

Kuala Lumpur Structure Plan 2040

City for All





Kuala Lumpur STRUCTURE PLAN 2040

Kuala Lumpur City for All



KUALA LUMPUR
CITY HALL

Gazette date: 19 October 2023

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Kuala Lumpur Structure Plan 2040 has been prepared and produced as part of the process of Structure Plan by Kuala Lumpur City Hall with valuable inputs from a range of professionals, Government agencies, Industry, interest groups and the community. Kuala Lumpur Structure Plan 2040 translates a long term vision towards a **CITY FOR ALL**, where the sustainability agenda is at the highest level to support the City's dynamic growth and ensure the needs of the City's community are addressed. The Plan sets the strategic direction and identifies actions for the implementation of the Plan. The plan shall be used by Kuala Lumpur City Hall in its planning decisions and building plan applications, for infrastructure development and carrying out works related to the development of the City. This document provides an administrative framework and guidance to KLCH in carrying out its duties as a local authority.

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Preface

Assalamualaikum Warahmatullahi Wabarakatuh dan Salam Malaysia Madani,

Alhamdulillah. Congratulations and appreciation to the Kuala Lumpur City Hall (KLCH) for successfully preparing the Kuala Lumpur Structure Plan 2040 (KLSP2040). The preparation of KLSP2040 is in accordance with the provision of Section 7, Federal Territory (Planning) Act 1982 (Act 267). It is the primary planning document for the Federal Territory of Kuala Lumpur.

Recognising the fact that Kuala Lumpur faces a multitude of challenges today in meeting the diverse needs of its residents while providing a sustainable and high-quality living environment, particularly concerning the cost of living, economic challenges, population growth, climate change and land availability for development.



Therefore, the formulation of KLSP2040 has adopted a new approach where the implementation integrates an emphasis on future focus, aligned with national and global planning aspirations such as the Sustainable Development Goals 2030 (SDGs) and the New Urban Agenda (NUA). Planning policies and recent commitments at various levels, especially those related to strengthening the urban economy and restructuring the economy towards Kuala Lumpur as a regional economic leader in Southeast Asia in line with the MADANI Economic policy, are incorporated into the KLSP2040. Furthermore, other policies within KLSP2040 also emphasise sustainable development with a direction towards a low carbon development landscape to foster a more sustainable economic framework. All of these policies are translated into strategic directions and implementation actions.

The vision for Kuala Lumpur to become a **CITY FOR ALL** by 2040 must be embraced by all citizens to ensure the successful realisation of this vision. Collaboration and support from various stakeholders, including KLCH, government agencies, private sector, investors, developers, and residents are crucial in executing the outlined actions to ensure that Kuala Lumpur continues to thrive as the capital city and a dynamic urban centre with principles of equitable, prosperous, sustainable, and resilient development. Efforts to ensure the well-being and improved quality of life for the residents of Kuala Lumpur will persist. Therefore, the implementation of KLSP2040 is expected to realise the vision of a **CITY FOR ALL**, transforming Kuala Lumpur as the capital of Malaysia into an inclusive city focused on sustainable urban development and management to achieve the well-being of the urban population.

Thank you

YAB DATO' SERI ANWAR BIN IBRAHIM
Prime Minister

Preface

Assalamualaikum Warahmatullahi Wabarakatuh,

Alhamdulillah. Kuala Lumpur City Hall (KLCH) has successfully produced the Kuala Lumpur Structure Plan 2040 (KLSP2040), the fundamentals of future planning for Kuala Lumpur's development. KLSP2040 Strategic Directions and Actions are prepared in line with 17 Sustainable Development Goals (SDGs) and the New Urban Agenda (NUA) to ensure Kuala Lumpur develops dynamically, meeting its present and future needs.

KLSP2040 is a comprehensive blueprint that considers current and future changes. These include climate change, economic conditions, demographic changes, lifestyle, infrastructure requirements, sustainable urban management, and development. The impact of the pandemic that struck worldwide brought forth new norms in perspectives and approaches.



Thus, KLSP2040 is imperative in setting the direction of this city. KLSP2040 effectively identifies and addresses Kuala Lumpur's current scenarios and strategic issues.

KLSP2040 development proposal also emphasises future projections and targets, apart from considering the initiatives through feedback and surveys conducted during the preparation of this structure plan.

The feedback, sharing and views gathered during the KLSP2040 preparation period echo KLCH's aspirations to create a **CITY FOR ALL**. This inclusive effort is based on a holistic development vision with efficient governance geared towards city development driven by the city dwellers' active involvement. As a comprehensive and balanced development measure, implementing KLSP2040 is expected to promote investment opportunities, employment and preferred/ chosen destinations in the future.

Finally, I congratulate KLCH, government agencies, private entities, NGOs and all residents of Kuala Lumpur. They have assisted in pursuing KLSP2040's successful preparation. With the cooperation of all parties, may KLCH continue its commitment to revive the development strategy in Kuala Lumpur and acquire the utmost trust to discharge the responsibility mandated towards realising Kuala Lumpur, a **CITY FOR ALL**.

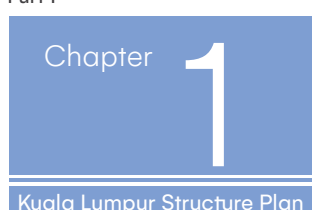
Thank you.

DATUK Sr KAMARULZAMAN BIN MAT SALLEH
Mayor of Kuala Lumpur

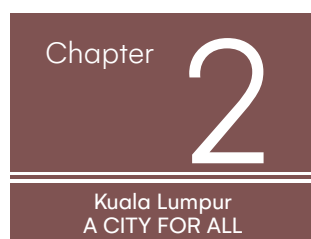
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CHAPTER 1

Kuala Lumpur Structure Plan



PART 1: Introduction

Kuala Lumpur Structure Plan 2040

City for All



KUALA LUMPUR
CITY HALL

City For All

CHAPTER 2



CHAPTER 1

KUALA LUMPUR STRUCTURE PLAN

Kuala Lumpur Structure Plan is a development plan prepared for the whole area under the provisions of Section 7, Federal Territory (Planning) Act 1982 (Act 267). It contains vision, goals, policies and actions to drive Kuala Lumpur's development for a specified period.

The Structure Plan is the highest planning document for Kuala Lumpur that indicatively drives strategic development. The Structure Plan sets out the planning and spatial development framework for a detailed interpretation at the next development plan stage, which is the local plan and other implementation plans.

The Kuala Lumpur Structure Plan 2040 (KLSP2040) will replace the existing plan, namely the Kuala Lumpur Structure Plan 2020 (KLSP2020). However, there are policies in KLSP2020 that are still relevant to be applied in KLSP2040.

This replacement plan also considers rapid development, economic changes and the implementation of the latest national policies. Furthermore, Kuala Lumpur must embrace the new role of competing internationally in the 21st century. Thus, preparing a new structure plan will ensure that development in Kuala Lumpur continues to be planned holistically with efficient governance.



SKYLINE VIEW OF KUALA LUMPUR, YEAR 2022

IMPLEMENTATION DURATION OF KLSP2040

KLSP2040 will be implemented until year 2040. However, this document will be used until a new structure plan is gazetted.



KUALA LUMPUR
STRUCTURE PLAN
(Gazette Year : 1984)

Main Focus:

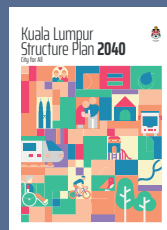
1. Promoting balanced development;
2. Reducing activities and traffic congestion in the city centre; and
3. Creating a hierarchy of urban centres where new growth areas serve as residential and employment zones. The development focus areas are Damansara, Wangsa Maju, Bukit Jalil and Bandar Tun Razak.



KUALA LUMPUR
STRUCTURE PLAN
2020
(Gazette Year: 2004)

Main Focus:

1. World-class living environment;
2. World-class working environment;
3. World-class business environment; and
4. World-class city governance.



KUALA LUMPUR
STRUCTURE PLAN
2040

Main Focus:

To adopt a holistic, inclusive, equitable, livable and sustainable development approach by focusing on six (6) aspects:

1. Economic resilience;
2. Inclusive community development;
3. Greening and beautification of the city;
4. Low-carbon approach;
5. Efficient mobility system; and
6. Integrated land management.

KUALA LUMPUR DEVELOPMENT PLANNING FRAMEWORK

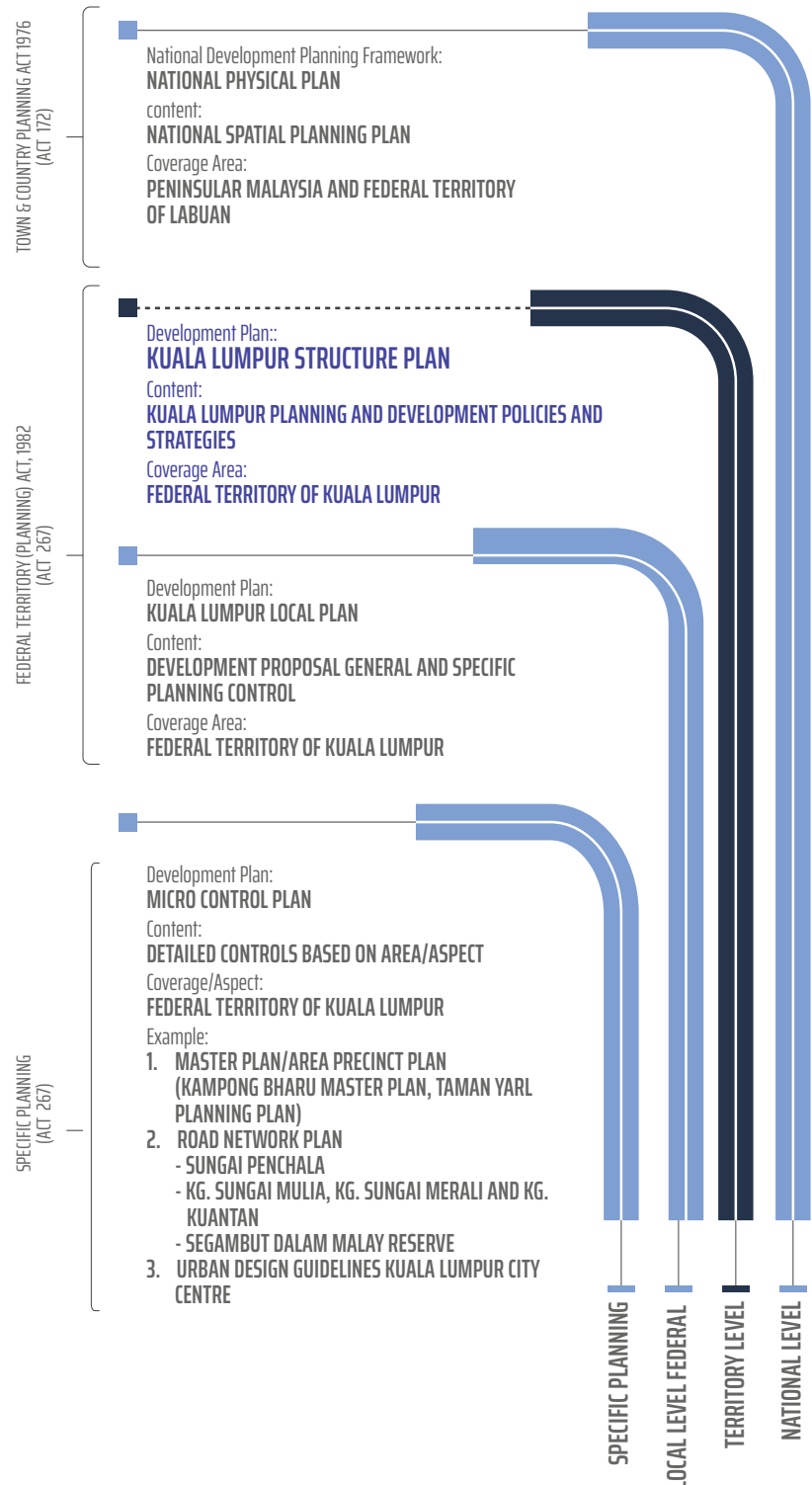
Kuala Lumpur Structure Plan 2040 (KLSP2040) is the second layer development plan after the National Physical Plan (NPP). The NPP outlines the national policy based on the Town and Country Planning Act, 1976 (Act 172). In the Federal Territory of Kuala Lumpur, KLSP2040 is prepared under the provision of the Federal Territory (Planning) Act, 1982 (Act 267). KLSP2040 outlines the policies and translates planning in NPP and other policies at the global, national and local level.

The structure plan is prepared based on the definition of Act 267, whereby “in relation to an area, means a written statement accompanied by diagrams, illustrations and other descriptive matter containing policies and proposals in respect of the development and use of land in the area and may indicate action area; and “draft structure plan” shall be construed as the context requires”.

KLSP2040 also contains plans and illustrations shown as diagrams or indicative and not specific to the lots involved. The strategic direction is the basis for the implementation, supported by strategic actions elaborated through supporting actions.

The actions outlined in PSKL2040 are detailed at the local level. Then, the plan is implemented through the micro-control plan at the specific planning level, whether in the form of a master plan, layout plan, road network plan, and so on which is prepared administratively through the powers of the Mayor and functions of City Hall under provision of Act 267 (Figure 1.1).

FIGURE 1.1: KLSP POSITION IN DEVELOPMENT PLANNING FRAMEWORK



ADOPTION OF GLOBAL, NATIONAL AND LOCAL POLICIES AND COMMITMENTS

KLSP2040 coordinates and translates the latest policies and commitments that have been adopted at various levels, either globally, nationally or locally, particularly related to sustainable development and growth, liveability and reducing the impact on climate change.

Kuala Lumpur is leading the country's economy with the nation's second-highest growth in Gross Domestic Product (GDP). Kuala Lumpur needs to continuously develop to generate the country's economy and provide job opportunities.

Simultaneously, Kuala Lumpur should ensure that spatial development is balanced with economic and social development as well as emphasises on environmental conservation.

GLOBAL COMMITMENT

1. Sustainable Development Goals (SDG)



SDG is a joint commitment to achieve sustainable nation status. This goal results in an action plan that preserves basic global needs. There are 17 goals with 169 targets to be met by 2030. The 17 holistic SDG goals focus on multiple aspects, including inclusive, safe, resilient and sustainable cities and human settlements.

2. New Urban Agenda (NUA)



The NUA represents a pledge of commitment and initiatives by United Nations (UN) member states with regard to urban planning and development. It encompasses a wide range of aspects related to urbanization and human settlement, with its primary focus of ensuring that no one is left behind.

3. United Nations Convention on the Rights of Persons with Disabilities (UNCRPD)



UNCRPD is an international convention under the UN to promote, protect and ensure equal human rights, especially for persons with disabilities.

4. Addis Ababa Action Agenda



Addis Ababa Action Agenda is a global framework for financing sustainable development in alignment with economic, social and environmental policies.

5. The Paris Climate Agreement 2015



In this agreement, Malaysia will reduce the intensity of greenhouse gas emissions from the Gross Domestic Product (GDP) by 45 percent in 2030 compared to the intensity of emissions in 2005.

6. Sendai Framework for Disaster Risk Reduction 2015-2030



The Sendai Framework for Disaster Risk Reduction 2015-2030 aimed at reducing disaster risks and reducing its implications to the quality of life, income resources, health, economy, physical, social, cultural, environmental, business and community until 2030.

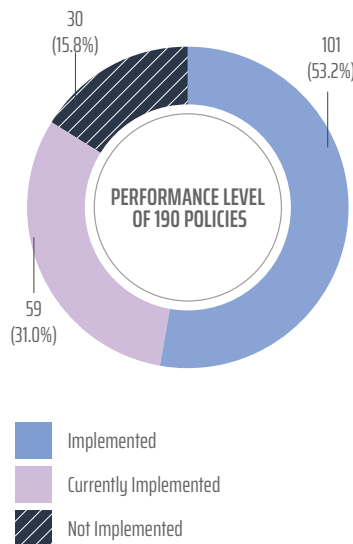
IMPLEMENTATION PERFORMANCE OF KLSP2020

KLSP2020 was gazetted on 4th November 2004 with the vision of making Kuala Lumpur a World Class City by 2020. It contains five (5) goals, ten (10) key strategies, 13 sectors and 190 policies.

The 190 policies are evaluated on their priorities, performance level and suitability of its application until 2020. The priority aspect revealed that 41 policies are key policies and 149 policies are strategies that support the main policies.

Throughout the gazettelement of KLSP2020, 53.2 percent (101 policies) were implemented, 31 percent (59 policies) were progressively implemented, and 15.8 percent (30 policies) were not implemented (Figure 1.2). Whilst the relevancy level evaluation of KLSP2020 indicates that 20.5 percent (39 policies) of the policies remain relevant, 68.4 percent (130 policies) are still relevant and need improvements, and 11.1 percent (21 policies) should be dropped (Figure 1.3).

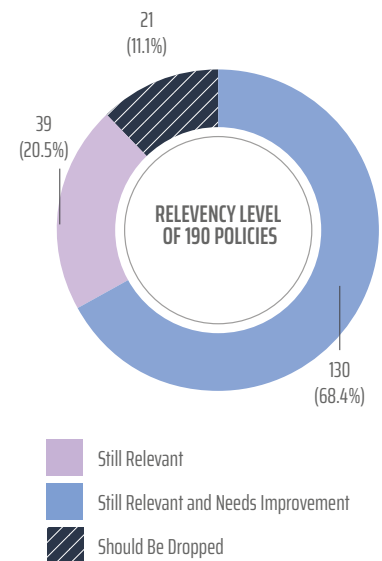
FIGURE 1.2: KLSP2020 POLICY IMPLEMENTATION PERFORMANCE



Note:

- Policy Still Relevant:**
Refers to the policy still suitable for achieving the vision of KLSP2040, namely The City for All.
- Policy Still Relevant and Needs Improvement:**
Refers to the policy that is still relevant with improvements based on its suitability within the current context and changes in achieving the City for All.
- Policy Should Be Dropped:**
The policy is dropped because it is no longer applicable according to the structure plan's context and need to be elaborated in the local plan or micro control plan. Some of these policies also unsuitable within the management and implementation context under City Hall.
- The assessment of the PSKL2020 policy's achievements was conducted in 2018.

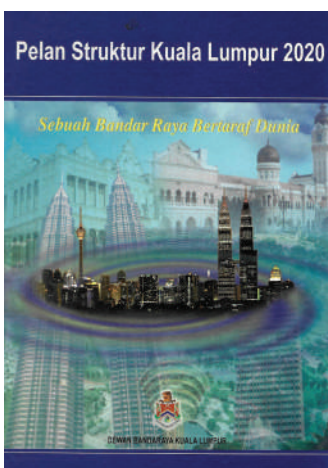
FIGURE 1.3: KLSP2020 POLICY RELEVANCY LEVEL EVALUATION FOR IMPLEMENTATION OF KLSP2040



ASPECTS IN KLSP2020 POLICIES WHICH ARE APPLIED AND IMPROVED IN KLSP2040

23 main aspects in KLSP2020 policies have been adopted and improved for preparation of KLSP2040. Following are the aspects:

- Knowledge-based economic centre;
- International trade and finance centre;
- Tourism centre;
- High-tech industry and light service industry in quality environment;
- Empowering B40 group;
- Quality and competitive hawkers;
- Quality, adequate and accessible housing;
- Affordable housing;
- Public facilities;
- Community participation;
- Redevelopment of dilapidated area;
- Comprehensive development of traditional and new villages;
- Urban character and identity;
- Green network;
- Blue corridors;
- Environmentally sensitive areas;
- Environmental quality;
- Quality environment;
- Transit Oriented Development;
- Pedestrian and cycling route;
- Adequate and efficient infrastructure;
- Holistic information technology network; and
- Clean and technological solid waste disposal.

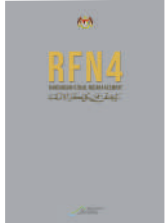


KUALA LUMPUR STRUCTURE PLAN 2020 (KLSP2020)

NASIONAL COMMITMENTS

National Development Plan

1. National Physical Plan (NPP)



The Fourth National Physical Plan (NPP4) is the highest planning document within the country's physical development planning framework. It contains physical planning that translates the country's strategic and sectoral policies in the context of spatial and physical dimensions.

Strategic policies and the overall national planning framework will determine the regional, state, and local development plan directions. Following are the thrust and strategic direction adopted in KLSP2040:

Balanced and Dynamic Growth (PD)

- i. PD 1: Strengthening Nation's Strategic Position at Global Level
- ii. PD 3: Strategic and Integrated Transportation Network Connectivity

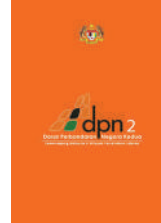
Spatial Sustainability and Climate Change Resilience (KD)

- i. KD 1: Optimum Land Use Planning
- ii. KD 3: Development Towards a Carbon Neutral Nation

Livable Environment and Inclusive Community (KI)

- i. KI 1: Housing Provision Planning for All
- ii. KI 3: Conducive and Livable Environment
- iii. KI 4: Community-Friendly Planning and Development

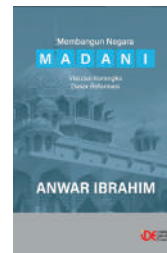
2. National Urbanisation Policy (NUP)



The Second National Urbanisation Policy (NUP2) is a policy that drives and coordinates towards efficient and systematic national urbanisation planning and development, particularly in managing the increasing number of urban populations with emphasis on a balanced social, economic, and physical development in the city. Following are the thrust and strategic direction adopted in KLSP2040:

- i. Principle 1: Good Urban Governance;
- ii. Principle 2: Liveable City;
- iii. Principle 3: Competitive Urban Economics;
- iv. Principle 4: Inclusive and Equitable Urban Development;
- v. Principle 5: Green Development and Clean Environment.

3. Developing a MADANI Nation



The overarching aspiration is for Malaysia to evolve into a nation characterised by sustainability, liveability, innovation as well as a harmonious and diverse society that values mutual respect and compassion. At the heart of this mission lies the concept of MADANI, which is rooted in the establishment and its citizens, fostering good governance, transparency and collaborative efforts. The six (6) MADANI core values:

- i. Sustainability;
- ii. Prosperity;
- iii. Innovation;
- iv. Respect;
- v. Trust; and
- vi. Compassion.

Related Policies and Master Plan

The relevant policies and master plans translated in each goal and strategic directions of KLSP2040 are:

Resource Management and Climate Change

1. National Climate Change Policy 2010;
2. National Water Resources Policy 2010-2050;
3. National Policy on Biological Diversity 2016 -2025;

Low Carbon

4. Low Carbon Cities Framework (LCCF);
5. National Low Carbon Cities Masterplan (NLCCM);

Economic Development

6. National Tourism Policy 2020-2030;
7. National Creative Industry Policy;
8. National Fourth Industrial Revolution Policy (4IR);
9. Industry4WRD: Dasar Kebangsaan Industri 4.0;
10. National Entrepreneurship Policy 2030;

Social Development and Liveability

11. National Community Policy (2018);
12. National Housing Policy 2018-2025;
13. National Affordable Housing Policy (2019);
14. Security and Public Order Policy (2019);
15. National Cleanliness Policy 2030;

Infrastructure and Transportation Development

16. National Transportation Policy 2019-2030;
17. National Energy Efficiency Action Plan 2015;
18. Jalinan Digital Negara (JENDELA); and
19. Malaysia Green Technology Master Plan 2017-2030;

LOCAL COMMITMENT

Existing Planning Documents

Disaster Management and Climate Change and Low Carbon Development

1. Flood Mitigation Plan (2017);
2. Kuala Lumpur Low Carbon Society Blueprint 2030;
3. Kuala Lumpur Climate Action Plan 2050;

Economic Development

4. Kuala Lumpur Tourism Master Plan 2015-2025;
5. Kuala Lumpur Creative and Cultural District Strategic Master Plan (2019);
6. Kuala Lumpur City Competitiveness Master Plan 2030;

Social Development and Liveability

7. Kuala Lumpur Pedestrian and Bicycle Master Plan 2019 -2028;
8. Residensi Wilayah Policy;
9. Panduan Pelaksanaan Pembaharuan Semula Kuala Lumpur;

Urban Identity and Heritage

10. Kuala Lumpur Heritage Trail Master Plan Volume 1 & 2 (2016);
11. Urban Design Guidelines Kuala Lumpur City Centre Volume 1 and 2;

Infrastructure and Transportation Development

12. Kuala Lumpur Smart City Master Plan 2021-2025;
13. Kuala Lumpur Traffic Master Plan 2040;
14. Master Plan for Integrated Land Use Planning For Sungai Buloh-Serdang-Putrajaya Line (MRT 2);

Governance

15. Kuala Lumpur City Hall Strategic Plan 2021-2030;
16. KLCH ICT Strategic Plan 2021-2025 & 2026-2030; and

Others

17. Other planning documents prepared within the preparation period of this structure plan.

FORMS AND CONTENTS OF KLSP2040

KLSP2040 is prepared under the provision of Part III the Development Plan, Section 10(1), 10(2), 10(3) and 10(4), Act 267, which outlines the requirements for the preparation of planning and development policies for Kuala Lumpur. **The policies are manifested as goals and strategic directions and translated through actions and supporting actions for implementation.**

After more than 30 years of KLSP's implementation that went through two (2) preparation processes, KLSP2040 embarks on a new approach taking into account the increasingly complex growth challenges, streamlined and refined existing policies, and the national and global planning agendas, specifically the Sustainable Development Goals (SDG) and the New Urban Agenda (NUA). Besides, KLSP2040's strategic directions, actions and supporting actions also adopted the sectoral policies such as the economy, social, environmental, and physical.

The vision, goals, strategic direction, actions and supporting actions of KLSP2040 are translated into governance and spatial development framework through Urban Management Plan and Spatial Management Plan. It guides the planning and management of Kuala Lumpur City as an inclusive city for all.

The emphasis on the inter-relatedness of economic, social, environmental and cultural aspects as a critical component of Kuala Lumpur's sustainable development demonstrates the focus of KLSP2040 to six (6) goals, namely:

1. Innovative and Productive;
2. Inclusive, Equitable and Liveable;
3. Green, Healthy and Vibrant;
4. Smart Climate and Low Carbon;
5. Efficient and Environment-Friendly Mobility; and
6. Integrated and Sustainable Development.

The framework of KLSP2040 is divided into two (2) parts. Part 1 describes the introduction for KLSP2040 (Chapter 1 and Chapter 2) on the overall planning of KLSP. Whilst Part 2 (Goal 1 to Goal 6) describes the aim, strategic direction, actions and supporting actions of KLSP2040.

QUICK INFO

CONTENT KLSP2040

PART 1 INTRODUCTION

CHAPTER 1

KUALA LUMPUR STRUCTURE PLAN

CHAPTER 2

KUALA LUMPUR A CITY FOR ALL

1. Kuala Lumpur Vision 2040
2. Urban Management Plan
3. Spatial Management Plan

PART 2 GOAL, STRATEGIC DIRECTION, ACTION AND SUPPORTING ACTION

GOAL 1

Kuala Lumpur **Innovative and Productive** City

GOAL 2

Kuala Lumpur **Inclusive, Equitable and Liveable** City

GOAL 3

Kuala Lumpur **Green, Healthy and Vibrant** City

GOAL 4

Kuala Lumpur **Climate Smart and Low Carbon** City

GOAL 5

Kuala Lumpur **Efficient and Environment-Friendly Mobility** City

GOAL 6

Kuala Lumpur **Integrated and Sustainable Development** City



KUALA LUMPUR SKYLINE VIEW, YEAR 2021

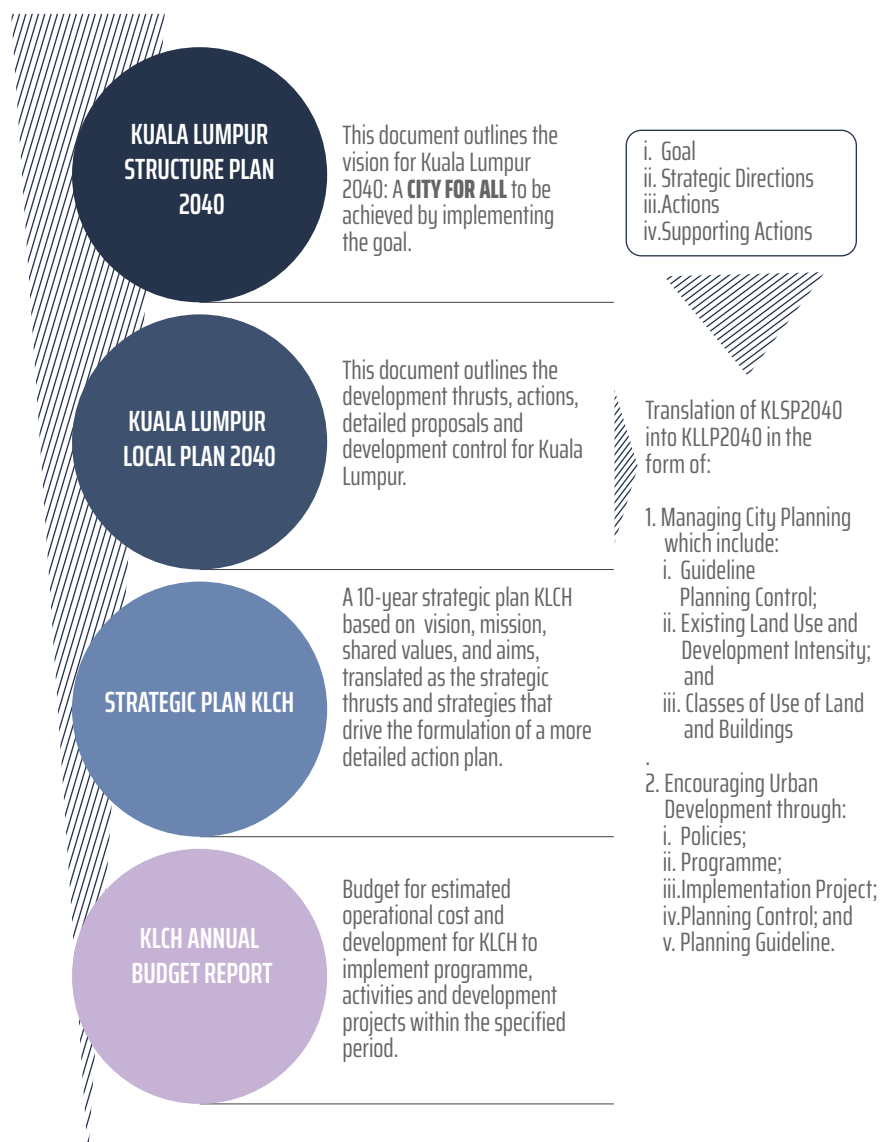
KLSP2040 FRAMEWORK

KLSP2040 framework emphasises comprehensive planning to ensure all strategic directions and actions are implementable to achieve Kuala Lumpur's vision in 2040. This comprehensive planning framework will be implemented through:

1. Kuala Lumpur Structure Plan 2040 (KLSP2040);
2. Kuala Lumpur Local Plan 2040 (KLLP2040);
3. Kuala Lumpur City Hall Strategic Plan; and
4. KLCH Annual Budget Report

The commitment to implement all strategic directions and actions in KLSP2040 can ensure the achievement of Kuala Lumpur's development vision. Kuala Lumpur Local Plan 2040 (KLLP2040) translates these strategic directions and actions for development control and guidelines in the form of detailed proposals and initiatives. Subsequently, these strategic directions and actions will also be translated into programmes and actions in the Strategic Plan KLCH and implemented through the financial allocation and project implementation mechanisms.

FIGURE 1.4: KLSP2040 COMPREHENSIVE PLANNING FRAMEWORK



KLSP2040 PUBLIC AND STAKEHOLDERS ENGAGEMENT PROCESS

KLSP2040 was prepared through a public engagement process with various stakeholders and the public from the early document preparation stages. The public consultation process took multiple forms such as meetings, workshops and briefings.

Act 267 does not explicitly stipulate the public engagement process during draft preparation. Nonetheless, public engagement sessions were held to reflect the transparency and commitment of KLCH to plan Kuala Lumpur with all stakeholders, particularly the residents of Kuala Lumpur, in line with the vision of Kuala Lumpur a **CITY FOR ALL**.



ENGAGEMENT SESSION DRAFT KLSP 2040

FIGURE 1.5: ENGAGEMENT SESSIONS WITH TARGET GROUPS DURING THE PREPARATION OF THE DRAFT KLSP2040

1

DRAFT KLSP2040 PREPARATION STAGE

Main Activities:

1. KLCH Internal Workshop.
2. Workshop based on sectors and Focus Group Discussion (FGD).
3. Visioning Workshop.
4. Steering Committee Meeting with the Mayor.
5. Briefing with Kuala Lumpur Federal Territory Members of Parliament.
6. Briefing with Minister of Federal Territory of Kuala Lumpur.

2

DRAFT KLSP2040 EXHIBITION AND PUBLIC VIEWING STAGE

Main Activities:

1. Public view on Draft KLSP2040.
2. Briefing on the Draft KLSP2040 to Members of Parliament for the Federal Territory of Kuala Lumpur, Members of the Advisory Board of Kuala Lumpur City, Professional Organisations, Government Agencies, Non-Governmental Organisations (NGOs), and the general public.

3

DRAFT KLSP2040 PUBLIC HEARING SESSION STAGE

Main Activities:

1. Public Hearing Session.

4

DRAFT KLSP2040 APPROVAL STAGE

Main Activities:

1. Consultation meeting between the Mayor of Kuala Lumpur with members of Parliament for Federal Territory of Kuala Lumpur.
2. Townhall session with community associations and Non-Governmental Organisations (NGOs) on the gazettelement of Kuala Lumpur Structure Plan 2040 (KLSP2040).
3. Engagement with general public and stakeholders in Federal Territory of Kuala Lumpur on the amendmend of the draft Kuala Lumpur Structure Plan (KLSP2040).

CHAPTER 2

KUALA LUMPUR A CITY FOR ALL



KUALA LUMPUR POPULATION DIVERSITY

Kuala Lumpur is one of the major global cities in Southeast Asia. The booming economy of Kuala Lumpur as Malaysia's premier commercial and financial centre, cultural hub and capital city. Kuala Lumpur's success is also the outcome of the dynamic economic and physical planning framework that has shaped Kuala Lumpur's development to date.

In continuing future planning throughout the implementation period of this structure plan, Kuala Lumpur's vision is to be a **CITY FOR ALL**. This vision is driven by the aspirations of the city dwellers for Kuala Lumpur continues to develop as a dynamic city based on equitable, prosperous, sustainable and resilient development principles. A **CITY FOR ALL** opens up innovative and productive economic opportunities by intensifying the involvement of more labour force in shared, digital and creative economies. Kuala Lumpur **CITY FOR ALL** also ensures equal employment opportunities, affordable home ownership as well as healthy, quality, low carbon and climate-smart living environment. Furthermore, Kuala Lumpur **CITY FOR ALL** also provides access to efficient and environmental-friendly mobility city.

Kuala Lumpur's vision includes a thoughtful consideration of the current challenges the city faces in meeting the needs of its people; which encompass the rising cost of living, in addition to addressing economic issues, population growth, climate change and the land availability for development.

The Kuala Lumpur Structure Plan 2040 (KLSP2040) sets the direction for Kuala Lumpur development through six (6) goals, 21 strategic directions and 73 actions. These goals, strategic direction and actions are consolidated and translated into integrated and sustainable land use planning. It is implemented through an urban management plan to achieve sustainable, efficient and effective governance.

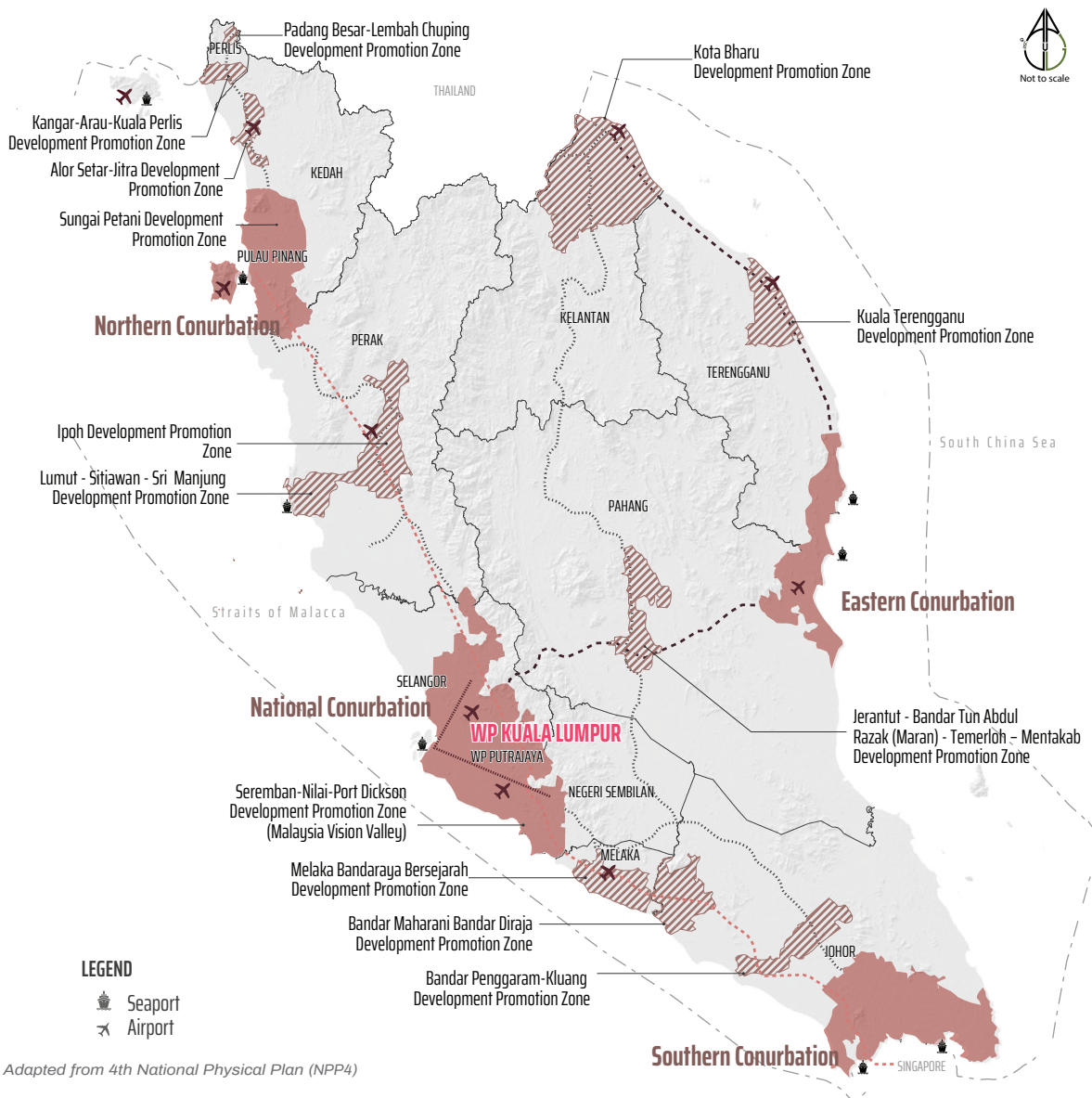
KLSP2040 is a document that provides direction, action and guidance on the transformation required in managing resources and adapting actions on social, economic and environmental changes for the benefit of future generations.

KUALA LUMPUR AND REGIONAL SIGNIFICANCE

Kuala Lumpur is part of a robust and rapidly growing National Conurbation with a network of interconnected cities (Figure 2.1). Kuala Lumpur plays a vital role in the National Conurbation as a primary economic hub mainly in the commercial and financial sectors, apart from being a centre for cultural, educational and health as well as various services to approximately 10 million people in year 2020.

The National Conurbation which is also part of the Greater KL/Klang Valley and Malaysia Vision Valley (MVV) is a metropolitan area with 16 Local Authorities (Figure 2.2). The Greater KL/Klang Valley area that is part of the National Conurbation area has recorded a contribution of over 40 percent to the country's Gross Domestic Product (GDP) in year 2020, making the region the core of Malaysia's economic growth. The National Conurbation is equipped with efficient public transportation facilities, especially rail system in Kuala Lumpur where it has contributed to strengthen the agglomeration of economic activities between cities within the National Conurbation.

FIGURE 2.1: PENINSULAR MALAYSIA'S CONURBATION AND PROMOTION ZONE BOUNDARY



Source: Adapted from 4th National Physical Plan (NPP4)

2-3

YEAR 1800-1920

Development of Kuala Lumpur initiated by Sutan Puasa, with the construction of key infrastructure such as irrigation canals and other amenities.

Sutan Puasa opened up the upstream area of Kuala Lumpur by clearing the jungle and preparing irrigated paddy fields for cultivation particularly in Setapak.

1881-1883

Major fires and floods rapidly destroyed almost the entire settlement in Kuala Lumpur. This is the beginning of building construction with bricks and roof tiles.

1896

Kuala Lumpur became the capital of the Federated Malay States (Selangor, Perak, Pahang and Negeri Sembilan) on 1 July 1896.

1916

Kuala Lumpur's development planning concentrated along major roads due to physical barriers such as swampy and hilly lands.

1921

C.C Reeds was appointed as the first Town Planner in the Federated Malay States. His appointment was in line with the establishment of the Advisory Board, also known as the Town and Country Planning Department.

1857

Kuala Lumpur was formerly a tin mining centre pioneered by Raja Abdullah, Klang District Chief at that time and continue developed by Yap Ah Loy.

1880-1884

- Kuala Lumpur was declared as the capital city for the State of Selangor by Captain Bloomfield Douglas, Resident of Selangor.
- The introduction of Building Law.

1886

The planning of railway construction from Kuala Lumpur to Kelang initiated by Frank Swettenham.



ESTABLISHMENT OF KUALA LUMPUR RAILWAY STATION

YEAR 1930-1999

1933

Reeds' successor, R.P Davies, conducted planning for Kuala Lumpur city plan through identification of various zones for specific use.

1957

Kuala Lumpur was made the capital of the Federation of Malaya after the Second World War and the Kuala Lumpur Municipal Council was established to take over the duties of the Sanitary Board Kuala Lumpur.

1970-1980

Redevelopment of Low-Cost Housing Project to eradicate squatters and poverty issues such as in Kg. Kerinchi and Kg. Abdullah Hukum.

1984-1999

- The introduction of road development projects such as the Kuala Lumpur Traffic Dispersal Scheme, pedestrian facilities, Inner Ring Road, Middle Ring Road 1 & 2 and Radial Urban Highway.
- Development is focused in the Central Planning Area - which is Kuala Lumpur City Centre and four (4) New Growth Areas, namely Damansara, Wangsa Maju, Bukit Jalil and Bandar Tun Razak.
- Commuter services commenced operations in year 1995, the first rail-based public transportation in Kuala Lumpur, followed by the Light Rail Transit System (STAR and PUTRA) as an alternative to public transport.
- New projects promoting the image as a World Class City include Petronas Twins Tower, Mid Valley, Kuala Lumpur Tower, Dayabumi Complex, Tabung Haji Tower and Telekom Tower.

1939

The 'Pelan Bandar Am' was the first development plan for Kuala Lumpur, which formed the basis of development until year 1964.

1942-1945

The Japanese conquest of Malaya has brought Kuala Lumpur's economy to a standstill.

1960-1972

- Kuala Lumpur rapidly developed as a national capital. It became the capital of Malaysia in 1963 and urban activities expanded rapidly.
- The Yang Di-Pertuan Agong conferred the 'City' status to Kuala Lumpur on 1st February 1972.

1974

Kuala Lumpur declared as Federal Territory under the administration of the Federal Government.



DEVELOPMENT OF PETRONAS TWINS TOWER

GROWTH OF KUALA LUMPUR

The growth of Kuala Lumpur began in the 1850s where in this century development was concentrated in the downtown area between the Klang River and the Gombak River which is now known as the Medan Pasar (Figure 2.3). After the Second World War, Kuala Lumpur rapidly developed as a national capital. The city centre expanded, among others towards Sentul, Setapak and Ampang.

Development has been concentrated in the Central Planning Area which is Kuala Lumpur City Centre and four (4) New Growth Areas, namely Damansara, Wangsa Maju, Bukit Jalil and Bandar Tun Razak since 1980s.

YEAR 2000-2015



KL SENTRAL

2001

KL Sentral operated as Kuala Lumpur's major central transportation hub and the largest integrated railway terminal in Southeast Asia.



DEVELOPMENT OF EXPRESS RAIL LINK (ERL)

The Express Rail Link (ERL) line connects KL Sentral and the Kuala Lumpur International Airport (KLIA) and KLIA2.



SMART TUNNEL

2007

The opening of SMART Tunnel which is the longest water diversion tunnel in Southeast Asia and the second longest in Asia.

2015

Redevelopment projects such as Tun Razak Exchange (TRX), Angkasapuri Complex of Kuala Lumpur as Media City, Bukit Jalil Stadium as KL Sports City and the construction of Merdeka 118 Tower have positioned Kuala Lumpur as a globally robust financial destination and transformed its development landscape to be more sustainable and world-class.



DEVELOPMENT OF TUN RAZAK EXCHANGE (TRX)

YEAR 2016-2020



RIVER OF LIFE (RoL)

2016-2020

- The River of Life (RoL) project aims to clean, beautify and transform the river into a tourist destination.
- The construction of the MRT1 connecting Kuala Lumpur to Sungai Buloh and Kajang as well as the expansion of the LRT line network from Kelana Jaya to Putra Heights.
- Perumahan Bandar at Jalan Tuanku Abdul Rahman is a project focusing on B40, single and working Malaysians which aim to ease housing issues in Kuala Lumpur.
- Kuala Lumpur is among five (5) states listed under the 5G's test-bed development of telecommunication networks under Jalinan Digital Negara (JENDELA) initiative.

DEVELOPMENT OF MRT1
Source: MRT Corporation Sdn. Bhd.

By the year 1990s, the development of Kuala Lumpur continued to progress, particularly in the city centre areas encompassing Bukit Bintang, KLCC and Kampong Bharu as well as residential areas outside the city centre such as Segambut, Bukit Jalil and Sungai Besi.

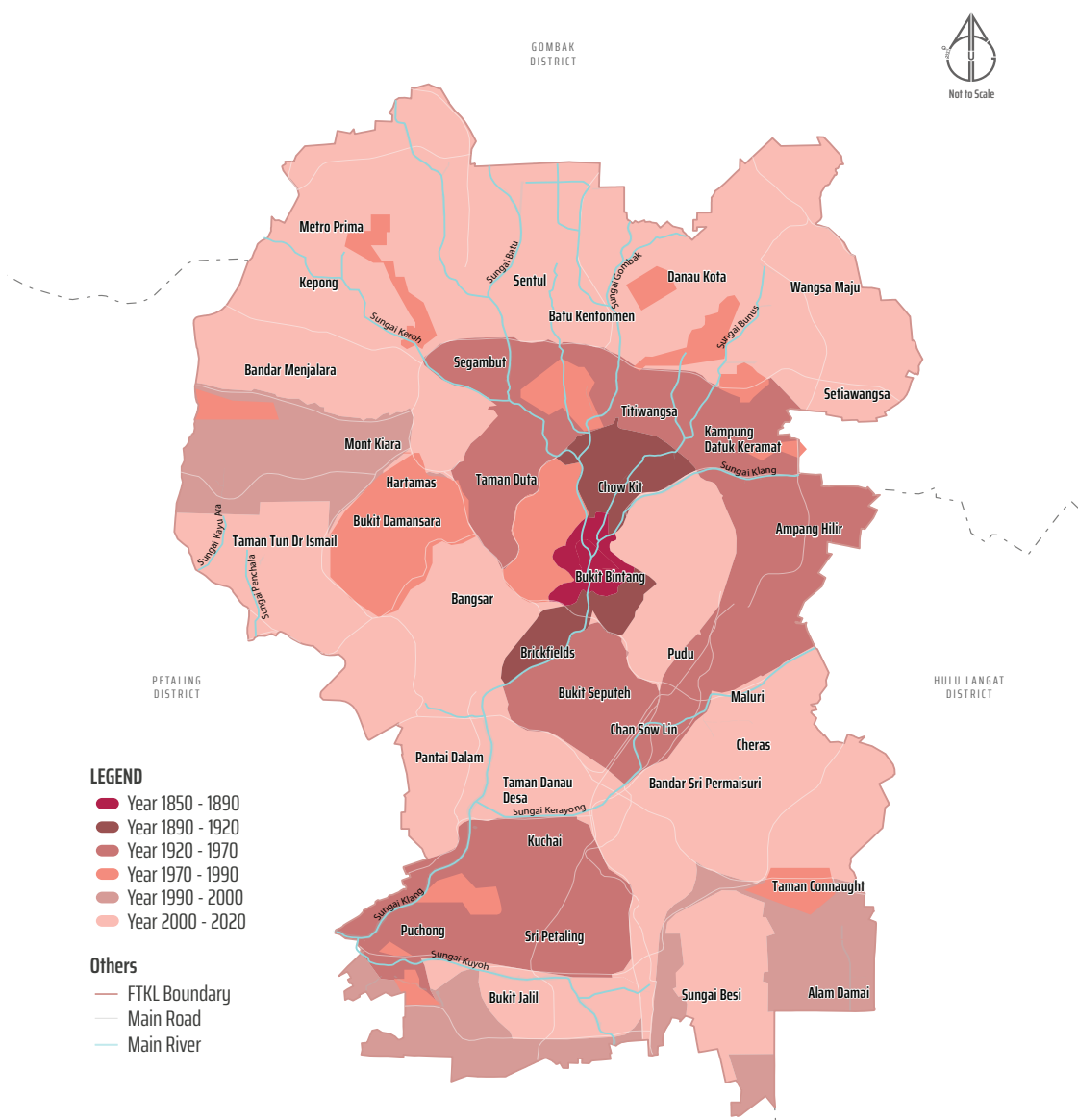
Commuter services commenced around Kuala Lumpur in year 1995, marking the first rail-based public transportation system in Malaysia, followed by the establishment of the Light Rail Transit Systems (STAR and PUTRA) as additional alternatives for public transportation. The development of urban rail systems has contributed to enhancing the mobility of the local population and served as a catalyst for the sustainability measures in Kuala Lumpur.

It has accelerated development in Kuala Lumpur where new projects have been implemented to enhance its image

as a World Class City including Petronas Twins Tower, Mid Valley, Kuala Lumpur Tower, Dayabumi Complex, KL Sentral, Tabung Haji Tower and Telecom Tower. Kuala Lumpur's growth around year 2000 was concentrated particularly in the Mont Kiara and Bukit Jalil areas. The development pattern of Kuala Lumpur between year 2010 until 2020 is as follows:

1. Committed development in the city centre and around Kuala Lumpur are concentrated within a public transportation radius;
2. Redevelopment of old/dilapidated areas and derelict/empty lands; and
3. Committed development trends in Kuala Lumpur are concentrated around highways like DUKE, Penchala Link, Damansara Link, MEX and Salak Highway.

FIGURE 2.3: PHYSICAL AND SPATIAL DEVELOPMENT OF KUALA LUMPUR. YEAR 1850-2020



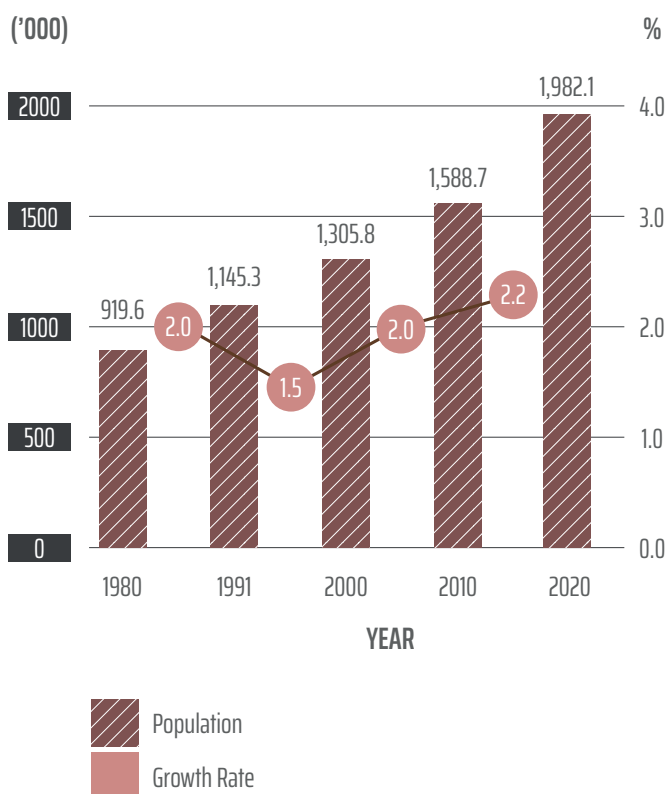
KUALA LUMPUR CHALLENGES

CHANGING POPULATION PROFILE

Kuala Lumpur had a stable population growth with 1.98 million people in year 2020, a growth rate of 2.2 percent from year 2010 when the population was 1.59 million (Figure 2.4). The household size was 3.5 people in year 2020 compared to 3.8 people in year 2010. Kuala Lumpur is expected to experience slow growth by year 2040.

The percentage of the elderly population (65 years and over) is increasing from 4.7 percent in year 2010 to 6.6 percent in year 2020 (Table 2.1). Changing population profiles are a challenge for Kuala Lumpur to review policies, strategies and initiatives in line with community needs including an aged-friendly city and shrinking household size.

FIGURE 2.4: TOTAL AND GROWTH RATE OF KUALA LUMPUR'S POPULATION, YEAR 1980-2020



Source: Department of Statistics Malaysia

TABLE 2.1: KUALA LUMPUR'S POPULATION AGE STRUCTURE, YEAR 1991-2020

CATEGORY	PERCENTAGE (%)		
	1991	2010	2020
0 - 14 years	29.4	22.1	20.0
15 - 64 years	67.7	73.2	73.5
Above 65 years	3.0	4.7	6.6

Source: Department of Statistics Malaysia

HIGHER EMIGRATION

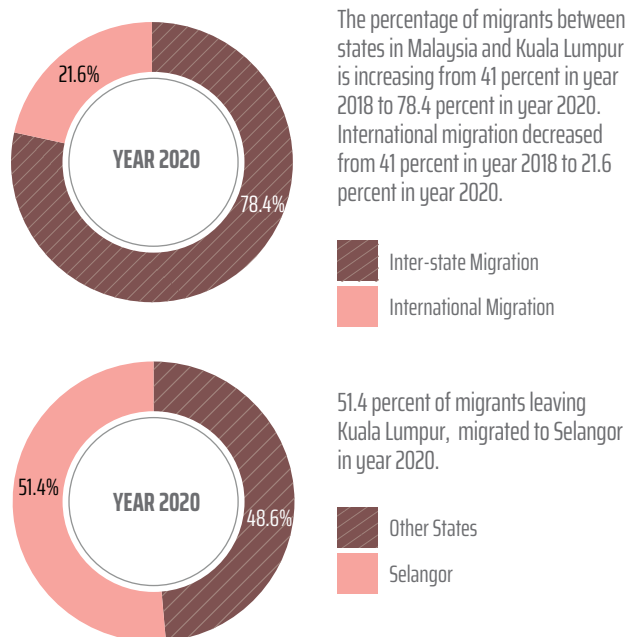
In year 2020, Kuala Lumpur saw a substantial increase in emigration, with more people leaving the city than arriving, leading to a net migration figure of -16,100. This significant out-migration had a notable impact on the declining population growth of Kuala Lumpur. Notably, 51.4 percent of those leaving the city moved to neighbouring states, particularly Selangor. At the same time, international migrants made up 12.6 percent of the total immigrant population, subsequently contributing to the overall population growth of Kuala Lumpur (Figure 2.5).

ENSURING ECONOMIC PERFORMANCE AND EQUITABLE SHARING

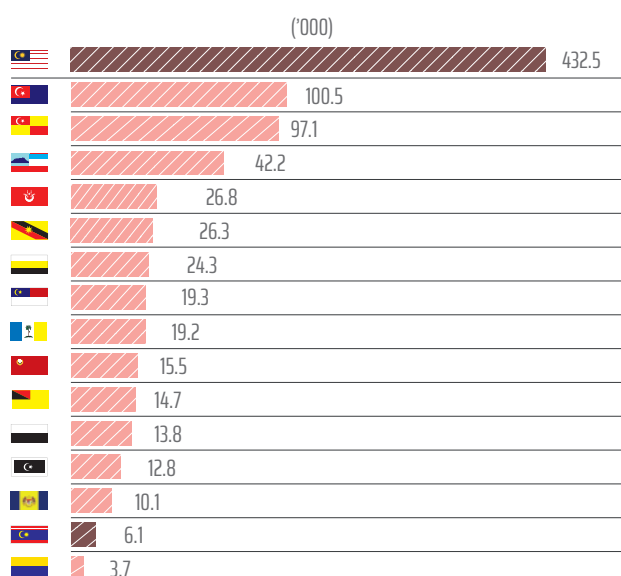
The Federal Territory of Kuala Lumpur is one of the states that achieved the fastest average GDP growth in the country at 3.7 percent, with total GDP of RM216.4 billion in year 2020 exceeding the national level of 2.7 percent (Table 2.2). The services sector is a primary economic sector in Kuala Lumpur that contributes to the rapid GDP growth rate. The services sector is led by two (2) main sub-sectors, namely the wholesale and retail trade, food & beverages and accommodation sub-sector as well as the financial and insurance, real estate and business services sub-sector.

The main challenge is to ensure that Kuala Lumpur's economic performance remains robust and competitive. Moreover, the generated economy should create new business and employment opportunities for the population to share equitably and fairly. Easy access to business and employment opportunities will reduce the income gap and ensure that the people of Kuala Lumpur benefit accordingly from the growth of the local economy.

FIGURE 2.5: KUALA LUMPUR'S IN-MIGRATION AND OUT-MIGRATION, YEAR 2020



Kuala Lumpur ranks 14th in the country for the category of internal migration movement with only 6,100 migrants in year 2020.



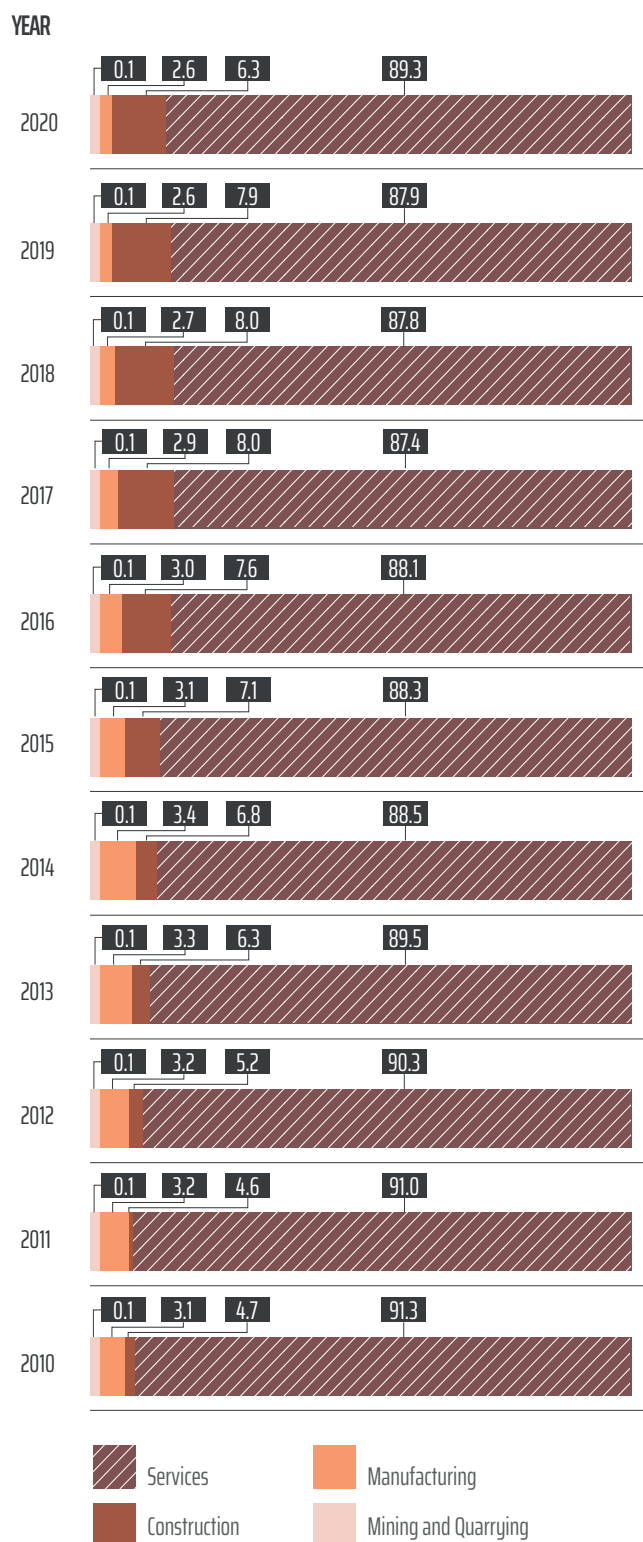
Source: Department of Statistics Malaysia

TABLE 2.2: CURRENT ECONOMIC PROFILE KUALA LUMPUR AND MALAYSIA, YEAR 2020

ASPECT	KUALA LUMPUR	MALAYSIA
GDP at the constant value 2020 (RM Billion)	RM 216.4	RM 1,343.9
GDP Per Capita	RM 121,100	RM 43,475
GDP Average Annual Growth (Year 2015-2020)	3.7%	2.7%
Employment	874,600	15,700,000

Source: Department of Statistics Malaysia

FIGURE 2.6: PERCENTAGE BREAKDOWN OF ECONOMIC SECTOR IN KUALA LUMPUR, YEAR 2010-2020



Note:
 1. The remaining percentage to meet the 100 percent amount is import duty.
 2. The mining and quarrying sector refers to "batching plant" activities that are allowed to be located in selected construction sites in Kuala Lumpur.

Source: Department of Statistics Malaysia

WELL-BEING AND AFFORDABLE LIVING

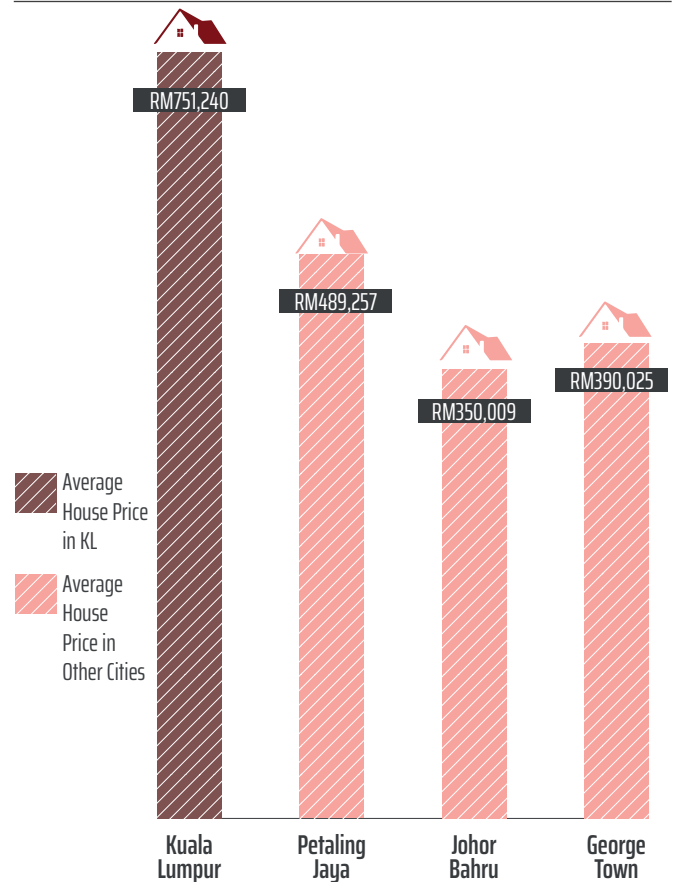
The well-being of the people in Kuala Lumpur encompasses quality standard of living, equality and accessibility to quality facilities.

According to the Department of Statistics Malaysia, Kuala Lumpur is currently experiencing a slow increase in the number of employment with a decrease in the average growth rate from 1.7 percent per year from year 2000 to 2010 to 0.7 percent per year from year 2010 to 2020. In year 2020, the labour participation rate in Kuala Lumpur was 72.1 percent with unemployment rate of 4 percent. The provision of adequate employment opportunities is crucial in the future including opportunities for involvement in the informal sector especially among vulnerable households.

In addition, Kuala Lumpur faces challenges in providing affordable housing. The average house price in Kuala Lumpur in year 2019 was RM751,240 which is the highest in the country compared to the average house price in other cities like Petaling Jaya, Johor Bahru and George Town (Figure 2.7). The average house price in Kuala Lumpur is higher than the B40s can afford, with a median household income of less than RM8,550 per month. This situation is even more critical for the 10.6 percent of households that fall into the category of relative and absolute poverty.

In the future, the provision of affordable housing in Kuala Lumpur should be provided according to the needs and capabilities of urban residents to achieve a quality standard of living in Kuala Lumpur. It encourages local residents to reside in the city to create a liveable urban environment.

FIGURE 2.7: COMPARISON OF AVERAGE HOUSE PRICES OF SELECTED CITY, YEAR 2019



Note:
The average house price comparison based on estimates from KLSP2040 study and information from Bank Negara Financial Stability and Payment Systems Report 2018.

Source: Financial Stability and Payment Systems Report 2018 by Bank Negara Malaysia (Making Housing Affordable, Khazanah Research Institute, 2018)



PROJEK PERUMAHAN RAKYAT KERINCHI, LEMBAH PANTAI

THE LIMITED LAND AVAILABILITY IN KUALA LUMPUR

The built-up areas in Kuala Lumpur are increasing parallel with rapid development, especially after the year 2000. Between year 2000 to 2021, the built-up area increased by 2,112.3 hectares, almost six times compared to the increase of 355 hectares from year 1984 to 2000. This increase in built-up area poses a challenge to future development planning as the availability of land for development becomes limited.

The built-up areas in Kuala Lumpur accounted for 78.8 percent of Kuala Lumpur's total area, with the primary land uses comprised residential (25.5 percent) and transportation (24.2 percent) (Figure 2.8). Non-built-up areas cover 21.2 percent of Kuala Lumpur's total land area, including forest reserves, open spaces and recreation, water bodies, and undeveloped land (vacant land).

2,121.14 hectares (8.7 percent) of the land is undeveloped land to accommodate future development demand (Figure 2.9). However, 1,566.64 hectares (6.4 percent) of such undeveloped land are physically obstructed and committed development. Meanwhile, 554.5 hectares (2.3 percent) of the area remained to accommodate the future development needs of Kuala Lumpur. The ownership status of the land consist of privately owned land and reserve land for government use (owned land and Federation Reserve land) (refer to G6, BM 1.1).

State owned land or land reserved for the government should be developed accordance to it's original planning uses such as public facilities, infrastructure and other government uses. Such land may be allowed for development and redevelopment with socio-economic benefits. In this regard, if the land is developed for other purposes or uses as decided by the Cabinet Minister, it is subject to the suitability of land use and activities, location and the local area carrying capacity of public facilities, traffic and infrastructure.

Therefore, Kuala Lumpur's planning strategy is towards improving existing areas while increasing suitable intensity, redeveloping areas that no longer contribute economically to the residents, sharing the use of space for urban activities, optimising land use around transit stations, encouraging mixed development, and utilising smart city technologies.

This aligns with the Sustainable Development Goals (SDGs) agenda, particularly SDG 15, where the management of natural resources and the importance of urban biodiversity need to be enhanced and balanced with physical development to enable Kuala Lumpur to achieve sustainable development goals.

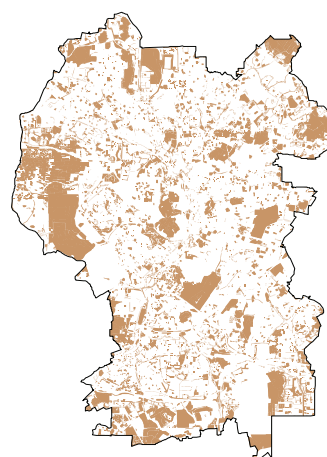
FIGURE 2.8: BUILT-UP AND NON-BUILT-UP AREAS KUALA LUMPUR, YEAR 2021



EXISTING BUILT-UP
(YEAR 2021)

19,151.51
Hectares

78.8%
From total area of
Kuala Lumpur

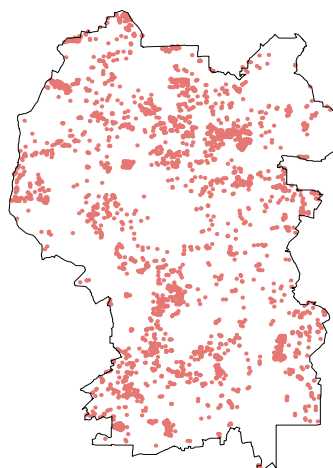


EXISTING NON-BUILT-UP
(YEAR 2021)

5,137.94
Hectares

21.2%
From total area of
Kuala Lumpur

FIGURE 2.9: UNDEVELOPED LAND, YEAR 2021



2,121.14
Hectares

8.7%
From total area of
Kuala Lumpur

CLIMATE CHANGE PHENOMENON

Malaysia is currently experiencing weather instability resulted from extreme climate change happening all over the world. Kuala Lumpur is also exposed to this phenomenon. Besides that, urban development also give implications for climate change and directly impact the physical, social, economic and ecological conditions of cities. Climate change and uncertain weather have resulted in several natural disasters in Kuala Lumpur including urban temperature changes, flash floods, water supply crisis, landslides and haze. Kuala Lumpur needs to be more resilient to the current and future impacts of climate change. Mitigation and adaptation measures need to be enhanced in achieving more sustainable development.

Urban Temperature Changes

The increased construction of concrete buildings and dark-colored surfaces such as asphalt roads is among the factors causing heat to be poorly reflected into the atmosphere and indirectly, absorbing more heat in the affected area. This situation increases urban temperatures and produces the urban heat island phenomenon in Kuala Lumpur. This phenomenon is also becoming more serious by the smoke emissions from motor vehicles into the air which is increasingly entering city centre areas.

The implication of this heat island also causes an increase in urban temperatures and further increase exposure to climate change and unpredictable weather such as high intensity heavy rain.

Flash Flood

Excessive intensity exceeding normal levels due to climate change results in flash floods. Most flash flood incidents occur surrounding road areas due to poorly maintained drainage system and construction sites.



FLASH FLOODS

Water Crisis and El Nino Phenomenon

The prolonged drought resulted in the drying of water resources in major dams. As part of the National Conurbation, Kuala Lumpur depends on its water supply particularly from Selangor. The Klang Valley water crises in year 1998, 2008 and 2014 resulted in water rationing. Thus, the implemented mitigation measures such as the construction of the Langat 2 Water Treatment Plant should resolve the issue.

Landslides

Most landslides in Kuala Lumpur are caused by erosion on the hillsides. This occurs when slopes in hilly areas are not maintained properly and subsequent soil movements lead to landslides.

Several landslide incidents have been recorded and among the remedial measures that have been identified are such as tight control over development in hilly areas and good maintenance of drainage systems.



LANDSLIDE IN SEPUTEH

VISION OF KUALA LUMPUR 2040

The vision of Kuala Lumpur 2040 is towards a transformation of the city that is in line with the focus of global and national planning centred on sustainable urban development and management to achieve a prosperous urban quality of life of a healthy city.

Kuala Lumpur 2040 vision is a continuation of the vision of the Kuala Lumpur Structure Plan 2020 (KLSP2020), a World Class City that has formed the basis for the planning and development of Kuala Lumpur for the past two decades. Based on the vision supported by six (6) goals, Kuala Lumpur City has now elevated its position in the world as one of the focal tourist destinations, a city with ease to do business, a competitive city and one of the best cities to live.

The vision of a World Class City also encompasses a broad perspective and remains relevant to spearhead the future development of Kuala Lumpur. However, the growing focus on urbanisation in Kuala Lumpur creates a wide gap to meet the aspirations and uphold the local community, particularly in ensuring equality for all, including the vulnerable.

Kuala Lumpur's future planning and development vision require a more transformative and effective implementation. It shall also consider the aspirations of future communities that are responsive to technological changes, easy access to information, prioritise feedback and achievements, as well as balance and quality in daily life. Kuala Lumpur has also expected a shift in community diversity where the aged and youth will increase until year 2040. In enhancing the well-being of all, the interests of these groups, including vulnerable groups, should be given attention and empowered.

The vision of Kuala Lumpur **CITY FOR ALL** is in line with the current planning focus which emphasises sharing, inclusivity and equality. This vision is formulated based on the improvement of the quality of natural environment and economic growth that will create shared prosperity to achieve the community's well-being.

FIGURE 2.10: VISION OF KUALA LUMPUR 2040

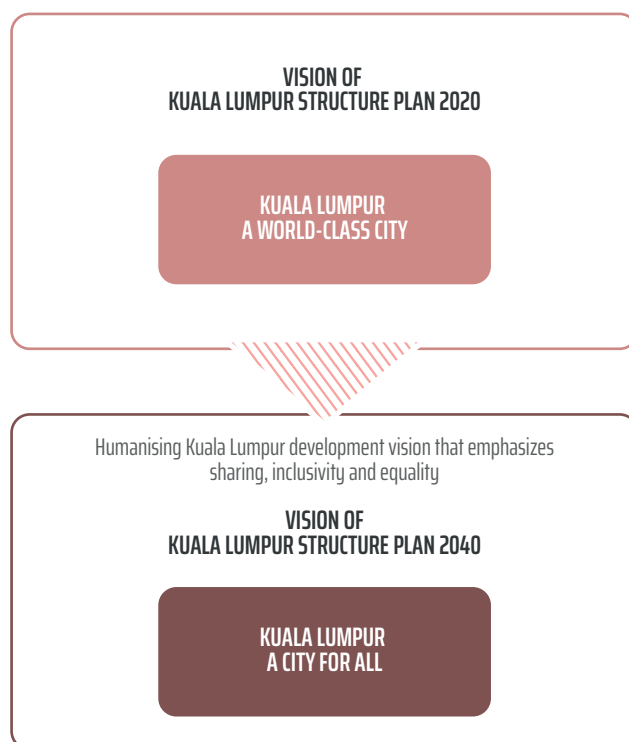
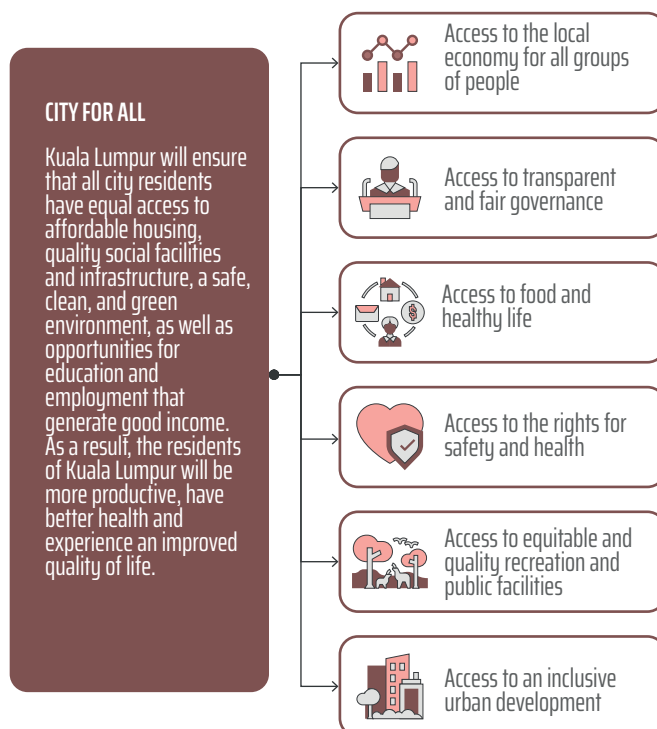


FIGURE 2.11: ASPECTS OF CITY FOR ALL



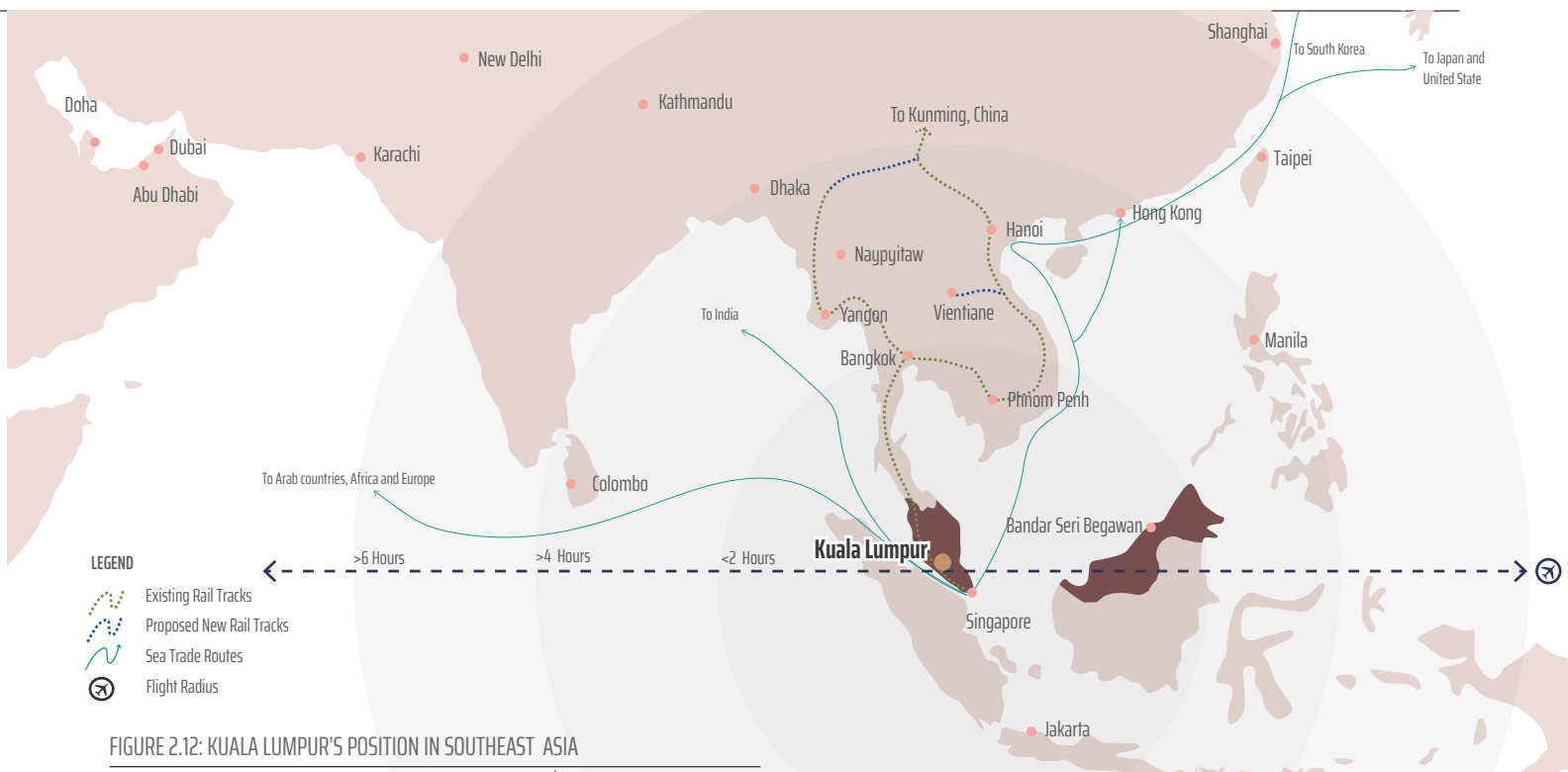


FIGURE 2.12: KUALA LUMPUR'S POSITION IN SOUTHEAST ASIA

KUALA LUMPUR AS A GLOBAL CITY

Kuala Lumpur's strategic position in Southeast Asia has made Kuala Lumpur a global city that plays a vital role in attracting world market expertise and investment.

Kuala Lumpur remains competitive and ranked among the top cities in Asia, encompassing the quality of life and balanced cost of living aspects.

KLSP2040 emphasises on value-added economic assessment, research and development, as well as digital technology and artificial intelligence (AI). In addition, Kuala Lumpur will also enhance interaction with the local culture, well-being of the urban residents, quality of the built and natural environment as well as ease of accessibility in maintaining Kuala Lumpur's position as a global city.

MULTINATIONAL COMPANIES (MNC)

67

Registered Multinational Companies (MNC) in Kuala Lumpur up to year 2020.

The target of 100 multinational companies by year 2030. Some of the currently registered multinational companies are Schlumberger, The Linde Group, Epson Precision, McDermott and Worldline.

4,977

Skilled workforce as a result of the operations of MNC in Kuala Lumpur in year 2020.

TOURIST DESTINATIONS

13.8 MILLIONS

Overnight international tourists in Kuala Lumpur in year 2019.

6TH

Kuala Lumpur was the 6th most visited destination in the world in year 2019.

7TH

7th city in the world in year 2019 which hold various types of jobs to support tourism. Ratio of 35.6 types of jobs in Kuala Lumpur created for 1,000 tourists.

GLOBAL EMPLOYMENT HUB

119

Financial institutions in Kuala Lumpur include insurance, takaful, Islamic financial institutions, general insurance, and others.

104

Embassies and High Commissions operate in Kuala Lumpur.

27

International organisations based in Kuala Lumpur.

KEDUDUKAN GLOBAL

1ST

The Position of Kuala Lumpur as the Most Advanced Islamic Finance Market (Global Islamic Finance Report), year 2020.

9TH

Technology Innovation Hub in the Asia-Pacific Region, year 2021.

10TH

Quality of Life year 2019 in Kuala Lumpur, Asia.

12TH

Ease of Doing Business in the world in year 2020.

Source :

- InvestKL Performance Report, 2020
- Mastercard Global Destination Cities Index, 2019
- World Bank's Doing Business Report, 2020
- World Economic Forum Global Competitiveness Report, 2018
- Ministry of Foreign Affairs, Malaysia
- Mercer, 2020
- Global Islamic Finance Report 2019
- Technology Industry Survey 2021, KPMG

TOWARDS A CITY FOR ALL AND GOALS OF KUALA LUMPUR 2040

The vision of Kuala Lumpur A **CITY FOR ALL** will be achieved by focusing on six (6) goals that have been outlined as thrusts covering economic, social, living environment, environmental and physical planning aspects. These six (6) goals are holistic and integrated to achieve the sustainability agenda along with continuity of planning and management aspects.

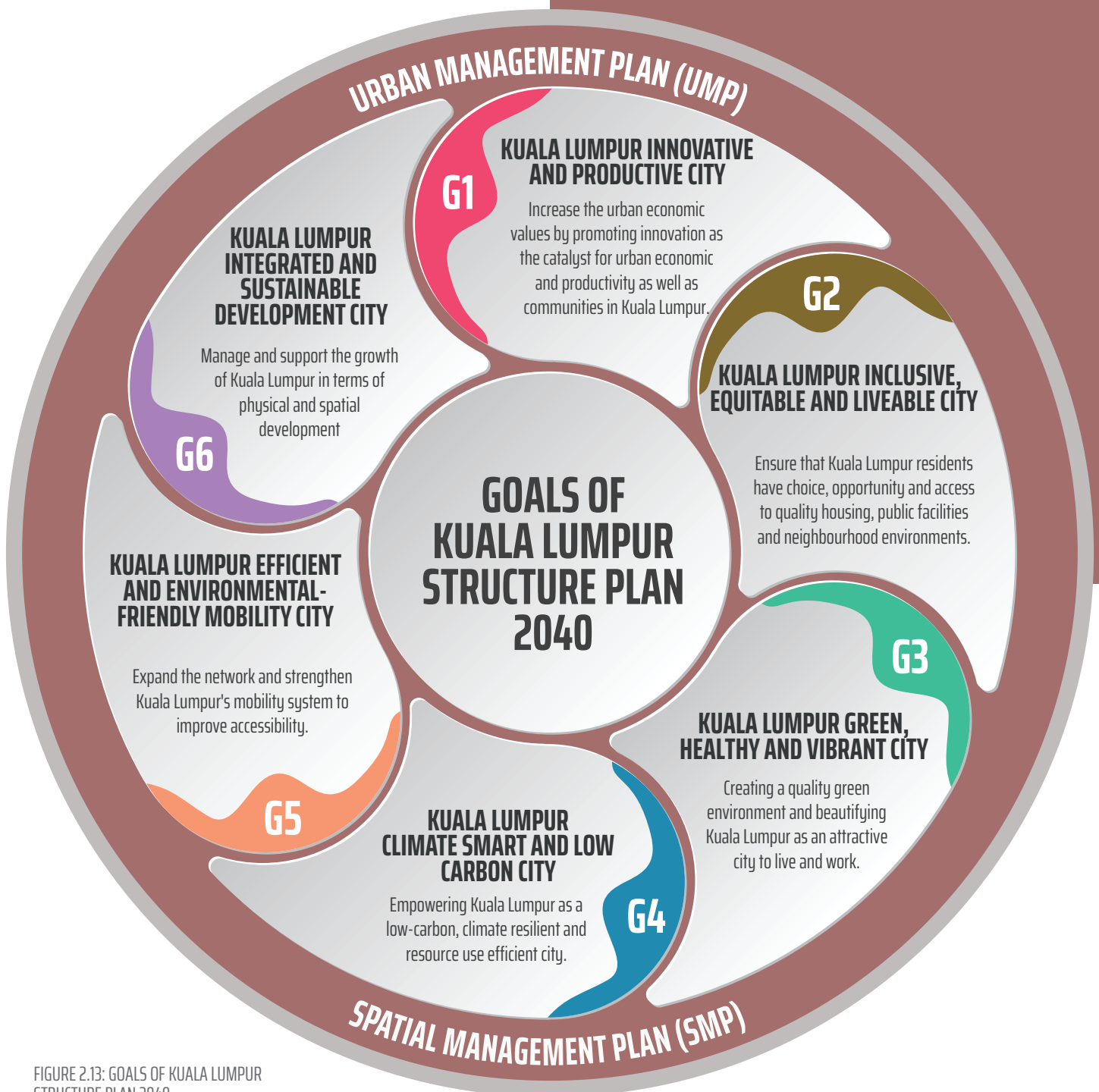
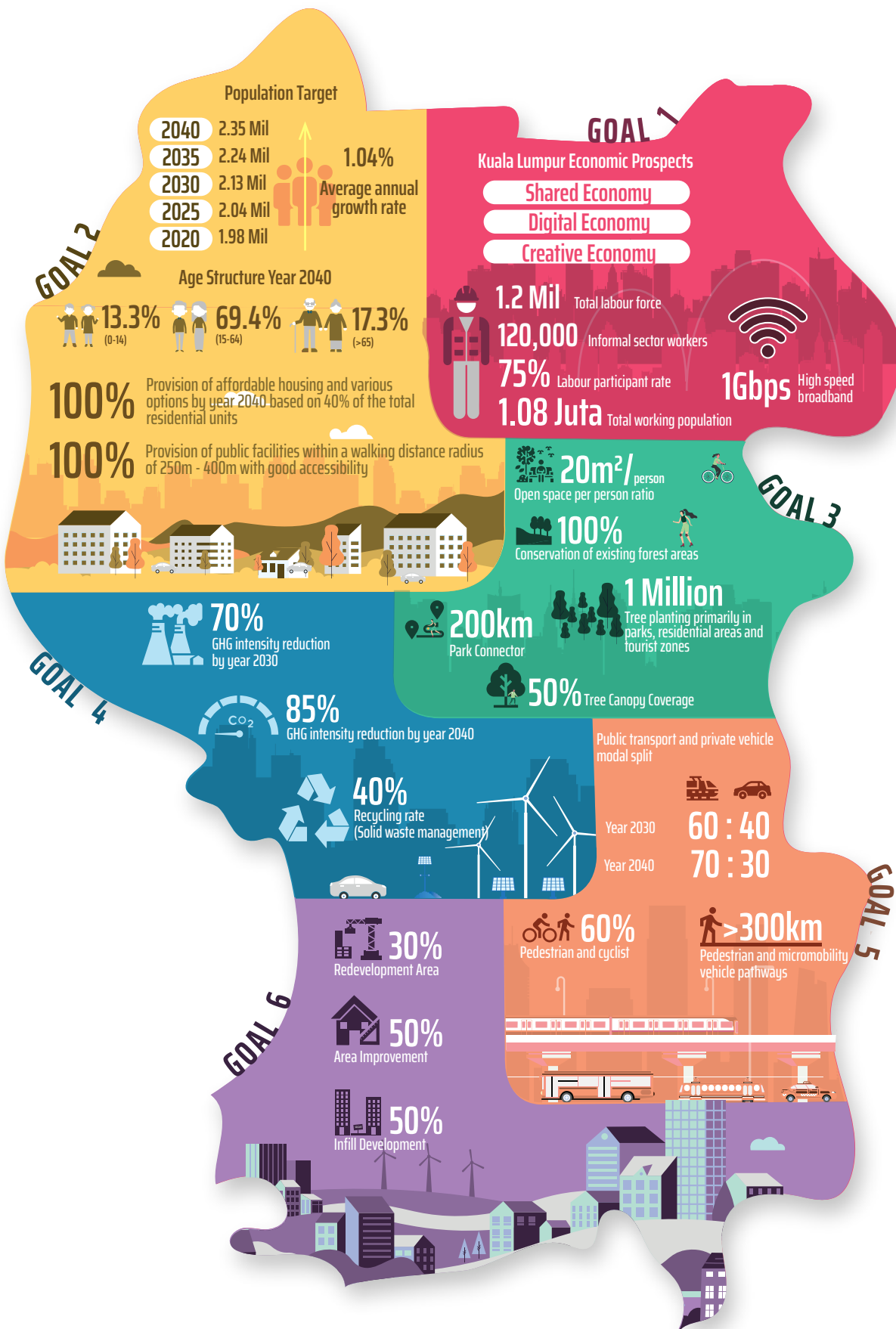


FIGURE 2.13: GOALS OF KUALA LUMPUR STRUCTURE PLAN 2040

FIGURE 2.14: TARGETS OF KUALA LUMPUR, YEAR 2040



KUALA LUMPUR 2040 STRATEGIC DIRECTIONS AND ACTIONS

The vision and goals of Kuala Lumpur will be supported by 21 strategic directions and 73 actions, which form the development principles and targets towards the year 2040. This will be translated through the Urban Management Plan (UMP) and Spatial Management Plan (SMP) to achieve a sustainable, liveable, and inclusive city.

