative scenarios can be assessed. Secondly, a scenario has been developed in line with projections based on approved planning instruments. Finally, an alternative scenario has been developed in which the density distribution meets UN-Habitat recommendations.

This UN-Habitat scenario is based on the Five Principles for Sustainable Neighbourhood Planning, which are as follows:

- Adequate space for streets and an efficient street network: The street network should occupy at least 30% of land and at least 18 kilometres of street length per square kilometres,
- High density: At least 15,000 p/km<sup>2</sup>, that is 150 p/ha or 61 p/acre,
- Mixed land use: At least 40% of floor space should be allocated for economic use in any neighbourhood,
- Social mix: Availability of houses in different price ranges and tenures in any given neighbourhood to accommodate different incomes; 20% to 50% of residential floor area should be reserved for low-cost housing, and each tenure type should not exceed 50% of the total,
- Limited land use specialisation: This is to limit single function blocks or neighbourhoods; single function blocks should cover less than 10% of any neighbourhood.

#### **Current Condition**

The current population in Hael amounts to 344,111 people with an average density of the built-up area at 17,526 hectares is at a modest 19.63 p/ha, and is well below the UN-Habitat recommended density of 150 p/ha.

#### **Scenario 1: The Hael Plan**

Using the current population growth rate of 3.6%, by the year 2030 the population is estimated to be approximately 586,000. The approved Hael Land Use Plan covers an area of approximately 105,000 hectares. If the plan is completed by 2030, it would result in an extremely low density of approximately 5.6 p/ha.

#### **Scenario 2: UN-Habitat Recommendations**




Based on the UN-Habitat recommendation, the city only requires an area of 3,907 hectares for the same amount of people, which is less than 5% of the proposed future built-up area. By considering the 4,326 hectares of vacant land that exist in the current built-up area, this scenario shows that it is not necessary to grow outside the current urban footprint and suggests strategic interventions to support policies that will facilitate the densification of existing urban areas, thus provide the citizens with maximum benefits for an improved quality of life at an affordable cost. The UN-Habitat recommended density of 150 p/ha should be used as a model. The advantages of a higher density are numerous, for example, it lowers costs of the necessary infrastructure, streets, sewers, etc. From a design perspective, dense urban scenarios, and compactness of the buildings offer shading to pedestrians on the streets as well as façade shading. It is more affordable for the city to provide services as the cost is shared with many p/ha.








**CURRENT CONDITION**



population  **344,111**  
 built-up area  **17,526 ha**  
 average density on built-up area  **19.63 p/ha**





**SCENARIO 1: THE HAEI PLAN**



population  **586,152**  
 planned built-up area  **105,000 ha**  
 average density on planned built-up area  **5.6 p/ha**

**SCENARIO 2: UN-HABITAT RECOMMENDATIONS**



population  **586,152**  
 built-up area needed according to UN-Habitat recommendations  **3,907 ha\***  
 vacant land needed to accommodate population growth  **1,613 ha**  
**average UN-Habitat recommended density  150 p/ha**

\* 3.7% of the built-up area proposed by the Hael Plan



# 5

## STRATEGIC DIAGNOSIS



## 5.1 Identifying and Defining Main Strategic Issues

During the evidence-based and cross-scalar analysis, four main issues affecting sustainable urban development in Hael were identified. These issues represent the strategic framing of a complex diagnosis, synthesised through four conceptual lenses. These lenses are firstly defined in their conceptual nature, and later contextualised by an examination of their spatial manifestation in Hael, at different scales.

### 5.1.1 Unbalanced growth and development patterns

This often happens when a city grows rapidly, presenting a widespread sprawl phenomenon that manifests in inharmoniously balanced developments across its territorial extension. Dysfunctionalities in urban management, both institutionally and experientially, are brought to light. In this scenario, the city demonstrates low-density and does not perform effectively, its services and facilities are not well-balanced in distribution and accessibility, which results in inequitable citizenry experience. This condition additionally makes the provision and maintenance of basic services and transport infrastructure costly and challenging. In the case of Hael, the main factor for this unbalanced development pattern is the amount of vacant land, while the city is expanding its urban areas to the North and the South.



[ SPRAWL ]

### 5.1.2 Division and lack of cohesion in city structure

In cases of unbalanced growth, sprawl, and inharmonious development, forms of non-contiguous and non-cohesive city structures tend to co-exist, without integration. Pockets of leapfrog development are widespread. Undeveloped land, overdimensioned infrastructures and/or large extensions of monofunctional developments, hinder the continuity of the city's fabric, and therefore, its social, economic, and ecological performance. As in cases of sprawl, this renders the equal provision of infrastructure and services to the entire city difficult and costly. The fragmentation phenomenon also spatially affects the social dimension of sustainability, creating urban inequalities and segregation in areas that lie at a distance to the largest hubs, and become isolated by a discontinuous urban landscape. In Hael, it is evident that the over-dimensioned roads infrastructure and the lack of integration of the wadi systems with the urban fabric are the major factors contributing to the shaping of divisions in the city's fabric, producing fragmentation and undermining the overall cohesion of the urban structure.



[ FRAGMENTATION ]

### 5.1.3 Socio-ecological and economic imbalance

Each city is formed by complex social, economic and ecological systems. In a sustainable city, the balance between these three interrelated systems is maintained and enhanced over time. If any one system is given continued preference over the others, over time, a structural imbalance will emerge that alters the sustainable trajectory of the city's growth and development. This misalignment generates an issue in terms of water provision and food security, heavily impacting other socio-spatial aspects of the city's health. Segregation between agricultural lands and the urban fabric is a good example of this condition. The city does not interact with green space and is disconnected from farmlands by a strong boundary. A resilient city would integrate its natural and built elements, ensuring their balanced coexistence. In Hael, the wadi network, mountains, and agricultural lands represent a potential source of economic growth and social development, but they currently lack integration amongst them, and with the overall urban fabric.



[ LACK OF RESILIENCE ]

### 5.1.4 Endangered historic and vernacular urban patterns

Planning regulation systems in Saudi Arabian cities are currently under development within a unified framework. One of the challenges that will need to be addressed concerns the need for a comprehensive set of criteria that distinguish historical vernacular urban patterns from informal, unplanned settlements. In the absence of such a regulatory framework, historical neighbourhoods in Saudi cities are being erased to make space for new developments. Not only does this endanger heritage and disrupt the sense of identity tied to a historically stratified urban environment, but these new developments additionally disrupt the connectivity to the surrounding urban fabric, whilst alienating themselves to the neighbouring building typologies and established patterns. The introduction of appropriate heritage protection rules for articulated portions of the urban patterns, extended to streetscapes and fabric layout, will reduce risk to traditional urban layouts. These traditional layouts are characterised by narrow alleyways, that excel climatically in terms of passive energy performances and function as vibrant public spaces that generate social value. The historical farmlands with their farmhouses along the wadi in the Northeast of the city demonstrate a typical urban pattern, which should be preserved and promoted as an urban cultural heritage of Hael.



[ HERITAGE LOSS ]





© FSCP

View from the Hael Castle





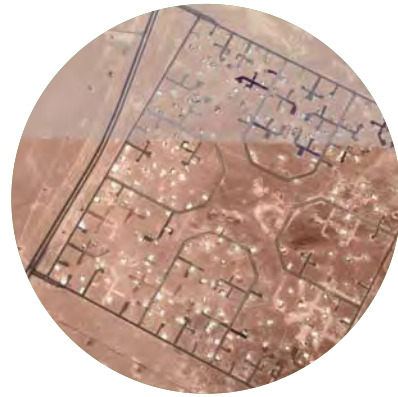
## 5.2 Analysing Hael's Four Issues in Depth

### 5.2.1 *Hael's unbalanced growth and development patterns*

The rapid urbanisation in Hael and uncontrolled urban sprawl results in inefficient urban management and an elevated financial cost for the Government in terms of delivery of infrastructure and public services. In a sprawled city, the cost of providing access to electricity, sewage, and clean water is higher than in a compact city; and the maintenance capacity is also affected as infrastructure networks are more widespread. Development outside the consolidated city encourages sprawl and defines uneven and unbalanced development patterns. The low density of population does not compensate the costs through an ordinary revenue system.

Sprawl is not the only factor impacting the city's development pattern, the high amount of vacant land within the consolidated city also contributes to it. In the case of Hael, the main factor for this unbalanced development pattern is the amount of vacant land. The vacant land within the current urban footprint inside the ring road is approximately 7840 ha, which corresponds to almost half of the total land inside. This amount of land could easily accommodate more than a million inhabitants if the recommended density of 150p/ha is applied. This figure is indicative of the fact that the city needs to focus on punctual infill strategies of densification rather than promoting new developments on the outskirts of the city.

Currently, Hael is expanding their urban areas mainly to the North and in the South with residential settlements. These new developments are detached to the existing fabric and are breaking the continuity of the urban form. The aftermath of this is that the vacant land in the city has not been developed, perpetuating the condition of having spaces without activity and with no public use in the heart of the city, where most of the activity is located. This interrupts the development of connected and inclusive neighbourhoods.



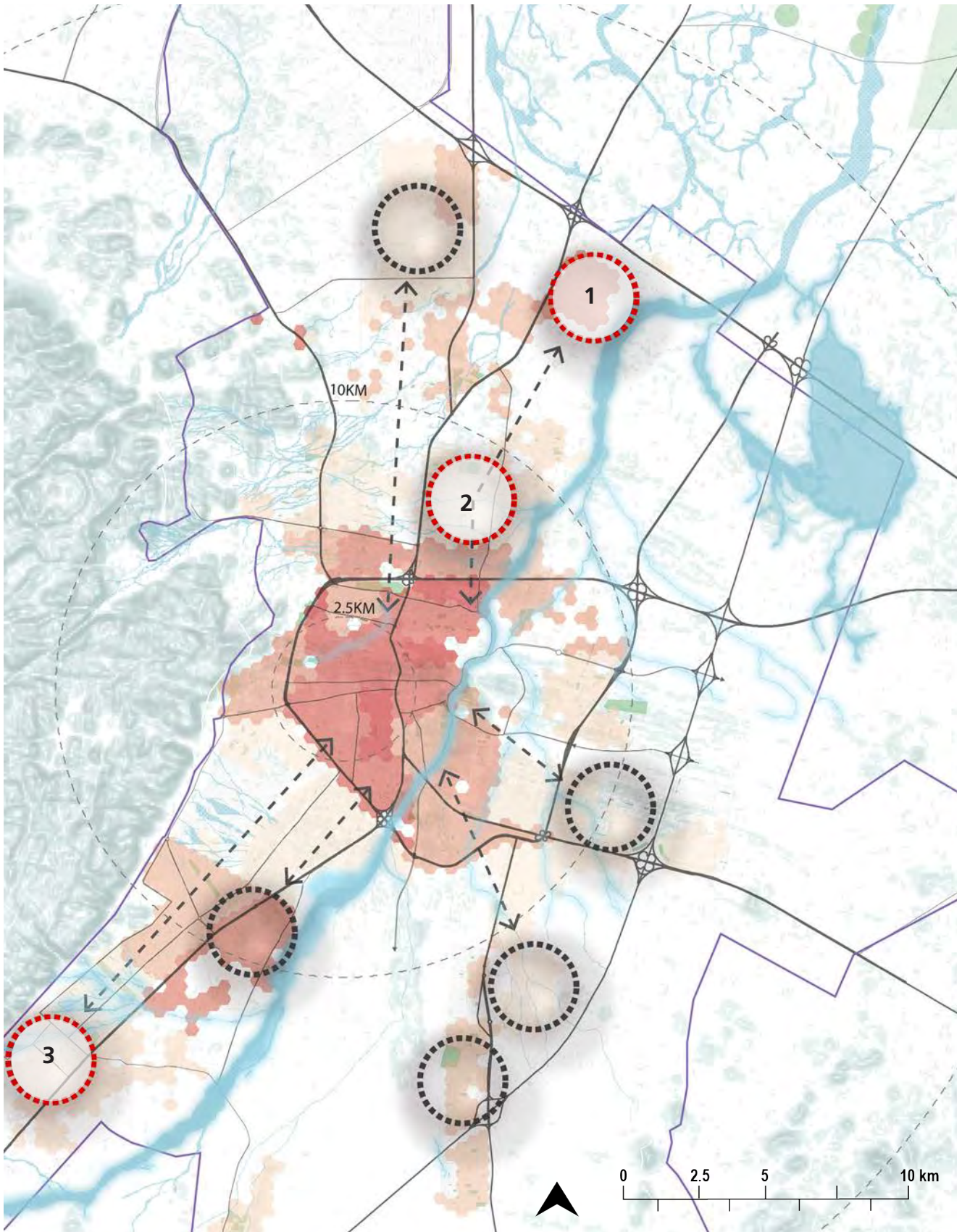
1. *Development on the city outskirts, limited access to infrastructure (water, sewage, electricity) results in economic pressures on the municipality.*



2. *Residential areas with low density promotes the dependency on private automobile.*



3. *Monofunctional developments with low density creates inequality between residents.*




 Urban sprawl areas

Fig. 42. Hael's unbalanced growth and development patterns





### 5.2.2 Division and lack of cohesion in Hael's city structure

The structure of the city suffers from severe fragmentation due to large portions of monofunctional and disconnected land uses, and the large undeveloped areas inside the urban fabric. Between the core and the periphery of the city where the low-density residential areas exist, there is an apparent imbalance between various land uses. The reason of fragmentation in the city structure can be traced back in Hael's topographic constraints, such as the wadis and the mountains, but more importantly in the sprawled developments inside the current urban footprint and the segregation of large monofunctional developments.

The city is fragmented into several disconnected low-density residential areas, which disturb the integration and connection of the city's core neighbourhoods. This hinders the development of an inclusive, dense, and well-connected city. The national guard, the industrial areas in the South and the East of the city, the segregated university campus further out of the city, and monofunctional low-density residential settlements are the major factors that contribute to this division in Hael. In particular, the location of the university campus, a far distance from the city centre, impacts the liveliness of the campus, as well as the city.

Furthermore, another reason for the lack of cohesion inside the city is the transportation network. For instance, the Highway 70 crossing the city from the South to North, divides the city into two massive halves and acts as a separator in the city structure. This results in over-dimensioned street crossings throughout the city. Similarly, the railway station situated in the North and the airport in the South are not well integrated into the city's structure.