GOAL 1: KUALA LUMPUR INNOVATIVE AND PRODUCTIVE CITY

IP1: Competitive Urban Economic Growth

- IP1.1: Strengthen Financial and Business Services Activities
- IP1.2: Kuala Lumpur as an Urban Tourism Destination with Sustainable Tourism Activities
- IP1.3: Empower Kuala Lumpur as Cultural and Creative City
- IP1.4: Enhance the Development of Digital, Technology and Innovation Economy
- IP1.5: Encourage the Development of Industrial Cluster Based on Clean Technology and Industry 4.0 Transformation
- IP1.6: Drive Entrepreneurship Development Towards Inclusive Urban Economic Growth

IP2: Conducive Working and Business Environment

- IP2.1: Strengthen the Network of Commercial Centre as Jobs and Local Business Areas
- IP2.2: Strengthen the Economic Zone with Infrastructure Readiness and Conducive Environment for Investment
- IP2.3: Expand Business Opportunities in the Informal Sector
- IP2.4: Enhance the Readiness of Digital Infrastructure to Support Economic Development

IP3: Catalyst For A Dynamic and Robust Regional Economic Growth

- IP3.1: Strengthen the role of Kuala Lumpur City as a Global City
- IP3.2: Expand Inter-City Economic Integration within the National Conurbation
- IP3.3: Enhance Regional Network of Transportation Linkages for Communities and Services

3 STRATEGIC DIRECTIONS

13 ACTIONS

GOAL 2: KUALA LUMPUR INCLUSIVE, EQUITABLE AND LIVEABLE CITY

IS1: Conducive Housing for All Population Groups

- IS1.1: Encourage the Development of Diversified Housing Choices
- IS1.2: Provide Quality and Conducive Affordable Housing
- IS1.3: Address the Needs of the Homelessness and Urban Poor
- IS1.4: Improve Old Established Housing Areas

IS2: Neighbourhoods that are Conducive and Encourage Social Interaction

- IS2.1: Provide Adequate, Quality and Integrated Public Facilities
- IS2.2: Increase Public Facilities Usage and Foster Social Integration through Provision of Multipurpose Facilities
- IS2.3: Increase Access to Education
- IS2.4: Develop Community Hub in High-Density Neighbourhood
- IS2.5: Ensure Safe, Age-Friendly and Disabled-Friendly Neighborhood

2 STRATEGIC DIRECTIONS

9 ACTIONS

GOAL 3: KUALA LUMPUR GREEN, HEALTHY AND VIBRANT CITY

SV1: Integrating Urban Development with Natural Assets and Biodiversity

- SV1.1: Protect the City's Natural Assets
- SV1.2: Connect Green Areas and Blue Corridors as Urban Ecology Nodes
- SV1.3: Increase the Green Density of Kuala Lumpur

SV2: Attractive and Creative Urban Environment

- SV2.1: Enhance the Quality and Diversify the Functions of Parks and Open Spaces
- SV2.2: Enhance Active and Creative Use of Urban Space
- SV2.3: Beautification of Kuala Lumpur Strategic Tourist Attraction Area

SV3: Green Network and Urban Heritage

- SV3.1: Develop Park Connector Network
- SV3.2: Connect the City Main Activity Centre
- SV3.3: Strengthen and Expand Kuala Lumpur Heritage Trail

SV4: Effective Green Environment Governance and Urban Design

- SV4.1: Create Public Trust Fund for Parks and Green Areas
- SV4.2: Encourage Public-Private Partnership in Green Area Management
- SV4.3: Prepare Urban Design Guidelines

4 STRATEGIC DIRECTIONS

12 ACTIONS

GOAL 4: KUALA LUMPUR CLIMATE-SMART AND LOW CARBON CITY

PR1: Resilience to Natural Disasters and Climate Change

- PR1.1: Prepare Climate Resilient Mitigation and Adaptation Action Plan and Disaster Risks Management Plan

PR2: Efficient Urban Resources Management

- PR2.1: Facilitate the Application of Renewable Energy Technology
- PR2.2: Enhance Energy Efficient System
- PR2.3: Strengthen Integrated and Sustainable Solid Waste Management
- PR2.4: Strengthen the Efficiency of Sustainable Water Management
- PR2.5: Adopt Sustainable Urban Drainage System

PR3: Efficiency In Carbon Emission Reduction

- PR3.1: Encourage the Development of Low Carbon Building
- PR3.2: Promote the Use of Green and Low Carbon Transportation
- PR3.3: Establish Low Carbon Emission Zones (LEZ-Low Emission Zone)
- PR3.4: Develop Low Carbon, Clean and Green Industrial Environment

PR4: Low Carbon Community Development

- PR4.1: Promote the Use of Smart Home Technology
- PR4.2: Establish Low Carbon Community
- PR4.3: Provide Community-Based Low Carbon Facilities
- PR4.4: Intensify Low Carbon Awareness and Education Programmes at Community Level

4 STRATEGIC DIRECTIONS

14 ACTIONS

6 GOALS

21 STRATEGIC DIRECTIONS

73 ACTIONS

GOAL 5: LUMPUR EFFICIENT AND ENVIRONMENTAL- FRIENDLY MOBILITY CITY

MC1: Integrated Multimodal Public Transportation

- MC1.1: Expand the Rail Network and Enhance Supporting Infrastructure
- MC1.2: Develop Urban Commuter System in Kuala Lumpur
- MC1.3: Prioritise the Development of Public Bus Services
- MC1.4: Plan for Taxi and E-hailing Services

MC2: Active Mobility Mode to Enhance Accessibility

- MC2.1: Ensure a Safe, Quality, Seamless, Connected and Easily Accessible Pedestrian Network
- MC2.2: Provide Infrastructure to Enhance Accessibility for Micromobility Vehicles
- MC2.3: Conduct Public Awareness and Safety Campaigns

MC3: Effective Traffic Management

- MC3.1: Manage Traffic within Kuala Lumpur
- MC3.2: Manage Parking Spaces
- MC3.3: Strengthen the Existing Roads' Functions

3 STRATEGIC DIRECTIONS

10 ACTIONS

GOAL 6: KUALA LUMPUR SUSTAINABLE CITY AND INTEGRATED DEVELOPMENT

BM1: Optimal and Productive Use of Land

- BM1.1: Manage the Use of Undeveloped Land Efficiently
- BM1.2: Promote Infill Development in Development Pressure Areas

BM2: Renewal of Old Urban Areas

- BM2.1: Improve the Quality and Reactivate Old Areas through Area Improvement Programme
- BM2.2: Create Development Opportunities in Urban Redevelopment Areas
- BM2.3: Reactivate the Function of the City Through Urban and Old Building Conservation

BM3: Integrated Land Development and Public Transportation

- BM3.1: Promote Transit Oriented Development (TOD)

BM4: Shared Urban Spaces

- BM4.1: Encourage Space Sharing for Utility Reserves, Railway Reserves, River Reserves and Road Reserves for Development
- BM4.2: Plan for Integrated Use of Underground Space
- BM4.3: Planning for the Use of Air Rights
- BM4.4: Intensify the Space Sharing for Public Facilities Building
- BM4.5: Planning Vertical Development with Overlapping Ownership through the Concept of Spatium

BM5: Special Area Management

- BM5.1: Regulate Development in Highlands and Sloped Areas
- BM5.2: Establish a Kampong Bharu Special Development Area
- BM5.3: Planning for Quality Development in Traditional Village and Other Village
- BM5.4: Manage Special Area Development

5 STRATEGIC DIRECTIONS

15 ACTIONS

URBAN MANAGEMENT PLAN (UMP)

UMP comprises seven (7) actions:

1. UMP 1: Sustainable, Efficient and Effective Urban Management;
2. UMP 2: Attainment of Sustainable Development Goals (SDG);
3. UMP 3: Neighbourhood Planning Plan;
4. UMP 4: Establishment of Kuala Lumpur Urban Observatory (KLUO);
5. UMP 5: Establishment of City Operation Control Centre;
6. UMP 6: Kuala Lumpur City Communication Plan; and
7. UMP 7: Kuala Lumpur City Planning and Contingency Action Plan .

SPATIAL MANAGEMENT PLAN (SMP)

SMP includes three (3) primary zones:

1. Special Area Development Management Zone;
2. Nature Asset Protection Zone; and
3. Transportation Zone and Corridor.

URBAN MANAGEMENT PLAN (UMP)

Urban Management Plan is a framework for implementing the KLSP2040 to achieve the vision and development goals of Kuala Lumpur, driven by dynamic and sustainable governance.

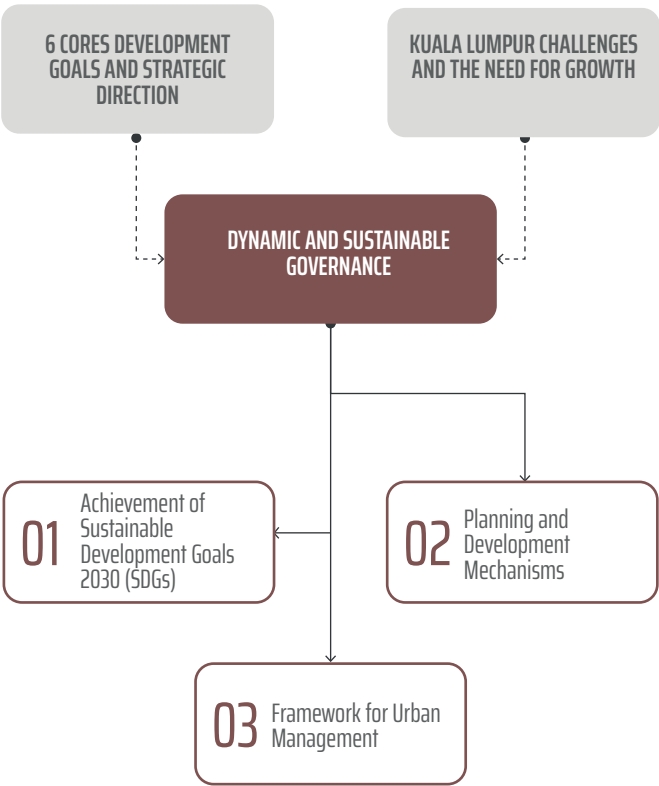
Kuala Lumpur is planned parallel with its vision of achieving a liveable city for all levels of society. Kuala Lumpur's vision 2040, namely Kuala Lumpur **CITY FOR ALL**, is oriented towards the aspirations of city dwellers who wish Kuala Lumpur to be a prosperous, healthy, safe and developed city. It offers quality, affordable, innovative living and a sustainable, vibrant, low carbon, clean and green environment.

The implementation of KLSP2040 requires an effective and inclusive governance framework to facilitate the implementation of integrated planning in line with the development vision of Kuala Lumpur City. This implementation requires the cooperation and involvement of every level of governance from the public and private sectors.

The dynamic and sustainable governance of Kuala Lumpur City will be guided by three main approaches, namely the achievement of the Sustainable Development Goals 2030 (SDGs), planning and development mechanisms as well as the urban management governance framework (Figure 2.15).

Through these three (3) approaches, seven (7) implementation action under the institutional framework of KLSP 2040. These implementation actions will strengthen the governance framework of the city, provide mechanisms for policy monitoring and achievement, data sharing, and provide planning to increase the level of community involvement in the process of formulating Kuala Lumpur development planning.

FIGURE 2.15: GOVERNANCE FRAMEWORK IN THE IMPLEMENTATION OF KLSP2040



QUICK INFO

Urban Management Plan (UMP)

UMP 1	Sustainable, Effective and Efficient Urban Management
UMP 2	Achievement of Sustainable Development Goals (SDGs)
UMP 3	Neighbourhood Planning Plan
UMP 4	Establishment of Kuala Lumpur Urban Observatory (KLUO)
UMP 5	Establishment of City Operation Control Centre
UMP 6	Kuala Lumpur City Communication Plan
UMP 7	Kuala Lumpur City Planning and Contingency Action Plan

UMP1: SUSTAINABLE, EFFECTIVE AND EFFICIENT URBAN MANAGEMENT

Managing Kuala Lumpur City to be sustainable requires a dynamic, receptive and responsive urban management institution to ensure that actions are integrated and well-coordinated at all levels of government, private and public sectors.

The sustainability of the City of Kuala Lumpur requires integration management and actions and the involvement of various stakeholders. Hence, the administrative structure plays a vital role in shaping the transparent, quality and responsive processes to the challenges faced by Kuala Lumpur.

Urban institutions or urban administration play an essential role in improving a city's sustainability. It also requires a shared responsibility as well as coordination mechanism and administrative structure to effectively integrate the goals of the various agencies in achieving the vision of Kuala Lumpur 2040, which is **CITY FOR ALL**.

Thus, KLSP2040 seeks to ensure that Kuala Lumpur City Hall (KLCH) continues to be a strong and leading local authority, focusing on inclusive and sustainable urban development, responsible for effective urban management as well as prioritising the well-being of Kuala Lumpur city dwellers.

KLSP2040 will also ensure that Kuala Lumpur City is competitive with good urban quality as well as viable infrastructure and technology. This aligns with the emphasis on global commitments that prioritise urban management as a dynamic and sustainable growth driver.

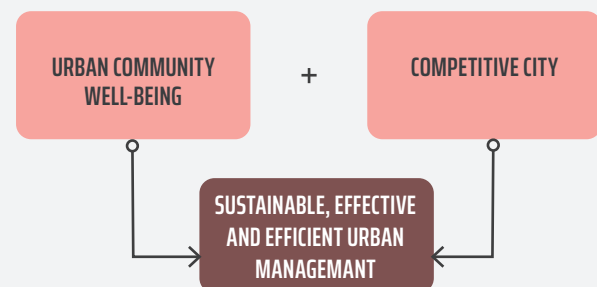
Among of the main focuses for strengthening Kuala Lumpur City management institutions are:

1. Integrate the vision and goals of KLSP2040 in its management and operations involving all departments in Kuala Lumpur City Hall (KLCH);
2. Ensure that the departments' functions according to the direction and targets of social, economic and environmental sustainability;
3. Create a dedicated unit that functions to ensure sustainable agenda is achieved;
4. Recognise the importance of support groups from representatives of the people, public, private sector, professionals and stakeholders in assisting Kuala Lumpur to achieve the sustainability agenda;
5. Recognise partnerships with external agencies that are directly involved with municipal operations.
6. Strengthen the function of the KLCH Training Institute (IDB) as a Centre of Excellence for Urban Well-being to elevate the position of KLCH and Kuala Lumpur regionally and internationally; and
7. Engage the public and stakeholders in Kuala Lumpur in conducting KLCH activities and programmes.

QUICK INFO

Transformative Urbanisation

Transformative urbanisation can be realised by promoting new urban development models by integrating all aspects of sustainable development to ensure mutual equality, shared welfare and prosperity.



UMP2: ACHIEVEMENT OF SUSTAINABLE DEVELOPMENT GOALS (SDGs)

Sustainable Development Goals (SDGs) adopted by Malaysia and the 193 members of the United Nations (UN) is a global action plan to achieve a better and sustainable future for all. It is a shared commitment to addressing the challenges of poverty, inequality, climate change and environmental destruction as well as achieving more sustainable and effective economic development. The SDGs have 17 goals with 169 targets to be achieved by year 2030.

Following SDGs, New Urban Agenda (NUA) was introduced to address the global urbanisation challenges that require specific action and to achieve the aim of SDGs.

The implementation of NUA involves five (5) main elements which are: governance structure, social inclusiveness, spatial development, urban well-being, and a sustainable environment. Currently, the NUA has been adopted by 170 countries, including Malaysia.

The preparation of KLSP2040 also aims to attain the SDGs' goals by ensuring that the proposed strategic directions and actions are in line with the SDGs and NUA. The attainment of the SDGs and the implementation of NUA will accelerate the sustainable transformation of Kuala Lumpur City as well as form the basis for Kuala Lumpur's reporting internationally.

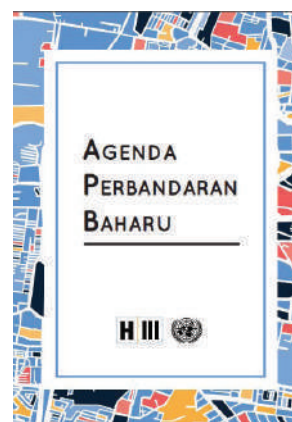
The goals of KLSP2040 are aligned with the objectives of SDGs and NUA to support Kuala Lumpur city's commitment towards sustainable development by the year 2030.

SUSTAINABLE AGENDA IN KLSP2040

The strategic directions and actions of KLSP2040 are in line with the SDGs. The overall six (6) goals of KLSP2040 and 73 actions complied with the SDGs targets as well as in line with the planning framework of Kuala Lumpur's development.

Two SDGs emphasised in KLSP2040 are SDG 11 - Sustainable Cities and Communities and SDG 13 - Climate Change Action, supported by SDG 16 - Peace and Justice strong Institution and SDG 17 – Partnership for the Goals.

KLSP2040 met its social sustainability targets to address the challenges triggered by COVID-19 through the emphasis on SDG 1 to SDG 3 targets. KLSP2040 also focuses on the economic sustainability, whereby Goal 1 emphasises the innovative and productive aspects of the economy in the direction of planning and development of Kuala Lumpur. It has also met the SDGs targets, particularly SDG 8 and SDG 9. Meanwhile, environmental sustainability is the main transformative product for Kuala Lumpur where Goals 3, 4 and 5 have detailed strategies and actions that met the targets of SDG 6, SDG 7 and SDG 11 to SDG 15.



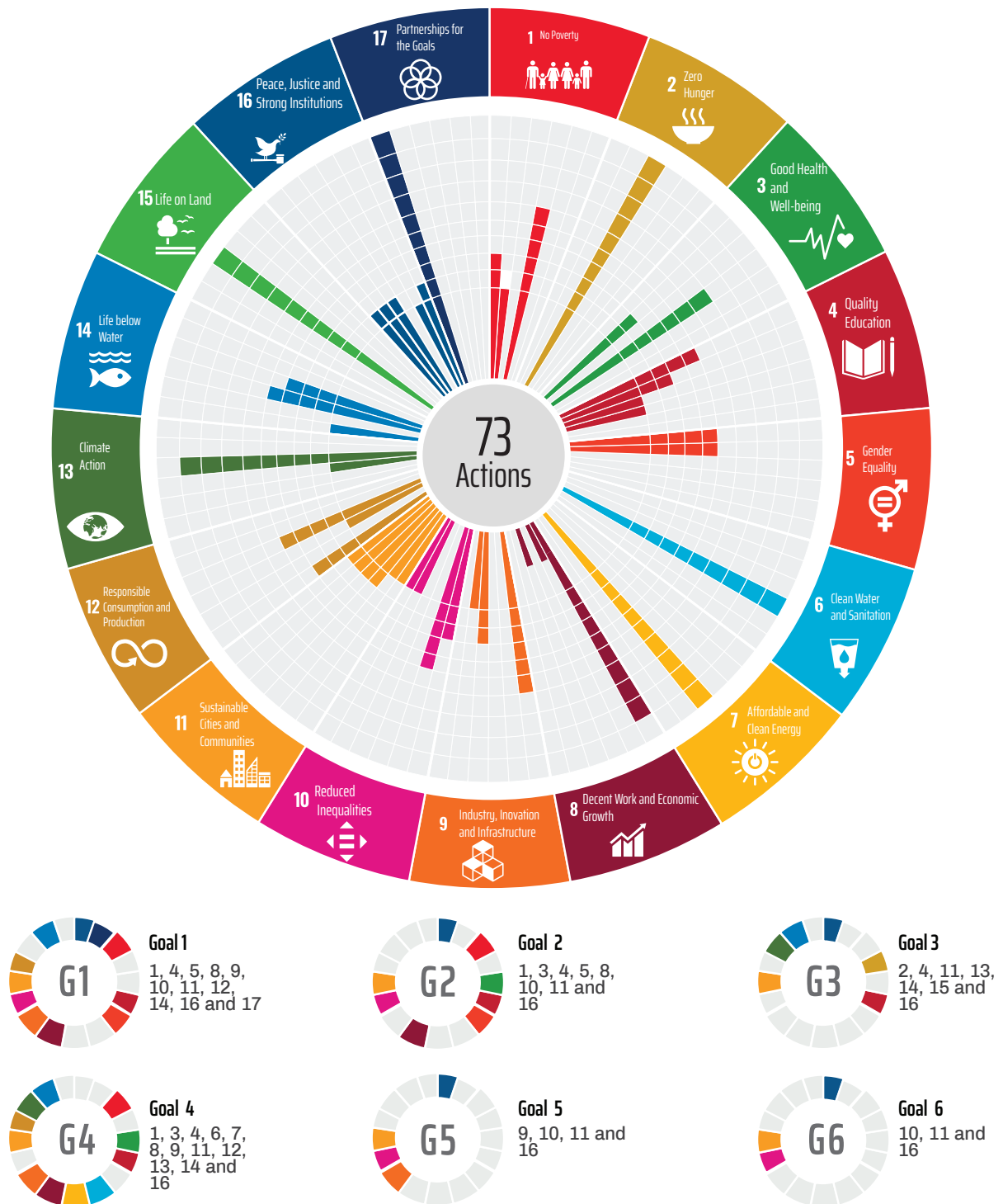
NEW URBAN AGENDA (NUA)



17 SUSTAINABLE DEVELOPMENT GOALS (SDGs)

Here is a diagram illustrating the performance targets of SDGs for KLSP2040.

FIGURE 2.16: LINKING KLSP2040 AND SDGs



UMP3: NEIGHBOURHOOD PLANNING PLAN

Kuala Lumpur City needs to empower its communities to participate in planning and development that contribute to quality living. The neighbourhood planning plan is a step that will encourage the community's proactive involvement in the local community's needs planning process. It is also to create responsive and collaborative communities to improve the quality of neighbourhoods in Kuala Lumpur.

The preparation of this neighbourhood planning plan is encouraged for the existing housing area in Kuala Lumpur. It is an extension of the Local Agenda 21 (LA21) programme that has started in Malaysia since 2000. LA21 was an initiative of the Rio De Janeiro Earth Summit (1992) that emphasized the role of local authorities in community development.

Neighborhood planning plans provide an opportunity for communities to identify priority actions and programmes to improve their neighbourhoods in terms of safety, comfort and accessibility. In line with the vision of a **CITY FOR ALL**, the plan will also build local capacities and capability, strengthen volunteerism and create a sense of belonging among the community and neighbourhood. This plan can be implemented in the form of a micro control plan.

Implementation of Neighbourhood Planning Plan

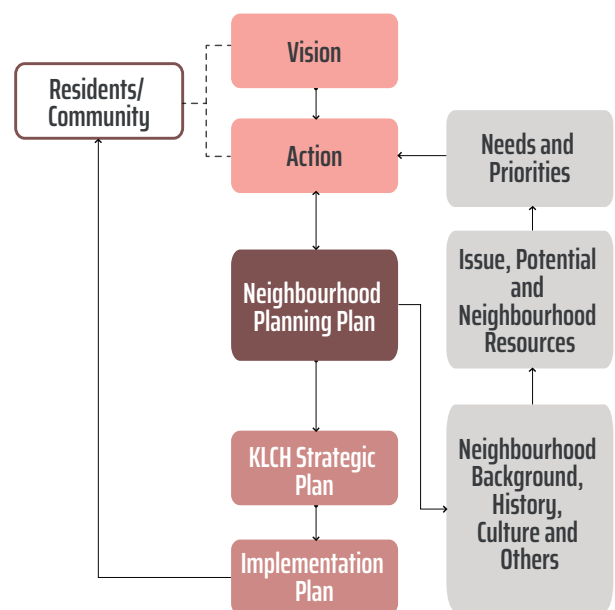
1. Residents determine neighbourhood boundaries and make recommendations based on their community needs;
2. Residents develop short-term implementation plans that contain immediate action not exceeding three (3) years;
3. KLCH serves as a facilitator and ensures that it can be implemented;
4. Residents together with KLCH identify those responsible for each action; and
5. The pilot project approach, demonstrating best practice outcome can be adopted as one of the implementation mechanisms.

QUICK INFO

What is a Neighbourhood Planning Plan?

A community-driven planning plan for building local capacity and capability to accelerate progress and improve neighbourhoods in terms of environment, safety and comfort.

FIGURE 2.17: NEIGHBOURHOOD PLANNING PLAN



UMP4: ESTABLISHMENT OF KUALA LUMPUR URBAN OBSERVATORY (KLUO)

Data and information are essential in planning sustainable urban development, especially at the neighbourhood and local centre levels. This data and information will ratify the issues faced and assist in measuring the level of policies' achievement and actions undertaken.

The establishment of an urban observatory is in line with the recommendation of the 4th National Physical Plan (NPP4) to form a database centre using an Integrated Smart Information System to support sustainable national growth. Data and information sharing will be more accessible and opens up the opportunities for various parties to be involved in achieving the vision and development goals of Kuala Lumpur. The Kuala Lumpur Urban Observatory serves as data digitalisation and information sharing related to the development and growth of Kuala Lumpur City. It act as a framework for monitoring the city's sustainability progress in line with the goals of PSKL2040 and SDGs.

The establishment of KLUO should be expedited and proposed to be placed under a dedicated unit that operates within the governance structure of Kuala Lumpur City Hall. The unit will work with regional and national organisations such as PLANMalaysia to form strategic partnerships in measuring and monitoring the progress of Kuala Lumpur's development based on sustainability indicator value.

The objectives of KLUO formation are as follows:

1. To be a data focus centre to collect, update, analyse, manage and disseminate data to the public;
2. Develop information sharing networks and primary references for key stakeholders;
3. Establish an urban sustainability level monitoring system to support Kuala Lumpur's management and development process;
4. Provide technical input and reporting on the sustainability status of Kuala Lumpur; and
5. Enhance cooperation with relevant international bodies and institutions.

QUICK INFO

Application of Technology in Shaping Database

The objective of KLUO development is to create a centralised database on urban information such as public buildings, public lands, public spaces as well as infrastructure and utility reserves through the application of the latest technology. This data can be utilised by government agencies, private sector, and community.

EXAMPLE OF BEST PRACTICES

Bandung Control Centre

The Bandung Control Centre is an innovative idea of the Mayor of Bandung, Ridwan Kamil as an effort to make Bandung City a leading and smart city where one of the efforts is the use of information and communication technology as well as interact closely with various government agencies and departments.



BANDUNG CONTROL CENTRE

Source: mmc.kalteng.go.id

FIVE (5) MAIN FUNCTIONS OF KLUO

Data and Information Centre

1. Collect, update, standardise, as well as manage the data and information required to assess and monitor current urbanisation trends;
2. Establish an information system to be shared with the public, government agencies, private sector and non-governmental organisations; and
3. Develop and manage the Kuala Lumpur database.

Monitoring and Evaluation Centre

1. Monitor and evaluate the effectiveness of identified actions; and
2. Assess development impacts and monitor the progress of the implementation level of current masterplan compliance.

Sustainable Urban Reporting Centre

1. Provide an annual report on urban sustainability achievement; and
2. Evaluate and report urban sustainability levels according to NUA, SDGs, MURNInets and Indeks Daya Huni Malaysia (iDAM).

Centre of Excellence for Urban Wellbeing

1. To create a knowledge centre that emphasises the achievement of urban well-being;
2. Review current urbanisation issue resolution strategies;
3. Publish research studies that have been carried out; and
4. Provide training and programmes to increase the capacity of local communities.

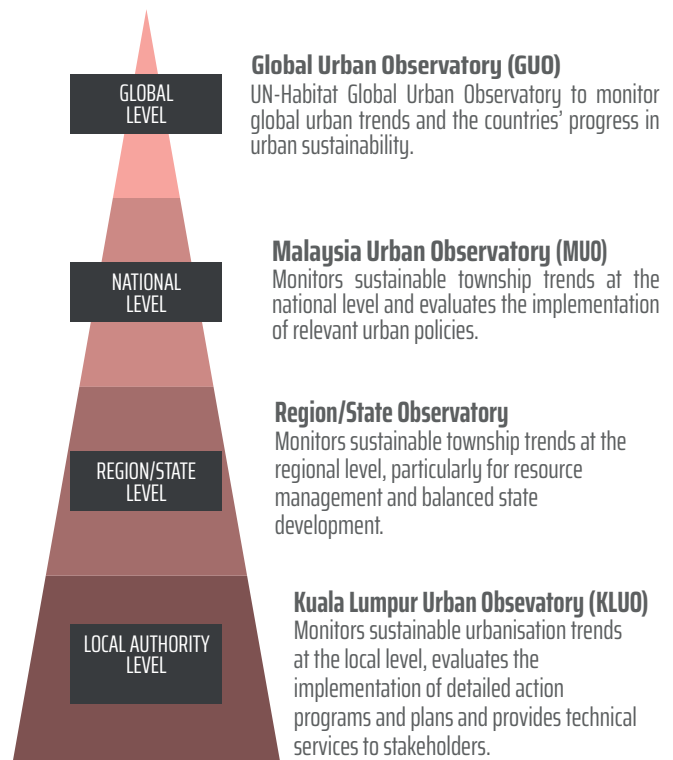
Technical Service Centre

1. Provide advisory services to stakeholder agencies through multiple sustainable pathways to streamline the city's operations;
2. Supply information and development data in Kuala Lumpur; and
3. Assess and report on urban sustainability levels in accordance to the NUA and SDGs.

KLUO'S COLLABORATION WITH OTHER OBSERVATORY CENTRES

To ensure KLUO functions more effectively, KLUO will communicate with observatory centres regionally/state, nationally and globally. KLUO also involves collaborating with organisations at every level in the development of Kuala Lumpur and developing information-sharing networks to strengthen the capacity of local communities.

FIGURE 2.18: HIERARCHY OF URBAN OBSERVATORY CENTRE



UMP5: ESTABLISHMENT OF CITY OPERATIONS CONTROL CENTRE

As a primary city, Kuala Lumpur requires a City Operation Control Centre to enhance the residents' safety, well-being, and quality of service. The City Operations Control Centre is proposed as a hub that will integrate management with comprehensive emergency services monitoring.

Kuala Lumpur adopted the Kuala Lumpur City Command & Control Centre (KLCCC) in year 2005. KLCCC is used for traffic monitoring, accidents, construction and other situations on roads and highways in Kuala Lumpur as well as its surrounding areas.

KLCCC Kuala Lumpur is proposed to be upgraded with a more comprehensive function to realise the City Operation Control Centre. It will integrate the information received from CCTV, the internet, and various other platforms into a more integrated system covering various planning aspects.

City Operations Control Centre serve to monitor and manage the following aspects:

1. Traffic management and public transportation;
2. Disaster management including pandemic disaster;
3. Environmental and pollution control;
4. Public safety management;
5. Public areas surveillance;
6. Efficient public service;
7. Urban assets management;
8. Efficient communication and announcement services;
9. Urban data and information collection;
10. City emergency call centre; and
11. E-governance services.



KUALA LUMPUR CITY OPERATIONS CONTROL CENTRE

UMP6: KUALA LUMPUR CITY COMMUNICATION PLAN

Kuala Lumpur acknowledges community involvement in urban development and appreciates the richness of local information and knowledge resources owned by city dwellers. Therefore, KLSP2040 proposes a city communication plan to enhance the understanding and involvement of city dwellers in the decision making process by creating effective two-way communication.

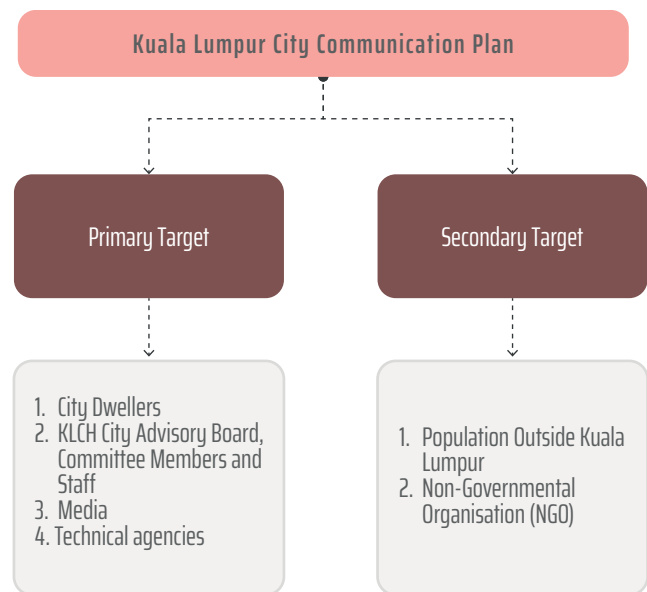
This city communication plan is one of the mediums between KLCH and the city dwellers to make communication more systematic and effective. Through this plan, two-way communication with the citizens can be improved.

The city communication plan emphasises the effective adoption of the latest technology and social media, public relations, press relation as well as marketing tools. The city's communication plan also includes KLCH's preparedness and increased capacities to cope with crises and disasters by providing communication plans during emergencies and crisis management.

The Kuala Lumpur City Communication Plan will emphasise:

1. The goals, vision and implementation of KLSP2040;
2. Two-way communication;
3. Inclusive aspects including reaching-out to all layers of society;
4. Community's feedback;
5. Frequency of communication and consistency in delivery;
6. The measurement of effectiveness involving participation from agencies or committees to evaluate the performance of the implementation in KLSP2040; and
7. Provide new methods of participation and public opinion concerning new developments and large-scale redevelopment that will occur in the affected areas by the proposed development even if it is in line with the development plan.

FIGURE 2.19: KUALA LUMPUR CITY COMMUNICATION PLAN FRAMEWORK



ENGAGEMENT SESSION ON PREPARATION OF KLSP2040





ENGAGEMENT SESSION ON PREPARATION OF KLSP2040

Several community engagement activities can be conducted in the decision making and information gathering to implement urban development planning. The activities include:

Public Engagement: City Talks/Townhall/ City Forum

1. City Talks is a leading dialogue to provide in-depth knowledge and information that can educate, build capacity and engage the community;
2. Focus on various dialogues in realising the 2040 vision as well as providing accessible information related to urban initiatives; and
3. The dialogue can also involve high-profile and experienced international or national speakers and experts.

Community Engagement Survey

1. Conduct Customer Satisfaction Surveys to identify the views of city dwellers regarding the assessment of urban development performance and aspects that need improvement; and
2. Share research findings with citizens that can be used to improve the quality of urban life with innovative and creative proposals.

Open Data Portal

Launching an open data portal that provides data from multi-sector.

UMP7: KUALA LUMPUR CITY PLANNING AND CONTINGENCY ACTION PLAN

Kuala Lumpur as the capital of Malaysia requires a special action plan which is the Kuala Lumpur City Planning and Contingency Action Plan for any future unexpected events. This action plan is essential to enhance the preparedness of Kuala Lumpur City for future crises and shocks. The action plan will also raise awareness among the citizens and KLCH to participate in city activities, emergency and crisis management.

Kuala Lumpur City Planning and Contingency Action Plan will emphasise on enhancing the ability of communities, institutions, businesses and systems in the city to survive, adapt and grow or bounce back from the chronic stresses and acute shocks that the city dwellers will experience.

ACUTE SHOCK

A situation that happened suddenly and had a huge impact on the urban system and the population

Examples:

1. Landslides;
2. Fire;
3. Major floods;
4. Extreme weather change;
5. Pandemic;
6. Earthquake;
7. Terrorist attack;
8. War; and
9. Riot.

CHRONIC STRESS

Stress is an ongoing, long-standing, complex event or disaster that comes from a variety of sources that undermines the urban system and the discontent of city dwellers. For example:

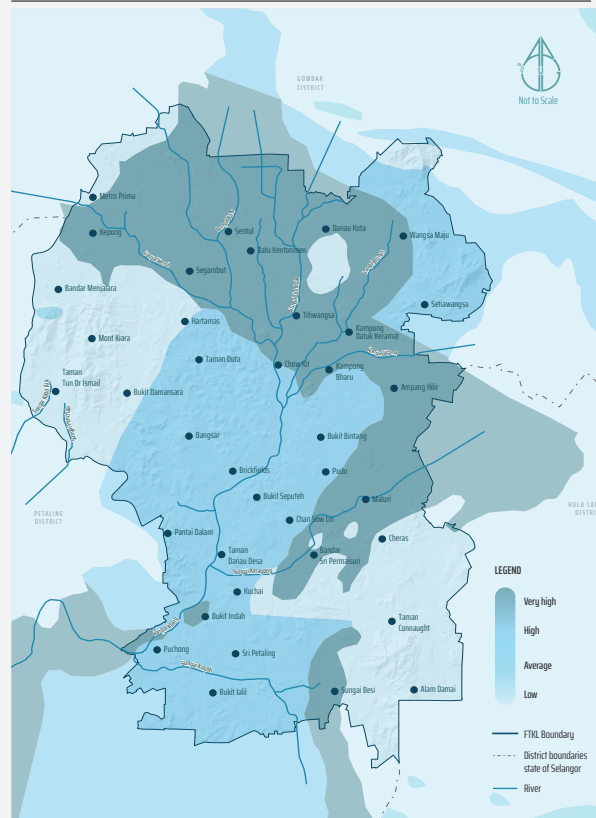
1. Crime;
2. Traffic congestion;
3. Endemic;
4. Water crisis or water supply disruption;
5. Flash flood;
6. Environmental degradation; and
7. Biodiversity losses.

The preparation of this planning and action plan allows KLCH to identify possible incidents and improve the city's capacity by making early planning to deal with such incidents.

QUICK INFO

Planning and identification of areas with potential for groundwater resources extraction has been carried out by KLCH and relevant technical agencies. This plan is one of the preliminary plans of KLCH to ensure clean water supply for the long term and to address current water supply shortage issues in case of future drought and water crisis.

FIGURE 2.20: UNDERGROUND WATER DISTRIBUTION



Source: Hydrological Map of Peninsular Malaysia, First Edition, Department of Mineral and Geoscience Malaysia (JMG), 2008 from the National Water Survey (2000-2050)

SPATIAL MANAGEMENT PLAN (SMP)

The management plan is a spatial and physical development management plan that translates 21 strategic directions and 73 actions of KLSP2040. This Plan covers aspects of spatial availability, growth areas for future needs, transport zones and corridors, natural asset protection zones as well as special area development management zone.

The main objectives of this Spatial Management Plan are:

1. Manage and drive the current and future urban development direction more orderly and efficient;
2. Ensure that every direction of urban development will optimise the existing resources and infrastructure; and
3. Serve as a mechanism and guidance in decision making and monitoring city planning in Kuala Lumpur.

This Spatial Management Plan should be the basic framework of local-level planning in a spatial context and subsequently translated in more detail at the local plan and special area plan.

The Spatial Management Plan (Figure 2.21) has three (3) main components:

1. Special Area Development Management Zone;
2. Nature Asset Protection Zone; and
3. Transportation Zone and Corridor.

This Spatial Management Plan will serve as a guide for planning and land use management to be set out in the Kuala Lumpur Local Plan.

QUICK INFO

A strategic development framework guides spatial planning to ensure a balanced growth by translating strategic directions on spatial availability, growth areas for future needs, natural asset protection zones, special area development management zones as well as transportation zones and corridors.

Special Area Development Management Zone

This zone comprises two (2) main development clusters, namely the Economic Catalytic Cluster and the Urban Renewal Cluster. The Economic Catalytic Cluster emphasizes enhancing Kuala Lumpur's competitiveness through diversification of economic sectors, including new sectors, a broad urban economic value chain, increased productivity and value-added activities and innovation as well as high technology development. The cluster covers economic development areas such as:

1. Creative and culture economy;
2. Tourism;
3. Financial and business services; and
4. Clean Technology industry.

Meanwhile, the Urban Renewal Cluster will strengthen Kuala Lumpur's growth potential with sustainable land management and development as well as promote integrated planning and development. The cluster covers areas such as:

1. Redevelopment and regeneration;
2. Special development area of urban villages; and
3. Area Improvement Programme (AIP).

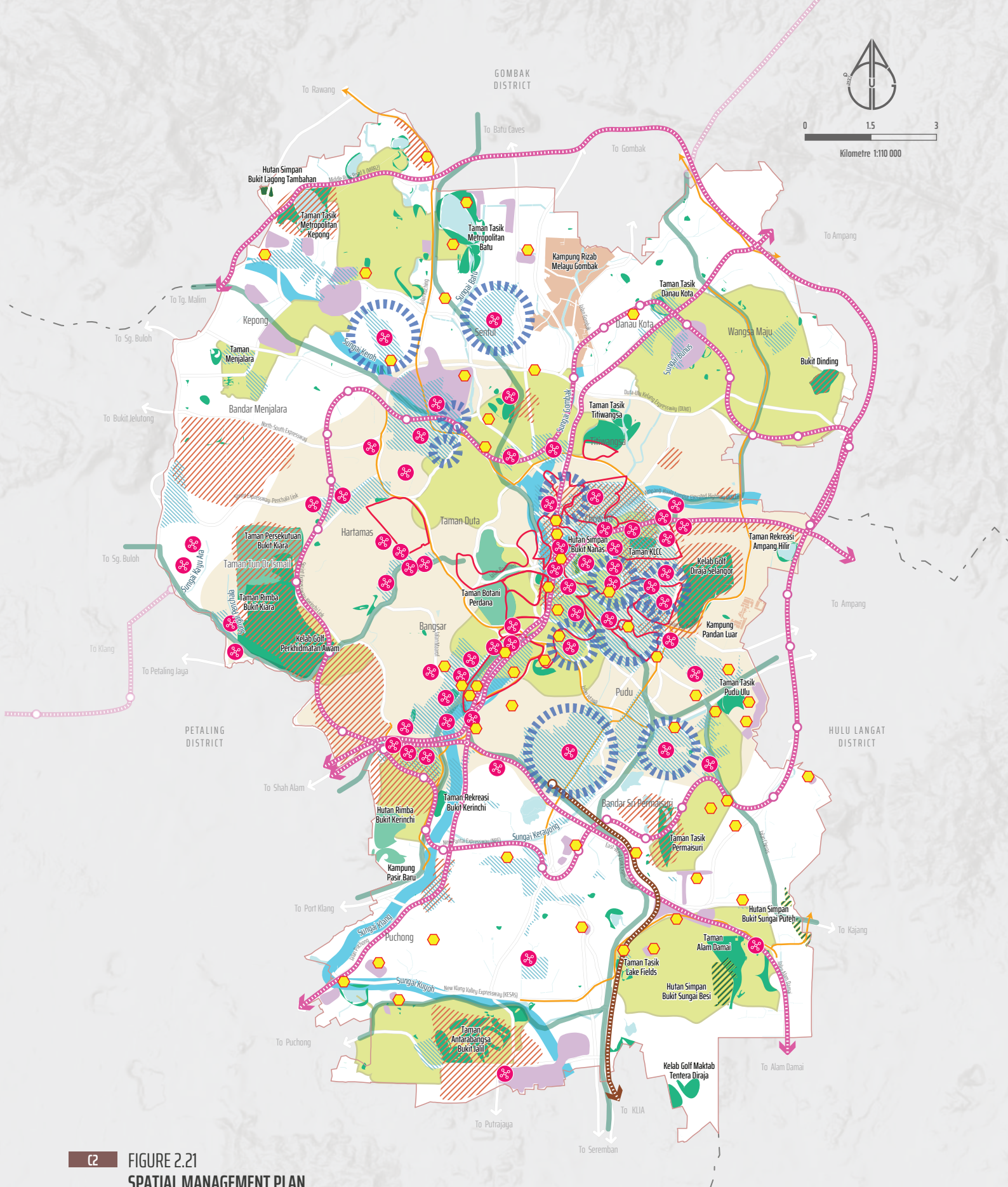
Nature Asset Protection Zone

This zone covers nature clusters aimed at protecting the city's natural assets. Protection of existing biodiversity assets such as permanent forest reserves, open spaces and recreation facilities as well as rivers and water bodies will be prioritised in urban development that integrates nature. This zone is a critical green asset in balancing the impact of urbanisation.

Transportation Zone and Corridor

This zone emphasises making public transport networks the backbone of the integrated transportation system in Kuala Lumpur and enhancing local accessibility to drive continuous development. This zone covers transport networks such as:

1. Network of rail routes and stations;
2. Urban commuter corridors;
3. Transit Oriented Development (TOD) zones;
4. Kuala Lumpur Main Gateway;
5. High Speed Rail (HSR) corridor; and
6. Highway and road networks.



C2

FIGURE 2.21
SPATIAL MANAGEMENT PLAN

LEGEND

Special Area Development Management Zone

- Clean Technology Industrial Zone
- Main Business Zone (Financial, Commercial, Shopping)
- Tourism Zone
- River of Life (RoL) Zone
- Creative and Culture Economy Zone
- Technology and Digital Hub Zone
- Main Employment Focus Zone

- Redevelopment and Regeneration
- Village Improvement
- Area Improvement Programme (AIP)

Transportation Zone and Corridor

- HSR Corridor
- Proposed Public Transportation Corridors
- Proposed Highways

Nature Asset Protection Zone

- Forest Reserve Area
- Open Space Protection Area
- Main Open Space / Park / Recreation Facility
- Park Connector Segment
- Park Connector Network
- Main River
- Retention Pond / Lake

Others

- FTKL Boundary
- Main Road

NOTE:

All plans and figures are in the form of diagram/indicative only. It does not refer to any lot in details.



GOAL 1

KUALA LUMPUR INNOVATIVE AND PRODUCTIVE CITY



KUALA LUMPUR CITY CENTRE, YEAR 2021

The City of Kuala Lumpur is the nation's development centre led by the financial, trade and services sectors. Kuala Lumpur has successfully attracted foreign investment and catalysed the consolidation of economic activities across city and state boundaries to form a National Conurbation. The National Conurbation is Malaysia's most prominent urban economic region and is a major contributor to the country's economy. Its contribution is greater than Greater KL/Klang Valley, where in year 2020, Greater KL/Klang Valley contributed over 40 percent of the country's Gross Domestic Product (GDP). Greater KL/Klang Valley is a combination of smaller areas and is part of the National Conurbation area.

Kuala Lumpur also has a competitive edge to continue generating diverse, high-value and resilient economic activities. This competitive edge includes a highly skilled workforce, a multiracial population and an efficient transportation network besides Kuala Lumpur's improved performance in ease of doing business globally.

The competitiveness and economic prosperity of Kuala Lumpur will be further strengthened in the future with the diversification of high-value, innovative, and inclusive economic activities, supported by a complete ecosystem. Kuala Lumpur will encourage and facilitate the high-tech transformation (Industry Revolution 4.0), a digital and creative technology-based economy and enhance the involvement of entrepreneurs, especially small and medium-sized entrepreneurs in the current economic sector, through the provision of a conducive work and business environment.

The strategic directions formulated to support this goal are:

IP1

Competitive Urban Economic Growth

IP2

Conducive Working and Business Environment

IP3

Catalyst for a Dynamic and Robust Regional Economic Growth

3 STRATEGIC DIRECTIONS

13 ACTIONS

Goal 1 towards making Kuala Lumpur an innovative and productive city is supported by three (3) strategic directions and 13 planning priorities and implementation actions.

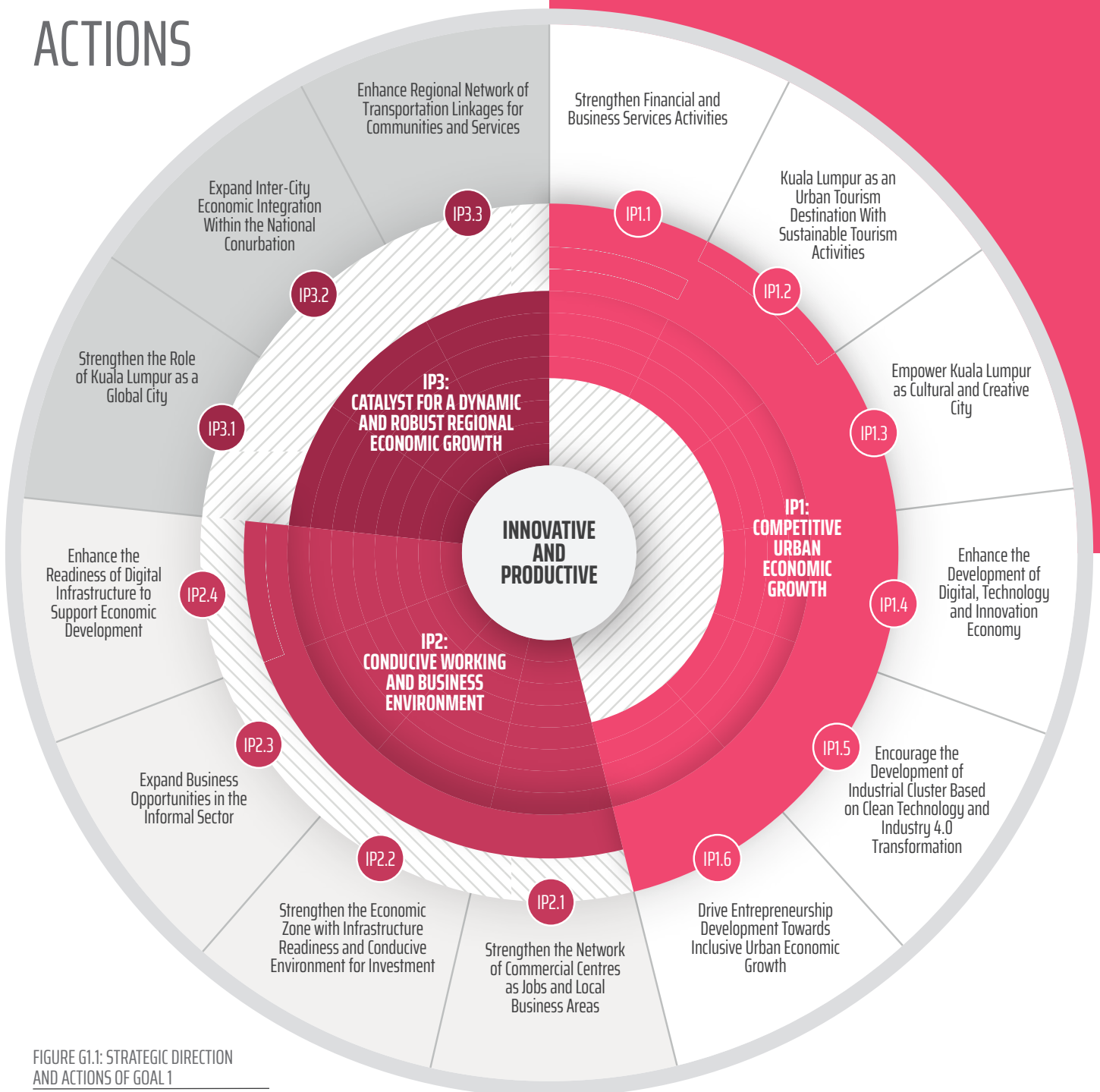


FIGURE G1.1: STRATEGIC DIRECTION AND ACTIONS OF GOAL 1

GAME CHANGER

Kuala Lumpur City Centre is rapidly developing and spearheading the economy with the second-highest GDP contribution in the country, accounting for 6.1 percent, and the highest per capita GDP of RM129,472 in year 2019. However, like other cities worldwide, Kuala Lumpur has also been affected by the COVID-19 pandemic since early year 2020, contributing to the contraction of the local economy.

TABLE G1.1: GDP GROWTH RATE ACCORDING TO STATE

STATE	YEAR 2019 (%)	YEAR 2020 (%)*
Selangor	6.8	-5.3
W.P Kuala Lumpur	6.1	-7.5
Johor	2.8	-4.6
Sarawak	2.8	-7.1
Pulau Pinang	3.8	-2.1
Sabah	0.7	-9.5
Perak	4.1	-2.3
Pahang	3.8	-5.9
Negeri Sembilan	5.1	-3.6
Kedah	4.6	-1.7
Melaka	2.9	-5.9
Terengganu	3.3	-5.7
Kelantan	5.6	-1.1
W.P. Labuan	5.3	-0.5
Perlis	4.5	-6.1
Malaysia	4.4	-5.6

Note*: General data 2020 (Date published: 29 June 2021)

Source: Department of Statistics Malaysia

At the national level, the economic growth rate declined to -5.6 percent in year 2020 from 4.4 percent in year 2019. The indirect impact of the COVID-19 pandemic has significantly influenced the country's economic growth. Various phases of Movement Control Orders (MCO) implemented to curb the spread of the COVID-19 outbreak have resulted in temporary closures of several economic sectors and reduced operating hours.

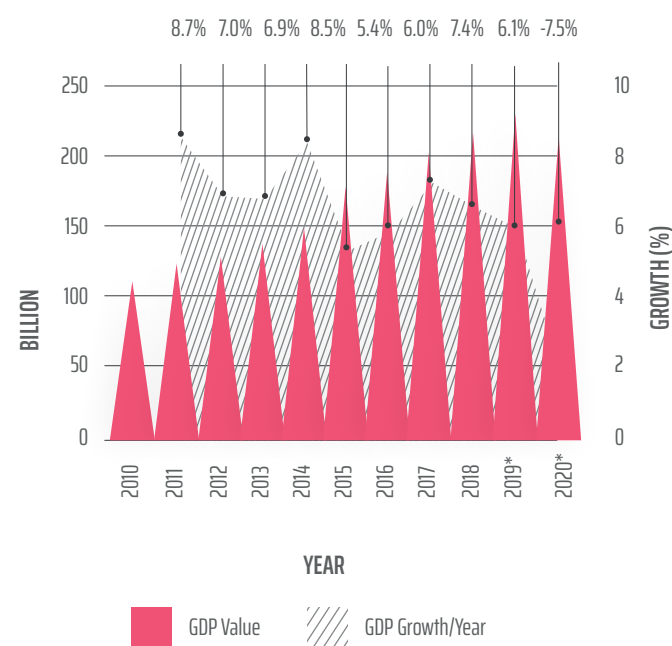
This situation has also affected the economy of the population, especially the low-income group (B40), local businesses, and workers without fixed incomes. Thus, urban economic planning should lean towards innovative and productive economic recovery for short term and long term planning.

KUALA LUMPUR'S ECONOMIC PERFORMANCE

Kuala Lumpur's economic growth slightly increased with the trend of periodic biennial improvements. In year 2019, Kuala Lumpur's GDP of RM233.3 billion increased with a growth rate of 6.1 percent, lower than in year 2018 at 7.4 percent (Figure G1.2). However, the growth rate surpassed the national level of 4.4 percent in year 2019, among the highest in the nation.

After being impacted by the uncertain global economic situation in year 2018 and 2019, Kuala Lumpur also faced the challenge of the COVID-19 pandemic, has led to economic contraction affecting Kuala Lumpur's economic performance. The GDP growth rate for Kuala Lumpur in year 2020 was -7.5 percent, lower than the national level of -5.6 percent.

FIGURE G1.2: KUALA LUMPUR GDP GROWTH TREND, YEAR 2010-2020



Note*: General data year 2020 (Date published : 29 June 2021)

Source: Department of Statistics Malaysia

SERVICES SECTOR AS THE MAIN CONTRIBUTOR

The services sector is the primary economic contributor to Kuala Lumpur's GDP despite a slight decrease from 91.3 percent in year 2010 to 89.3 percent in year 2020 (Figure G1.3). The wholesale and retail businesses, as well as finance and insurance, dominate the services sector. The second most crucial sector in Kuala Lumpur is construction, with GDP contributions increasing by 4.7 percent from year 2010 to 6.3 percent in year 2020.

The upsurge of the construction sector is an outcome of on going and completed mega projects in Kuala Lumpur. Contributions from the manufacturing sector remained low at only 3.1 percent in year 2019 and slightly decreased to 2.6 percent in year 2020. The declining manufacturing sector contribution was due to changes in planning policy towards high-tech industries. The mining and quarry sectors contributed 0.1 percent to Kuala Lumpur's GDP in year 2020.

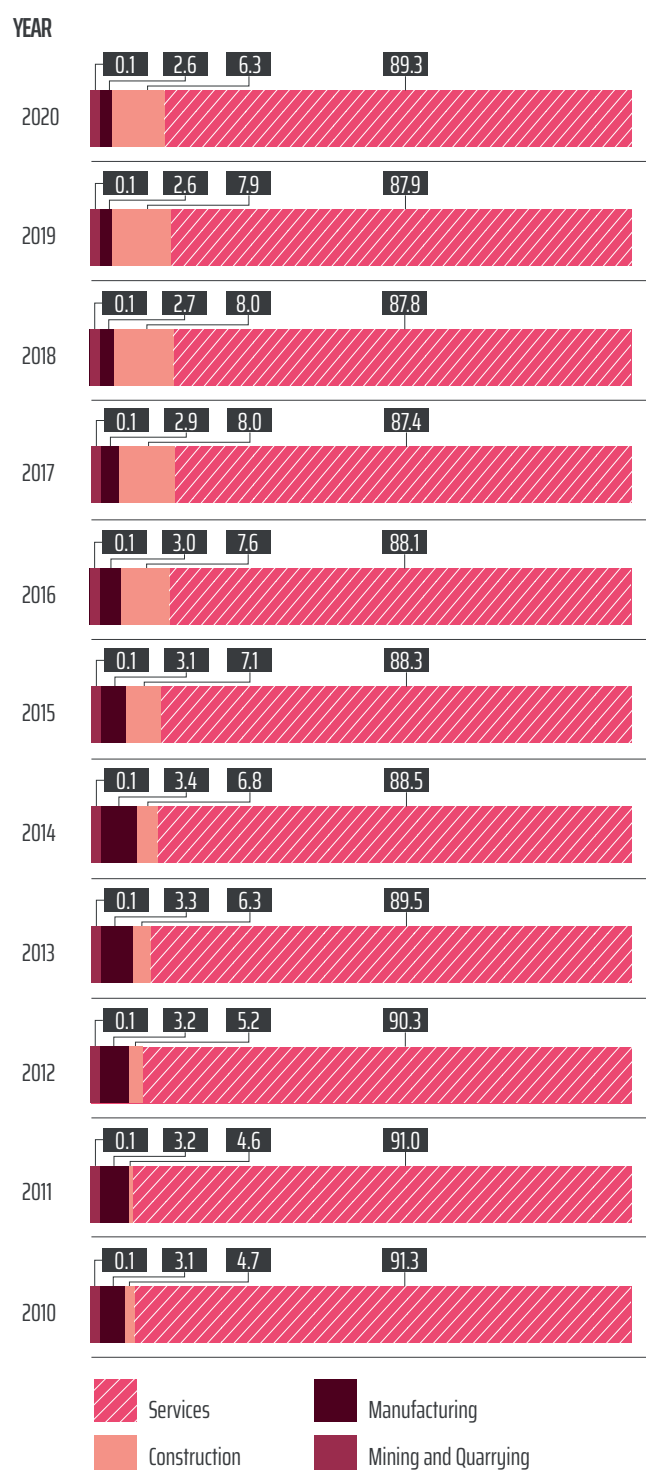


RETAIL BUSINESS



WHOLESALE BUSINESS

FIGURE G1.3: PERCENTAGE OF ECONOMIC SECTOR CONTRIBUTION TO KUALA LUMPUR'S GDP, YEAR 2010-2020



Note:

1. The remaining percentage for 100% is import duty.

2. The mining and quarrying sector refers to "batching plant" activities which are allowed to be located in selected construction sites in Kuala Lumpur.

Source: Department of Statistics Malaysia

THE SIGNIFICANCE OF THE WHOLESALE AND RETAIL BUSINESS SUB-SECTORS IN KUALA LUMPUR'S ECONOMY

The wholesale and retail business sub-sectors play a vital role in Kuala Lumpur's economy. It was the most significant contributor to the services sector, with a 36.5 percent contribution in year 2020. The sub-sectors contribution is more substantial than the financial, insurance, real estate and business services sub-sectors (Figure G1.4).

The wholesale and retail business sub-sector consists of wholesale, retail and sales of motorised vehicles. The wholesale business contributed the most in this sub-sector in year 2020, with 48.8 percent, followed by the retail business with 42.9 percent. Sales of motorised vehicles are lowest and contributed 8.3 percent only to this sub-sector.

The wholesale and retail business sub-sectors' role is crucial to supporting and equipping Kuala Lumpur as a globally competitive trading investment destination. This sub-sector is also one of the tourism products that position Kuala Lumpur as a renowned shopping destination in the country and Asia. However, the economic performance of this subsector contracted due to the global impact of the COVID-19 pandemic.

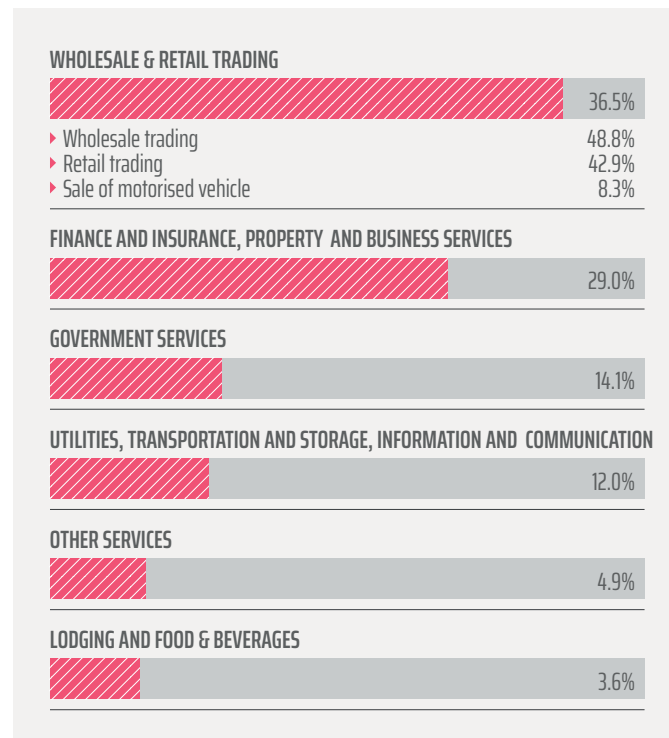
KNOWLEDGE-BASED ECONOMIC SECTOR CONTRIBUTION

The contribution of the knowledge-based economic sector to Kuala Lumpur's GDP in year 2020 was substantial at 54.8 percent. The most significant contributions were from financial, insurance, real estate and business services subsectors, with 25.9 percent (Figure G1.5).

This is followed by the government services with 12.6 percent, while the utilities transportation and storage as well as information and communication services sub-sector contributed 10.7 percent. Other knowledge-based sub-sectors are industry, civil engineering and specialised craftsmanship.

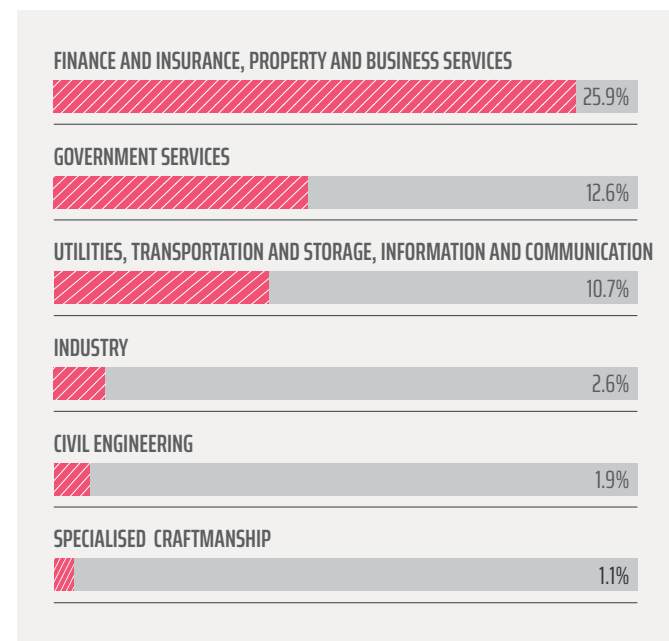
The knowledge-based sector's contribution aligns with Kuala Lumpur's role as a significant trade and service centre in Malaysia. Moreover, the knowledge-based sector enables Kuala Lumpur to be globally competitive as multinational investment companies' preferred city.

FIGURE G1.4: SERVICE SUB-SECTOR CONTRIBUTION, YEAR 2020



Source: Department of Statistics Malaysia

FIGURE G1.5: KNOWLEDGE-BASED SECTOR CONTRIBUTION, YEAR 2020



Source: Department of Statistics Malaysia

SKILLED LABOUR FORCE

The labour force in Kuala Lumpur increased with an average annual growth of 1.1 percent between year 2010 and year 2020, which is faster than population growth over the same period. A total of 910.6 thousand labour force was recorded in year 2020 (2010 : 812.9 thousand), while the number of the working population was 874.7 thousand (year 2010 : 788 thousand) with a participation rate of 72.1 percent, a slight increase from year 2010 (66.2 percent) (Figure G1.6).

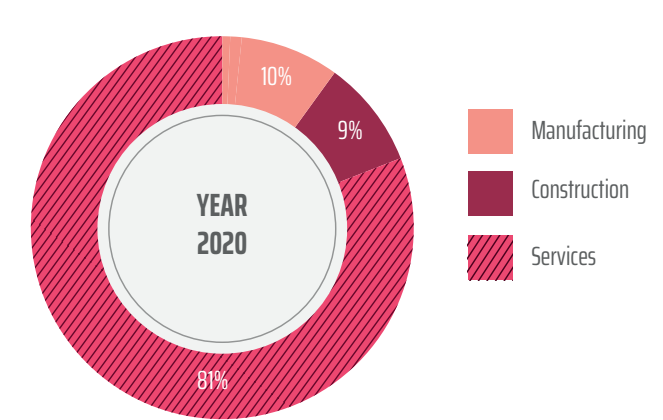
FIGURE G1.6: KUALA LUMPUR LABOUR FORCE AND WORKING POPULATION, YEAR 2020



Source: Department of Statistics Malaysia

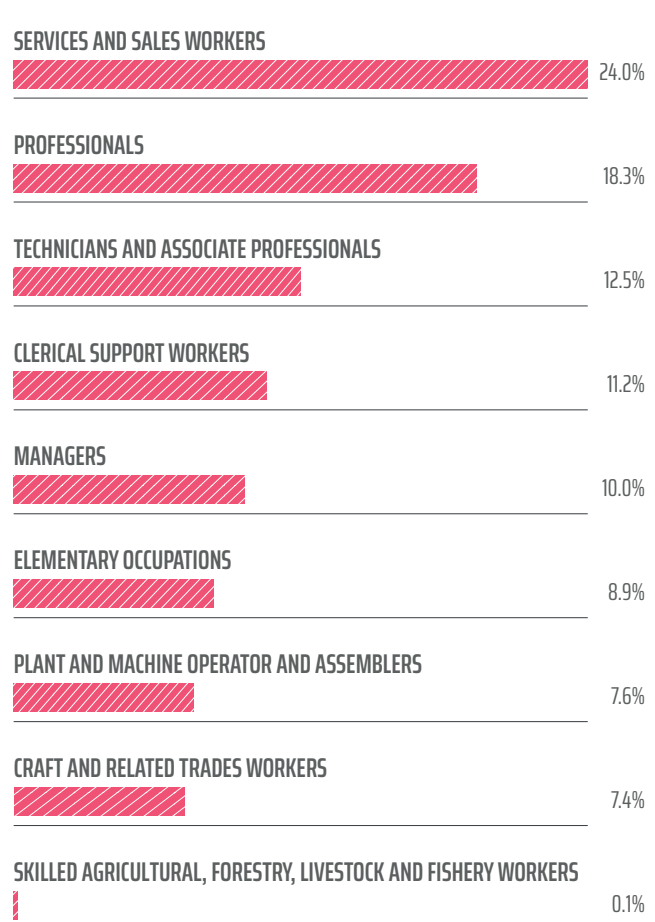
Kuala Lumpur has a strong position in the labour market, with professional and skilled workers at 55.9 percent of the total workers in Kuala Lumpur (Figure G1.8).

FIGURE G1.7: PERCENTAGE OF WORKING POPULATION BASED ON SECTOR, YEAR 2020



Source: Department of Statistics Malaysia

FIGURE G1.8: NUMBER OF WORKING POPULATION BASED ON OCCUPATION, YEAR 2020



Note: Total percentage breakdown of 55.9 percent of total professional and skilled employees.

Source: Department of Statistics Malaysia



SKILLED LABOUR FORCE
Sumber: intraday.my

PROSPECTS AND TARGETS FOR KUALA LUMPUR ECONOMIC SECTOR 2040

The economic resilience of Kuala Lumpur will continuously be strengthened to address future economic challenges, especially with the contraction of GDP growth due to COVID-19. Strengthening the existing economic structures and sectors such as financial services, wholesale and retail business, and manufacturing will reinforce economic growth fundamentals by enhancing innovation and productivity, stimulating Kuala Lumpur's GDP growth. This effort will also ensure that Kuala Lumpur generates quality jobs besides increasing its per capita income and household income to ensure the well-being of the people.

The existing economic sector will be strengthened by placing emphasis on high-value subsectors chain, namely Islamic banking, professional services, and construction services. Focus on the 4.0 transformation will be directed towards the manufacturing industry, with an orientation towards innovation and high technology, green, and clean practices. The tourism sector will be continuously developed towards sustainable tourism that promotes the uniqueness of local resources, including nature, culture and heritage, and the unique elements and characters of Kuala Lumpur (Figure G1.9).

Strengthening Kuala Lumpur's economic sector will also be accomplished by broadening the economic fundamentals. Kuala Lumpur's future economic sector will be focused on three (3) new economic activities: shared economy, digital economy and creative economy (Figure G1.9).

This approach is in accordance with the changing world economy and ensures that Kuala Lumpur has an efficient, inclusive economic environment that constantly competes with future global markets. The new economy venture is expected to increase labour force participation with the growing working population in the informal sector and small businesses as well as micro, especially those working from home.

Kuala Lumpur is expected to generate a working population of 1.08 million and a participation rate of 75 percent by year 2040 through the strengthening of the existing economic sector and the broadening of the economic fundamentals parallel with the changing world economic environment (Figure G1.10).

FIGURE G1.9: KUALA LUMPUR'S FUTURE ECONOMIC SECTOR

EMPOWERING THE EXISTING ECONOMIC SECTOR	SUBSECTOR
Financial and Business Services	Islamic Banking
	Professional services
	Construction services
Manufacturing Industry	Research and development
	High technology
	Clean technology
Tourism	Nature
	Urban tourism
	Cultural and heritage
KUALA LUMPUR ECONOMIC PROSPECT 2040	SUBSECTOR
Shared Economy Economic activities whereby the use of assets and services are shared by individuals or social community for commercial or service purposes.	Transportation
	Property
	Logistics
	Business services
Digital Economy Economic activities that involve the use of tools, software and networks based on the internet, digital technology and artificial intelligence.	Fintech
	E-commerce
	Technology innovation and digital content
Creative Economy Economic activities involving creativity, innovation and high technology in production and creation of works and copyrights related to art, culture, heritage and multimedia.	Heritage and culture
	Design and fashion
	Media, film and broadcasting

FIGURE G1.10: KUALA LUMPUR FUTURE ECONOMIC PROSPECT, YEAR 2040

1.2 MILLION TOTAL LABOUR FORCE	120,000 INFORMAL SECTOR WORKERS
1.08 MILLION TOTAL WORKING POPULATION	75% LABOUR PARTICIPATION RATE (INCLUDING INFORMAL SECTOR)

STRATEGIC DIRECTION

IP1: COMPETITIVE URBAN ECONOMIC GROWTH

Kuala Lumpur will remain competitive in spearheading the nation's economy by broadening the economy sector, enhancing high-value activities, innovative and generating more investment and employment opportunities. Kuala Lumpur's urban economy will continue to be dynamic and inclusive, where businesses and locals thrive harmoniously and prosperously.

The emphasis will be on strengthening and enhancing the added value of main economic activities comprising the financial, business services and tourism sectors, which should continue growing as the core economy of Kuala Lumpur. The future industrial sector will lean towards high-tech, green and clean industries. The injection of new economic activities, such as shared economy, digital economy and creative economy. Kuala Lumpur will also strengthen local heritage and cultural assets as one of the economic impetuses.

The skills and entrepreneurial development will focus on the quality of human capital which can support rapid and dynamic economic growth as well as enable the locals to share economic prosperity. Kuala Lumpur's economic growth will remain prominent and competitive in the future with more innovative efforts.

ACTION

IP1.1: STRENGTHEN FINANCIAL AND BUSINESS SERVICES ACTIVITIES

Kuala Lumpur plays a vital role as the nation's financial centre and regional trade hub. This role will continue to be strengthened by attracting high-value activities such as principal hub investment by foreign investors in the financial sector, business services, professional services and other services. The nation's financial centre's role will be developed and expanded to position Kuala Lumpur as the world's leading Islamic Financial Centre.

Kuala Lumpur has a high infrastructure availability factor comprising quality communication infrastructure facilities, efficient accessibility and connectivity, technological facilities and innovation, the availability of skilled human capital and a comfortable living environment. This factor is among the push factors towards realising Kuala Lumpur as an international financial and business centre and ensuring the financial and business services sector remains the main contributor to the Kuala Lumpur's GDP.



TUN RAZAK TH TOWER

SUPPORTING ACTION

IP1.1A: Attract more principal hubs among multinational companies to drive the services sector

Kuala Lumpur will continue to attract more principal hubs from multinational companies to operate in the city in the future. In year 2020, Kuala Lumpur attracted 67 multinational companies, including several principal hubs (Figure G1.11). The principal hub is the largest multinational company operation compared to company branches, representative offices and regional headquarters. The principal hub's attractive initiative is the improvement measures in the services sector's economic value chain, which strengthens Kuala Lumpur's role as the nation's leading business hub.

The future focus is on the digital, innovation and technologically oriented principal hubs in line with Industry 4.0 initiatives. Other sectors to be emphasised are services, construction, medical equipment and the oil and gas sector. Principal hubs and multinational company offices are encouraged in several primary business areas such as Kuala Lumpur City Centre, Tun Razak Exchange, Bukit Bintang City Centre, KL Sentral, Bangsar South, KL Eco City, Merdeka 118 and KL Metropolis.

FIGURE G1.12: MULTINATIONAL COMPANIES – CURRENT STATUS AND FUTURE TARGET

YEAR 2020

67

MULTINATIONAL COMPANIES IN KUALA LUMPUR

4,977

TOTAL JOBS

113,419

FLOOR AREA SQUARE METER

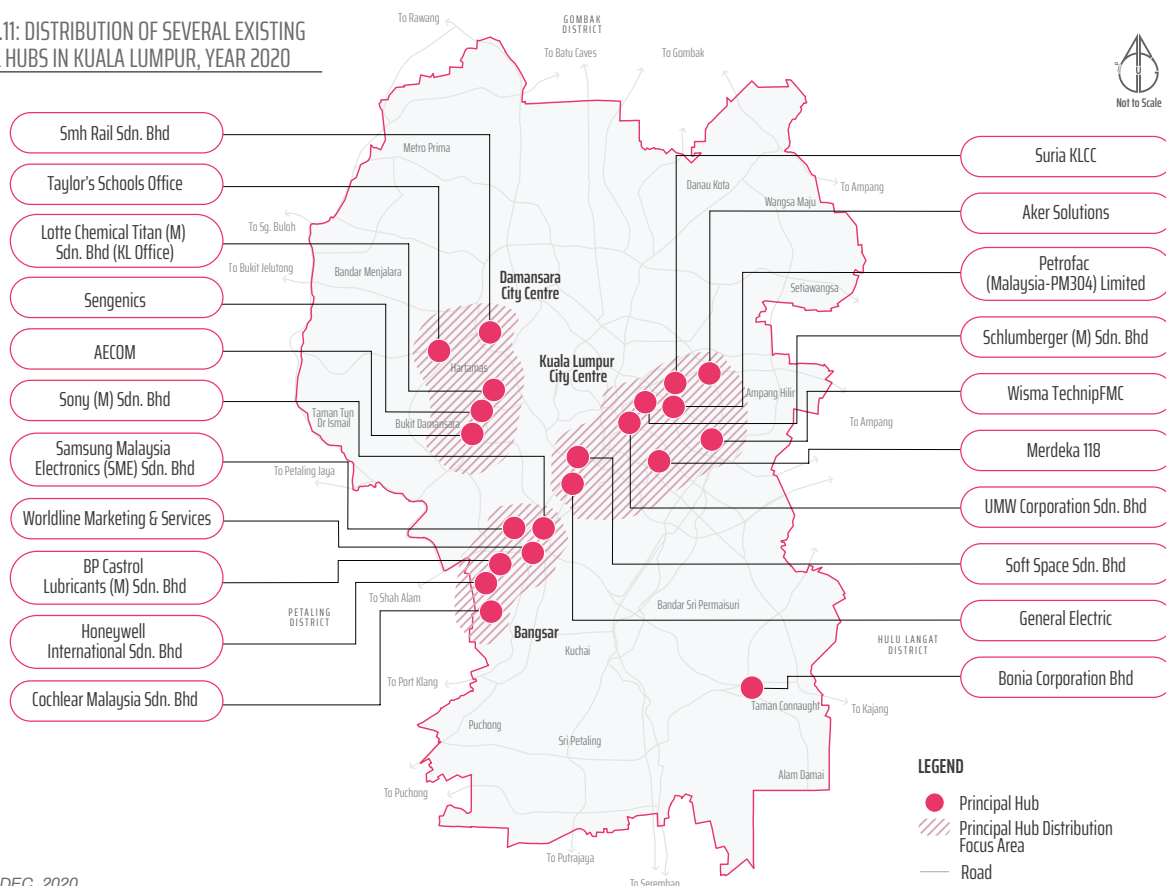
YEAR 2030

100

NEW MULTINATIONAL COMPANY TARGETS

Source: Performance Report 2020, InvestKL and Media Release October 2020, InvestKL

FIGURE G1.11: DISTRIBUTION OF SEVERAL EXISTING PRINCIPAL HUBS IN KUALA LUMPUR, YEAR 2020



Sumber: MDEC, 2020

SUPPORTING ACTION**IP1.1B: Strengthen its position as a world financial centre**

Kuala Lumpur will enhance its future role as nation's financial centre, at least as one of the financial centres of the Asian region. Kuala Lumpur will capitalise on its strength as an International Islamic Financial Centre (Figure G1.13) to elevate its global position, broadening the value chain of banking and financial activities and complementing the supporting ecosystem.

In year 2020, Kuala Lumpur ranked first as the world's Islamic banking and finance centre after ranking second in year 2019 (Figure G1.14). Kuala Lumpur's strengths are the size of Islamic banking and finance, including the number of banks, various banking and monetary instruments, robust monetary policy, and complete infrastructure.

Kuala Lumpur will promote the growth of fintech systems concerning online banking, digital payments and others to broaden the financial activity chain for Islamic and conventional financial systems.

The broadening of high-value activity chains such as property and estate management, investment management, alternative loans (e.g. crowdfunding, Peer to Peer (P2P)) and others is also encouraged. Crowdfunding refers to project funding by raising money from a particular target group or individuals via the internet.

The economic ecosystem of Kuala Lumpur will be enhanced to be more comprehensive and conducive to ensuring the growth of the financial sector as an economic impetus. The enhancement includes the diversified provision of quality office spaces equipped with supporting facilities as well as quality digital infrastructure. The supporting infrastructure is encouraged in the existing financial centres such as Central Business District, KL Sentral and Tun Razak Exchange, and several primary business centres such as Kuala Lumpur City Centre and Bandar Malaysia (Figure G1.16).

FIGURE G1.13: KUALA LUMPUR'S PERFORMANCE IN ISLAMIC FINANCE, YEAR 2020

15
NUMBER OF ISLAMIC BANKING HEADQUARTERS

RM 1.09 TRILLION
TOTAL ASSETS

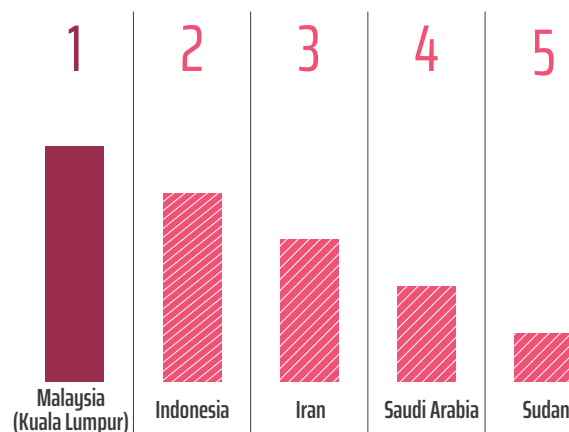
34.2%
ISLAMIC BANKING MARKET SHARES

13
TOTAL TAKAFUL FIRMS

RM41.3 BILLION
TOTAL ASSETS

Source: Bank Negara Malaysia 2020 Annual Report, 2020

FIGURE G1.14: MALAYSIA'S POSITION IN THE ISLAMIC FINANCIAL MARKETS, YEAR 2020

**QUICK INFO****Definition**

Global financial centre is area with high concentration of international financial institutions

Global Financial Centre Criteria

1. Financial concentration area
2. The best commercial and communication infrastructure facilities

SUPPORTING ACTION**IP1.1C: Promote shared economy**

A sharing economy is a high-potential economic sector in Kuala Lumpur that should be encouraged parallel with efforts towards an inclusive and equitable economy. The sharing economy which involves the real estate and service sectors in Kuala Lumpur is able to increase the growth of local entrepreneurship, facilitate self-employment, and directly increase labour participation and urban productivity.

It also enables existing resources and assets, such as digital infrastructure, to be more efficiently and productively shared. Subsequently, the broadening of activities shown in Figure G1.15 will enhance the existing shared economy activities in Kuala Lumpur. The activities are:

1. Sharing of assets and services such as e-hailing, shared office, shared living space (e.g. Airbnb) etc;
2. Intangible asset sharing (time, skills and talent) such as delivery services, administrative services etc;
3. Redistribution of goods such as purchase, sale and delivery of goods through the secondary market; and
4. Financial sharing such as investments (e.g. crowdfunding, P2P).

Kuala Lumpur will ensure decent shared economic growth through the following measures:

1. Provide a complete supporting infrastructure, especially digital infrastructure;
2. Provide a platform for shared businesses such as digital storefront with shared management;
3. Holistic planning for the logistics needs of e-commerce and urban mobility and making progressive adjustments;
4. Allow mixed activities suitable for the sharing economy in the existing premises; and
5. Develop relevant products to facilitate efficient and effective implementation of shared economy activities.

QUICK INFO**Malaysia Shared Economy****17****TYPES OF SUB-SECTOR****112****COMPANIES (87 ARE LOCAL COMPANIES)**

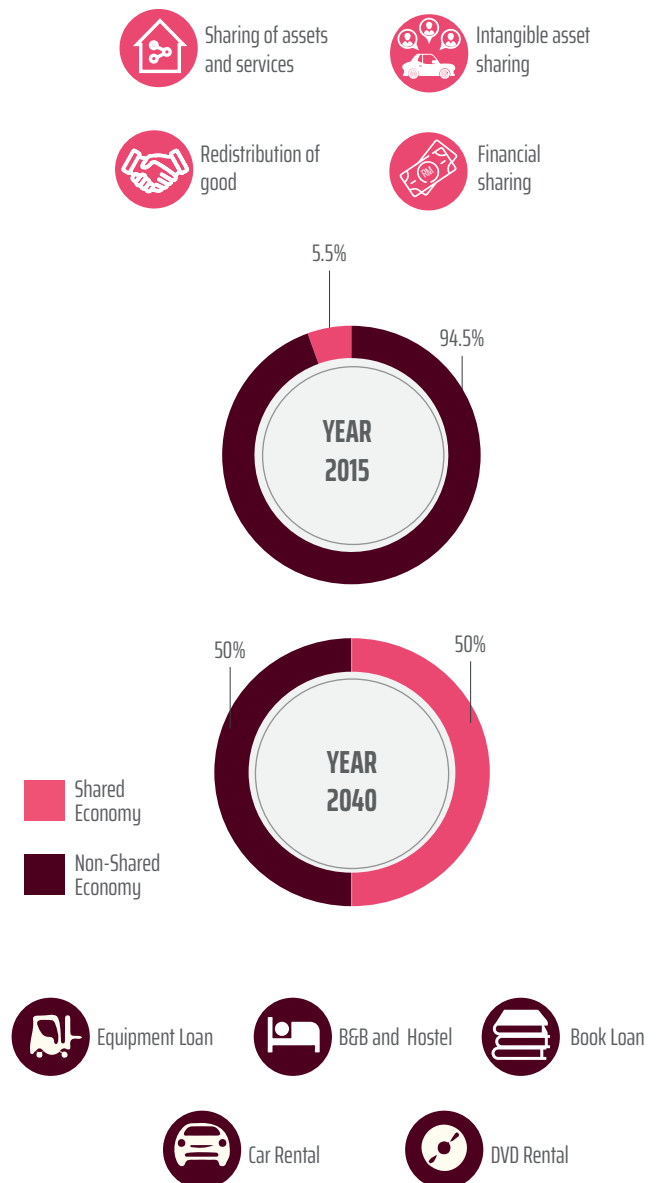
Note: Almost all types of shared economy sub-sectors operating in Kuala Lumpur

Source:

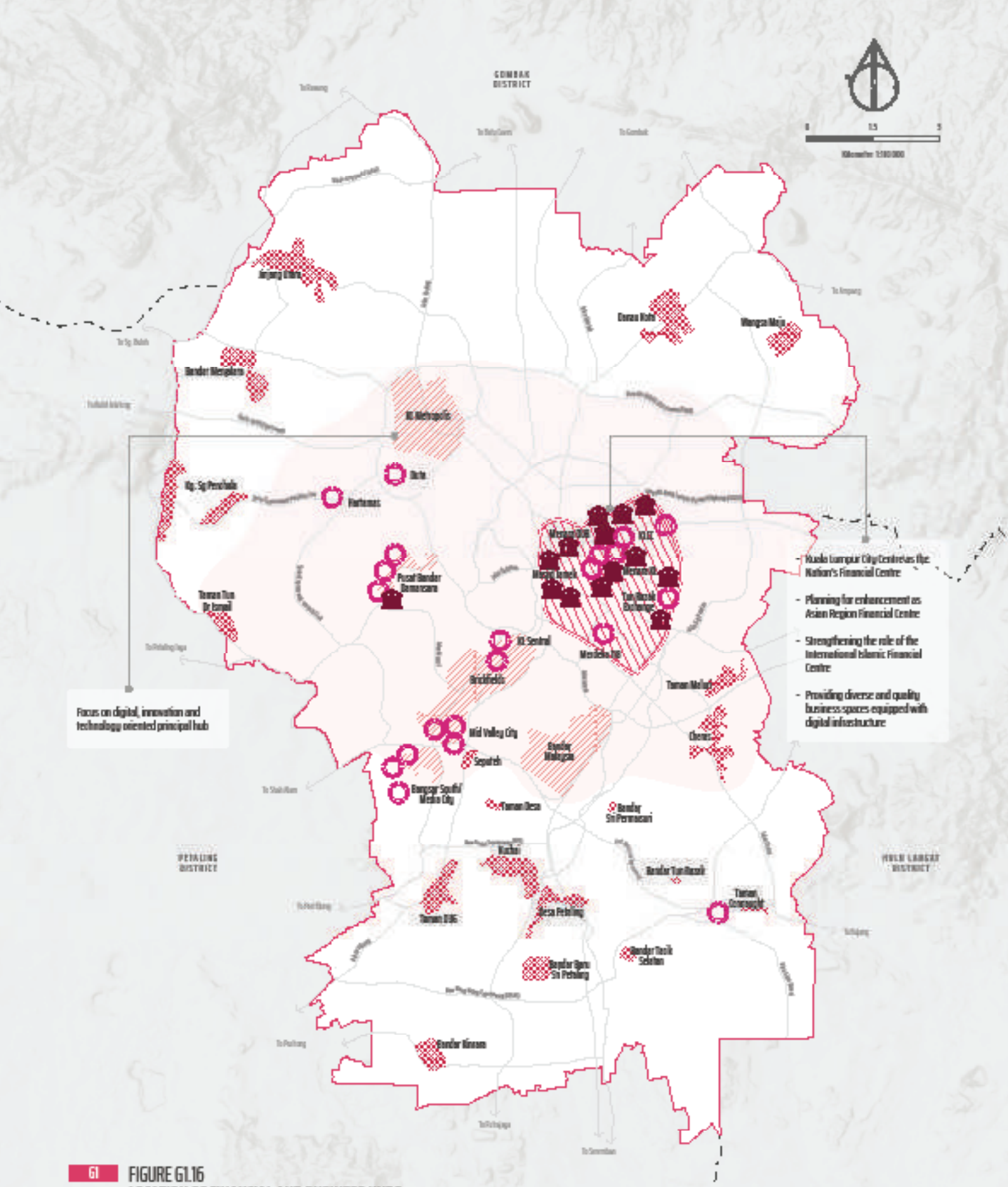
1. MDEC Analyst Group

2. Sharing or paring? Growth of the sharing economy, PriceWaterhouse Coopers Magyarország Kft, 2015

FIGURE G1.15: ACTIVITIES IN SHARED ECONOMY KUALA LUMPUR, YEAR 2040



Source: Sharing or paring? Growth of the sharing economy Report, PwC, 2015



ACTION**IP1.2: KUALA LUMPUR AS AN URBAN TOURISM DESTINATION WITH SUSTAINABLE TOURISM ACTIVITIES**

The tourism sector will significantly contribute to Kuala Lumpur's future economic growth. Although its current contribution is less compared to the financial and retail sectors, it has the potential to become a major contributor to economic growth due to the broad economic ripple effects it can generate.