1. *Fragmentation in the city structure due to over-dimensioned highways and intersections*



2. *Lack of integration due to natural features such as mountains and wadis*



3. *Over-dimensioned roads infrastructure dividing urban fabric*

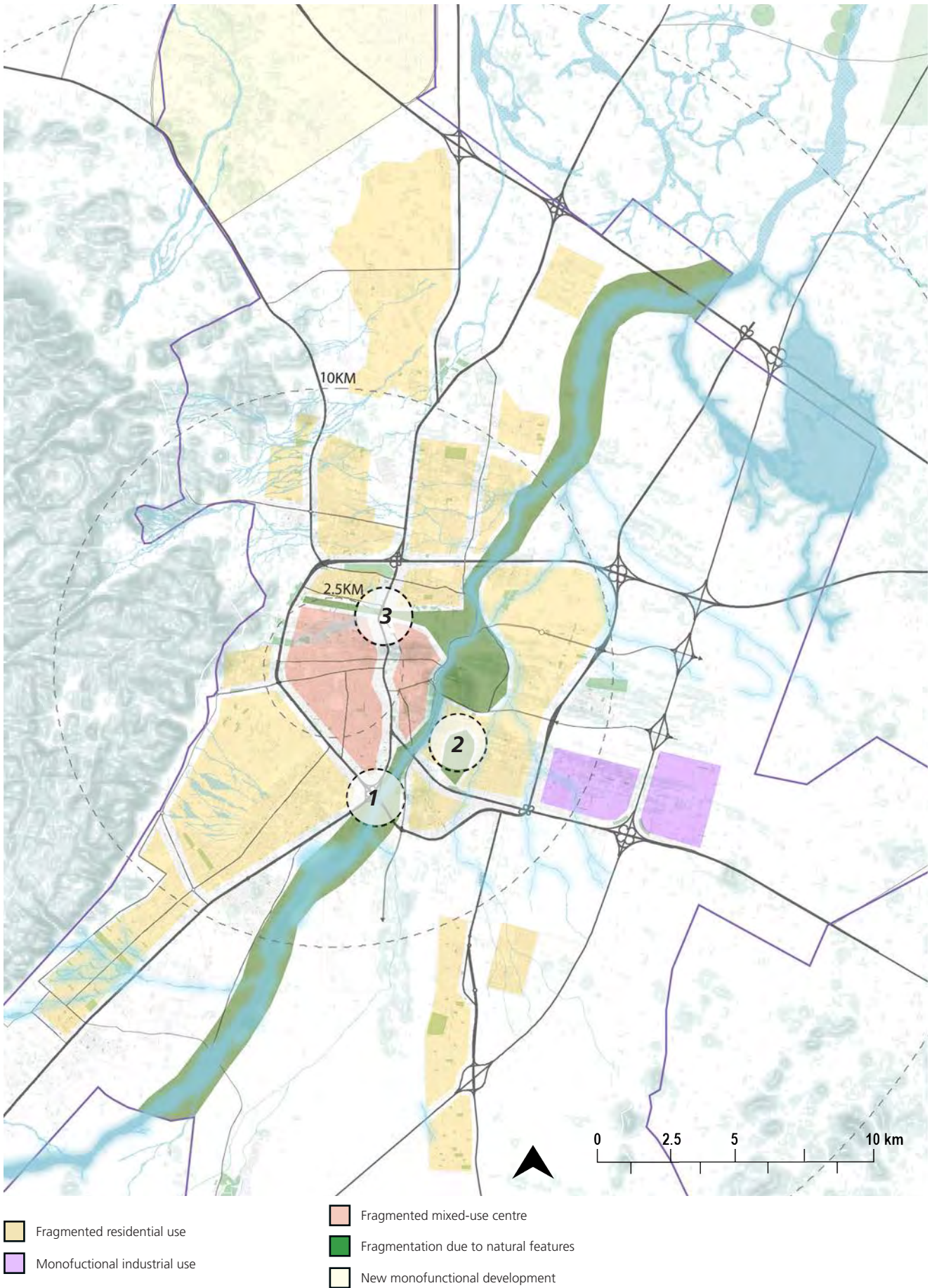


Fig. 43. Division and lack of cohesion in Hael's city structure





### 5.2.3 Socio-ecological and economic imbalance in Hael

Cities are formed by complex social, economic, and ecological systems. In Hael, there is a disconnection and inequality between these dimensions. The city needs to be understood as a complex system of relations between the productivity of the economic sector related to the urban infrastructure, and to the environmental services, and natural ecosystems. The agricultural network and the public space represent a potential source of economic growth and social development. A green economy approach provides a framework whereby decisions and actions can promote resources efficiency, effective environmental management, and a better standard of living for residents. Hael city is situated on a complex network of wadis that results in frequent flooding. Due to the current development trends, multiple urban systems are at risk of flooding, including 29% of city roads and 24% of built-up areas, in addition to the farmlands inside the 1450 UGB. Therefore, flood protection boundaries have to be sufficiently established throughout the city to control development in areas that are exposed to flooding, besides setting up proper guidelines to preserve water sources.

Hael has dispersed small-scale agricultural land within the current urban fabric, on the South and Northeast of the city, along the wadis. These agricultural lands are at risk of encroachment due to rapid urbanisation and degradation of the supportive natural resources. To ensure socio-ecological and economic balance, preserving agricultural land and integrating into the other land uses during the growth process of the city gains vital importance. Existing green spaces inside the urban fabric have no relation or link with the farm, or to the blue network, which comprises of the wadis and watersheds. Due to the disconnection, there is an imbalance between the natural resources available and the economic activities that the population performs. Agriculture and tourism should be regarded as leading sectors in the economic development of the region. In conjunction with industrial development, conservation of agricultural land, natural resources, and heritage sites deserve critical attention in order to strengthen their linkage with the urban area. Regarding the blue-green network, Hael has very strong geographic features, such as the Aja Mountain Range lying on the West of the city, the Samara Mountain located in the centre, and the Wadi Ader running through the city centre. There is a lack of integration between these natural features and the urban fabric. Establishing a green network, by connecting the natural features, will utilise the existing wadis and would have a positive impact on the city's prosperity and enhance vivid urban life, and economy.

The World Health Organization, (WHO) recommends that cities should provide a minimum of nine square metres of open space per person. As the projected population of Hael for the year 2030 is 586,000 inhabitants, 527 hectares of open space should be provided, in order to reach the minimum international recommendations. Aligning the open spaces along the natural wadis can be instrumental in channeling and remedying some of the damage caused by unbridled construction activity. The overall lack of access to green spaces and the spatial misalignment between the green and blue networks of the city have led to a socio-ecological and economic imbalance that must be restored to create a resilient city.



1. Possible negative impact on the aquifer of inadequately planned and built sewage treatment plan



2. Critical assessment of flood risk areas and integration between urban and natural systems



3. Lack of green / open spaces in the city center. No established city-wide green network.



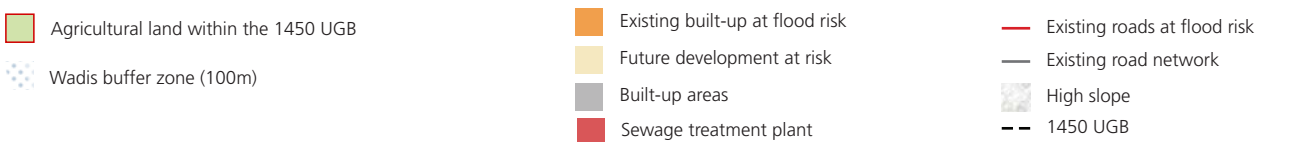
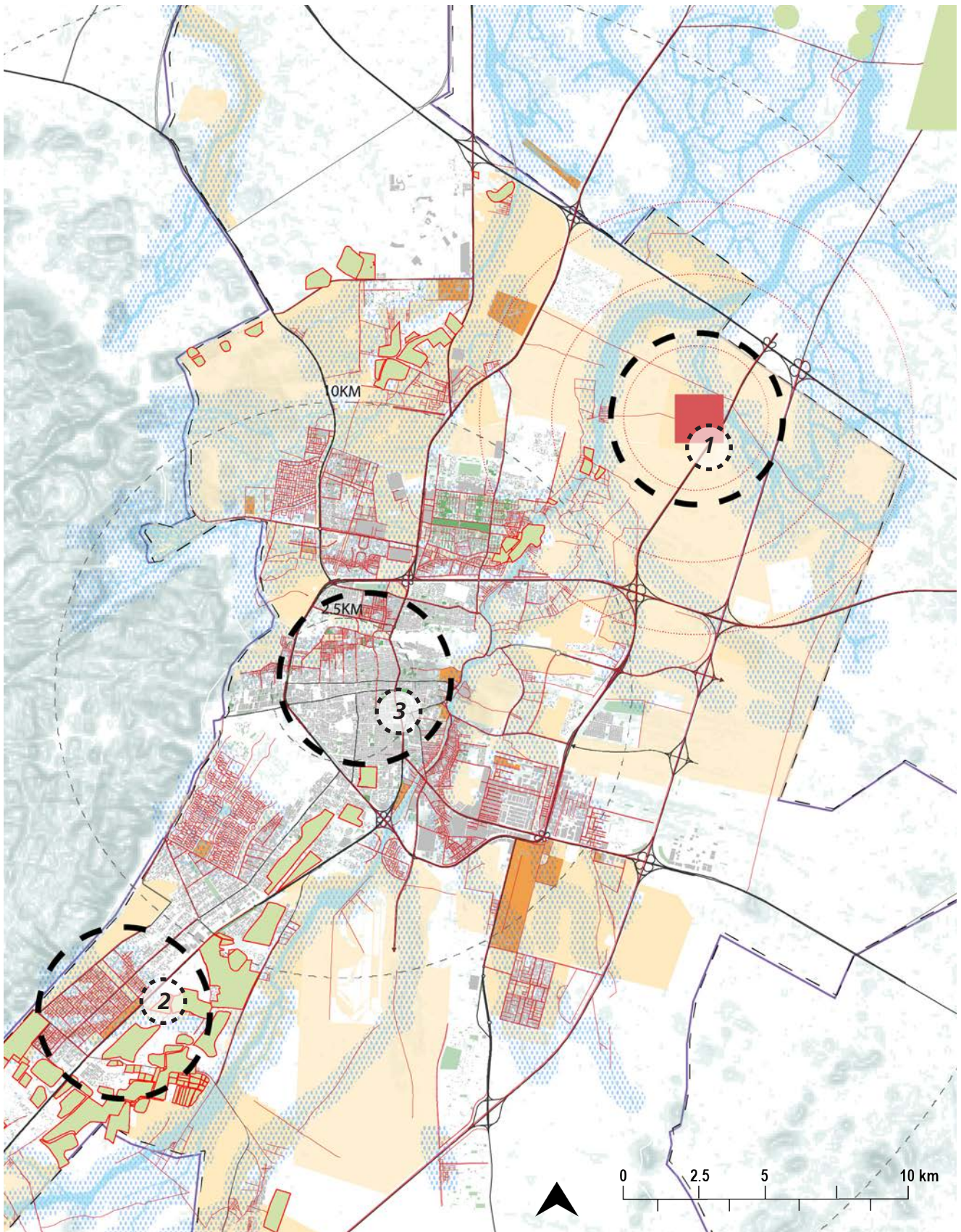


Fig. 44. Socio-ecological and economical imbalance in Hael



### 5.2.4 Hael's endangered historic and vernacular urban patterns

In order to preserve the historic identity of the city, a new regulatory system should be set in place and actively adopted to protect historic and vernacular neighbourhoods. These are the areas where the historical monuments and the urban patterns, as well as the building typologies and the associated social structures, reflect the history of the city, its people, and both a past and present way of life.

In the case of Hael, the city is running the risk of losing its historical farmlands along the wadis, and the part of its identity with it. The farmlands, historical dwellings and landscape settings of these historic patterns tell a story of Hael's history, economy and way of life. It reflects the features of traditional rural architecture that represents an interaction between local structure and vernacular dwellings. Some of these vernacular heritages are threatened with extinction due to the absence of strong preservation policies and actions.

Consequently, the unique urban patterns shaped by the traditional farming activity is endangered by the rapid urbanisation and modernisation trends of the city. This historical pattern should be protected from the pressure of the urbanisation, not only because it serves the identity of the city, but as it also strengthens the blue-green network of Hael.

Additionally, having two UNESCO Heritage Sites and many Islamic antiquities in the Hael Region highlights the city's tourism potential. By strongly connecting the regional heritage sites to the historical monuments, such as Airif Fort in the city centre and other cultural assets of the city would enhance the overall tourism sector and attract related economic investments to the city.



1. *Historic castle in city center needs to be maintained and accessible to visitors. (1)*

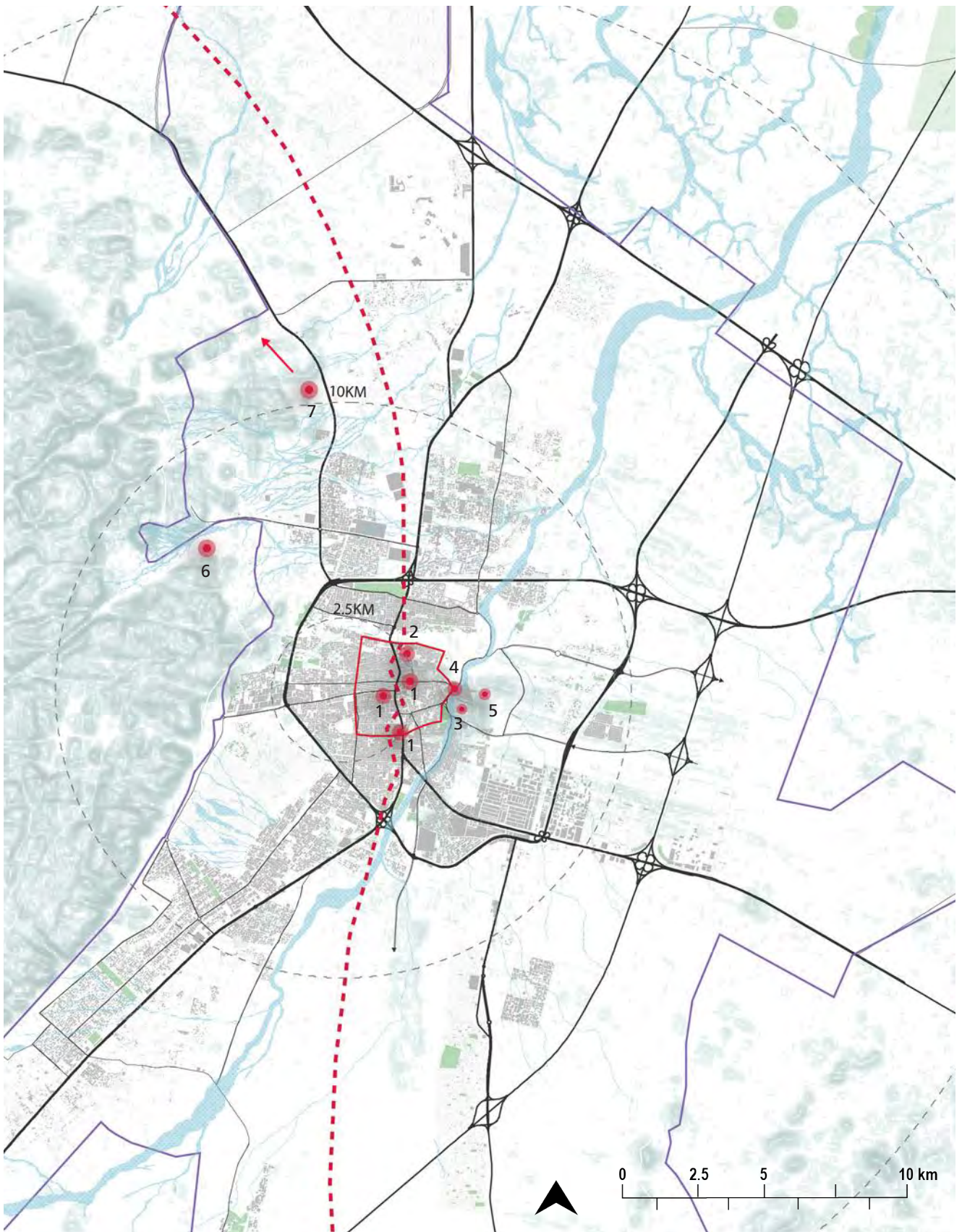


2. *International rally race needs to be connected to the city's cultural and points of interest network. (6)*



3. *UNESCO protected rock paintings and markings located beyond the city center need to be accessible to visitors. (7)*





- |   |                              |          |                  |          |                |
|---|------------------------------|----------|------------------|----------|----------------|
|  | Historic points of interests | <b>1</b> | Historic castles | <b>4</b> | Wadi           |
|  | Historic pilgrim route       | <b>2</b> | Souk             | <b>5</b> | Mountain       |
|  | Historic city                | <b>3</b> | Park             | <b>6</b> | Rally          |
|   |                              |          |                  | <b>7</b> | Rock Paintings |

Fig. 45. Hael's endangered historic and vernacular patterns





# 6

## THE FUTURE CITY

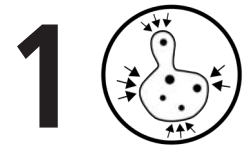


## 6.1 Strategic Responses

After performing a strategic diagnosis, and identifying four main issues affecting the urban development of Hael, four strategic recommendations were identified in response. Akin to the four strategic issues, the above-mentioned four strategic recommendations define the conceptual framing for a systemic and strategic level of solutions. Once defined in their conceptual nature, they are developed into a more detailed description, spatially interpreted and contextualised in Hael, at the various scales. This is followed by a roadmap to implementation, in the form of a well-articulated Action Plan.

### 6.1.1 The Compact City

According to UN-Habitat principles, cities need to encourage spatial development strategies that take into account the need to guide urban extension, prioritising well-connected infrastructure and services. A Compact City is envisioned as a high-density urban settlement, characterised by mixed-use development, dense and vibrant urban areas, and well-distributed services and facilities, (such as hospitals, parks, schools). Establishing spatial and legal mechanisms to consolidate a Compact City can increase accessibility and walkability, therefore increasing use of public transport and public space, reducing congestion, boosting the local economy, and increasing interactions across society. Policies to promote urban compaction involve the promotion of urban regeneration, the revitalisation of town centres, restraint on development in rural and peripheral areas, promotion of higher densities and mixed-use development, and the concentration of urban development around public transport nodes.



1 [ CONSOLIDATE ]

### 6.1.2 The Connected City

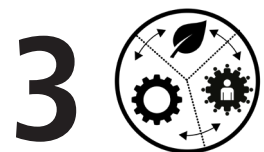
The New Urban Agenda asks cities to commit to creating access to public spaces, public transport, housing, education and health facilities, public information, and communication. The Connected City is envisaged as a continuous, well-connected, and well-balanced network of neighbourhoods, each with parks and public spaces, and accommodating a diversity of overlapping private and public activities, shaping a healthy and vital urban environment. The street network has a major role in shaping the urban structure which, in turn, sets the development patterns and scales for blocks, connective nodes, buildings, open spaces, and landscape. This involves development of a well-organised street hierarchy with arterial routes and local streets that is based on different modes of transport and traffic speeds, acting as connectors that should be considered both in terms of accessibility and of social interactions. In this scenario, public transport can provide fast cross-town connections linking public areas and functional cores of the city to the surrounding neighbourhoods. Most importantly, these neighbourhoods in turn, should provide opportunities and conveniently located facilities that are accessible locally by the community, which in turn reduces the dependency on private vehicles.



2 [ RE-STITCH ]

### 6.1.3 The Resilient City

A Resilient City takes into consideration appropriate built form and physical infrastructure to increase resilience to the physical, social, and economic challenges that arise from depleting carbon-based fuels and climate change. As such, a Resilient City can be defined as a sustainable network of physical systems and communities<sup>18</sup>, in which these physical systems consist of both the constructed and environmental components of the city. According to the New Urban Agenda (NUA), cities need to ensure environmental sustainability by promoting clean energy and sustainable use of land and resources in urban development, protecting ecosystems and biodiversity, promoting sustainable consumption and production patterns, reducing disaster risks, as well as mitigating and adapting to climate change. These elements amount to resilience. A Resilient City also supports and is mutually supported by its territorial systems, activating positive urban metabolism mechanisms, ensuring a reliable supply and balanced value chains. In Hael a good example of this is hosting annual desert rally race, in terms of utilising its natural resources to promote economy.



3 [ PROTECT & IMPROVE ]

### 6.1.4 The Historic City

A Historic City is defined as an active human settlement, strongly conditioned by a physical structure that originates from its past, and recognisable as representing the evolution of its people<sup>19</sup>. Following this definition, it is fundamental for historic areas to be inhabited and form a live cultural nucleus, with a strong urban identity. Over the last few decades, inner-cities and their historic districts all over the world have been deteriorating. Saudi cities are facing high-pressure from development, and often, in historic cities, architectural heritage has been allowed to deteriorate or eradicated to make space for new development, in place of conservation in historic areas. Responding to this scenario requires firstly the establishment of categorisation of these areas, followed by precise regulatory systems for their preservation, restoration, rehabilitation, and revitalisation, aiming not only at protecting the heritage buildings but the entire historic urban fabric, inclusive of all its elements, from streetscapes to residents.



4 [ PRESERVE ]





© FSCP

Neighbourhood view from the Hael Castle



## 6.2 Appropriate Models for Hael's Urban Development

### 6.2.1 *The Compact City: Consolidating development and densifying centres in Hael*

Hael is composed of low-density residential areas, except in the existing city centre, where higher density and mixed-use patterns exist. In order to achieve an envisioned compact city, dense, and revitalised city, central areas have to be promoted.

A compact and consolidated city has several benefits; a compact city is less dependent on cars, which in turn, reduces emissions, reduces energy consumption, and produces better public transport services. A compact city also provides increased overall accessibility, the re-use of infrastructure and previously developed land, a regeneration of existing urban areas and urban vitality, a higher quality of life, the preservation of green space, and the creation of a variety of business. For these reasons, it is important to limit the urban sprawl of Hael.

The focus of this strategy is to contain growth and expansion within strongly established development boundaries. Development should primarily be restricted to the current built-up area, focusing within the ring road, and therefore utilising all available vacant land. Consequently, establishing strong development boundaries that limit the extension of the city, is needed, as well as an increase in the density of existing structures, by less zoning and more interventions, such as increasing the number of occupiable floor-area. And lastly, by incentivising the development of mixed-use and multiple programmed developments to result in applicable enforcement of the "white land taxes".

These initiatives, (some already implemented) will relieve the city from the pressure of providing an extended network of infrastructure. However, some improvements and upgrades will have to be done to accommodate the increased capacity within the compacted city. In the long term, this will be more cost-effective, efficient, less resource-intensive, and environmentally-friendly.



1. *Vacant land with a potential to accommodate infill developments*



2. *Vacant land with a potential to accommodate a green space*



3. *Low density residential area*



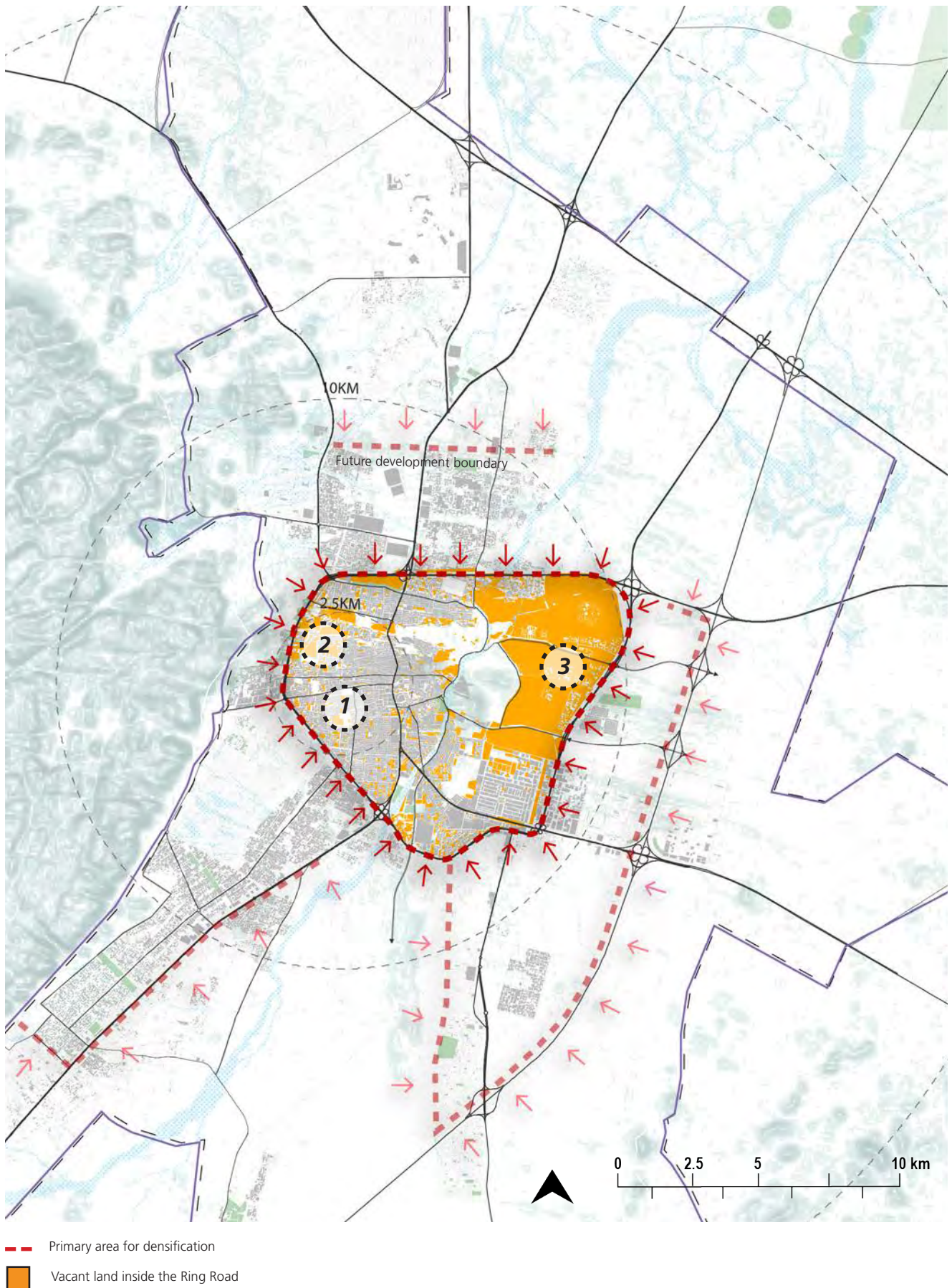


Fig. 46. The Compact City: Consolidating development and densifying centres in Hael





## 6.2.2 The Connected City: Linking Hael through public transport

This strategy deals with the need to remedy a divided urban structure and reduce spatial fragmentation, resulting in more diffused accessibility for all citizens. The primary fragmenting devices for the city are over-dimensioned infrastructure, vacant lands, natural features, and land use patterns. King Fahd Ibn Abdulaziz Road (Ring Road), King Abdulaziz Road (Highway 400), and King Saud Road (Highway 70) are major vehicular corridors that are dividing and fragmenting the city into various zones and districts. This type of planned infrastructure, as well as being over-dimensioned, discourages a cohesive, accessible, and livable city. The disconnected secondary and tertiary road network lacks hierarchy, and character, and further divides the city.

The scale and size of Highways 70 and 400 should be redefined towards hybridisation into pedestrian friendly inner city boulevards of Hael. They should be transformed to support current and future increases in local vehicular traffic flow, in addition to integrating the proposed public transportation system, such as Bus Rapid Transport (BRT) and local bus lines, with appropriate pick-up and drop-off points. The pedestrian realm of these new boulevards should be developed in parallel, offering users and citizens a safe, friendly, and well-connected, walkable network. Adding supplemental longitudinal and transversal road connections will offer efficient route alternatives, reducing waiting time, and emissions, as well as exist as an environmental benefit. Major nodes and centralities at strategic points across the road network and public transportation system will further support robust accessibility and efficiency, therefore better serve its citizens. These nodes should be appropriately dimensioned to encourage higher density of commercial and mixed-use activities. The network of nodes should be aligned with population density to allow citizens easy access in close proximity.

The issue of division and spatial fragmentation is further exasperated by the network of wadis, hills, and mountains within the city. It should be noted that the issue is not with the actual wadis and mountains but with the lack of connectivity across these natural land features, as their deficiency lies in not being used as a unifying element. The connected city solution builds on these existing elements (Highways 70, 400, the ring road and the wadi), as agents of transformation and urban defragmentation. The wadi system threading the city is by default a connector, as it stitches the urban fabric. Enhancing these can be done by increasing the connectivity across the wadi, ensuring that the wadi is not be a barrier nor a segregator of the urban fabric. Connecting the wadi should extend to adjacent neighbourhoods, giving access to more public open green spaces.

Large vacant lands within the built-up area and poor land use planning are additional contributors to a disconnected and inaccessible city. Vacant lands aided by strong policies need to encourage development within the urban fabric, avoiding large patches of disconnected fabric. Land use planning needs to avoid monofunctional land uses, that is, any given neighbourhood

needs to have a mix of uses and programs. The UN-Habitat recommends that at least 40% of commercial land use should be mixed in with residential land use. With these systems in place, it will be easier to limit the cost of movement for citizens, increasing walkability, and access to opportunities, and increasing socio-economic interaction within society.