Tourism is an impetus to various economic chains, including a shared economy offering opportunities to small and medium-sized entrepreneurs and those outside the labour force. These entrepreneurs can participate as lodging and restaurant operators, handicraft product manufacturers, tour guides and others.

As Malaysia's capital city, Kuala Lumpur has the edge of being a renowned destination among international and domestic tourists. Its strength is in terms of a wide diversity of tourism products, world-class urban infrastructure and services. The tourism sector is anticipated to generate 35 million international and domestic tourists with a total expenditure of RM77 billion by year 2040 (Table G1.2).

Despite being severely affected by the COVID-19 pandemic in year 2020, the tourism sector will likely escalate to its previous rate after year 2025. Between year 2021 and 2025, domestic tourists and visitors will likely dominate the tourism sector in Kuala Lumpur.

SUPPORTING ACTION**IP1.2A: Diversify Kuala Lumpur tourism products**

Kuala Lumpur will focus on sustainable tourism activities and products that consider the current and future economic conditions and tourism's impact on social and environmental aspects. The city will also focus on the needs of the tourists, tourism industry, and local community.

In line with the action, Kuala Lumpur will strengthen three (3) categories of tourism products consisting of urban tourism, cultural and heritage tourism as well as nature tourism (Figure G1.17).

TABLE G1.2: KUALA LUMPUR'S TOURISM SECTOR TARGET IN YEAR 2040

ASPECT	DOMESTIC	INTERNATIONAL
Tourist arrival (million people)	22.5	13
Average duration of stay (night)	3	4.5
Average spend per night (RM)	450	800
Total tourist spend (RM billion)	30.4	47.0

FIGURE G1.17: KUALA LUMPUR TOURISM PRODUCT MAIN FOCUS

URBAN TOURISM

The existing international class urban facilities and services will be utilised to promote tourism.

1. MICE

2. Medical

3. Education

4. Shopping

CULTURAL AND HERITAGE TOURISM

Products which demonstrate local culture and heritage that benefit the people.

1. Heritage Buildings and Sites

2. Religious Buildings

3. Food and Culinary

4. Creative and Cultural

NATURE TOURISM

Tourism products based on natural resources.

1. Sport and Recreation

3. Forest (Permanent Forest Reserve and Urban Forest Park)

QUICK INFO**The Impact of COVID-19 Pandemic**

The spread of the COVID-19 pandemic since year 2020 affected the tourism sector in Kuala Lumpur and the rest of the country. The number of international tourists arriving at the national level declined severely, dropping 83.5 percent compared to year 2019. Kuala Lumpur must focus on attracting domestic tourists to address the impact of COVID-19 on the tourism sector.

SUPPORTING ACTION**IP1.2B: Upgrade existing tourist attraction areas as tourism zones**

In line with the National Tourism Policy 2020-2030, this Special Tourism Investment Zone (STIZ) aims to encourage the development of higher-value and innovative tourism products. Indirectly STIZ will also attract more local and international investment. The STIZ in Kuala Lumpur concentrates on the existing and new tourist zones (Figure G1.18).

The existing tourist attraction areas will be strengthened by upgrading the areas as tourism zones to escalate Kuala Lumpur as an urban tourism destination. This tourism zone aims for more focused tourism development, providing new products of high quality and value with the engagement of investors and interested parties.

In addition, the establishment of tourism zones will facilitate the upgrading of tourism-oriented infrastructure and facilities. The tourism zones in Kuala Lumpur are:

1. Urban tourism;
2. Cultural and heritage tourism; and
3. Natural tourism.

Enhancement and upgrading measures identified for the tourist attraction areas are:

1. Diversifying new iconic products in each tourism zone in Kuala Lumpur;
2. Providing adequate basic facilities and quality tourism support facilities such as knowledgeable and prudent tour guides;
3. Enhancing tourists accessibility aspect with consistent and quality public transportation services;
4. Ensuring the provision of comfortable infrastructure for elderly and disabled tourist; and
5. Regenerating tourism products to be more diverse and attractive.



CULTURAL EVENT IN KUALA LUMPUR



PETALING STREET KUALA LUMPUR



HANDICRAFT PRODUCT



RIVER OF LIFE (RoL) AS A TOURIST DESTINATION

Other existing tourist attraction areas not located in tourism zone will also be strengthened and upgraded with suitable measures, especially the provision of more complete and quality tourism facilities. The area including:

1. MICE area, namely Kuala Lumpur Convention Centre (KLCC), MATRADE Exhibition and Convention Centre, World Trade Centre (WTC), Sime Darby Convention Centre, Mid Valley Exhibition Centre; and
2. Culinary tourism areas at Jalan Alor, Brickfields, Kampong Bharu, Pantai Dalam and Kampung Sungai Penchala.

SUPPORTING ACTION

IP1.2C: Promote Kuala Lumpur as the centre for multicultural performance

Kuala Lumpur as the capital of Malaysia, will promote international standard activities for multi-cultural performance and art centres. Kuala Lumpur will promote cultural performance spaces such as the Istana Budaya, Kuala Lumpur Performing Arts Centre (KLPAc), Petronas Philharmonic Hall, Balai Seni Lukis Negara and public spaces as at Dataran Merdeka and Medan Pasar.

QUICK INFO

Istana Budaya

Malaysia's premier theatre stage for art and theatre performance from local and abroad.

Petronas Philharmonic Hall

The Malaysian Philharmonic Orchestra (MPO) consists of musicians worldwide who perform concerts and traditional cultural performances.

Kuala Lumpur Performing Arts Centre (KLPAc)

A local art-producing platform supporting traditional and contemporary art artists, as well as education. KLPAc provides advanced facilities to help the growth of talents and performing art artists.

Balai Seni Lukis Negara

Collecting, conserving, preserving, exhibiting, promoting, cultivating awareness, understanding and passion for art to all walks of life.

ACTION

IP1.3: EMPOWER KUALA LUMPUR AS CULTURAL AND CREATIVE CITY

Empowering the strength of existing local heritage and cultural arts assets will further enhance Kuala Lumpur's economic growth. The assets include creative economies based on Malaysian cultural products such as heritage, performing arts, craft arts, fashion, local food, filming, writing and others. In addition, the arts and creatives of the younger generation, such as murals, graffiti art and statues, can be dignified by providing space in the tourist-focused area.

A creative economy has a broad economic value chain and inspires Kuala Lumpur to be a cultural and creative city. The creative economy can also generate numerous job opportunities and high-income jobs. It is also a productive economic activity due to its flexible use of production and multifunctional spaces.



MULTI ETHNIC AND CULTURE IN KUALA LUMPUR

BEST PRACTICES

Bilbao Art District, Spain

Streets Bilbao is an exhibition of contemporary art and art consisting of the Guggenheim Museum, Albia Park, Euskalduna Conference Centre, and Concert Hall, among others. The initiative, known as the Bilbao Art Space, advocates year-round activities to integrate culture and art into the city's daily life.





0 1.5 3
Kilometre 1:110 000

Heritage Buildings and Sites

1. Perkuburan Loke Yew
2. Chow Kit
3. Kampong Bharu
4. Dataran Merdeka
5. Tugu Negara
6. Taman Warisan Tun Abdul Razak
7. Muzium Negara
8. Little India
9. Perkuburan Kwong Tong, Kwong Si dan Hokkien
10. Rumah Abdullah Hukum
11. Pekan Sungai Besi
12. Tanah Perkuburan Islam Jalan Ampang
13. Bangunan Chan She Shu Yuen
14. Bangunan Sultan Abdul Samad

Sport and Recreation

1. Taman Metropolitan Kepong
2. Desa Park City
3. Stadium Tennis Jalan Duta
4. Stadium Hoki Jalan Duta
5. Taman Tasik Tihiwangsa
6. Taman Rama - rama
7. Taman Botani Perdana
8. Taman Eko Rimba
9. Stadium Negara
10. Stadium Merdeka
11. Kelab Golf Diraja Selangor
12. Tournament Player Club (TPC KL)
13. Taman Tasik Permaisuri
14. Stadium Bukit Jalil
15. Kelab Golf Perkhidmatan Awam (KGPA)
16. Taman Persekutuan Bukit Kiara
17. Taman Rimba Bukit Kerinchi
18. Part of Bukit Dinding
19. Part of Bukit Persekutuan

Shopping

1. Suria KLCC
2. Bukit Bintang
3. Petaling Street
4. Berjaya Times Square
5. Mid Valley

Food and Culinary

1. Kampong Bharu
2. Datuk Keramat
3. Sg. Penchala
4. Pantai Dalam
5. Pasar Raja Bot
6. Pasar TTDI

MICE

1. Malaysia International Trade and Exhibition Centre (MITEC)
2. World Trade Centre (WTC)
3. Kuala Lumpur Convention Centre (KLCC)
4. KL Sentral
5. Sime Darby Convention Centre (SDCC)
6. Mid Valley Exhibition Centre (MVECE)

Medical

1. Columbia Asia Hospital
2. Gleneagles - Intan Medical Centre
3. Hospital Tawakal
4. Hospital Kuala Lumpur
5. Institut Jantung Negara
6. Pusat Rawatan Islam (PUSRAWI)
7. HSC Medical Centre
8. Hospital Canselor Tuanku Muhriz UKM
9. Prince Court Medical Centre
10. Hospital Tung Shin
11. Global Doctors Hospital Centre
12. Pusat Perubatan Pantai
13. Pusat Perubatan Universiti Malaysia
14. Hospital Pantai Cheras

Education

1. Kolej Islam Antarabangsa
2. Universiti Tunku Abdul Rahman (UTAR)
3. Pusat Latihan Polis (PULAPOL)
4. Universiti Teknologi Malaysia
5. Help University College
6. Universiti Malaysia
7. Maktab Perguruan Ilmu Khas
8. Universiti UCSI
9. Universiti Pertahanan
10. Universiti Perubatan Antarabangsa
11. Pusat Pengajaran Astro

Religious Buildings

1. Masjid Negara
2. Masjid Wilayah Kuala Lumpur
3. Masjid Jamek
4. Masjid Jamek Kampong Bharu
5. Masjid Ya'qub Al-Bukhari
6. Masjid India
7. Gereja St Mary
8. Gereja St Anthony
9. Gereja Holy Rosary
10. Tokong Thean Hou
11. Tokong Sin Sze Si Ya
12. Tokong Deng Bi An
13. Kuil Sri Krishna
14. Kuil Sri Mahamariamman

Creative and Cultural

1. Pasar Seni
2. Medan Pasar
3. Panggung Bandaraya
4. Istana Budaya
5. KLPac
6. Dewan Filharmonik Petronas
7. Balai Seni Lukis Negara
8. Kompleks Kraf Jalan Conlay

G1 FIGURE G1.18
TOURISM ZONE

LEGEND

Existing Tourist Zone

- Urban Tourism Zone
- MICE
- Medical
- Education
- Shopping

Cultural and Heritage Zone

- Heritage Buildings and Sites
- Religious Buildings
- Food and Culinary
- Creative and Cultural

Nature Tourism Zone

- Sport and Recreation
- Forest (Permanent Forest Reserve and Urban Forest Park)
- River of Life (RoL)

Proposed New Tourist Zone

- Urban Tourism
- Primary Shopping Zone
- Shopping Zone
- Education Zone
- Sports and Recreation Zone
- MICE Zone

Cultural and Heritage Tourism

- Creative and Cultural Zone
- Food and Culinary Zone

Nature Tourism

- Proposed River of Life Zone (RoL)

Others

- Main Road
- FTKL Boundary

NOTE:

All plans and figures are in the form of diagram/indicative only. It does not refer to any lot in details.

SUPPORTING ACTION**IP1.3A: Expand the creative industry activities**

The creative industry refers to the production of individual or group talents, works and intellectual copyrights, based on creativity, innovation and technology, especially for the younger generation, in line with the multiethnic culture and good values (Table G1.3). In year 2016, the creative industry contributed RM11.2 billion to Kuala Lumpur's GDP with 86,178 jobs. The most significant contribution of 55 percent was from film, broadcasting and digital animation activities, and 24.3 percent from cultural arts, writing and fashion (Table G1.4).

In year 2019, creative industry contribution increased parallel with the national increase of 4.8 percent average annual growth in year 2018 and grew to 8.3 percent in year 2019. The creative industry contribution in year 2040 is expected to increase more than twice the target of CENDANA (Cultural Economic Development Agency) in 2022 (Table G1.5) through the implementation of various measures to enhance the value of the following creative industry activities:

1. Cultural arts, including music, performing arts and visual arts;
2. Museums and archives including restoration and conservation;
3. Writings and publication;
4. Craft;
5. Design, fashion and textiles; and
6. Multimedia, film, broadcasting, animation and digital content.

The following initiatives will support the growth of the creative industry:

1. Enriching human capital in the creative and cultural industries;
2. Developing creative hubs and zones with complete infrastructure;
3. Developing markets through enhancement of easily accessible information and promotions;
4. Promoting investment and business support from the private sector; and
5. Providing creative public spaces to enhance the appreciation of arts in the city.

Among potential sites as the proposed creative industry centre are:

1. Sultan Abdul Samad Building;
2. Kuala Lumpur Historic Old Railway Station; and
3. Old KTM building renovated as Performing Art Centre (KLPac), Sentul.

TABLE G1.3: CLASSIFICATION OF CREATIVE INDUSTRY

MULTIMEDIA CREATIVE INDUSTRY	CULTURAL ART CREATIVE INDUSTRY	CULTURAL HERITAGE CREATIVE INDUSTRY
<ul style="list-style-type: none"> • Film and TV Production • Advertisement • Design art • Animation and digital content 	<ul style="list-style-type: none"> • Craft • Visual art • Musical art • Performing art • Creative writing • Fashion and textile 	<ul style="list-style-type: none"> • Museum • Archive • Restoration • Conservation

Source: National Creative Industry Policy

TABLE G1.4: KUALA LUMPUR CREATIVE SECTOR BASIC DATA, YEAR 2016

SECTOR	CONTRIBUTION TO GDP 2016 (RM MIL)	TOTAL JOBS 2016
Craft	33.6	200
Music	33.6	Included in cultural arts
Museum and archive	33.6	270
Cultural arts	380.8	2,950
Writings	582.4	2,000
Fashion	1,164.8	37,522
Film & broadcasting	2,721.6	19,394
Digital animation	6,249.6	23,842
TOTAL	11,200	86,178

Source: Cultural Economy Development Agency (CENDANA), 2016

TABLE G1.5: KUALA LUMPUR CREATIVE SECTOR BASIC DATA AND TARGETTED CONTRIBUTION TO GDP YEAR 2016-2022

SECTOR	CONTRIBUTION TO GDP	TOTAL JOBS
2016	11.2 billion	86,478
2022 (target)	19.4 billion	125,000

Source: Cultural Economy Development Agency (CENDANA), 2016

FIGURE G1.19: KUALA LUMPUR CREATIVE AND CULTURAL DISTRICT

LEGEND

Creative and Cultural District

- Cultural Zone
- Creative Heritage Zone
- Creative Youth Zone
- Heritage Village Zone
- Creative Corporate Zone
- Religious Zone
- Civic Zone

Department of National Heritage (DNH)

- National Heritage
- Other Heritage

Others

- Building Site
- Lake
- Main River

Cultural Zone

Focus on empowering the existing culture i.e. palace ceremonial, Indian culture in Brickfields.

Creative Heritage Zone

Promote the existing heritage assets through supporting infrastructure, facilities and creative activity.

Creative Youth Zone

Empower creative youth environment through emphasis on conducive and creative youth business activities.

Heritage Village Zone

Conserve heritage village environment through various Malay and Asian community traditional activities and facilities.

Creative Corporate Zone

Enhancing corporate environment and business activities by emphasising creative industry and attracting more local and foreign investors.

Religious Zone

Preserve Islamic religious environment through emphasis on Islamic urban design.

Civic Zone

Preserving civic buildings and diversifying creative activities in the buildings.

SUPPORTING ACTION

IP1.3B: Introduce Creative and Cultural Districts

Kuala Lumpur Creative and Cultural District will be introduced to empower the creative industry. The district involves several conservation, preservation and redevelopment efforts in the following areas:

1. Improve the quality of the area and revitalize activities in Central Market, Medan Pasar, Merdeka Square, Panggung Bandaraya, Stadium Negara and Stadium Merdeka;
2. Upgrade Sin Sze Si Ya Temple area, Petaling Street area, Masjid India and Jalan Bunus;
3. Conservation and adaptive reuse that generates public activities in the Sultan Abdul Samad Building, Kuala Lumpur Old Railway Station, Masjid Jamek Sultan Abdul Samad and others;
4. Conservation of historical educational institutions such as St John's Institution, Convent Bukit Nanas; Methodist Girls School and Victoria Institution;
5. Activate the creative industry main activities such as cultural arts activities, performing arts at Istana Budaya, KL Performing Arts Centre, and Petronas Philharmonic Hall; and
6. Promote the handicraft art by improving the existing facilities such as the Central Market, Jalan Conlay Craft Complex, and others.

SUPPORTING ACTION**IP1.3C: Encourage the development of media and communication centre**

Kuala Lumpur will progress as a media and communications centre for the global network led by RTM and the existing media companies in Kuala Lumpur. The proposed Media City around Angkasapuri and the establishment of the International Broadcasting Centre will boost Kuala Lumpur's role as a media centre, especially for international events.

ACTION**IP1.4: ENHANCE THE DEVELOPMENT OF DIGITAL, TECHNOLOGY AND INNOVATION ECONOMY**

The digital economy is a new economy resulting from innovation and communication technology applications in hardware, software and information and communication networks. It is applied for human communication, distribution of goods as well as activities to increase productivity and income.

The impressive growth of the digital economy nationally and globally demonstrates that the sector has enormous potential to spearhead Kuala Lumpur's economy further. Currently, there are 2,794 active Multimedia Super Corridor (MSC) companies and generating 184,030 jobs in Malaysia (Figure G1.20).

This performance positioned Malaysia eighth position among the Asia Pacific countries in the Global Innovation Index 2020 (out of 113 countries) and eleventh in The 2020 Global Startup Ecosystem Report (GSER).

The future development of digital economy, technology, and innovation in Kuala Lumpur will be enhanced through efforts to promote digital activities, provide infrastructure and develop digital entrepreneurs to shape a comprehensive ecosystem.

SUPPORTING ACTION**IP1.4A: Enhance digital technology and innovation economic activities**

Kuala Lumpur will enhance the digital economic activities in several aspects by year 2040, in line with the National Digital Economic Development Plan, Malaysia 5.0. The activities are as follows:

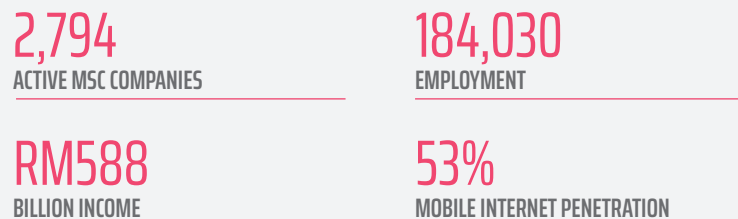
1. Shared economy platform;
2. Financial technology (Fintech);
3. E-commerce;
4. Data centre;
5. Big data and artificial intelligence (AI);
6. Digital creative content;
7. Islamic digital economy;
8. Blockchain;
9. 3D printing;
10. Architectural design system/network;
11. Global business service;
12. Robotic; and
13. Technology, autonomous design.

SUPPORTING ACTION**IP1.4B: Encourage the development of Centre for Digital Economy**

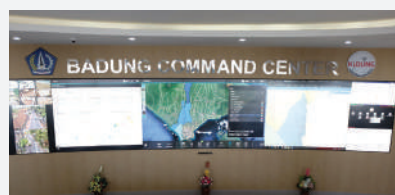
Development of the existing ICT cluster in Kuala Lumpur can potentially grow into a more successful digital technology and innovation hub. The primary ICT clusters with the cyber city and cyber centre status concentrate in the Technology Park Malaysia, KL Sentral and Bangsar South (Figure M1.21)

Several new generations of digital economic centres, such as digital hubs and digital makers hub, were introduced, primarily concentrated in Kuala Lumpur. The digital hub is a premise providing a shared office space complete with an administrative office, business centre, café and lounge as a comprehensive platform for digital start-ups entrepreneurs. The current locations of the digital hubs are Bangsar, Damansara Utama, Taman Tun Dr Ismail and Kuala Lumpur City Centre. The development of digital hubs is encouraged, especially in urban renewal areas, redevelopment areas and primary business centres.

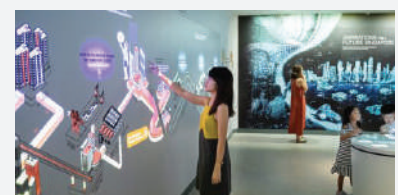
FIGURE G1.20: DIGITAL ECONOMY STATISTICS, MALAYSIA, YEAR 2020



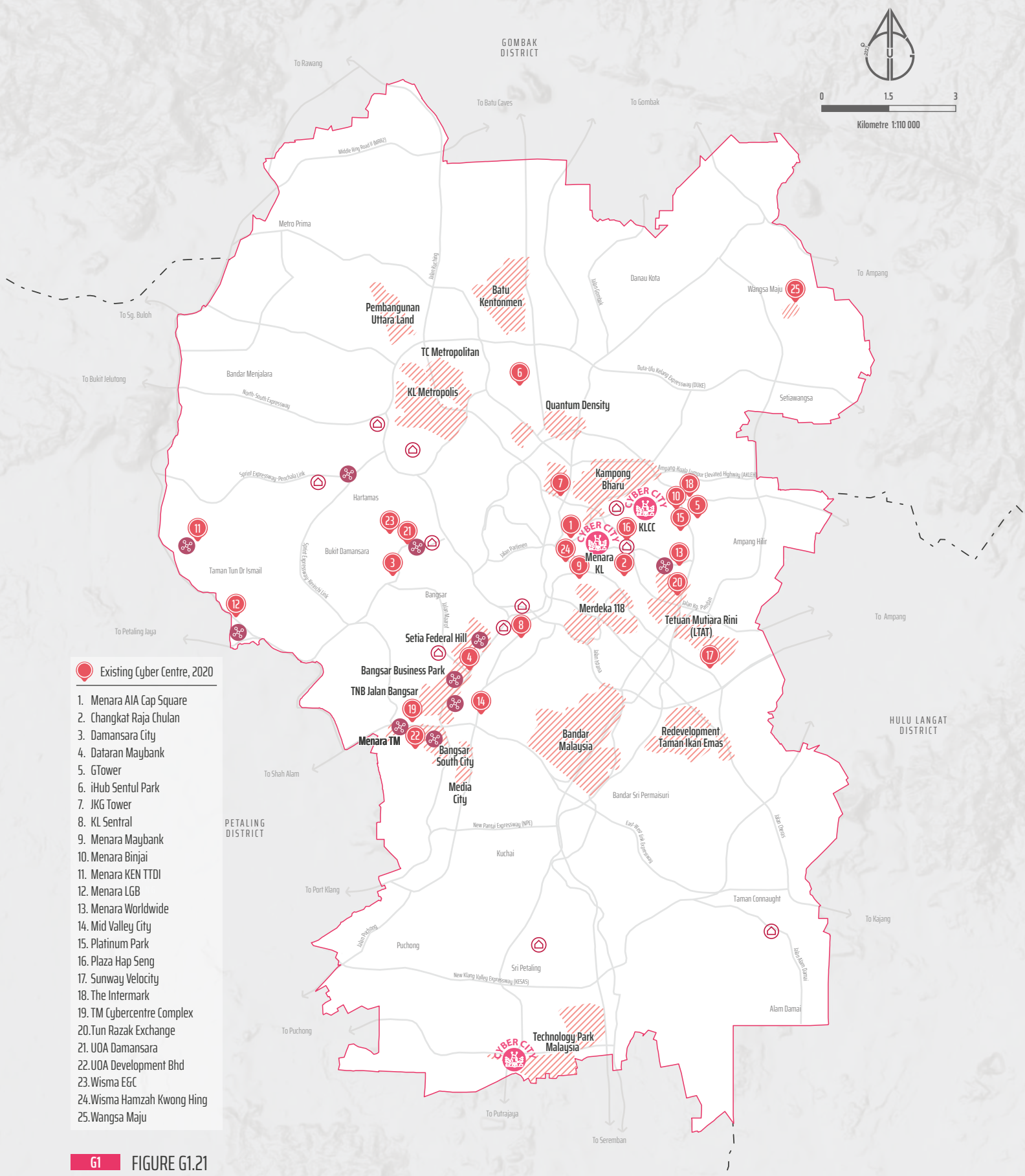
Source: Malaysia Digital Economy Corporation (MDEC)

EXAMPLE OF BEST PRACTICES**Digital Data Collection Centre**

COMMAND CENTRE, BANDUNG INDONESIA
Source: <https://www.pinterest.com>



CITY GALLERY, SINGAPORE
Source: <https://www.pinterest.com>



G1 FIGURE G1.21
TECHNOLOGY CLUSTER AND DIGITAL HUB

Kuala Lumpur also has several Digital Makers Hubs (DMH) such as multipurpose spaces and resource centres with opportunities for students, instructors, experts and digital economic players to share discoveries and experiences on digital economic activities. The hub is located near the digital hubs of Bangsar, Damansara Utama and Mont Kiara.

Kuala Lumpur shall upgrade the digital infrastructure, provide small and modern office spaces with affordable rentals and near to public transportation stations to support the future growth of the digital economy, technology and innovation. Future planning should consider mixed development concepts and shared offices. Kuala Lumpur also encourages the use of older areas/buildings, including redevelopment areas, as cyber centre either in the form of digital hubs or Digital Makers Hubs.

QUICK INFO

Cyber City

Smart city is equipped with a wide range of world-class business activities and environments which is home to numerous MNC and MSC Bill of Guarantees (BoGs) companies.

Cyber Centre

Buildings or building complexes with basic furnishings and housed some of the MSC BoGs.

Digital Hub

Specific for startups and internet economy companies supported with high-speed broadband networks and other supporting facilities.

Digital Maker Hub

A multipurpose resource space that allows digital usage and as an educator network centre, particularly for students.

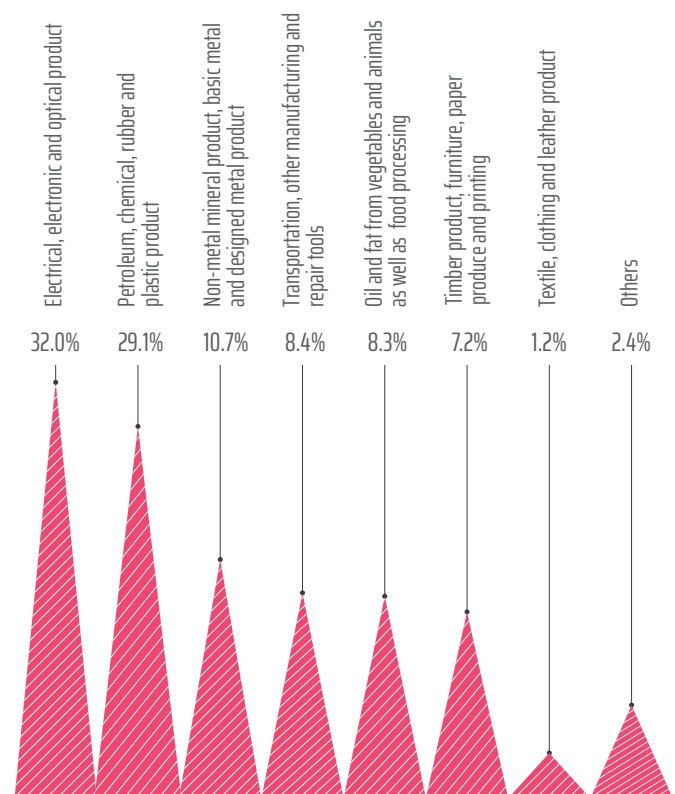
ACTION

IP1.5: ENCOURAGE THE DEVELOPMENT OF INDUSTRIAL CLUSTER BASED ON CLEAN TECHNOLOGY AND INDUSTRY 4.0 TRANSFORMATION

The industrial sector still contributes to Kuala Lumpur's economic growth despite being less significant than the services sector. In year 2020, the industrial sector increased with a growth rate of 9.3 percent per annum from year 2019, much higher compared to the previous years. The increase is contributed by the largest sub-sector in Kuala Lumpur comprises electrical, electronics and optical product (Figure G1.22).

The industrial sector's role should be maintained to ensure balanced economic growth and reduce the impact on local communities. However, the industrial sector in Kuala Lumpur should transform towards a clean and Industry 4.0-based cluster. It is a transformation towards the use of high technology, including digital, to promote increased productivity, innovation capacity, highly skilled workers and increased contribution to the country's economy.

FIGURE G1.22: INDUSTRIAL SECTOR CONTRIBUTION BASED ON SUB-SECTOR, KUALA LUMPUR, YEAR 2020

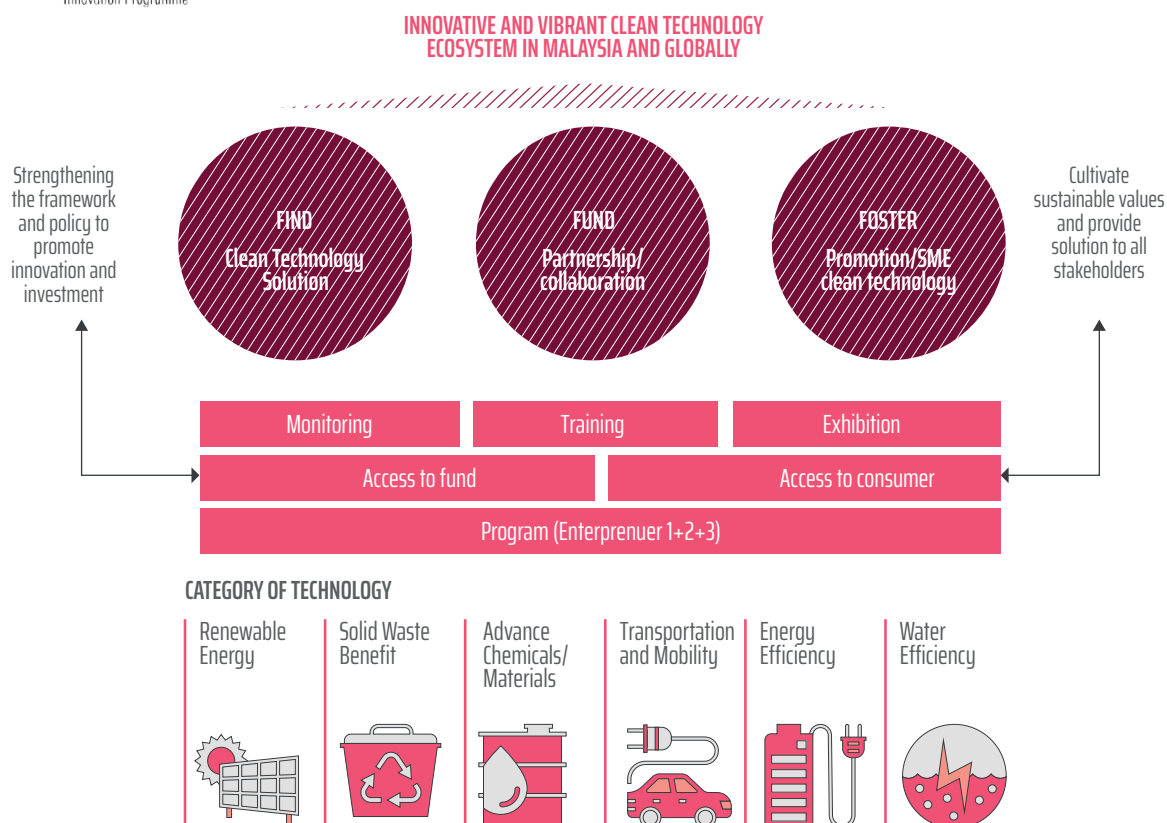


Source: Sosioeconomic Report Kuala Lumpur, Department of Statistics Malaysia, 2020

FIGURE G1.23: GLOBAL CLEANTECH INNOVATION PROGRAMME MALAYSIA



GCIP is a collaboration between MIGHT, Global Environment Facility (GEF) and United Nations Industrial Development (UNIDO) which supports entrepreneurs and innovators in developing solutions in energy generation, distribution and storage, air and water pollution, waste management, transportation techniques and new construction through adaptation of clean technology.



Source: Global Cleantech Innovation Programme Malaysia

The transformation towards clean technology in the industrial sector is a long-term strategy to achieve sustainable development. The adoption of clean technology in the industrial sector can reduce carbon emissions in the industrial sector. Clean technology is products or services based on green technology, high technology and innovation. It also utilises knowledgeable human capital to enhance operational performance, productivity and efficiency as well as reduce environmental pollution (Figure G1.23).

Collaboration with relevant agencies is necessary to promote Kuala Lumpur's future direction in transforming industrial cluster development towards clean technology and Industry 4.0. Furthermore, the existing industrial areas will be enhanced to ensure a clean, low-carbon, and quality environment to attract investment from targeted clusters.

Efforts towards industrial development shall require 1.24 million square meters of industrial floor area by year 2040, inclusive of floor area committed in year 2020 and floor area under construction and planned in Kuala Lumpur (Table G1.6).

TABLE G1.6: PROJECTED INDUSTRIAL FLOOR AREA, YEAR 2020-2040

CATEGORY (YEAR)	NUMBER OF INDUSTRY	FLOOR AREA (SQUARE METER)	AVERAGE ANNUAL GROWTH RATE (%)
Existing 2020	5,138	478,258	-
Projection 2025	7,625	709,712	8.2
Projection 2030	9,833	915,318	5.2 (2025-2030)
Projection 2035	11,930	1,110,502	3.9
Projection 2040	13,310	1,238,956	2.2

Source: Kuala Lumpur Property Stock, NAPIC, 2020



CLEAN TECHNOLOGY INDUSTRIAL BUILDING – BIOPHILIC DESIGN, PENANG

Source: blog.interface.com

QUICK INFO

Basis for Estimation of Industrial Floor Area

The projected floor area based on employment considers the gradually declining employment trends in the manufacturing sector in FT Kuala Lumpur and the decreasing floor area per worker with high technology usage.

The declining annual growth rate indicates that the industrial sector will shift to the R&D services, innovation and commercialisation sectors in the future. According to the NAPIC report in year 2020, there were 5,138 industrial units that had been constructed, and an additional 37 units were in the planning stage.

This increase accounted for the estimated unsuitable industry shifting out of KL (50 percent of the existing numbers). (The shift-out rate is between 20 percent in year 2025 to 15 percent in year 2030 and year 2035).

13,310 UNITS

ESTIMATED NUMBER OF INDUSTRY, YEAR 2040

1,238,956 SQUARE METER

ESTIMATED TOTAL INDUSTRIAL FLOOR AREA, YEAR 2040

SUPPORTING ACTION

IP1.5A: Establish collaboration to enhance the development of clean technology industrial cluster

Collaboration with various government agencies involved in driving the development of clean technology industries and Industry 4.0 in the country is crucial in ensuring Kuala Lumpur to be one of the hubs for the clean technology industry cluster can be achieved. Among the agencies that can be involved in this collaboration are:

1. Ministry of International Trade and Industry (MITI);
2. Malaysian Industry-Government Group for High Technology (MIGHT);
3. Malaysian Green Technology and Climate Change Corporation (MGTC);
4. Sustainable Energy Development Authority (SEDA) Malaysia; and
5. Invest KL.

SUPPORTING ACTION**IP1.5B: Enhance the quality of existing industrial areas**

Investment promotions in the existing industrial areas within Kuala Lumpur will be intensified to enhance the environment, suitable infrastructure and facilities. It is essential to attract new investors in the clean technology industry and encourage existing entrepreneurs to improve technology and innovation in their respective industries.

Currently, there are 29 industrial areas in Kuala Lumpur. Eight (8) of the existing industrial sites are unsuitable to be retained as an industrial area, namely:

1. Part of (North) Batu 6 ½, Jalan Kepong Area;
2. PKNS Industrial Area, Setapak;
3. Chan Sow Lin Industrial Area,
4. Kuchai Entreprenuer Park Industrial Area;
5. Salak Selatan Industrial Area;
6. Kg. Pakar Industrial Area;
7. Jalan Genting Klang Industrial Area, Setapak; and
8. Industrial Centre Sri Rampai.

13 of these industrial areas are retained and improved, while seven (7) of the existing industrial areas are potentially to be develop as mixed-use industrial areas, and one (1) as a high-tech industrial zone. Generally, these 21 industrial areas in Kuala Lumpur will be upgraded and improved through investment promotion. These transformation efforts can be enhanced through the following steps:

1. Renewal of existing industrial areas as clean and high-technology industrial parks;
2. Upgrade existing industrial areas with digital infrastructure and modern facilities;
3. Promote mixed developments with manufacturing activities, trade services and offices in existing industrial areas;
4. Retain industry activities that are still relevant and meet market demand and comply with management suitability;
5. Encourage new investments in high-tech industrial activities that can generate more value-added; and
6. Encourage R&D programs to increase productivity and processing quality.

QUICK INFO**21****INDUSTRIAL AREAS KUALA LUMPUR 2040****13****RETENTION AND IMPROVEMENT OF THE EXISTING INDUSTRIAL AREAS**

1. Segambut Industrial Area;
2. Taman Desa Tasek Industrial Area;
3. Taman Sg. Besi Industrial Area;
4. Taman Wahyu Industrial Area;
5. Spring Crest Industrial Area;
6. Desa Tun Razak Industrial Area;
7. Taman Midah Industrial Area;
8. Shamelin Industrial Area;
9. OUG Industrial Area;
10. Batu 7 ½ Jalan Puchong Industrial Area;
11. Seri Keladi Industrial Area;
12. Capital Industrial Centre; and
13. Glenview Business Centre.

7**RENEWAL OF POTENTIAL INDUSTRIAL AREA AS MIXED INDUSTRY**

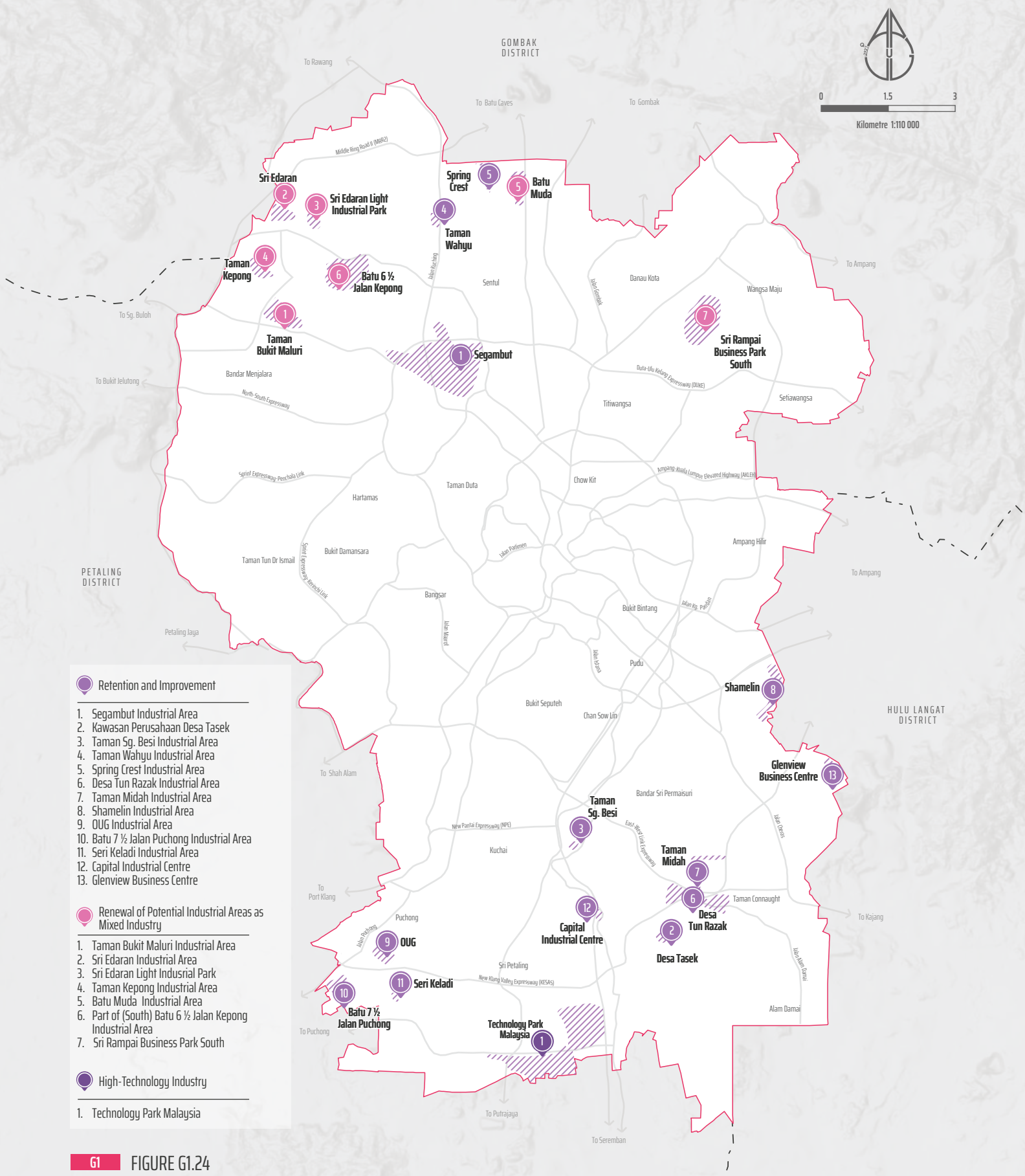
1. Taman Bukit Maluri Industrial Area;
2. Sri Edaran Industrial Area;
3. Sri Edaran Light Industrial Park;
4. Taman Kepong Industrial Area;
5. Batu Muda Industrial Area;
6. Part of (South) Batu 6 ½ Jalan Kepong Industrial Area; and
7. Sri Rampai Business Park South.

1**HIGH TECHNOLOGY INDUSTRIAL**

1. Technology Park Malaysia.



WAREHOUSE INDUSTRY



G1

FIGURE G1.24
RETAINED AND IMPROVED INDUSTRIAL AREA AND CONVERSION TO MIXED INDUSTRY

LEGEND

Proposal

- Renewal of Industrial Areas with Potential as Mixed Industry
- Retention and Improvement of the Existing Industrial Areas
- High-Technology Industry

Existing Industrial Area

Others

- Main Road
- FTKL Boundary

NOTE:

All plans and figures are in the form of diagram/indicative only. It does not refer to any lot in details.

ACTION
IP1.6: DRIVE ENTREPRENEURSHIP DEVELOPMENT
TOWARDS INCLUSIVE URBAN ECONOMIC GROWTH

Entrepreneurship is a sustainable economic growth driver that provides an extensive opportunity for the involvement of all urban communities. Local entrepreneurs' involvement will shape a more vibrant city, boost economic sector competitiveness and improve the livelihood of the urban community.

The entrepreneurship activities of Kuala Lumpur residents, particularly the youths and those outside the labour force, will be supported by urban planning and design that are more flexible, dynamic and meet entrepreneurs' needs.

SUPPORTING ACTION
IP1.6A: Generate entrepreneurial opportunities in the neighbourhoods

Kuala Lumpur will emphasise generating entrepreneurial opportunities for all community levels, including youths, women, housewives, single mothers, the B40 group, disabled people and others outside the labour force.

Entrepreneurial development could bridge the income gap between urban communities by generating ancillary income, thus creating new job opportunities that boost urban economic growth. Therefore, entrepreneurial opportunities are encouraged in the neighbourhoods and suitable areas subject to KLCH's and other agencies' consideration by taking the following measures:

1. Promote entrepreneurial activities in the neighbourhood, including e-commerce, healthcare, handicraft production, food, sewing, recycling activities, childcare and elderly services and other suitable aspects that are not in conflict with the harmony of the neighbourhood;
2. Utilise existing facilities such as public halls, civic buildings and other suitable spaces in the neighbourhood for local entrepreneurial activities;
3. Optimise the use of reserve land, open spaces above buildings, courtyards of residential areas and other undeveloped area that generate neighbourhood economies such as urban farming, nurseries and others;
4. Creating a business centre in the resident zone as a centre of economic and entrepreneurial activity besides an employment centre; and
5. Collaborate with the private sector and non-governmental organizations to help produce entrepreneurs through practical training with living lab approaches in the neighbourhood.

TABLE G1.7: POTENTIAL GROUP FOR ENTREPRENEUR DEVELOPMENT, KUALA LUMPUR, YEAR 2020

CATEGORY	NUMBER
Unemployed (unemployed graduates)	36,000 (13,000)
Outside the labour force (student)	351,700 (66,600)
Disabled person (registered)	41,421
Number of poor head of household (E-kasih)	2,809

Source: Department of Statistics Malaysia



FOOD BUSINESS AMONG HOME BUSINESS ACTIVITY



FOOD BUSINESS AMONG HOME BUSINESS ACTIVITY



BAYVIEW GREEN GARDEN, TAMAN SRI SENTOSA, KUALA LUMPUR



BUSINESS AND ENTREPRENEURIAL ACTIVITY

SUPPORTING ACTION

IP1.6B: Strengthening urban entrepreneurship development ecosystem

Urban entrepreneurship development will be supported by developing a complete and up-to-date entrepreneurship ecosystem that meets the needs of urban entrepreneurs and communities. The entrepreneurial ecosystem consists of access to the market, policy and legal support, provision of the fund, supporting facilities such as expert advisory services, entrepreneurial culture, skills and talent, as well as technological and innovation facilities.

Kuala Lumpur will facilitate and support the development and provision of a complete ecosystem by various relevant agencies. These include:

1. Encourage the provision of fund facilities, training centres and diverse support facilities at numerous business centres in Kuala Lumpur, including strategic local business centres;
2. Assess the conditional provision of affordable retail and office spaces by the private sector;
3. Facilitate the provision of complete infrastructure, including digital infrastructure in the entrepreneur's concentration area;
4. Facilitate the appropriate use of public spaces for entrepreneurs in direct marketing to buyers; and
5. Collaborate with relevant agencies, higher learning institutions, and private firms in providing infrastructure and supporting facilities and training to complement the entrepreneurial ecosystem in Kuala Lumpur.

STRATEGIC DIRECTIONS

IP2: CONDUCTIVE WORKING AND BUSINESS ENVIRONMENT

Urban economic development transformation needs to be spatially supported by providing a complete, ready-to-develop, and conducive technology and digital infrastructure environment.

Economic development trends are transforming and entering a new phase. It has also changed the needs of investors, entrepreneurs and employees. Therefore, to ensure that Kuala Lumpur remains competitive, the spatial environment and physical facilities must be holistically changed and improved to support this dynamic transformation.

The demand for affordable commercial and office spaces has led professional firms, business services, and start-up entrepreneurs to establish businesses in suburban areas, forming prominent economic clusters. This has transformed these suburban areas into significant business centers. Therefore, these areas need attention and should be planned more systematically to address negative urban effects such as traffic congestion, land use conflicts, etc., ensuring the continuous rapid development of these regions.

Evolution of the online business concept in the retail, wholesale and services sectors must be supported by improving and enhancing the business ecosystem, including a conducive environment to facilitate investors, start-up entrepreneurs and employees and also maintain the attractiveness of Kuala Lumpur as a competitive investment destination. A conducive environment encompasses environment equipped with technological infrastructure that can support any specific economic sector's growth.

Kuala Lumpur will emphasise providing multiple choices of premises based on market needs, such as affordable premises equipped with supporting facilities and infrastructures. It is important to create a conducive and comprehensive business environment. By year 2040, business floor area in Kuala Lumpur is projected at 43.95 million square meters, excluding serviced apartments and SOHO (Table G1.8).

ACTION

IP2.1: STRENGTHEN THE NETWORK OF COMMERCIAL CENTRES AS JOBS AND LOCAL BUSINESSES CENTRES

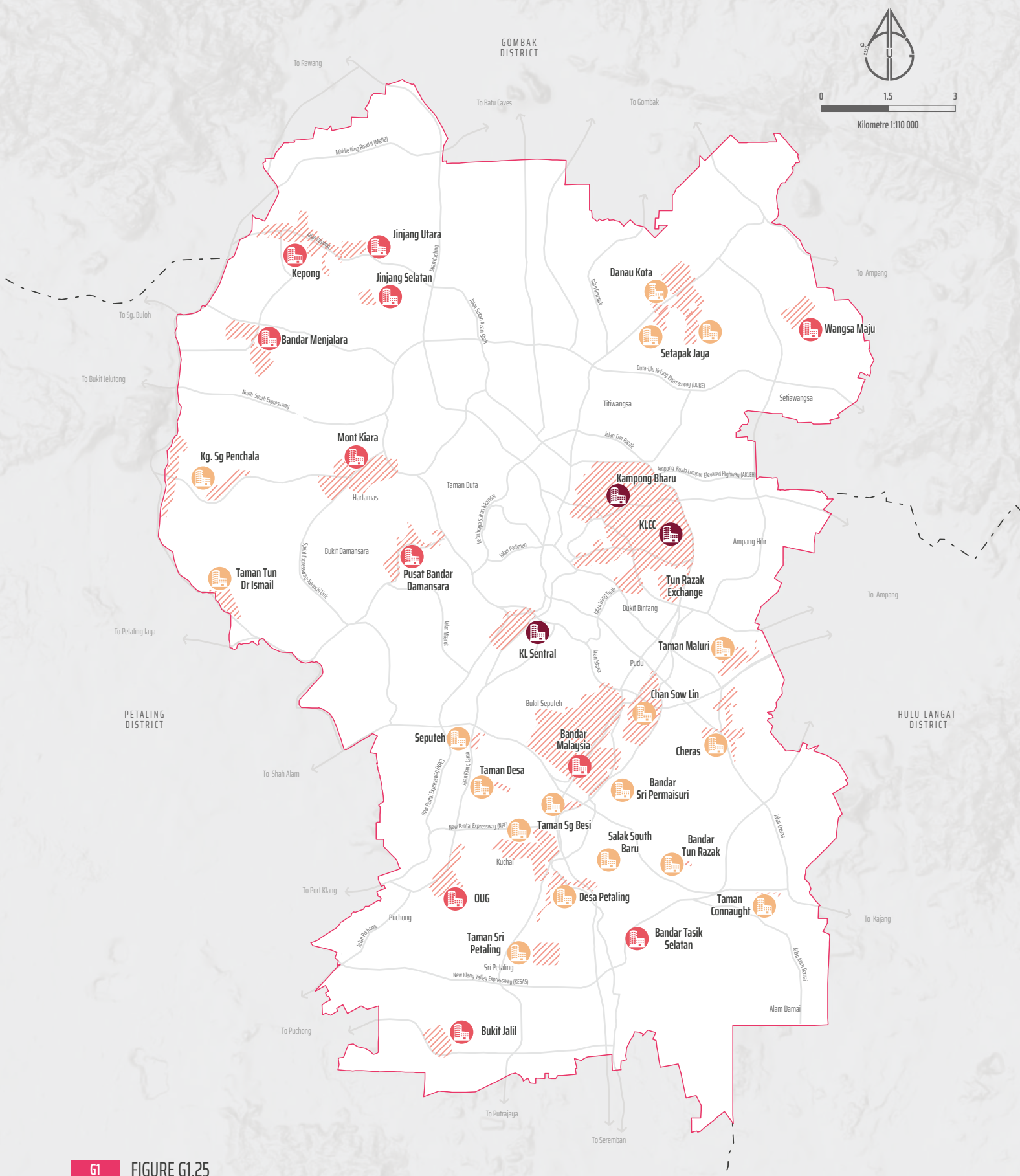
Spatial planning will support the direction of Kuala Lumpur's future economic growth. It enables thriving and viable urban economic activities and creates a bigger-scale economic agglomeration. Spatial planning of commercial centres also considers investors' and local communities' needs to open business opportunities, generate jobs, and as a facility for the community to shop and obtain services.

The network of the commercial centre in Kuala Lumpur will categorised according to three hierarchies: city centre, major commercial centre and local commercial centre. The city centre is the pulse of commercial activities and services, especially the financial and banking sectors, besides being the centre for culture, tourism and diverse international activities. The major commercial centre supports the city centre and serves multiple commercial functions, including specialised functions.

TABLE G1.8: PROJECTED COMMERCIAL FLOOR AREA, YEAR 2020-2040

TYPE	TOTAL FLOOR AREA (MILLIONS SQ M)				
	2020	2025	2030	2035	2040
Purpose Built Offices	9.29	10.62	12.25	13.69	15.30
Shopping Complex	3.16	3.77	4.36	4.76	5.17
Shops	12.70	13.27	13.77	14.27	14.87
Hotel	8.03	8.18	8.31	8.46	8.61
Service Apartment	16.61	19.08	21.71	24.34	27.34
SOHO	1.97	2.12	2.33	2.53	2.77
TOTAL	51.76	57.04	62.73	68.05	74.06

Source: Property Stock Report 2010 - 2019 NAPIC, Cadangan Pelan Pembangunan BBCC, TRX and Bandar Malaysia



G1

FIGURE G1.25
MAJOR COMMERCIAL ZONES

LEGEND

▼ Proposal

- City Centre
- Major Commercial Centre
- Local Commercial Centre
- Major Commercial Zones

▼ Others

- Main Road
- FTKL Boundary

NOTE:

All plans and figures are in the form of diagram/indicative only. It does not refer to any lot in details.

KL Sentral and Bandar Malaysia are major commercial centres and the primary integrated transportation hub in Kuala Lumpur, while KL Metropolis, Bangsar, Damansara City Centre, and Sri Hartamas/Mont Kiara will serve as an international business centre and services. Kuala Lumpur's local commercial centres are located mainly in residential areas, providing facilities to the local community and employment centres.

The role of these hierarchical commercial centres will be strengthened as follows:

1. Promoting mixed development in commercial centres based on its functions, location and surroundings;
2. Permitting the development of local commercial centres in high-intensity housing zones to provide more accessible basic facilities, open up business opportunities among local communities and create employment centres nearer to homes;
3. Permitting suitable intensity for digital economic activities and shared economy in major commercial centres and strategic local commercial centres;
4. Permitting suitable hierarchical commercial activities, e.g. entertainment centres are not permitted in local commercial centres/ neighbourhood areas; and
5. Upgrading inactive commercial areas through Area Improvement Program (refer to Goal 6).

ACTION **IP2.2: STRENGTHEN THE ECONOMIC ZONE WITH** **INFRASTRUCTURE READINESS AND CONDUCIVE** **ENVIRONMENT FOR INVESTMENT**

Economic zone refers to the business, services and industrial areas, which is the main contributor to Kuala Lumpur's economic growth. These include financial, businesses, shopping and industrial zones to be retained and rejuvenated to attract high and clean technology investments.

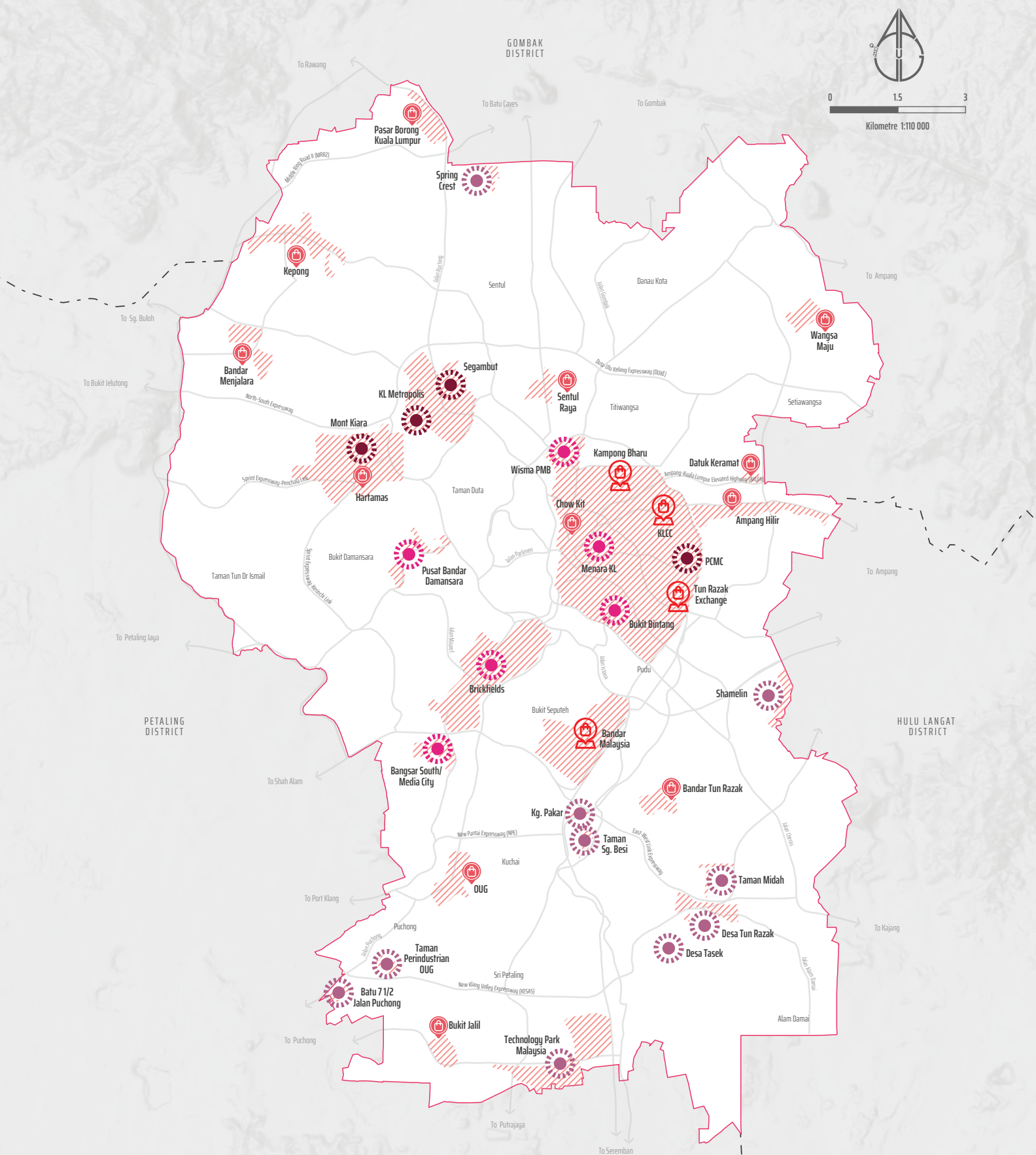
The availability level of infrastructure and conducive environment in the existing economic zones is different between industrial zone and financial, business and shopping zones. Availability of infrastructure and conducive environment must be improved for Kuala Lumpur to be more attractive to investors, especially international investors.

Several enhancement and renewal measures will be implemented based on the needs of investors, employees and customers in the respective economic zones.

The primary enhancement of availability levels in economic zones is improved digital infrastructure and accessibility to public transportation (Table G1.9). Details regarding digital infrastructure's enhanced availability are as stated in Action IP2.4.

TABLE G1.9: IMPLEMENTATION MEASURES IN KUALA LUMPUR ECONOMIC ZONES

FINANCIAL ZONE	<ul style="list-style-type: none"> Enhance the quality of connectivity with public transportation facilities; Improve the provision of pedestrian walkways between public transportation stops, public parking lots and office buildings; Facilitate wayfinding for pedestrians; and Enhance digital infrastructure facilities 	<ul style="list-style-type: none"> Encourage development of high-value buildings such as Grade A buildings and green buildings Increase public spaces and public realms; Inject arts, culture, recreation activities to provide a variety of recreational choices and enliven activities in the environment; and Increase variety of choices for the latest housing concept.
BUSINESS ZONE		
PRIMARY SHOPPING ZONE	<ul style="list-style-type: none"> Improve the quality of connectivity with public transportation facilities; Improve the provision of pedestrian walkways between public transportation stops, public parking lots and office buildings; and Facilitate wayfinding for pedestrians; 	<ul style="list-style-type: none"> Beautify the environment to be more of a distinctive destination
SHOPPING ZONE		
INDUSTRIAL ZONE	<ul style="list-style-type: none"> Improve garbage disposal infrastructure, sanitary maintenance and environmental aesthetic; Update the traffic and parking systems; Enhance digital infrastructure facilities; and Enhance monitoring and enforcement in industrial areas. 	<ul style="list-style-type: none"> Enhance industrial areas that will be retained through area renewal to create a more conducive and investment-friendly environment; and Encourage industrial sites managed by management bodies (managed industrial park).



G1

FIGURE G1.26

IMPLEMENTATION PRIORITY AREAS FOR ECONOMIC ZONE SUPPORTING INFRASTRUCTURE ENHANCEMENT

LEGEND

▼ Proposal

- Financial Zone
- Business Zone
- Industrial Zone
- Primary Shopping Zone
- Shopping Zone

Economic Zone (Financial, Business, Primary Shopping, Shopping and Industrial Areas)

▼ Lain-lain

- Main Road
- FTKL Boundary

NOTE:

All plans and figures are in the form of diagram/indicative only. It does not refer to any lot in details.

ACTION
IP2.3: EXPAND BUSINESS OPPORTUNITIES IN THE INFORMAL SECTOR

Kuala Lumpur will support the growing contribution of the informal sector to the future economy by expanding business opportunities to all groups, especially those outside the labour force and existing micro-entrepreneurs. The informal sector is expected to be thriving in the future and be pioneered by the youth. Currently, the informal sector generates 57,700 jobs in various fields, especially businesses and services (Table G1.10).

Several initiatives will be implemented in Kuala Lumpur to encourage more locals, such as housewives and B40 groups, to venture into the economy to increase household income. The initiatives include facilitating the provision of a broad selection of premises that suit the needs of informal sector operators, affordable and accessible. The provision of informal sector business spaces in the future will involve various government agencies cooperation.

SUPPORTING ACTION
IP2.3A: Provide choice of affordable retail spaces

Providing variety and affordable retail space encourages the informal sector, including micro-entrepreneurs, to own assets and enhance the retail and working environment. Kuala Lumpur will facilitate the provision of business spaces like pop-ups, food trucks, food carts and others for temporary use in strategic areas of the city centre, major business centres and local business centres. The temporarily used retail space costs lower and fits with the character of a tidy and clean informal sector.

QUICK INFO

32,119 **UNITS**
TOTAL INFORMAL BUSINESS, YEAR 2020

57,700 **EMPLOYMENT**
TOTAL EMPLOYMENT IN THE INFORMAL SECTOR, YEAR 2019

Source: Department of Statistics Malaysia

SUPPORTING ACTION
IP2.3B: Encourage the development of informal business areas

Public car parks and public plazas located in recreational areas or public buildings can be considered for temporary use as informal business areas. However, it is subject to the appropriate time, and regulatory provisions, especially in hygiene, health, and safety. Suitable public spaces in heritage and cultural zones are also encouraged to be temporarily used to support art activities among informal players.

The development of the adaptive reuse building concept as an informal sector connected space with a shared and mixed concept is also encouraged. In addition, older buildings such as Wisma Yakin and Pertama Complex are promoted for redevelopment as micro-entrepreneur hubs in the City Centre of Kuala Lumpur.

TABLE G1.10: TYPES OF INFORMAL BUSINESS IN KUALA LUMPUR, YEAR 2020

TYPES OF INFORMAL BUSINESS	UNITS
Late Night Bazaar	851
Food Truck	95
Locked Stalls	108
Road Side Stalls	5,204
Kiosk	80
KL Prihatin Temporary License	2,697
Market with Buildings	5,376
Wholesale Market	438
Night Market	11,208
Open Market	3,114
Mobile Hawkers	63
Temporary Permit	280
Recreational Park Temporary Permit (Bicycle)	31
Temporary Permit for Recreational and Recreational Park Hawkers (Food/Beverages and Toys)	18
KLCH Hawkers Centre	1,361
Private Hawkers Centre	404
Restricted Time	235
Restricted Time (RMCO)	556
TOTAL	32,119

SUPPORTING ACTION**IP2.3C: Encourage the involvement of public and private agencies in the provision of affordable retail spaces**

Collaboration with relevant government agencies such as Majlis Amanah Rakyat (MARA), Perbadanan Usahawan Nasional Berhad (PUNB), Permodalan Negeri Selangor Berhad (PNSB) and Urban Development Authority (UDA) in providing affordable retail space is a crucial factor in ensuring successful implementation. KLCH will facilitate the implementation to ensure the provision of suitable retail spaces.

Private developers are also encouraged to support the informal sector by providing retail spaces, inside building especially food courts and bazaar as well as food trucks and food carts in suitable areas outside the building in the appropriate development scheme. The provision of informal retail spaces must conform with KLCH guidelines and regulations.

ACTION**IP2.4: ENHANCE THE READINESS OF DIGITAL INFRASTRUCTURE TO SUPPORT ECONOMIC DEVELOPMENT**

Kuala Lumpur shall ensure that economic development is in line with global digital developments. This is due to the rapid growth of information technology that has transformed people's lives, transaction trend and economic activities. Therefore, it is vital to ensure that connectivity and communications will continuously support the survival of economic activities in the city.

Digital infrastructure, communications and ICT facilities shall be emphasised as development enablers and drivers for the city's economic growth. High speed, stable and extensive coverage of broadband services can boost productivity by expanding business with the support of e-commerce services and stimulating economic activities such as creative industries, ICT and entrepreneurship.

Measures to be considered to enhance the availability of digital infrastructure are as follows:

1. Increase broadband capacity and speed between 500 Mbps to 1 Gbps to meet future economic and social development needs;
2. Increase investment and development in digital infrastructure to improve international connectivity to last-tier connections;
3. Integrate urban development with digital infrastructure planning;
4. Provide open data to support analysis and planning; and
5. Ensure the provision of high quality telecommunications infrastructure and service such as latest broadband network coverage in buildings, neighbourhoods and new developments.

QUICK INFO**BROADBAND STATUS YEAR 2020****40-70MBPS****KUALA LUMPUR TARGETS YEAR 2040****1GBPS****INCREASED HIGH-SPEED BROADBAND**

STRATEGIC DIRECTIONS

IP3: CATALYST FOR A DYNAMIC AND ROBUST REGIONAL ECONOMIC GROWTH

Kuala Lumpur will remain strong as a catalyst for regional economic growth and a globally competitive city.

Kuala Lumpur is one of the major cities that contribute to the nation's economic growth. Kuala Lumpur's development has succeeded in generating a substantial spill-over effect on the surrounding cities and establishing a solid urban network to become a premier regional conurbation and elevate Kuala Lumpur's position as a global city.

Kuala Lumpur's growth will be assured and sustained as the world's leading global city by supporting major cities and economic zones within this National Conurbation Region. The linkages between these cities need to be strengthened with a more efficient network of urban transportation and communications so that the regions with this vast market catchment areas have a more robust economic sustainability.

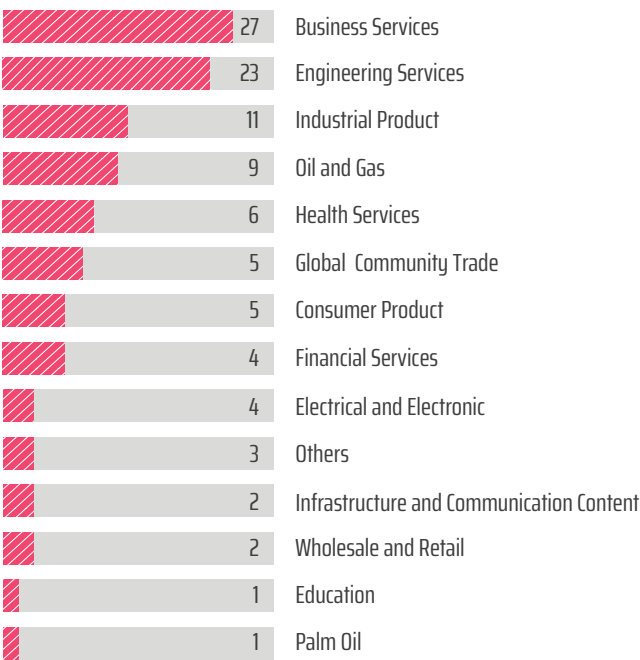
Several measures to strengthen and enhance the economic sector's specialization through transformation towards a more productive innovation and activities will be implemented to further reinforce Kuala Lumpur's role as the primary catalyst in the National Conurbation. Moreover, the connectivity of cities within conurbation will be strengthened with the transportation network, especially links to logistics facilities, ports and airports. This is important to support borderless e-commerce transactions that are expected to spearhead future economy.

ACTION
IP3.1: STRENGTHEN THE ROLE OF KUALA LUMPUR AS A GLOBAL CITY

Kuala Lumpur will continue to strengthen its role as the main growth catalyst in the National Conurbation by escalating the economic sector's transformation towards a higher, productive and innovative value chain. Kuala Lumpur will continue to progress as a financial centre, commercial centre as well as business and services centres by attracting more principal hubs, regional headquarters and office branches. Kuala Lumpur needs to focus on financial, commercial and business services to be more competitive.

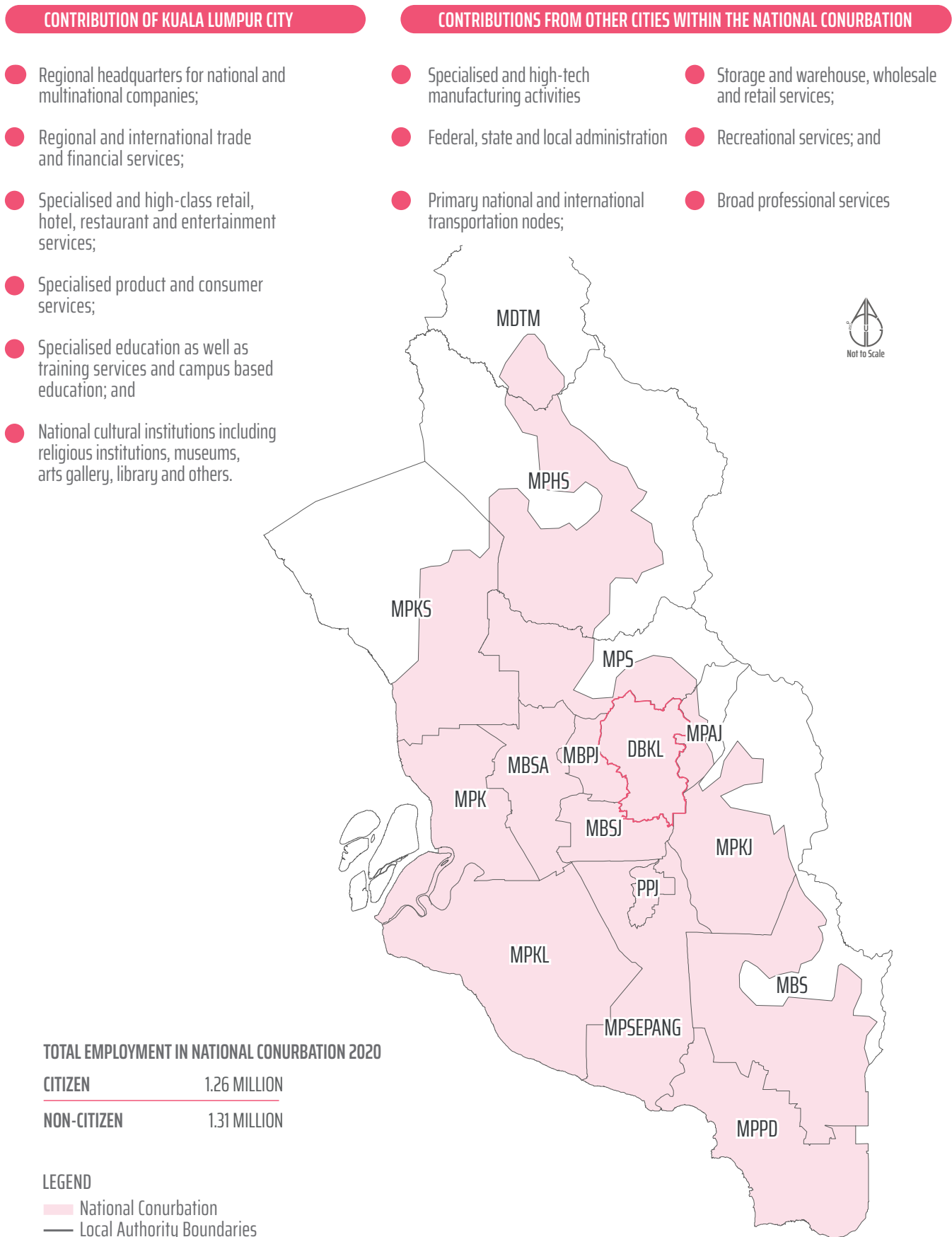
Kuala Lumpur will also strengthen its position as one of the major tourist destinations in the conurbation by leveraging the existing assets, namely heritage, history and culture, that will provide a wide range of different tourism products and experiences. In line with the direction of KLSP2040, Kuala Lumpur will also be the centre of the creative economy by strengthening the multimedia, film, broadcasting, writing and art industries.

FIGURE G1.27: TOTAL MULTINATIONAL COMPANIES BASED IN KUALA LUMPUR BY SECTOR, YEAR 2020



Source: Performance Report 2019, InvestKL and Media Release October 2020, InvestKL

FIGURE G1.28: STRENGTHENING THE ROLE OF KUALA LUMPUR IN THE NATIONAL CONURBATION



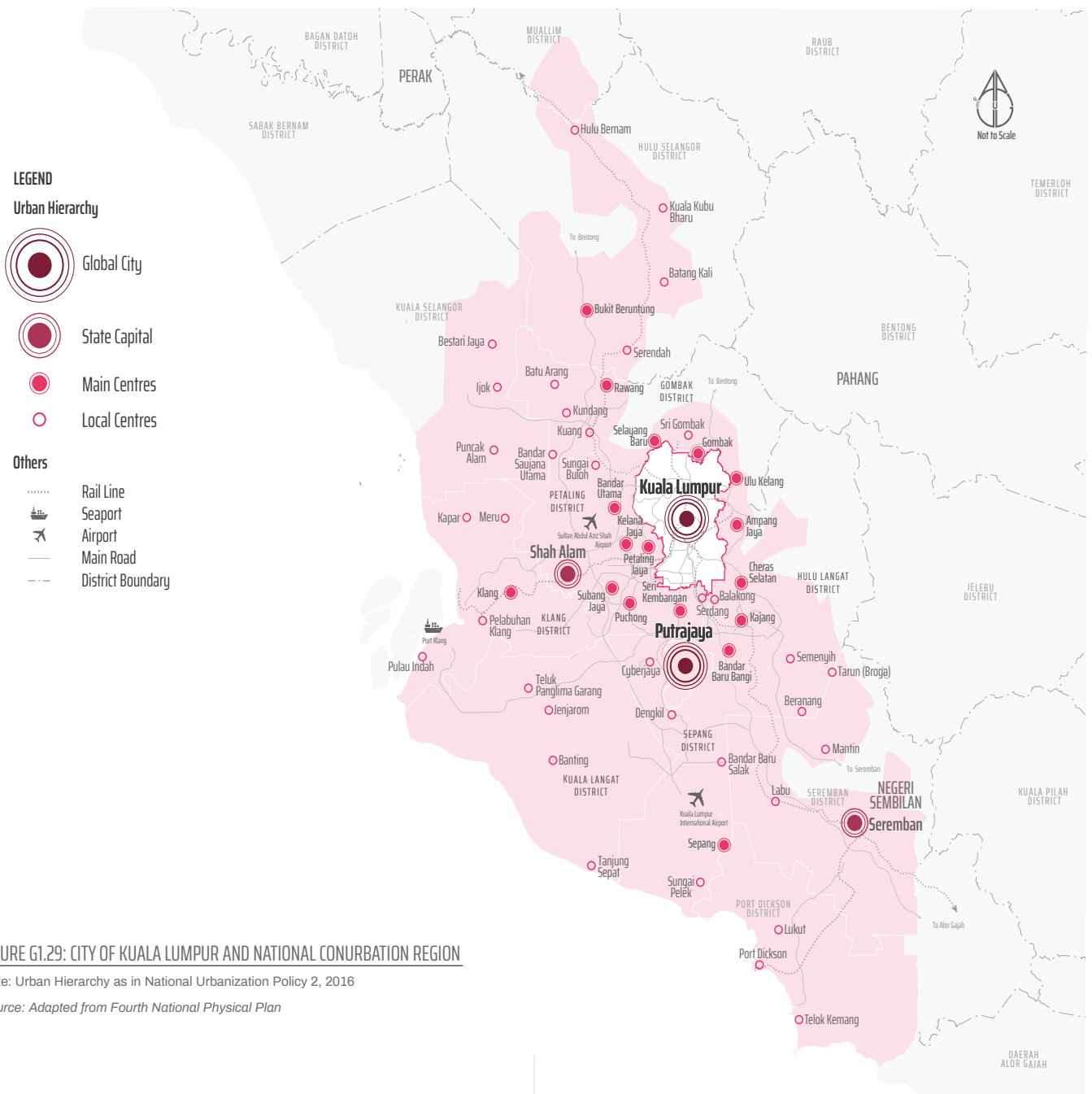


FIGURE G1.29: CITY OF KUALA LUMPUR AND NATIONAL CONURBATION REGION

Note: Urban Hierarchy as in National Urbanization Policy 2, 2016

Source: Adapted from Fourth National Physical Plan

ACTION IP 3.2: EXPAND INTER-CITY ECONOMIC INTEGRATION WITHIN THE NATIONAL CONURBATION

Expansion of collaboration with cities and economic zones' within the National Conurbation, especially Putrajaya, Cyberjaya, Shah Alam, Petaling Jaya, Klang, part of MVV area (Seremban and Port Dickson) and part of Tanjung Malim, is a crucial initiative to establish a supportive ecosystem and healthy economic competition. The cities play diverse roles and correspond to form substantial economic agglomeration. It indirectly creates broader economic investment opportunities for domestic and foreign investors, especially in Kuala Lumpur, which serves as the capital and regional centre.

Apart from major urban networks, business centres and employment centres at Kuala Lumpur's boundary also play an essential role in expanding the region economic scale. Urban centres network at the boundary such as Gombak, Cheras, Bukit Jalil and other potential commercial centres will be strengthened with intensive economic activities to generate borderless economic chains and support cross-border corridors' development.

LEGEND

Proposed Rail Line

- High Speed Rail (HSR) Corridor
- East Coast Rail Line (ECRL)
- Serendah-Port Klang-Seremban Bypass KTM Commuter Corridor
- MRT3 Line
- Proposed ECRL Stations

Existing Rail Line

- MRT1 Line
- MRT2 Line
- LRT3 Line
- LRT Line
- ERL Line
- KTM Commuter Line
- Seaport
- Airport

Others

- Main Road
- District Boundary

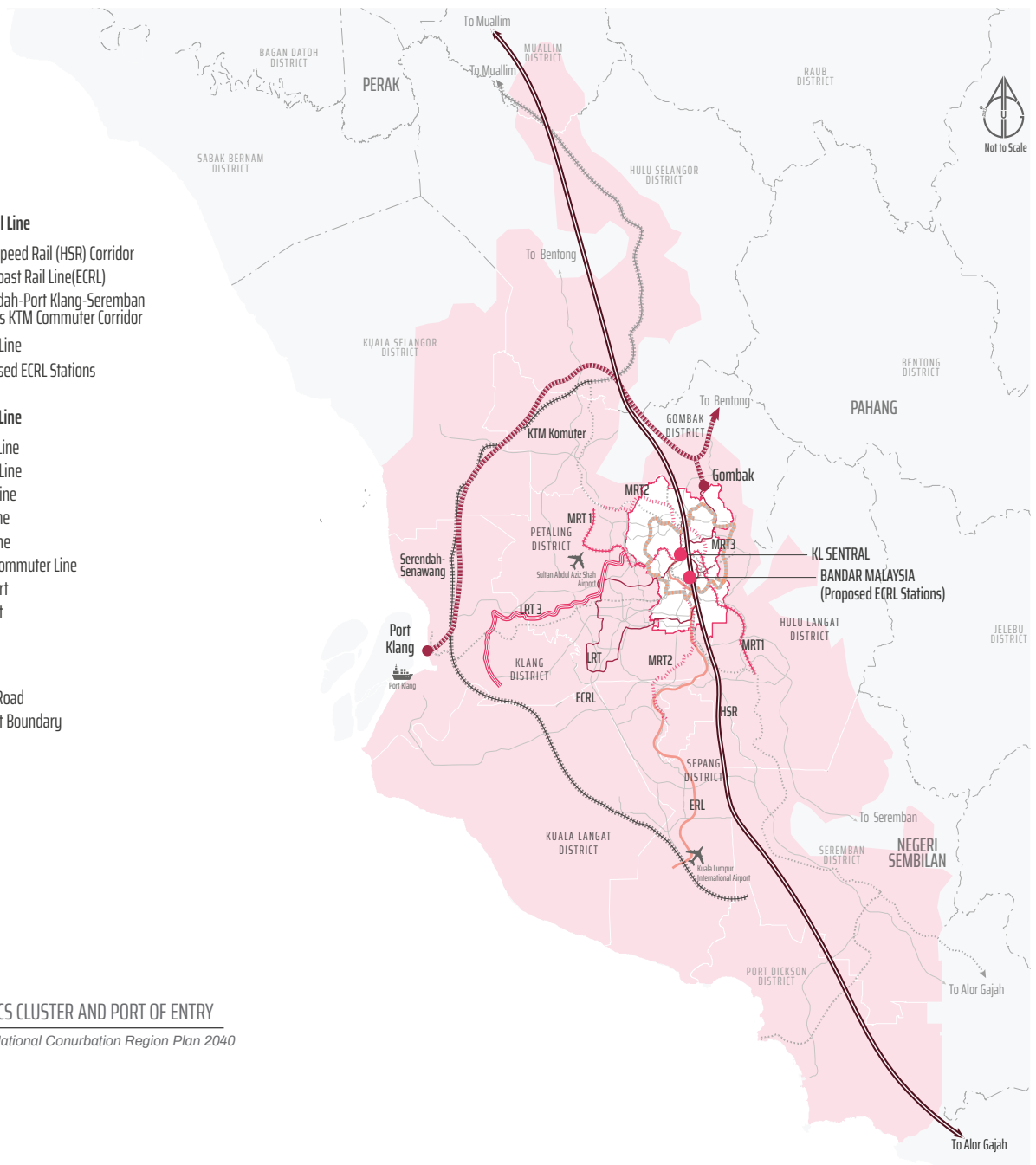


FIGURE G1.30: LOGISTICS CLUSTER AND PORT OF ENTRY

Source: Adapted from National Conurbation Region Plan 2040

Cooperation between local authorities is essential to ensure the balanced use of resources and development as well as to strengthen economic integration between cities. In this aspect, collaborative regional planning with bordering areas is necessary for economic integration and resource sharing to prosper the entire region based on the roles of those cities and economic zone.

ACTION

IP3.3: ENHANCE REGIONAL NETWORK OF TRANSPORTATION LINKAGES FOR MOVEMENT OF COMMUNITIES AND SERVICES

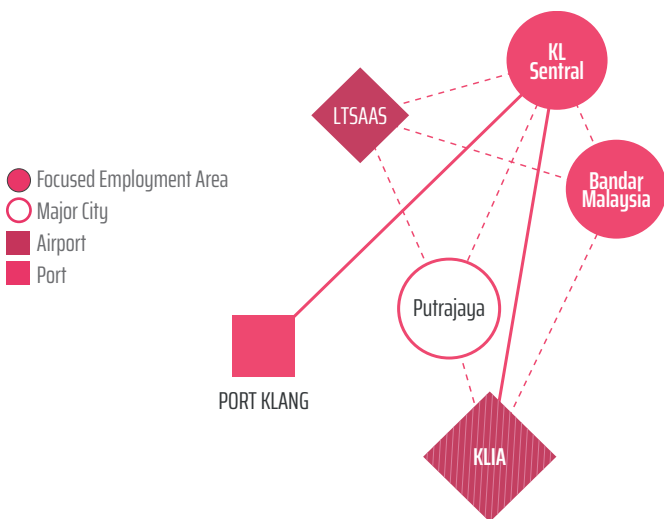
The Port of Entry, comprising airports, seaport and land, play an essential role as a transportation hub for goods and logistics as well as the regional economic development and growth catalyst. Strengthening connectivity between Kuala Lumpur and the port of entry could improve logistics performance and supply chain management and benefit Kuala Lumpur. Kuala Lumpur's integrated public transportation centres, KL Sentral and Bandar Malaysia, play crucial roles in achieving this connectivity.

The future role of KL Sentral and the development of high-speed rail terminals

The role of KL Sentral as Kuala Lumpur's integrated rail transportation hub will be strengthened, offering seamless global linkages and connecting all urban areas within the National Conurbation. Additionally, the proposed development of a high-speed rail terminal in Bandar Malaysia will enhance the role of Kuala Lumpur as the country's main gateway.

This setting can form a strong logistics network between Kuala Lumpur and primary logistics centres such as KLIA and KLIA2, Sultan Abdul Aziz Shah Airport and Port Klang. Logistics networks, communication systems as well as comprehensive and broader access serve as continuous and resilient economic prosperity drivers.

FIGURE G1.31: LINKAGES OF KUALA LUMPUR AND NATIONAL CONURBATION TRANSPORTATION NETWORK



Linkages of comprehensive public transportation in the National Conurbation

Kuala Lumpur is the primary employment centre equipped with integrated public transportation facilities within the National Conurbation administrative area. To date, Kuala Lumpur has four (4) existing urban rail lines: KTM, LRT, MRT1 and ERL and planned future rail lines of MRT2 and MRT3, which will complete the connectivity and enhanced accessibility to Kuala Lumpur with urban areas in the National Conurbation.

Smart partnership between cities with relevant agencies

Collaborating and establishing a task force between KLCH, the safety agency and the Local Authority, as well as the relevant public transportation agencies, will improve the service management in the National Conurbation.



KL SENTRAL, KUALA LUMPUR

Source: bbsbholdings.com.my

SUMMARY











































Kuala Lumpur will remain prominent, leading national development and moving further into an innovative and productive city by 2040. This will be accomplished by implementing 13 actions formulated under three (3) strategic directions. These actions focus on enhancing and strengthening the existing economic sectors and sub-sectors, expanding and diversifying economic activities to be more competitive and in line with growth and investment requirement.

These actions were formulated as multi-dimensional to achieve more than one goal of economic and urbanisation sustainability, equality for all groups, healthy and inclusive society in line with Kuala Lumpur's sustainability agenda. These multi-dimensional actions will also accomplish an innovative and productive city that fulfils the Sustainable Development Goals 2030 summarised in Table G1.11.

TABLE G1.11: SUMMARY OF MULTI-DIMENSIONAL ACTIONS THAT FULFILL THE SUSTAINABLE DEVELOPMENT GOALS 2030

ACTIONS	RELATED SDGs
IP1.1: Strengthen Financial and Business Services Activities	
IP1.1A: Attract more principal hubs among multinational companies to drive the services sector	8 <small>Decent Work and Economic Growth</small> 12 <small>Responsible Consumption and Production</small> 17 <small>Partnerships for the Goals</small>
IP1.1B: Strengthen its position as a world financial centre	8 <small>Decent Work and Economic Growth</small> 11 <small>Sustainable Cities and Communities</small> 12 <small>Responsible Consumption and Production</small>
IP1.1C: Promote shared economy	8 <small>Decent Work and Economic Growth</small> 9 <small>Industry, Innovation and Infrastructure</small> 10 <small>Reduced Inequalities</small> 11 <small>Sustainable Cities and Communities</small> 17 <small>Partnerships for the Goals</small>
IP1.2 Kuala Lumpur as an Urban Tourism Destination With Sustainable Tourism Activities	
IP1.2A: Diversify Kuala Lumpur tourism products	8 <small>Decent Work and Economic Growth</small> 10 <small>Reduced Inequalities</small> 11 <small>Sustainable Cities and Communities</small> 12 <small>Responsible Consumption and Production</small>
IP1.2B: Upgrade existing tourist attraction areas as tourism zones	8 <small>Decent Work and Economic Growth</small> 12 <small>Responsible Consumption and Production</small>
IP1.2C: Promote Kuala Lumpur as the centre for multi-cultural show	8 <small>Decent Work and Economic Growth</small> 11 <small>Sustainable Cities and Communities</small> 12 <small>Responsible Consumption and Production</small>
IP1.3: Empower Kuala Lumpur as Cultural and Creative City	
IP1.3A: Expand the creative industry activities	4 <small>Quality Education</small> 8 <small>Decent Work and Economic Growth</small> 9 <small>Industry, Innovation and Infrastructure</small> 10 <small>Reduced Inequalities</small> 11 <small>Sustainable Cities and Communities</small>
IP1.3B: Introduce Creative and Cultural Districts	4 <small>Quality Education</small> 8 <small>Decent Work and Economic Growth</small> 11 <small>Sustainable Cities and Communities</small> 12 <small>Responsible Consumption and Production</small> 12 <small>Responsible Consumption and Production</small>
IP1.3C: Encourage the development of media and communication centre	8 <small>Decent Work and Economic Growth</small>
IP1.4: Enhance the Development of Digital, Technology and Innovation Economy	
IP1.4A: Enhance digital technology and innovation economic activities	5 <small>Gender Equality</small> 8 <small>Decent Work and Economic Growth</small> 9 <small>Industry, Innovation and Infrastructure</small> 10 <small>Reduced Inequalities</small> 12 <small>Responsible Consumption and Production</small>
IP1.4B: Encourage the development of Centre for Digital Economy	8 <small>Decent Work and Economic Growth</small> 9 <small>Industry, Innovation and Infrastructure</small> 11 <small>Sustainable Cities and Communities</small>

TABLE G1.11: SUMMARY OF MULTI-DIMENSIONAL ACTIONS THAT FULFILL THE SUSTAINABLE DEVELOPMENT GOALS 2030 (CONT.)

ACTIONS	RELATED SDGs
IP 1.5: Encourage the Development of Industrial Cluster Based on Clean Technology and Industry 4.0 Transformation	
IP1.5A: Collaboration to enhance the development of clean technology industrial cluster	8  9  11  12  14 
IP1.5B: Enhancing the quality of the existing industrial areas	8  9  12 
IP1.6: Drive Entrepreneurship Development Towards Inclusive Urban Economic Growth	
IP1.6A: Generate entrepreneurship opportunities in the neighbourhoods	4  8  9  10  11 
IP1.6B: Strengthening the urban entrepreneurship development ecosystem	8  9 
IP2.1: Strengthen the Network of Commercial Centre as Workplace and Local Business Centres	9  11 
IP2.2: Strengthen the Economic Zone with Infrastructure Availability and Conducive Environment for Investment	8  9  11 
IP2.3: Expand Business Opportunities in the Informal Sector	9 
IP2.3A: Providing various selection of affordable retail space	4  8  10 
IP2.3B: Encouraging the Growth of Informal Business Area	1  4  8  9  10  11 
IP2.3C: Encouraging the public and private agencies involvement in providing affordable retail space	1  8  11 
IP2.4: Enhance the Availability of Digital Infrastructure to Support Economic Development	9  11 
IP3.1: Strengthen the Role of Kuala Lumpur City as a Global City	8  9  11 
IP3.2: Expand Inter-City Economic Integration within the National Conurbation Region	9  11 
IP3.3: Enhance Transportation Linkages to Regional Network for Community and Service	9  10  11 

GOAL 2

KUALA LUMPUR INCLUSIVE, EQUITABLE AND LIVEABLE CITY



AFFORDABLE HOMES AT PPR PERKASA, CHERAS, KUALA LUMPUR, YEAR 2021

Kuala Lumpur is the focal city for diverse community groups. The provision of various housing types, public facilities and infrastructure meet the needs of all community groups, especially the low and middle-income groups living in Kuala Lumpur.

In line with the commitment to Developing a MADANI Nation and Sustainable Development Goals (SDGs), urban development planning in the future will continue to emphasize the creation of liveable cities and the empowerment of inclusive communities. This is to ensure that overall urban prosperity and quality of life can be enhanced.

Towards the vision of **A CITY FOR ALL**, efforts will be continued by focusing on providing housing for all and quality, equitable community facilities. Additionally, the quality of the environment needs to be improved, especially in neighbourhood areas, through enhanced accessibility and the fostering of ongoing social integration for global prosperity. Kuala Lumpur City will continue to evolve as a harmonious and responsive city to cultural diversity and well-being.

The strategic directions formulated to support this goal are:

IS1

Conducive Housing for All
Population Groups

IS2

Neighbourhoods that are
Conducive and Encourage Social
Interaction

2 STRATEGIC DIRECTIONS

9 ACTIONS

Goal 2 of KLSP2040 towards making Kuala Lumpur an inclusive, equitable and liveable city is supported by two (2) strategic directions and nine (9) planning priorities and implementation actions.

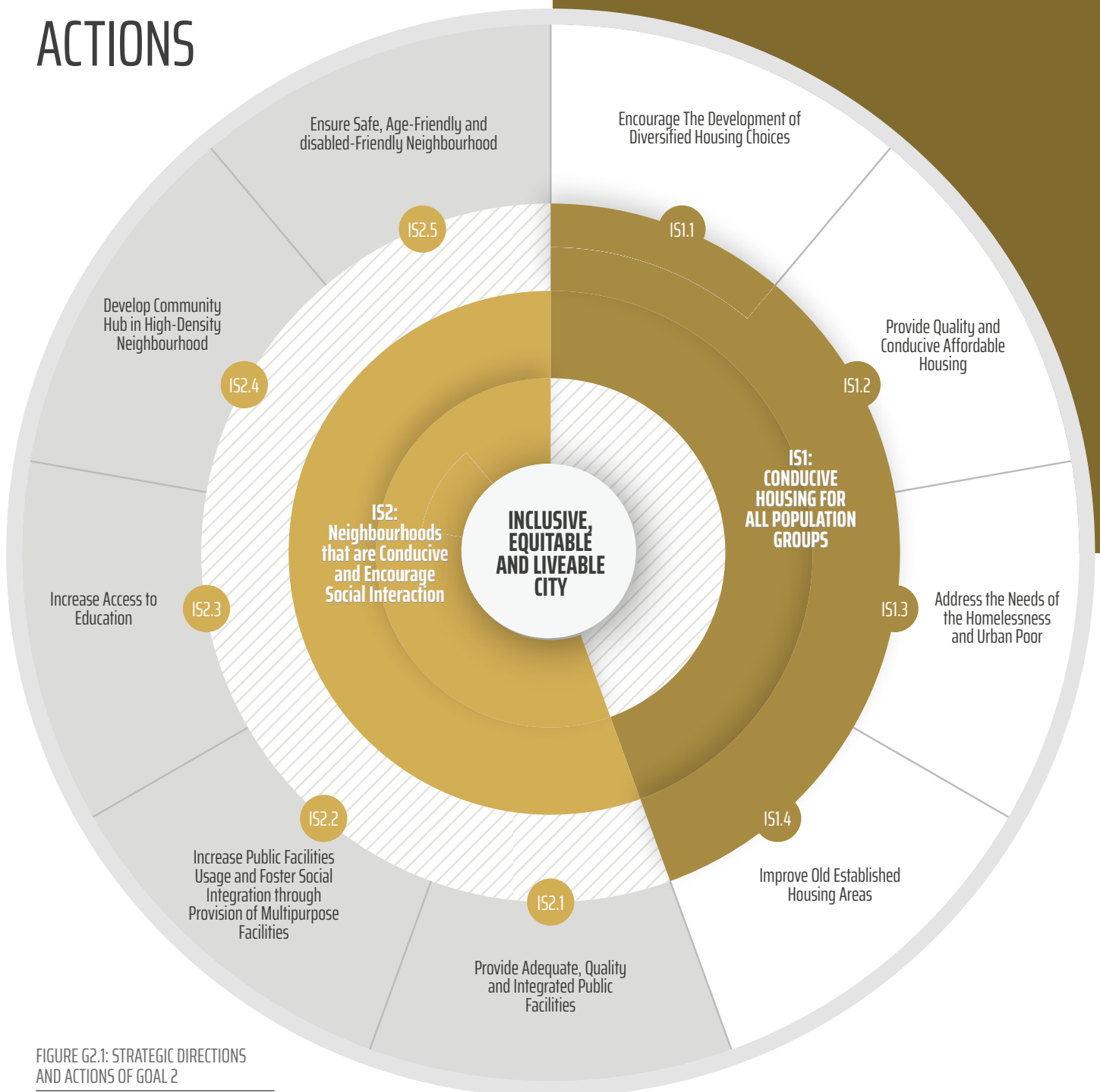


FIGURE G2.1: STRATEGIC DIRECTIONS AND ACTIONS OF GOAL 2

GAME CHANGER

POPULATION OF KUALA LUMPUR

Kuala Lumpur's populations comprise diverse ethnicities and ages, totalling 1,982,112 people in year 2020. The Bumiputera ethnic is the largest group, followed by Chinese, Indians, non-citizens, and other citizens. The decline of the local population ranged from 2 percent to 0.6 percent from year 2010 to year 2020, in line with the declining population growth in Kuala Lumpur (Table G2.1).

As a global city, Kuala Lumpur has become the employment centre for the international community. The number of non-citizens, which represented 10.5 percent of the population of Kuala Lumpur in year 2020, is decreasing but remains the third-largest population in Kuala Lumpur. It is estimated that 19 percent of the non-citizens are skilled workers, while the rest are semi-skilled and unskilled workers.

Kuala Lumpur will remain the international community's focal city in the future. The increase in the international community aligns with efforts to make Kuala Lumpur a hub for regional headquarters and principal hubs for world trade and service companies. Therefore, the international community profile will change with the increase among skilled, professional and technical workers. The number of these communities has impacted Kuala Lumpur's population growth. The number of citizens increased in year 2020, whilst the non-citizen population has declined due to the COVID-19 outbreak with the closure of the state border (Figure G2.3).

TABLE G2.1: MULTI-ETHNICITY IN KUALA LUMPUR, YEAR 2010-2020

ETHNIC GROUP	PERCENTAGE (%)		
	YEAR 2010	YEAR 2015	YEAR 2020
Bumiputera	42.1	40.3	42.7
Chinese	39.2	36.9	37.2
Indian	9.4	8.7	9.0
Other Citizens	0.8	1.0	0.6
Non- Citizens	8.4	13.2	10.5
TOTAL	100.0	100.0	100.0

Note: Other citizens refer to ethnic such as people from Sabah, Sarawak and others.

Source: Department of Statistics Malaysia

FIGURE G2.2: POPULATION TREND IN KUALA LUMPUR, YEAR 2010-2020

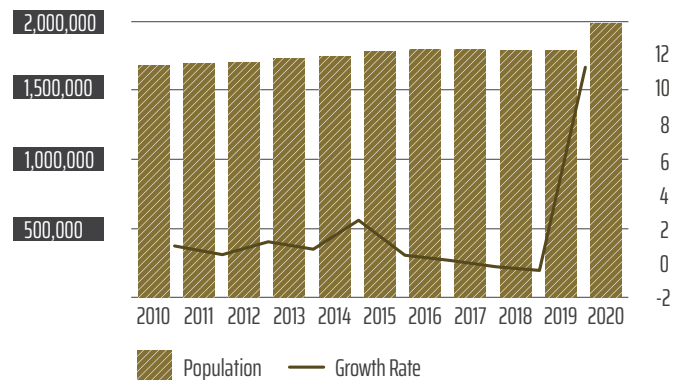
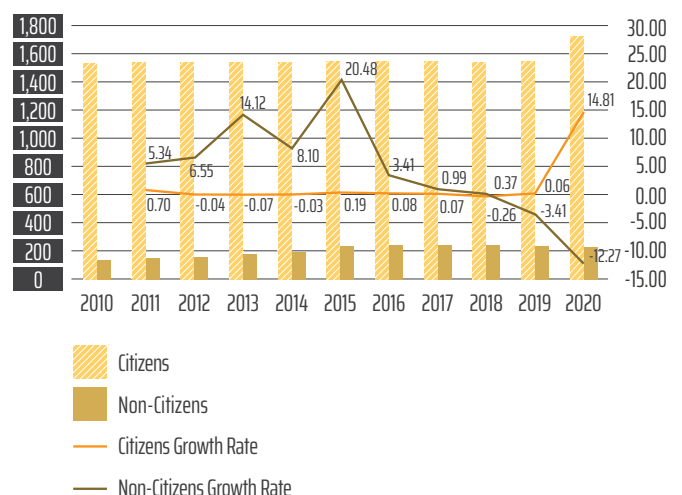


FIGURE G2.3: CITIZENS AND NON-CITIZEN POPULATION TREND IN KUALA LUMPUR, YEAR 2010-2020



Source: Department of Statistics Malaysia

The population of Kuala Lumpur also comprises diverse ages. The working-age group constituted 73.5 percent of the total population, while young age is 20 percent followed by old age at 6.5 percent. The trend of population age structure shows that Kuala Lumpur is experiencing demographic changes towards the ageing population. The percentage of old age increased from 4.6 percent in year 2010 to 6.6 percent in year 2020. The working-age increased by 0.1 percent from 73.4 percent in year 2010 to 73.5 percent in year 2020, whilst the percentage of young age is decreasing (Table G2.2).

Moreover, about 34.4 percent of Kuala Lumpur's residents in year 2018 were youths. This group represents nearly half of the working-age group. However, the percentage of the youth population is declining. The ability of Kuala Lumpur to continue attracting population growth is vital to sustaining urban economic growth.

The male population was more significant than the female population in year 2020, with a gender ratio of 1:0.95. The percentage of male population contributions has increased since year 2010, while the percentage of the female population has decreased over the same period.

The population's diverse ethnicity, age and gender is an advantage for Kuala Lumpur to progress further in the future. The economic, social, and physical development progress more dynamically, quality, and balanced in tandem with diverse cultures, religions and ages.

AFFORDABILITY AND VULNERABLE GROUP IN KUALA LUMPUR

Kuala Lumpur has the highest average income per capita and mean monthly household gross income in year 2020. Kuala Lumpur's per capita income was RM121,100 while the mean monthly household gross income and median were RM11,728 and RM9,093, respectively. Kuala Lumpur's average income per capita and median household income are rising compared to year 2016. However, a coefficient of 0.355 in year 2020 compared to 0.378 in year 2016 revealed a gap in household incomes based on the household group (Table G2.4).

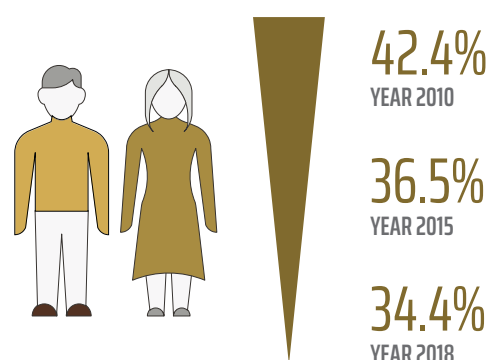
TABLE G2.2: POPULATION STRUCTURE IN KUALA LUMPUR, YEAR 2010-2020

CATEGORY	PERCENTAGE (%)		
	YEAR 2010	YEAR 2015	YEAR 2020
0 - 14 years	22.0	21.0	20.0
15 - 64 years	73.4	73.1	73.5
65 years and above	4.6	5.9	6.6

Note*:
Young age group (0-14 years)
Working age group (15-64 years)
Old age group (65 years and above)

Source: Department of Statistics Malaysia

FIGURE G2.4: PERCENTAGE OF YOUTH IN KUALA LUMPUR, YEAR 2010-2018



Note: The 2020 youth percentage was not published at the time of preparation of this report

Source: Department of Statistics Malaysia

TABLE G2.3: GENDER STRUCTURE IN KUALA LUMPUR, YEAR 2010-2020

YEAR	MALE	FEMALE	GENDER RATIO
2010	50.9%	49.1%	1 : 0.96
2015	51.3%	48.7%	1 : 0.95
2020	53.4%	46.6%	1 : 0.95

Source: Department of Statistics Malaysia

CITIZEN OF KUALA LUMPUR



The income distribution for the household groups in Kuala Lumpur differs from most states in Malaysia, where the T20 group is the largest, contributing 43.2 percent of the total households with a median income ranging from RM19,114 to RM31,640 per month (Table G2.5).

The M40 group represents 37.3 percent of households with a median income ranging from RM9,841 to RM15,278 per month. Meanwhile, the B40 group, with a median household income of between RM4,335 to RM8,550 per month, represents only 19.5 percent of the total households in Kuala Lumpur.

The average household expenditure and median spending of RM6,913 and RM5,692 respectively, in year 2019, almost 7 percent of B40's households in Kuala Lumpur will be at risk of being affected by the high cost of living. These B40 and poor household groups include homeless communities and disadvantaged people with job opportunities that affect their monthly source of income.

Kuala Lumpur has a relative incidence of poverty of 9.1 percent after considering city living needs. Meanwhile, the incidence of absolute poverty was 0.4 percent, with a poverty-level income value of RM2,216. The incidence of absolute poverty only considers the need for basic food and beverages (Table G2.6).

TABLE G2.4: INCOME PER CAPITA AND MONTHLY HOUSEHOLD GROSS INCOME IN KUALA LUMPUR, YEAR 2016 AND 2020

CATEGORY	YEAR 2016	YEAR 2020
Income Per Capita	RM101,420	RM121,100
Monthly Household Gross income (mean)	RM11,692	RM11,728
Monthly Household Gross Income (median)	RM9,073	RM9,093
Gini Coefficient	0.378	0.355

Note: Gini Coefficient is a measure of income inequality where the Gini Coefficient is between 0 and 1. The smaller the value, the more equitable income distribution.

Source: Department of Statistic Malaysia

TABLE G2.5: MEDIAN HOUSEHOLD INCOME BY HOUSEHOLD GROUP IN KUALA LUMPUR, YEAR 2019

CATEGORY	HOUSEHOLD GROUP	MEDIAN (RM)	PERCENTAGE (%)
T20	T1	31,640	28.6
	T2	19,114	14.6
M40	M4	15,278	11.6
	M3	12,997	9.8
	M2	11,254	8.5
	M1	9,841	7.4
B40	B4	8,550	6.4
	B3	7,298	5.5
	B2	5,914	4.5
	B1	4,335	3.1

Note: The 2020 households group was not published during the preparation of this report

Source: Department of Statistics Malaysia

TABLE G2.6: HOUSEHOLD POVERTY PROFILE IN KUALA LUMPUR, YEAR 2020

POVERTY LINE INCOME VALUE	INCIDENCE OF ABSOLUTE POVERTY (YEAR 2020)	INCIDENCE OF RELATIVE POVERTY (YEAR 2020)
RM2,216	0.4 %	9.1%

Note: New Poverty Line Income (PLI) is not issued during the provision of this report. Thus, the 2019 PLI is still being preserved.

Source: Department of Statistics Malaysia



QUALITY OF LIFE IN KUALA LUMPUR

Kuala Lumpur remains 10th among Asia Pacific countries for quality of life in Mercer's 21st Annual Quality of Living Survey in year 2019. This study considers 39 urban living factors, including housing facilities, quality of education, health, safety, access to transportation, entertainment and recreation, environment, media and communication facilities, bank services, political balance and others.

Malaysia Wellbeing Index 2019 is the indicator of the quality of life in Malaysia. The index refers to the country's performance considering several components that reflect Kuala Lumpur's quality of life as well as aspects requiring improvements, such as housing facilities and public safety.

The provision of affordable housing and affordable rentals needs to be emphasized, given that the average home prices are excessively high and unaffordable, especially for the M40 and B40 groups.

In addition, the aspect of public safety should be improved whereby the police station facilities are low compared to the population, which is a ratio of 1:73,412 lower than the planning standards.

The indicator shown through the ratios and comparisons forms the basis for improving the quality of the availability of facilities that contribute to the quality for all citizens of the city in the future in line with the vision **Kuala Lumpur CITY FOR ALL**.

TABLE G2.7: QUALITY OF LIFE INDICATORS, KUALA LUMPUR, YEAR 2020

ASPECT	YEAR 2020
Number of accident	48,796
Number of crime	8,170
Number of robberies	2,009
Police station/population ratio	1 : 73,412
Firestation/population ratio	1 : 104,322

*Note: Facilities Planning Standards, KLSP2020

Source: Department of Statistics Malaysia

TABLE G2.8: HOUSING AFFORDABILITY OF KUALA LUMPUR, YEAR 2019

ASPECT	YEAR 2019
(%) Households Home Owner	63.3%
House to Number of Household Ratio	0.87:1.00
Average House Price	RM778,143
Household Mean Monthly Gross Income	RM11,728
Household Median Monthly Gross Income	RM9,093
House Price Affordability Based on Mean Household Income	RM950,000
House Price Affordability Based on Median Household Income	RM750,000

Source:

1. Department of Statistics Malaysia
2. Property Stock Report Q4 2017, NAPIC

TABLE G2.9: EDUCATION QUALITY, KUALA LUMPUR, YEAR 2020

ASPECT	YEAR 2020
Number of Graduates	481,500
Number of Universities	22
Number of International Schools	29
Primary School/Population Ratio	1:10,377
Secondary School/Population Ratio	1:19,059

Source: Department of Statistics Malaysia

TABLE G2.10: HEALTH QUALITY, KUALA LUMPUR, YEAR 2020

ASPECT	YEAR 2020
Mortality Rate (for 1000 population)	4.7
Life Expectancy	77 years (male) 80 years (female)
Hospital/Bed Ratio	13:2046
Doctor/Population Ratio	1:176

Source:

1. Department of Statistics Malaysia
2. Garis Panduan Perancangan Kemudahan Masyarakat, JPBD 2013

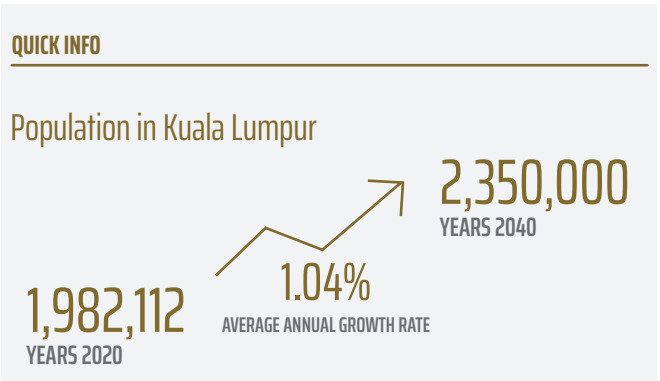
PROSPECTS AND TARGETS FOR THE POPULATION OF KUALA LUMPUR 2040

Kuala Lumpur's population structure is expected to change with an increase in population by year 2040. The overall population increase is significantly dominated by foreigners and the population of other citizens in line with the rapid economic growth of Kuala Lumpur and the development that is expected to be implemented until year 2040. Non-citizens and other citizens will represent 14.3 percent and 2 percent respectively in year 2040. The percentage of Bumiputera's population is expected to remain while Chinese and Indians are expected to decline slightly (Table G2.11).

Kuala Lumpur is also anticipated to reach an ageing population by year 2040 when the age group of 65 years and above escalate to 17.3 percent of the total population. The young and working-age groups are declining, representing 13.3 percent and 69.4 percent of the population respectively in year 2040 (Table G2.12).

Kuala Lumpur will encounter changes of household structure where the household's size will slightly decrease from 3.5 person in year 2020 to 3.0 person by year 2040 (Table G2.13). These changes are among the characteristics of global cities that become employment centres for local youth and foreigners.

Changes in population structure will change the needs and demands for public facilities and living environments and affect future planning.



STRATEGIC DIRECTION

IS1: CONDUCTIVE HOUSING FOR ALL POPULATION GROUPS

Housing in Kuala Lumpur will be sufficiently provided to meet the needs and affordability of all community groups equitably to reduce the housing ownership gap and ensure a quality, affordable and accessible housing.

ACTION
IS1.1: ENCOURAGE THE DEVELOPMENT OF DIVERSIFIED HOUSING CHOICES

The provision of diverse housing according to the needs, demands and affordability are essential to achieve the quality and well-being of Kuala Lumpur's residents. Providing adequate and affordable housing will encourage more locals to live in the city to create vibrant urban communities.

There are various types of affordable housing have been provided in Kuala Lumpur. However, the involvement of all parties is important to realize the increase in housing provision, aligning with the government's direction to ensure that urban residents can afford homes.

Kuala Lumpur consisted of 500,803 housing units, including village houses and quarters, in year 2020 (Table G2.14). The existing units were sufficient to accommodate 573,529 households in Kuala Lumpur, though currently, the housing supply exceeded the required housing units.

However, housing provision should consider the diversity of houses to meet the needs of various groups, including the B40, senior citizens, youths, young families, foreigners and other vulnerable household groups. The diverse types of houses have different facilities requirements in terms of size, location, design and amenities.

Housing provision should align with households' needs to provide one house to each household. Currently, Kuala Lumpur recorded 63.3 percent of the total households owned their own homes, 34.1 percent lived in rental houses, and another 2.6 percent occupied quarters (Table G2.15).

In year 2020, most of the houses in Kuala Lumpur were high-density, with 77.6 percent of high-rise houses and 16.9 percent terraced houses (medium and low density). Detached, semi-detached and other houses contributed less than 5.5 percent of the total houses in Kuala Lumpur (Table G2.16).

TABLE G2.14: TOTAL POPULATION, HOUSEHOLD SIZE AND HOUSING UNIT, KUALA LUMPUR, YEAR 2000-2020

ASPECT	YEAR 2000	YEAR 2010	YEAR 2020
Population	1,305,792	1,588,750	1,982,112
Household	308,006	419,187	573,529
Household Size	4.2	3.8	3.5
Housing Unit	328,205	471,297	500,803

Source:
1. Department of Statistics Malaysia
2. Property Stock Report 2019, NAPIC

TABLE G2.15: HOME OWNERSHIP, KUALA LUMPUR, YEAR 2019

TYPES OF OWNERSHIP	PERCENTAGE OF HOME OWNERSHIP(%)
Own	63.3
Rental	34.1
Quaters	2.6
TOTAL	100.0

Source: Department of Statistics Malaysia

SUPPORTING ACTION**IS1.1A: Provide diverse housing types based on changes in population profile and household sizes**

Kuala Lumpur is expected to experience changes in population profile in the future. The city will have a small household size from 3.2 percent in year 2025 to 3.0 percent in 2040. In this regard, planning and managing future housing provisions should consider the anticipated changes in the population profile and households in Kuala Lumpur.

The number of senior citizens is also expected to increase by 17.3 percent in 2040 compared to 9.2 percent in year 2025 (Figure G2.6). Meanwhile, youths will constitute one-third of Kuala Lumpur's total population by 2040. Therefore, there is a need to provide a wide variety of housing type with various house sizes and designs to meet the needs of small households.

By year 2040, Kuala Lumpur will require 783,333 housing units to ensure that every household has the opportunity to own a unit. However, the old houses and based on the committed and planned housing development recorded by NAPIC in year 2019, Kuala Lumpur will have a total of 762,500 housing units by 2040 (Table G2.17).

Housing provision in Kuala Lumpur is mainly by the private sector. It should be well managed to ensure a more balanced provision, primarily the provision of targeted and affordable housing to meet the needs of the future population. However, the government's role in providing affordable housing will improve access to applicants under the target group.

TABLE G2.16: HOUSING TYPES, KUALA LUMPUR, YEAR 2020

HOUSING TYPES	YEAR 2010 (%)	YEAR 2020 (%)
High-Rise	72.1	77.6
Terrace	22.3	16.9
Semi-Detached	1.6	1.4
Detached	1.9	1.4
Others	2.1	2.7
TOTAL	100.0	100.0

Source: Department of Valuation and Property Services Malaysia

TABLE G2.17: ESTIMATED TOTAL POPULATION, HOUSEHOLD, HOUSEHOLD SIZE AND HOUSING UNIT AND HOUSES, KUALA LUMPUR, YEAR 2025-2040

ASPECT	YEAR 2025	YEAR 2030	YEAR 2035	YEAR 2040
Population	2.04 mil	2.13 mil	2.24 mil	2.35 mil
Household	637,500	687,097	722,581	783,333
Household Size	3.2	3.1	3.1	3.0
Total Houses	588,900	642,750	691,550	762,500

Source:

1. Department of Statistics Malaysia

2. Adopted from Property Stock Report 2019, NAPIC



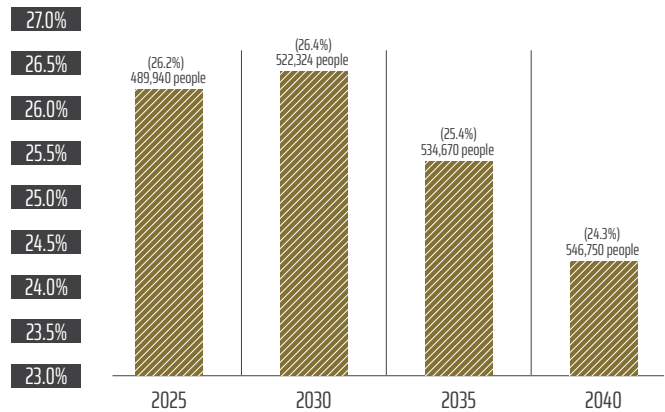
MICRO HOUSING – SAMPLE HOUSE IN MEDAN PASAR, KUALA LUMPUR



SUPPORTING ACTION**IS1.1B: Provide homes for the newly employed youth and young families**

Provision of housing in mixed development areas or selected commercial areas for short-term rental of only five (5) years maximum rental. These houses are provided to support newly married couples, newly employed youths just moved into Kuala Lumpur, low income youths (B40), middle income youths (M40), students and others, subject to regulations by those who operate and manage the housing. These housing are based on the co-living concept, providing common facilities such as lounges, gymnasiums, reading rooms and other facilities.

FIGURE G2.5: YOUTH POPULATION PROJECTION, KUALA LUMPUR, YEAR 2025-2040

**EXAMPLE OF BEST PRACTICES****Co-Living Apartment, Seoul, South Korea**

The six (6)-storey apartment consisting of 76-unit studios is located in the Gangnam district and conceptualised as a transit housing to support Korean youth needs. This housing provides common facilities such as a lounge, kitchen, reading room and park. The transit home was introduced to assist Korean youths in renting houses due to the high rental cost in Korea. This transit house concept has also reduced rental costs, indirectly reducing the burden on newly employed youths.



Source: <https://www.dezeen.com/2019/08/12/treehouse-co-living-bo-daa-seoul-concrete/>

Youth Housing

Youth Housing is a program established by the Ministry of Local Government Development (KPKT) with the aim of providing housing opportunities for young married couples aged 30 years and below.



TRANSIT HOUSE BUKIT JALIL, KUALA LUMPUR

Komune Housing

Housing conceptualised hotel offers various room types to cater the needs of both individuals and families. It is equipped with amenities such as workspaces and complete furnishings, as well as a range of recreational facilities suitable for both short and long-term stays.



KOMUNE LIVING, BANGSAR SOUTH, KUALA LUMPUR

SUPPORTING ACTION**IS1.1C: Provide special housing for the elderly**

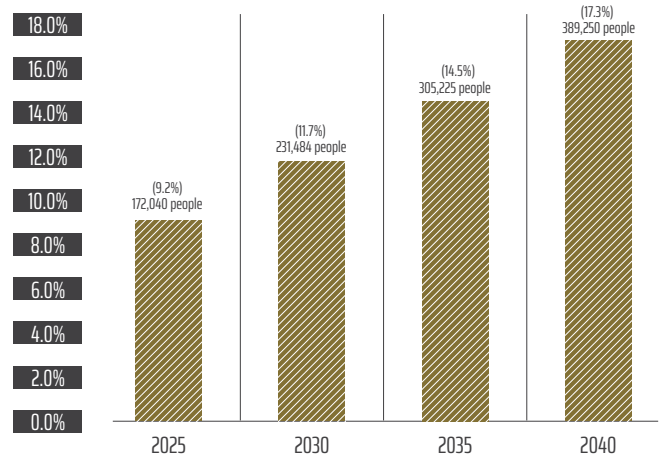
Kuala Lumpur is expected to be an ageing city by 2040, whereby 17.3 percent of the total population (Figure G2.6). Special housing development for the elderly is encouraged in Kuala Lumpur. This allows to enable the elderly to live independently by providing special facilities to help them live on their own. Recommended special housing for the elderly includes retirement homes for independent living, retirement homes complete with medical assistance, and nursing homes for the elderly.

Housing developments for the elderly are encouraged to be sold, leased or rented to this group. This development may be considered within residential and commercial zones considering current suitability. However, the suitability of retirement homes with medical assistance in residential areas requires detailed study.

Residential areas with large retirement communities are also encouraged to provide appropriate social spaces and public amenities. In addition, retirement homes should be provided with universal design features such as age-friendly equipment, including emergency and safety alarm devices, to enable the elderly to live comfortably based on unassisted physical capabilities.

Detailed guidelines for the planning and designing elderly homes and should be in line with guidelines from relevant agencies to uphold the well-being of the elderly. Developers should also provide at least 5 percent of affordable housing as retirement homes. Cooperation with higher education institutions, professional bodies and non-governmental organizations to help develop special housing needs for the elderly is encouraged.

FIGURE G2.6: ELDERLY POPULATION PROJECTION, KUALA LUMPUR, YEAR 2025-2040



Source: Department of Statistics Malaysia

EXAMPLE OF BEST PRACTICES

Catholic Retirement Homes Development, Perth, Australia

Catholic Retirement Homes is an example of integrated development of the physical aspect and the natural environment, and it uses the existing river as a recreational element. In addition, the retirement home is equipped with various integrated facilities such as recreational centres, health centres, entertainment centres and the like as needed by retirees.



CATHOLIC RETIREMENT HOMES DEVELOPMENT, PERTH, AUSTRALIA
Source: <https://www.catholichomes.com>

SUPPORTING ACTION
IS1.1D: Provide housing for workers (CLQ)

In year 2040, the foreign population in Kuala Lumpur is projected to be 14.5 percent of the total population, comprising foreign professionals and workers with varying skill levels, including skilled, semi-skilled, and unskilled workers. In this context, Kuala Lumpur also accommodates employment for local residents from outside Kuala Lumpur and foreign workers, particularly in the Klang Valley. The provision of housing for unskilled workers employed in the construction, manufacturing, and service sectors, including both foreign and local workers, is necessary to ensure a better quality of life and align with the **CITY FOR ALL** vision.

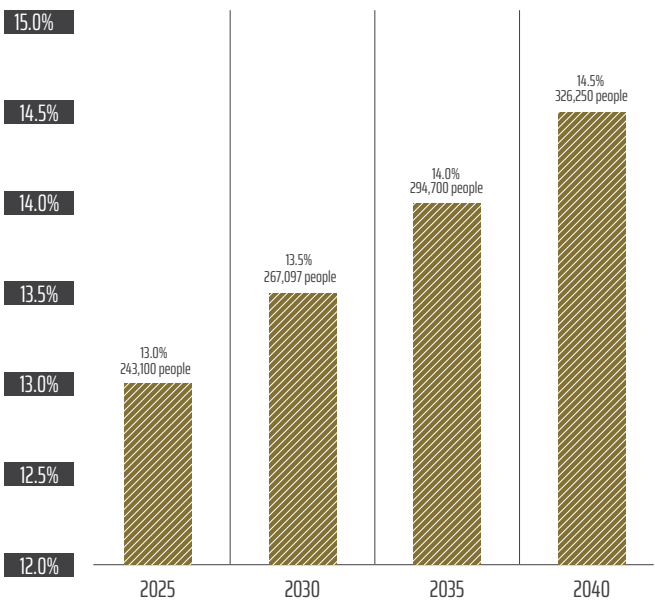
Therefore, housing for these worker groups needs to be situated in appropriate areas. Location suitability studies should be conducted to ensure compatibility with the local community. Additionally, housing should be managed by employers.

KLCH needs to establish a housing guideline specifically for workers in Kuala Lumpur, in alignment with the Minimum Standards for Foreign Workers' Accommodation 2018, to ensure the well-being and harmony of the local community.



HOUSING FOR WORKERS (CLQ), JALAN COCHRANE, KUALA LUMPUR

FIGURE G2.7: FOREIGN POPULATION PROJECTION, KUALA LUMPUR, YEAR 2025-2040

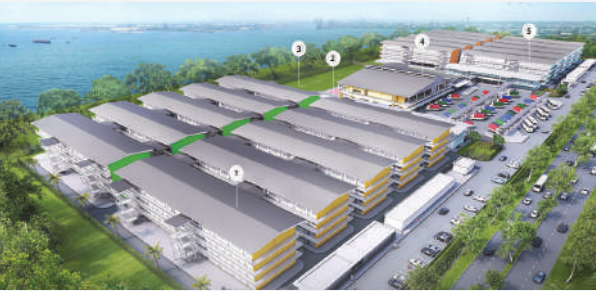


Source: Department of Statistics Malaysia

EXAMPLE OF BEST PRACTICES

Tuas View Dormitory, Singapore

Tuas View Dormitory is the largest foreign worker dormitory in Singapore, with a capacity of 16,800 beds. It is a living facility for foreign workers in Singapore equipped with various facilities such as a dormitory for workers, lounges, cooking and food preparation space, TV room, reading room, gymnasium, games court, laundry and convenience store.



TUAS VIEW DORMITORY, SINGAPORE
Source: tuasviewdormitory.com.sg/

SUPPORTING ACTION**IS1.1E: Provide housing for Persons with Disabilities (PWD)**

The cumulative number of registered Persons with Disabilities (PWD) in Kuala Lumpur in year 2020 increased by 12.2 percent, which is 38,590 people from 34,299 in year 2019 (Figure G2.18). Under the National Social Policy, the government also ensures that the needs of individuals, families and communities are met, including special housing provisions for the disabled group.

The provision of housing for the disabled group is important and collaborative efforts from various agencies need to be given attention to ensure that this group is not left behind. Among the initiatives to be carried out are:

1. Providing facilities to the Persons with Disabilities to rent low-cost houses or KLCH flats;
2. Allocating 2 percent of the quota for the disabled groups in each residential area
3. Providing suitable and easily accessible facilities such as ramps, car parking spaces and others; and
4. Design home space that meets standards, regulations and guidelines for barrier-free and universal design.

TABLE G2.18: CUMULATIVE NUMBER OF REGISTERED DISABILITIES, KUALA LUMPUR, YEAR 2019 - 2021

CATEGORY	YEAR 2019	YEAR 2020	YEAR 2021
Visual impairment	3,605	3,950	3,949
Hearing impairment	2,941	3,151	3,142
Physical impairment	14,885	16,571	16,635
Learning disability	11,530	13,380	13,418
Speech impairment	111	133	135
Multiple disabilities	1,227	1,405	1,411
TOTAL	34,299	38,590	38,690

Source: Department of Social Welfare

EXAMPLE OF BEST PRACTICES**Provision of housing for Persons with Disabilities in the United States**

The United States Department of Housing and Urban Development (HUD) provides various public housing programs and rental assistance that benefit the disabled. The primary purpose of this program is to help the disabled group by providing several initiatives, such as free housing goods vouchers, subsidies, and assistance in managing house rentals. In addition, the government also offers special loans to renovate the house according to suitability and comfort to prioritise the safety of residents.

Highland Garden offers 114 units with 1 to 2 bedrooms reserved for Persons with Disabilities and elderly residents with plenty of facilities for residents' comfort, such as adjacent bus stops and locations of restaurants within walking distance. The development adopted several energy efficiency characteristics and was recognised by the Sierra Club in year 2005 as one of the "Best New Developments of America".



HIGHLAND GARDEN, CITY OF MILWAUKEE, UNITED STATES
Source: www.hacm.org/our-properties/adult-disabled-housing

Cherry Court is a housing estate for the disabled group with a disabled-friendly interior design. The facilities include a community room, craft room, exercise room, game room, computer lab and beauty/barber shop.



CHERRY COURT, CITY OF MILWAUKEE, UNITED STATES
Source: www.hacm.org/our-properties/adult-disabled-housing

ACTION **IS1.2: PROVIDE QUALITY AND CONDUCTIVE AFFORDABLE HOUSING**

Urban living is becoming more challenging for households in Kuala Lumpur, especially the lowest 40 percent income (B40) households. This is due to the rising cost of living, including rising house prices, compared to rising incomes. Therefore, it is important to adequately provide the affordable housing so that every household in the target group can have a conducive, good quality and affordable housing in Kuala Lumpur.

The provision of affordable housing in year 2020 comprises only 40,022 units of the total housing in Kuala Lumpur, which needs to be improved to achieve the future target of 40 percent of the total housing in Kuala Lumpur. This meets the needs of the lowest 40 percent of households and ensures that every household in the B40 group will own a home to reduce the housing ownership gap.

Public housing provision should also consider the replacement of existing affordable housing for redevelopment to ensure the adequate provision of future homeownership. This is in line with the housing policy of the Ministry of Federal Territory, considering the housing programs implemented in Kuala Lumpur.

QUICK INFO

Affordable Housing, Kuala Lumpur, Year 2019-2020

500,803 UNITS

TOTAL HOUSING UNIT IN KUALA LUMPUR, YEAR 2020
(EXCLUDING VILLAGE HOUSES AND QUARTERS)

40,022 UNITS

TOTAL AFFORDABLE HOMES IN KUALA LUMPUR, YEAR 2020

28,270 UNITS

SOLD AFFORDABLE HOMES, YEAR 2019

11,752 UNITS

UNSOLD AFFORDABLE HOMES, YEAR 2019

18 AREAS

COMPLETED AFFORDABLE HOUSING PROJECT, YEAR 2019

38 AREAS

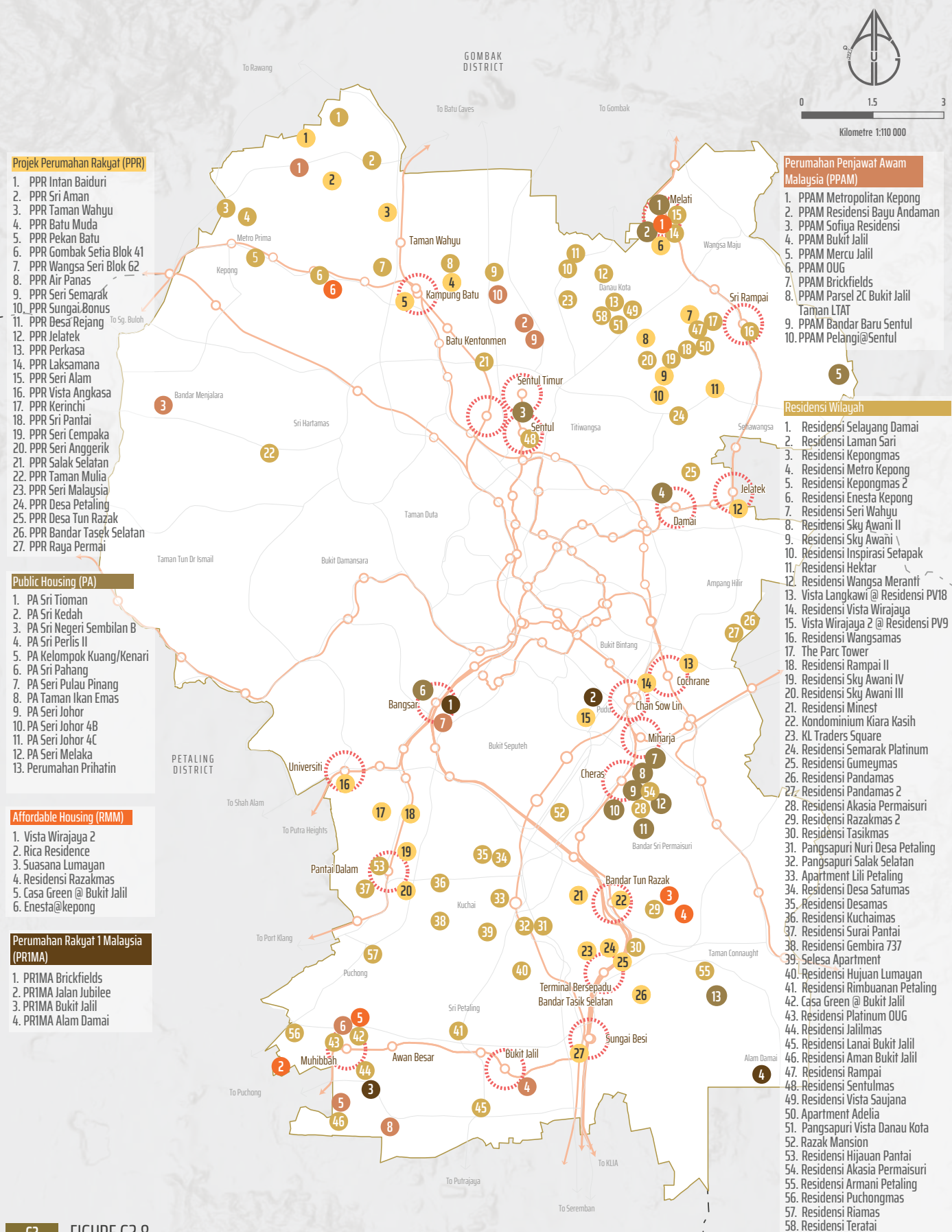
AFFORDABLE HOUSING PROJECT UNDER CONSTRUCTION, YEAR 2019

Source:

1. Property Stock Report Q4 2017, NAPIC
2. NAPIC, KLCH, KPKT, PRIMA, PPAM



PERUMAHAN PENJAWAT AWAM MALAYSIA (PPAM) METROPOLITAN KEPONG, KEPONG, KUALA LUMPUR



G2

FIGURE G2.8
DISTRIBUTION OF EXISTING AFFORDABLE HOUSING IN KUALA LUMPUR

LEGEND

Low Cost Housing

- Projek Perumahan Rakyat (PPR)
- Public Housing (PA)

Affordable Housing

- Affordable Housing (RMM)
- Perumahan Rakyat 1 Malaysia (PRIMA)
- Perumahan Penjawat Awam Malaysia (PPAM)
- Residensi Wilayah

Others

- Affordable Housing located with 400m to stations
- Existing Railways and Stations
- Main Road
- FTKL Boundary

NOTE:

All plans and figures are in the form of diagram/indicative only. It does not refer to any lot in details.

SUPPORTING ACTION**IS1.2A: Provide housing according to affordability**

Kuala Lumpur households' average and median monthly income were the highest in the country in year 2020. However, 7.6 percent of households in Kuala Lumpur were among the B40 sub-groups (B1 and B2) who cannot afford to buy houses in Kuala Lumpur, with the lowest average price of RM489,600.

The lowest average house prices were high-rise housing comprising flats, condominiums and apartments, including affordable homes. Tables G2.19 and G2.20 illustrate the average house price and the price of affordable houses based on the median monthly household gross income.

Based on the median monthly household gross income, the B40 households can only afford houses ranging from RM350,000 to RM650,000 according to their respective sub-groups. In contrast, the affordable price for the M40 sub-group ranges from RM750,000 to RM1,200,000.

Affordability levels consider the percentage of monthly payments based on the latest interest rate, 10 percent down payment and payment period of 35 years, up to the working age of 60 years.



RESIDENSI PANDANMAS 2 KAMPUNG PANDAN, KUALA LUMPUR

The provision of affordable housing based on house prices and the affordability level of the target group should be continued to overcome the issue of homeownership in the future as well as to ensure the city's well-being and quality of life. Affordability level information based on household monthly gross income should be streamlined periodically, at least every five years, in collaboration with various agencies.

In addition, a study of the needs and ability to purchase housing specifically for Kuala Lumpur by year 2040 should be conducted to determine the needs according to the affordability level in the future.

TABLE G2.19: AVERAGE HOUSE PRICE IN KUALA LUMPUR, YEAR 2015 AND 2020

CATEGORY	YEAR 2015 (RM)	YEAR 2020 (RM)
High-Rise Housing	390,949	489,600
Terrace Housing	767,669	867,321
Semi-Detached Housing	1,931,047	2,542,725
Detached Housing	3,735,281	3,494,059

Source: Malaysia House Price Index (MHPI), 2020, NAPIC

TABLE G2.20: MEDIAN HOUSEHOLD GROSS INCOME BASED ON HOUSEHOLD AND HOUSE AFFORDABILITY GROUP IN KUALA LUMPUR, YEAR 2019

HOUSEHOLD GROUP		MEDIAN (RM)	PERCENTAGE (%)	PRICE OF AFFORDABLE HOUSE
T20	T1	31,640	28.6	RM 2,500,000
	T2	19,114	14.6	RM 1,500,000
M40	M4	15,278	11.6	RM 1,200,000
	M3	12,997	9.8	RM 950,000
	M2	11,254	8.5	RM 850,000
	M1	9,841	7.4	RM 750,000
B40	B4	8,550	6.4	RM 650,000
	B3	7,298	5.5	RM 550,000
	B2	5,914	4.5	RM 450,000
	B1	4,335	3.1	RM 350,000

Source: Department of Statistics Malaysia

SUPPORTING ACTION**IS1.2B: Establish a Land Bank for the provision of affordable housing**

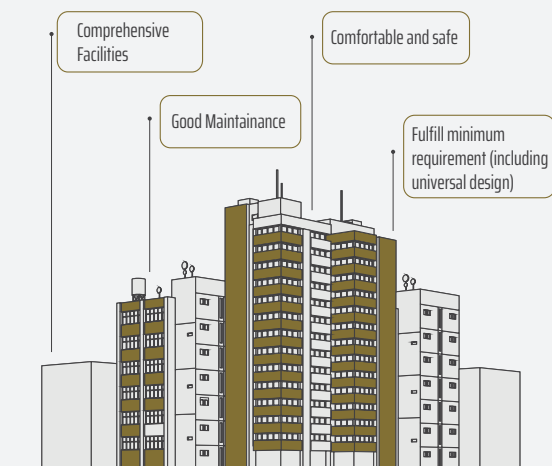
Establishing a Land Bank for affordable housing development by Kuala Lumpur City Hall can ensure the effective and quick implementation of affordable housing provisions. This effort should continue to ensure the guaranteed provision of affordable housing by year 2040. Following are the types of affordable housing in Kuala Lumpur:

1. Perumahan Rakyat 1 Malaysia (PR1MA);
2. Residensi Wilayah;
3. Perumahan Penjawat Awam Malaysia (PPAM);
4. Program Perumahan Rakyat (PPR); and
5. Residensi Prihatin.

SUPPORTING ACTION**IS1.2C: Provide liveable and accessible affordable housing**

The affordable housing must be of high quality and conducive, with suitable size to ensure the family's well-being. Moreover, affordable housing should be well maintained, well-equipped facilities, comfortable spaces and clean ventilation. The provision of quality and conducive housing will increase the liveability of Kuala Lumpur's population under any circumstances.

Future affordable housing area should be identified near to employment centres, public transportation transit stations, and public facilities. Appropriate incentives may be given to promote the implementation and involvement of the private sector in the development of affordable housing.

QUICK INFO**Characteristics of Quality Affordable Housing****SUPPORTING ACTION****IS1.2D: Provide subsidised rental public housing**

Subsidised Rental Public Housing (PASS) is housing provided for the targeted low-income and impoverished groups living and working in Kuala Lumpur. These groups are unable to afford market rental rates.

PASS can be provided by KLCH, government housing agencies, non-governmental organisations, cooperatives, and non-profit organisations to assist the targeted groups in having comfortable and safe housing, with rental rates determined by the government according to current rates.

The provision of this housing will diversify the housing stock for the future, benefiting elderly and disabled group, those facing economic crises and helping to reduce homelessness issues in Kuala Lumpur.

EXAMPLE OF BEST PRACTICES**Subsidised Rental Public Housing in Malaysia**

This housing scheme was first introduced by the Malaysian Ministry of Local Government Development (formerly known as the Ministry of Housing and Local Government) in year 2002 under the PPR Rental program aiming to rent to target groups (low-income groups and squatters) at a rate of RM124.00 per month only. It is a subsidised rate because the rent for PPR under the Transit Housing Scheme is much higher (RM250.00 per month).

Subsidised Housing in United Kingdom

Rent to buy is a government scheme aiming to facilitate the move from renting to house ownership by offering subsidised rent. The government offers a five years discount of 20 percent below the current market price. Within two (2) years, the tenant has option to purchase the property. Tenants who do not choose to purchase will receive 25 percent of the rent paid. There are a variety of other programmes available to assist with home ownership such as loans for first-time home buyers, joint home ownership scheme and tax-free savings.

FIGURE G2.9: HOUSING TYPES FOR VARIOUS LEVELS OF SOCIETY

Based on the National Affordable Housing Policy, affordable housing provided should be diverse either in price or design.

Affordable Housing

Affordable Housing provision should emphasise the purchasing and maintenance costs. The house also should meet the requirements in terms of quality and location.



AFFORDABLE HOUSING
Sources: <https://www.edgeprop.my>

Multi-Income Housing

Development of various housing types that meet multi-income categories in one area. Communities in this area will interact with each other regardless of different income levels.



MULTI-INCOME HOUSING IN CAMBRIDGE, MASSACHUSETTS
Source: <https://www.apartmenthomeliving.com>

Transit Housing

Proposed transit houses in mixed development areas or selected business areas. This has been rented out to specific groups such as newly employed youths, students, the homeless and highly skilled foreign workers in the form of hostel housing with shared support facilities.



TRANSIT HOUSING, SRI AMAN JINJANG, KUALA LUMPUR

Workers Quarters

Provision of housing for workers, especially in the manufacturing, construction and services sectors, ensures a better and manageable quality of life. Centralised and transit housing requires management and control from the relevant agencies.



WORKERS QUARTERS DESIGN
Source: <https://www.designboom.com>

Micro Housing

The proposed micro housing for newly employed youths with minimum area subjected to detailed research. Communal living facilities such as kitchens and living rooms should save space and promote social interaction. This micro-house is suitable for rental to B40 people who are single and newly employed.



MICRO HOUSING DESIGN
Source: <https://www.trendir.com>

Public Housing

The provision of public housing (medium cost and low cost houses) is retained for the B40 group for rent and emergency use. Existing public housing needs to be upgraded in terms of accessibility, elevators and public facilities. Dilapidated public housing can be redeveloped by the government or in collaboration with the private sector to improve the quality of life.



PUBLIC HOUSING DESIGN
Source: <https://architizer.com>

ACTION**IS1.3: ADDRESS THE NEEDS OF THE HOMELESSNESS AND URBAN POOR**

Kuala Lumpur, as of other developing cities, faces the problems of homeless communities living without a permanent home. In year 2018, an estimated 800 homeless lived in Kuala Lumpur City Centre.

According to the Homelessness Survey conducted in year 2018 in Kuala Lumpur revealed that 46 percent of the homeless are stuck in this situation due to unemployment and 18 percent because of low income and unaffordable to rent a place to live.

Addressing the homelessness require cooperation between KLCH and various agencies responsible for the well-being of the homeless in Kuala Lumpur.

SUPPORTING ACTION**IS1.3A: Provide transit housing for the homeless**

Provision of temporary accommodation facilities should be planned with basic amenities such as toilets and dining areas at several locations in Kuala Lumpur to ensure the homeless are safe and healthy.



ANJUNG SINGGAH BUILDING FOR HOMELESS AT JALAN HANG LEKIU, KUALA LUMPUR

SUPPORTING ACTION**IS1.3B: Enhance counselling, skills and employment opportunities programmes**

Counselling programmes, basic skills training and recurrent learning programmes are encouraged to create awareness and prepare the homeless for employment opportunities. This includes programmes such as digital literacy and skills needed to prepare for the job market.

SUPPORTING ACTION**IS1.3C: Improve access to health facilities**

Relevant institutions and agencies are encouraged to cooperate with KLCH and non-governmental organisations to provide health facilities including mental health facilities in homeless transit housing areas.

SUPPORTING ACTION**IS1.3D: Establish a homeless database platform**

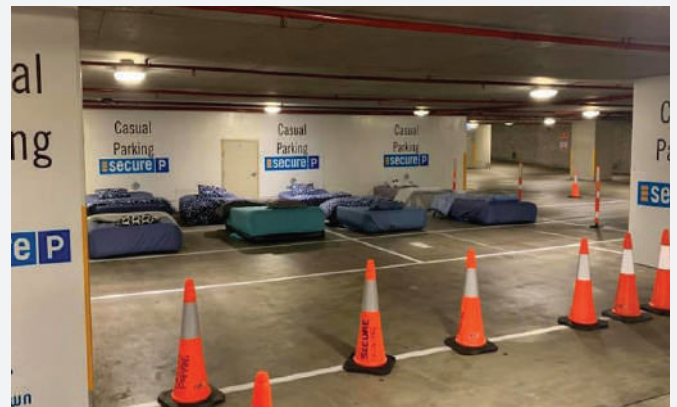
Establishing a homeless database will indirectly help relevant institutions and agencies overcome the homelessness issue individually and develop suitable strategies to help the homeless in Kuala Lumpur.



HOMELESS TRANSIT CENTRE AT JALAN PAHANG, KUALA LUMPUR

EXAMPLE OF BEST PRACTICES**Beddown Programme, Brisbane, Australia**

This programme utilised spaces used during the day only and not at night such as car parking spaces and converted them into temporary shelters for the homeless in Brisbane. The programme provides safe and secure locations for the homeless group to have a good and safe rest at night.



BEDDOWN, BRISBANE, AUSTRALIA
Source: beddown.org.au

Sultan Mosque, Singapore

Sultan Mosque is the first mosque in Singapore that open up its spaces as a homeless shelter. The mosque will provide food and drink as well as a sleeping area. This initiative is a joint venture of the Singapore Ministry of Social and Family Development with Partners Engaging and Empowering Rough Sleepers Network (PEERS). The mosque also collaborates with churches and temples in Singapore.



SLEEPING AREA IN SULTAN MOSQUE, SINGAPORE
Source: berita.mediacorp.sg

Homeless Shelter during the Movement Control Order (MCO) in Kuala Lumpur

Throughout the MCO period, KLCH has intensified efforts to provide shelters specifically for the homeless to protect and reduce the risk of COVID-19 transmission. The shelters provided by KLCH are located at Jalan Pahang, Medan Tuanku and halls belonging to KLCH (Sentul, Setiawangsa and Anjung Kelana). The homeless also went through medical examinations and were provided adequate food and drink during the MCO period.



SHELTER DURING MCO, KUALA LUMPUR

ACTION**IS1.4: IMPROVE OLD ESTABLISHED HOUSING AREAS**

Established stratified or landed housing areas that have been developed more than 30 years ago have physically undergone significant changes where this area requires new investment to improve the existing building structure and the level of local infrastructure and local amenities. Moreover, some established housing areas near employment centres, commercial centres, and transit stations are experiencing development pressures. They require a detailed study on economical and quality land use and density. Improvements also need to be held in locations that have the potential and capacity to be upgraded and developed to help overcome development land constraints in the City of Kuala Lumpur.

The population profile of established housing areas is also changing towards an ageing population. Some housing units are rented to youths and newly married households. The provision of infrastructure and facilities should be upgraded in tandem with the latest population needs. This includes shrinking household size and a safe, comfortable, healthy neighbourhood housing that allows family members, especially women, to work from home.

Steps to implement the renewal of established housing areas are through the preparation of specific action plans or design guidelines and intensity control. It shall also involve collaboration between KLCH, the private sector and related agencies, as well as the involvement of residents in the concerned areas.

QUICK INFO**Definition of Established Housing**

Established housing are housing areas identified as the focus for the low-density housing that expected to remain as residential areas until the year 2040, throughout implementation period of this plan. This established housing refers to detached, semi-detached, terraced or landed strata. Improvements will be made to the infrastructure, facilities and environmental aspects.

SUPPORTING ACTION**IS1.4A: Identify the potential areas for area improvement**

A total of 14 areas with potential for improvement have been identified (Figure G2.10). The following are among of the potential areas for area improvement

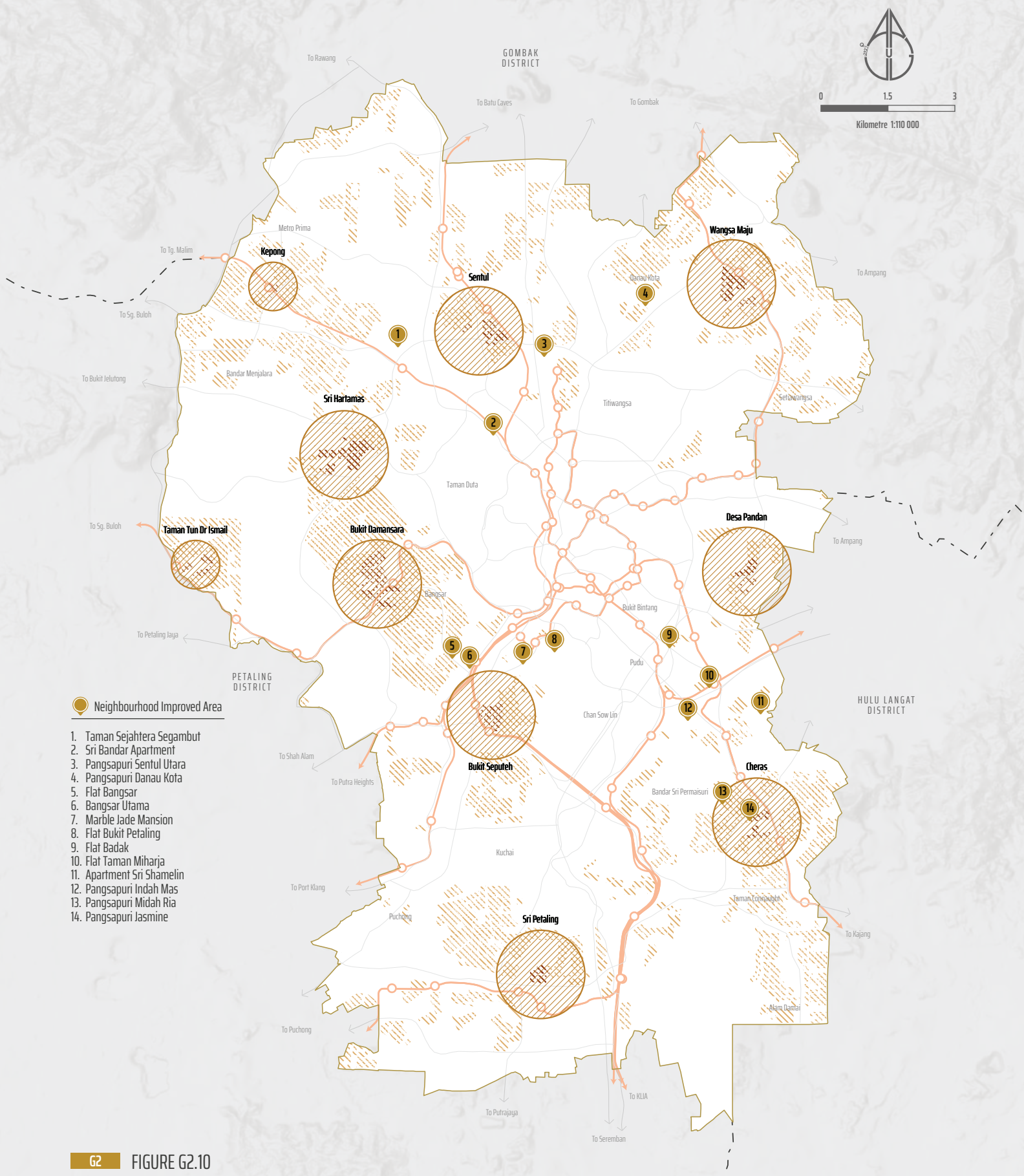
- | | |
|------------------------------|-------------------------------|
| 1. Taman Sejahtera Segambut; | 7. Marble Jade Mansion; |
| 2. Sri Bandar Apartment; | 8. Flat Bukit Petaling; |
| 3. Pangsapuri Sentul Utara; | 9. Flat Badak; |
| 4. Pangsapuri Danau Kota; | 10. Flat Taman Miharja; |
| 5. Flat Bangsar; | 11. Apartment Sri Shamelin; |
| 6. Bangsar Utama; | 12. Pangsapuri Indah Mas; |
| | 13. Pangsapuri Midah Ria; and |
| | 14. Pangsapuri Jasmine. |

The characteristics of the potential areas for improvement are:

1. Low-density areas located in development-pressured zones;
2. Established permanent housing areas over than 30 years;
3. Areas close to major commercial zones and transit stations such as LRT, MRT and KTM stations; and
4. Areas with high accessibility to public facilities and infrastructure.



PPR PEKAN BATU, JALAN SULTAN AZLAN SHAH, KUALA LUMPUR



G2 FIGURE G2.10
DISTRIBUTION OF THE PROPOSED IMPROVEMENT FOR ESTABLISHED HOUSING AREA

SUPPORTING ACTION**IS1.4B: Identify area improvement methods**

Area improvement includes the regeneration of dilapidated, inactive and unattractive residential areas. Several methods for area improvement can be applied according to the suitability of the location, the physical condition of the infrastructure and facilities according to the profile and needs of the current residents. However, a detailed study to identify suitable development methods is required, including the provision of public facilities such as open spaces to reduce the impact on the local residents.

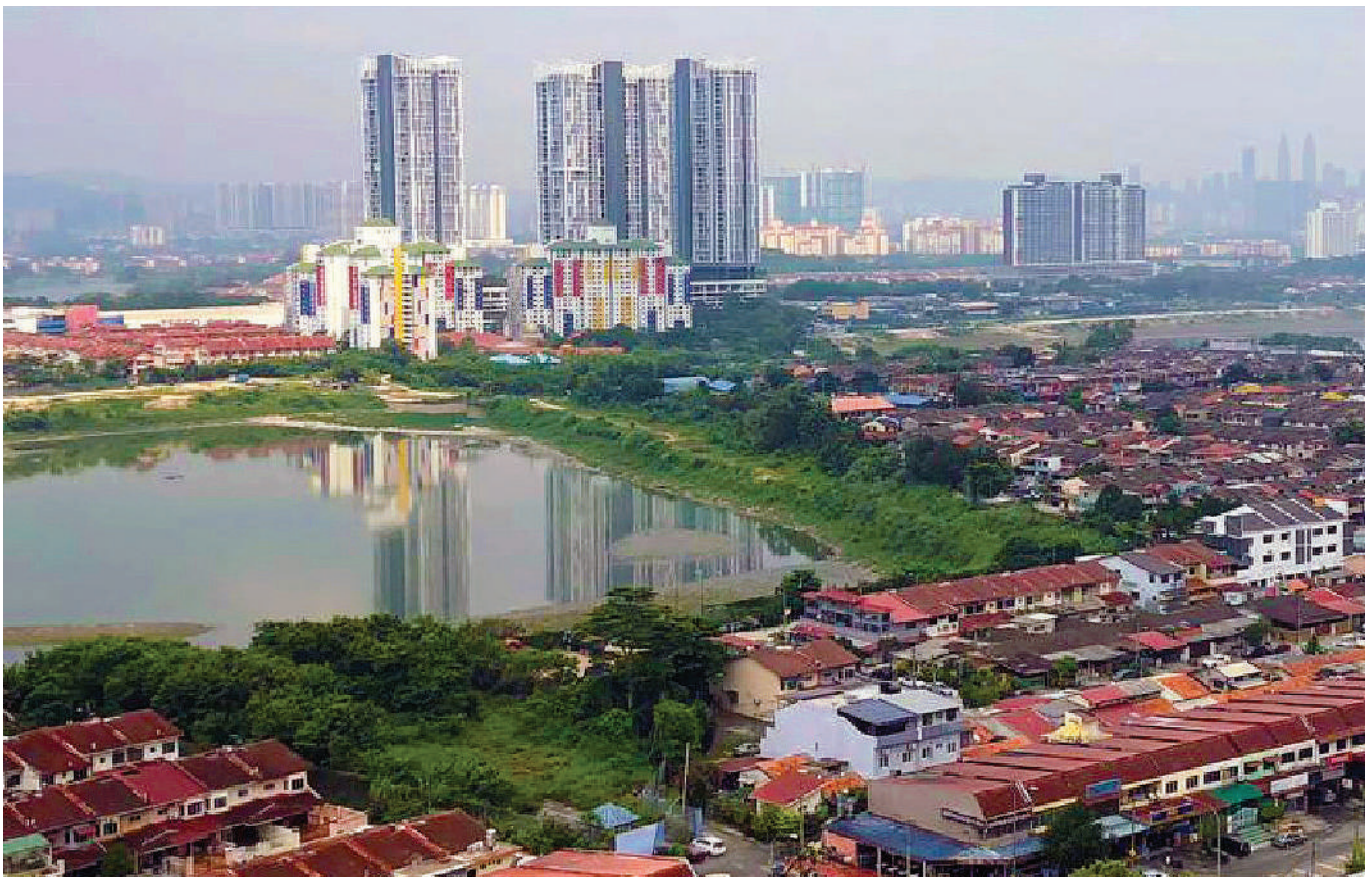
Improvements is also possible through building maintenance works for facilities such as elevators and community spaces as well as upgrading buildings with green and low-carbon features to reduce maintenance costs. Incentives should be given to areas identified for improvement purposes to attract the private sector to collaborate in the implementation.

SUPPORTING ACTION**IS1.4C: Promoting residential design that is appropriate and integrated with the current neighbourhood**

Old established housing improvement requires suitable building design integrated with the area's character and the existing neighbourhood activities. This aims to preserve and at the same time to increase the value of neighbourhood area. Therefore a detailed guideline facilitating harmonious and sensitive changes to the surrounding area should be prepared to maintain and simultaneously enhance the value of the area.

Among of the design principles to be considered are the following:

1. Ensure that the permitted intensity matches the current intensity and does not drastically impact the neighbourhood area;
2. Determine the appropriate scale, height, architectural characteristics, orientation and typology of the building and respect for adjoining lots; and
3. Ensure permitted changes do not obstruct good ventilation and lighting in the neighbourhood area.



HOUSING AREA IN TAMAN WAHYU, KUALA LUMPUR

STRATEGIC DIRECTION

IS2: NEIGHBOURHOODS THAT ARE CONDUCTIVE AND ENCOURAGE SOCIAL INTERACTION

A conducive living environment is essential to ensure the community's well-being. It starts at the basic level, where the neighbourhood needs to be equipped with public facilities such as education health, safety and religion.

Public facilities in City of Kuala Lumpur will be developed as a focal point and social interaction through space sharing, multi-purpose uses, integrated and local approach. This will increase the use and effectiveness of space in line with sustainable development.

ACTION
IS2.1: PROVIDE ADEQUATE, QUALITY AND INTEGRATED PUBLIC FACILITIES

Public facilities are essential elements to fulfill the social needs of the residents in a neighbourhood. They can also foster integration and a sense of belonging in the community. The provision of new facilities in Kuala Lumpur encountered challenges such as the lack of land leading to insufficient facilities and located far from the neighbourhood.

Some of the existing public facilities are underutilised when the population profile changes. Their location is also unsuitable due to development pressure and traffic congestion. Providing public facilities should also consider quality, diverse and easily accessible facilities for the residents.

Existing Public Facilities

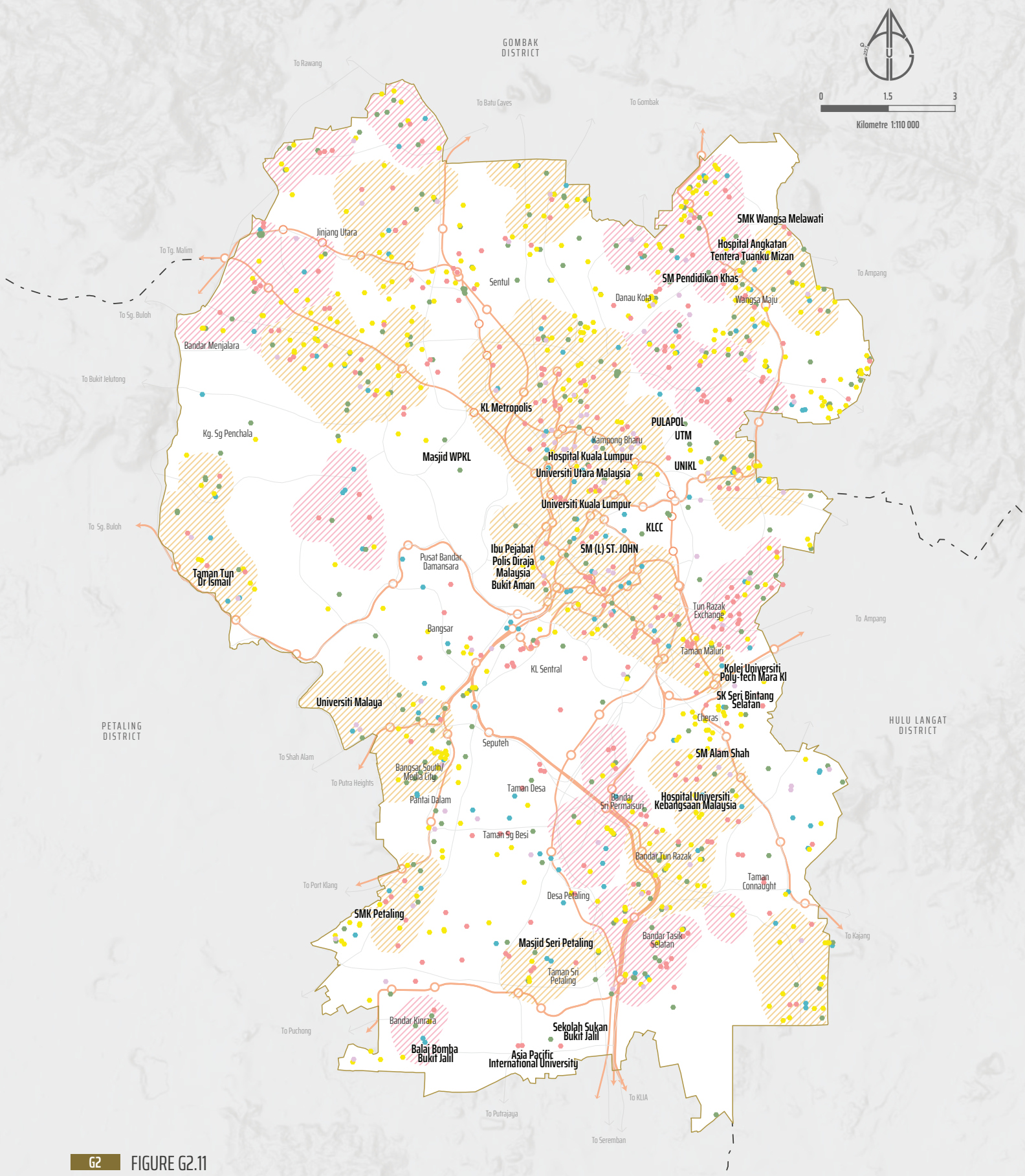
The quality of existing public facilities in City of Kuala Lumpur shall be upgraded and improved to encourage their usage. Parties managing public facilities shall allow multi-purpose community usage, especially at suitable public facilities sites such as community halls, kindergartens, open spaces and others, in line with the needs of the residents. Public facilities shall be jointly managed and handled by the local community to instil their responsibility in adequately maintaining the facilities and fostering the spirit of the neighbourhood and social interaction.

Adequate public facilities will be provided according to the area, within walking distance and easily accessible. KLCH shall collaborate with the relevant implementing agencies to ensure that the provision of this facility is in line with planning, implementation and management. A new guideline for the provision of public facilities should be provided in an integrated manner. Table G2.21 shows the current status of public facilities provision in Kuala Lumpur based on the current population in year 2020.

TABLE G2.21: EXISTING PROVISION STATUS OF PUBLIC FACILITIES IN KUALA LUMPUR, YEAR 2020

TYPES OF PUBLIC FACILITIES	RATIO FOR PROVISION	CURRENT AVAILABILITY
Education Facilities		
Primary School	1:10,000 Population	190
Secondary School	1:20,000 Population	104
Health Facilities		
Hospital	1:50,00 Population	6
Health Clinics	1:25,000 Population	24
Safety Facilities		
Police Headquarters	1:50,000 Population	6
Police Station	1:40,000 Population	40
Fire Station	1:140,000 Population	19
Religious Facilities		
Mosque	1:25,000 Population	70
Surau	1:10,000 Population	121
Other Religious Facilities	1:5,000 Population	254
Cemeteries Facilities		
Muslim Cemetery	1:5,000 Population	23
Non Muslim Cemetery	1:5,000 Population	34

Source:
1. Kuala Lumpur Structure Plan 2020
2. Department of Statistics Malaysia



G2

FIGURE G2.11
PUBLIC FACILITIES CATCHMENT ZONE

Land Bank and Public Facilities Provision Initiative for Future Needs

A Land Bank system needs to be established in collaboration with KLCH and other agencies to ensure adequate community facilities in Kuala Lumpur. KLCH in collaboration with other agencies will identify sites through government land applications either through land ownership or reserve for proposed public facilities such as community halls, kindergardens, open spaces and so on that are available according to the needs of the residents.

SUPPORTING ACTION

IS2.1A: Provide adequate public facilities in suitable locations

Each new development should provide adequate facilities at suitable locations for the residents within 250-400 meters of walking distance with a good accessibility level (Figure G2.12). Details of its preparation should be implemented optimally and involve the residents. The strategy of providing future public facilities in Kuala Lumpur will focus on sharing, upgrading and stratified methods.

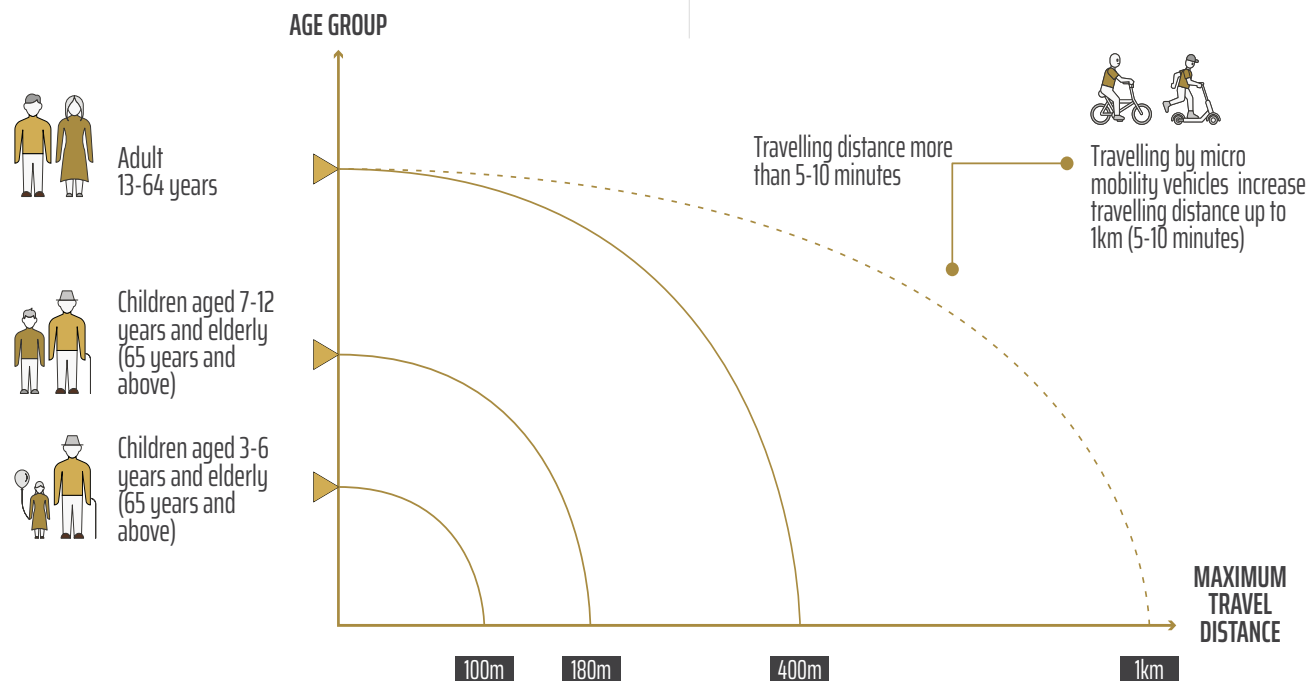
SUPPORTING ACTION

IS2.1B: Provide public facilities in redevelopment area

Public facilities affected by redevelopment should be replaced in the same area with appropriate facilities and building forms, good quality and equipped with the necessary facilities.

Furthermore, redevelopment in Kuala Lumpur shall provide adequate and appropriate public facilities based on current and future needs.

FIGURE G2.12: ACCESSIBILITY LEVEL BASED ON AGE PROFILE



Source: Adopted from Garis Panduan Pelaksanaan Bandar Sihat Mesra Pejalan Kaki (Healthy Walkable City), PLANMalaysia 2017

SUPPORTING ACTION**IS2.1C: Provide accessible and more spaces for library**

Provision of library space in easily accessible neighbourhood areas such as mosques, multipurpose halls, community centres and others. More interactive library facilities such as reading space, learning and tuition with a conducive design for all age groups.

In addition, other furnishing and facilities such as the internet and computers are essential in the era of effective technological application development to assist users in accessing digital book collections. The current locations of the library around Kuala Lumpur are:

1. Pustaka KL @ Bandar Baru Sentul;
2. Pustaka KL @ Setiawangsa;
3. Pustaka KL @ Lembah Pantai;
4. Pustaka KL @ Medan Idaman;
5. Pustaka KL @ Bandar Tun Razak;
6. Pustaka KL @ Gombak Setia;
7. Pustaka KL @ Sri Sabah;
8. Pustaka KL @ Desa Tun Razak;
9. Pustaka KL @ Sri Pantai;
10. Pustaka KL @ Muhibbah;
11. Pustaka KL @ Jelatek;
12. Pustaka KL @ Pudu Sentral;
13. Pustaka KL @ Taman Tun Dr Ismail;
14. Pustaka KL @ Keramat; and
15. Pustaka KL Digital MADANI @ Bandar Sri Permaisuri.



FACILITIES PROVIDED AT PUSTAKA KL @ BANDAR BARU SENTUL, KUALA LUMPUR

EXAMPLE OF BEST PRACTICES**Kuala Lumpur Library**

Kuala Lumpur Library provides a reading space, reference and work space with typical booths for discussions equipped with high-speed internet lines.



USER-FRIENDLY FACILITIES PROVIDED IN THE LIBRARY

Book Kiosk, Kuala Lumpur

'KL Baca' initiative implemented by KLCH to support World Book Capital 2020. A total of 65 kiosks around Kuala Lumpur City Centre.



BOOK KIOSK AT PERDANA BOTANICAL PARK, KUALA LUMPUR

Open Library at the Recreational Area, Toronto, Canada.

The government initiative placing an open library in a recreation area to encourage the public to read with conducive library design characteristics by providing attractive reading space.



OPEN LIBRARY AT THE RECREATIONAL AREA, TORONTO, CANADA.

Sources: <https://www.designer-daily.com>

ACTION**IS2.2: INCREASE PUBLIC FACILITIES USAGE AND FOSTER SOCIAL INTEGRATION THROUGH PROVISION OF MULTIPURPOSE FACILITIES**

The provision of multipurpose or space-sharing public facilities enhances the efficient use of spaces and addresses the limited land availability. Space sharing and multipurpose can also foster social integration.

The existing multi-purpose or community centre can serve as a one-stop centre for all public facilities, including the mosque, multi-purpose hall, sports complex, event venue, kindergarten, post office, police bit and others. It is encouraged to be vibrant public nodes. In addition, mosques and places of worship serve as temporary shelters and boarding spaces. The existing multi-purpose hall and sports centre should be upgraded, used or redeveloped as a community centre. The provision of multi-purpose public facilities will be explicitly prepared to ensure more integrated planning and activate the area to be more vibrant.

SUPPORTING ACTION**IS2.2A: Expand the role of mosques and place of worship in the community**

Mosques and places of worship are dedicated spaces for worship and religious development for local communities. These places also functioned as a centre for religious education and learning as public spaces and local community centres, providing various facilities suitable for the area of the site and design of the mosque and places of worship.

Supporting activities that do not contradict the role of mosques and places of worship can be permitted as temporary lodging places for travellers and the homeless.

A detailed guideline shall be prepared to ensure the role of mosques and community worship places fit in as essential worship institutions.

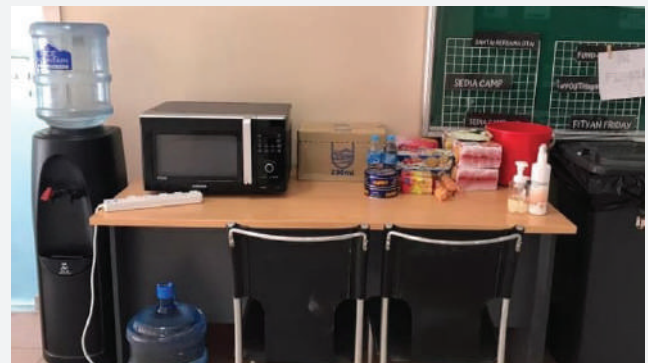
EXAMPLE OF BEST PRACTICES**Assyakirin Mosque, Singapore**

Assyakirin Mosque at Jalan Yung An, Jurong, is part of a mosque in Singapore that collaborated with Singapore's Ministry of Social and Family Development and the Partners Engaging and Empowering Rough Sleepers Network (PEERS) to provide temporary shelter for poor and homeless. This room/space is separate from the prayer room. Besides facilities such as mattresses and pillows, the mosque also provides pantries that are opened twice a week on Monday and Thursday to distribute food and goods.