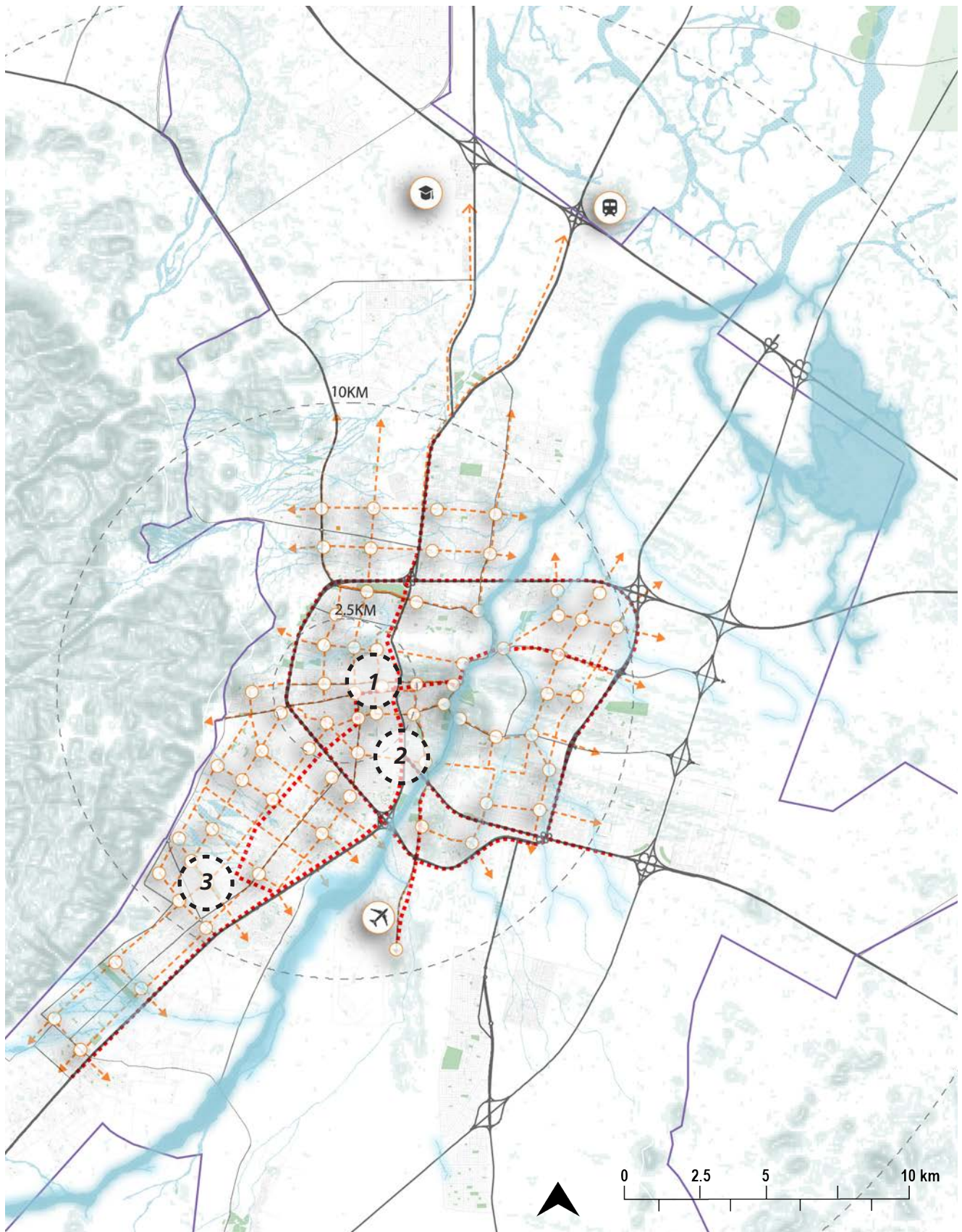
1. *Densification of the urban core will increase the economic activity and create a vibrant city centre.*



2. *Redefining the major streets will facilitate the implementation of public transportation.*



3. *Densifying the residential areas will increase access to public services.*



- - - Proposed BRT lines
- - - Secondary public transport lines
- Public transport nodes

Fig. 47. The Connected City: Linking Hael through public transport





### 6.2.3 *The Resilient City: Rebalancing Hael's socio-ecological and economic systems*

This strategy builds on the previous one and aims to shape a more inclusive and equal city, increasing access to public facilities and economic opportunities. Decreasing the fragmentation and uneven access to opportunities will offer an indirect stimulus for rebalance regarding socio-economic factors in the city.

Hael currently consists of areas with highly concentrated public facilities and commercial activities, most notably in the old city centre. Other areas are drastically lacking such access and these areas are located in the East and Northeastern parts of the city, as well as the Southwest.

Using the wadi network, mountains and sand dunes that are within the city and immediately beyond, can be used as a catalyst to ignite rebalance and resiliency socially, economically, and environmentally. Hael has already taken steps in this direction by hosting the annually desert rally race, and it is a major economic contributor that also uses the natural features of the city.

The rally race continues to expand annually, attracting international visitors who permeate the economy in many ways and scales.

The concentration of new public and commercial facilities around a well-connected transportation network is key for the success of this strategy and the nexus for a successful inclusive city. Linking new public spaces and services to the rest of the city through an efficient transportation system will maximise accessibility for all citizens and urban users, bringing more people, services, and amenities together in close proximity, and within high-density mixed-use areas.



1. *Maintaining traditional farming techniques is more water resource friendly.*

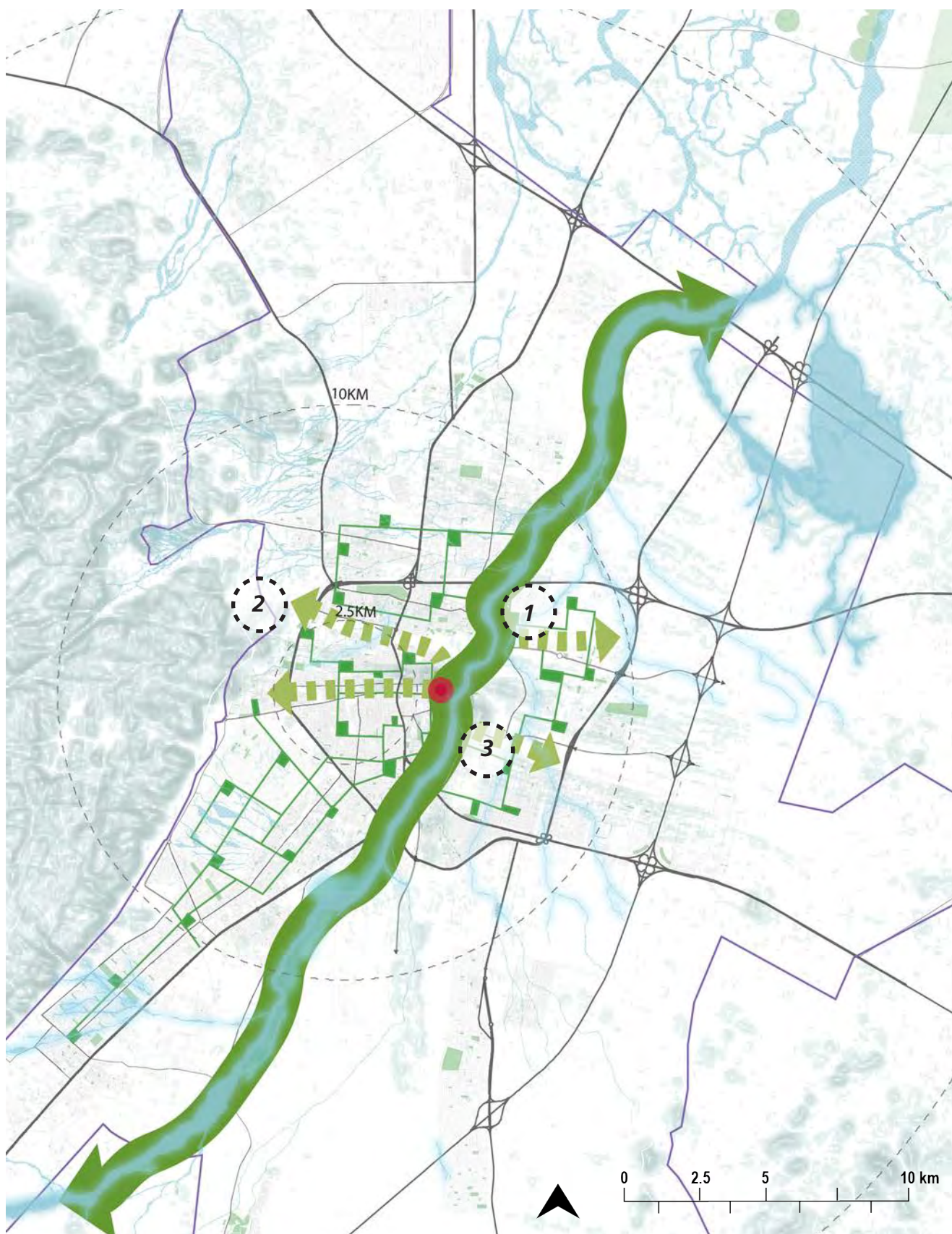


2. *Landscape outside the city should be integrated with the city's green and blue network.*



3. *Current and proposed parks and open spaces should be accessible and integrated into the urban fabric.*





- City centre
- Proposed green network

Fig. 48. *The Resilient City: Rebalancing Hael's socio-ecological and economic systems*



### 6.2.4 The Historic City: Preserving the cultural and historic assets of Hael

Culture is a major development tool that can truly reform and regenerate the areas around individual heritage sites. Cultural heritage contributes not only to create identity for the settlement, but also contributes to the actual economic development. In the vicinity of historical sites and monuments important economic activities flourish. Thus, a well-integrated and balanced natural and cultural environment results in strong identity, a sustainably developed economies and a positive impact of urbanisation.

In Hael, cultural assets are spread across the city, from the old city centre to the outskirts and beyond. Hael Region hosts two UNESCO World Heritage sites.

The landscape and the rich geology have also played a role in the city's celebrated past. For example, the sand dunes of Nefud Al Kebir, the mountainous landscape of Aja mountain to the West, and the sharp granite rocks of mount Salma to the Southeast of the city are all natural features that protected the city from invaders in the past, while at the same time allowed it to grow and prosper.

The model follows a system of highly restrictive regulatory controls that should be applied to historic buildings and points of interest across the city. Preserving and upgrading these historical assets would enhance Hael identity as a city at the crossroads of past and future.



1. *Street in the early 1920's - Ancient urban development patterns should be protected and integrated.*

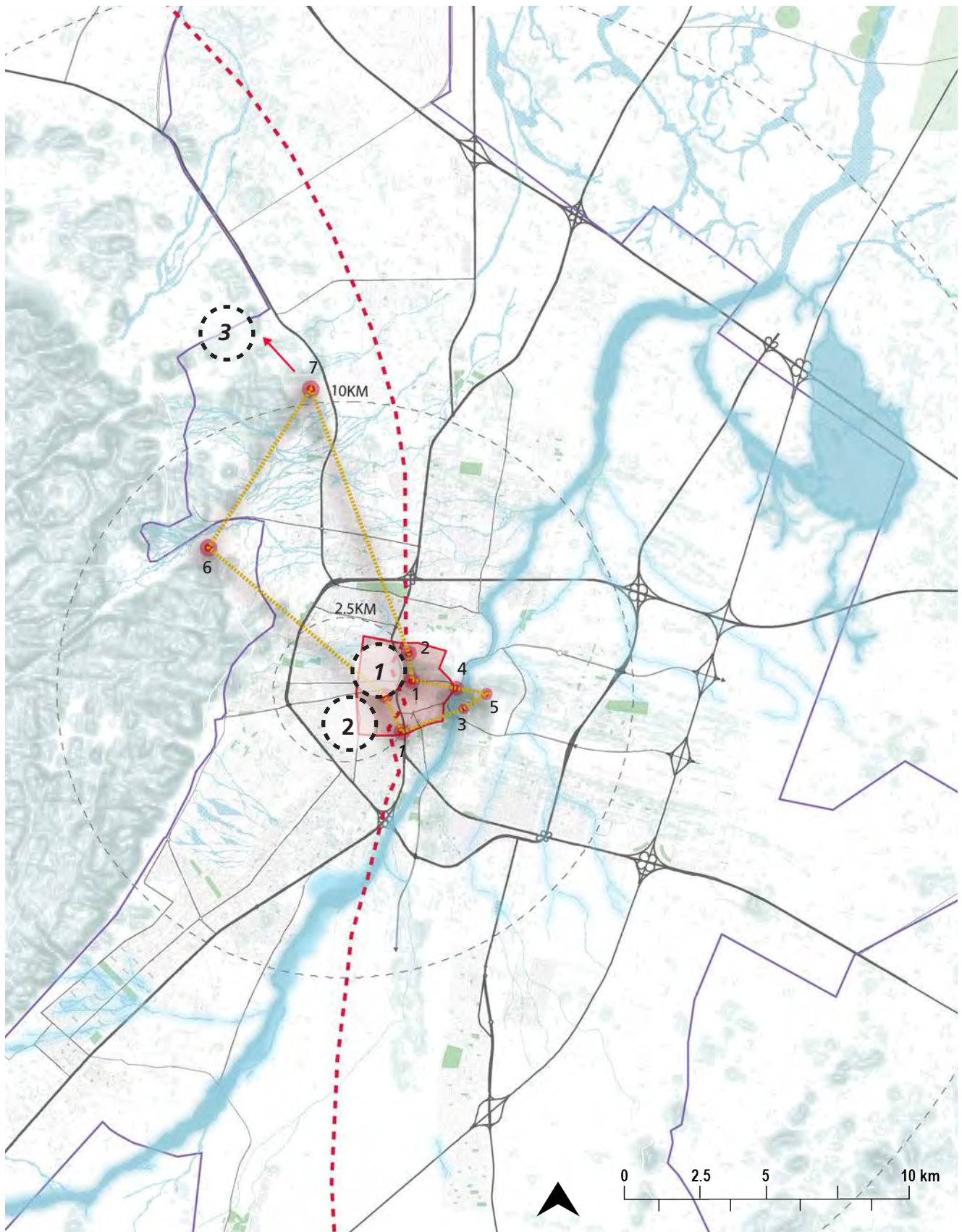


2. *Barzan Palace - Major historical points of interest should be documented and integrated.*



3. *Historical artifacts beyond the city center should be incorporated into the touristic trails.*





- Historic points of interests
- Historic city
- - - Historic pilgrim route

- 1** Historic castles
- 2** Souk
- 3** Park

- 4** Wadi
- 5** Mountain
- 6** Rally
- 7** Rock Paintings

Fig. 49. The Historic City: Preserving the cultural and historic assets of Hael



## 6.3 An Action Plan for Hael

### 6.3.1 From strategy to action

Transforming conceptual recommendations into concrete and implementable strategies (with punctual and diffused interventions), requires detailed systemic and incrementable actions that can trigger the envisaged spatial, economic, and social transformations.

An Action Plan that is rooted in the strategic recommendations and grounded in a series of systemic and incremental interventions for Hael will serve to guide the building of a compact, connected, integrated, and resilient city.

Overall, the Action Plan creates impact at two scales: Hael City scale and the neighbourhood scale. It supports the retrofitting of existing infrastructure towards a multiple purpose perspective, rebuilding the relations between different city users, improving integration of the urban outskirts to the rest of the city, improving transport and mobility networks, and developing and expanding financial and legal instruments, that support all of these transformations.

The Action Plan outlines four systemic actions, explicitly envisaged for Hael. Although all the strategic actions target specific interventions, there is a conceptual difference in the way that they were conceived.