SPECIFIC ROOM/SPACE AT ASSYAKIRIN MOSQUE, SINGAPORE

Sources: BERITAMediacorp



PANTRY AT ASSYAKIRIN MOSQUE, SINGAPORE

Sources: BERITAMediacorp



BASIC NECESSITIES PACK AT ASSYAKIRIN MOSQUE, SINGAPORE

Sources: BERITAMediacorp

SUPPORTING ACTION**IS2.2B: Provide kiosk facilities to support online services**

Online services make people's lives easier and more comfortable. The public is now familiar with the development of Internet of Things (IoT) technology. Therefore, self-service kiosks with applications that facilitate online service should be expanded.

Kiosks in the community centre within the neighbourhood offer easy access to utility bill payments, compound, tax payments, rent payments and others. With the advantage of 24-hour operation and multiple platforms integration, this kiosk can serve as a one-stop service centre to meet the community's needs. In addition, it can serve as an informant with access to KLCH latest information bulletin.

EXAMPLE OF BEST PRACTISES**Kiosk Convenient Community, Indiana, United States**

Indoor and drive-through kiosks operating 24 hours facilitate utility bill payment by cash, cards and checks without additional charges. This innovation has been certified by StateScoop as the 2021 Local IT Innovation for its accomplishment in promoting easily accessible self-service bill payment.



SELF-SERVICE KIOSK
Sources: CityBase

ACTION**IS2.3: INCREASE ACCESS TO EDUCATION**

Educational facilities, particularly schools and kindergartens, are essential in providing the foundation of life to the community. Therefore, school and kindergarten facilities should be provided in easily accessible areas, including the existing residents' focal areas, to increase their accessibility level.

Providing kindergartens in affordable housing areas is essential for early exposure to primary education among children in low-income households including reading rooms or libraries to be provided.

In addition, the provision of education and training facilities for adults/the elderly should also be strengthened. The NGOs are also encouraged to participate in early childhood education and the elderly, whether in terms of their allocation and implementation.

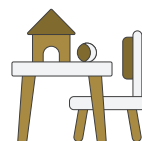
FIGURE G2.13: ACCESS TO BASIC EDUCATION AMONGST CHILDREN IN PUBLIC HOUSING (PA), KUALA LUMPUR

Access to education**50%**

CHILDREN AGED 5-6 YEARS OLD RECEIVE KINDERGARTEN EDUCATION

**1 OF 3**

HOUSEHOLDS WITHOUT READING MATERIALS NEEDED BY CHILDREN UNDER 18 YEARS OLD

**4 OF 10**

HOUSEHOLDS WITHOUT TOYS FOR CHILDREN BELOW 5 YEARS OLD

Sources: Research Report of Children Without, UNICEF Malaysia, 2018

ACTION **IS2.4: DEVELOP COMMUNITY HUB IN** **HIGH-DENSITY NEIGHBOURHOOD**

The community hub serves as a social centre for community groups to gather and interact as well as conduct community activities in line with the needs of the residents. The community hub also function as the reading and learning space, information and skills centres with conducive design and multi age-friendly. Health, education, safety and entrepreneurship programmes are among the programmes that can be implemented in community hubs. Engagement with the residents, NGOs and KLCH is vital to empower the local community.

EXAMPLE OF BEST PRACTICES

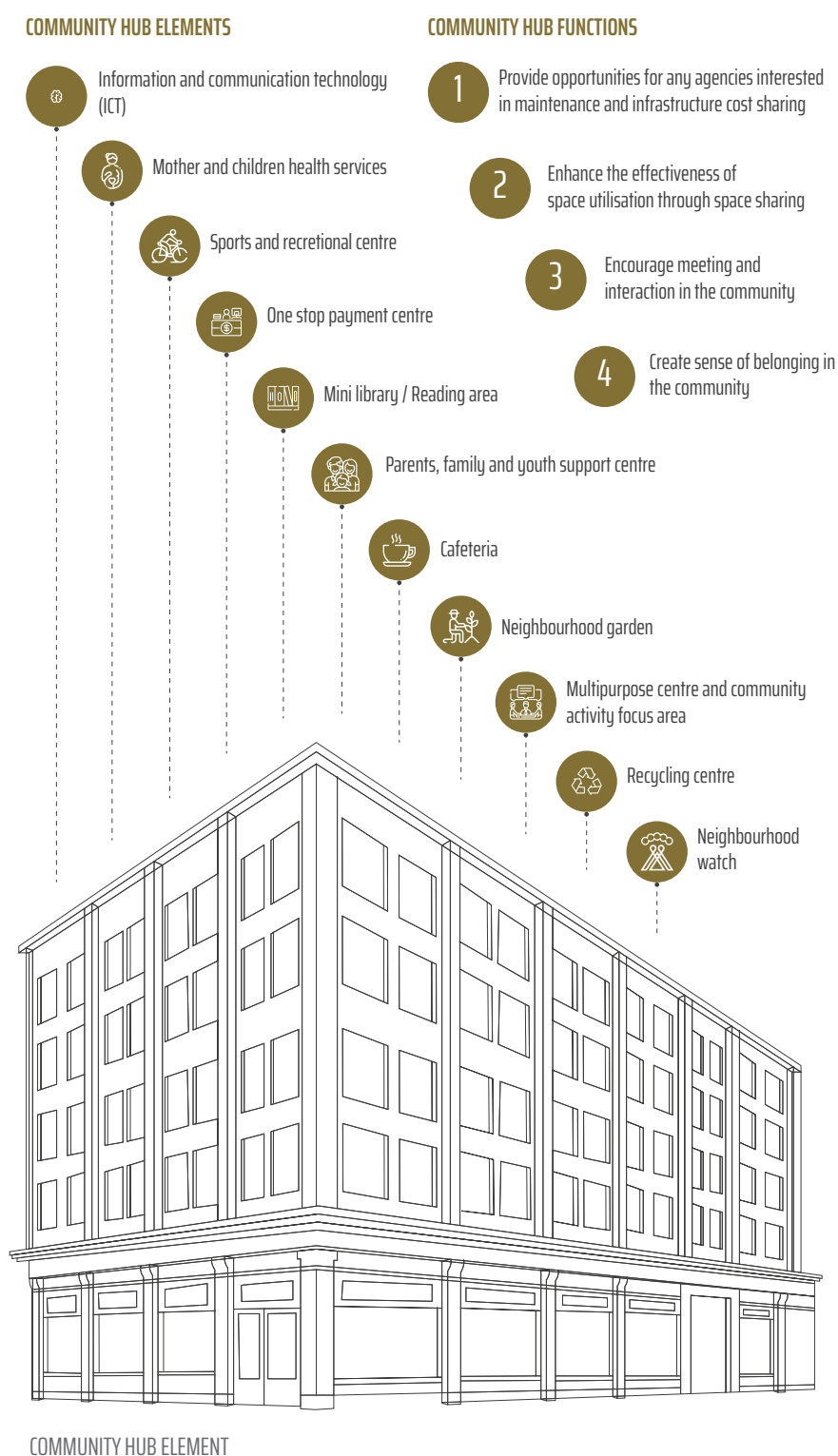
Taman Beringin Community Hub, Kuala Lumpur

The community hub project in the affordable housing area of Taman Beringin seeks to empower the local community. Urbanise Malaysia implemented this project in collaboration with the Taman Beringin community.



COMMUNITY HUB
Source: Urbanise Malaysia, 2021

FIGURE G2.14: ELEMENTS AND FUNCTIONS OF COMMUNITY HUB



ACTION**IS2.5: ENSURE SAFE, AGE-FRIENDLY AND DISABLED-FRIENDLY NEIGHBOURHOOD**

The population growth in Kuala Lumpur imposes challenges in providing public facilities. Public facilities that are safe and friendly for all groups can encourage residents to live more actively and indirectly improve their quality of life.

SUPPORTING ACTION**IS2.5A: Implement inclusive housing and neighbourhood design**

Housing and neighbourhood design should take into consideration the well-being of all age groups, levels of ability and residents' backgrounds. The provision of facilities for children, the elderly and disabled people should adhere to existing legal provisions and guidelines.

SUPPORTING ACTION**IS2.5B: Promote universal design and barrier-free access facilities**

Universal design features and barrier-free connectivity should be applied in providing public facilities in public areas, including public facilities buildings, hawker areas, recreational areas and public transport stations. These universal design facilities include pedestrian walkways, pedestrian crossings, guiding blocks, bus stops, parking lots, building entrances, step-ramps, railing, staircases, elevators, escalators, toilets, street furniture and other facilities.

The provision of access without physical barriers to public facilities should also be enhanced in the commercial areas, shopping malls, office buildings and private areas. KLCH must enforce the Malaysia Standard Code of Practice on Access of Disabled Person (MS1184:2014 and 2017) under the provision of Disabled Persons Act 2008 (Act 685).

SUPPORTING ACTION**IS2.5C: Continuous maintenance and monitoring of facilities**

Maintenance of toilet facilities, elevators and ramps in public areas and buildings for the disabled should be improved to ease the movement of these target groups. Providing emergency buttons in public areas, such as smart poles, especially in recreational areas, public transportation stations, pedestrian walkways and bicycle paths, is also encouraged for public safety enhancement. Table G2.22 shows the statistics on the registration of disabled in Kuala Lumpur.



A SAFE, AGE-FRIENDLY AND DISABLED-FRIENDLY NEIGHBOURHOOD, DESA PARK CITY, KUALA LUMPUR



RAMP FACILITIES FOR THE DISABLED IN KLCH

TABLE G2.22: TYPE OF DISABLED BY GENDER, KUALA LUMPUR, YEAR 2020

TYPES OF DISABILITY	MALE	FEMALE	TOTAL (PERSON)
Visual	2,499	1,451	3,950
Hearing	1,673	1,478	3,151
Physical	10,710	5,861	16,571
Learning	19,332	4,048	13,380
Speech	104	29	133
Multiple Disabilities	873	532	1,405
TOTAL	35,191	13,399	38,590

Source: Department of Social Welfare

SUMMARY

The implementation of actions in Goal 2 requires commitment from KLCH in collaboration with other relevant agencies to enhance community well-being and achieve inclusivity. The timeframe for carrying out these actions falls within the short to medium term.

TABLE G2.23: SUMMARY OF MULTI-DIMENSIONAL ACTIONS BASED ON THE SUSTAINABLE DEVELOPMENT GOALS 2030












































ACTION	RELATED SDGs
IS1.1: Encourage the Development of Diversified Housing Choices	
IS1.1A: Provide diverse housing types based on changes in population profile and household sizes	  
IS1.1B: Provide homes for the newly employed youth and young families	
IS1.1C: Provide special housing for the elderly	
IS1.1D: Provide housing for workers (CLQ)	 
IS1.1E: Provide housing for Persons with Disabilities (PWD)	 
IS1.2: Provide Quality and Conducive Affordable Housing	
IS1.2A: Provide housing according to affordability	
IS1.2B: Establish a Land Bank for the provision of affordable housing	 
IS1.2C: Provide liveable and accessible affordable housing	  
IS1.2D: Provide subsidised rental public housing	
IS1.3: Address the Needs of the Homelessness and Urban Poor	
IS1.3A: Provide transit housing for the homeless	 
IS1.3B: Enhance counselling, skills and employment opportunities programmes	
IS1.3C: Improve access to health facilities	   
IS1.3D: Establish a homeless database platform	

TABLE G2.23: SUMMARY OF MULTI-DIMENSIONAL ACTIONS BASED ON THE SUSTAINABLE DEVELOPMENT GOALS 2030 (CONT.)

ACTION	RELATED SDGs
IS1.4: Improve Old Established Housing Areas	
IS1.4A: Identify the potential areas for area improvement	
IS1.4B: Identify area improvement methods	
IS1.4C: Promoting residential design that is appropriate and integrated with the current neighbourhood	
IS2.1: Provide Adequate, Quality and Integrated Public Facilities	
IS2.1A: Provide adequate public facilities in suitable locations	  
IS2.1B: Provide public facilities in redevelopment area	
IS2.1C: Provide accessible and more spaces for library	
IS2.2: Increase Public Facilities Usage and Foster Social Integration Through Provision of Multipurpose Facilities	
IS2.2A: Expand the role of mosques and place of worship in the community	
IS2.2B: Provide kiosk facilities to support online services	
IS2.3: Increase Access to Education	   
IS2.4: Develop Community Hub in High-Density Neighbourhood	
IS2.5: Ensure Safe, Age-Friendly and Disabled-Friendly Neighbourhood	
IS2.5A: Implement inclusive housing and neighbourhood design	   
IS2.5B: Promote universal design and barrier-free access facilities	  
IS2.5C: Continue maintenance and monitoring of facilities	  

GOAL 3

KUALA LUMPUR GREEN, HEALTHY AND VIBRANT CITY



KLCC PARK

Healthy and prosperous quality of life for the people of Kuala Lumpur is essential to achieve continuous urban sustainability. A healthy city is a city with a comfortable, clean and green urban environment, which will improve the well-being of residents. Therefore, it will also cultivate an active and fit lifestyle among the residents as well as can improve health and the quality of environment.

In the future Kuala Lumpur sets strategic directions and actions to provide a better quality green spaces that suitable for recreational activities. Urban spaces also being emphasis to meet the needs of all ages towards creating a green and vibrant urban environment.

The attractive and quality urban environment makes Kuala Lumpur more sustainable with its distinctive urban design characteristics. This goal will ensure that more city dwellers engage in leisure activities and active lifestyle. The city will be more vibrant to celebrate diversity in arts, culture and heritage.

The strategic directions formulated to support this goal are:

SV1

Integrating Urban Development with Natural Assets' Biodiversity

SV2

Attractive and Creative Urban Environment

SV3

Green Network and Urban Heritage

SV4

Green Environment Governance and Effective Urban Design

4 STRATEGIC DIRECTIONS

12 ACTION

The goal towards making Kuala Lumpur a healthy and vibrant city is supported by four (4) strategic directions and 12 planning priorities and implementation actions.

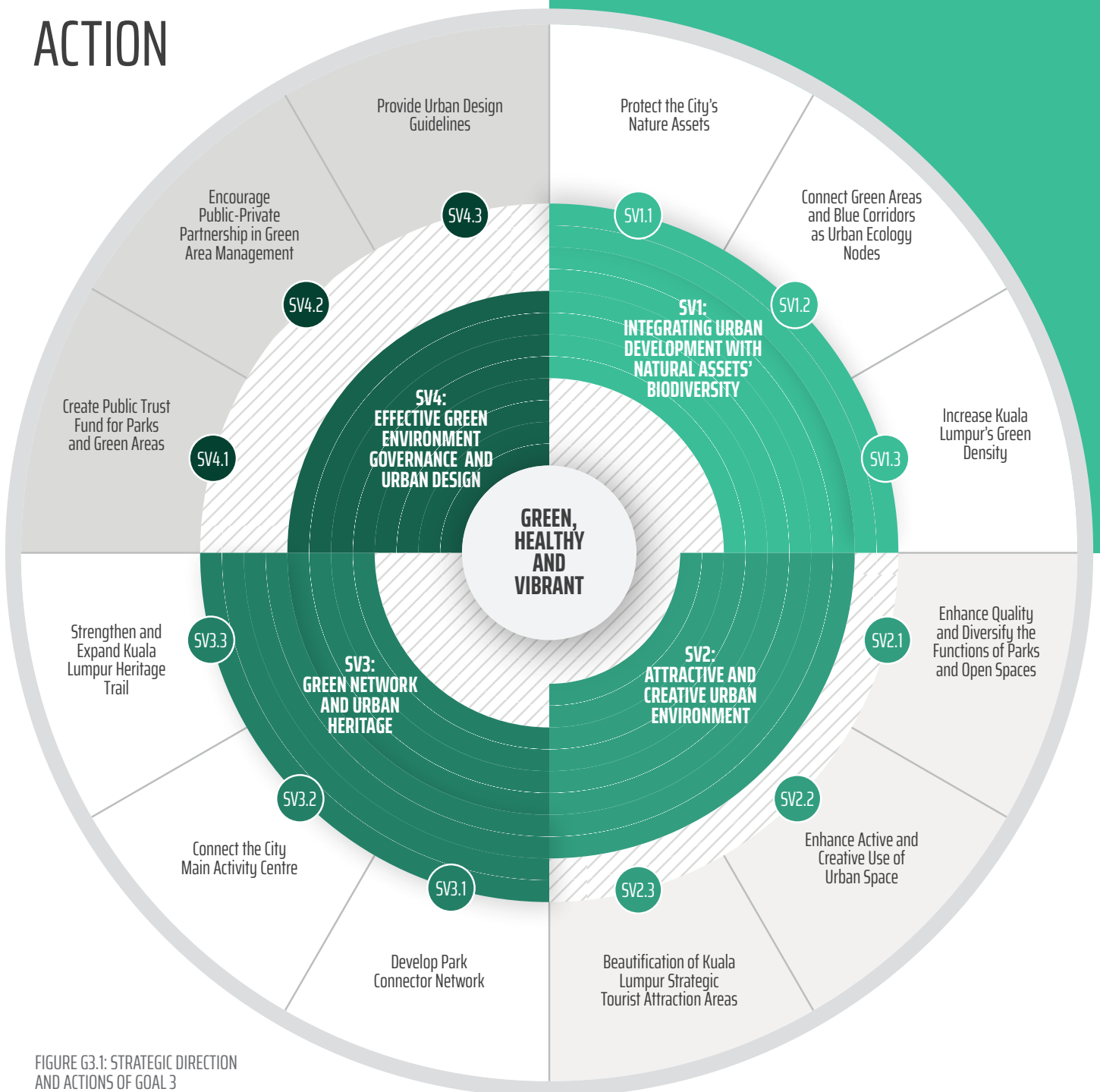


FIGURE G3.1: STRATEGIC DIRECTION AND ACTIONS OF GOAL 3

GAME CHANGER

Kuala Lumpur 2040 needs to go beyond its capabilities as a resilient and sustainable city. Even more, it needs to be enhanced not only Kuala Lumpur's ability to support living but also its ability to care for the health, fitness and well-being of the whole population.

The United Nation (UN) through the World Health Organisation (WHO) has set a clear and stringent focus on the urban health risks faced by most cities. Lack of physical activities will indirectly leads to various chronic illness which can be prevented earlier. Therefore, Kuala Lumpur needs to develop as a city that prioritises the health and well-being of its residents.

The entire cities in the world and it's population experienced COVID-19 pandemic where most of the people has restriction to engage in normal activities including work, business, exercise, and travel. Health is the primary need of the population to remain resilient to the spread of the pandemic. Thus Goal 3 needs to be cultivated in the Kuala Lumpur city environment as it implicates the lives of its population.

Towards a green healthy and vibrant city, three (3) main factors will be highlighted:

1. Active living and recreation;
2. A healthy and prosperous environment; and
3. Creative, artistic and cultural space.

ACTIVE LIFESTYLE AND RECREATION

Active lifestyle and recreation refer to providing natural spaces, open spaces and public spaces in Kuala Lumpur. Its provision affects the whole community's well-being by giving space to social activities and shared interactions, thus fostering community spirit by increasing access to open spaces, parks, and public spaces.

Until now, open space provision in Kuala Lumpur has increased from 667 hectares in year 1980 to 2,112.28 hectares in year 2021. However, there is a decrease in the ratio of open space per person due to rapid population growth. In year 2021, the ratio of open space was 10.61m² per person compared to 11.15m² in year 2000.

In line with the National Urban Policy (NUP) which stipulates a target of providing 2 hectares for every 1,000 residents, equivalent to 20 square metres of open space per person, it is imperative to enhance the provision of open space to achieve this objective. Kuala Lumpur requires 4,700 hectares of open space to meet the needs of 2.35 million population by 2040.

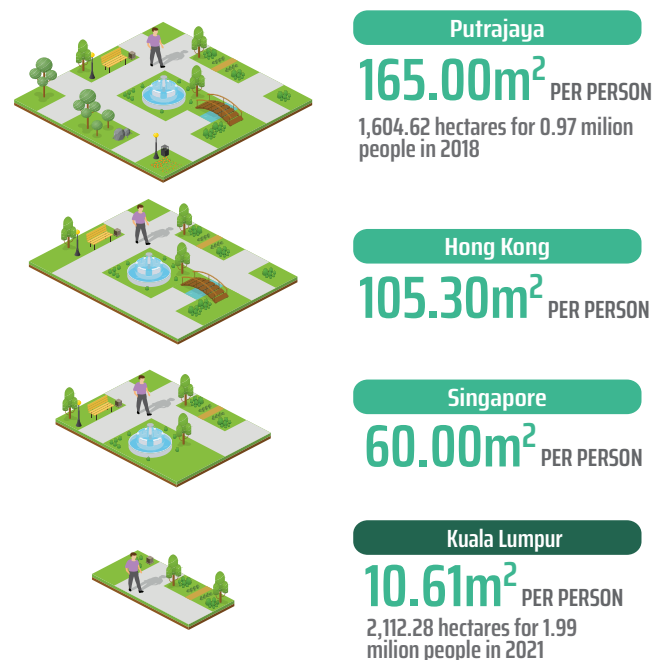
TABLE G3.1: TREND IN OPEN SPACE PROVISION ACCORDING TO DEVELOPMENT PLAN, YEAR 1900, 2000 AND 2021

YEAR	1980	2000	2021
Number of Population	919,610	1,262,000	1,990,000
Existing open space (Hectare)	667.00	1,578.56	2,091.93
Existing open space (Per square metre)	6,670,000	15,785,600	20,919,300
Total open spaces to be provided for the population based on NUP	18,392,200	25,240,000	39,800,000

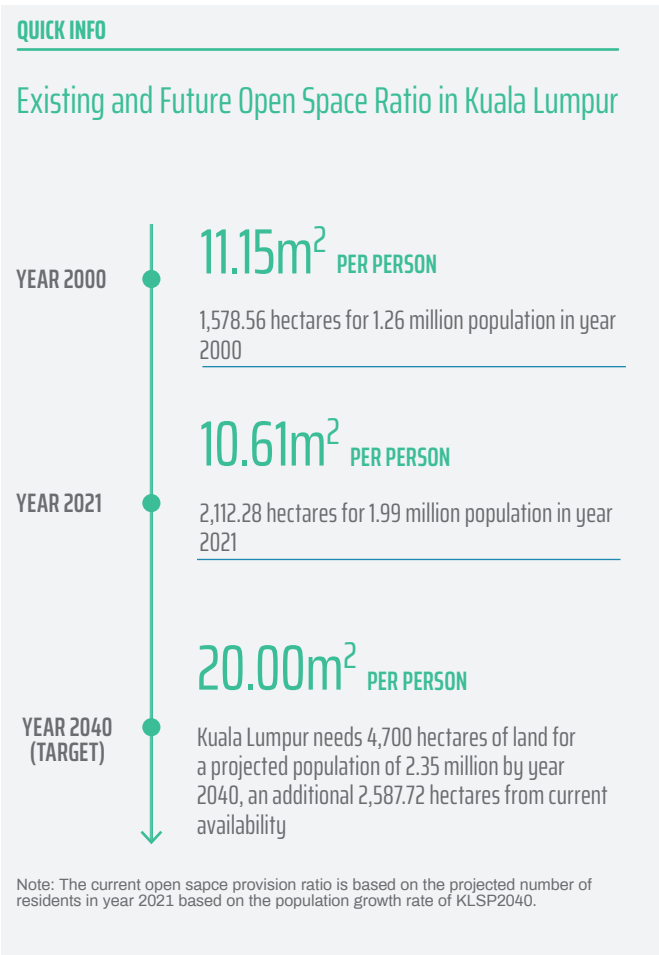
Note: The population of Kuala Lumpur in year 2021 is a project made based on population data in 2020

Sources: Adapted from the Kuala Lumpur Structure Plan, Kuala Lumpur Structure Plan 2020, Kuala Lumpur Existing Land Use Plan (December 2021)

FIGURE G3.2: OPEN SPACE RATIO OF KUALA LUMPUR AND OTHER CITIES



Thus, the existing public open space needs to be maintained in addition to the provision of open space being improved in a more creative and functional way to support the healthy lives of Kuala Lumpur citizens. Natural and green areas in this city with attractive surroundings are important to improve the quality of Kuala Lumpur's environment.



A HEALTHY AND PROSPEROUS ENVIRONMENT

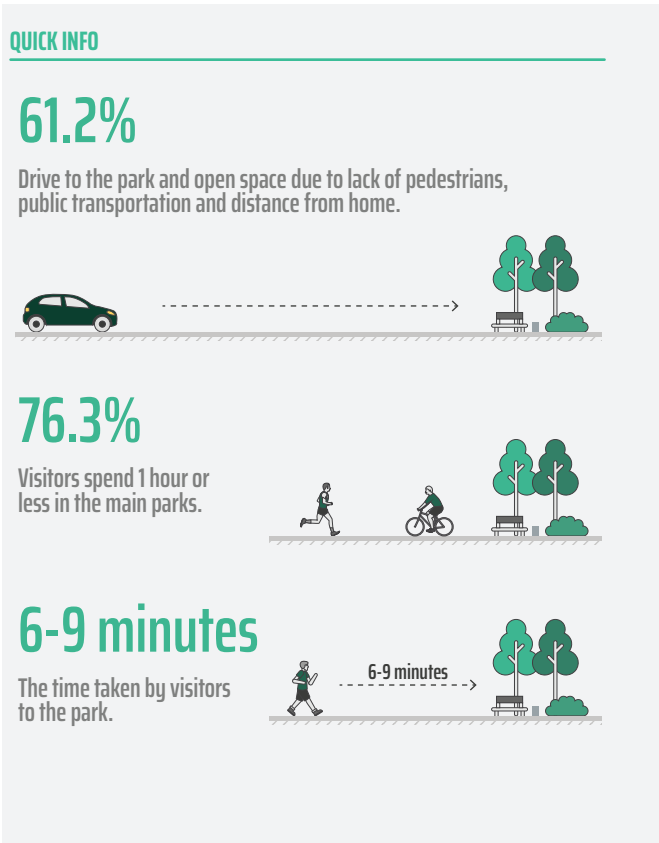
A healthy and prosperous environment includes a planned urban environment and a sustainable natural environment. It also has implications for the physical and mental health of the population. The spread of the COVID-19 epidemic that began in early 2020 has impacted the environment. The improved environmental quality due to the reduction in pollution levels should also be maintained and improved to ensure that an ideal urban environment for residents can be achieved.

Kuala Lumpur's environment encompasses natural areas such as forests, open spaces, parks and public spaces that are diverse and comprehensive. Nevertheless, the quality of these areas should be continuously improved to ensure a green, healthy and vibrant city.

CREATIVE, ARTISTIC AND CULTURAL SPACE

Kuala Lumpur is rich with various arts and cultural activities that indirectly symbolise the national identity. The involvement of Kuala Lumpur residents in arts and cultural activities is crucial in creating a vibrant urban environment. Cultural and artistic activities such as concerts, art galleries, exhibitions, formal and informal festivals as well as creative spaces for residents in Kuala Lumpur need to continue to be diversified.

Every urban space needs to be revived to create a better quality environment, especially in less active and unattractive areas.



PROSPECTS AND TARGETS FOR A GREEN, HEALTHY AND VIBRANT CITY OF KUALA LUMPUR 2040

The rapid development of Kuala Lumpur with limited land availability has caused constraints in the provision of open space to meet the needs of the population.

Open spaces are a crucial aspect in enhancing the quality of the environment and the well-being of the residents. Therefore, the provision of open spaces in the future requires a different approach to achieve the set objectives.

The target of Goal 3 needs to be given priority in formulating strategic directions and actions to ensure the importance and benefits of open space provision are realised. It is also expected to improve the image of Kuala Lumpur as a clean, beautiful, green, healthy and vibrant city.

The main target of Kuala Lumpur is to achieve an open space ratio of 20 square meters per person by year 2040. This objective can be achieved through intensifying the provision of green spaces vertically in new developments and urban renewal areas. These efforts require collaboration from various stakeholders to ensure successful implementation.

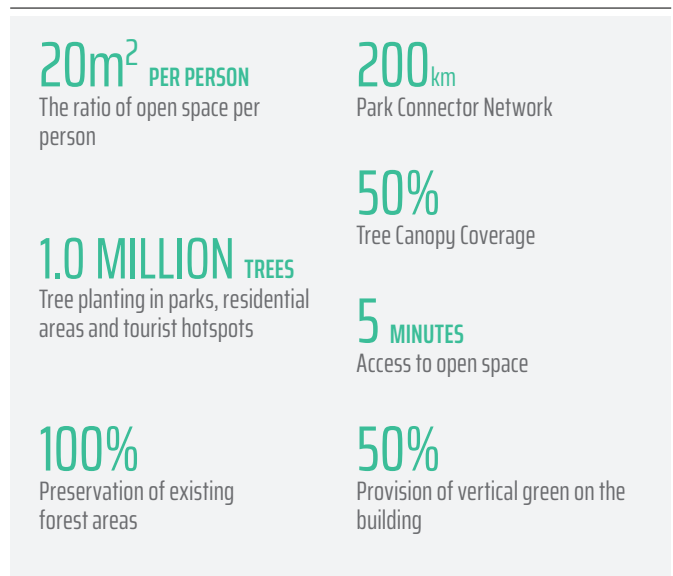
The existing forest reserves with High Conservation Value (HCV) are maintained for preservation, research, education and recreation purposes, as well as High Carbon Stock (HCS) areas. The Permanent Forest Reserve (PFR) areas are:

1. Bukit Sungai Puteh Permanent Forest Reserve;
2. Bukit Sungai Besi Permanent Forest Reserve;
3. Bukit Nanas Permanent Forest Reserve; and
4. Bukit Lagong Permanent Forest Reserve.

In addition, towards achieving the target of increasing the tree canopy coverage, KLCH should intensify tree planting programs in forest areas, parks, existing residential areas as well as throughout Kuala Lumpur. Planting various species of trees, especially flowering trees that give an impact on texture, smell and color is also recommended to add to the uniqueness of Kuala Lumpur's identity.

Kuala Lumpur as a green, healthy and vibrant city is also focusing on developing a 200km network of connecting parks through the optimal use of urban space besides increasing residents' access to open space.

FIGURE G3.3: TARGETS FOR BIODIVERSITY AND OPEN SPACE YEAR 2040



TAMAN BOTANI PERDANA, KUALA LUMPUR

STRATEGIC DIRECTION

SV1: INTEGRATING URBAN DEVELOPMENT WITH NATURAL ASSETS BIODIVERSITY

Kuala Lumpur has the highest urbanisation rate in Malaysia where 78.86 percent of its area is dominated by built-up land use activities or existing development areas. Natural assets in Kuala Lumpur are limited and important to be conserve continuously to balance the impact of urbanisation.

These assets include permanent reserve forests, urban parks, urban forest parks, public parks, rivers and water bodies that need to be preserved and enhanced to enrich the city's natural biodiversity.

The framework of the implementation strategy will be emphasis on biophilic design that prioritises the intergration of nature in the development design instead of just focusing on the aesthetical values.

ACTION

SV1.1: PROTECT THE CITY'S NATURE ASSETS

Kuala Lumpur has a limited existing natural assets. Therefore, natural assets such as permanent reserve forests, urban forest park areas as well as rivers and water bodies are important to be continuously preserved and maintained in order to balance the rapid urbanisation activities (Table G3.2).

The natural assets also serve as a carbon stock with a carbon deposit of 40.02 ktCO₂ by year 2030, estimated to have an ecosystem value of RM1.64 million per hectare. Hence, along with the preservation, natural habitats must also be integrated in the urban green corridor network to create ecological corridor and fauna pathways such as eco-stepping stones to enrich the city's nature.

SUPPORTING ACTION

SV1.1A: Preserve permanent forest reserves and urban forest parks from development

Forest areas in Kuala Lumpur comprises Permanent Forest Reserve (PFR) and urban forest parks. The permanent reserve forests in Kuala Lumpur consist of Sungai Puteh PRF, Sungai Besi PRF, Bukit Nanas PRF and Bukit Lagong PRF covering an area of 84.62 hectares. These PRFs are gazzeted forest area and needs to be preserved. Meanwhile the urban forest parks consists of Bukit Kiara Federal Park and Bukit Kerinchi Forest Park.

Preservation of the PFRs areas and Urban Forest Park, whether in terms of function, components and area, must be protected by the relevant agencies from any development or encroachment. This effort also helps in mitigate the impact of urban heat island which expected to be increase along with development, Hence, the mitigation measures must be done continously by KLCH, relevant agencies and the resident of Kuala Lumpur.

QUICK INFO

Urban Forest Parks Categories

KLCH classifies urban forest parks as forest area or tree planting areas in Kuala Lumpur that contribute to following activities:

1. Recreational forest;
2. Urban orchard park;
3. Community forests;
4. Research forest; and
5. Sanctuary.

The mitigation measures that can be implemented to preserve the existing PRFs and urban forest parks are as follows:

1. Create a database of Kuala Lumpur's biodiversity assets in collaboration with the Forestry Department of Peninsular Malaysia and the Department of Environment for existing assets such as the type and number of trees, existing and endangered species for coordination if there are implication from the development carried out;
2. Prepare a Kuala Lumpur urban forest management plan to maximise the aesthetical, environmental, and economical benefits of the forests and trees to city dwellers and visitors. This plan can preserve, conserve and improve the quality of existing forests and trees by promoting its importance through integrated replanting and support programmes from the residents;
3. Provide specific guidelines as part of the urban forest management plan by determining permitted activities and forms of development; and
4. Transfer of Development Rights (TDR) for privately owned land lots with forests and trees that have significant biodiversity value and contribute to the natural ecosystem. The implementation of TDR needs to be detailed in an action plan.

QUICK INFO

Transfer of Development Rights (TDR)

Transfer of Development Rights (TDR) is a technique for controlling land use zones as well as the activity and intensity of development on them. It also assists in implementing policies for the conservation and preservation of heritage areas, environmental conservation areas and productive agriculture without burdening land owners and detrimental to local authority's planning.



DEVELOPMENT SURROUNDING SUNGAI PENCHALA

TABLE G3.2: KUALA LUMPUR NATURE ASSET AREA, YEAR 2021

CATEGORY	AREA (HEKTAR)	PERCENTAGE (%)
Permanent Reserve Forest	84.62	2.8
Rivers and Water Bodies	819.90	27.2
Open Space and Recreation	2,112.28	70.0
TOTAL	3,016.8	100.0

Note: Permanent Forest reserve area is subjected to the latest forest gazettelement from Department of Forestry, Federal Territory of Kuala Lumpur, 2021

QUICK INFO

Natural Asset Consisting of Flora and Fauna in Kuala Lumpur



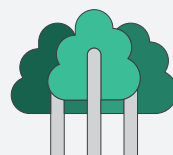
There are 60 species of butterflies in Kuala Lumpur out of 1,000 species found in Peninsular Malaysia.



The two (2) main bird species identified in Kuala Lumpur are the Urasia Ciak (*Passer Montanus*) and the Buffalo Shepherd Tiung (*Acridotheres Tritis*).



Bukit Kiara Federal Park and Bukit Kerinchi Forest Park are home to more than 40 poultry species including several species of predatory birds.

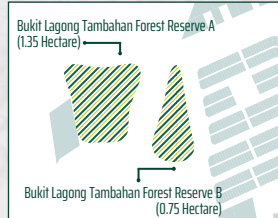


Bukit Nanas Reserve Forest is the oldest urban forest area in the country with over 425 species of flora and only within an area of 9.50 hectares.

Sources:

1. Institute of Biological Sciences, University of Malaya, 2016
2. Forest Research Institute Malaysia (FRIM), 2017

Bukit Lagong Tambahan Forest Reserve A and B
(2.10 Hectare)

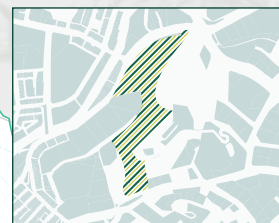


GOMBAK
DISTRICT



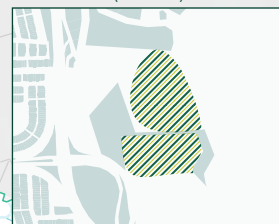
0 1.5 3
Kilometre 1:110 000

Bukit Nanas Forest Reserve
(9.37 Hectare)



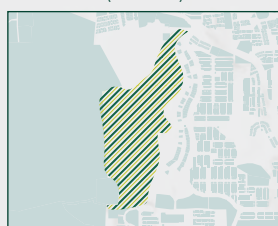
A Part of
Bukit Dinding
(20.57 Hektar)

Bukit Sungai Puteh Forest Reserve
(7.03 Hektar)



HULU LANGAT
DISTRICT

Bukit Sungai Besi Forest Reserve
(66.12 Hektar)



PETALING
DISTRICT

To Shah Alam

To Port Klang

Sungai Klang

Taman Rimba
Bukit Kerinchi
(61.25 Hektar)

Tasik Desa

Kuchai

Sri Petaling

To Putrajaya

To Seremban

To Puchong

To Kajang

To Alam Damai

To Kajang

To Kajang

To Kajang

G3

FIGURE G3.4
PRESERVED KUALA LUMPUR NATURE ASSETS

LEGEND

Existing

Permanent Forest Reserve
Urban Forest Park
City Park
Lakes

Others

Main Road
Main River
FTKL Boundary

NOTE:

All plans and figures are in the form of diagram/indicative only. It does not refer to any lot in details

SUPPORTING ACTION

SV1.1B: Enhance efforts to preserve rivers and lakes

Rivers and lakes are important components in ensuring the continuity of ecosystems and habitats for flora and fauna. In addition, it is also being the essence to Kuala Lumpur socially and economically especially in the area surrounding River of Life (RoL).

Most of the lakes in Kuala Lumpur are not only reserved for catchment areas and flood retention but also functional as recreation areas. Therefore, these rivers and lakes need to be preserved thoroughly by parties including residents, other government agencies, non-governmental agencies and the private sector. Following are the implementable measures to conserve rivers and lakes continuously:

1. To create rivers and lakes conservation master plan entire Kuala Lumpur for detailed planning and implementation. It will also encourage the proposal from communities, especially those living near river and lake strips;
2. To ensure the focus on river and lake biodiversity aspects in the master plan by identifying habitat data and existing species in a specific area with the assistance of information provided by the local community;
3. To conduct periodic programmes for lake and river cleanliness and beautification;
4. To prepare development and urban design guidelines for rivers and lakes and its surrounding areas;
5. To enhance awareness of the importance and shared responsibility for river and lake conservation. Programmes and campaigns involving NGOs and relevant agencies can be organized at all community levels to ensure that it becomes an integral part of the culture;
6. To revise the existing urban drainage system and identify all wastes that directly get into the rivers and lakes. This will lead to a paradigm shifts towards a more sustainable and cleaner drainage;
7. To establish Friends of River Programmes with neighbouring local authorities to monitor and ensure the planning and development surrounding the river does not have negative implications on cleanliness and other living habitats; and
8. To identify and develop uneconomic and abandoned areas surrounding the rivers and lakes as recreational parks. A more extensive green network can be created by connecting them to rivers and lakes.



KLANG RIVER, KUALA LUMPUR

SUPPORTING ACTION**SV1.1C: Expand River of Life (RoL) programme to other rivers**

The River of Life (RoL) has been identified as the primary catalyst project to transform the Klang River to be clean and vibrant area with high economic value as in line with the Greater KL/KV economic transformation programme. There are three main components of the RoL, which are:

1. River cleaning;
2. River beautification; and
3. Development of the area surrounding the river corridor.

KLSP2040 recommends the expansion and adaptation of the River of Life programme to other rivers in Kuala Lumpur, especially the following three rivers:

1. Sungai Bunus as a RoL 2 programme;
2. Sungai Keroh as RoL 3 programme; and
3. Sungai Kuyoh as RoL 4 programme.

The following are the proposed RoL 2, RoL 3 and RoL 4 programmes:

1. Preparation of detailed studies to identify technical recommendations for river cleaning works;
2. Preparation of master plan for beautification and development programme for areas around the river corridor; and
3. Engagement and collaboration between technical agencies, private sector entities and stakeholders need to be established during the preparation of both studies and master plans.

TABLE G3.3: KUALA LUMPUR RIVER

RIVER	WATER QUALITY CLASS 2018	KLSP 2040 PLANNING STRATEGY
Sungai Klang	iii	RoL 1 and expansion covering all Sungai Klang area
Sungai Gombak	iii	RoL 1 and expansion to covering all Sungai Gombak area River cleaning and water improve
Sungai Jinjang	iii	RoL 1 and expansion to covering all Sungai Klang area River cleaning and water quality improvement
Sungai Bunus	iv	RoL 2
Sungai Keroh	iii	RoL 3
Sungai Kuyoh	iii	RoL 4
Sungai Anak Air Batu	iii	River cleaning and water quality improvement
Sungai Kerayong	iv	River cleaning and water quality improvement
Sungai Belongkong	iii	River cleaning and water quality improvement
Sungai Penchala	ii	River cleaning, water quality improvement and river area beautification
Sungai Toba	iii	River cleaning and water quality improvement
Sungai Batu	iii	River cleaning and water quality improvement
Sungai Untut	iii	River cleaning and water quality improvement
Sungai Air Busuk	iii	River cleaning and water quality improvement

Note: RoL - River of Life / Sungai Nadi Kehidupan is a programme that includes 3 main components, namely river cleaning and water quality improvement, river beautification and land development to increase the economic value of the surrounding area.

Source: Annual Report, Department of Environment, FTKL, 2018



SUNGAI KUYOH, BUKIT JALIL

SUPPORTING ACTION**SV1.1D: Establish City Biodiversity Index to monitor habitat (flora and fauna)**

The City Biodiversity Index is a scale index of fauna and flora diversity in Kuala Lumpur that can contribute to the assessment of urban environmental sustainability. The application of the City Biodiversity Index will enable the collection of environmental data and urban biodiversity status to determine improvement measures for city biodiversity.

The objectives of biodiversity index are as follows:

1. To promote more effective resource management and biodiversity conservation;
2. To monitor urban biodiversity status (flora and fauna) and the quality of the current urban natural habitat as well as impact of development; and
3. To develop a platform for Kuala Lumpur's biodiversity data storage and archival for public learning.

The main threats to biodiversity are:

1. Loss of habitat due to land-use conversion and urbanisation activities;
2. Pollution mainly emissions of toxic substances into the environment that affect species and can lead to a decrease in biodiversity; and
3. Climate change resulting from the release of gases into the atmosphere from urban activities will alter various aspects of the natural environment, consequently impacting the life expectancy of species.

Therefore, KLSP 2040 recommends that KLCH and relevant stakeholders establish City Biodiversity Index by identifying indicators that can evaluate the original biodiversity, its ecosystem, and guidelines as well as measures to manage the biodiversity.

The establishment of this index also provides a platform for assessments to be carried out at the local level such by communities, professionals, and non-governmental organisations that have interests and commitments to the environment.

EXAMPLE OF BEST PRACTICES**City Biodiversity Index, Singapore**

National Parks Authority of Singapore (NParks) developed a city biodiversity index known as the Singapore Index (SI). This is the first city profile assessment tool to help the city evaluate and benchmark biodiversity conservation efforts.

SI is an evaluating tool to monitor the progress of biodiversity conservation efforts. This index is quantitative, and each indicator is assigned a determination of values between zero and four points with a maximum score of 92 points.

EXAMPLE OF PARAMETER ASSESSMENT CITY BIODIVERSITY INDEX, SINGAPORE

SINGAPORE INDEX ON CITY BIODIVERSITY		
CORE COMPETENT	INDICATOR	MAXIMUM SCORE
Native Biodiversity in the City	1. Proportion of Natural Areas in the City	4 points
	2. Connectivity Measures or Ecological Networks to Counter Fragmentation	4 points
	3. Native Biodiversity in Built Up Areas (Bird Species)	4 points
	4. Change in Number of Vascular Plant Species	4 points
	5. Change in Number of Native Bird Species	4 points
	6. Change in Number of Native Arthropod Species	4 points
	7. Habitat Restoration	4 points
	8. Proportion of Protected Natural Areas	4 points
	9. Proportion of Invasive Alien Species	4 points
Ecosystem Services provided by Biodiversity	10. Regulation of Quantity of Water	4 points
	11. Climate Regulation – Benefits of Trees and Greenery	4 points
	12. Recreational Services	4 points
	13. Health and Wellbeing – Proximity/Accessibility to Parks	4 points
	14. Food Security Resilience – Urban Agriculture	4 points
Governance and Management of Biodiversity	15. Institutional Capacity	4 points
	16. Budget Allocated to Biodiversity	4 points
	17. Policies, Rules and Regulations – Existence of Local Biodiversity Strategy and Action Plan	4 points
	18. Status of Natural Capital Assessment in the City	4 points
	19. State of Green and Blue Space Management Plans in the City	4 points
	20. Biodiversity Related Responses to Climate Change	4 points
	21. Policy and/or Incentives for Green Infrastructure as Nature-based Solutions	4 points
	22. Cross-sectoral and Inter-agency Collaborations	4 points
	23. Participation and Partnership: Existence of Formal or Informal Public Consultation Process Pertaining to Biodiversity Related Matters	4 points
	24. Participation and Partnership: Number of Agencies/Private Companies/NGOs/Academic Institutions/International Organisations with which the City is Partnering in Biodiversity Activities, Projects and Programmes	4 points
	25. Education	4 points
	26. Awareness	4 points
	27. Community Science	4 points
	28. Education	4 points
Native Biodiversity in the City (Sub-total for indicators 1-9)		4 points
Ecosystem Services provided by Biodiversity (Sub-total for indicators 10-14)		4 points
Governance and Management of Biodiversity (Sub-total for indicators 15-28)		56 points
Maximum Total:		112 points

Sources: Handbook on the Singapore Index n Cities' Biodiversity

SUPPORTING ACTION**SV1.1E: Intensify community involvement in preserving natural assets**

Natural assets are a shared heritage. Communities and stakeholders, including private institutions can play a role in assisting government agencies in preserving this heritage. The involvement of these groups must enhance in line with Kuala Lumpur's vision of a **CITY FOR ALL**.

Collaborative aspects to enhance the community's sense of ownership for natural assets can be implemented with governments, communities and stakeholder groups collaboration by:

1. Identifying local champions as partners to ensure continuous implementation of environmental care efforts;
2. Providing a platform for progress sharing of actions and preservation activities;
3. Encouraging the sharing of community's proposals in terms of preservation methods to be adopted;
4. Creating awareness among the public and school students on aspects of preservation, cleanliness and the recycling practices;
5. Conducting workshops to discuss arising issues; and
6. Promoting monitoring with community.

ACTION**SV1.2: CONNECT GREEN AREAS AND BLUE CORRIDORS AS URBAN ECOLOGY NODES**

Green areas, including public parks and open spaces, need to be connected to the blue corridor of Kuala Lumpur as an urban ecology node. The blue corridors are water bodies such as river reserves, ditches, catchment ponds and natural lakes.

Green areas and blue corridors serve as ecological nodes and urban linkages with the potential to be habitats for urban species. Thus, these green areas and blue corridors need to be connected to create a continuous network of urban ecological corridor.

The development in Kuala Lumpur needs to ensure that it does not physically disturb the green and blue corridors and in terms of environmental quality and pollution. This will ensure the continuity of the natural habitat with the built environment surroundings to promote the growth of flora and fauna in the city and enrich the city's biodiversity.

SUPPORTING ACTION**SV1.2A: Conservation of lakes and ponds as part of open space and recreation areas**

Besides serving as drainage and water catchment infrastructure, existing lakes and ponds also have the potential to be green areas for recreational purposes and help reduce the urban heat island effect.

There is development pressure on the pond area for residential or commercial development. Therefore, it is a priority for lakes and ponds and surrounding green areas to be maintained through the following measures:

1. Improve the function of flood catchment ponds as open spaces and recreational areas;
2. Improve landscape quality, recreational facilities and safe water quality for recreational purposes and surrounding flora and fauna;
3. Enhance the safety aspects around lakes, ponds and along the river route boardwalk through the provision of buffer zones as well as Crime Prevention Through Environmental Design (CPTED) elements such as CCTV and emergency buttons;
4. Implement environmentally friendly drainage programme to create environmental harmony; and
5. Improve water quality of lakes and ponds to ensure it is safe for body contact for recreation.



SMART POLE, TAMAN BOTANI PERDANA, KUALA LUMPUR

SUPPORTING ACTION**SV1.2B: Create a network of forest links as part of the ecological network**

This action emphasis on forming a continuous natural network with forest areas. The aims is to maintain the character and uniqueness of the forest through the provision of a network connecting the forest to water body areas and open spaces. Thus, new and existing plan shall be asses thoroughly so that the typological structure around the forest can be maintained. The actions that can be implemented are as follows:

1. Prepare a forest connector action plan through green and blue networks to connect parks and green areas;
2. Encourage forest connectivity at ground level or at street level by providing guidelines;
3. Offer incentives for land owners to provide pathways by granting rights of way as the connector to forest areas. The incentives can be given by calculating the allowable gross floor area (including the surrendered land) of the land lots; and
4. Involve related agencies, NGOs and local communities in ecological network planning.

This forest connector can also be in the form of landscape provision, where the urban landscape plays an essential role in creating an ecological corridor in Kuala Lumpur. This ecological corridor connects Kuala Lumpur's natural assets, such as permanent reserve forest, water bodies and urban forest parks. These ecological corridors can be created through linear paths, eco stepping stones, or landscape initiatives in urban areas.

This ecological corridor is identifiable through the tree planting and landscaping of existing road infrastructure. The improvement of the road landscape is based on the size of the road reserves within Kuala Lumpur City. The landscape planting along ecological corridors shall considers the character of an area with diverse and suitable tree species.

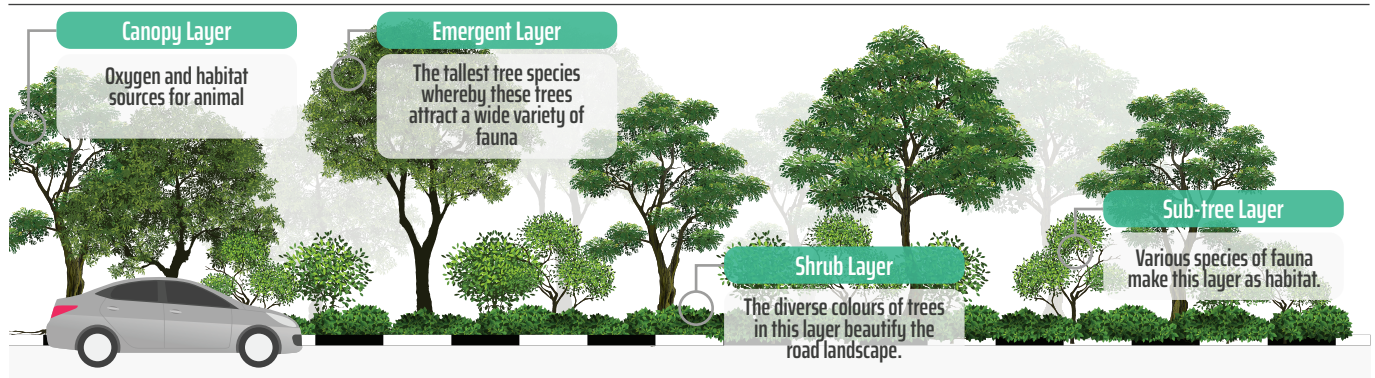


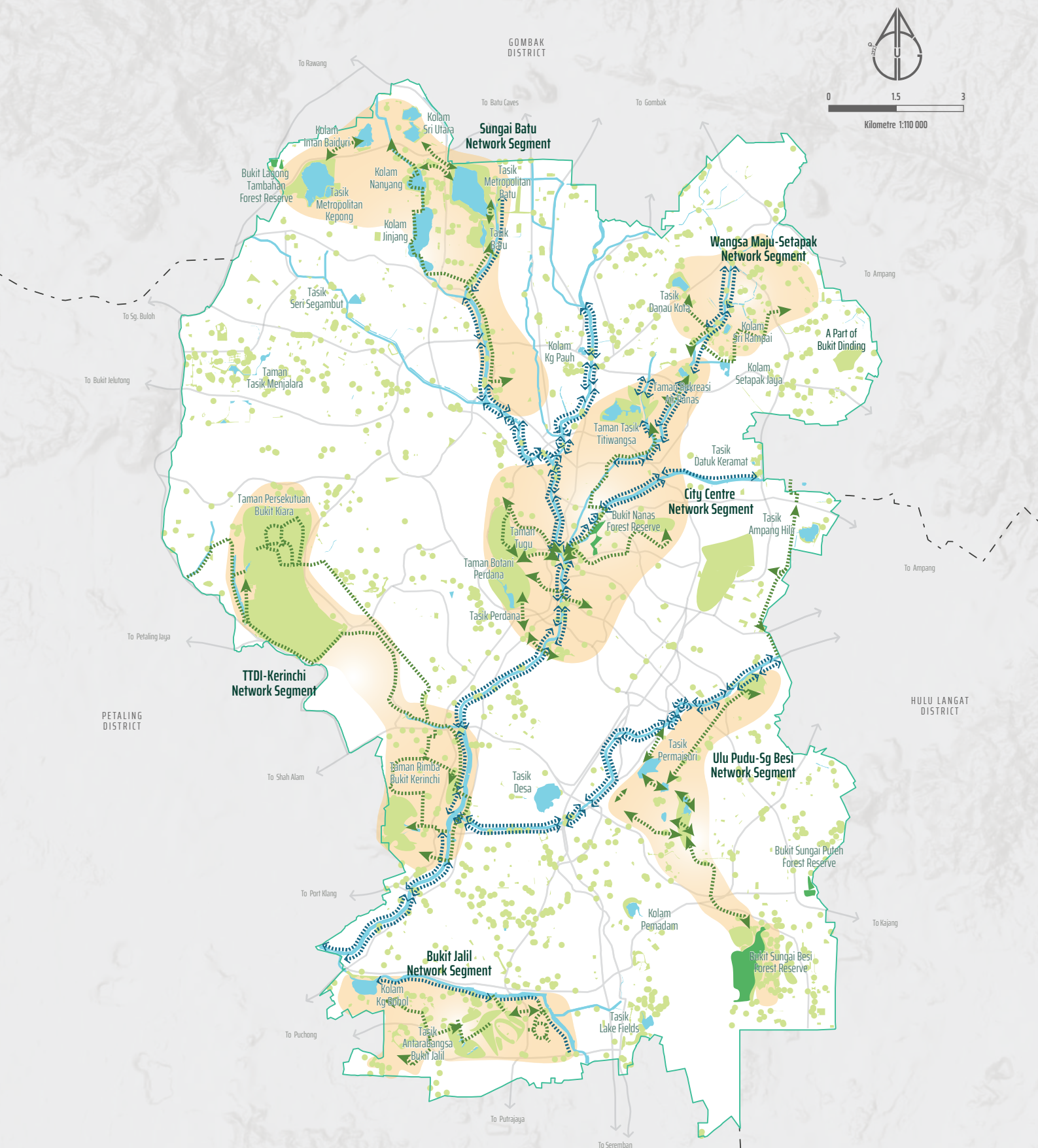
EXAMPLES OF FOREST CONNECTORS (LANDSCAPES) ON PRIMARY ROADS



EXAMPLES OF FOREST CONNECTORS (LANDSCAPES) ON SECONDARY ROADS

FIGURE G3.6: EXAMPLES OF FUNCTIONS AND TYPES OF FOREST CONNECTOR PLANTS (LANDSCAPE)





G3

FIGURE G3.7
IMPLEMENTATION OF KUALA LUMPUR ECOLOGICAL CORRIDOR FOREST CONNECTOR NETWORK

LEGEND

- | | | |
|--|---|--|
| <ul style="list-style-type: none"> Proposal Park Connector Riverside Connector Network Segment | <ul style="list-style-type: none"> Existing Open Space Permanent Forest Reserve Lake/Pond | <ul style="list-style-type: none"> Others Main Road Main River FTKL Boundary |
|--|---|--|

NOTE:

All plans and figures are in the form of diagram/indicative only. It does not refer to any lot in details.

SUPPORTING ACTION
SV1.2C: Integrate environmental friendly urban drainage system as ecological network

This action will capitalise on the potential of urban drainage systems as part of landscape design. It aims to enhance urban greenery, complement urban green belt network, enrich urban biodiversity and increase recreational spaces for city dwellers to enjoy.

The implementation method for this action applies the Water Sensitive Urban Design, which is integrated with bioengineering methods such as bioswale, rain garden, and constructed wetland. The implementation focus on the primary urban drainage system and secondary drainage along the road network.

The adaptation of Eco-Friendly Drainage System will improve water quality in the retention pond and controlled water flow rate due to the absorption of water into the soil.

QUICK INFO

Example of Eco-Friendly Green Drainage System Application

The bioretention system is one of the best stormwater management practices suggested in the Environmentally Friendly Drainage Manual (MSMA). This system uses the bioswale method, which is a process of biological absorption and filtration to treat rainwater runoff. This system is integrated with plants such as trees, bushes and grass and uses a layer of sand and rock. These control structures will filter and treat overflow from rainwater runoff before it is released into drainage. Through this system, it can integrate the urban drainage system with the urban ecological network.

This system can be implemented in built-up areas such as parking, landscape parks, road shoulder and highways, as well as the existing drainage and irrigation, in the forms of linear, basin and planter boxes.

EXAMPLE OF BASIN FORM IN GREENEST COLLEGE, RHODE ISLAND, UNITED STATES OF AMERICA

Sources: Parecorp.com, 2013



EXAMPLE OF LINEAR FORM AT THE PARKING LOT LOCATED IN EDWARDS GARDENS, TORONTO, CANADA

Sources: Parecorp.com

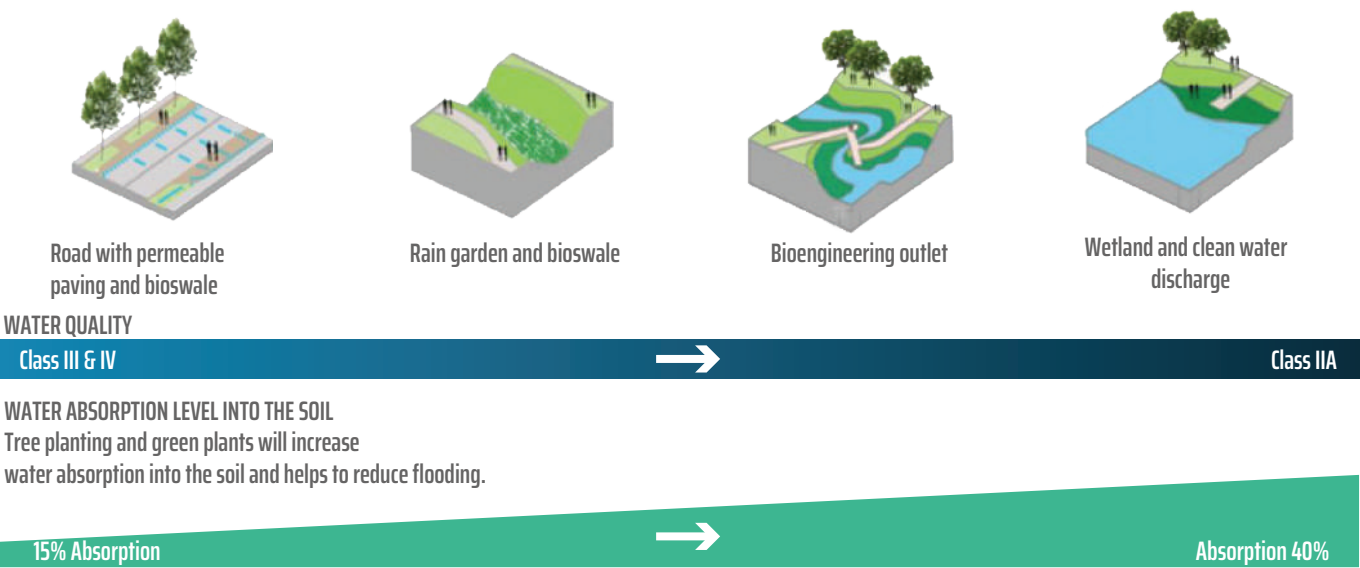


EXAMPLE OF PLANTER BOXES IN INDIANAPOLIS CULTURAL TRAIL, UNITED STATES OF AMERICA.

Sources: pinterest.com, 2017



FIGURE G3.8: GREEN DRAINAGE SYSTEM APPLICATION PROCESS



ACTION**SV1.3: INCREASE KUALA LUMPUR'S GREEN DENSITY**

Land scarcity is a significant challenge in providing green spaces in Kuala Lumpur. Nevertheless, the provision of this green area should be intensified to meet the growing population needs by the year 2040.

Efforts to increase the green density in Kuala Lumpur need to be implemented in a more innovative and creative aspect of development planning towards making Kuala Lumpur a city in the park.

SUPPORTING ACTION**SV1.3A: Increase urban green canopy coverage**

Kuala Lumpur in the future will ensure to increase urban green canopy coverage as one of the measures to increase green density. Various measures need to be implemented to achieve the target of 30 percent green canopy coverage by year 2030 and subsequently 50 percent in year 2040.

The improvement measures that can be implemented are as follows:

1. Intensify tree planting in development areas and populated areas.

Plant suitable and shady trees, especially in workplace and residential areas.

2. Intensify tree planting on the road shoulders and infrastructure reserves.

Roads and infrastructure can provide a canopy through widening of landscape reserves for tree planting that provide shade to pedestrians and cyclists. In addition, more trees can also serve as a carbon catchment area. The safety of the people and ease of maintenance shall be considered in planting the tree.

3. Increase the density of trees in open spaces, recreation, forest areas and slopes.

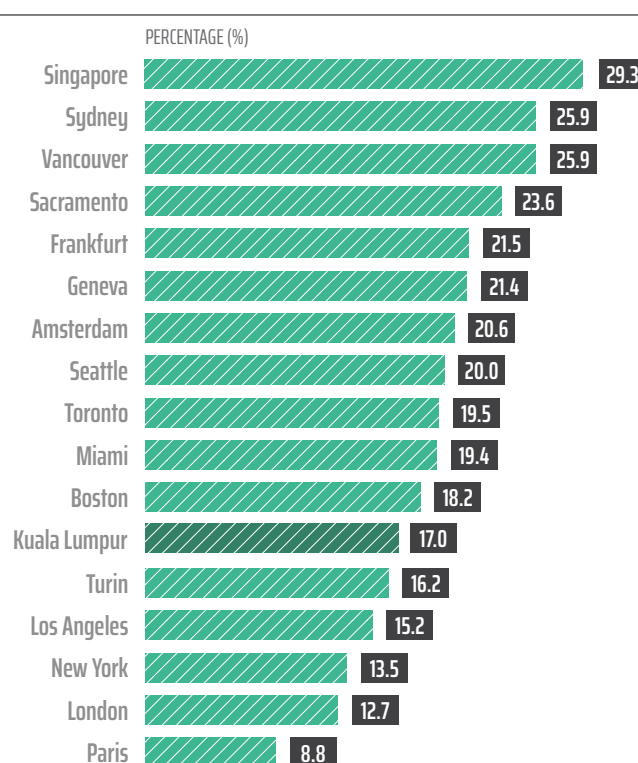
Tree planting in these area needs to be increased and suitable according to the character of an area. Planting trees or shrubs on slopes will help to reduce the risk of soil erosion.

TABLE G3.4: CANOPY COVERAGE IN KUALA LUMPUR BY AREA, YEAR 2016

AREA	%
Sentul - Menjalara	7
Wangsa Maju - Maluri	13
Damansara - Penchala	31
Bukit Jalil - Seputeh	15
Bandar Tun Razak - Sungai Besi	19
Pusat Bandar Raya	16

Sources: Kuala Lumpur Low Carbon Society Blueprint 2030

FIGURE G3.10: CANOPY COVERAGE OF OTHER CITIES IN THE WORLD, YEAR 2019



Sources:

1. Treepedia.com, 2019
2. Kuala Lumpur Low Carbon Society Blueprint 2030

4. Implement standing orders under Section 35 of Act 267: Tree Preservation Order.

Mature trees with a girth of more than 1 metre with high amenity value, high carbon absorbent power, and historical value need to be identified, conserved, and protected under the Tree Preservation Order as mention in the section 35 of the Federal Territory (Planning) Act 1982 (Act 267).

The heritage trees are living assets with its unique value that cannot be replaced and inherits many historical values that must be preserved. The heritage trees can be gazetted under Section 6, Act 645: Declaration of National Heritage. Therefore, it is necessary to determine the appropriate criteria for the heritage tree in Kuala Lumpur based on the Tree Preservation Order (TPO) and other suitable practices.

QUICK INFO

593 Total heritage tree register in Kuala Lumpur under the existing Tree Preservation Order (TPO)

DETAILS OF MATURED AND SHADY TREES PRESERVATION MEASURES

1. Identify, record and map the heritage trees, matured and shady trees in Kuala Lumpur;
2. Labelling the identified distinctive heritage trees on the tree for education purposes;
3. Costs and risk assessment on the identified heritage, matured and shady trees;
4. Determine the criteria of trees and suitable conservation method for heritage, matured and shady trees; and
5. Prepare heritage trees register around Kuala Lumpur for gazettment under the Tree Preservation Order (TPO).

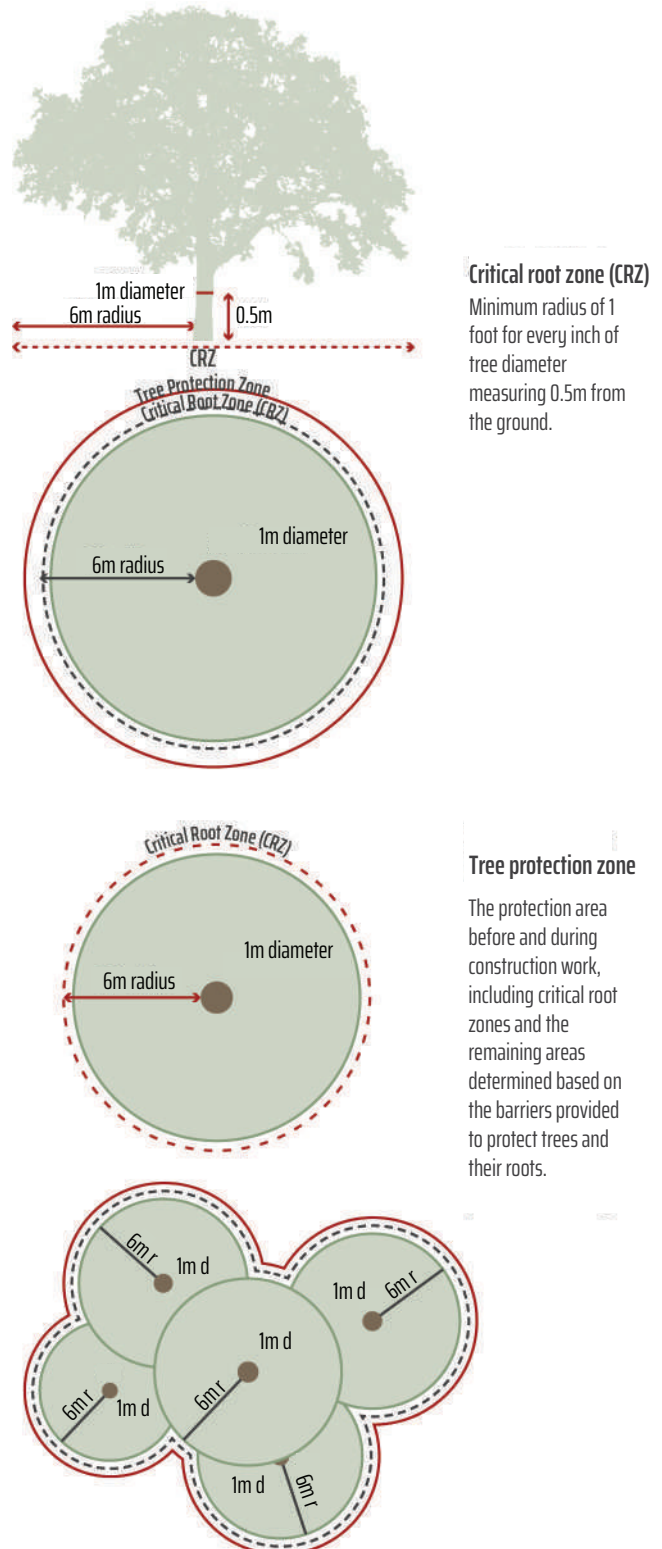
TREES SUBJECTED TO TREE PRESERVATION ORDER

1. Tree with a girth exceeding 1m, whereby the girth of a tree is measured 0.5 meters from the ground. The girth of a tree with buttress is measured above the buttress;
2. Mother trees – matured trees to produce seeds stock to ensure the continuity of the species;
3. Trees of which the species is threatened with extinction problems;
4. Trees identified of medical values;
5. Trees with historical and heritage values; and
6. Trees that become habitat for wildlife and not harmful.

Sources: Garis Panduan Landskap Negara

FIGURE G3.11: TREE PROTECTION ZONE

A tree protection zone should be established to ensure that its interests are protected especially for mature trees.



5. Preparation of green canopy coverage management guidelines

A specific guideline for the management of tree canopy coverage should be prepared to maintain tree health and structure. Lifetime maintenance of the plants is crucial for carbon reduction efforts. Pruning is one aspect that should be emphasised.

Pruning is the removal of any part of a tree for a specific purpose. It should be carried out in the early stages of tree growth for the purpose of forming the framework and removing dangerous or damaged structures. There are six (6) distinct pruning methods:

i. Cleaning Out

Cleaning the canopy is by pruning dead, diseased, damaged branches, epiphytes and any unwanted structures on the tree trunk and branches

ii. Crown Thinning

Selective and gradual removal of branches is intended to reduce the weight of the branches and allow air and light to circulate into the canopy.

iii. Crown Lifting

Remove low branches or those at the bottom of a tree that is at least 3 metres high from the street level.

iv. Crown Restoration

Pruning of damaged branches due to storm or vandalism aimed at improving the structure or shape of the tree.

v. Crown Reduction

Removing branches to reduce the height or density of the tree.

vi. Crown Balancing

Removing large or protruding side branches from the original shape of the tree to balance the shape of the tree.

EXAMPLE OF BEST PRACTICES

Singapore

Singapore remains as the greenest city in Asia and being among some of the best green cities in the world.

Tree trimming services in Singapore remain very popular and become landscaping needs. The Singapore government introduced a tree planting policy that encourages tree planting in residential areas, parking lots and mandates the provision of space for trees.

Public-private partnerships is crucial in Singapore's landscape care and tree pruning to ensure it remains in good condition and well maintained to compete with efforts to maintain its image as a Garden City.



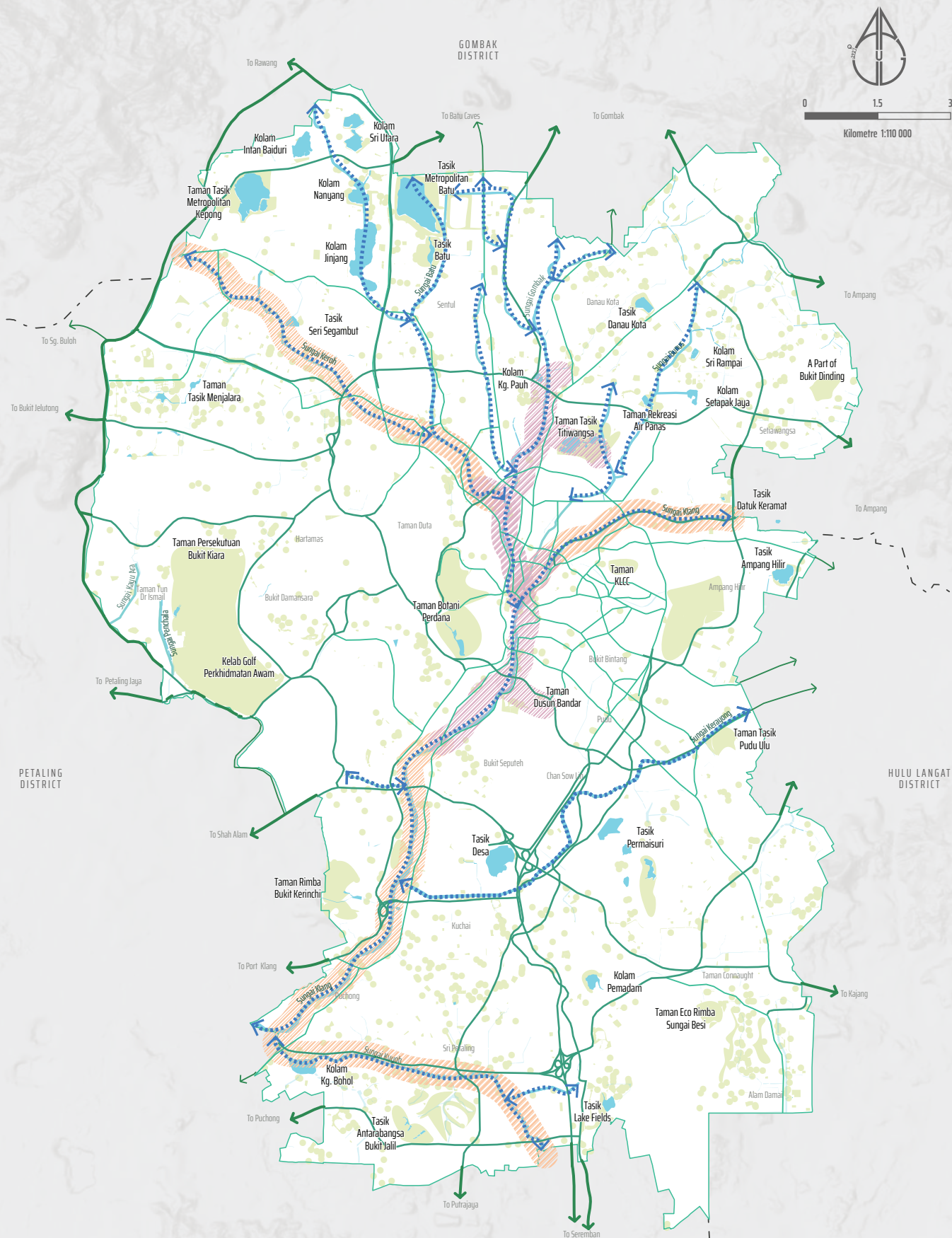
TREE PRUNING IN SINGAPORE

Japan

Japan is renowned for its cherry trees in spring. Tree care and maintenance in Japan is highly emphasis to maintain and keep the trees in a healthy condition. Pruning trees after flowering is especially important to encourage new growth and the production of more flowers in the coming season. Proper care and technique can help a tree grow well.

6. Studying wind tunnel areas and appropriate tree plants

Conduct a study to identify wind passage areas in Kuala Lumpur as well as suitable tree planting that do not obstruct strong wind passage.



G3

FIGURE G3.12
KUALA LUMPUR ECOLOGICAL CORRIDOR

LEGEND

Proposal

Blue Corridor

Proposed Highway Greening

Proposed Federal Road Greening

River of Life Zone (Rol 1)

Proposed River of Life Zone

Existing

Lake and Pond

Open Space

Others

Main River

FTKL Boundary

NOTE:

All plans and figures are in the form of diagram/indicative only. It does not refer to any lot in details.

SUPPORTING ACTION**SV1.3B: Improve vertical green density**

Providing green density vertically aims to meet the need of Kuala Lumpur population for green areas and recreation by year 2040. NUP targets the provision of open spaces of 20 square meters for each person. Thus, 4,700 hectares of open space is required to cater for the 2.35 million population by year 2040.

KLSP2040 proposes that vertical green density should be intensified in Kuala Lumpur to achieve Kuala Lumpur's target for canopy coverage. Planting trees vertically will also reduce the urban island effect in the future.

This vertical green density provision is subject to new development, redevelopment areas or area improvement particularly to high-density areas or strata development. The vertical green density must be easily accessible to the public if it is used for recreational purposes, and it can consist of various types of design:

1. Roof-top green areas;
2. Green areas at the building facade;
3. Green areas on the balconies of buildings that are accessible by the public or as public areas;
4. Green areas in the planter box;
5. Green areas on any floor of the building that is open and commonly used; and
6. Public areas such as plazas, children playgrounds, water landscapes, etc.

Measures to be taken in increasing vertical green density are as follows:

1. Preparation of detailed building design guidelines for the provision of vertical green areas;
2. Provision of 50 percent vertical green areas for new development and renewal in the city centre including area surrounding the River of Life (RoL);
3. Provide incentives for existing developments that seek to increase building plot ratio together with increasing green area vertically;
4. Ensuring vertical green density planning is connected with the surrounding development. For example full access to the roof-top gardens connected via link bridge with proper security system; and
5. Encourage the provision of at least 20 percent of the total vertical planting with productive green density such as urban farms.

The guideline for perimeter planting should be in line with creating green connectors and pedestrian walkways between plots or building sites.

Thus, KLSP2040 stipulates that this vertical green density replaces the 50 percent lost of greenery at the ground level into a vertical green area.

The provision of 50 percent of vertical green areas can be translated in two methods, namely (Figure G3.13):

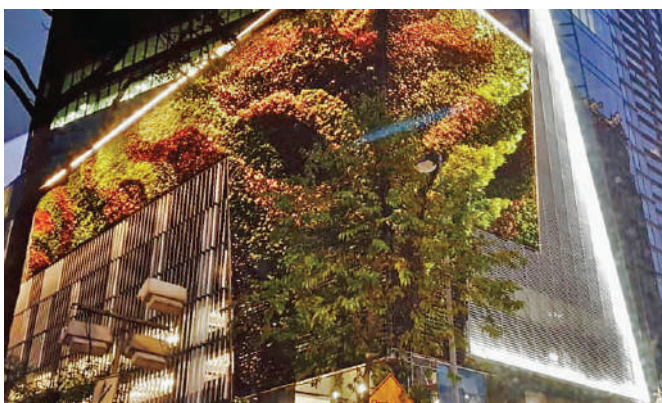
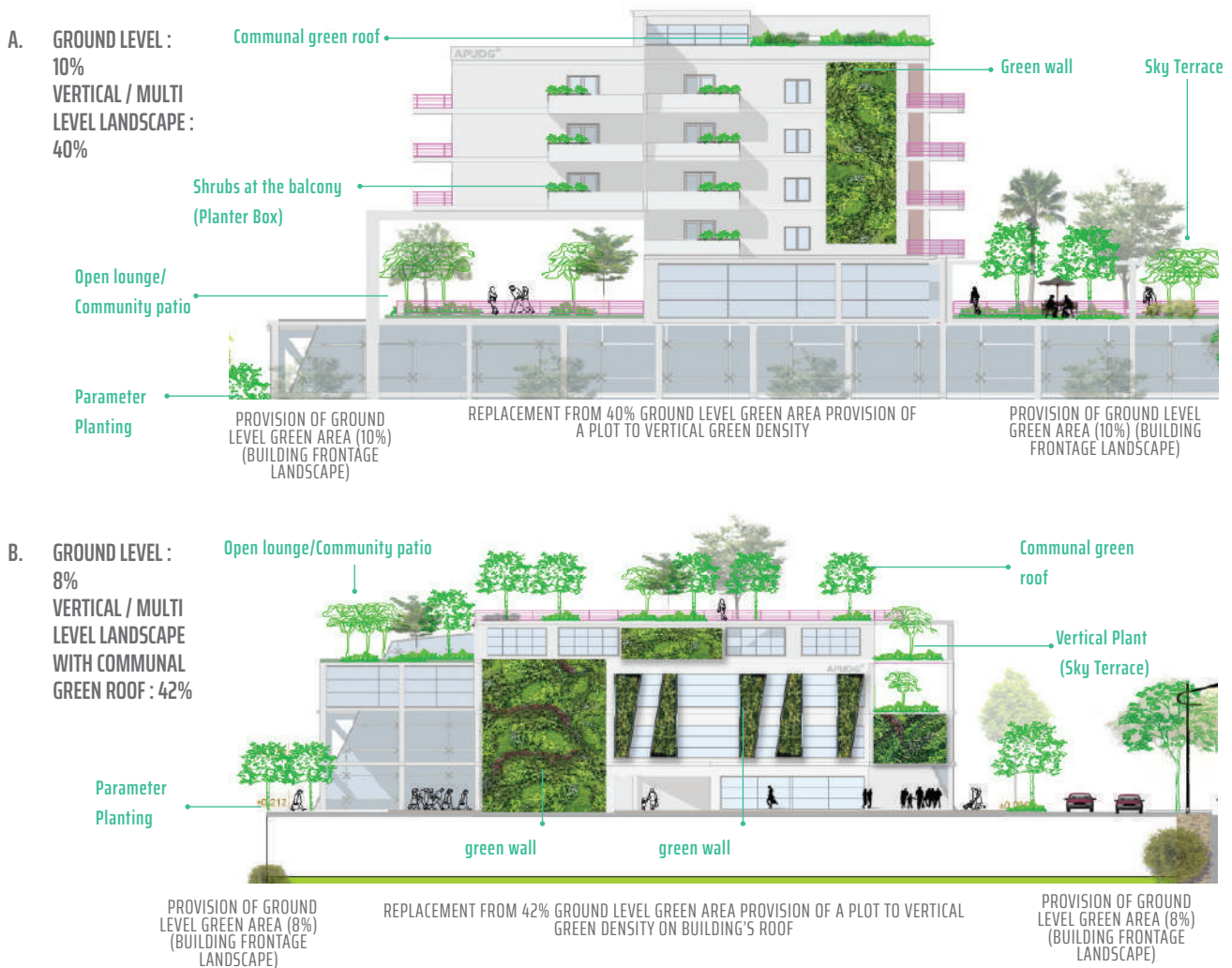
1. 10 percent provision at the ground level and 40 percent provision vertically/multi level landscape; or
2. 8 percent provision at the ground level and 42 percent provision vertically with the presence of roof-top green area.

QUICK INFO**Example of Calculation for 50 Percent Green Area Provision**

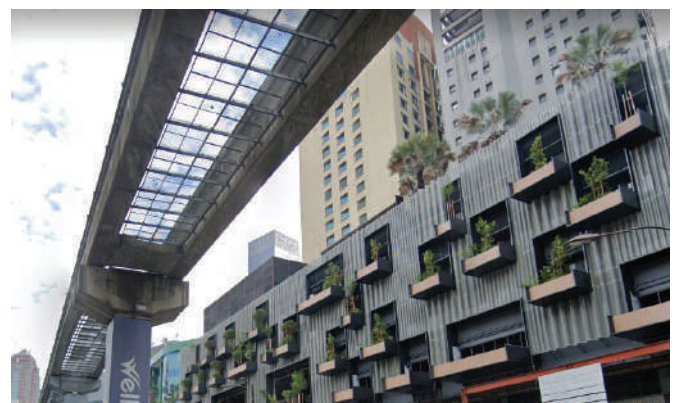
Land Area: 2.5 acres
= 108,900 square feet

Total vertical green area replacement
= 54,450 square Feet

FIGURE G3.13: ILLUSTRATION OF VERTICAL GREEN DENSITY



MENARA ETIQA, BANGSAR, KUALA LUMPUR
Sources: www.elmich.com, 2018



PARK ROYAL, KUALA LUMPUR
Sources: www.build-review.com

STRATEGIC DIRECTION

SV2: ATTRACTIVE AND CREATIVE URBAN ENVIRONMENT

Kuala Lumpur will be an attractive and creative city by year 2040 through the adaptation of quality urban design. This attractive and creative environment will attract more residents, tourists, and investors to live, work, play, and invest in Kuala Lumpur through various activities, especially in public, heritage, and tourist areas. Planning and development in Kuala Lumpur will nurture more community's inspiration, imagination and creativity.

ACTION

SV2.1: ENHANCE QUALITY AND DIVERSIFY THE FUNCTIONS OF PARKS AND OPEN SPACES

The attractive and vibrant transformation of Kuala Lumpur's environment will be intensified in open spaces, recreational areas, and parks. This quality enhancement will involve rejuvenating the existing open space, recreational areas, and parks. It will also inter-connected through green and blue corridor development.

SUPPORTING ACTION

SV2.1A: Gazette and protect open space

Kuala Lumpur is expected to require a minimum of 4,700 hectares of open space to achieve the target of 20 square meters per person by the year 2040. As of year 2021, a total of 1,098.08 hectares has been designated as open space.

The gazetting of identified lands with the potential for open space is crucial to ensure the preservation of their function and to prevent land use conversion for development purposes.



LANAMAN STANDARD CHARTERED, KUALA LUMPUR

QUICK INFO

Definition of Open Space

'Open space' means any land whether enclosed or not which is laid out (or reserved for laying out) wholly or partly as a public garden, park, sport and recreation ground or pleasure ground or walk, or as a public place.

Source: Akta 267, Federal Territory (Planning) ACT1982

Definition of Open Place

'Public Places' include any places, buildings or road which is open to the use and enjoyment of the public or where the public have or are permitted to have access whether on payment or otherwise;

Source: Akta 267, Federal Territory (Planning) ACT1982

Definition of Open Park

Reserved/gazetted land for public leisure and recreation based on design that consider environmental conservation, socio-economic and educational aspects.

Source: Dasar Landskap Negara

SUPPORTING ACTION**SV2.1B: Classified the hierarchy of open space**

Determining the hierarchy of open spaces is important for the allocation of space with a appropriate function, adequate and suitable to accommodate current and future needs.

Specific planning to identify the hierarchy of open space must be executed to maintain the function of open space in Kuala Lumpur.

Open space planning should be viewed from both macro and micro planning perspectives through the provision of open space based on hierarchical classification (Table G3.5).

TABLE G3.5 HIERARCHY OF OPEN SPACE IN KUALA LUMPUR

HIERARCHY	FUNCTION
City Parks	City park is the highest hierarchy of park in Kuala Lumpur that provide facilities for residents in and around the National Conurbation.
District Parks	Large parks located in several major areas in Kuala Lumpur to cater to the needs of 200,000 population catchment. The park is provided with integrated recreational and sports facilities such as stadiums and playgrounds with optimal use of land.
Neighbourhood Parks	Park located in a neighbourhood to cater to the needs of 50,000 population catchment. The facilities provided can accommodate large-scale activities and sports events.
Local Parks	Park is located in a residential area locally accessible to 10,000 population catchment. The park provides daily recreational facilities within walking and cycling distance.
Local Playground and Pocket Parks	Parks in residential areas and city centers that are located within walking distance



TAMAN BOTANI PERDANA, KUALA LUMPUR

SUPPORTING ACTION
SV2.1C: Upgrade existing open space and recreational areas as world class park

Kuala Lumpur's greening efforts to create a green, healthy and vibrant city involve upgrading the existing open spaces and recreation as world-class parks in line with other global cities. The park's quality and function are enhanced by diversifying the type of tree and adding unique landscape elements with concepts that can attract visitors.

Following are the existing open and recreational areas that potentially be upgraded as a world-class park:

- | | |
|------------------------------------|---------------------------------------|
| 1. Taman Warisan Tun Abdul Razak; | 6. Taman Metropolitan Batu; |
| 2. Taman Tasik Titiwangsa; | 7. Taman Tasik Metropolitan Kepong; |
| 3. Taman Antarabangsa Bukit Jalil; | 8. Taman Persekutuan Bukit Kiara; dan |
| 4. Taman Botani Perdana; | 9. Taman KLCC. |
| 5. Taman Tugu; | |

The measures that can be implemented in recognizing the existing open space are:

1. Prepare an action plan for world-class open spaces and recreation areas involving multi-agency cooperation and community either in the planning or implementation stage;
2. Establish strategic relationships between global cities with unique parks such as Valencia, Spain, Sao Paulo, Brazil, New York, USA and Tokyo, Japan; and
3. Form a special committee in monitoring the implementation of upgrading programmes.

QUICK INFO

KL Park

KL Park is an area that includes Taman Warisan Tun Abdul Razak and Taman Botani Perdana. This area is reserved for recreational purposes and no development is permitted.

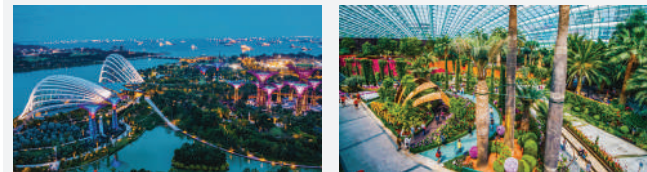
EXAMPLE OF BEST PRACTICES

The Gardens by the Bay, Singapore

Gardens by the Bay (Gardens) is a natural park that elevated Singapore's global profile by being a renowned international tourist destination. The Gardens is an iconic park and a symbol of pride for Singaporeans. The components/elements that make this park world-class are as follows:

Aesthetics & Visual Design

The Gardens features aesthetic design, attractions and lively activities and symbolise the harmony of artificial structures and natural elements.



Engineering & Horticulture Achievement

The Gardens is recognized as a world-class park for its impressive engineering and horticultural achievements. Two conservatories Flower Dome and Cloud Forest - in this park becomes an exhibition of energy-efficient sustainable building technology. The Gardens also has more than 1 million plants from 19,000 species and has nine (9) garden areas and large flower farm displays with exotic flowers.



Environmental Sustainability

The Gardens brings together elements of energy and water sustainability in its design. Both conservatories have advanced energy-efficient technology in which energy for air conditioning is obtained from biomass furnaces, and Supertrees are equipped with photovoltaic cells to harvest solar energy.

The lake system in this park uses ecological processes and functions as a system to control water quality. It serves as a natural filtration system for water from park catchment and provides an aquatic habitat for diverse aquatic species.



Structured Management

The Garden management is led by an independent organisation consisting of multi-disciplinary professionals, including landscape designers, horticulturists, engineers, gardeners and researchers. Various departments that oversee the operation and management of the park include:

- | | |
|---------------------------|---------------------------|
| • Attractions operation; | • Business Development; |
| • Horticulture operation; | • Programming and Events; |
| • Engineering; | • Retail and Lease; |
| • Design; | • Communication; and |
| • Research & Development; | • Finance. |

SUPPORTING ACTION**SV2.1D: Activate parks and open spaces**

Existing parks and open spaces should serve as a new urban green space and more inclusive with facilities that will meet the demographic profile based on the local community's needs and according to the park's function. Kuala Lumpur should conduct a programme focusing on all ages and physical conditions as well as increase sharing opportunities for additional recreational activities.

The following are the proposed activation of existing parks and open spaces:

1. Make the park a local attraction;
2. Rejuvenate parks and open spaces over 15 years old by applying universal design principles;
3. Provide space for cultural, sports, artistic and other recreational events;
4. Support garden facilities by upgrading and enhancing buildings and structures that are friendly to the surrounding environment of the park;
5. Promote passive activities to maintain biodiversity in natural parks;
6. Ensure that the neighbourhood park has space for family leisure activities and community-based activities; and
7. Conduct environmental education programmes that can create awareness and exposure on the importance of nature to all ages.

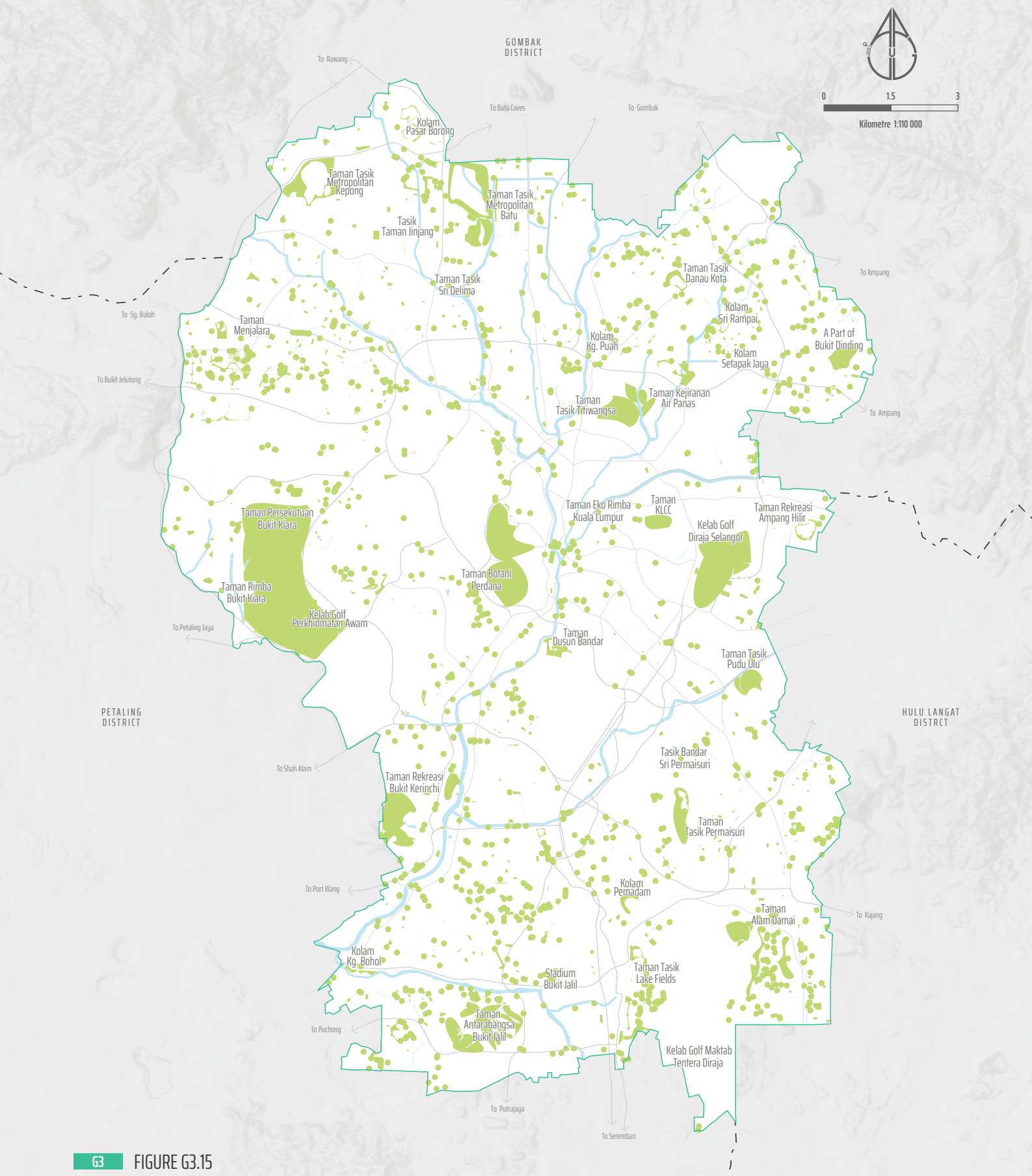
FIGURE G3.14: PARK ACTIVATION PROGRAMME

Parks and open spaces activation programmes through thematic activities

Various types of activation programmes will be carried out in existing city parks to attract visitors and tourists to the park. Proposed thematic activities are:



TAMAN TASIK TITIWANGSA, KUALA LUMPUR



G3

**FIGURE G3.15
ACTIVATION OF OPEN SPACES**

ACTION**SV2.2: ENHANCE ACTIVE AND CREATIVE USE OF URBAN SPACE**

Kuala Lumpur is a city rich in historical and cultural heritage, and it can be the future centre of cultural service and creative industry. KLSP2040 encourages activation and revitalisation of public spaces, especially in the city centre and in the old areas of the city, with creative and cultural activities. This will encourage young entrepreneurs in the creative industries and subsequently transform the area into a tourist attraction, employment and vibrant place to live.

SUPPORTING ACTION**SV2.2A: Kuala Lumpur old city area as Cultural and Local Creative Industry Precinct**

The area around Masjid Jamek Sultan Abdul Samad is one of the old town areas in Kuala Lumpur with the potential to be regenerated into a new creative industries hub and an international civic district. These actions include strategies to enhance creative and cultural ecosystems through urban branding and space activation in collaboration with creative and cultural entrepreneurs.

The existing environment will be enhanced through initiatives like the conservation of existing heritage shop houses and the improvement of civic building lighting at night. Availability of public spaces will also be expanded and equipped with comprehensive wayfinding and signage systems. These efforts are expected to attract more residents to live and work in the area.

The shophouses with value in the area should also be protected their originality and conserve their original architecture. The reuse of buildings for activities that attract tourists and entrepreneurs and revitalise the community with micro-housing and communal living is encouraged. This initiative offers opportunities for creative groups, and artists, and young professionals to express their creativity.



THE GODOWN KL, JALAN AMPANG IS AN OLD BUILDING THAT WAS CONVERTED INTO AN EXHIBITION SPACE FOR LOCAL CREATIVE ENTREPRENEURS.

SUPPORTING ACTION**SV2.2B: Street and public space for art performance and open gallery**

Suitable public spaces in the city will be open gallery and creative and artistic expression performance spaces. Current art performances and street-based cultures will be held in pedestrian areas, urban pocket parks and public spaces by the river. Creative artists and art enthusiasts will be provided with the art spaces facility either permanently or temporarily through the cooperation of industry and private sectors. Examples of open gallery performance centres are:

1. Lorong Panggung known as Lorong Kwa Chai Hong, Chinatown;
2. Jalan Bukit Bintang;
3. Jalan Tuanku Abdul Rahman: Shopping Centres; and
4. Bulatan Dato' Onn.

SUPPORTING ACTION**SV2.2C: Creative use of abandoned and vacant spaces in the city as pocket park and plaza**

Potential vacant spaces between buildings, under the rail reserves such as MRT and the back lanes of buildings, will be converted into public spaces such as pocket park, city's connecting routes, performance plazas, parks or leisure sites. This can make an area vibrant and appealing, thereby improving safety and fostering social relationships among city dwellers.

The effort to activate these spaces is crucial in reducing the negative impact of vacant, unused, and abandoned areas.



JEJAK PAHLAWAN CULTURAL AREA AT BULATAN DATO' ONN



LAMAN SOGO AS STREET MUSICIANS FOCUS AREA



THE SPACE UNDER THE PASAR SENI LRT LINE IS USED AS A PUBLIC SPACE FOR ART PERFORMANCES



THE TRANSFORMED KWA CHAI HONG LANE INTO AN OPEN GALLERY SHOWCASES LOCAL ARTWORK TO THE PUBLIC

SUPPORTING ACTION

SV2.2D: Shared use of school field for community

School fields in Kuala Lumpur will have their functions expanded through shared usage. There are 47 school fields identified as having potential for shared use. These selected school fields can be utilised for public purposes after school sessions and during weekends. This action aligns with the principle of sharing emphasised in KLSP2040. The potential schools have been identified and are located in close proximity to residential areas.

The parameters for the identification of potential schools are as follows:

1. Schools with football fields; and
2. Accessible to a park and sports field facilities within a 450 metres walk from the neighbourhood.

The implementation of this programme must comply with the following requirements:

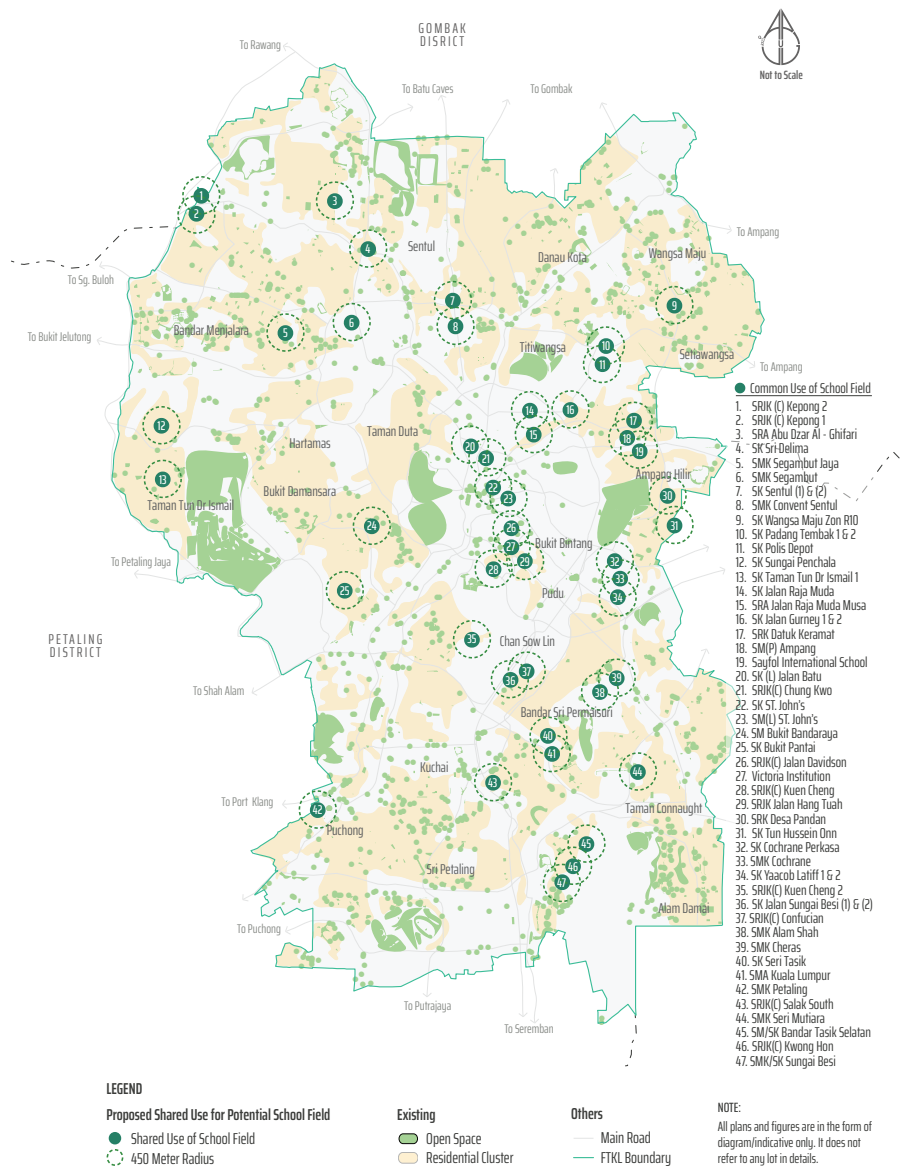
1. Shared use of school fields with the community in the neighbourhood area;
2. This operation takes place outside of regular school hours or usage;
3. Modification of entrance systems for school security and public access if necessary; and
4. The maintenance of school fields should be well-managed.

QUICK INFO

47

SCHOOL FIELDS AT PRIMARY AND SECONDARY SCHOOL WITH POTENTIAL FOR SHARED USE IN KUALA LUMPUR

FIGURE G3.16: DISTRIBUTION OF POTENTIAL SCHOOL FIELDS FOR SHARED USE WITH THE COMMUNITY



PROGRAMME FIELD FREE TO PLAY IN SINGAPORE USE SCHOOL FIELD AFTER SCHOOL HOURS

SUPPORTING ACTION**SV2.2E: Activate the ground floor spaces of buildings**

Activating the ground floor space of commercial buildings or mixed developments can be essential in creating an active and vibrant urban atmosphere. Adaptive reuses will be applied in the land-use class to generate activities such as cafes, eateries and grocery stores that should be placed at ground level on the main pedestrian walkway to facilitate its success.

Among the ground floor/ground level activation measures are as follows:

1. Identify areas concentrated with dense pedestrian movement to encourage owners of public and private buildings to activate use on the ground floor by reactivating the building;
2. Establish joint involvement of building owners in exterior design control of buildings that can contribute to a pedestrian-friendly urban environment. Features emphasises for pedestrian-friendly cities include a variety of activities and accessibility;
3. Ensure implementation of traffic control features on roads and public spaces such as retention and planting of canopy trees, tropical landscapes and pedestrian facilities; and
4. Apply Safe Cities (CPTED), a city free from all physical, social and mental threats. The environment is always in the most reserved condition. It does not create an atmosphere that could encourage incidents to disrupt local well-being. The residents are always in the safest, prosperous, healthy and cheerful condition.



DESIGN OF REACTIVATING THE LOWER-LEVEL SPACE OF MULTI-STORY PARKING BUILDING FOR MORE ECONOMICAL AND VIBRANT ACTIVITIES

Sources: watrydesign.com



DESIGN OF REACTIVATING THE LOWER LEVEL OF MULTI-STORY PARKING BUILDING FOR MORE ECONOMICAL AND VIBRANT ACTIVITIES

sources: thespace.com

ACTION**SV2.3: BEAUTIFICATION OF KUALA LUMPUR STRATEGIC TOURIST ATTRACTION AREAS**

Kuala Lumpur will be a city with attractive, clean and welcoming public spaces for all visitors. Currently, efforts to refurbish the design and upgrade the city's central areas, such as the back lanes, side lanes, riverfronts, and pedestrian walkways, are actively being carried out.

The beautification of roads and public spaces in Kuala Lumpur enhances the city's charm and natural surroundings that provide a comfortable pedestrian experience. This action encompasses the City Centre and Local Centre, where the need for a pedestrian-friendly environment is of paramount importance. Tourist activity areas should also be seen as a destination with Kuala Lumpur's distinctive identity.

SUPPORTING ACTION**SV2.3A: City Centre and Local Centre**

The following measures can be implemented to showcase the City Centre and Local Centre areas with high quality design and pedestrian friendly atmosphere:

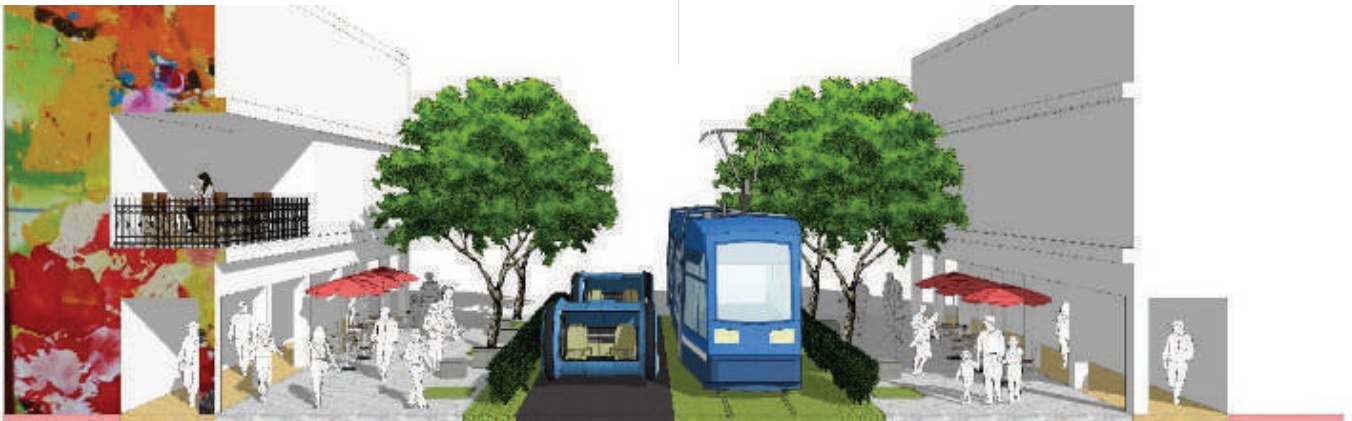
1. The City Centre is expected to have a high design quality where it is harmonised with the character and appearance of the area;
2. The design of the new building must take into account adjacent buildings and the surroundings to create continuity and harmony between buildings; and
3. The design should be sympathetic to the existing development on the adjacent lot and should consider the physical and local socio-cultural characteristics.



SULTAN ABDUL SAMAD BUILDING AT NIGHT AMONG THE TOURIST ATTRACTIONS



SALOMA LINK, KAMPONG BHARU AMONG TOURIST ATTRACTIONS



STREET WALL DESIGN AND CONTROL IN PEDESTRIAN SUCH AS JALAN TAR AND OTHER STREETS IN KUALA LUMPUR CITY CENTRE

SUPPORTING ACTION
SV2.3B: Tourist hotspot and landmarks

Enhance the quality of design in tourist attraction and landmarks to create the public's sense of place such as:

- 1. Shopping, entertainment and market areas should provide a comfortable atmosphere for the public to enjoy;
- 2. Cultural arts and heritage areas to be upgraded to ensure the use of spaces in the area for economic activities and local tourism facilities;
- 3. Preserve the natural and recreational areas of Kuala Lumpur as well as enhance accessibility by promoting a safe, attractive, accessible and connected mobility network; and
- 4. Recognise Kuala Lumpur's conferences areas by providing appropriate supporting infrastructure with robust and innovative urban design to promote Kuala Lumpur as an international city.

TABLE G3.6: CURRENT SEGMENT OF TOURIST ATTRACTION IN KUALA LUMPUR

SEGMENT	LANDMARKS
Shopping Area	Suria KLCC, Petaling Street, Bukit Bintang and Jalan Tuanku Abdul Rahman (TAR)
Entertainment	Changkat Bukit Bintang, Jalan P. Ramlee, Jalan Alor and Berjaya Times Square
Market	Pasar Raja Bot and Pasar Besar TTDI
Heritage Building and Sites	Dataran Merdeka and Muzium Negara
Sport and Recreation	KL Forest Eco Park and Taman Botani Perdana Kuala Lumpur
MICE	KL Convention Centre (KLCC), World Trade Centre (WTC), Sime Darby Convention Centre (SDCC) dan Mid Valley Exhibition Centre (MVEC)



IMPROVEMENT OF JALAN BUKIT BINTANG BY PROVIDING MORE PEDESTRIAN FACILITIES



ILLUSTRATION SHOWING THE PROPOSED HERITAGE BUILDING AT JALAN TUN PERAK WITH AN INJECTION OF ECONOMIC ACTIVITIES

STRATEGIC DIRECTION

SV3: GREEN NETWORK AND URBAN HERITAGE

The development of a green connector network in Kuala Lumpur can transform Kuala Lumpur's image as a green city and connect the community with the environment. Heritage and historical aspects will be developed as an attraction for the tourism sector in Kuala Lumpur.

ACTION

SV3.1: DEVELOP PARK CONNECTOR NETWORK

Kuala Lumpur will focus on the development of a park connectivity network align with the aim of making Kuala Lumpur a healthy and vibrant city. Through a comprehensive green network, people, especially Kuala Lumpur residents, will have the opportunity to live a better quality of life with a park connector network connecting neighbourhoods to all parks, open spaces and recreational facilities. It will also support a variety of healthy lifestyles and cultures.

SUPPORTING ACTION

SV3.1A: Park connectors and blue corridor

In the future, Kuala Lumpur will have a continuous green network equipped with pedestrian and bicycle paths. The route connecting the park varies according to the context of the area i.e. in Kuala Lumpur City Centre, neighbourhood areas, commercial areas and others.

The park connector in Kuala Lumpur will be designed as route that connects all the green areas within the city, such as city parks, district parks and local parks as well as private green area. It will also include the blue corridors such as rivers and water bodies as the main edges. The existing green areas will be upgraded with facilities that can be enjoyed by all community group.

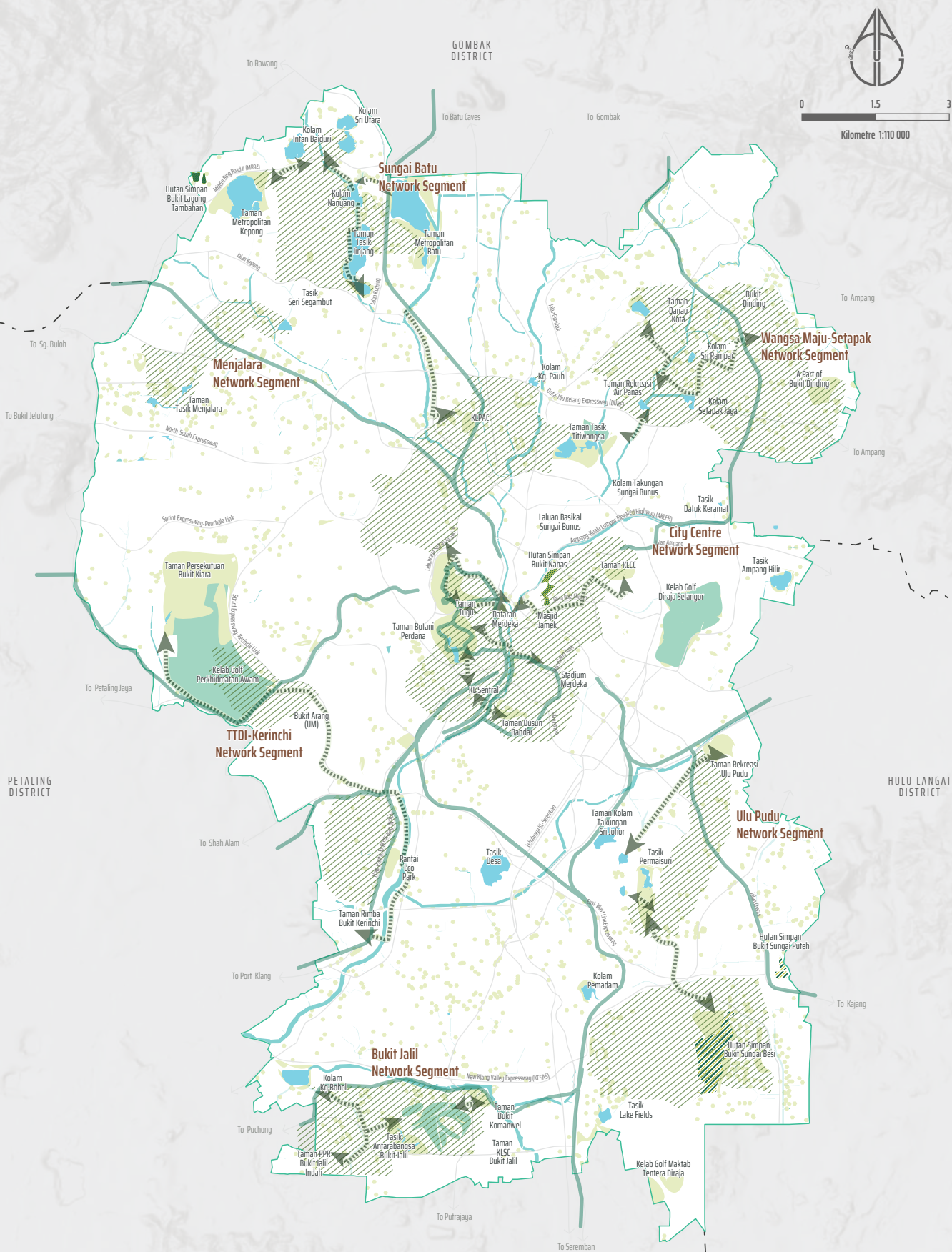
The park connector network can also connect residents with nature, support social interaction and fulfill an active and healthy lifestyle. Moreover, a comprehensive park connector network or green network can help stabilize the ecology, which in turn can contribute to temperature regulation in the urban environment.

The park connector network mechanism in Kuala Lumpur applies the following typologies:

1. Utility corridors, such as TNB, gas and water reserves line;
2. Riverside corridors;
3. Back lanes;
4. Road and drainage reserves; and
5. Private development.



PARK CONNECTOR NETWORK



G3

FIGURE G3.17
PARK CONNECTOR NETWORK

LEGEND

- Proposal
- Utility Corridor
- Network Segment
- Proposed Bicycle Route

- Existing
- Public Open Space
- Private Open Space
- Permanent Forest Reserve
- Lake and Pond

- Others
- Main Road
- Main River
- FTKL Boundary

NOTE:
All plans and figures are in the form of diagram/indicative only. It does not refer to any lot in details.

QUICK INFO

Park Connector Application



Neighbourhood Area

Linear green areas are applied as a connector to existing parks in the neighbourhood using drainage reserves or utility corridors.



River Corridor

The park connector along the river reserve/ corridor is activated with several activities that attract visitors, such as kiosks, restaurants and resting areas.



Main Road

The park connector is located along the main road with an wide landscape reserve equipped with pedestrian and bicycle paths.



Back Lanes

Improvement of the back lanes in the landscape through planting plants and environmental-friendly drainage is used as a park connector.

SUPPORTING ACTION

SV3.1B: Green marker as area boundary

Planting trees or suitable structures that mark Kuala Lumpur's area and boundaries will also be applied to create an attractive urban visual and serve as an urban green marker that could be an identity for Kuala Lumpur. This green marker can be implemented at the main roads, which are the boundary of Kuala Lumpur, and in specific areas of the city as the local green marker of the area.

It will improve the quality of the urban environment and be part of the Kuala Lumpur and Selangor green belt network. Some types of boundary markers that can be implemented are such as green borders, sculptures, murals or street art.



STANDARD CHARTERED PARK

ACTION**SV3.2: CONNECT THE CITY MAIN ACTIVITY CENTRE**

The future planning of Kuala Lumpur will focus on the continuation of comprehensive and holistic pedestrian and bicycles routes within the city. These routes must be continuously designed and aligned with development activities.

Pedestrian and cycling routes at attraction areas in Kuala Lumpur should be improved to strengthen the design of the street layout and enhance the permeability of an area.

SUPPORTING ACTION**SV3.2A: Pedestrian permeability**

Optimising pedestrian permeability by identifying the level of unobstructed public movement in an urban area is important for producing vibrant cities. It can also increase access and overcome local barriers by preparing permeability plans that maximize accessibility.

Private and public buildings shall cooperate to create accessible public spaces in new or existing developments.

EXAMPLE OF BEST PRACTICES**KL Citywalk, Kuala Lumpur**

Pedestrian-friendly route located between Jalan P. Ramlee, Jalan Perak and Jalan Pinang. KL Citywalk has a variety of activities on the ground level where approximately 80 percent is a food and beverage store while the remaining establishments offer various services. This shows the vibrant block connector and can be used as an example throughout Kuala Lumpur.



CURRENT SITUATION



ILLUSTRATION OF POTENTIAL AREA WITH A MORE ATTRACTIVE ENTRANCE

SUPPORTING ACTION

SV3.2B: Side lanes, back lanes and lanes between buildings

KLCH has taken proactive measures to revitalise back lanes in Kuala Lumpur with mural paintings, community programmes and interactive social spaces. Improvements and extensions of connectivity through these lanes could create better alternative access spaces in the city. Initiatives that can be implemented to upgrade the lanes are:

1. Identify more side lanes, back lanes and lanes between buildings as the main pedestrians and cyclist routes;
2. Prepare design plans to beautify, upgrade and maintain these lanes as block connectors that can be used by pedestrians and bicycles;
3. Encourage building owners participation to upgrade the side lanes, back lanes and lanes between buildings by expanding their activities to the space without compromising safety features. Hence, more attractive spaces can be revitalised with commercial activity;
4. Activate this space by promoting economic or cultural activities that can create a vibrant, safe and attractive environment;
5. Improve the back lanes towards the green concept by using a combination of suitable shrubs and trees that can serve as shading; and
6. Upgrade pavement for the comfort of pedestrians.



ILLUSTRATION OF IMPROVEMENT OF THE LANES BETWEEN BUILDINGS

EXAMPLE OF BEST PRACTICES

Back Lane of Jalan Alor, Bukit Bintang

The back lanes of Jalan Alor, which is upgraded with murals and lighting, have encouraged more pedestrians to use the lane as access to the city's main activity centre.



BACK LANE OF JALAN ALOR, BUKIT BINTANG



ILLUSTRATION OF IMPROVEMENT OF THE LANES BETWEEN BUILDINGS

SUPPORTING ACTION**SV3.2C: Underground path**

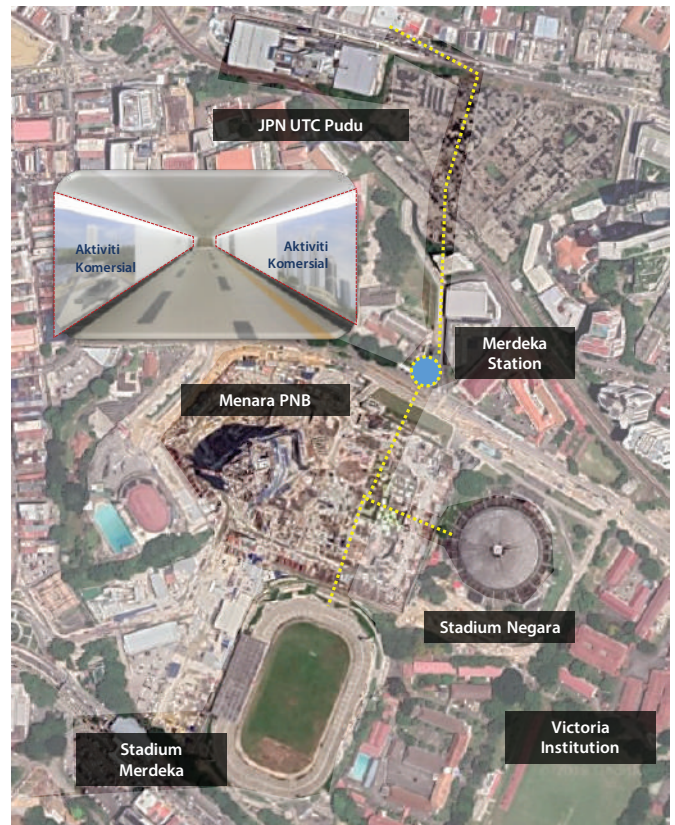
Continuous and quality connectivity can be improved with the provision of underground access facilities that will enhance the connectivity of key areas in Kuala Lumpur.

Among the existing underground lines are Suria KLCC and Avenue K and these line are integrated with the transit stations. The measures in providing an underground pedestrian walkway as an alternative to pedestrian connectivity in Kuala Lumpur are:

1. Identifying potential pedestrian route either in existing or new locations. Emphasis the continuity between the underground and ground-level in terms of the design, comfort and safety. It also enhances economic value by creating activities along the underground pedestrian walkway;
2. Ensure that the design of the underground path priorities ventilation and good natural lighting;
3. Optimising the function of signage, orientation and user visibility to create a more efficient built environment for pedestrians;
4. Establish cooperation between KLCH, private sector and property owners to connect the underground and ground pedestrian path at the public's hotspot area; and
5. Encourage property owners to build an underground pedestrian path to facilitate the movement of people in private buildings.



THE UNDERGROUND PASSAGE FROM UNION STATION IN TORONTO, CANADA - WHICH SHOWING GOOD NATURAL LIGHTING AND VENTILATION



POTENTIAL UNDERGROUND PATH CONNECTING MERDEKA MRT STATION TO MERDEKA 118 TOWER, STADIUM MERDEKA AND PUDU CENTRAL

EXAMPLE OF BEST PRACTICES**Pavilion and Fahrenheit88 Underground Connection**

The underground pedestrian path connecting privately owned underground shopping areas.



PAVILION UNDERGROUND EXTENSIONS AND FAHRENHEIT88

ACTION**SV3.3: STRENGTHEN AND EXPAND KUALA LUMPUR HERITAGE TRAIL**

The Kuala Lumpur Heritage Trail Master Plan has been prepared, which guides the design of the heritage footprint in Kuala Lumpur. The Kuala Lumpur City Centre area is rich with various elements and attractions, particularly the tangible and intangible heritage.

Tangible heritage such as the existing buildings needs to be preserved and conserved for future generations. Generally, these heritage buildings are located along the Klang River, where Kuala Lumpur's development began. The heritage trail will connect the primary heritage nodes based on the character and historical chronology of Kuala Lumpur to ensure continuity between the heritage area and the pedestrian walkways.

SUPPORTING ACTION**SV3.3A: Conserve heritage buildings as main nodes of heritage trail**

Conserving heritage buildings as the primary node of the heritage trail is essential to create a sense of place for Kuala Lumpur. These heritage sites and buildings can be used adaptively with uses that respect the historical value of the building and area.

This action will make the heritage trail area potential as a tourist attraction with the provision of information boards and virtual platforms as a guide and make it easier for visitors to visit the heritage areas of Kuala Lumpur. The heritage area can also be used as a pedestrian walkway area to increase the appreciation of the atmosphere of the area.

Among the measures to be taken are:

1. Collaborating with the Department of National Heritage to establish an integrated database of historical and significant buildings and areas for the preservation and maintenance of tangible and intangible heritage;
2. Promote for a better understanding of conservation and share the appropriate conservation methods with relevant professionals and building owners;
3. Determine the Heritage Impact Assessment process during the application of planning permission for gazetted buildings and buildings identified as a heritage; and
4. Encourage promotion to attract private sectors to participate in conservation programmes.



ROWS OF HERITAGE SHOPS AT MEDAN PASAR KUALA LUMPUR THAT SHOULD BE CONSERVED AND ACTIVATED WITH VARIOUS ACTIVITIES THAT WILL ATTRACT TOURISTS

SUPPORTING ACTION

SV3.3B: Implement the comprehensive plan of Kuala Lumpur Heritage Trail

The route connecting the heritage trail has been implemented mainly in the city centre. This implementation will continue on every heritage trail by identifying nodes providing information and storytelling through innovative interpretative boards.

Nodes or the main focus of each heritage trails will be enhanced with murals, sculptures, and innovative interpretive panels that narrate the history of the area to ensure that historical and cultural heritage resources are more prominently showcased. In addition to the provision of seamless pedestrian walkway, public facilities such as seating, kiosks and toilets will also be provided. Furthermore, each heritage trail will also have a place marker selected based on historical and heritage values and the element's contribution to storytelling on each trail.

SUPPORTING ACTION

SV3.3C: Heritage trail area character design guidelines

Detailed guidelines should be provided as a guide and reference to preserve the architectural diversity and ensure the environmental quality in areas with historical heritage values. These guidelines include architectural design principles, street furniture and pedestrian facilities within the heritage trails in Kuala Lumpur.



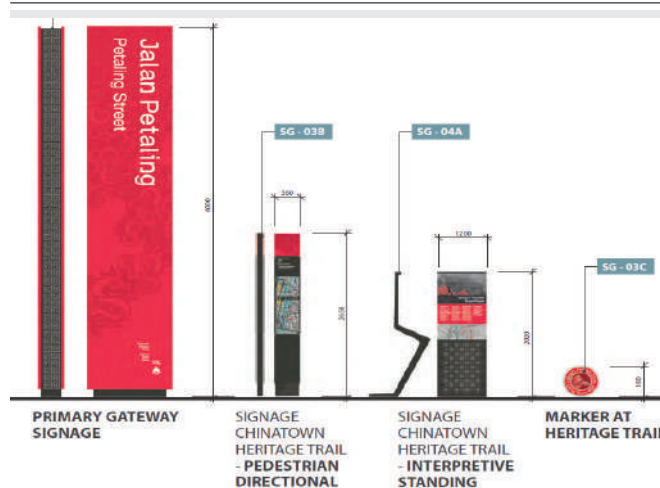
BANGUNAN SULTAN ABDUL SAMAD

FIGURE G3.18: KUALA LUMPUR HERITAGE TRAIL MASTER PLAN



Source: Kuala Lumpur Heritage Trail Master Plan

FIGURE G3.19: SIGNBOARD DESIGN AT RIVER OF LIFE KUALA LUMPUR



sources: River of Life Master Plan Report, 2014

STRATEGIC DIRECTION

SV4: EFFECTIVE GREEN ENVIRONMENT GOVERNANCE AND URBAN DESIGN

Effective governance is a significant factor in managing and ensuring the green environment of the city. It should be effectively planned and implemented to protect green areas and permanent forest reserves to enhance Kuala Lumpur's image towards better quality.

Implementing effective governance measures aims to regulate and maintain green assets and improve Kuala Lumpur's image toward a green city.

ACTION

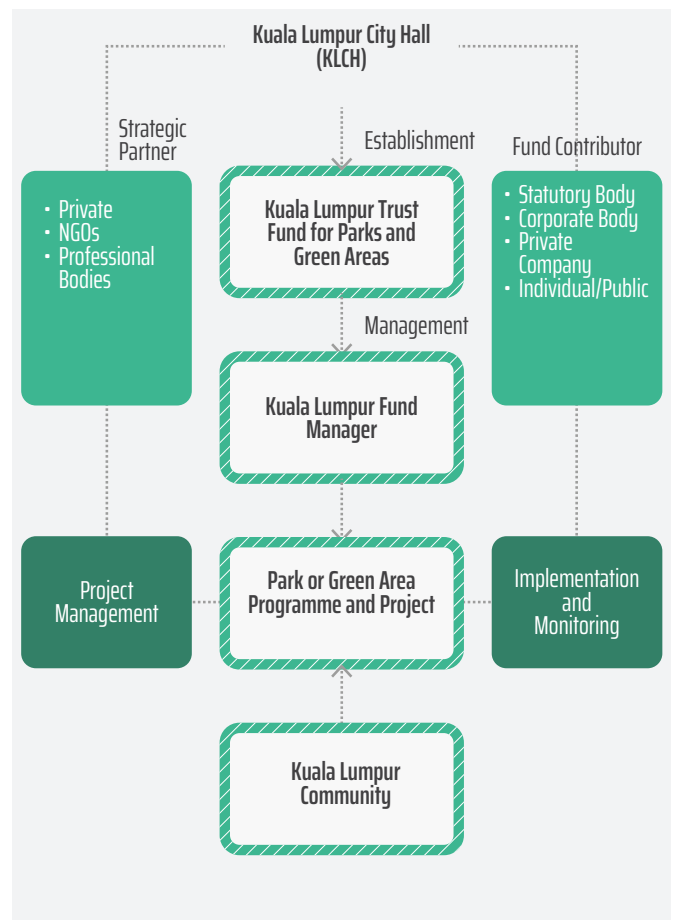
SV4.1: ESTABLISH PUBLIC TRUST FUND FOR PARKS AND GREEN AREAS

A long-term proposal is to establish a dedicated trust fund for parks and green areas with the purpose of implimenting more urban greening projects, public spaces, rehabilitating open lands, and improving existing parks. The fund will be established by KLCH and managed by a dedicated trust manager to administer allocations and contributions to specific projects and programmes. The management of this public trust fund can also be in collaboration with various parties, including the private sector, NGOs, local communities and facilitated by KLCH.

The establishment of the trust fund seeks to:

1. Improve the quality of green and public spaces in Kuala Lumpur;
2. Funding urban biodiversity conservation programmes;
3. Conduct research activities through partnerships with organisations and individuals;
4. Prepare, regulate and preserve land or space for parks and green spaces;
5. Maintain and improve existing parks and green areas;
6. Provide programmes with opportunities for community engagement; and
7. Acquire land or space for open spaces and parks.

FIGURE G3.20: STRUCTURE OF PUBLIC TRUST FUND FOR PARKS AND GREEN SPACES IN KUALA LUMPUR



EXAMPLE OF BEST PRACTICES**Garden City Fund, NParks Singapore**

The Garden City Fund (GCF) is a registered institution established by the Department of National Parks (NParks) but independently managed. The vision of this trust fund are as follows:

1. Optimising green space in Singapore;
2. Support the city's biodiversity conservation programme;
3. Promote community involvement;
4. Improve the efficiency of the landscape industry in Singapore; and
5. Provide a platform for communities to engage in conservation, research, outreach and education initiatives through partnerships with organisations and individuals.

**ACTION****SV4.2: ENCOURAGE PUBLIC-PRIVATE PARTNERSHIP IN GREEN AREA MANAGEMENT**

This action supports collaboration between the public and private sectors in the joint management of parks and green areas in Kuala Lumpur. KLCH promotes 'Adopt A Park' programme by the private sector or the public and promotes long-term partnerships to maintain and beautify parks and green areas, especially in the neighbourhood. It can also be used as a social activity that unites the community in a particular neighbourhood.

The 'Adopt A Park' programme is implemented through the cooperation between the park or green areas recipients and KLCH to:

1. Create a voluntary park maintenance schedule;
2. Provide the beautification of parks and green areas programme as well as the area's programmes and activities;
3. Increase tree planting programmes; and
4. Provide expertise to improve the quality of parks and green spaces.



POCKET PARK AT JALAN AMPANG/JALAN P. RAMLEE



'ADOPT A PARK' ON JALAN PINANG

ACTION**SV4.3: PROVIDE URBAN DESIGN GUIDELINES**

Kuala Lumpur is a city with unique urban design features. Its architecture and urban spaces have a variety of stories and histories that highlight the character and image of the city.

Therefore, the provision of urban design guidelines is crucial to assist in enhancing the unique urban design features in terms of architecture, urban spaces with character and image as well as the creation of boundary marker, whether through tree planting or suitable structures, to demarcate areas in Kuala Lumpur.

The urban design guidelines that have been prepared should be improved and translated into future development planning. It must be responsive to the context and current situation to produce continuity and consistency towards strengthening Kuala Lumpur's function as a quality city to live, work and play.

SUPPORTING ACTION**SV4.3A: Public spaces and common areas design guidelines**

Kuala Lumpur requires quality, inclusive, attractive and accessible public spaces and common areas. This supporting action will enhance the functioning of public spaces and common areas and activate a more vibrant and safer urban environment.

Preparation of public spaces and common areas design guidelines will guide the planning to ensure enhanced relations between humans and places.

In addition, these guidelines consider the planning of public realms and user-friendly common areas to provide comfort while moving in the city, improve environmental quality with local identity designs and ensure green elements as primary features.

Public realms and common areas are sources of space in the city whereby the public is interested in common use. Among these spaces are:

1. Local roads and back lanes;
2. Road shoulders and pedestrian walkways;
3. Public facilities such as libraries, markets, schools and community halls;
4. Green spaces, parks and pocket parks;
5. Plazas, squares and courtyards;
6. Space between buildings; and
7. The space between the building and the street.



PEDESTRIAN LANE AT CENTRAL MARKET



MEDAN PASAR, KUALA LUMPUR

SUPPORTING ACTION SV4.3B: Building plot design guidelines

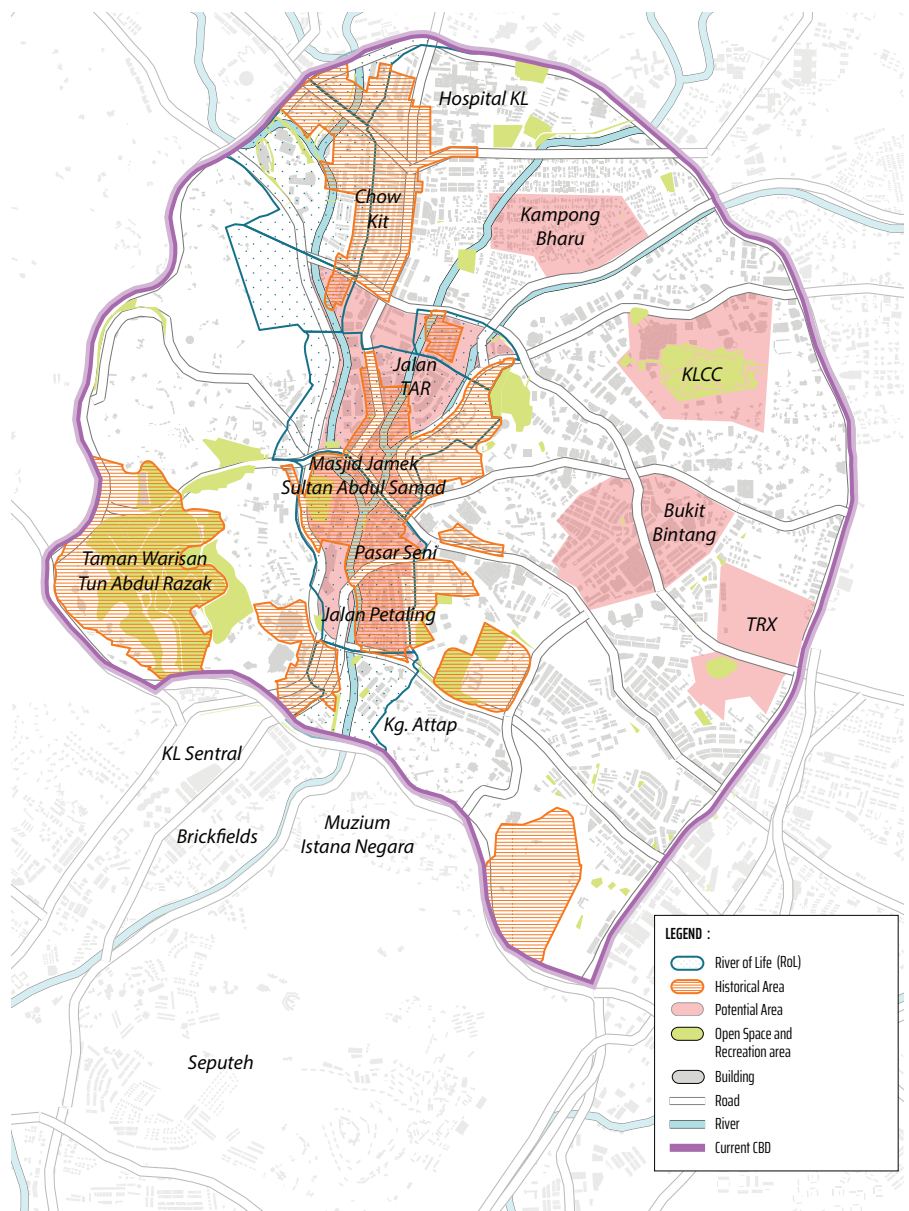
Kuala Lumpur has a variety of building designs and built-up spaces consisting of traditional and modern architecture. These guidelines aim to establish and preserve the unique urban character of the city, ensuring that the physical structure of buildings harmonises with the context of their location and environment. Hence, rapid and dense development in the city centre area requires the preparation of Building Plot Design Guidelines to improve the quality of the future built environment in Kuala Lumpur.

Preparation of the Building Plot Design Guidelines will guide the layout planning and the development design in a plot or site. It also assists KLCH in planning control aspects to ensure that buildings are compatible with the surrounding area and building scale that considers human scale elements.

Areas in Kuala Lumpur City Centre that can implement Building Plot Design Guidelines are:

1. Areas with heritage and conservation building/site;
2. Areas with several infill lot/sites in Kuala Lumpur City Centre;
3. Areas that have been identified as regeneration and redevelopment area or integrated and comprehensive development area; and
4. Riverside and hillside areas, which must be responsive towards a particular and sensitive locational context.

FIGURE G3.21: CITY CENTRE PLOT BRIEF PREPARATION AREA



SUPPORTING ACTION**SV4.3C: Activate public space at the sub-centres and suburbs**

The sub-cities and suburbs of Kuala Lumpur lack of buildings that provide suitable public spaces, especially in locations adjacent to commercial areas.

Public spaces can be more vibrant through the provision of quality activities and facilities.

This can be implemented by creating more urban spaces and public landscapes in front of the building. The areas that require improvement and enhancement in public spaces adjacent to commercial areas are:

1. Wangsa Maju: Jalan Wangsa Delima, Taman Desa;
2. Segambut: Jalan Selingsing 2;
3. Sungai Besi: Sungai Besi Central Park; and
4. Lembah Pantai: Bukit Kerinchi, Bangsar.

The activation of these public spaces will create a vibrant urban environment and subsequently attract more people to walk.



THE BUILDINGS AT JALAN TUANKU ABDUL RAHMAN

SUPPORTING ACTION**SV4.3D: Visual corridor guidelines**

The city of Kuala Lumpur has natural skyline that includes hills and natural green areas. The preservation of views will ensure that Kuala Lumpur maintains its connection with the natural environment. These guidelines can be implemented by emphasising prominent visual corridors in Kuala Lumpur.

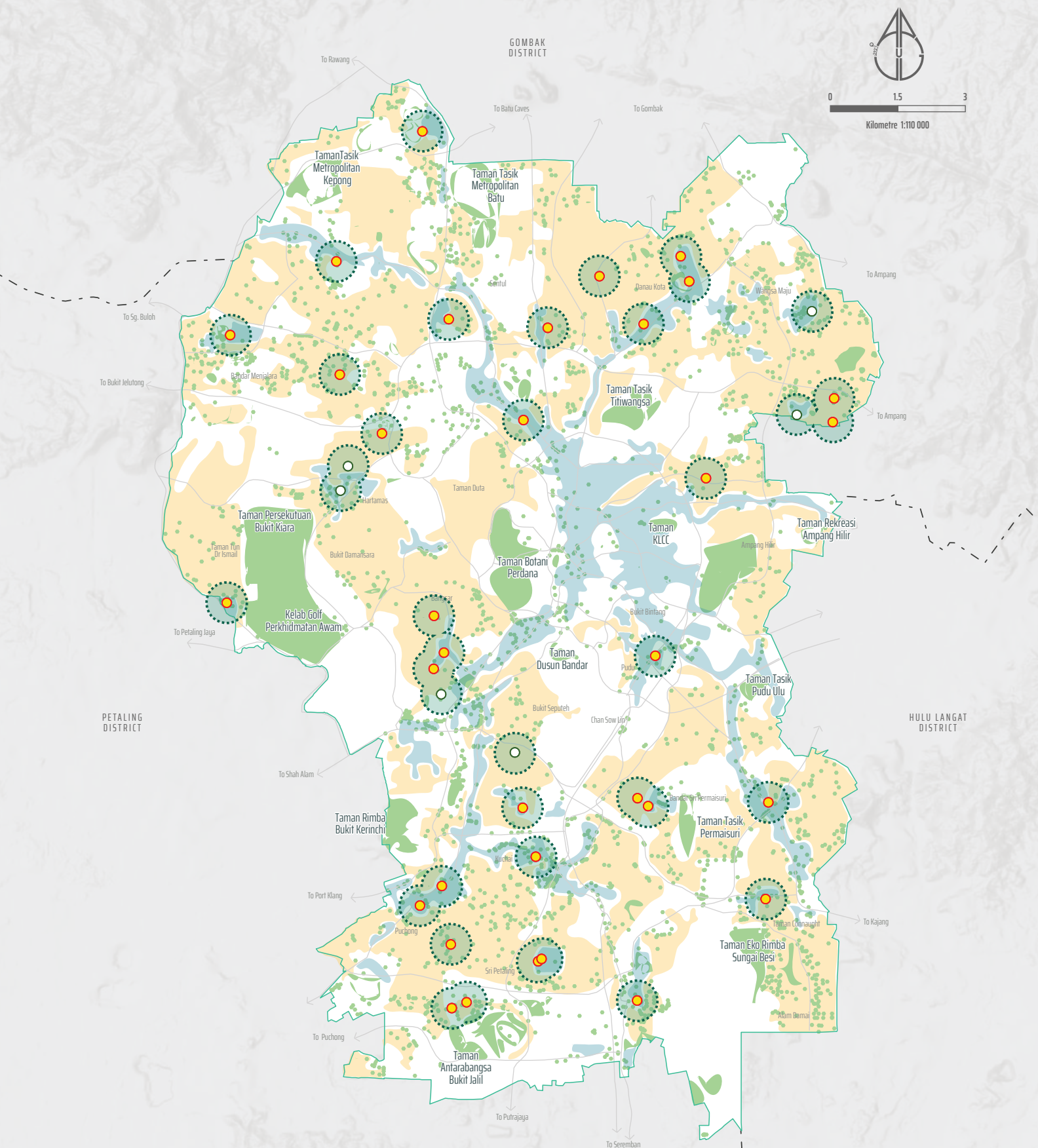
There are several interesting visual corridors are captivating and are the point of view of the natural skyline in Kuala Lumpur. The design and height of the building should be controlled to avoid blocking the view towards the ridgeline that forms the skyline and harmonising the city view's structure.

Potential areas with the natural backdrop that will be preserved and protected as Kuala Lumpur's backdrop are:

1. Visual corridors from the Wangsa Maju and Setapak areas towards Bukit Tabur and Bukit Dinding;
2. Visual corridors from the Bandar Tun Razak area towards Bukit Sungai Besi;
3. Visual corridors from the Taman Tun Dr Ismail area towards Taman Persekutuan Bukit Kiara; and
4. Visual corridors from the Hartamas and Mont Kiara areas towards Taman Persekutuan Bukit Kiara.



A VIEW OF KL SENTRAL SKYLINE SEEN FROM TAMAN TASIK TITIWANGSA



G3

FIGURE G3.22
COMMERCIAL NEIGHBOURHOOD AREAS WITH PUBLIC SPACES

LEGEND

Proposal

Proposed Public Space

450 Meter Radius

Existing

Existing Public Space

Commercial Area

Residential Area

Open Space

Others

Main Road

FTKL Boundary

NOTE:

All plans and figures are in the form of diagram/indicative only. It does not refer to any lot in details

SUPPORTING ACTION**SV4.3E: Distinct skyline control**

Kuala Lumpur skyline view shall be control and enhanced to create an attractive visual impact on the significant vistas and the views of major Kuala Lumpur landmarks. KLCH will take appropriate measures to translate the height control.

SUPPORTING ACTION**SV4.3F: Visual protection**

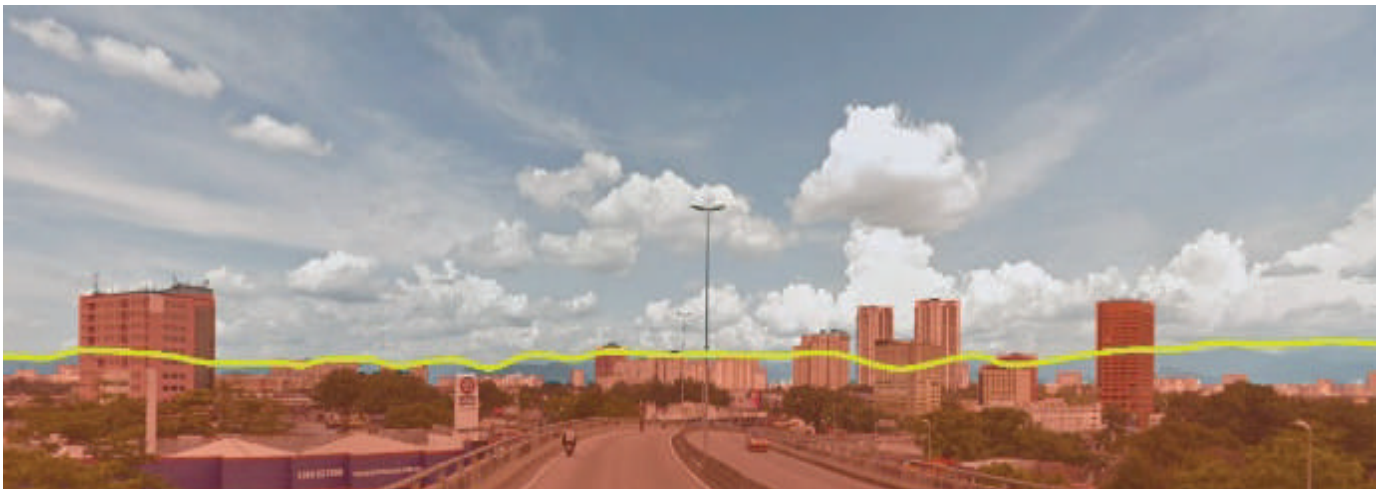
The measures that will be implemented to protect the visuals of Kuala Lumpur's skyline are as follows:

1. KLCH will conduct a visual protection impact study showing the impact of the urban landscape on landmarks such as major commercial centres, major national institutions and suitable buildings that make up the Kuala Lumpur skyline; and
2. KLCH will implement actions to control the size and placement of signages especially in residential areas to avoid affecting visual views in the areas.

SUPPORTING ACTION**SV4.3G: Restrict placement of billboards in strategic areas of the city**

The placement of billboards cannot be set up in strategic areas of Kuala Lumpur which affects the quality of the built environment of Kuala Lumpur City. These include:

1. Protecting facades on heritage buildings as well as buildings with attractive architectural value; and
2. Outdoor billboards are also not allowed on protocol roads that can affect the skyline and the urban form resulting from building components and their height levels that shape a city's character and image.



ANALYSIS OF THE ABOVE FIGURE SHOWS A LACK OF CONTROL FOR THE NATURAL VIEW OF PERMATANG KUARZA SHOWN IN YELLOW LINES AND THE INSTABILITY OF BUILDINGS HEIGHTS IN KUALA LUMPUR, SHOWN IN RED LINES

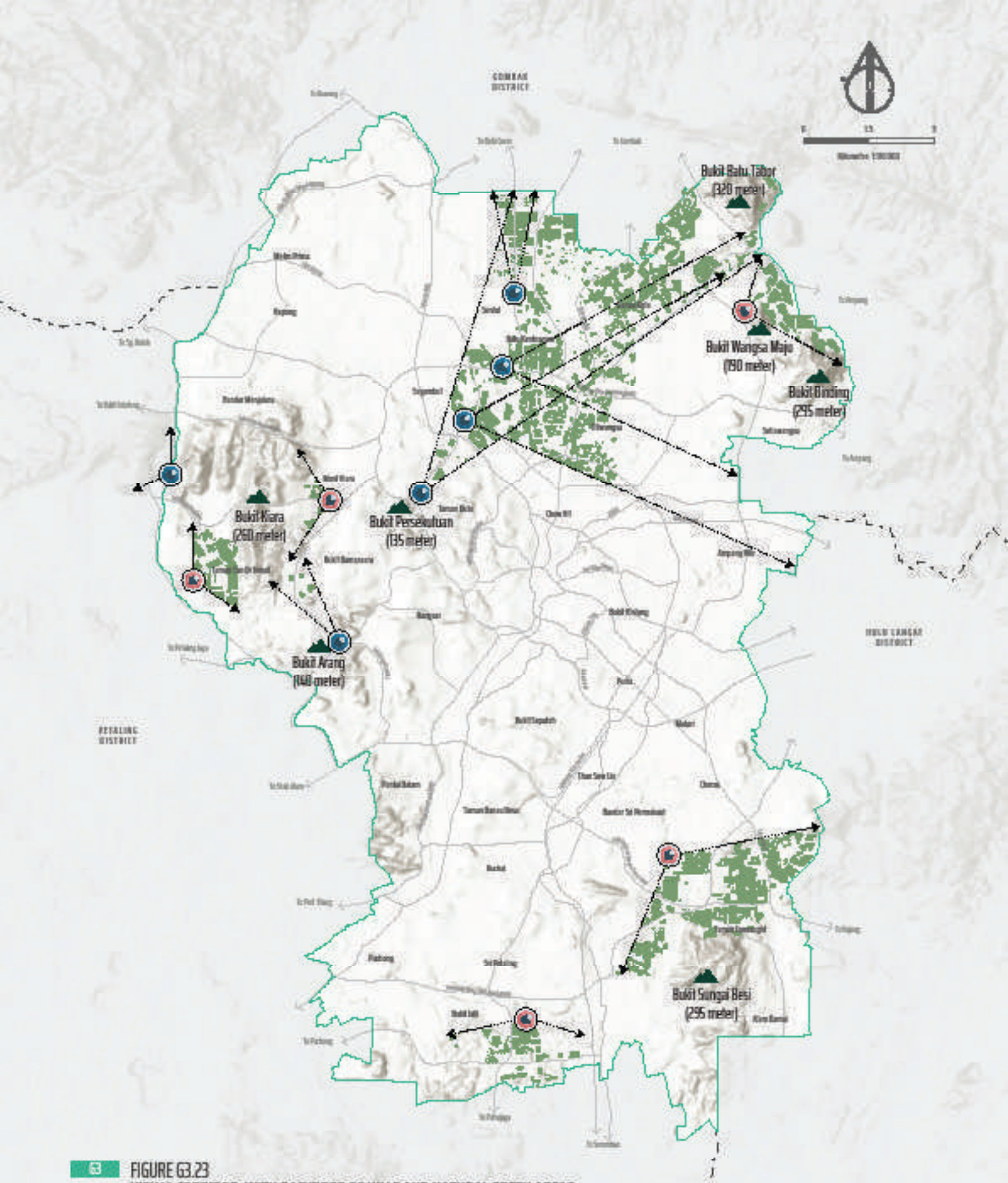


FIGURE G3.23
VISUAL CORRIDOR WITH BACKDROP OF HILLS AND NATURAL GREEN AREAS

LEGEND

- Existing
- Potential Directional View
- Preserved Directional View
- High Development Cluster
- Side View
- Highest Peak (Over 50meters)

- Others
- Main Road
- FDOL Boundary

NOTE

All plans and figures are in the form of diagrams/indicative only. It does not refer to any lot in details.

SUMMARY
























Efforts towards healthy cities align with the planning of healthy cities by the World Health Organisation (WHO) and the SDGs which places a high commitment to social health and the living environment. It is an essential platform for achieving sustainable health and development in Kuala Lumpur alongside better urban development.

This goal helps support political leadership and governance engagement to transform the healthy and vibrant lifestyle and helps mitigate the effect of environmental degradation, climate change, an ageing city, population migration, increased inequality, and social segregation. KLCH and other agencies, including NGOs should work together to ensure that this goal is achieved comprehensively.

TABLE G3.7: SUMMARY OF MULTI-DIMENSIONAL ACTIONS BASED ON THE AIM OF SUSTAINABLE DEVELOPMENT GOALS 2030

ACTION	RELATED SDGs
SV1.1: Protect the City's Nature Assets	
SV1.1A: Preserve permanent forest reserves and urban forest parks from development	11 15
SV1.1B: Enhance efforts to preserve rivers and lakes	11 14 15
SV1.1C: Expand River of Life (RoL) programme to other rivers	11 14
SV1.1D: Establish City Biodiversity Index to monitor habitat (flora and fauna)	16
SV1.1E: Intensify community involvement in preserving natural assets	4 11 13 14 15
SV1.2: Connect Green Areas and Blue Corridors as Urban Ecology Nodes	
SV1.2A: Conservation of lakes and ponds as part of open space and recreation areas	11
SV1.2B: Create a network of forest links as part of the ecological network	11 15
SV1.2C: Integrate environmental friendly urban drainage system as ecological network	11 14 15
SV1.3: Increase Kuala Lumpur's Green Density	
SV1.3A: Increase urban green canopy coverage	15 16
SV1.3B: Improve vertical green density	2 11
SV2.1: Enhance Quality and Diversify the Functions of Parks and Open Spaces	
SV2.1A: Gazette and protect open spaces	11
SV2.1B: Classified the hierarchy of open space	11
SV2.1C: Upgrade existing open space and recreational areas as world class park	11
SV2.1D: Activate parks and open spaces	11
SV2.2: Enhance Active and Creative Use of Urban Space	
SV2.2A: Kuala Lumpur old city area as Cultural and Local Creative Industry Precinct	11
SV2.2B: Street and public space for art show and open gallery	11

TABLE G3.7: SUMMARY OF MULTI-DIMENSIONAL ACTIONS BASED ON THE AIM OF SUSTAINABLE DEVELOPMENT GOALS 2030 (CONT.)

ACTION	RELATED SDGs
SV2.2C: Creative use of abandoned and vacant spaces in the city as pocket park and plaza	 
SV2.2D: Common use of school field for community	
SV2.2E: Activate the ground floor spaces of buildings	
SV2.3: Beautification of Kuala Lumpur Strategic Tourist Attraction Areas	
SV2.3A: City Centre and Local Centres	
SV2.3B: Tourist hotspot and landmarks	
SV3.1: Develop Park Connector Network	
SV3.1A: Park connectors and blue corridor	 
SV3.1B: Green belt as area marker and boundary	
SV3.2: Connect the City Main Activity	
SV3.2A: Pedestrian permeability	
SV3.2B: Side lanes, back lanes and lanes between buildings	
SV3.2C: Underground path	
SV3.3: Strengthen and Expand Kuala Lumpur Heritage Trail	
SV3.3A: Conserve heritage buildings as main nodes of heritage trail	
SV3.3B: Implement the comprehensive plan of Kuala Lumpur Heritage Trail	
SV3.3C: Heritage trail area character design guidelines	
SV4.1: Create Public Trust Fund for Parks and Green Areas	 
SV4.2: Encourage Public-Private Partnership in Green Area Management	 
SV4.3: Provide Urban Design Guidelines	
SV4.3A: Public spaces and common areas design guidelines	
SV4.3B: Building plot design guidelines	
SV4.3C: Activate public space at the sub-centres and suburbs	
SV4.3D: Visual corridor guidelines	
SV4.3E: Distinct skyline control	
SV4.3F: Visual protection	
SV4.3G: Restrict placement of billboards in strategic areas of the city	

GOAL 4

KUALA LUMPUR CLIMATE-SMART AND LOW CARBON CITY



KUALA LUMPUR'S SKYLINE, YEAR 2022

Due to global climate change, Malaysia is also experiencing various climate-related natural disasters such as floods, landslides, strong winds, urban heat, and air pollution. The significant impact of these disasters in urban areas necessitates urban development planning that takes into consideration the implications of climate change on economic growth, social well-being, the environment, and public health. This is to ensure Kuala Lumpur continues to develop as a city that is sensitive and resilient to the impacts of climate change which can reduce disaster risk to the city and its communities.

This goal seeks to strengthen efforts to reduce greenhouse gas (GHG) emissions in shaping Kuala Lumpur as a global city of low carbon and efficient resource management, especially in solid waste, water, energy and green transportation management. Initiatives towards smart city development based on technological advances need to be adopted to address urban issues and enhance the quality of life, safety, environmental sustainability, and efficient urban management. These efforts will promote the development of resilient, climate-smart buildings and infrastructure, indirectly enhancing competitiveness and livability for future green growth.

The goal focuses on management, planning, and development. It encompasses adaptation and mitigation measures to address the impacts of natural disasters and climate change, as well as efficiency in reducing carbon emissions and managing urban resources.

The strategic directions formulated to support this goal are:

PR1

Resilience to Natural Disasters
and Climate Change

PR2

Efficient Urban Resources
Management

PR3

Efficiency in Carbon Emission
Reduction

PR4

Low Carbon Community
Development

4 STRATEGIC DIRECTIONS

14 ACTION

Goal 4 of KLSP2040 towards making Kuala Lumpur a climate-smart and low carbon city is supported by four (4) strategic directions and 14 planning priorities and implementation actions.

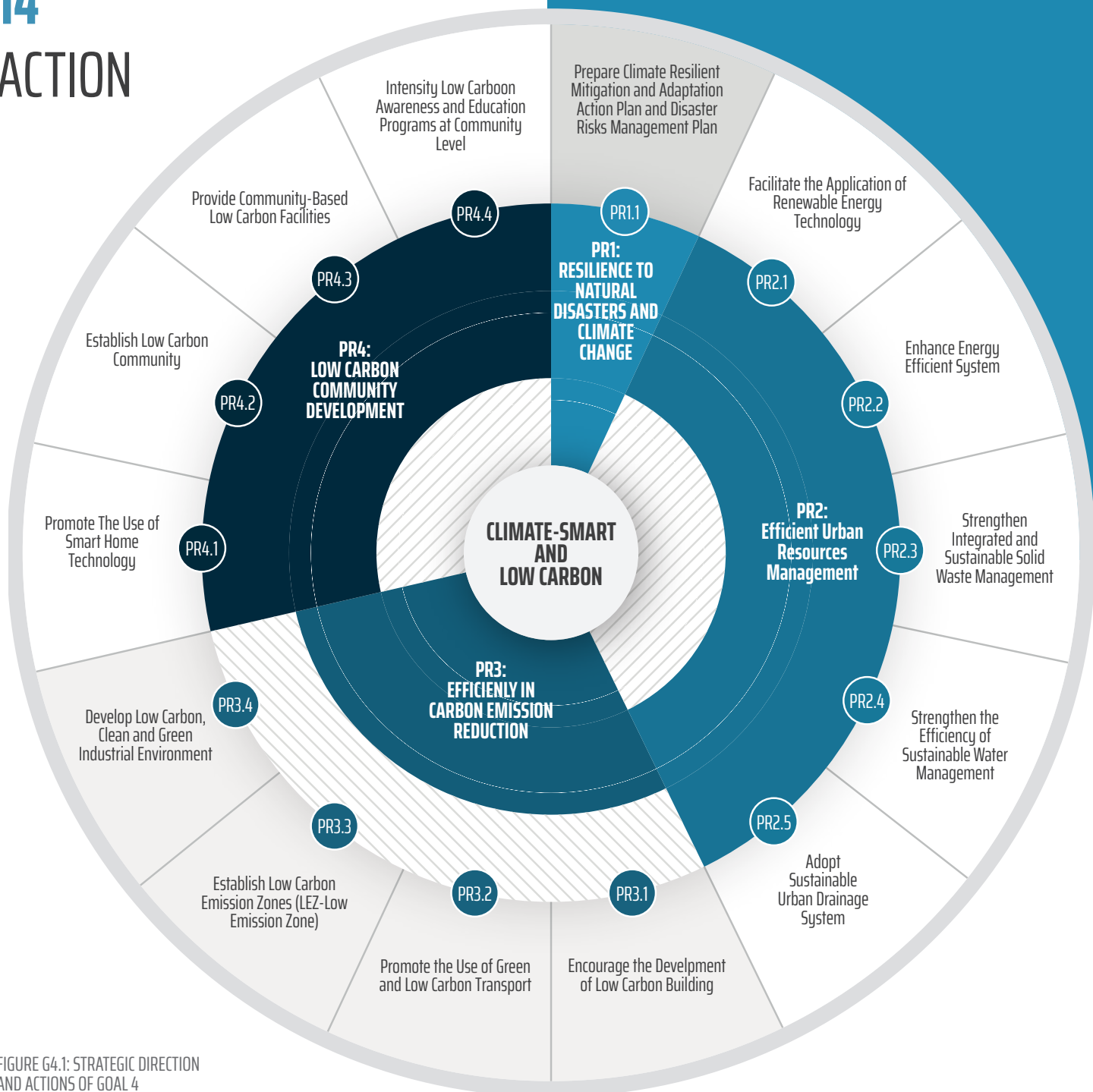


FIGURE G4.1: STRATEGIC DIRECTION AND ACTIONS OF GOAL 4

GAME CHANGER

Global warming and climate change are serious issues that need to be addressed, and Kuala Lumpur is also affected by the impact of these phenomena. The implications of this global issue have far-reaching implications in urban and suburban areas. Kuala Lumpur is among the affected by global warming, natural disasters and climate change in Malaysia and this is attributable to rapid urbanisation and development of various sectors such as commercial and transportation activities.

The average annual temperature of Kuala Lumpur is increasing from 26°C in year 2010 to 29°C in year 2020 (Figure G4.2) and it is expected to continue to increase in the future if no action is taken. The highest temperature recorded over the 10-year leading up to year 2020 was 33°C in year 2015, 2016, 2019 and 2020.

In line with the Sustainable Development Goals 2030 (SDGs), the 13th Sustainable Development Goal (SDG 13) on Climate Action has outlined targets to be achieved and immediate action to address climate change and its implications for the urban environment. The transition towards an environmentally friendly and sustainable lifestyle needs to be applied to the people of Kuala Lumpur in addition to adopting climate smart technology innovations and low carbon practices in development.

IMPLICATIONS OF RISING TEMPERATURES ON URBAN ENVIRONMENTS

Urban Heat Island Phenomena (UHI)

Rapid development in Kuala Lumpur has led to the urban heat island (UHI) phenomena where air temperatures in the city have increased compared to the suburbs. This phenomena affects the environment and the comfort of urban life.

Frequency of flash flooding

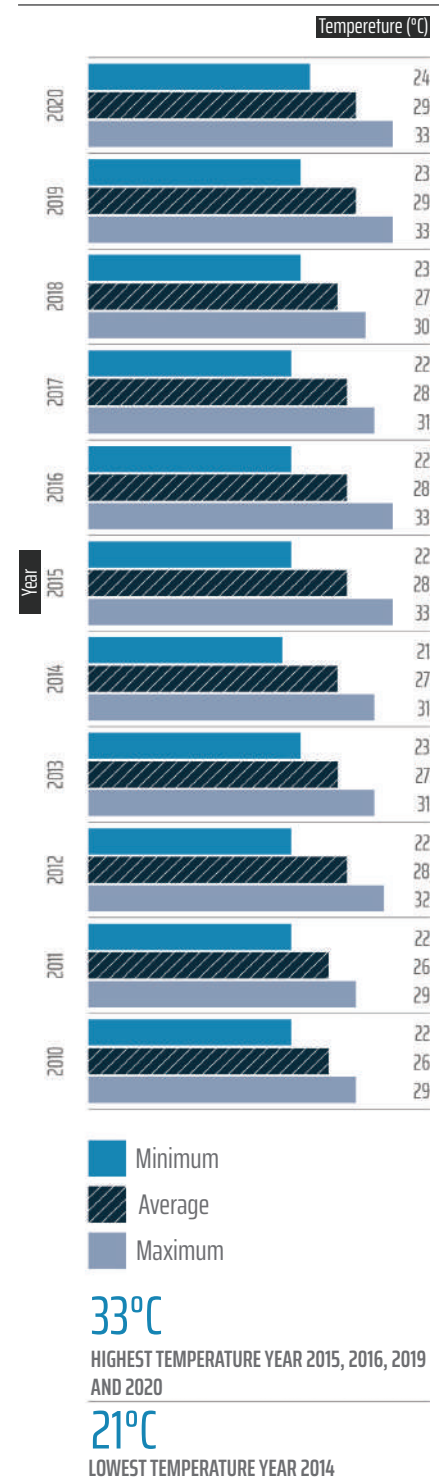
As a result of climate change, rainfall in Kuala Lumpur is also increasing, indirectly increases the potential for flash flooding. According to Department of Irrigation and Drainage (DID) records, in 2016-2020, more than 63 cases of flash flood cases have occurred which is affecting the city's economy and environment.

Water crisis and El Nino phenomenon

Long periods of drought, along with prolonged and unpredictable rainfall, are increasingly frequent, and these conditions are closely related to the El Nino and La Nina phenomenon in the Pacific Ocean, resulting from changes in atmospheric temperature.

El Nino is a phenomena where global mean sea water surface temperature has increase over a period of six (6) to 18 months every two (2) to seven (7) years in the eastern Pacific Ocean near Peru. However, the phenomenon causes a chain of climate change around the world.

FIGURE G4.2: ANNUAL TEMPERATURE IN KUALA LUMPUR 2010-2020



Source: Department Meteorological Department (METMalaysia), 2021

The natural phenomena occurs when the prevailing winds blow from the Pacific Ocean region of the South American continent towards Australia and Southeast Asian countries including Malaysia. This has leads to exceptionally dry weather and a significant reduction in rainfall in Malaysia.

The water supply crisis, which also affected Kuala Lumpur residents, occurs when the Klang Valley dam suffered a serious water loss due to the El Nino phenomena. The most serious water crisis ever occurred in the Klang Valley in year 1998, 2009 and 2014.

NATIONAL COMMITMENT IN THE EFFORT TO REDUCE GREENHOUSE GAS (GHG) EMISSION

Malaysia aims to reduce greenhouse gas (GHG) emissions intensity by 45 percent by year 2030. This target aligns with the country's progressive commitments presented during the Paris Agreement at the 2015 United Nations Climate Change Conference (COP 21 - Conference of the Parties 21) held in Paris, France. The commitment was reiterated at COP26 in Glasgow, United Kingdom in year 2022, emphasising cooperation with the international community for sustainability.

QUICK INFO

National Commitment in The Effort To Reduce Greenhouse

79%

CO₂ emissions amounted to 79 percent GHG emissions in 2005.

45%

Malaysia agreed to reduce 45 percent of GHG GDP emission intensity by 2030.

Source: Malaysia Third National Communication and Second Biennial Update Report to the UNFCCC 2018

TABLE G4.1: MALAYSIAN GREENHOUSE GAS EMISSIONS FOR YEAR 1994, 2000, 2005, 2011, 2014 AND 2016

SECTOR	EMISSION / DISPOSAL (GGCO ₂ EQ)					
	YEAR 1994	YEAR 2000	YEAR 2005	YEAR 2011	YEAR 2014	YEAR 2016
1. Energy	92,049.66	143,141.29	198,514.01	225,060.62	253,517.24	251,695.02
2. Industrial Processes and Product Use	5,678.85	11,532.89	15,101.60	17,058.02	20,257.83	27,348.83
3. Agriculture	8,183.89	8,752.54	10,253.15	9,906.22	11,081.37	10,627.72
4. Land Use, Land Use Change and Forestry (Emission)	137,523.00	54,298.83	35,985.19	3,560.43	3,317.15	17,801.28
5. Land Use, Land Use Change and Forestry (Removal)	-211,843.11	-235,244.29	-233,918.04	-242,586.19	-267,147.77	-259,146.03
6. Solid Waste	12,605.09	16,670.76	21,928.28	26,957.38	28,216.36	27,161.66
7. Total Emission (Total Emission for Item 1,2,3,4 and 6)	256,040.49	234,395.31	281,782.23	282,542.66	316,389.95	334,634.51
8. Net Total (Item 7 minus Item 5)	44,197.38	-848.98	47,864.19	39,956.47	42,242.18	75,488.48

Source: Malaysia Third Biennial Update Report to the UNFCCC, 2020

KUALA LUMPUR CARBON EMISSION PROFILE

A) Final energy demand by sector, Year 2010 and Year 2030

Energy demand for Business as Usual (BaU) in Kuala Lumpur is expected to increase from 5,332 ktoe in 2010 to 15,477 ktoe in year 2030. Energy demand by the passenger transport sector is the highest energy demand sector with an expected 6,330 ktoe by year 2030 (Table G4.2).

TABLE G4.2: FINAL ENERGY DEMAND BY SECTOR

SECTOR	KTOE		
	YEAR 2010	ESTIMATE YEAR 2020	ESTIMATE YEAR 2030
Freight Transportation	617	1,699	3,022
Passenger Transport	2,698	4,555	6,330
Industry	650	133	156
Commercial	1,144	2,984	5,396
Residential	223	417	572
TOTAL	5,332	9,788	15,477

Source: Kuala Lumpur Low Carbon Society Blueprint 2030, KLCH

QUICK INFO

GHG Emission Per Capita and GHG Emission Intensity year 2010

15.18

ktCO₂eq/PERSON

GHG emission intensity per capita year 2010.

0.30

ktCO₂eq/MIL.RM

GHG emission intensity per GDP year 2010.

B) GHG emission by end user sector, Year 2010 and Year 2030

GHG emission in Kuala Lumpur were 25,427 ktCO₂ equivalent in year 2010 and is expected to increase to 84,314 ktCO₂ equivalent by year 2030. GHG emissions by the commercial sector were a major contributor accounting for 40 percent (10,329 ktCO₂ equivalent) of total GHG emissions in 2010. Emission by the sector is expected to increase to 50,373 ktCO₂ equivalents (388 percent increment) by year 2030.

TABLE G4.3: GHG EMISSION BY END-USER SECTOR, YEAR 2010 AND YEAR 2030

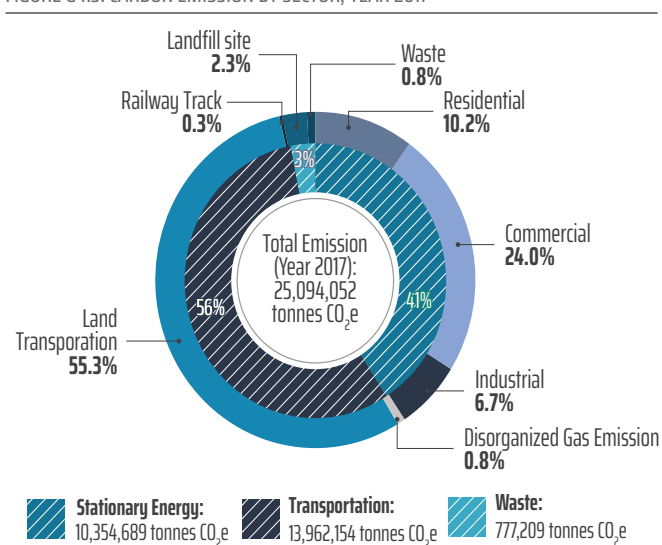
SECTOR	BaU		CHANGES (%)
	YEAR 2010 (ktCO ₂ equivalent)	YEAR 2030 (ktCO ₂ equivalent)	
Residential	2,152	5,716	166
Commercial	10,329	50,373	388
Industry	3,822	945	-72
Passenger Transportation	7,768	18,235	135
Freight Transportation	1,773	8,684	390
Waste/ Garbage	639	1,584	148
Carbon Sink	-1,056	-1,223	16
TOTAL	25,427	84,314	-

Source: Kuala Lumpur Low Carbon Society Blueprint 2030, KLCH

C) Carbon Emission By Sector, Year 2017

Based on Kuala Lumpur Climate Action Plan 2050, Kuala Lumpur recorded a carbon emission of 25,094,052 tonnes of CO₂e in year 2017 or 14 tonnes CO₂e per capita (Figure G4.3). Overall, the transportation sector is the most significant contributor to carbon emissions at 56 percent of total emissions. The stationary energy sector recorded the second highest by accounting for 41 percent and the remaining 3 percent of carbon emissions from the waste sector.

FIGURE G4.3: CARBON EMISSION BY SECTOR, YEAR 2017



Source: Kuala Lumpur Climate Action Plan 2050, KLCH

PROSPECTS AND TARGETS FOR KUALA LUMPUR AS A LOW CARBON CITY BY 2040

The Kuala Lumpur City Hall (KLCH) and related agencies have formulated various strategies in addressing global warming and climate change by implementing actions under the Kuala Lumpur Low Carbon Society Blueprint 2030 (KL LCSBP 2030) and Kuala Lumpur Climate Action Plan 2050. Both plans have set targets to reduce carbon emissions intensity by 70 percent by year 2030 and become a Carbon Neutral City by year 2050 (Table G4.4).

The plan also provides for carbon emission mitigation actions and programmes to increase urban resilience to climate change and disasters to be implemented in the development of Kuala Lumpur. Therefore, KLSP2040 needs to set strategic directions and actions that reinforce KLCH's commitment to curb climate change.

KL LCSBP 2030 contains 10 actions as follows:

1. Green Growth;
2. Energy Efficient Spatial Planning;
3. Green Mobility;
4. Sustainable Energy System;
5. Community Participation and Green Lifestyle;
6. Low Carbon Green Building;
7. Green and Blue Network;
8. Sustainable Waste Management;
9. Sustainable Water and Wastewater Management; and
10. Green Urban Governance.

The Kuala Lumpur Climate Action Plan 2050 consists of five (5) strategies which are:

1. Mobility and Infrastructure;
2. Green Adaptive City;
3. Energy Efficient and Climate Proof Buildings;
4. Solid Waste Management; and
5. Disaster Management.

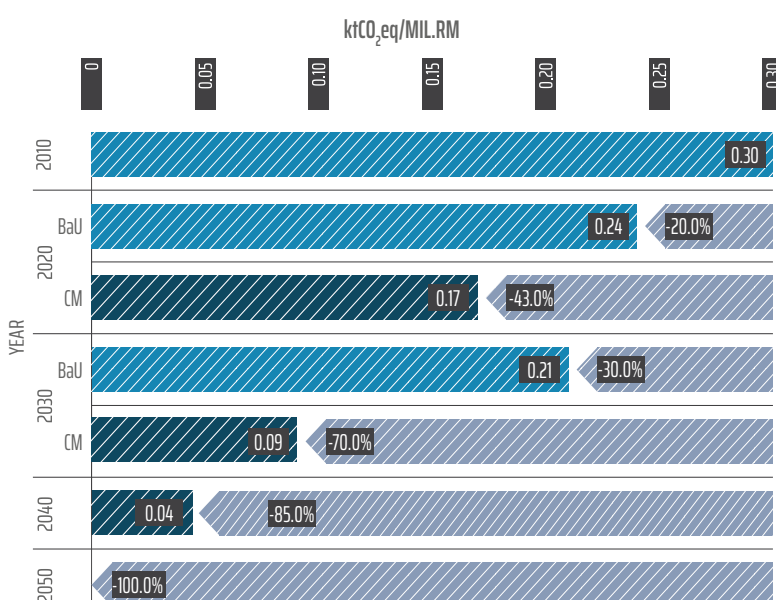
TABLE G4.4: GHG EMISSION INTENSITY TARGET BY GDP, YEAR 2030 AND YEAR 2050

ASPECT	YEAR 2010	YEAR 2020		YEAR 2030		TARGET YEAR 2040	YEAR 2050
		BAU	CM	BAU	CM		
Total CO ₂ Emission (ktCO ₂ e)	25,427	54,600	38,497	84,314	36,106	-	-
GDP (ktCO ₂ e/Mil.RM)	0.30	0.24	0.17	0.21	0.09	0.04	0.00
Reduction of Intensity	-	20.0%	43.0%	30.0%	70.0%	85.0%	100.0%

Source:

1. Kuala Lumpur Low Carbon Society Blueprint 2030, KLCH
2. Kuala Lumpur Climate Action Plan 2050, KLCH

FIGURE G4.4: GHG EMISSION INTENSITY BY GDP



Note: Business as Usual (BaU) and corrective measures (CM) scenario

Source:

1. Kuala Lumpur Low Carbon Society Blueprint 2030, KLCH
2. Kuala Lumpur Climate Action Plan 2050, KLCH

FIGURE G4.5 CARBON MITIGATION POTENTIAL KUALA LUMPUR, 2030

OTHERS	Carbon Sink	452 (0.9%)
	Sustainable Waste Management	878 (1.8%)
	Power Generation Sector	17,525 (36.3%)
FREIGHT TRANSPORTATION	Fuel and Renewable Energy Conversion	2,676 (5.5%)
	Mode Switch	1,200 (2.5%)
	Power Generation Sector	1,170 (2.4%)
PASSENGER TRANSPORTATION	Fuel and Renewable Energy Conversion	262 (0.5%)
	Mode Switch	4,772 (9.9%)
	Eco Driving	562 (1.2%)
INDUSTRY	Energy Efficiency Improvement	2,050 (4.2%)
	Replace the Fuel Part	0 (0%)
	Energy Efficiency Improvement	75 (0.2%)
COMMERCIAL	Fuel and Renewable Energy Conversion	1,094 (2.3%)
	Energy Saving Measures	1,940 (4.0%)
	Energy Efficiency Improvement	11,398 (23.6%)
RESIDENTIAL	Fuel and Renewable Energy Conversion	740 (1.5%)
	Energy Saving Measures	149 (0.3%)
	Energy Efficiency Improvement	1,263 (2.6%)

Source: : Kuala Lumpur Low Carbon Society Blueprint 2030, KLCH

STRATEGIC DIRECTION

PR1: RESILIENCE TO NATURAL DISASTERS AND CLIMATE CHANGE**Empowering Kuala Lumpur as a low carbon and pollution-free city while strengthening its resilience to climate change and natural disasters.**

The rapid development of Kuala Lumpur has resulted in a scarcity of green spaces and permeable surfaces for water runoff. Irresponsible behavior by the public in polluting rivers and drains, as well as the limitations in the effectiveness of drainage system management and maintenance, also contribute to the increased frequency of flash floods. These flash floods pose risks to lives and property.