The four actions are:

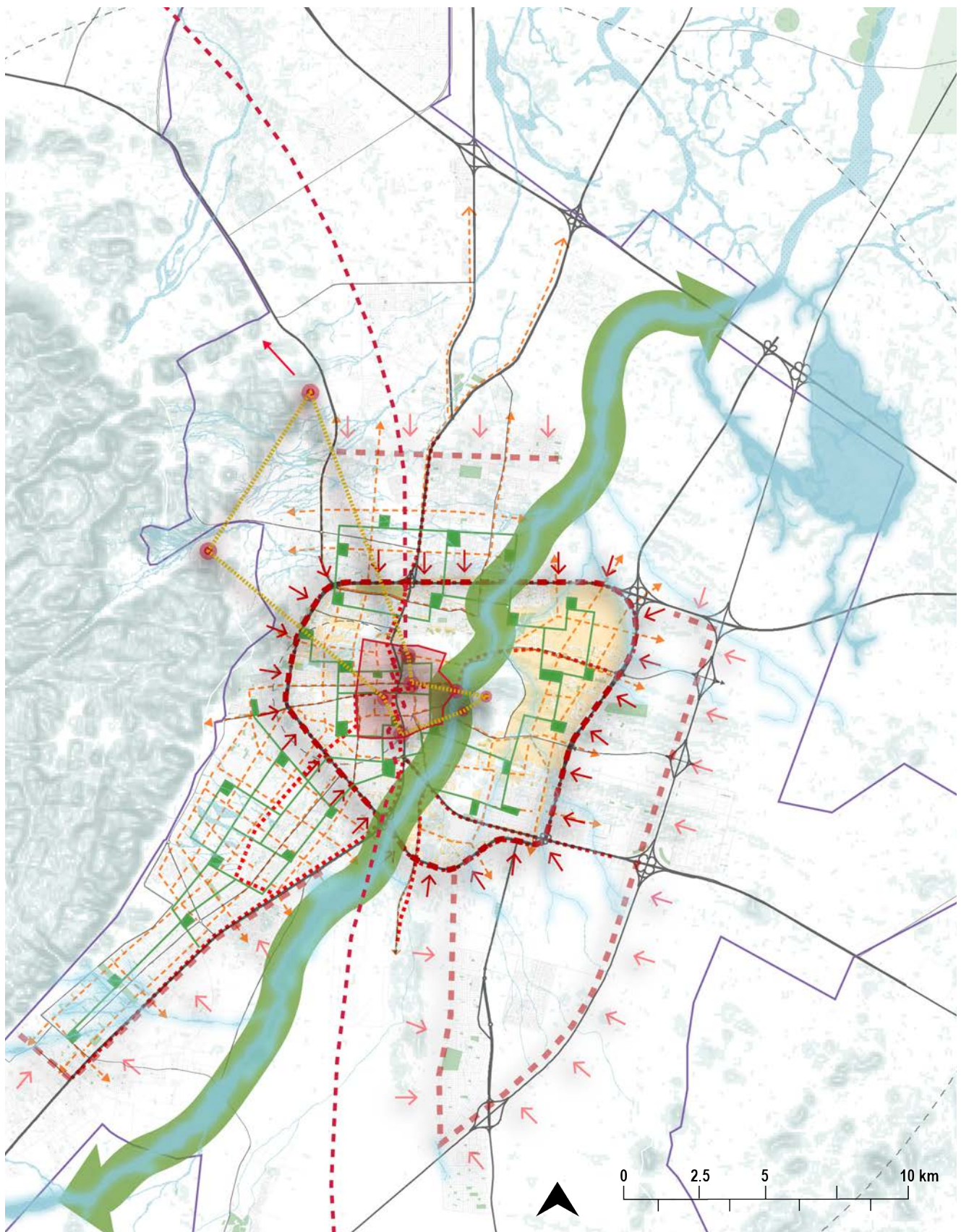
- **ACTION 1: Create an efficient public transportation backbone**
- **ACTION 2: Densify, connect, and create new centres**
- **ACTION 3: Create a diffused and well-integrated blue and green infrastructure system**
- **ACTION 4: Protect historic landmarks and create a connected heritage trail**

Actions 1 and 3 address the need for a system of interventions at the metropolitan scale. The objectives are to focus on infrastructure development that will provide citizens with maximum connectivity and transportation alternatives, and build broad conditions for a socio-ecological rebalance, using the wadi network as the main structure. Action 2 focus on the neighbourhood scale, through surgical densification and concentration of development on available vacant land as a priority. Tightly controlling development boundaries and white lands tax enforcement are also applicable at this scale. Action 4 will define the identity and position of the city as a destination for heritage and recreational adventure sporting.



View of Hael City





- - - Primary area for densification
- Vacant land within the Ring Road
- - - Proposed BRT lines
- - - Secondary public transport lines
- Public transport nodes
- City centre
- Proposed green network

Fig. 50. Strategic recommendations for Hael

## 6.4 Four Systemic Actions for Structural Change

### 6.4.1 Action 1: Create an efficient public transportation backbone

This first action is broken down into three phases and each phase aims to build on the previous. This action will focus on a street hierarchy with arterial routes and local streets based on traffic speed differences. The street network will shape the urban structure, which, in turn, sets the pattern of development blocks, streets, buildings, open spaces, and landscape the.

The benefits for Hael comes in the form of a new public transportation network, an alternative to privately owned vehicles. The city will also benefit from having alternative traffic options once the public transport, road network, and “Park and Ride” infrastructure are integrated, as this will help to reduce waiting times and traffic congestion, ultimately having a positive environmental impact on the city. Overall, the city will be transformed into a well-connected, commercially robust, sustainable, and pedestrian-friendly city. In order to implement Action 1, the following steps will need to happen in sequence:

#### 1.1 Transform Highway 70 (King Saud Road) and Highway 400 into inner city boulevards

Highway 70 (King Saud Road) and Highway 400 (King Abdulaziz Road) are currently physical dividers of the urban fabric within the ring road, as they function as a throughway, with traffic moving at high speeds. They will both be rescaled and redimensioned to reduce the high speeds and integrate traffici with proposed BRT Lines 1 and 2. Repositioning and redesigning Highway 70 and Highway 400 (between the ring road and Highway 70), as pedestrian friendly inner city boulevards will re-stitch the central urban fabric while acting

as a central transportation spine. The inner city boulevards will incorporate vibrant commercial activities, recreational open spaces, and a pedestrian-friendly public realm.

#### 1.2 Develop and link a transversal / secondary public transport network across the city

This secondary network provides access to neighbourhoods adjacent to the inner city boulevard (formerly Highway 70), connecting the inner ring road fabric of the city, resulting in alternative routes and flows of traffic across the city. The secondary transportation network will focus on connecting the new railway station in the North, the university, and the airport in the South.

#### 1.3 Construct additional “Park and Ride” stations to reduce vehicular density within the Ring Road

Additional “Park and Ride” stations will be located on the outer edges of the city in tandem with the public transportation network to supplement the currently limited number. These stations will have an impact on the reduction of vehicular congestion, which in turn, will minimise the driving time for users, resulting in both environmental and economic benefits. These stations should be state of the art with smart technologies to inform users on real-time updates regarding occupancy and space availability.



An example for the section of transformed Highway 70 inside the Ring Road



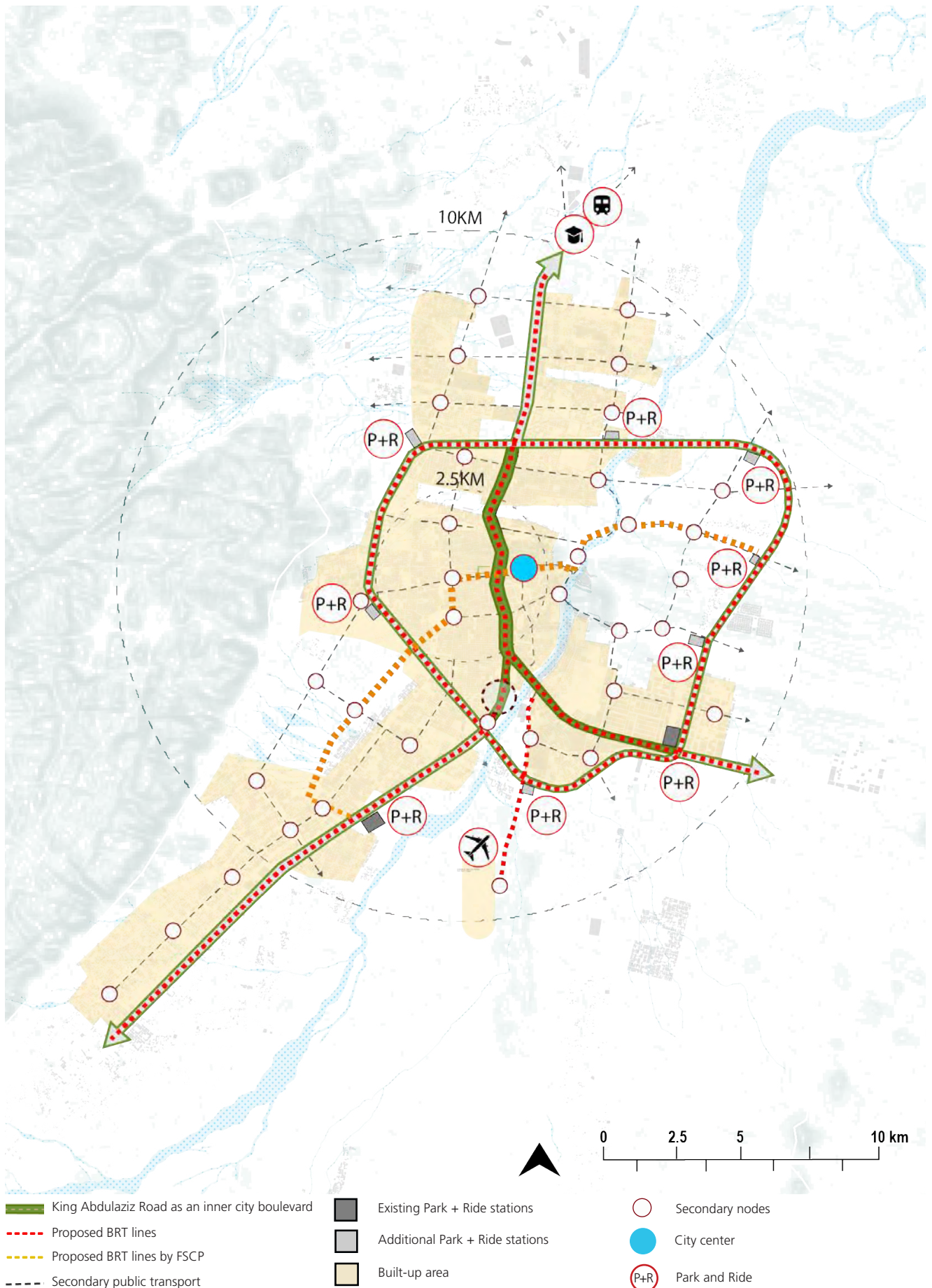


Fig. 51. Action 1: Create an efficient public transportation backbone

### 6.4.2 Action 2: *Densify, connect and create new centers*

The second action is also broken down into three phases, with each phase building on the previous. The focus is to contain growth and expansion within the strongly established development boundaries. The resulting benefit for this action is the increased accessibility and walkability of the city, bringing people into public spaces, reducing congestion, and boosting local economy and interactions. This action will provide new types of urban services and convert the unused land into productive landscapes, therefore, contributing to the city's economy and health. As the vacant land within the current urban footprint inside the Ring Road amounts to approximately 7,840 hectares, which is half of the total land inside, the city needs to focus on punctual infill strategies of densification rather than promoting new developments on the outskirts of the city. Establishing urban and legal mechanisms to consolidate a compact Hael will increase accessibility and will be a key measure to bring people into the public space, and boost the local economy and interactions. High-density, mixed land use, and a social mix increase the proximity to work, home, and services. The interaction of highly-densified, mixed-use buildings with activated ground floors are known to generate lively neighbourhoods and a diverse, inclusive, and prosperous city. Action 2 is composed of the following steps:

#### **2.1 Develop a hierarchy of mixed-use nodes at strategic points along the public transport system**

Primary mixed-use nodes will be located along the two major inner city boulevards. Secondary nodes must also be distributed following the criteria of rebalancing access to services, facilities, and jobs across the city. Densification and connectivity of the existing urban fabric will further focus on vacant land infill opportunities within the Ring Road, enforcing a boundary to limit and consolidate development, and rehabilitating the unplanned areas located within the city's boundary.

#### **2.2 Densify around some of the secondary nodes by creating new centralities to rebalance access to public services and facilities**

Densification will be accelerated around public transport system by using the available vacant land. New centralities will be created by providing public services and facilities (educational, healthcare, and commercial areas), in currently underserved areas of the city. Develop incentives for promotion of multi-functional land use programs targeting the consolidation of available developable land, especially around public transport nodes.

#### **2.3 Incrementally develop available vacant land within the current built-up fabric**

Developable vacant lands (exclusive of waterways, slopes, hills, and other critical natural features), within the built-up area, shall be incrementally developed to prevent sprawl, hosting future growth through densification and mixed-use development.



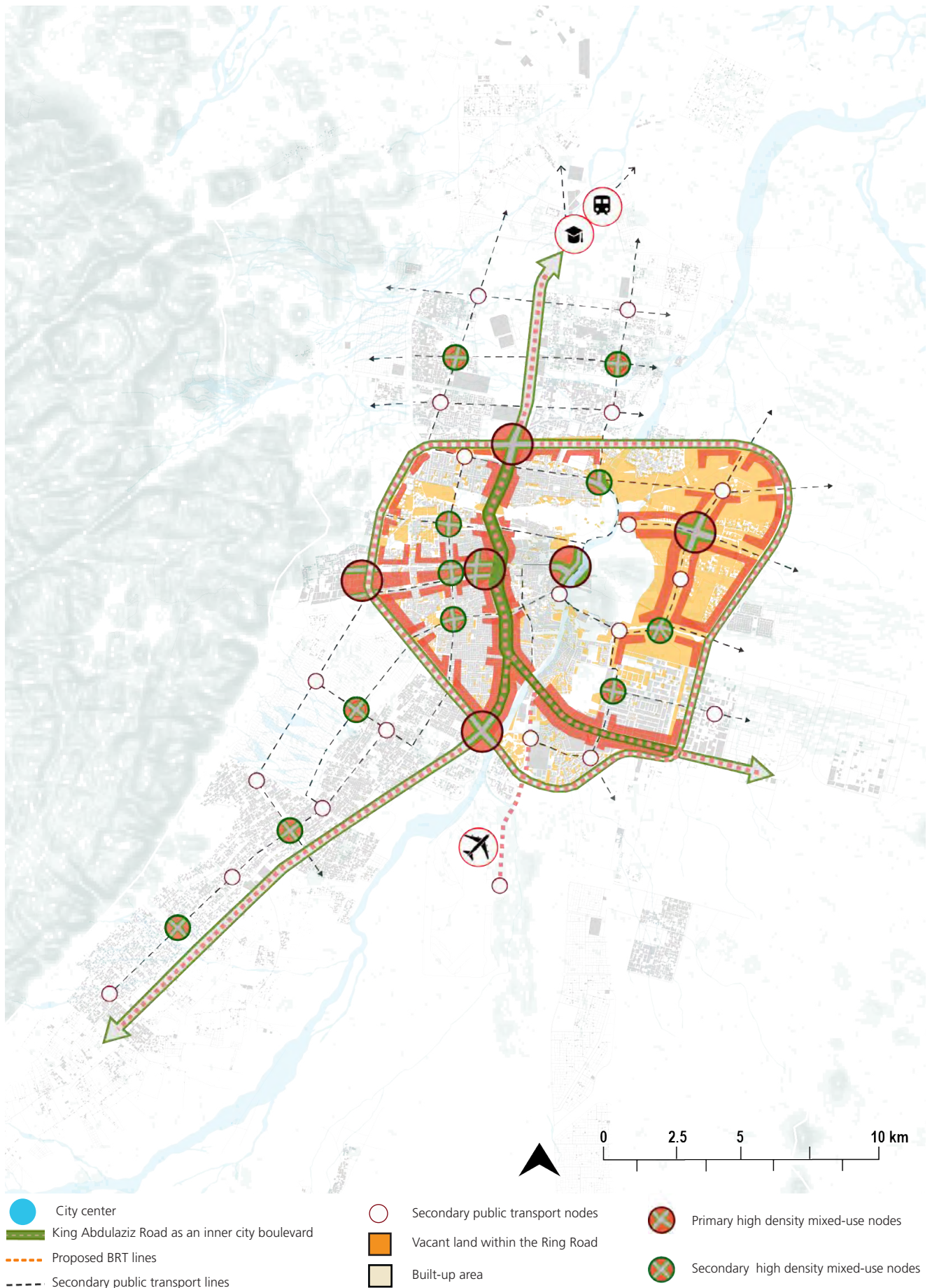


Fig. 52. Action 2: Densify, connect and create new centres



### 6.4.3 Action 3: Enhance a well-integrated blue and green network

The third action, as the previous two, is broken down into three phases, and again, each phase continues to build on the previous phased action. The focus of this action is to promote the development of urban spatial frameworks that support sustainable management, use of natural resources, appropriate compactness, density, and mixed-uses. This action will trigger economies of scale and agglomeration, urban resilience, and environmental sustainability. Added benefits are connectivity and reducing the financial, environmental, and public health costs of inefficient mobility, congestion, air pollution, urban heat island effects, and noise.