Kuala Lumpur is also prone to natural disasters due to its geographical characteristics. Some areas of Kuala Lumpur sit on a limestone formation underlying the city. This limestone formation exhibits karst features like channels and cavities, posing risks of landslides and subsidence, which are significant challenges in construction and underground excavation works.

Risks arising from sinkhole and subsidence need to be addressed in the planning and construction process. Therefore, Kuala Lumpur's preparedness for disaster risks must be enhanced at various levels of urban management and development.

Climate change has also resulted in increased frequency and intensity of extreme weather events, such as urban heat island effects, lightning storms, and heavy rainfall. The higher occurrence of thunderstorms and heavy rainfall exacerbates surface water runoff, leading to flooding and flash floods in Kuala Lumpur.



KLCCC DATA COLLECTION CENTRE AT BUKIT JALIL, KUALA LUMPUR

ACTION**PR1.1: PREPARE CLIMATE RESILIENT MITIGATION AND ADAPTATION ACTION PLAN AND DISASTER RISKS MANAGEMENT PLAN**

The city of Kuala Lumpur must strengthen its disaster management and preparedness. Areas that are frequently exposed to disaster risks require mitigation and adaptation measures to reduce the impact of disasters on residential areas and urban activities.

An action plan for mitigation and adaptation towards resilient city and a disaster risk management plan will be prepared to address the current and expected impacts of climate change phenomena.

SUPPORTING ACTION**PR1.1A: Empower data and information on climate change and disasters**

Data and information on climate change and disasters can be strengthened through:

1. Integrating data to facilitate climate monitoring and weather forecasting, including changes in weather, temperature, and wind, as well as making predictions for mitigation and early disaster preparedness actions, such as:
 - i. Climate Data
Basic data related to rainfall, temperature, wind and humidity to show statistical information, trends, averages, duration, quantity and scale.
 - ii. Historical Data/Record
Data collected daily or periodically such as rainfall, temperature, wind speed and humidity. It also includes records of the frequency of disasters and extreme weather events.
 - iii. Future Data
Forecast data such as monthly rainfall, rain forecast and monthly average temperature.
 - iv. Disaster Risk Data
Disaster-related data consists of the type of disaster, the affected locations, and the impacted communities. These data need to be presented in the form of trends and the extent of losses and damages.
2. Monitor and review the impact of short and long-term actions, including potential disaster risks;
3. Identify communities at risk of natural disasters and impacts of climate change;
4. Share information with the public about the threat of disaster risk in the community; and
5. Activate initiatives and programmes to increase local awareness and preparedness for disaster risk and climate change.

SUPPORTING ACTION**PR1.1B: Prepare action plans for various types of disaster risk**

Action plans for different types of disaster risk include the following:

1. Mapping of flood and flash flood risk areas indicating the probability of flooding in an area. This mapping is based on the production of flood risk maps;
2. Mapping of areas at risk of drought impact (drought risk map) and communities at risk of drought impact;
3. Mapping of areas susceptible to urban heat island impact;
4. Mapping of landslide risk areas and mitigation measures as well as strategic actions that have been and need to be implemented;
5. Mapping of areas exposed to environmental pollution risks such as river, air pollution and others;
6. Updating the disaster risk management guidelines as well as guidelines related to infrastructure and land works (Reference to Figure G4.6); and
7. Developing a Community Based Disaster Risk Management (CBDRM) plan.

QUICK INFO**Action Plan for Mitigation and Adaptation Towards Resiliency Climate Change and Natural Disaster Risk Management Plan**

An integrated climate change resilience and disaster risk management action plan that involves:

1. The planning;
2. Monitoring;
3. Enforcement and management;
4. Conservation strategies and preparedness for climate change and disaster risk, including pandemic risk; and
5. Actions to mitigate negative impacts and adapt to the effects of climate change and disasters.

This initiative aims to reduce the risk of disasters and increase resilience to climate change.

FIGURE G4.6: DETAILS OF ACTION PLANS ON VARIOUS TYPES OF DISASTER RISKS

INFRASTRUCTURE DEVELOPMENT IN KUALA LUMPUR TO BE RESILIENT TO NATURAL DISASTERS AND CLIMATE CHANGE**Structure****Flooding and Flash Flood**

Improving the existing infrastructure and providing new drainage infrastructure that is more comprehensive and resistant to floods and flash floods. The use of smart and sustainable technologies should be taken into account to address the flooding and flash flooding problem in Kuala Lumpur.

Drought and El Nino Phenomenon

Improving infrastructure for lake and pond such as Tasik Batu, Kolam Jinjang, Tasik Desa, Kolam Kampung Berembang, Kolam Kampung Puah and bunded storage for emergency use during drought or El Nino phenomenon.

Landslide

Improving infrastructure to reduce the risk of landslides on slopes and hillside areas such as Sungai Penchala and Bukit Kerinchi by:

1. Replanting trees or cover crops;
2. Improve slope stability through natural methods that prevent soil from flowing along with rainfall; and
3. Improve the planned drainage system to allow rainwater runoff from hills not to flow directly into drains or rivers.

Urban Heat Island

Implement cooling by expanding green space and tree canopy coverage in Kuala Lumpur City Centre. The use of bright colours on the facades and roofs of buildings as well as ensuring energy efficient buildings to reduce the impact of urban heat island.

Non-Structure

1. Mapping and recording of areas that of vulnerable to risks such as flooding, drought impacts and urban heat island effects around Kuala Lumpur City. The mapping and records should be analyzed using a Geographical Information System (GIS) monitored and recorded with Unmanned Aerial Vehicle (UAV)/drone and smartphone application;
2. Mapping and monitoring of pollution-prone areas such as river pollution and air pollution due to urban activities. The mapping and records should be recorded and analysed using smart applications and technologies;
3. Increase meteorological stations to collect data such as weather, earthquake and surface observation; and
4. Increase control stations in rivers and major trenches to collect water quality data and flood level threshold values.

Note:

1. Structure: Something built or part of something built.
2. Non-structural: Involves reporting, information/record gathering and mapping

SUPPORTING ACTION**PR1.1C: Upgrade Infrastructure towards a Flash Flood Free Kuala Lumpur**

The aspiration to achieve the target of Kuala Lumpur Flash Flood Free can be implemented through:

1. Improve flood and flash flood management and planning for Kuala Lumpur and in particular for potentially flood-risk areas through innovative solutions that consider rainfall intensity and frequency distribution;
2. Implement the comprehensive use of MSMA 2.0 (Eco-Friendly Drainage Manual 2.0) along with monitoring and enforcement in development;
3. The application of sustainable urban drainage systems such as Bio-Ecological Drainage Systems (BIOECODS) especially in new development areas as a disaster mitigation measure for flash floods in urban areas;
4. Ensure that appropriate design and technology in the construction of buildings and drainage infrastructure is prioritised in flood risk areas;
5. Establish a flood warning system that detects threats earlier, enabling public notifications for appropriate actions to minimize the impact of floods;
6. Forming data sharing from all stakeholders to streamline communication and improve flood relief efforts to mitigate flood impact;
7. Gazette all ponds identified as flood retention ponds; and
8. Preserve the functions of all existing ponds that have not been transferred ownership for development as flood retention ponds.

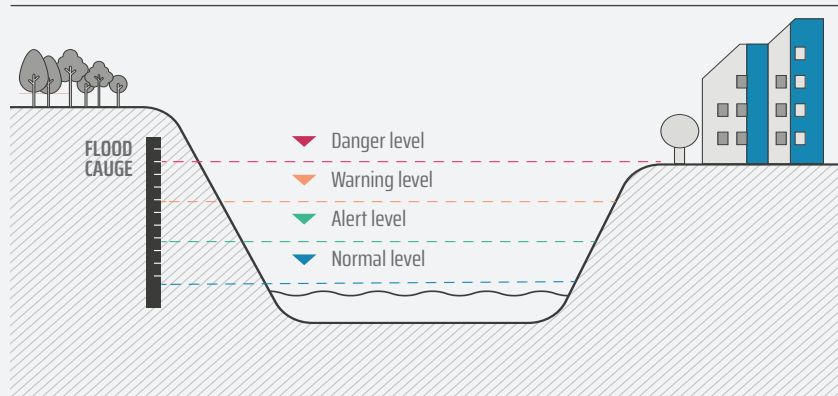
EXAMPLE OF BEST PRACTICES**DID Early Flood Warning System**

Early flood warning aims to monitor, forecast river water levels, warn floods and prepare flood reports within 24 hours.

An early flood warning is shown in three stages:

1. **Danger Level**
River level cause considerable flooding. Evacuation to be initiated if necessary.
2. **Warning Level**
River level increasing to near flooding level and prepare for any evacuation action. Early warning system should be integrated at this level.
3. **Alert Level**
River water level starts to rise from the normal level.

FIGURE G4.7: FLOOD WATER LEVEL THRESHOLD LEVEL



Source: Adapted from the Department of Irrigation and Drainage

The Hybrid off River Augmentation System (HORAS 600) Selangor

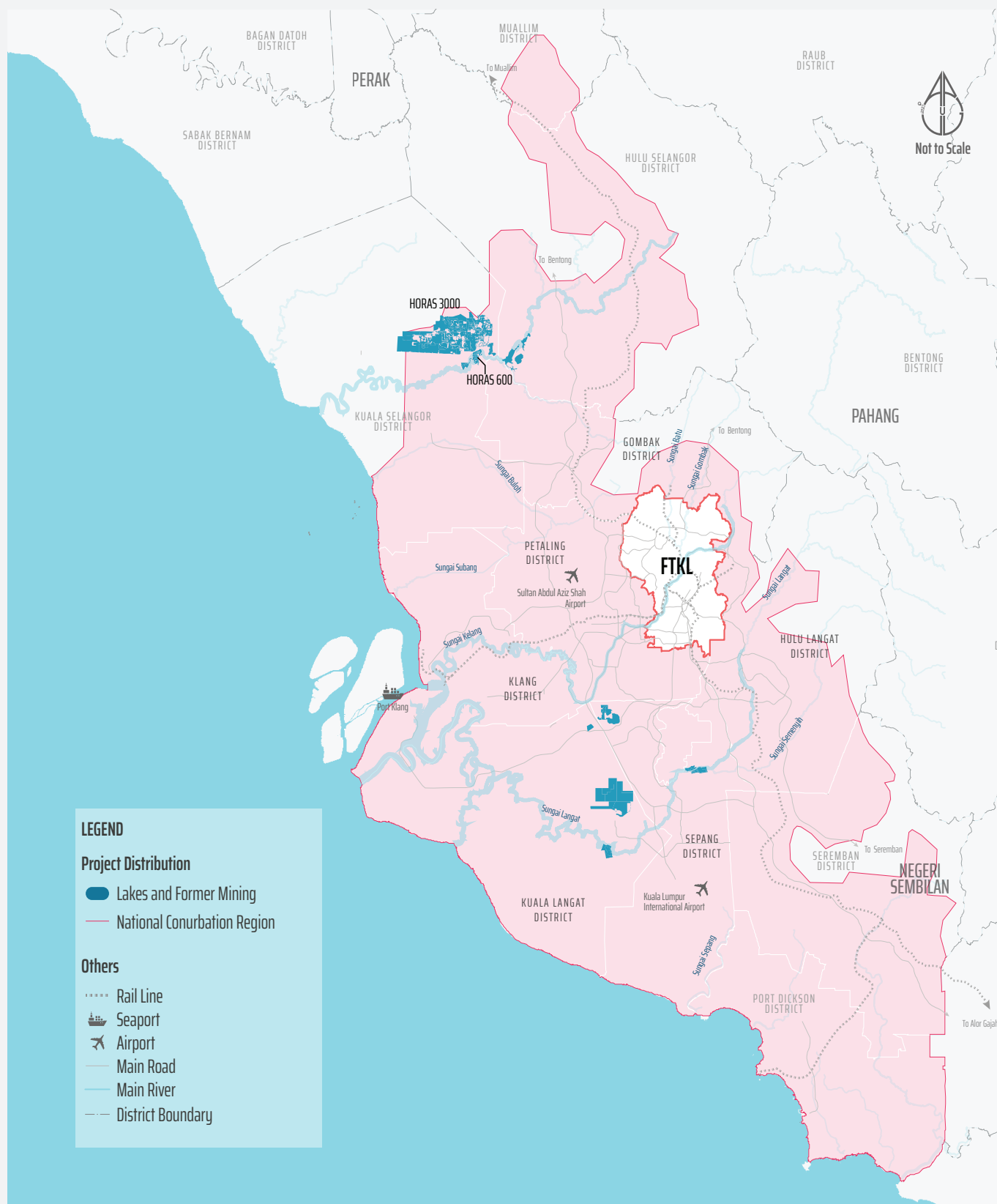
The Selangor Water Management Board (LUAS) has gazetted 19 ponds (lakes and former mines) in Selangor as Alternative Water Source Pool Protection Zone with an area of over 5,943.68 hectares and an estimated water volume of 245 million cubic metres (Figure G4.8).

This effort is implemented through the HORAS 600 project, which can accommodate the raw water needs of 600 million liters per day. It plays a significant role in reducing over-dependence on a single source of raw water, thereby ensuring a continuous water supply to more than seven million water users in Selangor, Kuala Lumpur, and Putrajaya.

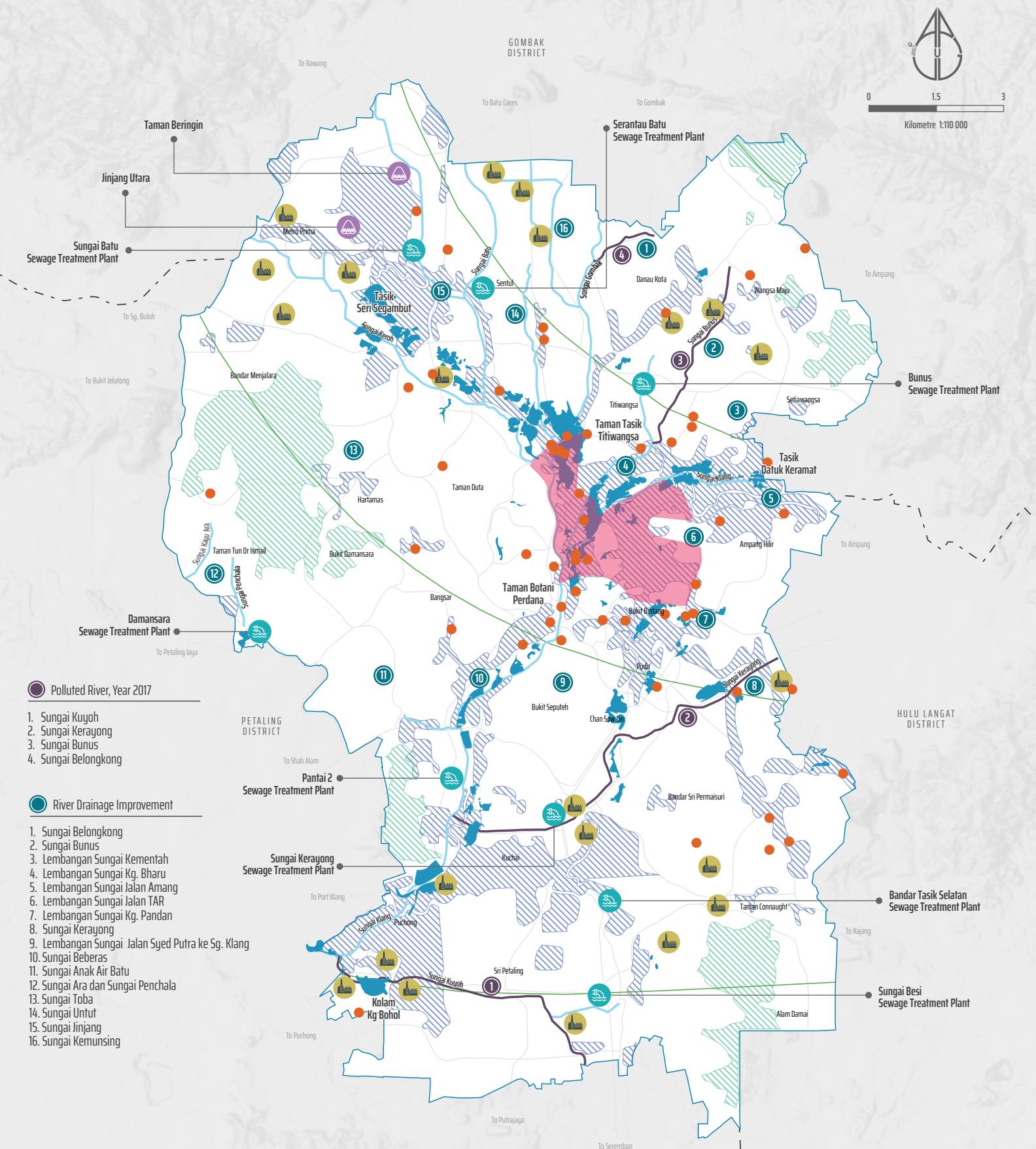
HORAS 600 is the collection method of rainwater runoff and groundwater, which channelled directly into the Selangor River Basin through a combination of River Storage and Horizontal Collector Wells located in Bestari Jaya, Kuala Selangor.

The second phase of the HORAS project is HORAS 3000, which is currently in the planning stage. It is expected to provide 3,000 million litres per day and cover an estimated area of 4,200 hectares.

FIGURE G4.8: THE DISTRIBUTION OF LAKES AND FORMER MINING SITES AS ALTERNATIVE WATER SOURCES



Source: Adapted from Rancangan Wilayah Konurbasi Nasional (WKN) 2040, PLANMalaysia



G4

**FIGURE G4.9
DISASTER RISK MANAGEMENT AREAS**

LEGEND

- Risk of Environmental Pollution**
 - Potentially Polluted Area from Industrial Activities
 - Potentially Polluted Area from Former Landfill
 - Potentially Polluted Area from Effluent Discharge

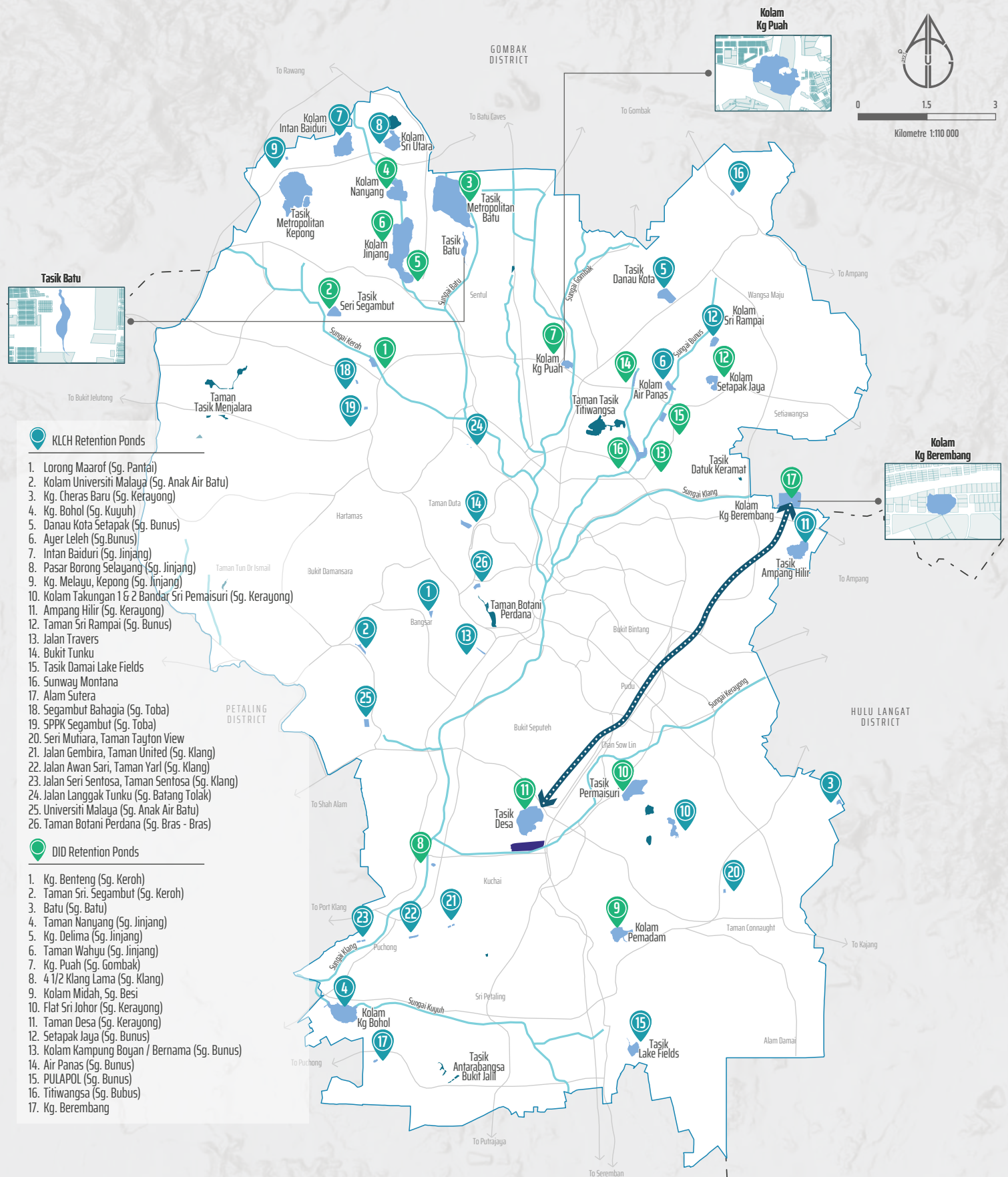
- Risk of Urban Heat Island**
 - Potential Area for Urban Heat
- Risk of Landslide**
 - Potential Area for Landslide
- Risk of Flood and Flash Flooding**
 - Potential Area for Flooding
 - Main location of 2019 Flash Flood

- Areas Vulnerable to El Nino Phenomenon and Water Crisis due to Drought (Drought Risk)**
 - Low-High Impact
- Earthquake Risk**
 - Fault Line

- Others**
 - Polluted River
 - Proposed River Drainage Improvement
 - Main Road
 - FTKL Boundary
 - Main River

NOTE:

All plans and figures are in the form of diagram/indicative only. It does not refer to any lot in details.



G4

**FIGURE G4.10
LAKES AND PONDS – POTENTIAL AS ALTERNATIVE WATER SOURCE AND FLOOD RETENTION AREA**

LEGEND

Existing

- Lakes and Ponds
- Retention and Storage Ponds for SMART Tunnel
- Bunded Storage
- SMART Tunnel

Others

- Main Road
- FTKL Boundary
- Main River

SUPPORTING ACTION**PR1.1D: Empower climate resilience strategies and actions**

Strategies and actions to increase resilience to climate change and disasters can be strengthened by:

1. Consider aspects of climate change impacts in infrastructure planning and development;
2. Increase public awareness of the risks of natural disasters and the impacts of climate change;
3. Consider aspects of natural disaster management in infrastructure planning and development;
4. Promote investment in the development of non-structural and structural that resilient to natural disasters and climate change;
5. Improve the design, maintenance, upgrading of assets and facilities against disaster risk;
6. Promote low carbon development and energy efficient building;
7. Strengthen integrated and sustainable solid waste management; and
8. Create active environments such as walking and use of micromobility vehicles that will reduce carbon emissions and promote healthy lifestyles.

SUPPORTING ACTION**PR1.1E: Enhance enforcement on management and maintenance towards pollution control**

Efforts to improve the level of strengthen management and maintenance of pollution control can be implemented through:

1. Strengthen cooperation with various relevant agencies such as the Department of Environment, Department of Sewerage Services, Department of Irrigation and Drainage as well as agencies in Kuala Lumpur and outside Kuala Lumpur especially in the National Conurbation;
2. Enhance cooperation programmes involving neighbouring local authorities Kuala Lumpur for implementation of strategic directions and environmental pollution control actions; and
3. Establishing a special committee to undertake enforcement, control, and maintenance actions involving environmental pollution control both within and beyond the borders of Kuala Lumpur.

SUPPORTING ACTION**PR1.1F: Promote planning and development that considers pandemic**

Planning and development that takes pandemic into account is essential to increasing the resilience and preparedness of a city. The steps to be taken are as follows:

1. Plan safer public transport and connectivity;
2. Increase provision of public parks, green and blue corridors to generate clean environment;
3. Encourage more mixed activities within an area either in residential and employment focus areas, to reduce the need for movement of people;
4. Enhance the provision of low carbon digital infrastructure, especially in residential areas, to facilitate residents working, doing business and learning online; and
5. Improve the existing planning and development guidelines to address future impacts of pandemic by considering the following criteria:
 - i. The interior design of the building, especially the space and the circulation of residents/ workers' movements;
 - ii. Comfortable and safe access pathway;
 - iii. The suitable and safe allocation of screening, vaccination and quarantine centres; and
 - iv. Use of digital technology to control and manage situation during the outbreak as well as tools of sharing information.

STRATEGIC DIRECTION

**PR2: URBAN RESOURCE
MANAGEMENT EFFICIENCY****Empower Kuala Lumpur as an efficient city in urban resource management.**

Resource-efficient development is critical to ensure that every resident can enjoy quality urban infrastructure services and support future growth. The European Commission defines resource efficiency as a practice that sustainably uses limited resources, minimises environmental impacts and reduces waste.

This strategic direction also prioritises the development of resource-efficient infrastructure to strengthen resource management such as water supply, sewerage system, solid waste and electricity more efficiently, reliably and sustainable. The use of green and clean technologies shall be applied in development and urbanisation to support sustainable and low carbon development aspirations.

This is in line with Kuala Lumpur's aspiration of becoming a resource-efficient city and ensuring its low carbon activity. This strategic direction is aimed at ensuring that Kuala Lumpur in the long term will take action to:

1. Manage the efficient use of resources and integrate with the use of smart technologies;
2. Empower Kuala Lumpur as a resource-efficient and low carbon city;
3. Reduce GHG emissions in Kuala Lumpur; and
4. Improve the quality of life of urban dwellers by reducing energy consumption, waste generation and maintaining ecosystem services.

ACTION

**PR2.1: FACILITATE THE APPLICATION OF RENEWABLE
ENERGY TECHNOLOGY**

The development of renewable energy sources as alternative energy sources can reduce the dependence on fossil-based energy sources. Indirectly, the development of renewable energy sources can also help to reduce greenhouse gas emissions in the future. The development of this resources should integrate with the existing power supply network around Kuala Lumpur. Therefore, Kuala Lumpur shall promote the development and use of environmental-friendly solar energy by:

1. Encouraging the installation of solar panels on the roofs of industrial, commercial and residential buildings;
2. Install solar panels on infrastructure and public facilities as well as the roof of parking space and pedestrians walkways; and
3. Promote the development that utilise energy efficiently and sustainably.



SOLAR PV (PHOTOVOLTAIC) IN SURIA KLCC

Source: isaactan.net

SUPPORTING ACTION
PR2.1A: Increase consumption and production of renewable energy

The Renewable Energy Policy and Action Plan 2009 and the Renewable Energy Act 2011 (Act 725) were enacted to promote renewable energy development in Malaysia. This policy seeks to drive the percentage contribution of green energy and renewable energy in electricity generation in Malaysia. The government intends to achieve 20 percent capacity mix for renewable energy by year 2025.

Until the year 2020, the total renewable energy generated was 7,284,868 MWh compared to 147,735 MWh in year 2012. Renewable energy generation has reduced GHG emissions by 4,773,620 tonnes of carbon dioxide (tCO₂/MWh) in year 2020.

In this regard, Kuala Lumpur will target renewable energy generation of 25 percent by year 2030 and 30 percent by year 2040. Renewable energy generation in Kuala Lumpur in year 2010 recorded only 6 percent. The aim is to ensure reliance on renewable energy for commercial and residential development in Kuala Lumpur.

TABLE G4.5: CUMULATIVE RENEWABLE ENERGY GENERATION (MWh)

YEAR	BIOMAS	BIOGAS	MINI-HIDRO	SOLAR PV	SOLID WASTE	TOTAL
2020	800	240	490	175	360	2,065
2025	1,190	350	490	399	380	2,809
2030	1,340	410	490	854	390	3,484
2035	1,340	410	490	1,677	400	4,317
2040	1,340	410	490	3,079	410	5,729
2045	1,340	410	490	5,374	420	8,034
2050	1,340	410	490	8,874	430	11,544

Source: The Renewable Energy Policy and Action Plan 2009

QUICK INFO

Malaysia Target by
Year 2030
40%
Renewable Energy

Kuala Lumpur Target by Year
2040
30%
Renewable Energy in Commercial and
Residential Buildings

ACTION
PR2.2: ENHANCE ENERGY EFFICIENT SYSTEM

Energy efficient system management is essential to meet the needs of a rapidly growing population and economic activity. Energy efficient systems can ensure smooth and efficient uninterrupted electricity supply as well as improve the efficiency management performance of electricity resources in a city.

Following are the measures that could improve the energy-efficient systems:

1. Collaborate with utilities provider to coordinate the use of utility tunnels to reduce power supply disruptions caused by excavation from third-party;
2. Collaborate with the Energy Commission of Malaysia to implement Smart Operations to improve the performance of the System Average Interruptions Index (SAIDI) by improving network quality, advancing operational analysis, expansion decision network, as well as response to disruption and communication to network outages;
3. Implement adaptive Energy Storage Systems to manage power supply more sustainably and costs efficient for utilities and consumers;
4. Implement Smart Grids in collaboration with the Energy Commission of Malaysia to increase efficiency and leverage low carbon generation resources as well as to enable grid connectivity to solar panels and other renewable energy;
5. Implement a centralised and energy efficient District Cooling System (DCS) as it is capable of meeting large-scale cooling needs through a network of pipes connected to buildings in the same area. DCS can be implemented in buildings consisting of offices, shopping complexes, hotels and government institutions;
6. Ensure energy efficient building construction by obtaining certification from SIRIM such as MS ISO 50001 and ASEAN Energy Management Scheme (Malaysian Green Technology And Climate Change Centre) to obtain the Energy Zero Building declaration from SEDA Malaysia; and
7. Conversion to LED lights in streets, buildings and public parks.



GREEN ENERGY OFFICE (GEO) BUILDING
Source: www.greenbuildingindex.org



MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION (MOSTI) BUILDING
Source: Ministry of Science, Technology and Innovation (MOSTI)

QUICK INFO

Zero Energy Building Programme in Malaysia

1. Net Zero Energy Building (NZEB);
2. Nearly Zero Energy Building (nZEB); and
3. Ready To Go Zero Energy (Ready ZEB).

The main objective is to encourage energy-efficient buildings by using alternative methods that focus entirely on sustainable energy practices. This can start with modern energy efficient measures to reduce energy demand or overall consumption and balance the minimum energy required by renewable energy in an area.

The development of ZEB has been in Malaysia since 2002. ZEB development can be attributed to integrate energy-efficient building design programmes and promotion of the use of MS1525 - Code of Practice on the Use of Energy Efficiency and Renewable Energy for non-residential buildings:

1. Government demonstration projects, the Ministry of Science, Technology and Innovation (MOSTI) Building (LEO- Low Energy Office) managed to save 56 percent, the Green Energy Office (GEO) building by 86 percent and the Diamond Building of Energy Commission by 70 percent; and
2. Other projects are such as Panasonic Green Warehouse have saved more than 75 percent and Putrajaya's Zero Energy Home P14 demonstration projects save more than 200 percent.

ZEB = (EE + RE) x Sustainable Practices

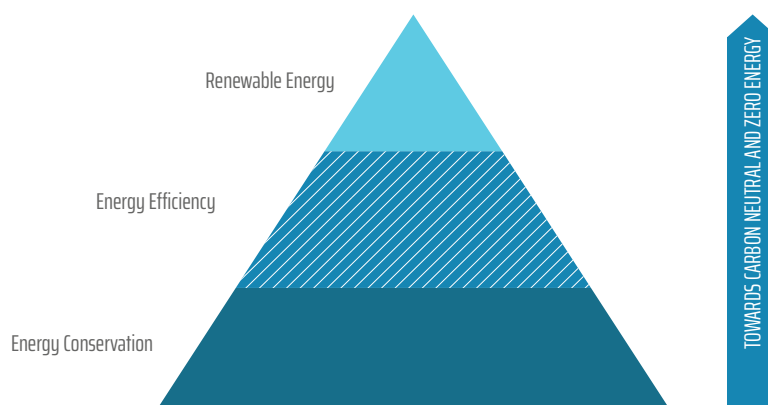
EE - Energy Efficiency

RE - Renewable Energy

Sustainable Practices - Living practices and styles that lead to low carbon

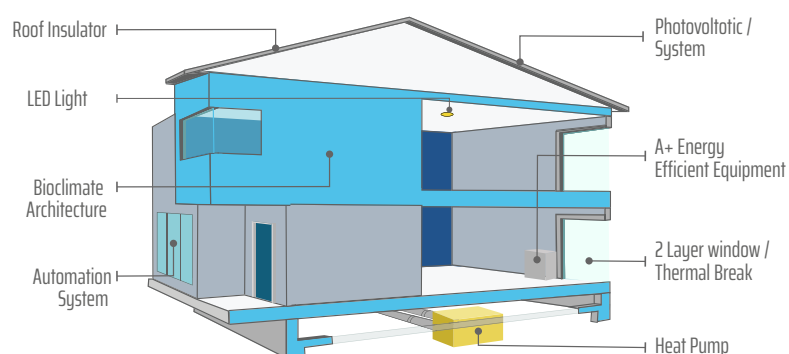
Source: Zero Energy Building (ZEB) Facilitation Programme, SEDA Malaysia

FIGURE G4.11: PRACTICES AND APPROACH TO ATTAIN ZERO ENERGY BUILDING



Source: Zero Energy Building (ZEB) Facilitation Programme, SEDA Malaysia

FIGURE G4.12: CONCEPT MODEL FOR NEARLY ZERO ENERGY BUILDING



ACTION**PR2.3: STRENGTHEN INTEGRATED AND SUSTAINABLE SOLID WASTE MANAGEMENT**

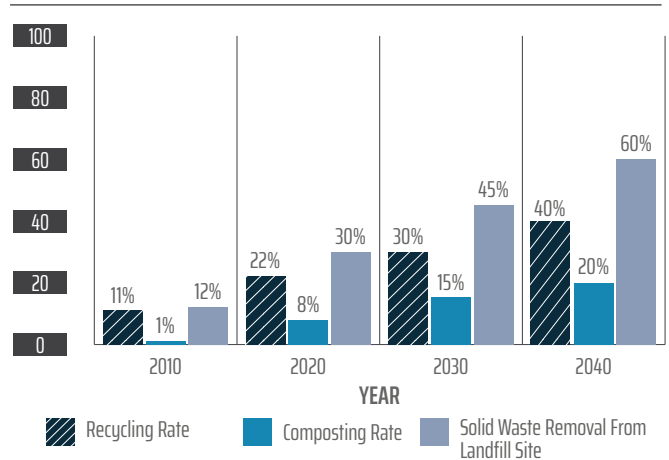
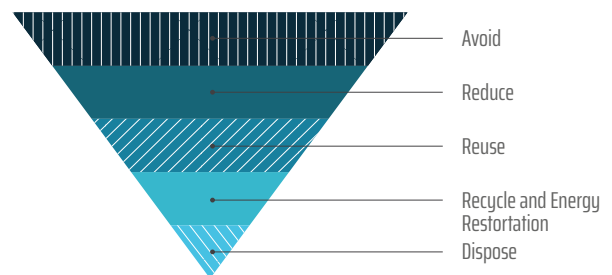
Solid waste management shall be implemented in an integrated, economical and sustainable manner to reduce the amount of solid waste sent to landfills and ensure the quality of the urban environment is assured. This action requires multi-stakeholder commitment and should be undertaken comprehensively with monitoring of its implementation.

SUPPORTING ACTION**PR2.3A: Implement solid waste segregation by establishing recycling facilities at the local level**

The provision of recycling facilities in every residential and commercial area can encourage more effective solid waste separation.

1. Separation of solid waste in residential areas:
 - i. Provide recycling and composting centers in neighborhoods especially in high-density residential areas such as condominiums, apartments and government quarters as well as in urban village areas;
 - ii. Provide a centralised food waste treatment facility in the community area to facilitate the transport of such waste;
 - iii. Provide recycling facilities for bulk and electronic waste in neighbourhood areas; and
 - iv. Intensify awareness campaigns among the local community.
2. Separation of solid waste in commercial areas and government institutions:
 - i. Provide recycling and composting centres in commercial areas such as shopping malls and trading premises, tourist sites and focal areas, convention centres and hotels as well as KLCH buildings and other government institutions;
 - ii. Establish a scheduled collection system as well as a centralised food waste treatment facility within the food premises;
 - iii. Provide recycling facilities for bulk and electronic waste in commercial areas and government institutions; and
 - iv. Promote the use of new technologies in the separation of waste at source and on site before disposal.

FIGURE G4.13: RECYCLING TARGET AND PROPOSED SUSTAINABLE SOLID WASTE MANAGEMENT APPROACH

**PROPOSED SUSTAINABLE SOLID WASTE MANAGEMENT APPROACH**

Source: Kuala Lumpur Low Carbon Society Blueprint 2030, KLCH, 2018



BUY BACK RECYCLING CENTRE AT JALAN BUNUS, KUALA LUMPUR

SUPPORTING ACTION**PR2.3B: Strengthen solid waste management from construction and industrial sectors**

The waste management system from the construction and industrial sectors aims at reducing the amount of solid waste generated in the sector to be sent to landfills. Management of this solid waste can be carried out through:

1. Separating solid waste from construction and industrial by type for recycling purposes;
2. Ensure that storage sites and solid waste bins at construction sites and industrial sites are well maintained to avoid problems such as:
 - i. Breeding of insects or spreading of any disease;
 - ii. Pollution of crops, groundwater or river water; and
 - iii. Flash floods caused by clogged drainage systems resulting from dumping of rubbish and construction waste.
3. Introduce green and clean technologies in processing and production to reduce the generation of solid waste from the construction and industrial sectors;
4. Encourage reuse of waste materials (upscaling) to make new products of higher quality;
5. Promote recycling of waste as a symbiosis industrial resource for other industries/sectors; and
6. Adopting assessment systems that encourage best practices in waste reduction during construction.

SUPPORTING ACTION**PR2.3C: Implement value restoration activities for municipal solid waste**

The implementation of municipal solid waste recovery activities can be carried out by taking into account the following measures:

1. Promote the development of Micro-Waste to Energy initiatives in shopping complexes, convention centres and other strategic locations;
2. Promote the restoration of energy from municipal solid waste through the use of Waste-to-Energy; and
3. Provide facilities for separating food waste and recycling materials, especially in canteen areas, food courts, restaurants, hawker centres and shopping centres.

QUICK INFO**Types of solid waste identified by the National Solid Waste Management Department:**

1. Construction Sector
 - i. Residual solid waste
Construction solid waste that is not reused and recycled or composted; and
 - ii. Recyclable solid waste
Solid construction waste that are separated for recycling such as cement-based materials, aggregates, glass, wood, paper, concrete, metal and plastic.
2. Industrial Sector
 - i. Residual solid waste
Industrial solid waste that is not reused and recycled or composted;
 - ii. Bulky solid waste
Large industrial solid waste that cannot be placed in waste containers and includes hardware, furniture, tree trunks, branches and stumps;
 - iii. Recyclable solid waste
Industrial solid waste separated for recycling such as paper, glass, wood plastic, metal, garden solid waste, food waste, fabrics and tires; and
 - iv. Garden solid waste
Trees, leaves, shrubs, grass or roots from the garden or courtyard of any industrial premises.

Source:

1. *Solid waste management and public cleansing (scheme for commercial, industrial and institutional solid waste) 2018, National Solid waste Management Department*
2. *Solid waste Management and public Cleansing (scheme for Construction and operation phases) 2018, National Solid waste Management Department*

EXAMPLE OF BEST PRACTICES**MyCREST, CIDB**

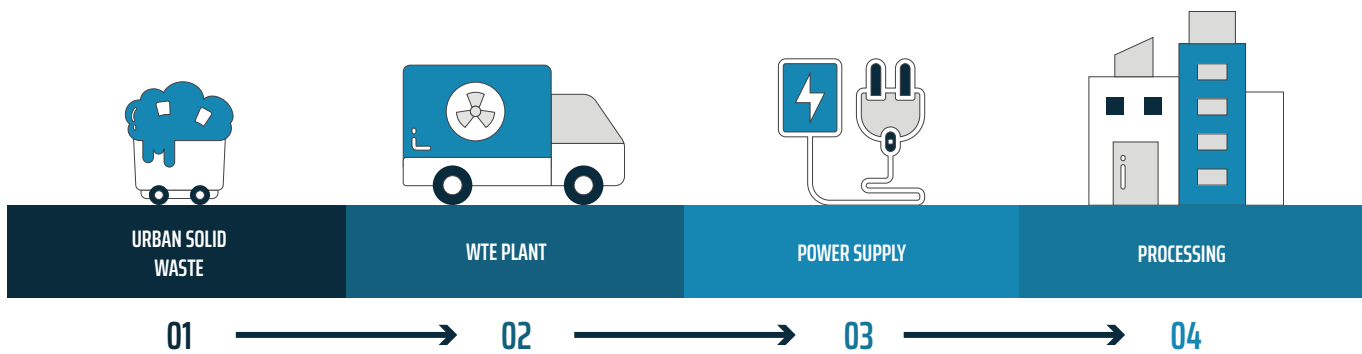
MyCREST aims to improve efficiency in the construction industry and among MyCREST's main objectives is to reduce waste from construction activities by assessment during the design, construction and operation phases.

EXAMPLE OF BEST PRACTICES

The Development of the Micro-Waste to Energy Initiative in Japan

Japan has been dealing with solid waste problems since its economic surge around the year 1960s. Private companies as well as Japanese government companies have developed systems to reduce waste pollution in the country. These efforts have led to the closure of many landfills in Japan and the conversion of some of these activities that generates economy and safe place to live in.

FIGURE G4.14: PROCESSING OF MICRO-WASTE TO ENERGY (WTE)



Source: Adapted from RE-GEN WASTE LTD



Solid waste combustion plant in Maishima, Japan. The energy generated from the combustion process enables sufficient electricity generation to power the plant and contribute to the local electricity network.

Source: [breakingasia.com](#)



The widespread use of hybrid trucks in Japan aims to reduce operating costs through fuel savings by directly processing the collected solid waste.

Source: [breakingasia.com](#)

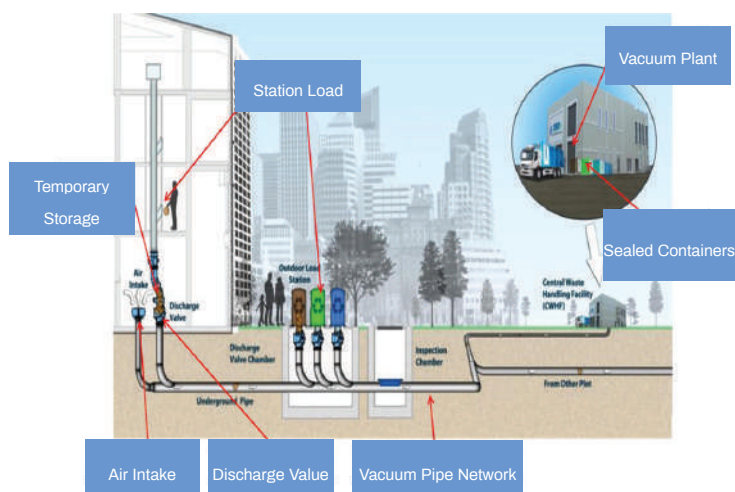
SUPPORTING ACTION**PR2.3D: Manage municipal solid waste by using technology**

Smart solid waste management refers to any system that uses technology to make waste collection more efficient, cost effective and environmental-friendly. Most of these systems are equipped with the Internet of Things (IoT), a monitoring technology that collects and tracks current and real-time data to help optimise waste collection and drive future innovation.

One of the technology-based solid waste management is the use of sensors on garbage bins that can inform the waste's height level. The device collects and stores data on filling level which allows the collection service to predict how often the garbage bin needs to be emptied. This also helps to prevent the oversupply of garbage bins that pollutes the surrounding area.

Pneumatic waste or Automated Waste Collection Systems (AWCS) are encouraged in new residential and commercial development areas. It is also recommended that the system be an underground pipeline that sucks in waste and transport the waste to a container or an integrated and closed storage facility. This system separates waste at source by providing different ducts. Thus, promotes recycling practices for the locals.

FIGURE G4.15: PNEUMATIC WASTE SYSTEM

**EXAMPLE OF BEST PRACTICE****Solid Waste Management in San Francisco, United States of America**

San Francisco invested USD 20 million to upgrade its facilities and install AI robots to quickly and accurately separates recyclables such as separating polluted materials and separating types of recycled items.

**Solid Waste Management in Songdo, South Korea**

Songdo, South Korea was one of the first cities to implement a truckless waste management system. An underground waste stream that leads to the site of a landfill and is either recycled, grown or burned for energy.

**Solid Waste Management in Amsterdam, Netherland**

Installing scale on some garbage trucks and fill-level sensors in public landfills. It then uses the data to create more efficient and less expensive waste collection schedules.



ACTION
PR2.4: STRENGTHEN THE
EFFICIENCY OF SUSTAINABLE WATER
MANAGEMENT

Reliable water supply and efficient water management are important for undisrupted of water supply to support development around Kuala Lumpur. This is because continuous water supply is an essential resource in daily human life and local economic activities.

This action emphasises on integrated and sustainable water management for Kuala Lumpur to produce adequate and clean water supply for all. This includes ensuring a diverse and quality water source.

QUICK INFO

Inefficient Water Management Issue

Despite Kuala Lumpur achieved 100 percent coverage of clean and treated water supply, there were 438,883 complaints (including Kuala Lumpur, Selangor and Putrajaya) on water supply disruptions in 2017.

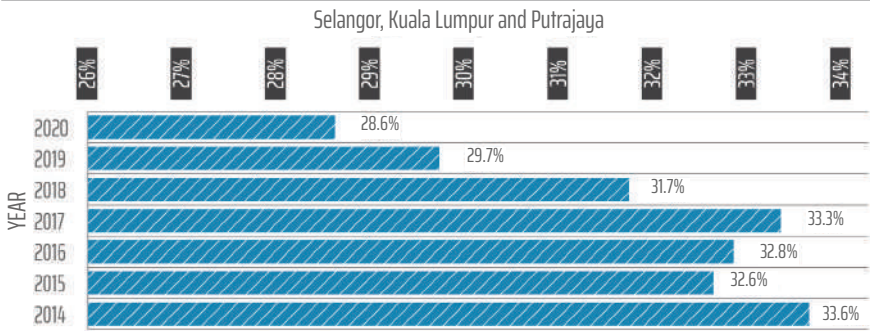
This figure represent 43 percent of the total water supply disruption complaints in Malaysia in 2017. Most water disruptions are caused by technical problems, plumbing leakage and poor plumbing conditions and dirty water quality. In terms of non-revenue water rates, Kuala Lumpur, Selangor and Putrajaya ranked ninth-highest on the issue of non-revenue water rates in Malaysia in 2017.

However, the non-revenue water rates situation has improved its performance by 28.6 percent in 2020 from 33.6 percent in 2014.



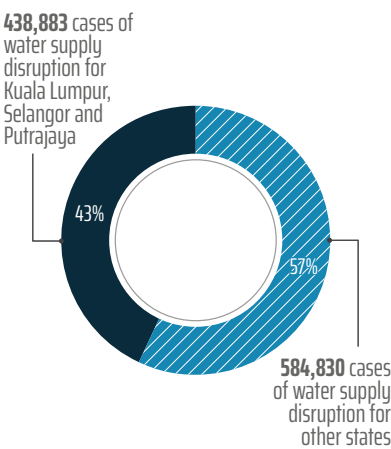
ILHAM TOWER IN KUALA LUMPUR THAT APPLIES RAINWATER HARVESTING FOR COMMERCIAL USE

FIGURE G4.16: NON-REVENUE WATER (NRW) RATE IN SELANGOR, KUALA LUMPUR AND PUTRAJAYA, YEAR 2014 - 2020



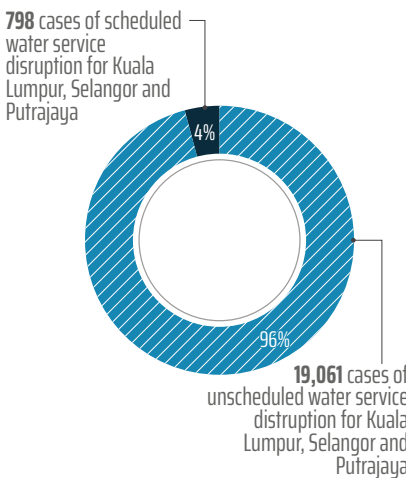
Source: National Water Services Commission, 2014 - 2020

FIGURE G4.17: NON-REVENUE WATER (NRW) RATE, YEAR 2014-2017



Source: Malaysia Water Industry Guide, 2017

FIGURE G4.18: NON-REVENUE WATER (NRW) RATE, YEAR 2014-2017



Source: Malaysia Water Industry Guide, 2017

SUPPORTING ACTION

PR2.4A: Implement water reuse

The demand for water is increasing over the time. Reusing wastewater can help to increase water supplies to address future water scarcity. The implementation of water reuse involves the following measures:

1. Enforce the use of Rainwater Harvesting Systems (RWHS) as an alternative water supply for domestic use, businesses, industries, government institutions, educational institutions, shopping malls, redeveloped and new commercial buildings as well as public facilities such as multi-purpose halls and mosques;
2. Implement reuse of rainwater runoff as an alternative water supply to help prevent flash floods;
3. Explore modern and new technologies that can store rainwater and natural water for emergency purposes and reduce flood risk;
4. Maximise the value of wastewater by using bio-effluents from sewage treatment plants. Treated water from sewage treatment plants can be reused for municipal service activities such as public toilets, industrial processes and landscape irrigation; and
5. Upgrade existing sewerage treatment plants through construction of high capacity centralised treatment plants through efficient management system.

SUPPORTING ACTION

PR2.4B: Adopt smart water management system

The smart water management system aims to promote more efficient management of raw water and treated water through meter device management, real-time meter monitoring, water level and quality as well as disruption forecast through artificial intelligence (AI). Smart water management helps to:

1. Save water usage;
2. Reduce water meter maintenance costs;
3. Reduce manual inspection of water quality;
4. Establish a continuous, holistic and transparent water supply record for consumers;
5. Create a digital water supply and management system;
6. Increase profitability, productivity and more efficient customer service to water supply companies; and
7. Promote real-time water bill monitoring and transparency of more accurate billing information to consumers.

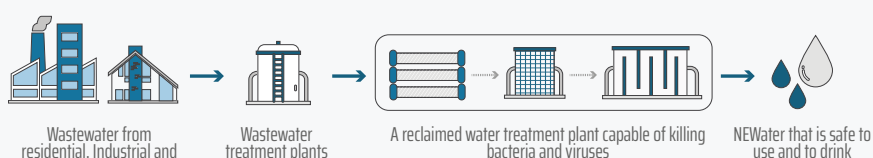
The smart water systems can be installed in all KLCH buildings, government institutions, public places, public housing and other premises. The smart water management systems can be implemented by:

1. Improving the efficiency of water distribution;
2. Reducing non-revenue water loss; and
3. Enhancing the management of wastewater and rainwater, subsequently converting solid and liquid waste into gas through chemical reactions. The gas can be converted into electricity, fuel, chemicals, and fertiliser.

EXAMPLE OF BEST PRACTICES

NEWater, Singapore

NEWater is a process of recycling treated wastewater using technology that makes water clean and safe to drink. This could protect Singapore's watershed and move Singapore towards water sustainability. NEWater is expected to meet 40 percent of Singapore's water needs by 2020 and is targeted to meet up to 55 percent of Singapore's future water demand by 2060.



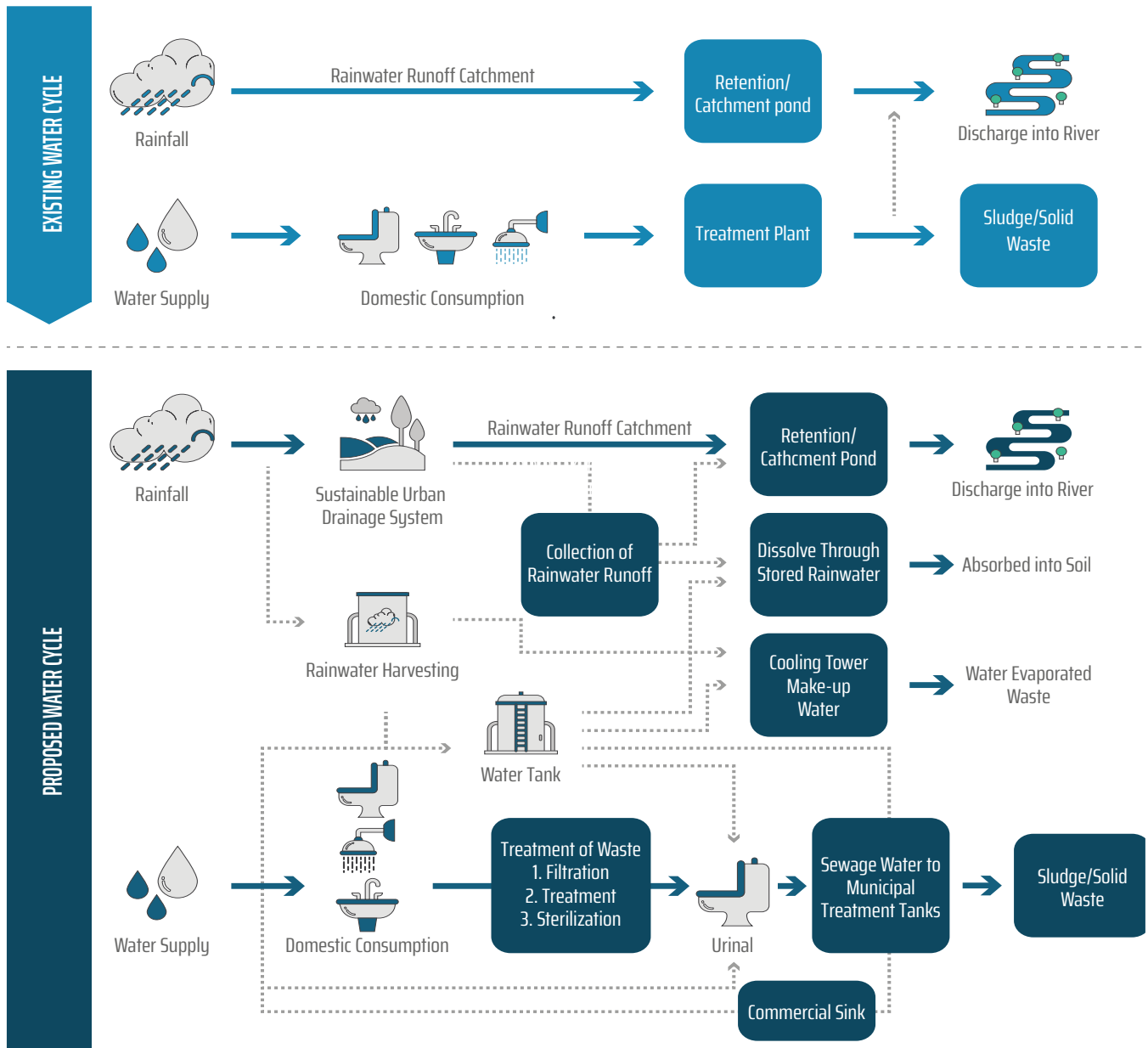
THE PROCESS OF RECYCLING WASTEWATER IN SINGAPORE
Source: www.pub.gov.sg

SUPPORTING ACTION**PR2.4C: Develop an integrated water resources management plan**

The management plan coordinates high-capacity water management such as river and underground water with current and future development planning in Kuala Lumpur, in line with the Malaysia Government's aspiration to achieve Sustainable Development Goals (SDGs). It is implementable by reusing water such as:

1. Enforce the use of rainwater harvesting system;
2. Promote reuse of rainwater runoff;
3. Promote the use of treated wastewater from sewage treatment plants;
4. Establish partnership with relevant coordinating agency/department; and
5. Emphasise the awareness of rainwater recycling use among the residents of Kuala Lumpur.

FIGURE G4.19: PROPOSED INTEGRATED WATER RESOURCES MANAGEMENT PLAN



ACTION**PR2.5: ADOPT SUSTAINABLE URBAN DRAINAGE SYSTEM**

The urban drainage system has transformed from a traditional approach that functions as flood control to a more integrated design that considers factors such as reducing the frequency of flash floods, treating rainwater before flowing into rivers, stabilising the earth's water through infiltration process, maintaining flora and fauna in river ecosystems and enhancing the aesthetic value of development areas. A sustainable urban drainage system is encouraged to consider the following measures:

1. Enforce the Urban Stormwater Management Manual (MSMA Edition 2.0) implementation whereby all new development projects must comply with total rainwater runoff post-development equivalent to or less than the pre-development flow level;
2. Introduce a sustainable urban drainage system in the new development in Kuala Lumpur. This system is an approach that prioritises aspects such as maintaining natural water flow, infiltration and water absorption into the soil, removal or filtration of waste materials and removal of pollutants by plants;
3. Introduce Bio-Ecological Drainage System (BIOECODS), which is an alternative to environmental friendly and sustainable rainwater management to meet the methods of quantity control and quality of rainwater runoff;
4. Implement the Water Sensitive Urban Design (WSUD) Framework, that emphasises the interaction of water cycle with urban landscape elements to reduce impact of development on drainage. This concept also treats and manage water resources as an alternative water source; and
5. Implement comprehensive, innovative water management through the Sponge City concept. This concept is an integrated innovative water management strategy to address the impacts of climate change, flood disaster mitigation and water retention. (Figure G4.20)



TAMAN BOTANI PERDANA, KUALA LUMPUR

EXAMPLE OF BEST PRACTICES

The Use of Bio-Ecological Drainage System at Universiti Sains Malaysia (USM)

BIOECODS is an alternative to environmentally friendly and sustainable rainwater management. It was introduced by the River Engineering and Urban Drainage Research Centre (REDAC), Universiti Sains Malaysia. BIOECODS can reduce the flow and volume of water runoff as well as pollution by implementing control methods on the source of rainwater management at the USM campus.



Source: River Engineering and Urban Drainage Research Centre, USM

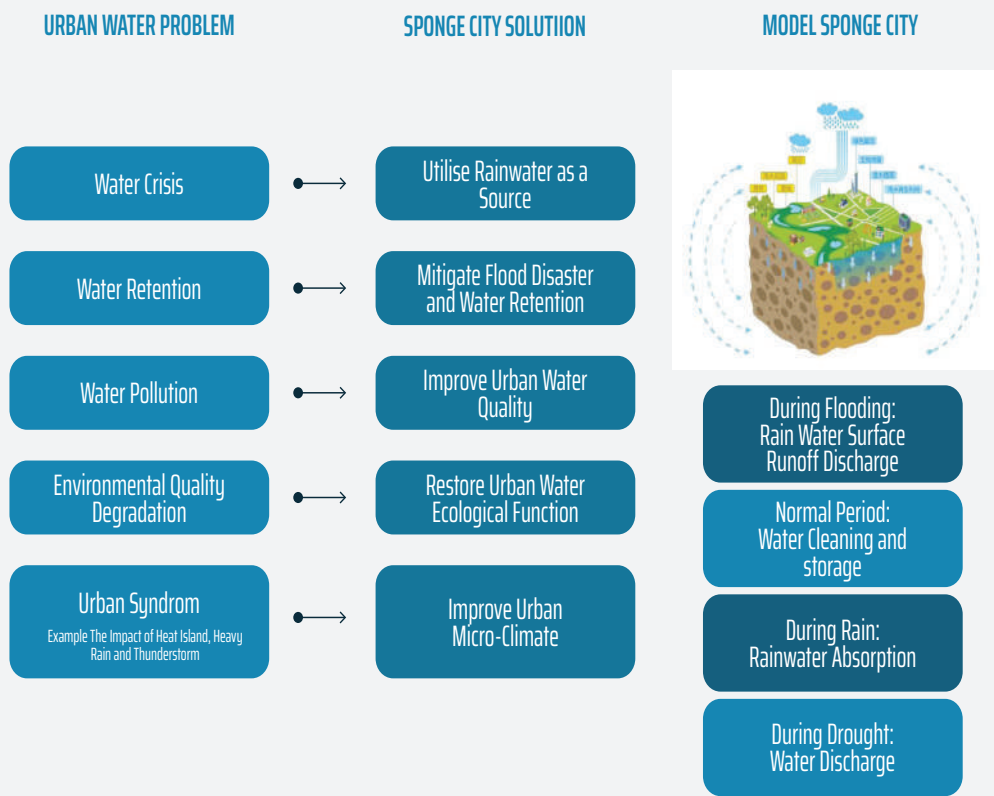
EXAMPLE OF BEST PRACTICES

Sponge City Concept

This concept is an urban development approach with the capability towards urban water management. It has appropriate frameworks and policies to implement, maintain and develop infrastructure systems for collecting, storing and treating rainwater.

In addition, it plays a vital role in addressing flood and drought issues as well as enhancing resilience to climate change.

FIGURE G4.20: SPONGE CITY SYSTEM



National Water Balance Management System (NAWABS)

The Department of Irrigation and Drainage has introduced the National Water Balance Management System (NAWABS) for all river basins in Malaysia. NAWABS aims to develop a water balance model for managing water resources by providing up-to-date information on water resource availability and allocation options based on priority.

The implementation of NAWABS is in line with the national goals to conserve and manage water resources more sustainable and efficient to ensure adequate and safe water for all by 2050.



NAWABS contains six (6) main components as follows:

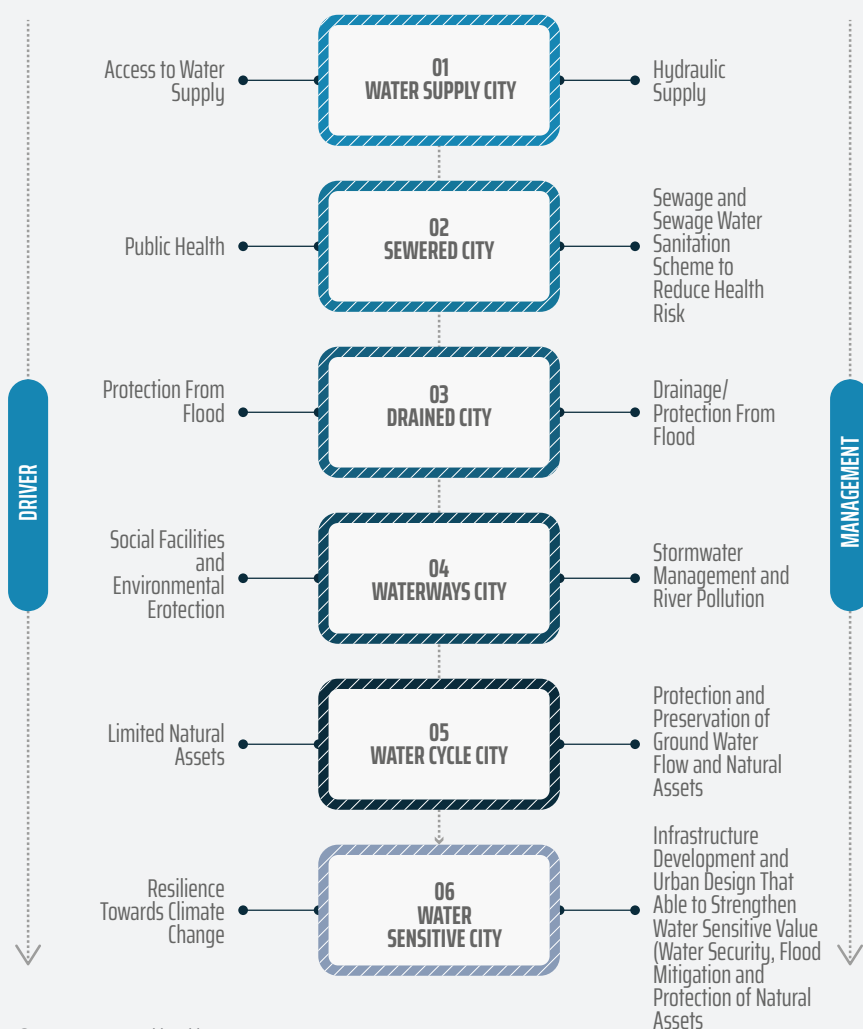
1. A study of the water balance of the basin, environmental flows, demand management options, water resource conservation plans and the water energy-food nexus of the water-energy nexus;
2. Numerical models of surface water resources and related infrastructure such as dams and barrages;
3. A statistical model of groundwater resources including interactions with surface water sources;
4. A database of model results as well as links to external data sources;
5. Decision Management Support Systems and related DSS Tools; and
6. The website to distribute the main output of NAWABS.

EXAMPLE OF BEST PRACTICES

The Water Sensitive Urban Design Framework in Australia

Water Sensitive Urban Design Framework emphasises interaction with water cycles in urban areas by improving water resources management efficiency, protecting waterways and reducing the impact of water pollution and flood risk.

FIGURE G4.21: WATER SENSITIVE URBAN DESIGN FRAMEWORK IN AUSTRALIA



WATER SENSITIVE CITY IN AUSTRALIA

Source: watersource.awa.asn.au

STRATEGIC DIRECTION

PR3: EFFICIENCY IN CARBON EMISSION REDUCTION

Kuala Lumpur has embarked on implementing low carbon communities through the Low Carbon Society Master Plan 2030 and the Kuala Lumpur Climate Action Plan 2050, setting actions and achievement targets until 2050.

Kuala Lumpur as a main urban activity centre plays an important role in achieving the national carbon reduction commitments. The adoption of low carbon development will help to achieve a commitment of 45 percent reduction in the intensity of carbon emissions from GDP per capita by year 2030 and become a carbon neutral by year 2050 in line with Paris Climate Agreement 2015 (Paris Agreement) which has also become a national commitment.

Kuala Lumpur will ensure that the 70 percent carbon intensity reduction target by year 2030 is achieved and becomes a Carbon Neutral City by year 2050 based on GDP per capita. Therefore, the use of green and clean technologies as well as carbon efficient should be applied in development and urbanisation to support the aspirations of sustainable and low carbon development. Carbon efficiency can be defined as an approach or development that can reduce carbon emissions without compromising productivity.

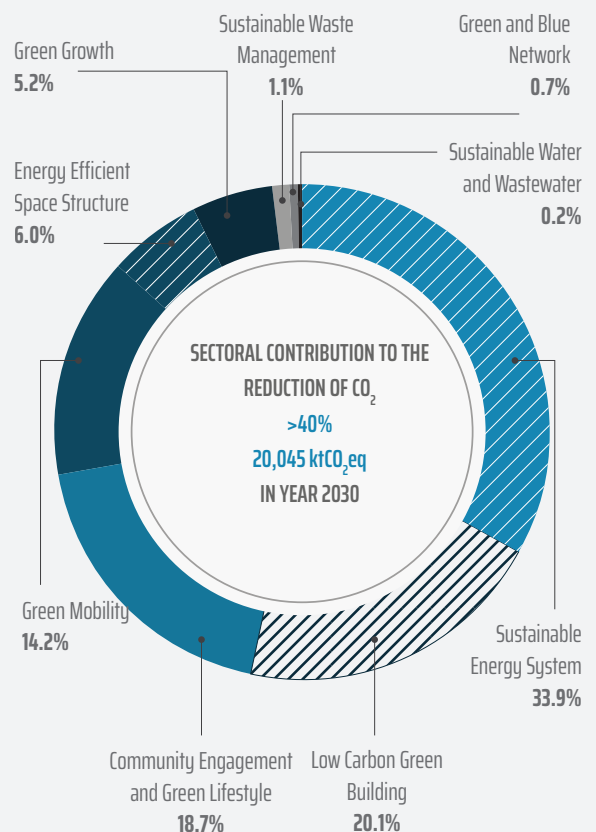


EXAMPLE OF ELECTRICAL VEHICLE CHARGING POINT

QUICK INFO

Contribution of Infrastructure, Building and Transport Sectors in the Effort to Reduce Carbon Emissions

The Kuala Lumpur Low Carbon Society Blueprint 2030 (KL LCSBP 2030) projected that the infrastructure, building and transport sectors will be able to contribute more than 40 percent of the total carbon emission reductions for Kuala Lumpur by year 2030. The contribution to the reduction of carbon emissions according to the action of KL LCSBP 2030 is as follows:



Source: Kuala Lumpur Low Carbon Society Blueprint 2030

ACTION**PR3.1: ENCOURAGE THE DEVELOPMENT OF LOW CARBON BUILDING**

Low carbon buildings are designed to reduce carbon emissions. Carbon emissions can be reduced through various design techniques, technologies, materials and indoor hardware. A low carbon building uses a minimum energy resource, especially lighting, ventilation and air conditioning. It integrates green buildings' concepts and characteristics.

SUPPORTING ACTION**PR3.1A: Application of resource efficient building technology**

The application of resource efficient building technologies can be implemented by considering the following measures:

1. Apply green building design, resource-efficient and less energy consumption;
2. Use of Rainwater Harvesting System (SPA) for new buildings;
3. Upgrade existing buildings for energy savings, especially government buildings and public facilities such as mosques, schools and public educational institutions;
4. Encourage the use of clean and resource-efficient technologies; and
5. Promote the application of an energy-efficient lighting system in the building.

SUPPORTING ACTION**PR3.1B: Implement sustainable building design strategies**

A sustainable building is a building that is resource efficient, easy to maintain and considers the comfort of its occupants. It also incorporate the condition of the site and its surrounding area while in the design process. Aspects to be emphasises in implementing sustainable building design strategy are as follows:

1. Building orientation and sustainable building design that are climate responsive by applying principles such as:
 - i. Design that passively reduces resource use;
 - ii. Natural lighting;
 - iii. Natural ventilation; and
 - iv. Construction of sustainable and low carbon buildings.

2. Emphasis on Efficient Building Envelope Performance which refers to consumption performance and thermal comfort;
3. Utilization of efficient and sustainable building materials, including recycled materials from renewable energy sources, to minimize environmental impact; and
4. Emphasis on trees planting either in a landscape, parks, rooftop and indoor gardens.

EXAMPLE OF BEST PRACTICES**Energy Commission Building, a Low Carbon Building****Energy Efficiency**

1. Tilting Facade
2. Sunken Garden Area
3. Building Orientation
4. Photovoltaic
5. Lighting-Natural and Light
6. Insulated Concrete Roof

Water Efficiency

1. Rainwater Harvesting
2. Efficient Water Fittings
3. Using Used Sink Water-Greywater Recycling for Mini Wetland

Indoor and Outdoor Environmental Quality

1. Thermal Comfort via Radiant Cooling
2. Noise Control
3. Use of Sustainable Materials
4. Extensive Landscaping

Environmental Protection

1. Recycled Material
2. Storage and Collection of Recyclables
3. Prioritise Green Vehicle

ACTION**PR3.2: PROMOTE THE USE OF GREEN AND LOW CARBON TRANSPORT**

Encouragement for using public transport and low carbon private transportation to reduce carbon dioxide emissions in Kuala Lumpur will be intensified by:

1. Increasing the level of public transport provision, including e-hailing such as Grab and Mycar, especially in populated and employment areas to reduce carbon emissions from private transport;
2. Providing incentives to public transport operators to promote the use of energy-efficient and low carbon public transport modes, such as hybrid buses and electric buses;
3. Promoting the use of energy-efficient and low carbon private transport. Provision of incentives to the public in promoting the use of low carbon vehicles such as hybrid cars and electric cars. For example, parking fees waiver;
4. Promote Automated Mobility system for future technological needs and developments;
5. Providing low carbon and clean infrastructure and facilities, such as micromobility vehicles in strategic areas such as shopping centers, government offices, schools, higher education institutions, gas stations, religious facilities, multipurpose halls, stadiums, and sports complexes;
6. Provide charging stations and hydrogen stations for electric vehicles in strategic areas; and
7. Determine parking requirements and other specific facilities for low carbon vehicles as part of the parking requirements for each new development.



BICYCLE LANE IN KUALA LUMPUR

EXAMPLE OF BEST PRACTICES

ELECTRIC VEHICLE CHARGING STATION (CHARGEV) AT SOLARIS PETRONAS STATION, SERDANG, SELANGOR

Source: mymesra.com.my

PUBLIC BUS IN PUTRAJAYA AND CYBERJAYA USING QUICK CHARGING TECHNOLOGY

Source: mkn.gov.my

LOW CARBON PRIVATE VEHICLE

Source: alphaomegarecycling.com

ACTION**PR3.3: ESTABLISH LOW CARBON EMISSION ZONES (LEZ-LOW EMISSION ZONE)**

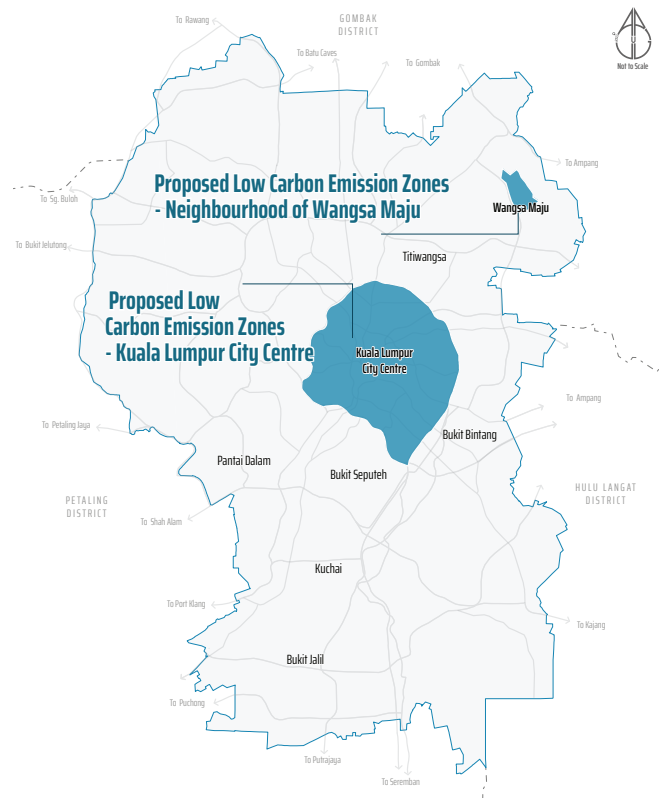
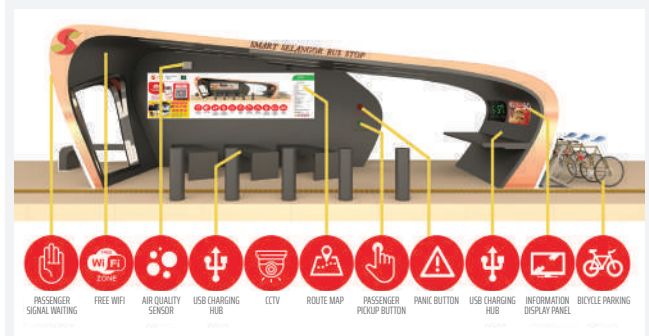
Low Carbon Emission Zone is a designated area aimed at reducing pollution levels, improving air quality as well as encouraging the number of green and low carbon vehicles. The Low Carbon Emission Zone will contribute to the target of Kuala Lumpur as a low carbon city by reducing carbon emissions from vehicles and promoting active mobility.

This zone can be implemented in commercial and neighbourhood areas that include Kuala Lumpur City Centre, Wangsa Maju neighbourhood (Figure G4.22) and other areas with potential or as identified by KLCH in the future.

The main measures to be implemented in the Low Carbon Emission Zone are as follows:

1. Provide special facilities such as hybrid vehicle charging stations, electric and others;
2. Build mart bus and taxi terminals equipped with facilities such as arrival information, air cooling and filtering systems, solar panels, and charging facilities for low carbon buses and taxis, that considers local weather and climate factors;
3. Provide incentives such as bus route priority scheme, fare reduction and public transport allowance to reduce the usage of private vehicles;
4. Integrate pedestrian and cycling networks in the focal point of activity and around transit centres;
5. Intensify the development of public transport services such as buses, urban commuters and other public rails;
6. Provide green facilities and infrastructure such as LED street lighting installation, rainwater harvesting, rain garden or bio-retention, permeable paver and on-site renewable energy sources;
7. Provide community-based low carbon facilities such as recycling and composting centres to facilitate low carbon lifestyles at the local community level; and
8. Develop energy-efficient buildings by obtaining confirmation from SIRIM such as MS ISO 50001 and ASEAN Energy Management Scheme (Malaysian Green Technology And Climate Change Centre) to obtain zero energy building certification from SEDA Malaysia.

FIGURE G4.22: LOW CARBON EMISSION ZONE

**EXAMPLE OF BEST PRACTICES****Smart Bus Station in Selangor**

Source: smartselangor.com.my

ACTION**PR3.4: DEVELOP LOW CARBON, CLEAN AND GREEN INDUSTRIAL ENVIRONMENT**

The existing industrial areas around Kuala Lumpur shall be upgraded in order to improve the quality of the environment and infrastructure. It can be implemented through the modernization of industrial areas towards sustainable and low carbon. 23 industrial areas in Kuala Lumpur are identified for improvement (Action IP1.5).

This effort will also help to reduce environmental pollution and increase efficiency in carbon emission reduction through the following measures:

1. Focus on SME parks as stable and old industrial areas by improving existing infrastructure and environmental maintenance in industrial areas;
2. Provide an efficient sewerage system for treating effluent and sewage;
3. Effective solid waste management by emphasising a reduction in waste production and increased recycling in industrial areas;
4. Encourage existing industries to upgrade and adopt clean technology and green technology in industrial activities;
5. Encourage upscaling industrial waste materials to make new products of better quality; and
6. Implement low carbon programmes such as recycling programmes, adopting green technology, adopting rainwater harvesting systems and other low carbon good practices.

QUICK INFO**13****RETENTION AND IMPROVEMENT OF THE EXISTING INDUSTRIAL AREAS**

1. Segambut Industrial Area;
2. Taman Desa Tasek Industrial Area;
3. Taman Sg. Besi Industrial Area;
4. Taman Wahyu Industrial Area;
5. Spring Crest Industrial Area;
6. Desa Tun Razak Industrial Area;
7. Taman Midah Industrial Area;
8. Shamelin Industrial Area;
9. OUG Industrial Area;
10. Batu 7 ½ Jalan Puchong Industrial Area;
11. Seri Keladi Industrial Area;
12. Capital Industrial Centre; and
13. Glenview Business Centre.

7**RENEWAL OF POTENTIAL INDUSTRIAL AREA AS MIXED INDUSTRY**

1. Taman Bukit Maluri Industrial Area;
2. Sri Edaran Industrial Area;
3. Sri Edaran Light Industrial Park;
4. Taman Kepong Industrial Area;
5. Batu Muda Industrial Area;
6. Part of (South) Batu 6 ½ Jalan Kepong Industrial Area; and
7. Sri Rampai Business Park South.

1**HIGH TECHNOLOGY INDUSTRIAL**

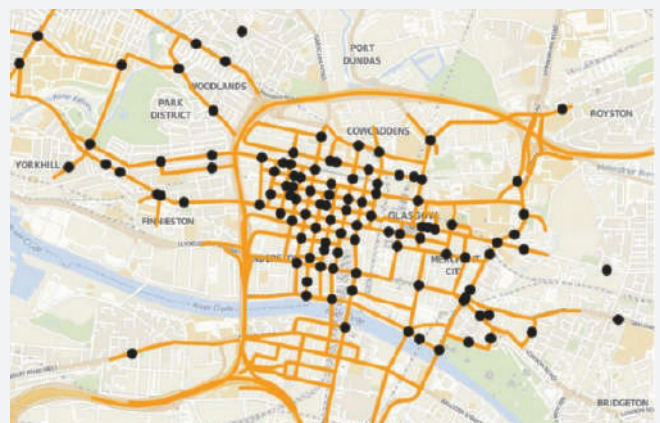
1. Technology Park Malaysia.

EXAMPLE OF BEST PRACTICES**Low Emission Zone, Glasgow, Scotland**

LEZs can help address problems related to air pollution, greenhouse gas emissions and traffic congestion. Glasgow City Council conducted several extensive studies and city-wide monitoring measuring various air pollutants including nitrogen dioxide (NO₂). Studies have found that a lot of carbon emissions are emitted from private vehicles.

The first phase of Glasgow City Council focused on improving the public bus service operating in the city centre. The second phase of Glasgow City Council implemented LEZs in several focal areas by setting conditions such as:

1. Do not allow all types of motorcycles in the LEZ area;
2. Vehicles such as emergency vehicles and disabled vehicles are exempted; and
3. Penalty charges are imposed on non-compliant vehicles entering the LEZ.



GLASGOW AIRPORT WAS THE FIRST AREA TO IMPLEMENT LEZ

STRATEGIC DIRECTION

PR4: LOW CARBON COMMUNITY DEVELOPMENT**Low carbon societies play an important role in forming a low carbon and green city.**

The lifestyle of low carbon communities refers to the low carbon practices nurtured in the way of life at the local level. The community should be empowered towards the culture of a low carbon lifestyle and they also play a vital role in achieving the carbon reduction target for Kuala Lumpur.

These actions emphasise measures that help societies to reduce carbon more effectively and sustainably.



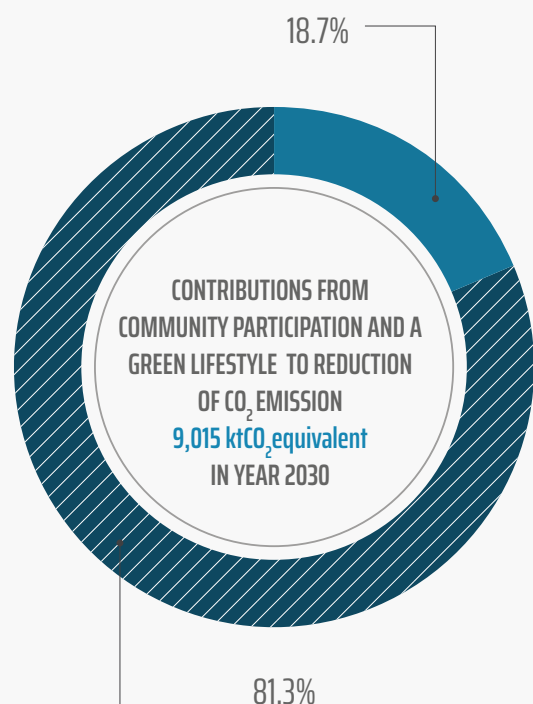
RECYCLING PROGRAMME AT TABUNG HAJI OFFICE WITH THE COOPERATION OF KUALA LUMPUR CITY HALL

Source: tabunghaji.gov.my

FIGURE G4.23: COMMUNITY PARTICIPATION TARGET IN IMPLEMENTING LOW CARBON CITY

KL LCSBP 2030 concluded that Action 5: Community participation and Green Lifestyle can contribute 18.7 percent, i.e. 9,015 ktCO₂ equivalents, in the total carbon emission reduction for Kuala Lumpur in year 2030.

Contributions from community participation and a green lifestyle to carbon dioxide (CO₂) emissions reductions are expected to reach 18.7 percent by year 2030.



Source: Kuala Lumpur Low Carbon Society Blueprint 2030, 2021

16%

Percentage of schools actively participating in the green school project in year 2010

100%

Targeted percentage of schools actively participating in the green school project in year 2030

ACTION**PR4.1: PROMOTE THE USE OF SMART HOME TECHNOLOGY**

Low carbon society shall be initiated at the household level. The use of smart home technology shall be encouraged to improve energy consumption performance. The implementation measures are as follows:

1. Installation of water and energy-efficient equipment;
2. The use of solar energy in residential areas through the Net Energy Metering (NEM);
3. Replacement of existing conventional electrical measurement systems with smart meter; and
4. Implement efficient building design.

Priority implementation of solar energy and NEM is for new housing projects, while efficient building design and smart meter systems are encouraged for all types of housing.



SMART HOME APPLICATIONS

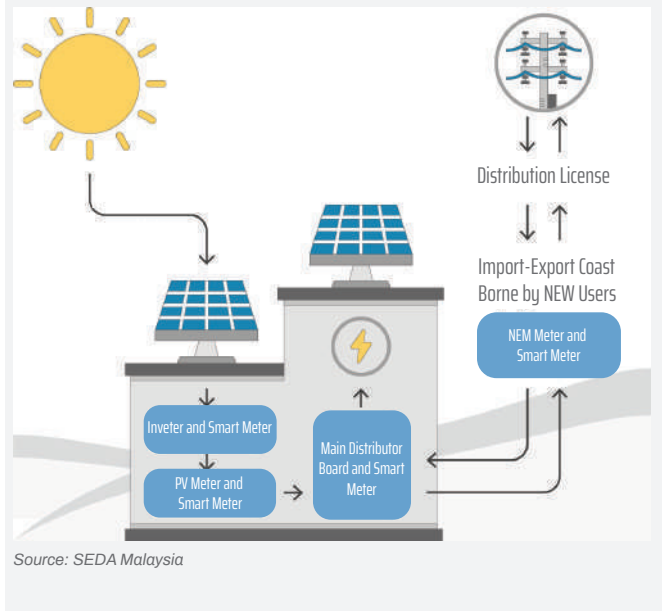
Source: <https://www.ddproperty.com/en/property>

QUICK INFO**Net Energy Metering (NEM)**

Based on the NEM concept, the energy generated from the installed solar PV system will be used first and the excess energy will be exported and sold to distribution licensees such as TNB/SESB at current supply costs set by the Energy Commission.

Benefits of Net Energy Metering (NEM)

1. Encourage consumers to play an active role in renewable energy generation involving the country's climate agenda and energy security. As more energy generated by solar panel systems is channeled for their use, NEM users can save on consumers' electricity bills;
2. Reduce GHG emissions; and
3. Reduce electricity tariff increases in the future.



ACTION**PR4.2: ESTABLISH LOW CARBON COMMUNITY**

Low carbon community development will be encouraged in new development areas and redevelopment areas taking into account urban design concepts of green or low carbon neighborhoods. This scenario will lead to the establishment of low carbon community within the local community.