A system of punctual interventions in public spaces where the natural hydrological system or the drainage system overlays with vacant land or small existing public spaces is needed. Develop streetscapes and planting strategy for Right-of-Ways. Connect the public spaces and urban life with the wadi so that the wadi can become a catalytic factor for urban development; furthermore, the wadi can be developed as a key character and identity of the city. Action 3 is composed of three steps:

#### 3.1 Establish a natural water management infrastructure by protecting and integrating the wadi

The wadis must be integrated into the existing urban fabric by developing non-critical areas for public open spaces, water retention ponds, and water features connected to water recycling stations. The wadi system will be transformed into a multi-functional linear park, to be used as a natural water management infrastructure during the wet season, but having alternative recreational uses during the dry season.

#### 3.2 Create a consistent green network by using vacant land to increase major green areas

Available vacant lands and residual lands along transportation networks and wadi systems should be converted into green open spaces, parks, and parklets for public use. Increase green areas will reduce the heat island effect across the urban fabric and improve the ratio of green open space pro-capita.

#### 3.3 Complete the green network by greening streetscapes and linking major green spaces to the public transport system

Currently, Hael is lacking public spaces, plazas, and green open recreational areas. Identifying and converting available vacant land within the urban fabric is key to this action, and connecting these converted open spaces with each other and to the existing public space must be coordinated. Planting trees along major and minor transportation corridors, focusing on shading pedestrian areas, reducing heat island effect, and the evapotranspiration phenomena, as well as mitigating the urban microclimate is essential. This action suggests using local species to conserve resources and all the while reducing maintenance cost.

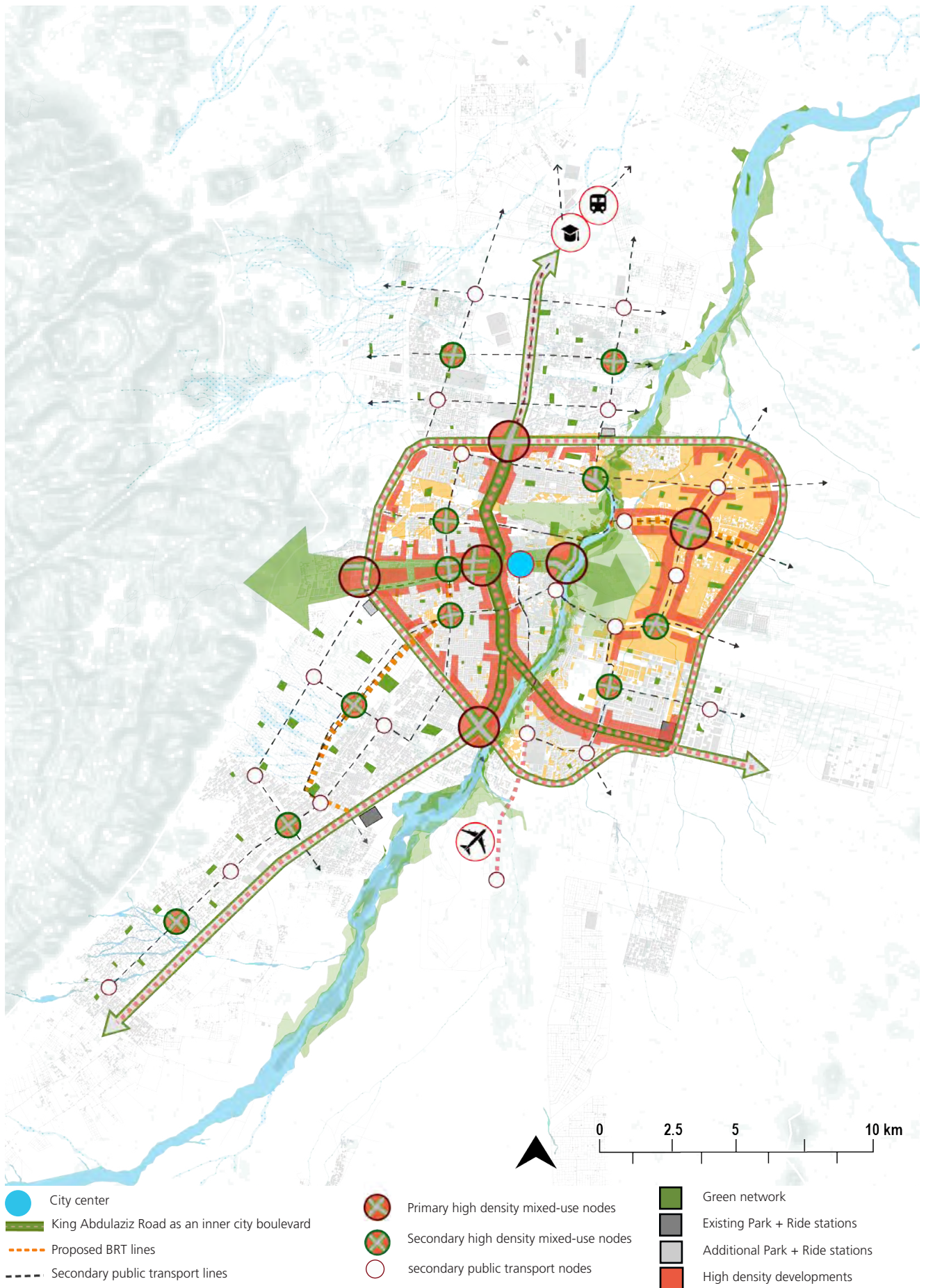


Fig. 53. Action 3: Enhance a well-integrated blue and green network

#### **6.4.4 Action 4: Protect historic landmarks and create a connected heritage trail**

Hael has a rich past that is disappearing as the city develops and modernises. The rehabilitation of physical historical assets, and linking them to public transportation and facilities and commercial activities will have an impact not only on Hael's cultural identity but also on its economic sustainability.

Action 4 is constituted of the following steps:

##### **4.1 Develop guidelines to protect and preserve existing historical assets**

A system of highly restrictive sets of regulatory controls should be applied on historic assets and points of interest across the city, such as the vernacular urban pattern along the wadis. Preserving and upgrading these historical assets would enshrine the identity of the city as the crossroads of the past and future. Guidelines enforcing development boundaries around assets, restriction of modification, and reconstruction of asset to maintain intensity must be enforced.

##### **4.2 Locate and document destroyed or lost historical assets, and apply guidelines**

Coordinate a technical and historical survey to locate and document lost, forgotten, or destroyed historical assets. Once these assets are located, rigorous vetting must be conducted to validate their importance and place in history, and then strict guidelines similar to Action 4.1 should be applied. The lack of maintenance, political, and cultural shifts over the past centuries have resulted in many historic landmarks being deliberately destroyed or left unattended. This revival effort will strengthen the picture of the history of Hael.

##### **4.3 Link all historical assets to become a "Walk of Discovery" network**

Create a connected and linked comprehensive network of all historical assets and points of interest, including the Airif Fort. This network should be designed to be pedestrian-friendly and connected to the city. In cases where assets are not within walkable and bikeable distances, it should be connected to the public transportation network, ideally as a dedicated line. This connected network will enable a visitor or user to easily navigate from one point to the next, maintaining a sequential narrative of the city's history.

##### **4.4 Develop public facilities and commercial opportunities to support and sustain historical assets**

Develop vacant land within the catchment of the historic network or "Walk of Discovery," creating new centralities by providing public services and facilities, such as parks and open spaces, educational, and commercial activities. The historical asset will act as anchors and catalysts for the development of these centralities.

##### **4.5 Extend the "Walk of Discovery" network to capture new cultural activities, such as the rally motor race and other recreational adventure sports**

The "Walk of Discovery" network should be extended to include new and modern cultural activities and points of interest. Since 1996, Hael has been hosting the annual motorsport desert rally race, and attracts national, regional, and international visitors. The race has a dedicated operational centre for it, and this should be connected to the "Walk of Discovery" network. Sand surfing, windsurfing, and other outdoor adventure sports are developing in Hael and the wider region, and linking it to the "Walk of Discovery" network will further strengthen Hael as a destination city.



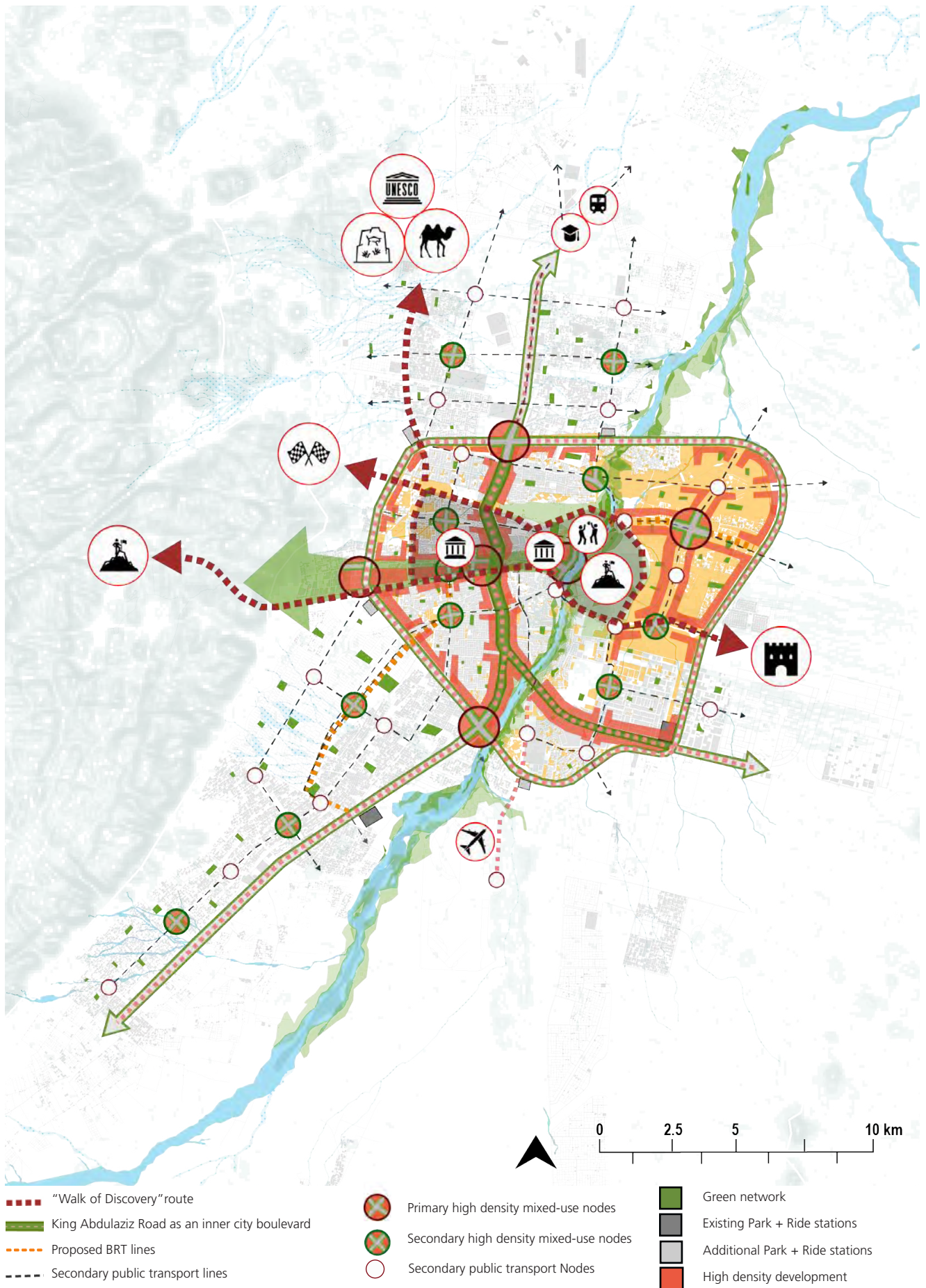
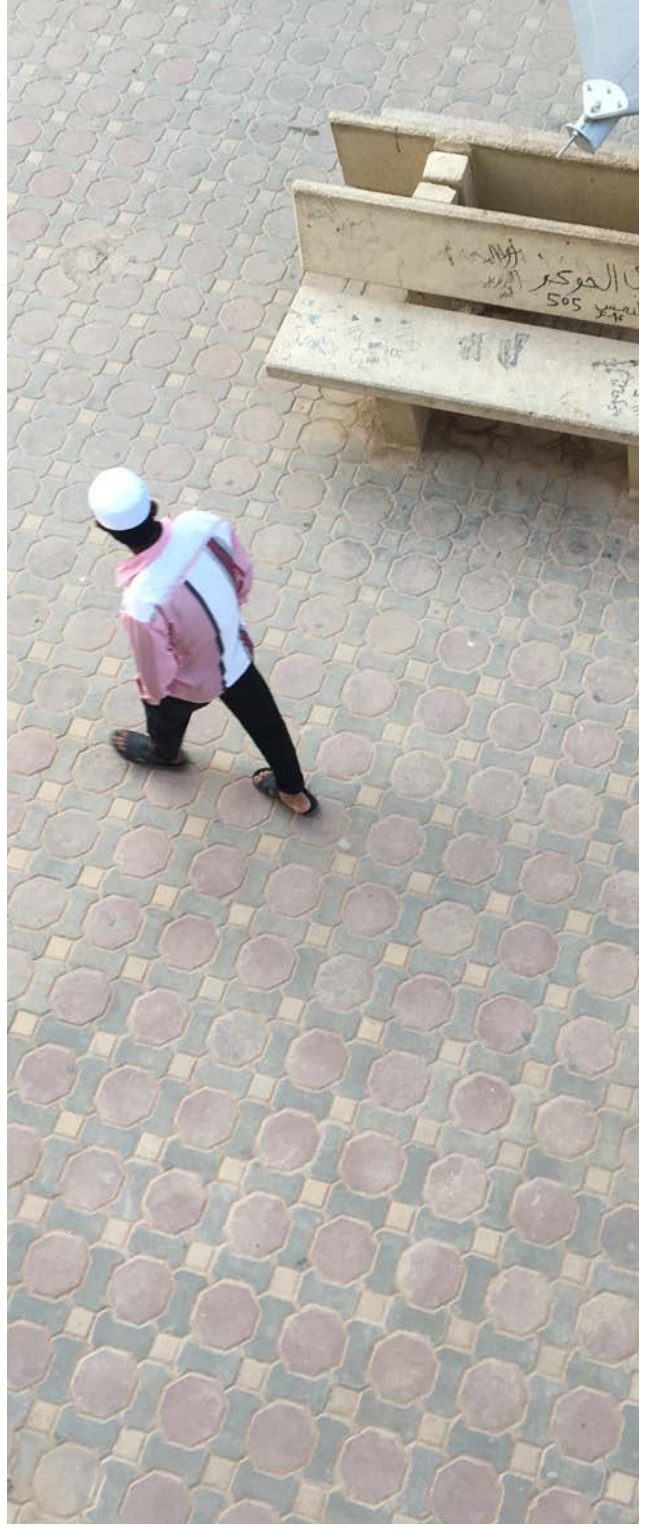


Fig. 54. Action 4: Protect existing landmarks and create a connected heritage trail



# FINAL RECOMMENDATIONS: THE THREE-PRONGED APPROACH

# 7





## 7.1 Spatial Recommendations

### 7.1.1 A strategic view for Hael Region

Hael Region has excellent potential, which makes it eligible to attract more domestic and foreign investments in various economic activities. Compared to the Kingdom's population growth rate of 3.10%, Hael has less than the average annual population growth rate being at 2.44%. This indicates that the execution of the key regional projects will play a major role in boosting the attraction rate for the workforce. The most important of these sectors with comparative advantages are:

**Transport sector:** Transport is one of the most important sectors of comparative advantage in Hael given the outstanding location of the region, at the local and regional levels. The region is linked to five other administrative regions in the Kingdom, which qualifies Hael to link the central Saudi Arabia regions (Riyadh and Al Qassim), and the Northern regions (Tabuk, Al Jouf, and the Northern Borders), as well as the Western regions, including (Makkah and Madinah).

The region can play a major role in international trade between the Kingdom and other Arab Countries, such as Iraq, Jordan, Syria, Kuwait, and Egypt. In addition, Hael may be a major station for airlines, at the regional and global levels. The distinctive location of the region has a great role in the establishment of the new Economic City, (Prince Abdulaziz Bin Musaid Economic City).

The Prince Abdulaziz bin Musaid Economic City (PABMEC), proposes a logistics and transportation centre with an international airport expected to serve 3 million passengers per year, a supply chain centre, and a multi-modal passenger station, dry ports with an annual capacity to handle over 1.5 million tons of cargo, and an expanded railway system, as well as road connections to the rest of the KSA, to Jordan, and Iraq. Also key to this development is the mining centre, which will include a minerals laboratory, mining equipment rental companies, and most importantly, processing facilities for limestone, kaolin, silica sand, and phosphate. These are not only important for the spatial development of the Hael Region, but to also structure growth patterns in the neighbouring regions.

The latter is supported by the railway line, which has recently been operational, linking the areas of phosphate ores in North of the Kingdom and bauxite ores in Hael Region, to the manufacturing and export areas in Ras Al Khair. Equally, the extension of the railway line to the regions of Al Qassim and Riyadh will constitute a key transport hub in the region, which qualifies the transport sector to attract large investments in various relevant activities.

#### **Agricultural sector**

The significant growth and development of the agricultural sector in the region over the past few years, and the potential of this sector in the region ensures the continuity of growth

and increasing diversity in the production of agricultural crops, which can attract large investments in food processing, manufacturing agricultural equipment, and machinery, and other industries and activities related to agricultural activity. The link between the agro-industrial zone in the PABMEC and the farmlands to the East and South of the region should be promoted. This industrial area, which has activities linked to stages of crop growing, harvesting, processing, animal husbandry, as well as an agricultural research centre, aims at increasing output with the help of modern production plants.

#### **Mining sector**

Hael region has untapped potential, raw materials, and natural mineral resources which are characterised by their economic volume and industrial feasibility. This includes magnetite which is found in the area of Dhargatt with quantities estimated at 4.5 million tonnes, and used in the refractory industry. Additionally, kaolin is found in the area of Al Zubayrah with quantities estimated at 30 million tonnes and used in ceramics industries; and silica sands, which is one of the purest types of silica in the world. The development of the sector should consider the links between the mining areas, the processing areas in PABMEC, as well as the transportation facilities.

#### **Tourism Sector**

Hael Region is characterised by many tourist attracting elements, especially with its diverse geography, which includes mountains, landscapes, and valleys. The region includes many historical sites and Islamic antiquities. The region is witnessing a vast growth of internal recreational tourism represented in natural locations, resorts, recreational places, and different sports facilities.

There are two important UNESCO Heritage Sites in the Hael Region, which have great potential to contribute to the tourism sector in the region. One of them is the Zubaida Trail, or Al Kufi Pilgrimage Route, which runs from Kufa in Iraq to Makkah, passing through the East of the region. It stretches over more than 1,400 kilometres in the Kingdom and was listed among the projects of the Two Holy Mosques program to care for the Kingdom's cultural heritage, executed by the SCTH,<sup>20</sup> among its initiatives in the National Transformation Program. The other one is the Hael Rock Art, which could spur development in its vicinity. These UNESCO sites have to be integrated with the other historical assets in the region and linked to city as a main service centre of the region.

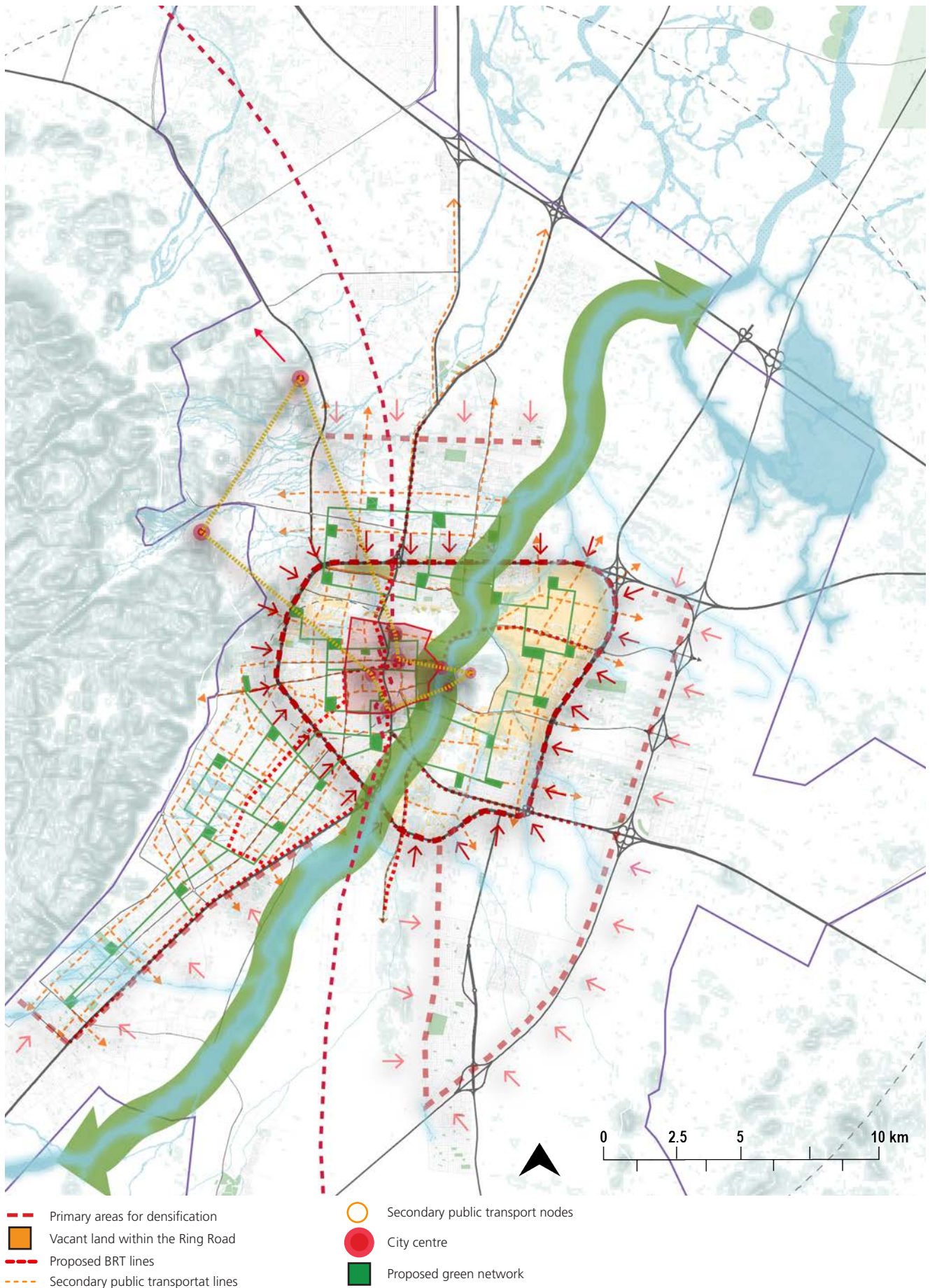


Fig. 55. Action Plan for Hael

### 7.1.2 Towards Hael Heritage Eco-City

The strategic vision for Hael articulated in the strategic actions is the creation of a resilient, consolidated, and well-connected Hael, through balancing existing natural and cultural resources, and major economic activities, as well as establishing efficient transportation networks connecting the new densification centres.

To achieve this vision, the city needs an efficient public transportation backbone, which would enhance accessibility around the city and reduce the dependency on private vehicles as well as improve mobility across the city. Proposed BRT lines should be integrated into the street network, together with an established secondary public transport network across the city. The national highways passing through the city must be transformed into inner-city streets. By introducing the additional "Park and Ride" stations, vehicular density would be reduced, and the city would become a well-connected, commercially robust, sustainable, and pedestrian-friendly city. Having a well-established public transportation network would support the densification of the urban areas and increase accessibility and walkability within the revitalised central areas. Along the public transport lines, mixed-use nodes should be promoted at strategic locations that can boost the local economy and interactions. Besides densification of existing built-up areas, the vacant land within the city's footprint should be reinforced to develop incrementally, and most importantly the expansion of the urban area must be reserved within the strongly established development boundaries.

Furthermore, to promote urban resilience and environmental sustainability, water management policies have to be introduced, and the wadi system must be protected and integrated into the green network of the city. The vacant land should be utilised to establish the consistent green network, and it must be linked to the major public spaces within the city. Punctual interventions on public spaces should be promoted, including the planting strategy on the streetscapes level.

Additionally, historical sites and cultural assets spread across the city must be preserved and upgraded. Creating a network that links all historical assets will not only lift the tourist attraction but will also have huge impact on the city's economic fortunes and sustainability. Creating a connected heritage trail would enshrine the identity of the city of Hael as the crossroad of the past and future.

## 7.2 Institutional and Legal Recommendations

In terms of legal reform, Hael would benefit from both fiscal and jurisdictional decentralisation to facilitate independent and innovative solutions to urban social problems, at the Amanah level. This should entail:

- The transfer of local planning power, authority and function from MoMRA to the Amanah, with provision for independent action without recourse to effectively address community needs. This is supported by the New Urban Agenda, which specifies that territorial urban design and planning processes should be led by sub-national and local governments, but their implementation will require coordination with all spheres of governments, as well as the participation of the civil society, the public sector, and other relevant stakeholders;
- Fiscal decentralisation, which gives autonomy to the Amanah to source funds to finance development activities. Revenue generation activities in cities may also include taxes and levies. Urban areas should be allowed to collect some form of property taxes to fund development activities. The recent White Lands Act that imposes fees on undeveloped plots in urban areas to tackle land speculation, housing shortages, and indiscriminate land development shows that regulatory mechanisms can be leveraged to generate revenue while fostering an efficient development framework;
- The opening of avenues for actors, including the private and voluntary sector and the general community, to participate in decisions regarding projects that affect them.

Administratively, the legal department within the Amanah of Hael Region, which is involved in assessing the efficacy of planning laws, should be strengthened through staff training initiatives so that it is functionally equipped for its role. Moreover, a supervisory body is needed, to enhance the application and implementation of these laws.

Consolidation of the legal planning instruments would also support development intervention of Hael, along with the review, update, and modernisation of these laws to make them relevant to the current development situation. This should also entail re-thinking the lawmaking process to limit the number of actors. The mere existence of the laws in the KSA will not guarantee sustainable urban development as they must be functionally effective, i.e., precise in achieving their intended results, clear, consistent, and simple to understand. There is a need for a functionally effective urban planning law that, inter alia:



- Introduces incentives/requirements that will enable more compact city growth;
- Defines clear institutional roles and responsibilities at each level;
- Enforces linkage between all levels of plans (national-regional-local);
- Provides effective coordination and monitoring mechanisms; and
- Increases meaningful public participation and engagement in planning.

The legal framework also needs to enshrine an acceptable mode of public participation in public decision making to foster equality and inclusion. The consolidation of the urban legislation would also give legitimacy to the plans that Hael relies on.

Revising the Urban Growth Boundary Law to include clear criteria on how it is set would enhance technical and vertical accountability. The law also needs to place more emphasis on establishing the Development Protection Boundary as a no-development zone to not only prevent haphazard development but to also avert private interests from taking advantage of the laxity in the legal text. Additionally, a systematic review of the land subdivision process in Hael Region is also needed, as land subdivision plans have been approved outside the growth

boundary. These initiatives will strengthen policy formulation designed to make the city more sustainable, compact, and dense. Primarily, post-legislative scrutiny of the UGB Law should be done to assess if it has met its policy objectives. This could, in turn, inform the legal reform process as well as the planning policy options.

### 7.3 Financial Recommendations

In 2015, the government began enacting a series of reforms with the hopes of creating a more self-sustaining public financial system through diversified revenue sources, efficient tax administration, and private investment in strategic economic sectors.

Hael public finance priorities are closely aligned with Saudi Arabia's larger national development goals, which include supporting SMEs in key sectors like agriculture, manufacturing, and tourism, (e.g., leisure and cultural). Therefore, expanding the public sector's capacity to finance essential local infrastructure and projects that support development in these areas is a priority for Hael.

International experience with own-source tax mechanisms can inform the optimal set of financing tools for increasing local revenues, (specifically through the taxation of immovable

## CASE STUDIES AND BEST PRACTICES

### WASTE MANAGEMENT

In the Tamil Nadu State of India, a waste management project proposed the central government (35%) and the state government (15%) share 50% of the total project costs. A private entity (via a PPP) would provide the remaining 50% of project funding. The private concessionaire would be responsible for planning, designing, building, financing, operating, and maintaining the municipal solid waste management facility for the concession period. Land would be provided by the municipality through an annual lease as specified by the Government of Tamil Nadu.

### PARKING FEES

Chicago leased 34,500 curb side parking metres to the bank Morgan Stanley for 75 years, trading metre revenues for an upfront payment of nearly USD \$1.16 billion. This type of PPP contract includes a fixed schedule of metre rate increases, which raised rates two to four-fold by 2013. As a result, Chicago had the highest curb side metre rates in the United States. Metres were netting USD \$20 million annually while Morgan Stanley managed pricing and maintenance of the metres.

### CONGESTION FEES

In 2007, Stockholm introduced a cordon pricing-based scheme to reduce congestion, local pollution, and generate local revenue. Following the introduction of the cordon, traffic decreased by 19% in the first year in addition to generating € 59 million annually. In Singapore, the implementation of an Area Licensing System (ALS) reduced traffic from 12,400 vehicles in May 1995 to 7,300 vehicles in August 1995 during restricted hours. Moreover, revenue from the sale of area licenses amounted to US\$ 47 million with capital costs were US \$ 6.6 million in 1975 with an additional US \$17 million from ALS revisions in 1989.

Source: Ernst and Young Pvt Ltd., Ministry of Urban Development of the Government of India, & the Confederation of Indian Industry, *Compendium on public private partnerships in urban Infrastructure: case studies*. (2017). World Bank. Washington, DC.; Weinberger, R., Kaehny, J., & Rugo, M. (2010). *U.S. parking policies: an overview of management strategies*. Institute for Transportation and Development Policy. New York, NY.; Croci, E. (2016). *The Canadian Council for Public-Private Partnerships, & PPP Canada*. (2011). *Public private partnerships: a guide for municipalities*. The Canadian Council for Public-Private Partnerships. Canada.

property and land value capture mechanisms) that support sound fiscal policy.<sup>21</sup> Saudi Arabia has already adopted new property taxes such as the White Lands Tax and should continue to explore other tax instruments that are suitable to the needs of Hael.<sup>22</sup>

Land taxes are a good option in that they (1) establish a stable and reliable own-source revenue stream for local governments and (2) the benefits associated with development projects, (e.g., public transportation and social infrastructure) is increased substantially by their multiplier effect, (by directing a portion of land value increases back into the government revenue stream).<sup>23</sup> UN-Habitat suggests Hael make use of land taxes, such as betterment levies for upcoming projects, including the proposed bus system network.

Public infrastructure, such as transportation systems can spur adjacent residential and commercial development, increase accessibility, and create job opportunities. Local development driven by public projects can also drive increases in land value and indirectly create a number of other community benefits.<sup>24</sup>

There are a variety of tax instruments available to local governments interested in expanding own-source revenues. While betterment levies are well suited for infrastructure projects, fiscal instruments like waste management fees, parking fees, and congestion fees are effective tools for reducing vehicle dependency and increasing pedestrian traffic, especially in commercial and leisure areas.

There are a variety of tax instruments available to local governments interested in expanding own-source revenues. Governments can maximise the benefits of these tax instruments by:

- Coordinating and collaborating with different levels of government to connect national strategies with local priorities.
- Investing in capacity building and improving tax administration.<sup>25</sup>
- Tailoring fiscal instruments to local needs (e.g., fiscal cadaster).<sup>26</sup>

Lastly, coordinating between planning, legal/regulatory frameworks, and local finance is crucial to creating the necessary local conditions for sustainable and equitable development, as outlined in the New Urban Agenda.<sup>27</sup>



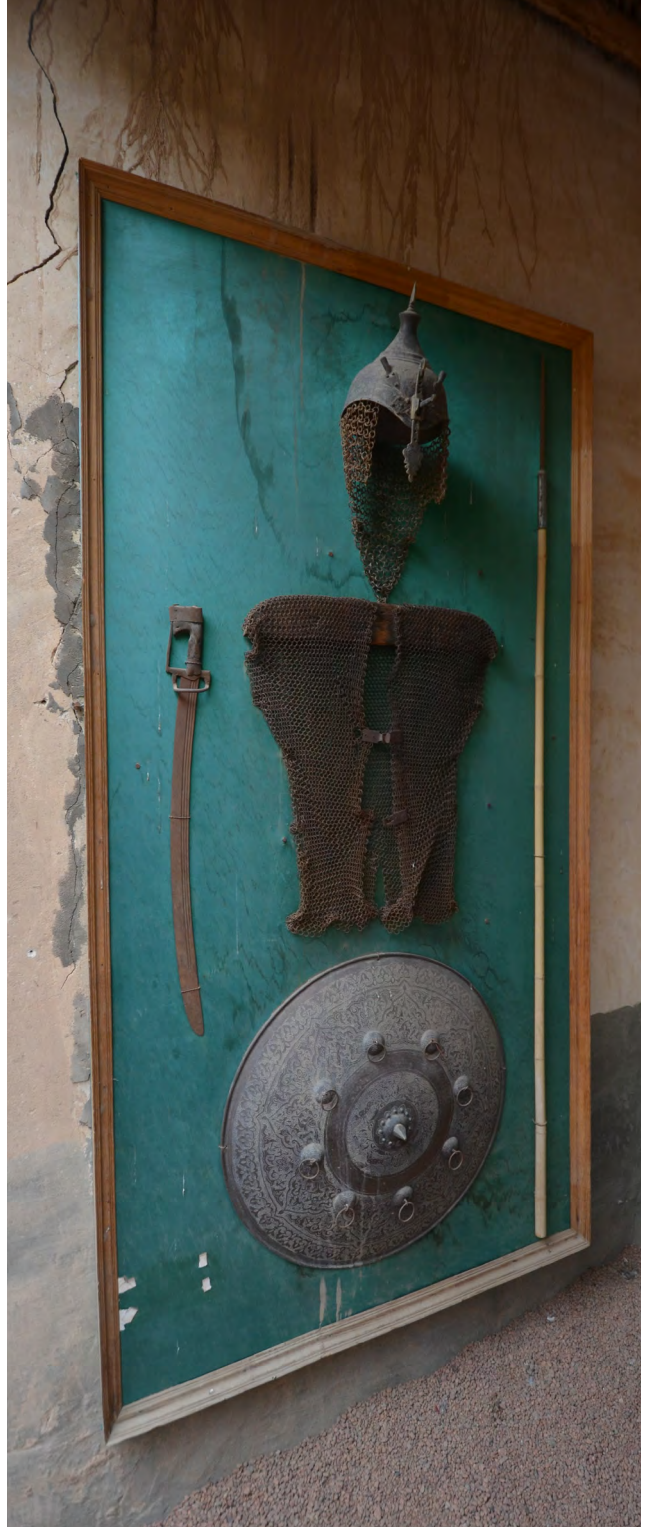
Hael workshop





# 8

## ANNEX



## 8.1 Picture Credits

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© Almrsl .....	109
© FSCP .....	111
© FSCP .....	111
© FSCP .....	113



## 8.2 List of Figures

Fig. 1. Population distribution, growth rate and urban areas within the Kingdom of Saudi Arabia .....	16
Fig. 2. Regional Gross Domestic Product and economic sector contribution .....	17
Fig. 3. Transport connectivity between Saudi cities .....	17
Fig. 4. Administrative boundaries .....	18
Fig. 5. Population distribution in the governorates according to 2010 Census .....	19
Fig. 6. Development corridors according to the Regional Plan for the Hael Region .....	20
Fig. 7. Movement infrastructure .....	21
Fig. 8. Access and connectivity in the Hael Region .....	21
Fig. 9. Economic resources in the governorates of the Hael Region .....	23
Fig. 10. Land use and environmental resources .....	23
Fig. 11. Number of urban laws in KSA based on the Main Themes of Urban Planning Legislations (UN-Habitat) .....	26
Fig. 12. FSCP simplified representation of hierarchy of plans and planning instruments for the city of Hael .....	28
Fig. 13. FSCP simplified representation of actors and processes involved in the preparation of the Hael Local Plan .....	32
Fig. 14. Matrix showing the development options within the phases of the urban boundary in the National Growth Centres (including Hael) .....	34
Fig. 15. Percentage of white lands – First phase of implementation of the White Lands Law .....	35
Fig. 17. Saudi Arabia national expenditure by sector, 2016 .....	38
Fig. 16. Saudi Arabia national expenditure by sector, 2017 .....	38
Fig. 18. Amanah budget, Hael (2016) .....	39
Fig. 19. Amanah budget breakdown (2016) .....	39
Fig. 20. Boundaries, neighbourhoods and key infrastructure .....	45
Fig. 21. Land allocated per capita .....	46
Fig. 22. Urban growth stages .....	47
Fig. 23. Administrative boundaries .....	48
Fig. 24. Current distribution of population density .....	51
Fig. 25. Higher population density within the Ring Road .....	51
Fig. 26. Existing land use .....	52
Fig. 28. Existed land use within the Ring Road .....	53
Fig. 27. Proposed land use by the Hael Plan (2009) .....	53
Fig. 29. Vacant land and undeveloped area .....	55
Fig. 30. Economic nodes and network .....	56
Fig. 31. Water management and sewage treatment .....	59
Fig. 32. Blue and green networks .....	59
Fig. 33. Proposed road network and public transportation by Amanah .....	61
Fig. 34. Proposed bus network by Amanah .....	61
Fig. 35. Proposed BRT Line 1 by Amanah .....	62
Fig. 36. Proposed BRT Line 2 by Amanah .....	62
Fig. 37. Proposed BRT Line 3 by Amanah .....	63
Fig. 38. Driving accessibility to the city centre .....	64

Fig. 39. Walking accessibility to the city centre.....	64
Fig. 40. Mixed-use and commercial land use distribution .....	65
Fig. 41. Walking accessibility to health and educational facilities.....	65
Fig. 42. Hael's unbalanced growth and development patterns .....	73
Fig. 43. Division and lack of cohesion in Hael's city structure .....	75
Fig. 44. Socio-ecological and economical imbalance in Hael .....	77
Fig. 45. Hael's endangered historic and vernacular patterns .....	79
Fig. 46. The Compact City: Consolidating development and densifying centres in Hael .....	85
Fig. 47. The Connected City: Linking Hael through public transport .....	87
Fig. 48. The Resilient City: Rebalancing Hael's socio-ecological and economic systems .....	89
Fig. 49. The Historic City: Preserving the cultural and historic assets of Hael .....	91
Fig. 50. Strategic recommendations for Hael.....	93
Fig. 51. Action 1: Create an efficient public transportation backbone .....	95
Fig. 52. Action 2: Densify, connect and create new centres .....	97
Fig. 53. Action 3: Enhance a well-integrated blue and green network.....	99
Fig. 54. Action 4: Protect existing landmarks and create a connected heritage trail .....	101
Fig. 55. Action Plan for Hael.....	105

### 8.3 Notes and References

- 1 Represent the instructions issued by a Minister, his representative or any official of the Ministry to announce new regulations and updates regarding any intent or action to be undertaken.
- 2 Hael workshop, FSCP 2018
- 3 The planning system in Saudi is not formalized and therefore there is lack of consistency in the naming of plans across the cities. Normally, the strategic component is labelled as the Comprehensive Plan or Structural Plan but in the context of Hael, it is referred to as the Structural Plan.
- 4 [http://eca.gov.sa/webcenter/faces/oracle/webcenter/page/scopedMD/s8bba98ff\\_4cbb\\_40b8\\_beee\\_296c916a23ed/businessRolePages/Page146.jspx?\\_afLoop=52401171787484934](http://eca.gov.sa/webcenter/faces/oracle/webcenter/page/scopedMD/s8bba98ff_4cbb_40b8_beee_296c916a23ed/businessRolePages/Page146.jspx?_afLoop=52401171787484934)#!%40%40%3F\_afLoop%3D52401171787484934%26\_adf.ctrl-state%3D9hvp86yz2\_4" [http://eca.gov.sa/webcenter/faces/oracle/webcenter/page/scopedMD/s8bba98ff\\_4cbb\\_40b8\\_beee\\_296c916a23ed/businessRolePages/Page146.jspx?\\_afLoop=52401171787484934#!%40%40%3F\\_afLoop%3D52401171787484934%26\\_adf.ctrl-state%3D9hvp86yz2\\_4](http://eca.gov.sa/webcenter/faces/oracle/webcenter/page/scopedMD/s8bba98ff_4cbb_40b8_beee_296c916a23ed/businessRolePages/Page146.jspx?_afLoop=52401171787484934#!%40%40%3F_afLoop%3D52401171787484934%26_adf.ctrl-state%3D9hvp86yz2_4)
- 5 Royal Decree No M/4 dated 24 November 2015 (the "Law") and Council of Ministers Decision No. 377 dated 13 June 2016 (the "Regulations").
- 6 Royal Decree of 1975.
- 7 See Royal Decree No. (1663) of 1976.
- 8 See Article 5 of the Law of Regions to Royal Order No. A/92 (1993).
- 9 Agriculture contributes to 12% of Hael GDP; Saudi Arabian General Authority. (2014). Hael Region, Economic Report.
- 10 Vision 2030. (2018). Kingdom of Saudi Arabia. Retrieved from <http://vision2030.gov.sa>
- 11 Education was a key topic during the May 2018 FSCP workshop in Hael.
- 12 Ministry of Finance, Kingdom of Saudi Arabia (2016).
- 13 NTP goal is to increase own-source revenue to 40% of municipal budgets by 2020. In 2016, intergovernmental transfers to the province reached 90% of the total budget (MoMRA).
- 14 Jadwa Investment. (2016). The Saudi Stock Exchange.
- 15 Saudi banking system is supervised by Saudi Arabian Monetary Authority (SAMA), which includes 12 licensed local banks and 12 branches of

- licensed foreign banks. Saudi Arabia Monetary Authority <http://www.sama.gov.sa/en-US/Pages/default.aspx>
- 16 The Capital Market Law, formation of the Securities and Exchange Commission, and creation of a privately-owned stock exchange were launched with the aim of improving the domestic capital market. Saudi Arabian Monetary Authority. Retrieved from <http://www.sama.gov.sa/en-US/Pages/default.aspx>
- 17 Hentov, E., Kassam, A., Kumar, A., Petrov, A. (2017). Transforming Saudi Arabia's apital Markets, Strengthening the Financial Triad. State Street Global Advisors.
- 18 D. Godschalk (2003) Urban Hazard Mitigation: Creating Resilient Cities, *Natural Hazards Review*, Vol. 4, Issue 3
- 19 Definition from UNDP/UNESCO, Quito Colloquium, 1977.
- 20 Saudi Commission for Tourism and National Heritage
- 21 Norregaard, J. (2013). Taxing immovable property: revenue potential and implementation challenges. International Monetary Fund, Working Paper WP/13/129, Washington, DC.; Walters, L. (2016). Leveraging land: land-based finance for local governments. United Nations Human Settlements Programme. Nairobi, Kenya.
- 22 The white lands tax law (introduced in 2015), requires owners of empty plots of urban land designated for residential or commercial use in towns and cities will have to pay an annual tax of 2.5% of land value. The land tax applies to plot sizes equal to or greater than 10,000 square meters. It has been adopted in the cities of Riyadh, Jeddah and Dammam.
- 23 Walters, L. (2016). Leveraging land: land-based finance for local governments. United Nations Human Settlements Programme. Nairobi, Kenya.
- 24 Colliers International. (2017). The impact of social infrastructure on mixed-use developments 1+1=3.; Rodríguez, D. A., & Targa, F. (2004). Value of accessibility to Bogotá's bus rapid transit system. *Transport Reviews*, 24(5), 587 – 610.
- 25 The lack of administrative capacity is responsible for low revenue collection in Dar Salaam.; Walters, L. (2016). Leveraging land: land-based finance for local governments. United Nations Human Settlements Programme. Nairobi, Kenya.
- 26 Between 2009 and 2010, Bogotá, Colombia's cadastral office began valuing all urban property following the adoption of several administrative reforms. The valuation revealed an increase in the city's cadastral value by 47%. The property valuation process cost USD \$7.8 million and generated USD \$171 million in property tax revenue for the city.; Ruiz, F., & Vallejo, G. (2010). Using land registration as a tool to generate municipal revenue: lessons from Bogota. World Bank, Washington, DC.
- 27 United Nations. (2017). New Urban Agenda. United Nations Human Settlements Programme, Nairobi, Kenya.