The development of low carbon communities shall consider the following measures:

1. A low carbon neighbourhood module/unit shall be designed at a scale that considers a five-minutes walk with an estimated radius of 400m;
2. Each green neighbourhood should have a community focal point as a meeting place for residents (it does not necessarily consist of a public facilities component);
3. Develop pedestrians and micromobility vehicles networks that connect residential, community areas, neighbourhood commercial areas and transit stations (LRT, MRT, commuter KTM and related);
4. Green neighbourhoods shall set aside more than 10 percent of the open space for passive or active recreational purposes;
5. Add green density vertically or on the floor and each building;
6. Provide shared multipurpose spaces and public facilities;
7. Provide neighbourhood farming space in residential area;
8. Encourage recycling practices and training in local communities to increase recycling rates in Kuala Lumpur;
9. Promote composting activities in the neighborhood and support neighbourhood farming programmes; and
10. Provide green facilities and infrastructure such as rainwater harvesting, rain garden or bio-retention, permeable paver and on-site renewable energy sources.

ACTION**PR4.3: PROVIDE COMMUNITY-BASED LOW CARBON FACILITIES**

The provision of community-based low carbon facilities should be encouraged to facilitate low carbon lifestyles at the local community level such as:

1. Low carbon neighbourhood infrastructure facilities consisting of pedestrian and micromobility vehicle lanes and community rainwater harvesting system facilities to reduce dependency on treated water supplies;
2. Creating and promoting creative upcycling programmes that create new products from recycled materials and generate local economies. It can be implemented by creating a creative recycling plaza where these recycled products are collected by type and repackaged into new products by creative entrepreneurs as well as creating training and learning programmes;
3. Promote the use of recycled materials in construction works;
4. Improve the quality of recycling and composting centres in particularly high-density neighbourhoods to facilitate segregation and recycling activities through digital technology innovation;
5. Sustainable community centres in the neighbourhood to share knowledge, experience and carrying out low carbon and green neighbourhood-related activities; and
6. Intensify neighbourhood farming in facilities and infrastructure reserves and on the rooftops of high-density residences with coordinated collaboration of residential management, community and related agencies.

EXAMPLE OF BEST PRACTICES**PJ Eco Recycling Plaza, MBPJ**

This facility can be provided through two (2) methods:

1. Provision of low carbon community-based facilities through new development projects or redevelopment programmes by KLCH, relevant government agencies or developers; and
2. Upgrading local community facilities in the existing areas or communities such as public housing or affordable housing by KLCH or related government agencies.

ACTION

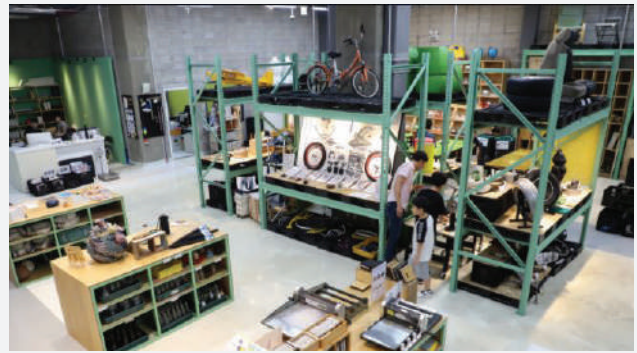
PR4.4: INTENSIFY LOW CARBON AWARENESS AND EDUCATION PROGRAMMES AT COMMUNITY LEVEL

Awareness and education programmes are an essential approach to empower communities to implement low carbon and green. Awareness and education programmes are implementable through:

1. Fostering and actively promoting low carbon lifestyle practices at the community level. These efforts should be implemented collaboratively with NGOs, private entities, schools, and local communities to educate and engage them in environmental education and related programmes;
2. Provide exposure to the importance of solid waste separation at source which is the process of segregating solid waste produced at source according to the composition of solid waste such as paper, plastics, other recycled materials and other dirty waste;
3. Conduct exhibitions on low carbon lifestyle knowledge in terms of mobility/travel, water and electricity saving, recycling and composting in schools, neighbourhoods and shopping malls;
4. Strengthen collaboration and smart partnerships between the public and private sectors; and
5. Empower cooperation between KLCH, community and related agencies in developing low carbon-related projects and programmes.

EXAMPLE OF BEST PRACTICES

Seoul Plaza Upcycling, Korea



The Korean government has intensified its creative upcycling programme to achieve its vision of Seoul City as a zero-waste city through the formation of Seoul Upcycling Plaza (SUP).

The plaza was created to expand awareness of environmental, social and economic benefits through upcycling activities and generate an upcycling-based industrial ecosystem. The plaza also housed 40 creative companies doing business from recycled materials.

Facilities at the Plaza

1. Upcycling education and training space;
2. Seminar spaces, upcycling programmes and exhibitions;
3. Restaurants and canteens;
4. Studios and classes;
5. Shop;
6. Gallery;
7. Library;
8. Storage space for recycled materials;
9. Workspace; and
10. Public and recreational spaces.

Source: www.seouldesign.or.kr

SUMMARY

The strategies and actions of Goal 4 will be implemented through a range of initiatives and programmes by various government and private agencies. KLCH as the development leader of Kuala Lumpur will detail each Goal 4 initiative through a specific implementation plan.

This strategic plan generally comprises priority actions according to the implementation phase and details the leading agencies and other supporting agencies to implement the strategic direction and actions of this goal.

The implementation of these Goals 4 will also be aligned with the achievement of the SDGs based on the key actions of PSKL2040 (Table G4.6).

TABLE G4.6 : SUMMARY OF MULTI-DIMENSIONAL ACTIONS BASED ON THE AIM OF SUSTAINABLE DEVELOPMENT GOALS 2030

ACTION	SDGs RELATED
PR1.1: Prepare Climate Resilient Mitigation and Adaptation Action Plan and Disaster Risks Management Plan	
PR1.1A: Empower data and information on climate change and disasters	  
PR1.1B: Prepare action plans for various types of disaster risk	  
PR1.1C: Upgrade Infrastructure towards a Flash Flood Free Kuala Lumpur	 
PR1.1D: Empower climate resilience strategies and actions	   
PR1.1E: Enhance enforcement on management and maintenance towards pollution control	     
PR1.1F: Promote planning and development that considers pandemic	
PR2.1: Facilitate the application of renewable energy technology	
PR2.1A: Increase consumption and production of renewable energy	   
PR2.2: Enhance Energy Efficient System	  
PR2.3: Strengthen Integrated and Sustainable Solid Waste Management	
PR2.3A: Implement solid waste segregation by establishing recycling facilities at the local level	 
PR2.3B: Strengthen solid waste management from construction and industrial sectors	   
PR2.3C: Implement value restoration activities for municipal solid waste	  
PR2.3D: Manage municipal solid waste by using technology	  

TABLE G4.6 : SUMMARY OF MULTI-DIMENSIONAL ACTIONS BASED ON THE AIM OF SUSTAINABLE DEVELOPMENT GOALS 2030 (CONT.)

ACTION	RELATED SDGs
PR2.4: Strengthen the efficiency of sustainable water management	
PR2.4A: Implement water reuse	
PR2.4B: Adopt smart water management system	 
PR2.4C: Develop an integrated water resources management plan	  
PR2.5: Adopt Sustainable Urban Drainage System	
PR3.1: Encourage the development of low carbon building	
PR3.1A: Application of resource efficient building technology	    
PR3.1B: Implement sustainable building design strategies	   
PR3.2: Promote the use of green and low carbon transport	 
PR3.3: Establish low carbon emission zones (lez-low emission zone)	 
PR3.4: Develop Low Carbon, Clean and Green Industrial Environment	 
PR4.1: Promote the use of smart home technology	
PR4.2: Establish low carbon community	  
PR4.3: Provide community-based low carbon facilities	 
PR4.4: Intensify low carbon awareness and education programmes at community level	 

GOAL 5

KUALA LUMPUR EFFICIENT AND ENVIRONMENTAL- FRIENDLY MOBILITY CITY



RAIL TRANSPORTATION IN KUALA LUMPUR

Source: MRT Corporation Sdn. Bhd.

The public transportation network is the backbone of sustainable and dynamic spatial growth planning in Kuala Lumpur. Land use planning must be integrated with a comprehensive public transportation development network to ensure an efficient, integrated, clean technology, sustainable and environmental-friendly mobility system. The public transportation system should be the people's choice in Kuala Lumpur towards achieving the following:

1. Comprehensive mobility and accessibility;
2. More equitable economic opportunities; and
3. Better quality of life and urban well-being.

Kuala Lumpur's mobility modes include public transportation systems, private vehicles as well as active mobility which comprises of micromobility vehicles (mopeds, bicycles/electric bicycles and personal mobility devices (PMDs)) and walking. Efficient mobility also contributes to productivity, health and quality of life through cost reduction and travel time savings.

Efficient and environmental-friendly mobility goal seeks to provide a comprehensive and integrated public transportation system that meets intracity and intercity travel needs. This is to ensure broader public transportation network coverage is in place in Kuala Lumpur. Thus, public transportation use will improve and achieve a modal split target of 70:30 (public transportation:private vehicle) by year 2040.

The strategic directions formulated to support this goal are:

MC1

Integrated Multimodal Public Transportation

MC3

Effective Traffic Management

MC2

Active Mobility Mode to Enhance Accessibility

3 STRATEGIC DIRECTIONS

10 ACTIONS

Goal 5 of KLSP2040 towards making Kuala Lumpur an efficient and environmental-friendly mobility city is supported by three (3) strategic directions and 10 planning priorities and implementation actions.

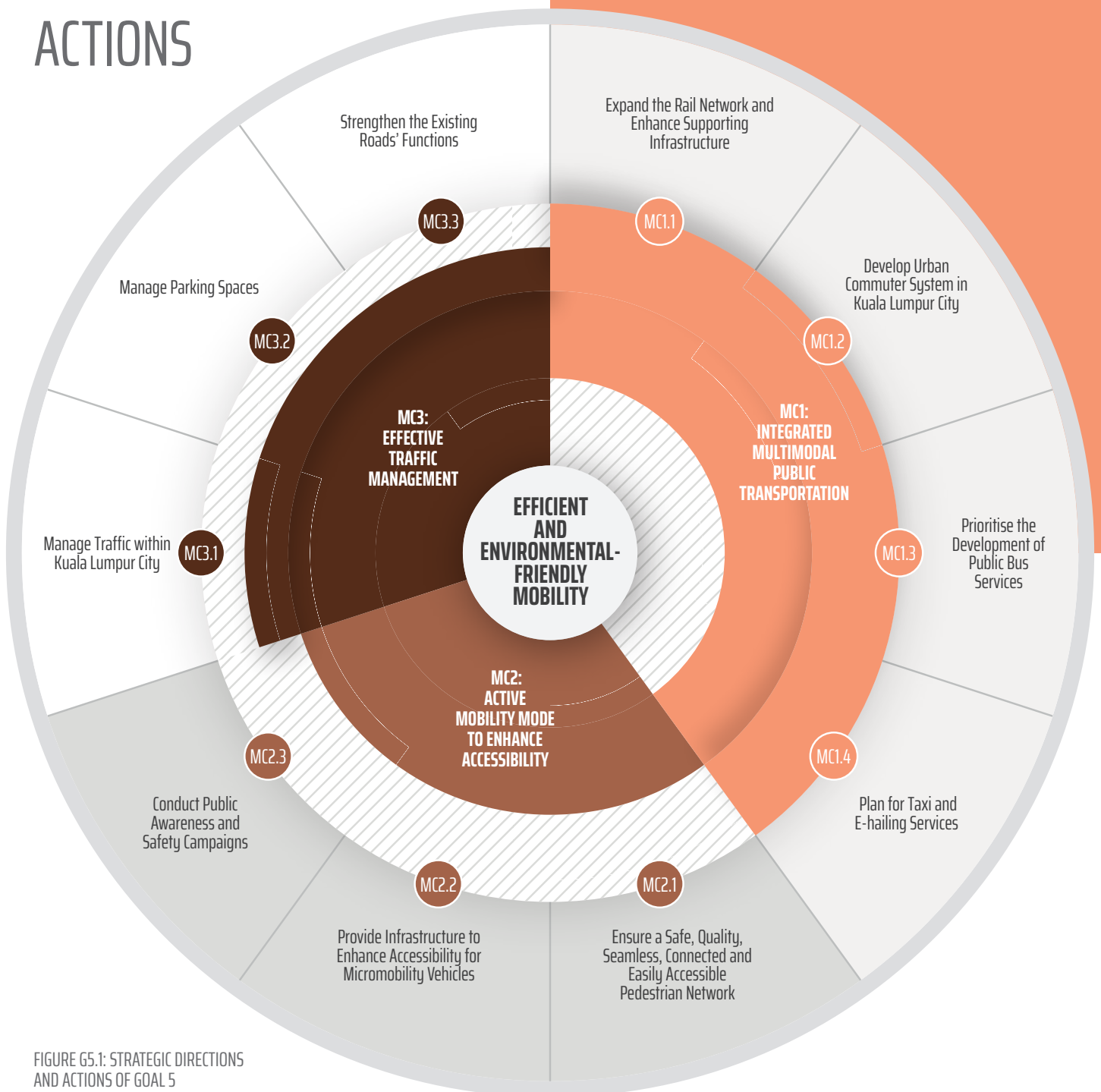


FIGURE G5.1: STRATEGIC DIRECTIONS AND ACTIONS OF GOAL 5

GAME CHANGER

Kuala Lumpur went through an urbanisation revolution over the past centuries whereby the urban growth has also focused on the development of transportation facilities to ease people and goods movement.

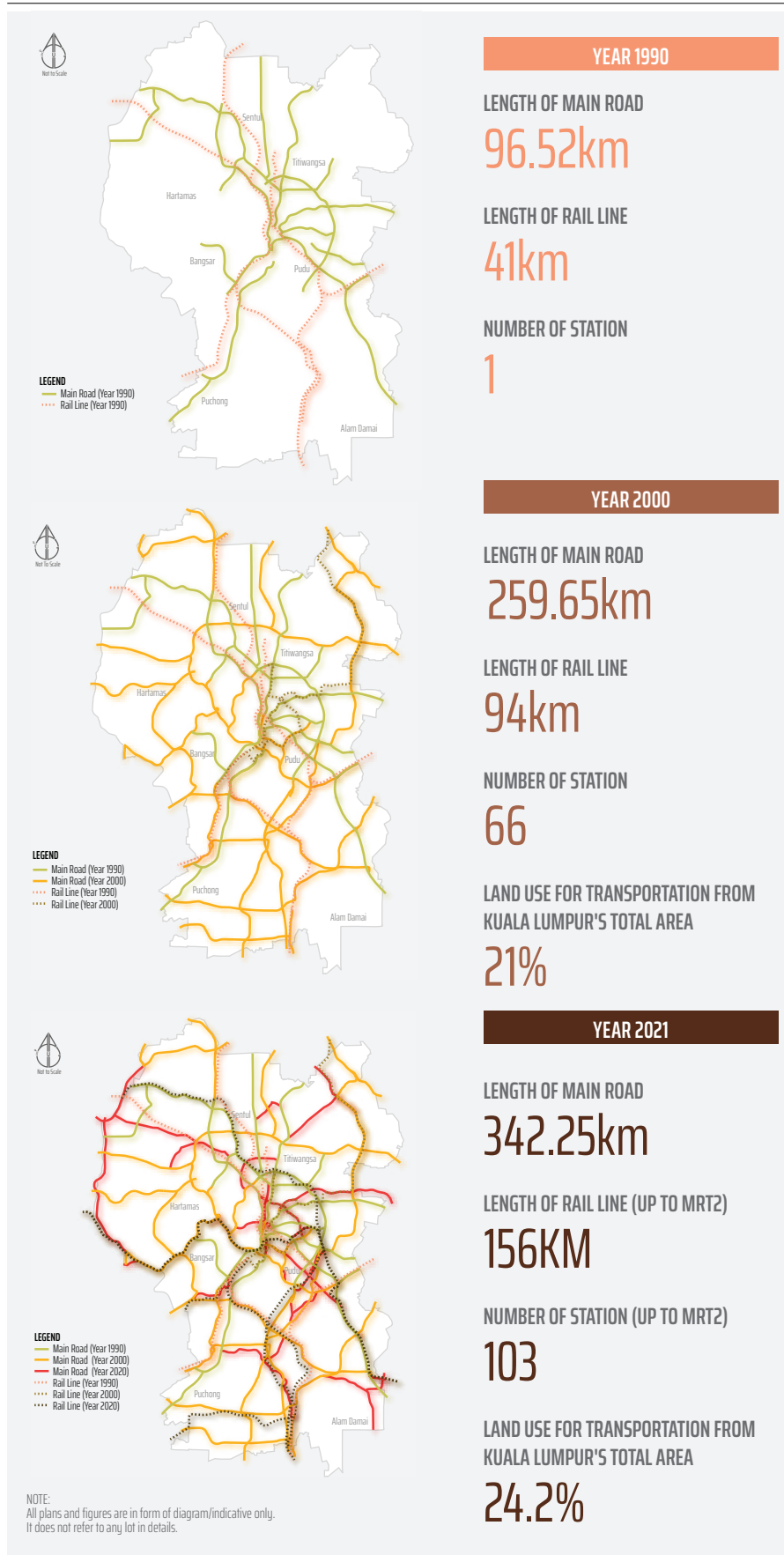
Kuala Lumpur has continuously constructed and improved its transportation network not only through road construction but has even accelerated the rail development to support the mobility of passengers and goods.

Currently, Kuala Lumpur is the only city in Malaysia with various modes of rail transport consisting of Keretapi Tanah Melayu (KTM), Light Rail Transit (LRT), Monorail, Express Rail Link (ERL) and Mass Rapid Transit (MRT).

In year 2020, the utility, transportation and storage as well as information and communication sectors collectively contributed 12 percent to Kuala Lumpur's GDP (Goal 1, Figure G1.4). This indicates that the transportation sector serves as a key driver for the economic and social development of Kuala Lumpur in both the present and the future.

Aligned with the continuous development achievements, the transportation network and system in Kuala Lumpur need to support the overarching vision of PSKL2040, which is a **CITY FOR ALL**. This involves providing a more comprehensive, clean technology, integrated, efficient, and environmental-friendly transportation network.

FIGURE G5.2: ROAD NETWORK AND RAIL TRANSPORTATION COVERAGE IN YEAR 1990, 2000 AND 2021



The growth and rapid development of Kuala Lumpur and the surrounding areas in the National Conurbation have increased intercity commuting, especially using private vehicles, resulting in traffic congestion.

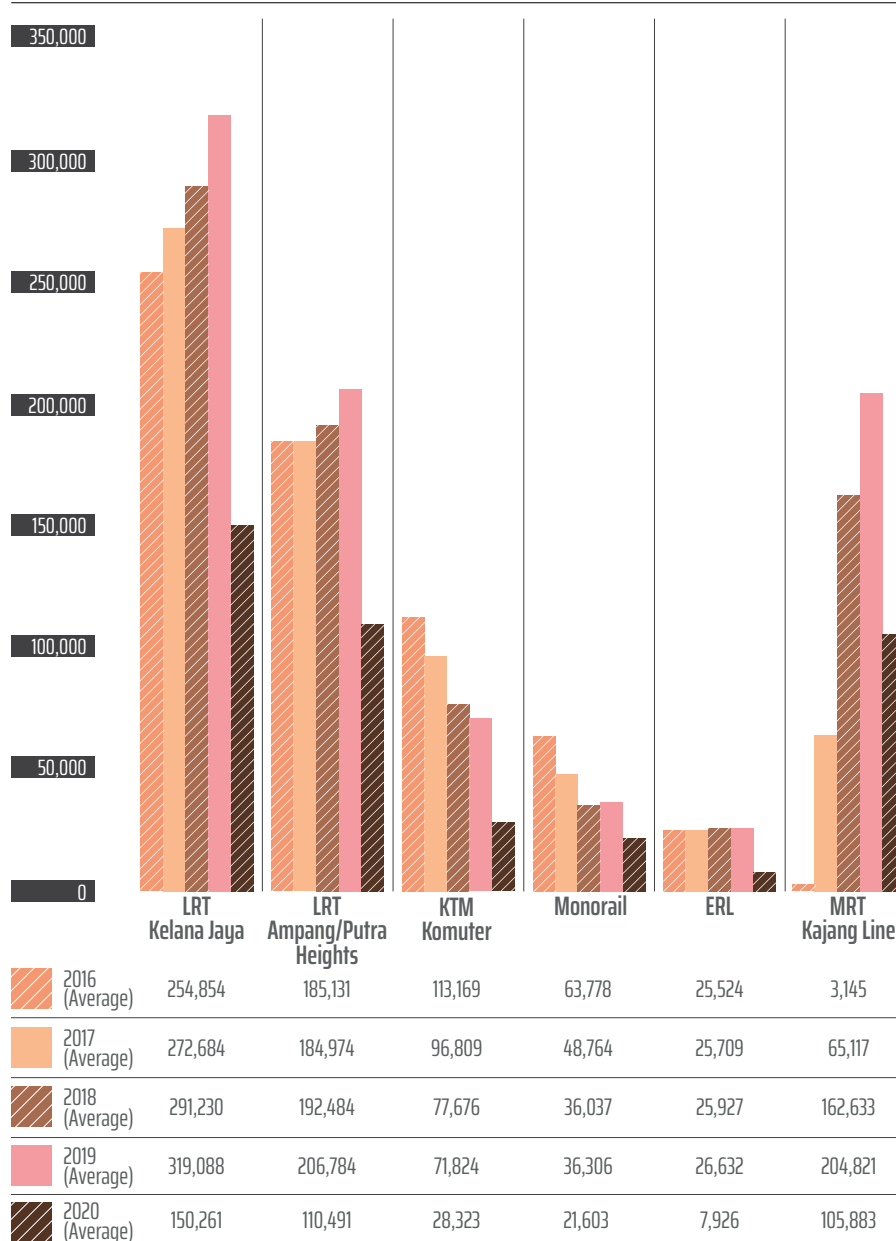
Kuala Lumpur has a diverse rail transportation system that connects the city centre to other destinations outside the city centre. The trend in rail transportation usage reflects a robust transportation system for residential areas in Kuala Lumpur and its surroundings. A more efficient, easier and safer public transportation system for a city alongside the evolution of smart digital technology is a stimulus that can change and enhance mobility in Kuala Lumpur.

The rail lines such as the Kelana Jaya LRT Line, Ampang/Putra Heights LRT Line and MRT Kajang Line have the highest usage with an average of 200,000 passengers per day from year 2016 to 2019 as the lines connect residential areas, employment areas and city centre (Figure G5.3). The extension of the Ampang LRT Line to Putra Heights and the new Kajang MRT Line are few of the main impetus for the increase in daily passengers.

However, the COVID-19 pandemic is a global and national crisis from year 2020 to 2022 that has changed the mobility modes for urban residents due to safety factors and movement control orders. This can be seen from the declining average passengers in year 2020.

Therefore, short and long-term proactive actions to integrate the development of public transport and environmental-friendly mobility with land use development need to be implemented in Kuala Lumpur. The integration of public transport and land use development will increase the trend of public transport use as well as stimulate the local economic growth.

FIGURE G5.3: AVERAGE PASSENGERS DAILY FOR RAIL TRANSPORTATION IN NATIONAL CONURBATION



Source: The Land Public Transport Agency (APAD), 2021

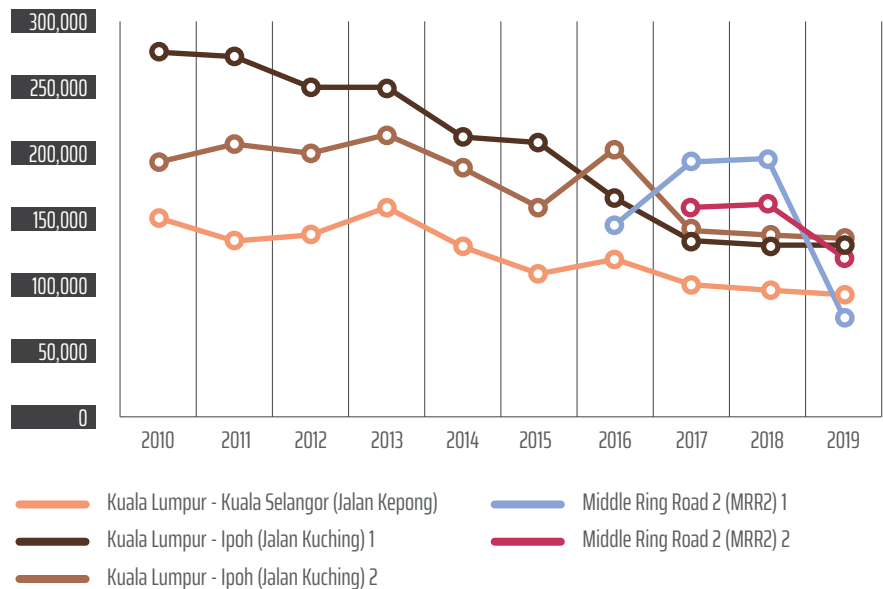
It will also reduce the traffic congestion problem faced today. Integrating existing rail lines also shall be implemented and expanded to ensure an integrated and comprehensive rail transportation system. Multimodal choices as well as dynamic information and data technologies are essential. It can provide urban transportation services that meet the needs of various parties.

TRAFFIC SCENARIO IN KUALA LUMPUR

Based on the traffic flow trend in Kuala Lumpur, traffic volume rates on certain roads decreased consistently from year 2010 to 2019 (Figure G5.4). The decrease is due to the increasing use of public transportation, construction of new roads especially the missing links, improvements at intersections as well as road and traffic management in Kuala Lumpur.

Thus, KLSP2040 should emphasise more comprehensive planning as well as user-friendly, efficient and accessible public transportation. Planning for new roads should focus on enhancing the connectivity of existing roads. In addition, the proposed roads should integrate with pedestrian and micromobility vehicles infrastructure.

FIGURE G5.4: ANNUAL TRAFFIC VOLUME RATES AT SELECTED ROADS IN KUALA LUMPUR



Source: Road Traffic Volume Malaysia, 2019, Ministry of Works, Malaysia

QUICK INFO

REDUCING CARBON DIOXIDE EMISSIONS

Transportation is among the sectors that should be given attention to achieve the goal of a 70 percent reduction of carbon dioxide emission for Kuala Lumpur by year 2030 (refer to Goal 4 of KLSP2040).

A reduction in carbon dioxide emission can be achieved through increased use of environmental-friendly and clean technology public transportation. This will improve the quality of the environment and the livelihood of the residents.

1.1% - 2.2%

TRAFFIC COSTS FROM GDP IN 2016 EQUIVALENT TO RM6,144 PER PERSON/YEAR

Source: National Transportation Policy 2030, Ministry of Transport, Malaysia, 2019

10%

HOUSEHOLD INCOME SPENT FOR TRANSPORTATION IN KUALA LUMPUR, YEAR 2016

Source: National Transportation Policy 2030, Ministry of Transport, Malaysia, 2019

6.5 Million

REGISTERED VEHICLES IN FEDERAL TERRITORY, YEAR 2020

Source: Malaysian Transportation Statistics, 2020

>RM3,100

ANNUAL EXPENSES (PRIVATE VEHICLE USERS)

Source: World Bank, Malaysia Economic Monitor Transforming Urban Transport, 2015

24% ktCO₂ equivalents

CARBON DIOXIDE GAS EMISSIONS FROM PASSENGER TRANSPORT IN KUALA LUMPUR, YEAR 2020

Source: Kuala Lumpur Low Carbon Society Blueprint 2030, Kuala Lumpur City Hall, 2018

8.9% ktCO₂ equivalents

CARBON DIOXIDE GAS EMISSIONS FROM FREIGHT TRANSPORTATION IN KUALA LUMPUR, YEAR 2020

Source: Kuala Lumpur Low Carbon Society Blueprint 2030, Kuala Lumpur City Hall, 2018

32.9% ktCO₂ equivalents

CARBON DIOXIDE GAS EMISSIONS FROM TRANSPORTATION IN KUALA LUMPUR, YEAR 2020

Source: Kuala Lumpur Low Carbon Society Blueprint 2030, Kuala Lumpur City Hall, 2018

PROSPECTS AND TARGETS FOR TRANSPORTATION OF KUALA LUMPUR 2040

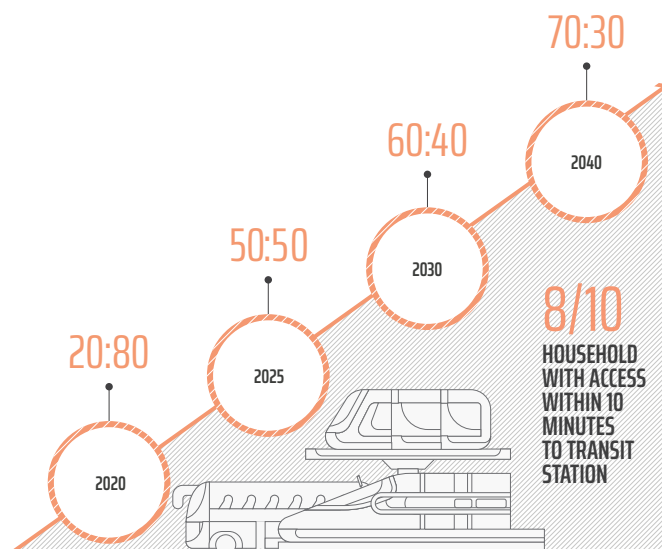
Public transportation modes are set to increase by year 2040 with the modal split of 70 percent of public transportation and 30 percent of private vehicles (Figure G5.5). The 70 percent target aims to achieve more comprehensive public transportation usage among the population.

Planning should focus on expanding network for rail, bus, taxi and e-hailing services as well as pedestrian and micromobility vehicles pathways to achieve seamless first mile and last mile connectivity.

Moreover, traffic management in Kuala Lumpur needs a paradigm shift particularly in limiting the use of private vehicles in the city centre to achieve the targeted public transportation usage.

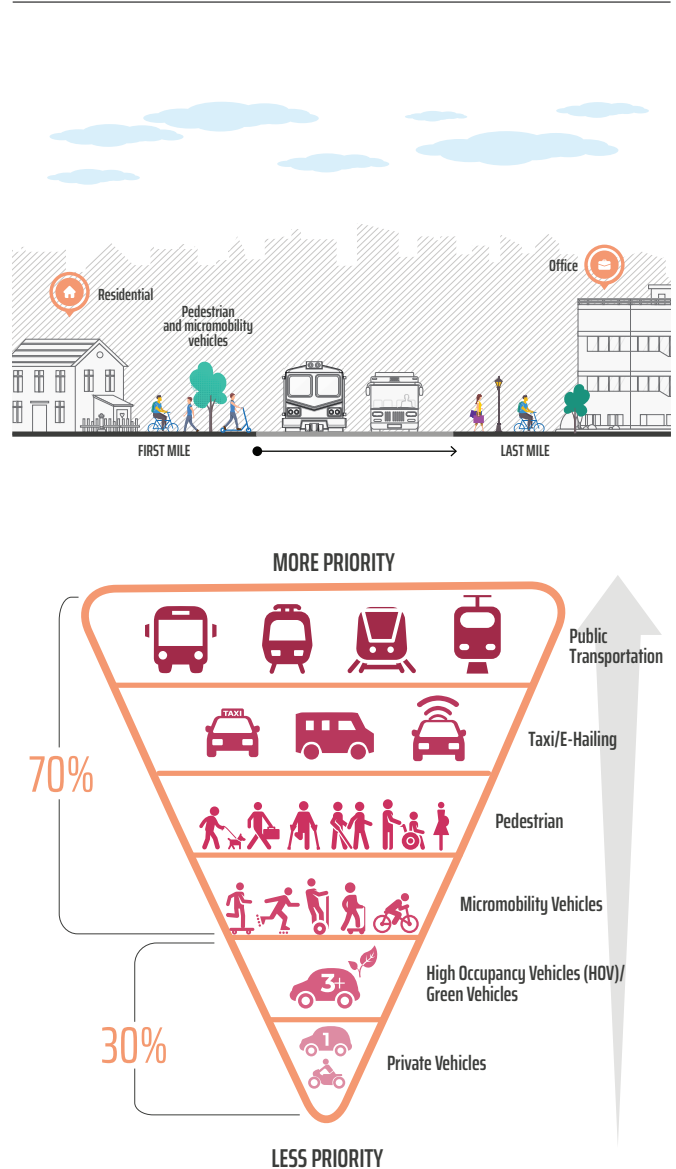
FIGURE G5.5: MODAL SPLIT FOR PUBLIC TRANSPORTATION AND PRIVATE VEHICLES

The targeted model split in year 2040 for public transportation and private vehicles is 70 percent and 30 percent, respectively. The 70 percent target comprises 40 percent public transportation such as rail, buses, taxis and e-hailing as well as 30 percent pedestrian and micromobility vehicles users.



Note: Public Transportation : Private Vehicle

FIGURE G5.6: FIRST MILE AND LAST MILE CONCEPT AND PRIORITY PYRAMID FOR URBAN MOBILITY MODES



Source: Garis Panduan Pelaksanaan Healthy Walkable City, PLANMalaysia, 2017

STRATEGIC DIRECTION

MC1: INTEGRATED MULTIMODAL PUBLIC TRANSPORTATION

Providing access to the public transportation services through development of multimodal transit options in Kuala Lumpur can increase local accessibility and encourage urban renewal.

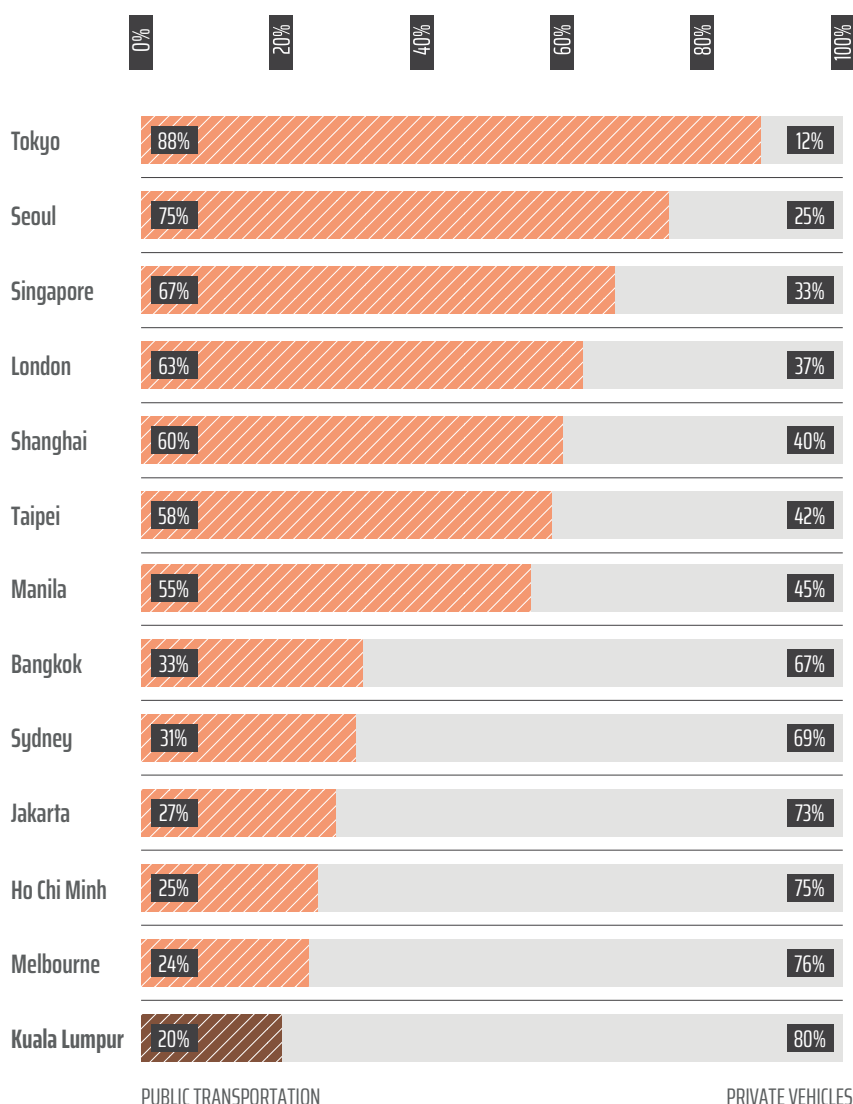
Public transportation network for all is being emphasised as the backbone of the integrated transportation system in Kuala Lumpur, in line with the aspirations of the Sustainable Development Goals (SDGs), the 4th National Physical Plan (NPP4) and the National Transport Policy 2019-2030. However, the reliance on public transportation modes in Kuala Lumpur is still low compared to other global cities (Figure G5.7).

Therefore, the multimodal integrated public transportation should be enhanced to achieve the overall public transportation usage target of 60 percent by year 2030 and 70 percent by year 2040. A complete, integrated and efficient public transportation system can help to increase the level of local accessibility.

Diversifying integrated public transportation modes will influence the shift in dependency from private vehicles to public transportation and micromobility vehicles. This will support the city's economic and socio-economic development as well as reduce environmental pollution.

FIGURE G5.7: TRANSPORTATION MODAL SPLIT FOR SELECTED CITIES GLOBALLY, YEAR 2017

Comparison between Kuala Lumpur and other global cities on the public transportation and private vehicles modal split in year 2017.



Source: Websites from Selected Countries, 2017

The existing and planned public transportation network covers almost all employment-focused areas especially Kuala Lumpur City Centre, Bukit Jalil, Bangsar, Pusat Bandar Damansara and Wangsa Maju. Part of the network also covers residential areas such as Taman Tun Dr. Ismail, Cheras and Kepong.

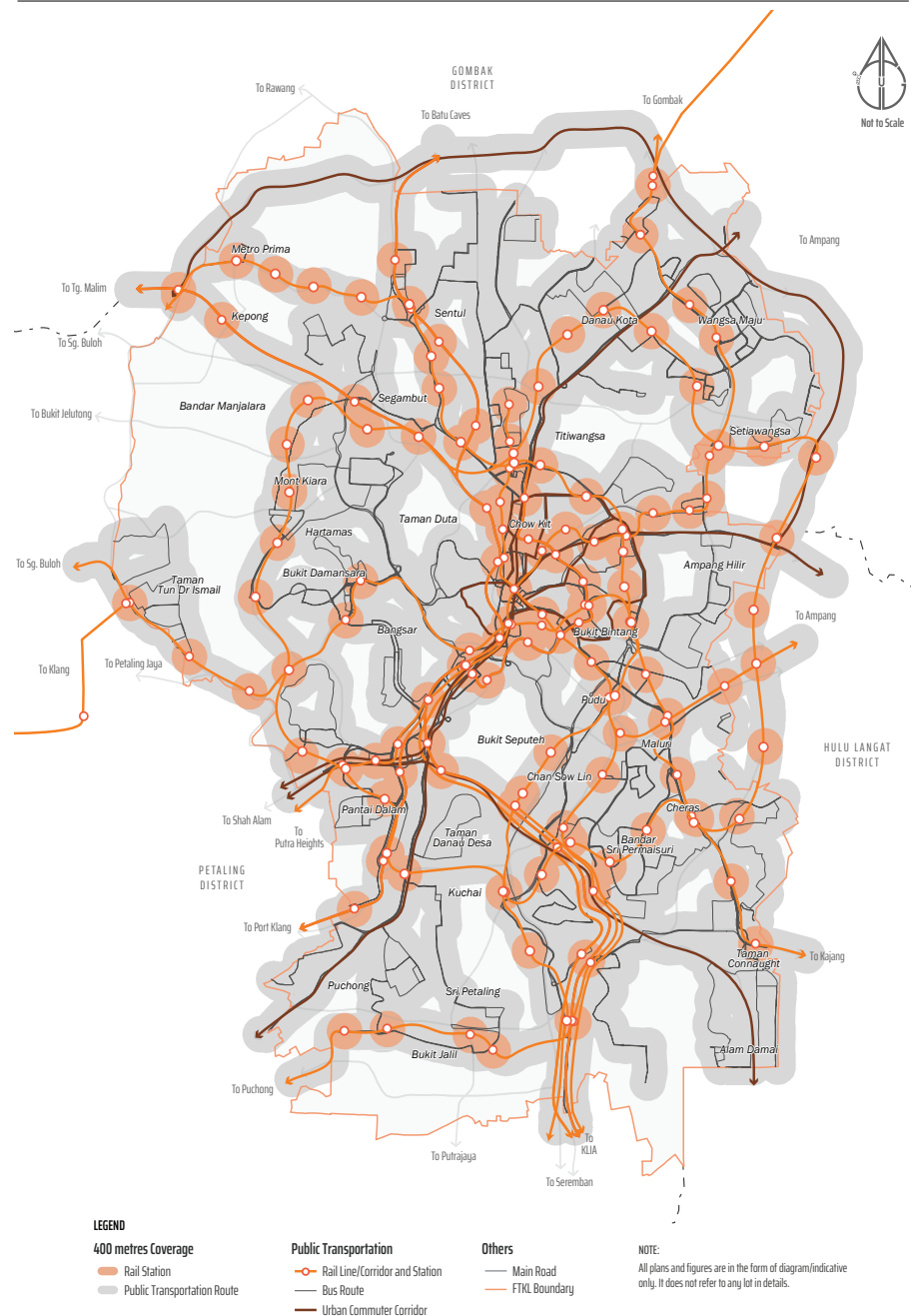
Figure G5.8 illustrates that 400m coverage from the rail station is targeted to increase from 18 percent to 35 percent of Kuala Lumpur's area by 2040. Similarly, the 400m coverage from public transportation routes is targeted to increase from 32 percent to 70 percent of Kuala Lumpur's area by year 2040.

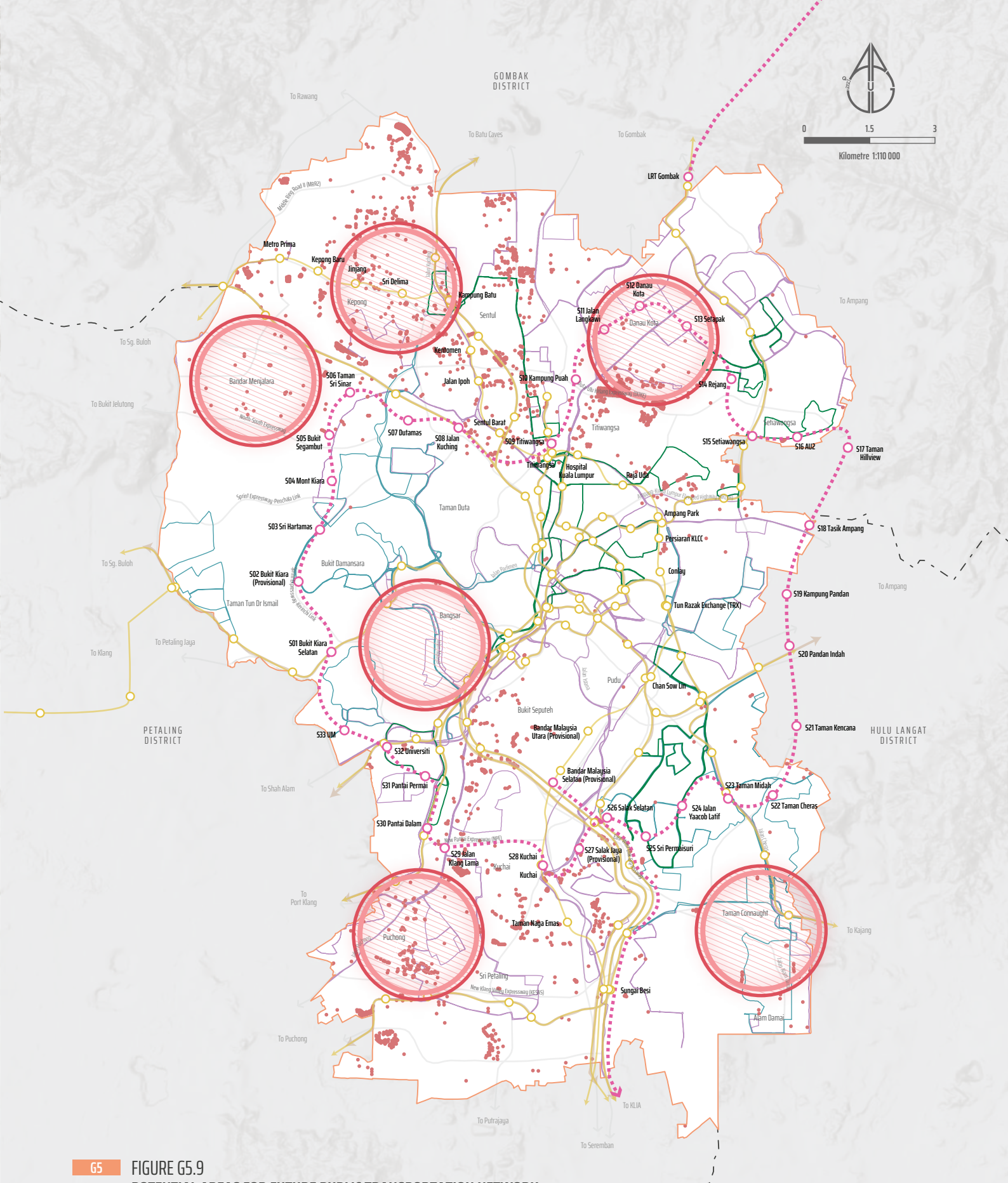
Figure G5.9 shows the potential areas for future public transportation networks to achieve this goal, namely:

1. Kepong Lama - Jinjang;
2. Penchala - Menjalara;
3. Setapak;
4. Bangsar;
5. Alam Damai, Cheras; and
6. OUG - Puchong.

These areas should be prioritised in increasing the public transportation service coverage including spur lines of rail, Bus Rapid Transit (BRT) and others towards achieving the modal split goal of public transportation in Kuala Lumpur by year 2040.

FIGURE G5.8: 400 METRES COVERAGE OF PUBLIC TRANSPORTATION





G5

FIGURE G5.9
POTENTIAL AREAS FOR FUTURE PUBLIC TRANSPORTATION NETWORK

LEGEND

Potential Area

Future Public Transportation Network

New Development

Rail Lines

Existing Lines

Proposed Corridor

Bus Route

GoKL Bus

Rapid KL Bus

MRT Feeder Bus

Others

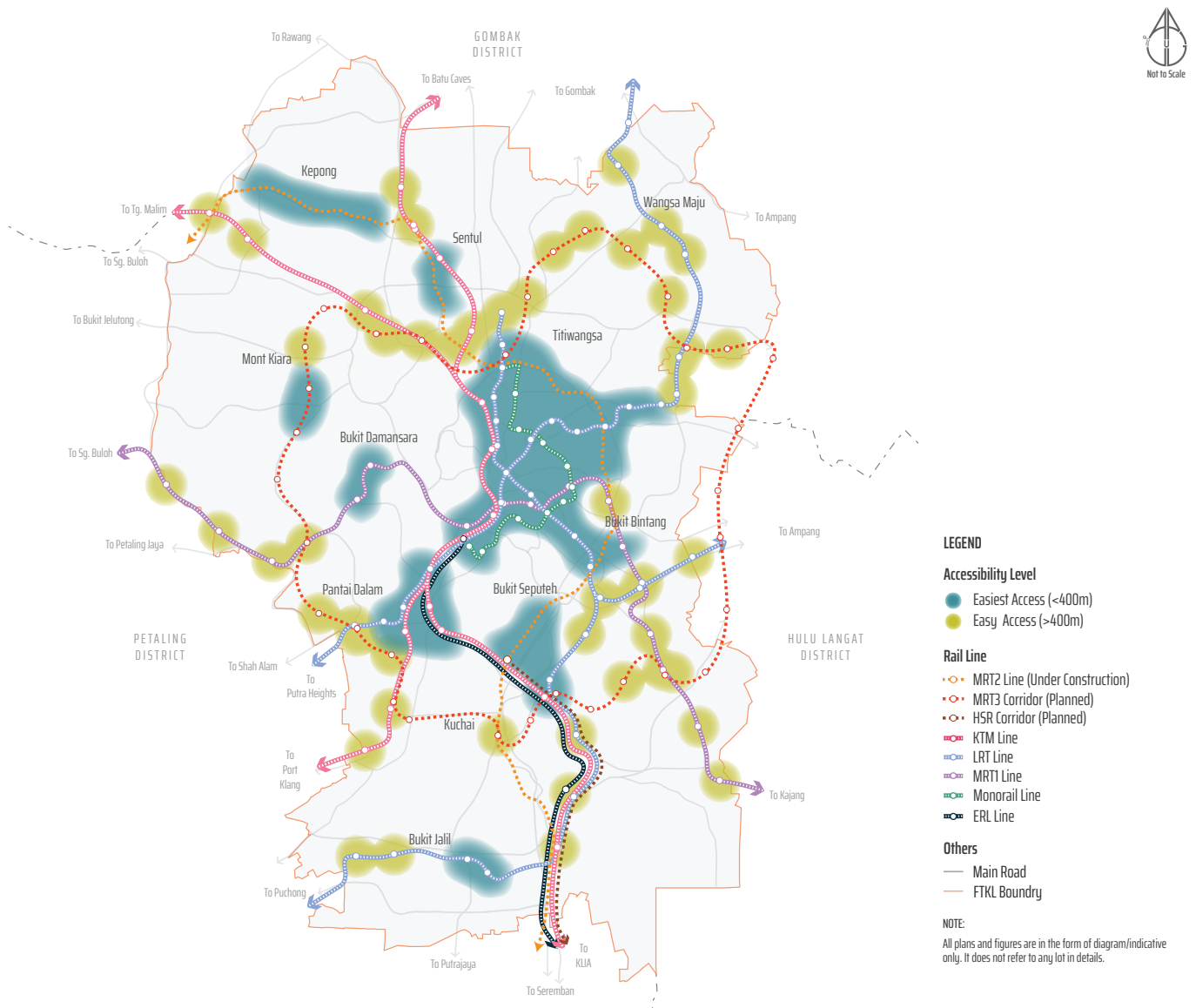
Main Road

FTKL Boundary

NOTE:

All plans and figures are in the form of diagram/indicative only. It does not refer to any lot in details.

FIGURE G5.10: RAIL STATION ACCESSIBILITY LEVEL WITH PEDESTRIAN MODE



The accessibility level of public rail in Kuala Lumpur is mostly concentrated in the City Centre compared to other focus areas (Figure G5.10).

The accessibility level to the transit station in Kuala Lumpur is based on the following distance:

1. Radius less than 400m has higher pedestrian access; and
2. Radius more than 400m has moderate or low pedestrian access and requires micromobility vehicles network support and public transportation services.

Providing comprehensive first mile and last mile facilities should be emphasised to increase the accessibility level to the transit station especially from residential areas.

ACTION**MC1.1: EXPAND THE RAIL NETWORK AND ENHANCE SUPPORTING INFRASTRUCTURE**

The existing and committed rail transportation network covers almost the entire Kuala Lumpur area. Kuala Lumpur needs to continuously improve the planning and implementation of higher quality, accessible, safe and affordable rail transportation to connect residents from residential areas to employment, education and leisure areas. Currently, there are five (5) types of rail transit systems in Kuala Lumpur namely:

Mass Rapid Transit (MRT)

1. Kajang Line (MRT1)

Light Rail Transit (LRT)

1. Kelana Jaya Line; and
2. Ampang/Putra Heights Line

KTM

1. Komuter - Klang Valley
 - i. Batu Caves - Tampin/Pulau Sebang Line
 - ii. Tanjung Malim - Port Klang Line
2. Skypark Link Line (KL Sentral – Subang Airport); and
3. ETS Line (Gemas – Padang Besar)

Monorail

1. KL Sentral – Titiwangsa Line

Express Rail Link (ERL)

1. KL Sentral – KLIA/KLIA 2 Line

Apart from the existing rail network, there are several future network proposals (Figure G5.11) namely:

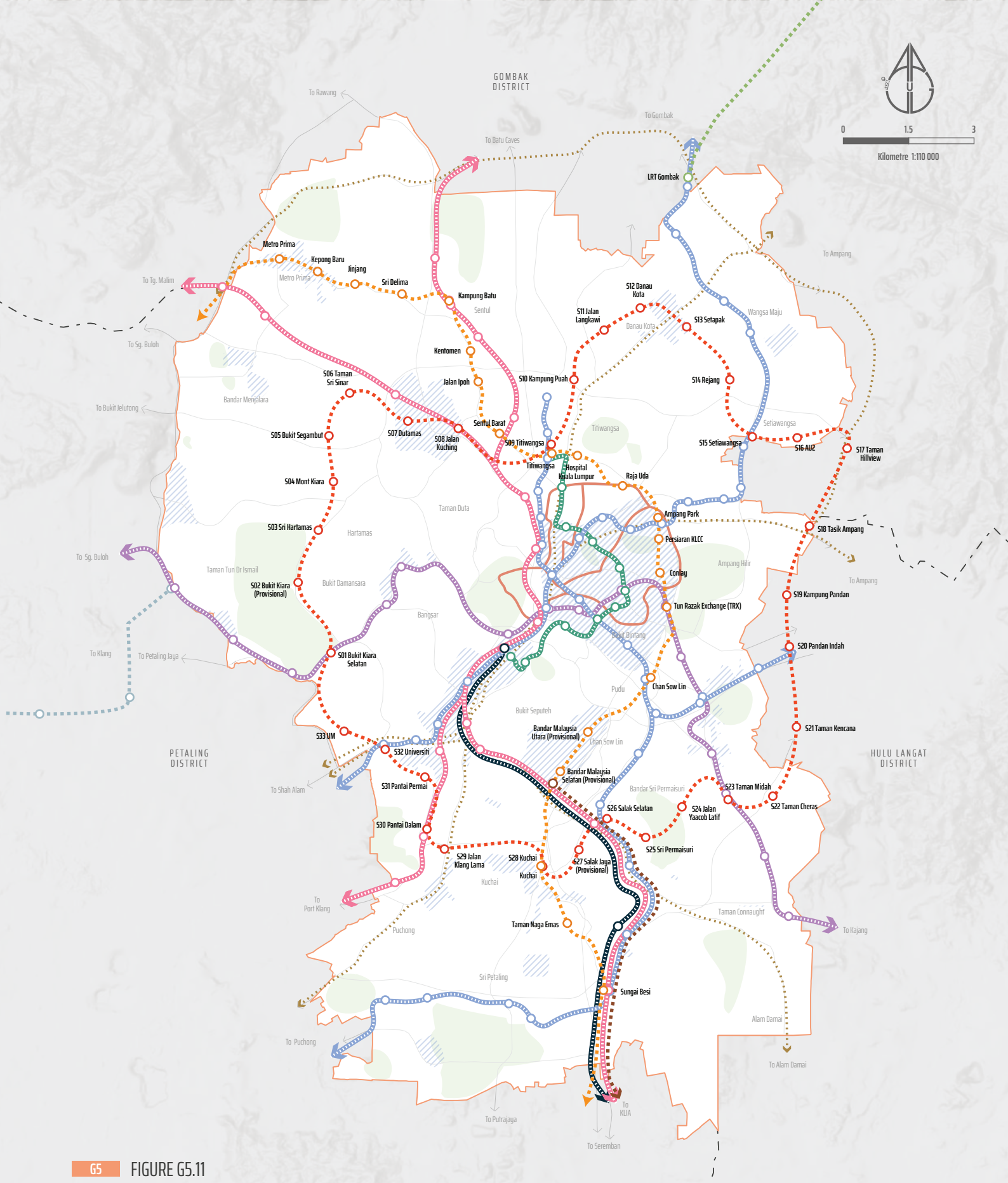
1. MRT2 (under construction) - Putrajaya Line connecting Sungai Buloh, Kuala Lumpur and Putrajaya. The route is expected to commence full operations in year 2023;
2. MRT3 (planned) - The MRT Circle Line which connects the Kuala Lumpur areas is expected to be operational by year 2030;
3. Inter-regional transit such as the High Speed Rail (HSR) (planned);
4. Urban commuter such as trams, BRT and other related transportation;
5. LRT3 (under construction) - The 37km Shah Alam Line from Bandar Utama to Klang is expected to be operational in year 2024; and
6. The East Coast Rail Link (ECRL) (planned) will link the East Coast area via Gombak Integrated Transportation Terminal (GITT).

QUICK INFO

YEAR 2021	YEAR 2040 (ESTIMATED)
156km LENGTH OF THE EXISTING RAIL LINES IN KUALA LUMPUR, YEAR 2021	206km LENGTH OF RAIL LINES IN KUALA LUMPUR BY YEAR 2040
103 NUMBER OF EXISTING RAIL STATIONS IN KUALA LUMPUR, YEAR 2021	132 NUMBER OF RAIL STATIONS IN KUALA LUMPUR BY YEAR 2040



MALURI MRT STATION
Source: MRT Corporation Sdn. Bhd.



G5

FIGURE G5.11
EXISTING AND PLANNED PUBLIC TRANSPORTATION NETWORK

LEGEND

Existing Rail Lines

KTM Line

LRT Line

MRT1 Line

Monorail Line

ERL Line

MRT2 Line (Under Construction)

LRT3 Line (Under Construction)

Proposed Rail Lines and Stations

MRT3 Corridor (Planned)

HSR Corridor (Planned)

ECRL Corridor (Planned)

Proposed Urban Commuter

City Centre Corridor

Intercity Corridor

Others

Development Focused Area

Open Space and Recreation

Main Road

FTKL Boundry

NOTE:

All plans and figures are in the form of diagram/indicative only. It does not refer to any lot in details.

SUPPORTING ACTION**MC1.1A: Complete the connection for a comprehensive rail network and continuously upgrade existing rail services**

Future rail system planning must ensure comprehensive coverage for Kuala Lumpur. This includes coverage in areas without transportation network and high-intensity investment hotspots, economic activity as well as neighbourhoods and urban renewal areas.

The planning of a new urban public rail network shall be integrated with land use development to achieve the efficient mobility goals. KLCH and related agencies will ensure integration between land use development planning especially around transit stations.

SUPPORTING ACTION**MC1.1B: Increase access to rail services through an integrated feeder bus**

The initiatives to enhance and strengthen bus services should continue for the comfort and convenience of the people of Kuala Lumpur such as feeder bus facilities provided by Rapid KL in Kuala Lumpur and Selangor. This feeder bus has an optimum frequency of every 10 minutes and is available at every rail station. This initiative must be sustained to improve the residents' access to the rail stations in Kuala Lumpur.

Among the measures to improve the provision of feeder buses are:

1. KLCH needs to plan an integrated feeder bus route in collaboration with different operators as well as the Land Public Transport Agency (APAD);
2. Connect feeder buses with public transportation station in areas not covered by public transportation services;
3. Provide feeder bus system for late-night services (exceeding public transportation operating hours) in areas with user demand such as in the city centre area and public transportation hubs namely KL Sentral, Bandar Tasik Selatan, Hentian Duta and Gombak Integrated Transport Terminal (GITT). The proposed late-night feeder bus routes need to be reviewed based on the residents' demand survey to support employment service activities following overseas time or working overtime; and
4. Provide buses or alternative vehicles that have size suitable with the route infrastructure such as the use of mini buses or van in People's Housing Programme (Program Perumahan Rakyat (PPR)) areas.



MRT FEEDER BUS



LRT FEEDER BUS

SUPPORTING ACTION**MC1.1C: Improve provision of facilities at rail stations**

The provision of facilities at rail stations shall be comprehensive and support the needs of all community groups particularly in the following aspects:

1. Provision of user-friendly facilities especially for the disabled group, the elderly and children;
2. Micromobility vehicles and pedestrian-friendly facilities such as provision of pathways and micromobility vehicles parking space;
3. Strengthen the security and integrated information by installing CCTV, police huts/patrol units and digital information at each rail station;
4. Increase incentives to rail users including students, the elderly and the disabled groups by offering discounted and monthly fares;
5. Implement integrated ticketing systems through the use of technology such as smartphone applications and others; and
6. Integrate with taxi and e-hailing services.



DISABLED-FRIENDLY TACTILE DESIGN



FACILITIES FOR WHEELCHAIR USER



DISABLED-FRIENDLY PRIORITY LANE DESIGN



SAFETY FEATURES SUCH AS CCTV INSTALLED AROUND RAIL STATION



SAFETY FEATURES SUCH AS SMART POLE

QUICK INFO

Rail Network Under Construction

MRT Putrajaya Line (MRT2)

Length of 52.2km line with 37 total stations. This line from Sungai Buloh to Putrajaya running through 21 stations in Kuala Lumpur:

- | | |
|----------------------------|------------------------------|
| 1. Metro Prima; | 13. Persiaran KLCC; |
| 2. Kepong Baru; | 14. Conlay; |
| 3. Jinjang; | 15. Tun Razak Exchange; |
| 4. Sri Delima; | 16. Chan Sow Lin; |
| 5. Kampung Batu; | 17. Bandar Malaysia Utara; |
| 6. Kentonmen; | 18. Bandar Malaysia Selatan; |
| 7. Jalan Ipoh; | 19. Kuchai Lama; |
| 8. Sentul Barat; | 20. Taman Naga Emas; and |
| 9. Titiwangsa; | 21. Sungai Besi. |
| 10. Hospital Kuala Lumpur; | |
| 11. Raja Uda; | |
| 12. Ampang Park; | |

Future Rail Network

The MRT Circle Line (MRT3)

The proposed MRT3 line is 51km long and has 33 stations in total. This line of 42km long and involving 28 stations are in Kuala Lumpur. It will be part of the Klang Valley integrated rail system, covering most of the focus areas such as Titiwangsa, Mont Kiara, Setapak and Cheras. This line will complement the existing rail network links.

Kuala Lumpur – Johor Bahru High Speed Rail (HSR)

Kuala Lumpur – Johor Bahru High Speed Rail (HSR) which is 350km long and takes 90 minutes, will start from Bandar Malaysia, Kuala Lumpur and end in Johor Bahru. The HSR is currently at the planning stage.

TABLE G5.1: LENGTH AND NUMBER OF STATIONS OF THE EXISTING AND PROPOSED RAIL IN KUALA LUMPUR

TYPES OF RAIL	LENGTH (KM)	NUMBER OF STATIONS
EXISTING RAIL LINES		
Integrated Terminal	-	1
LRT	46	37
KTM Komuter	37	17
Monorail	9	11
MRT Kajang Line (MRT1)	24	15
ERL	12	1
Total	128	82
RAIL LINES (UNDER CONSTRUCTION)		
MRT Putrajaya Line (MRT2)	28	21
Total	28	21
RAIL LINES (FUTURE)*		
MRT Circle Line (MRT3)	42	28
Kuala Lumpur – Johor Bahru High Speed Rail (HSR)	8	1
Total	50	29
GRAND TOTAL	206	132

Note*: The length and number of stations of the future rail lines are indicative and will be ratified based on further review by the relevant agency.

Source:
1. APAD
2. Prasarana Sdn. Bhd.
3. ERL Link Sdn. Bhd.
4. MRT Corporation Sdn. Bhd.
5. HSR Corporation Sdn. Bhd.
6. KTM Berhad

SUPPORTING ACTION

MC1.1D: Incorporate low carbon designs at the existing and new rail lines and stations

The transportation sector generated 62.2 percent of carbon gas emissions in Kuala Lumpur in year 2010 (KL LCSBP 2030) and it is expected to continue to increase. The rapid development of urban rail transportation in Kuala Lumpur can adopt the low carbon design either at the rail lines or stations. Following are the measures that can be implemented:

1. Gearing towards low carbon initiatives in the development of rail stations;
2. Encourage the use of solar panels in train coaches;
3. Establish an integrated solar and rainwater harvesting systems at each station and record the collection for monitoring purposes; and
4. Promote vertical landscapes on the surface of the existing and proposed rail line infrastructure.



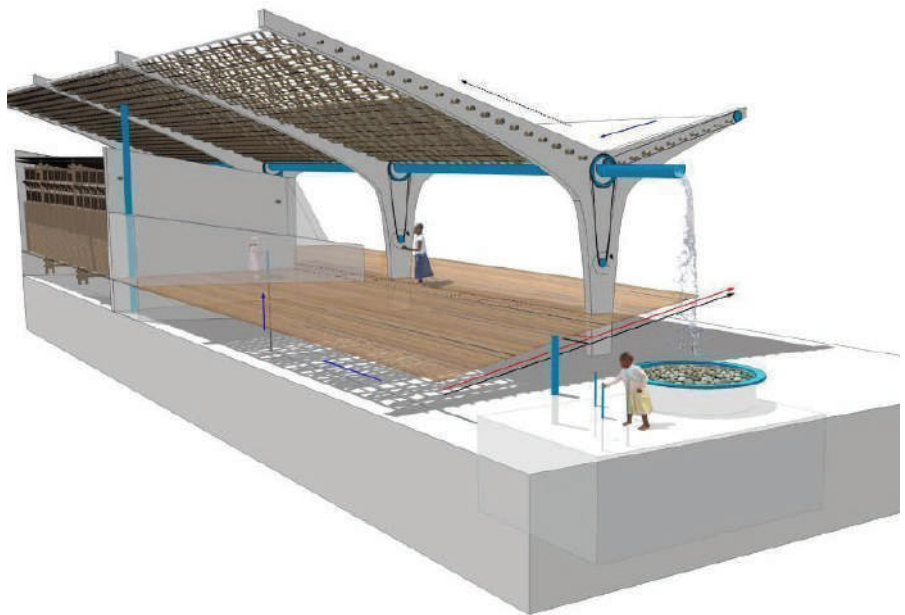
SOLAR INSTALLATIONS AT TRAIN STATIONS AND COACHES

Source: positive.news



PROMOTE VERTICAL LANDSCAPES ON THE COLUMNS OF RAIL LINE

Source: juliusbaer.com



RAINWATER HARVESTING DESIGN AT RAIL STATIONS

Source: pinterest.com



LOW CARBON DESIGN ILLUSTRATION UTILISING SUNLIGHT AS A NATURAL LIGHTING SOURCE AT PIAZZA GARIBOLDI STATION IN NAPLES, ITALY

Source: inhabitat.com

ACTION**MC 1.2: DEVELOP URBAN COMMUTER SYSTEM IN KUALA LUMPUR CITY**

Urban commuter refers to public transportation that operates and shares flows with the city roads. Its dedicated routes are separate from private vehicles, pedestrians and micromobility vehicles. This urban commuter functions to increase the usage of public transportation and level of passenger's accessibility as well as encouraged in neighbourhood areas, employment centres and areas experiencing development pressure.

The urban commuter aims to support more comprehensive transit needs and reduce peak-time traffic congestion, reduce parking demand as well as support business, financial and urban tourism growth.

Examples of urban commuters are:

1. Tram; and
2. Bus Rapid Transit (BRT).

Urban commuter services in Kuala Lumpur covers the city centre and intercity (Figure G5.12).

EXAMPLE OF BEST PRACTICES**BRT Bandar Sunway**

The first BRT in Malaysia is Bandar Sunway, Selangor with seven (7) stations and 5.4km in length.

**Tram in Melbourne, Australia**

Melbourne city tram offers free services to tram users in downtown areas.

**Battery-powered Tram in China**

Battery-powered and trackless tram or ART (Autonomous Rail Rapid Transit) operating in Zhuzhou, China.



Source: citymonitor.ai

Cleveland Healthline BRT, United States of America

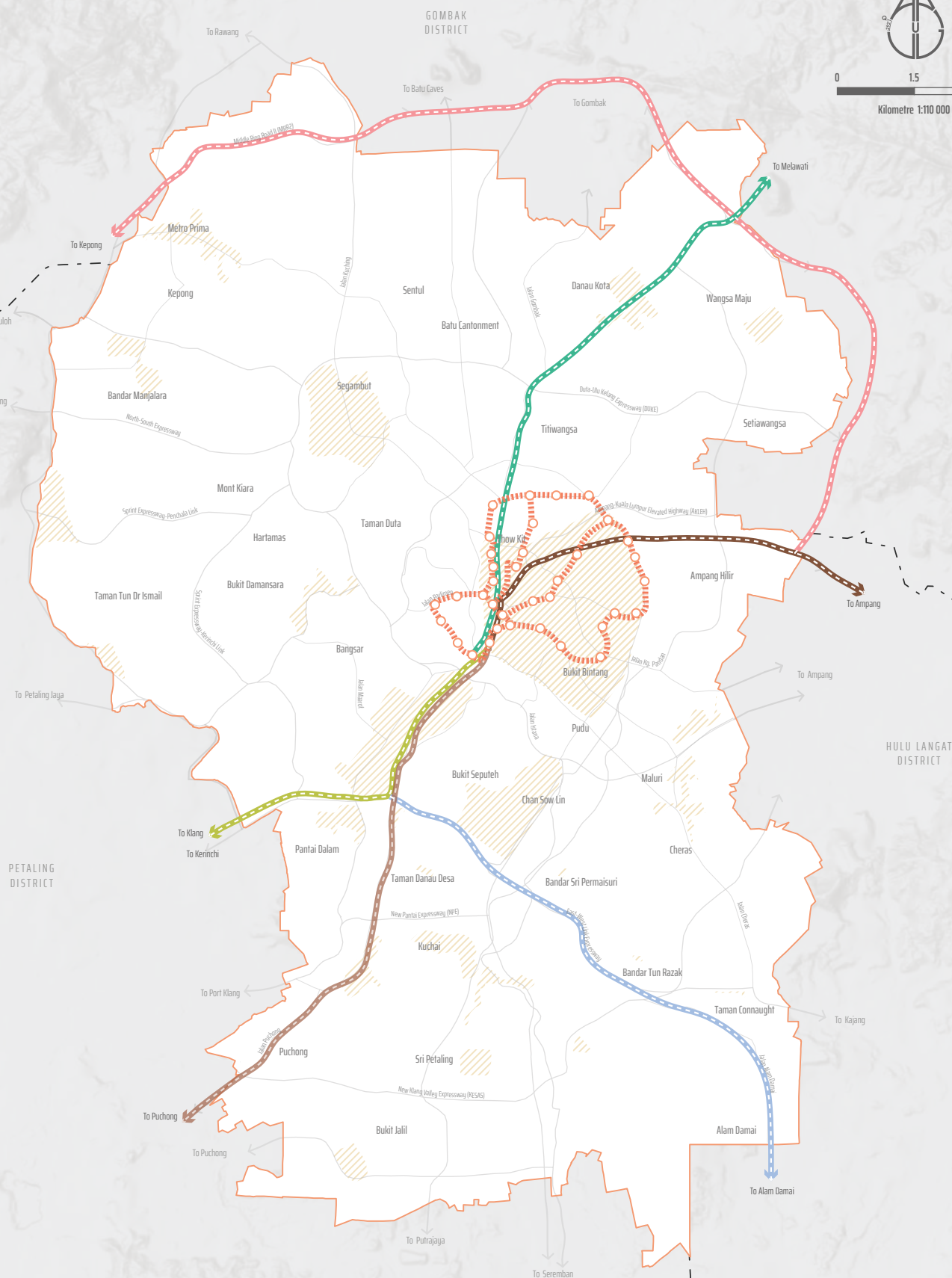
Cleveland's Healthline BRT provides high-frequency services from early morning to late night. The development of this BRT service comprises comprehensive road and landscape improvements.



Source: Flickr.com



0 1.5 3
Kilometre 1:110 000



G5

FIGURE G5.12
PROPOSED URBAN COMMUTER CORRIDORS

LEGEND

Urban Commuter in the City Centre

- Urban Commuter Corridors
- Urban Commuter Stations

Urban Commuter Intercity

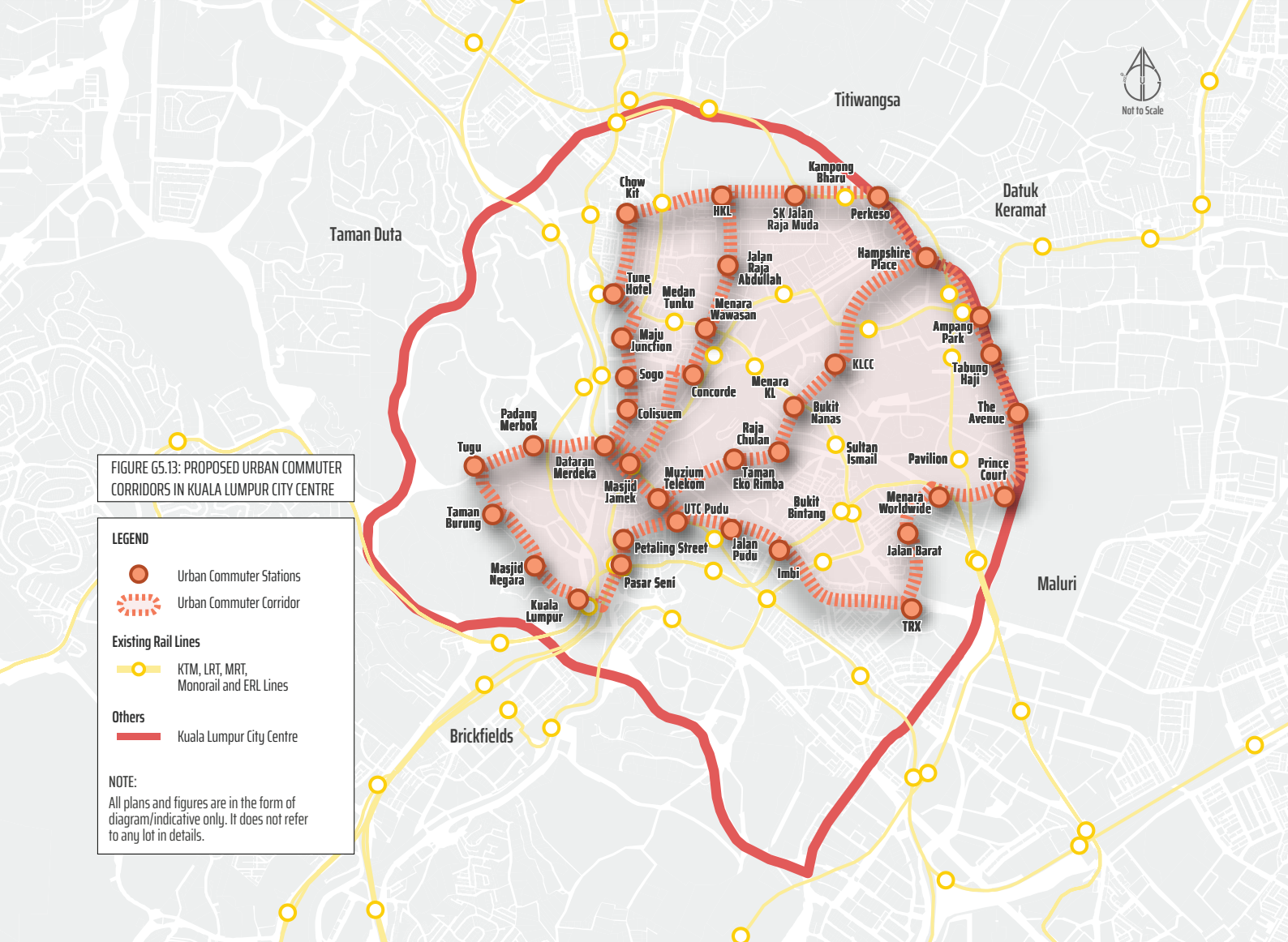
- Ampang - Kepong Corridor
- Taman Melawati - Kuala Lumpur City Centre Corridor
- Puchong - Kuala Lumpur City Centre Corridor
- Ampang - Kuala Lumpur City Centre Corridor
- Kerinchi - Alam Damai Corridor
- Klang - Kuala Lumpur City Centre Corridor

Others

- Development Focused Area
- Main Road
- FTKL Boundry

NOTE:

All plans and figures are in the form of diagram/indicative only. It does not refer to any lot in details.



SUPPORTING ACTION MC1.2A: Implement transit development in the city centre

Kuala Lumpur City Centre has diverse activities that require efficient, flexible and easily accessible mobility mode. KLSP2040 has identified potential stations and corridor as for urban commuter network system for the smart people mover system implementation which is expected to increase accessibility in this area. The proposed corridor is divided into three (3) zones (Table G5.2) with an estimated 21km in length (Figure G5.13).

TABLE G5.2: PROPOSED ZONES FOR URBAN COMMUTER CORRIDOR IN KUALA LUMPUR CITY CENTRE

URBAN COMMUTER DEVELOPMENT ZONES	DISTANCE OF URBAN COMMUTER CORRIDOR (KM)	ZONES AREA (HECTARE)	SERVICES AND COVERAGE TARGET
Zone 1: KLCC and Bukit Bintang area	6	358	Hotspot areas for business, finance, shopping and tourism activities such as KLCC, Menara KL, Bukit Bintang, Raja Chulan and Tun Razak Exchange (TRX)
Zone 2: Dataran Merdeka, Jalan Petaling and Taman Botani Perdana	4	110	Hotspot areas for tourist such as Dataran Merdeka, Bangunan Sultan Abdul Samad, Jalan Petaling, Pasar Seni and Taman Botani Perdana
Zone 3: Jalan Tuanku Abdul Rahman (Jalan TAR), Masjid Jamek Sultan Abdul Samad and Kampong Bharu	11	357	Hotspot areas for business and shopping activities around Jalan TAR, Jalan Raja Abdullah, Chow Kit and future development site in Kampong Bharu
TOTAL	21	825	

SUPPORTING ACTION**MC1.2B: Implement intercity transit development**

Intercity or local centre transit systems such as the Bus Rapid Transit (BRT) will complement the urban rail system developed in Kuala Lumpur. There are six (6) potential BRT service corridors in Kuala Lumpur namely:

1. Ampang – Kepong;
2. Taman Melawati – Kuala Lumpur City Centre;
3. Ampang – Kuala Lumpur City Centre;
4. Puchong – Kuala Lumpur City Centre;
5. Kerinchi – Alam Damai; and
6. Klang – Kuala Lumpur City Centre.

A detailed BRT corridor design plan should be drawn up to determine the right of way for the bus transit line and BRT stop as well as road junctions and platform design for each stop.

ACTION**MC1.3: PRIORITISE THE DEVELOPMENT OF PUBLIC BUS SERVICES**

Bus services are an important mode in complementing the public transportation network and supporting the rail transportation. A comprehensive and efficient bus service will improve accessibility, promote a modal shift from private vehicle to public transportation and also provide an alternative transportation mode to rail services.

The bus accessibility level in Kuala Lumpur is still moderate and needs to be better planned and integrated with various bus operators, rail transit feeder buses as well as rail transport. There are 83 bus routes operated by Rapid Bus in Kuala Lumpur and 14 GoKL routes operated by KLCH. In addition, there are also a total of 17 stage bus routes operated by other bus operator companies.

SUPPORTING ACTION**MC1.3A: Expand the local public bus route network**

Expansion of the public bus services to sub-urban and neighbourhood areas can increase local accessibility. The measures to be taken are as follows:

1. Prepare comprehensive integrated planning of public bus routes with rail, taxi and others;
2. Provide dedicated bus routes and corridor network, especially for routes with high ridership;
3. Improve supporting infrastructure such as bus stops, signage and facilities for the disabled group;
4. Provide detailed bus route guidelines and designs in collaboration with the relevant agencies. These guidelines encompasses the universal design elements and provision of facilities for the disabled group and elderly;
5. Increase incentives to citizen especially for students, elderly and the disabled group by offering discounts on bus fares and monthly fares; and
6. Improve the bus travel information system through digital applications.



KUCHING URBAN TRANSPORTATION SYSTEM (KUTS)

Sumber: southeastasiainfra.com

SUPPORTING ACTION**MC1.3B: Integrate Bus Expressway Transit (BET) services with local public buses**

BET services are being provided to optimise the capacity of existing highways usage. Nine (9) BET routes leading to the Kuala Lumpur City Centre was implemented to reduce travel time. The routes are:

1. BET 1 - Kota Damansara – Pasar Seni route;
2. BET 2 - Bandar Sungai Long – Pasar Seni route;
3. BET 3 - Subang Mewah – Pasar Seni route;
4. BET 4 - Taman Sri Muda – Pasar Seni route;
5. BET 5 - Bandar Tasik Puteri – Medan Pasar route;
6. BET 6 - Bukit Beruntung – Pasar Seni route;
7. BET 7 - Sri Nilam – Munshi Abdullah route;
8. BET 8 - Semenyih Sentral – Pasar Seni route; and
9. BET 9 - Rawang – Pasar Seni route.

Integration of services and facilities will be implemented through the following measures:

1. Increase BET stop stations through a detailed study on the suitability of new stop areas. Besides the existing BET stations at Pasar Seni, new BET stations need to be established outside the Kuala Lumpur City Centre area to reduce intercity buses entering the city centre, thus reducing congestion during peak hours.

Some of the potential areas for BET station are:

- a. Terminal Bersepadu Selatan;
 - b. Gombak Integrated Transport Terminal (GITT); and
 - c. Hentian Duta.
2. Introduce the use of integrated ticketing systems through technology such as smartphone applications and others.

SUPPORTING ACTION**MC1.3C: Implement bus priority lanes**

The provision of dedicated lanes for buses makes public transportation in Kuala Lumpur more convenient. It will be implemented by utilising the existing infrastructure to build a continuous network of bus routes across Kuala Lumpur.

The dedicated bus lanes will facilitate bus services along the major roads around Kuala Lumpur City Centre. Installing traffic lights at the intersection to prioritise bus movements will ensure bus travel time and arrivals are according to schedule. These lanes are encouraged to be at road median. The implementation measures are as follows:

1. Provision of priority bus lanes and corridors on the busiest routes in Kuala Lumpur;
2. Replanning all bus routes in Kuala Lumpur by integrating the existing priority bus lanes with facilities for pedestrian and micromobility vehicles pathways;
3. Consider shared use of the existing roads with other public transportation modes such as taxis;
4. Identify dedicated or peak-hour bus lanes in Kuala Lumpur;
5. Prepare detailed guidelines on priority bus lanes;
6. Continuous enforcement and monitoring by the authorities;
7. Provision of energy-saving and low carbon bus stations/stops;
8. Plan and design continuous priority bus lanes to ensure a seamless bus route network; and
9. Provision of infrastructure that connects communication between bus and traffic lights.



PRIORITY BUS LANE

ACTION**MC1.4: PLAN FOR TAXI AND E-HAILING SERVICES**

Taxi and e-hailing services are an alternative to public transportation that is essential in complementing the public transportation services.

This service ensures continuous journey from one location to another including areas outside public transportation coverage and complement the passengers' first mile and last mile connectivity.

SUPPORTING ACTION**MC1.4A: Coordinate taxi and e-hailing management system**

This alternative transportation facilitate passengers during non-peak hours especially in areas where access to rail and bus services are limited or outside public transportation coverage areas. The primary measures to improve taxi and e-hailing services in Kuala Lumpur are as follows:

1. Enhance reliability and service offering through vehicle quality and facilities improvements such as taxi and e-hailing stops that are accessible, comfortable, safe and friendly for all especially disabled group;
2. Plan pick-up points for areas with adequate lanes and spaces at commercial buildings, public buildings and certain roads;
3. Identify waiting areas that will not obstruct the public especially during peak hours at tourist hotspots, hospitals and transit stations;
4. Expand taxi and e-hailing services in the neighbourhood area to facilitate movement from or to nearby transit stations;
5. Encourage taxi and e-hailing companies to use vehicles with user-friendly design that consider the needs of the disabled group, bicycles and large items; and
6. Strengthen the collaboration and smart partnership between KLCH with public transportation agencies and related agencies to improve taxi and e-hailing services.



GOODS DELIVERY SERVICE



TAXI SERVICE



E-HAILING (GOODS) SERVICE

Sumber: hmetro.com.my



E-HAILING (PASSENGERS) SERVICE

Source: nst.com.my

STRATEGIC DIRECTION

MC2: ACTIVE MOBILITY MODE TO IMPROVE ACCESSIBILITY

Micromobility vehicles and pedestrian-friendly environments are essential aspects to complete and improve accessibility levels. These aspects should be properly integrated with other transportation facilities, in particular public transportation.

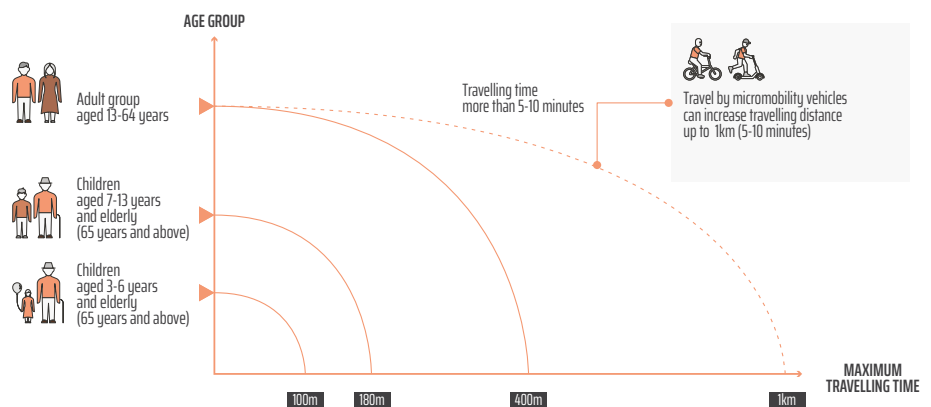
Walking and using micromobility vehicles are healthy lifestyles that can reduce urban traffic congestion, save travelling costs, increase cultural attractiveness, commercial activities and form a more vibrant environment.

A comprehensive and user-friendly network for pedestrian and micromobility vehicles especially at the city's primary nodes and neighbourhood areas can reduce private vehicle usage and increase local accessibility. It focuses on walking and using the micromobility vehicles as primary movement modes in the city.

Each mode of movement by a private vehicle or public transportation starts and ends with walking. Thus, the provision of pedestrian and micromobility vehicles pathways as well as facilities that are seamless, comfortable, safe, easily accessible and user-friendly suitable with the level of walking capability (Figure G5.14) must be the priority in the planning and development of Kuala Lumpur.

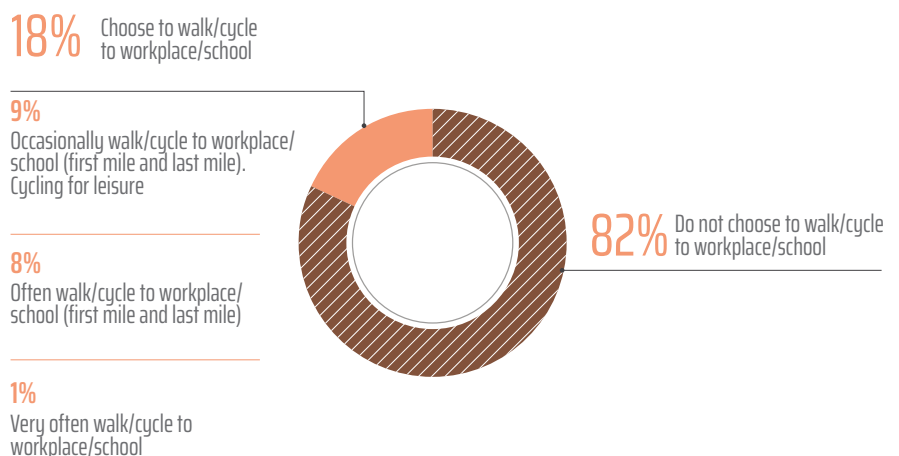
Priority in mobility planning in Kuala Lumpur is to increase the number of people walking and cycling that are still not the preferred choice of movement mode (Figure G5.15). The goal of KLSP2040 is to achieve more than 300km of pedestrian and bicycle pathways by year 2040.

FIGURE G5.14: ACCESSIBILITY LEVEL ACCORDING TO AGE PROFILE



The ability to walk comfortably is different according to the age group. Through the provision of appropriate infrastructure and the use of micromobility vehicles, this capability can be enhanced.

FIGURE G5.15: SEGMENTATION OF PEDESTRIANS AND CYCLISTS IN KUALA LUMPUR



Source: Adapted from Kuala Lumpur Pedestrian and Cycling Master Plan, 2019-2028

ACTION

MC2.1: ENSURE A SAFE, QUALITY, SEAMLESS, CONNECTED AND EASILY ACCESSIBLE PEDESTRIAN NETWORK

Pedestrian networks should be integrated to improve connectivity and accessibility by connecting all hotspot destinations in each area, especially in neighbourhood and employment areas tourist hotspots, as well as transit stations.

The development of pedestrian networks and facilities should adopt the main planning principles which are connected, user-friendly, comfortable, seamless, safe and sustainable (Figure G5.16).

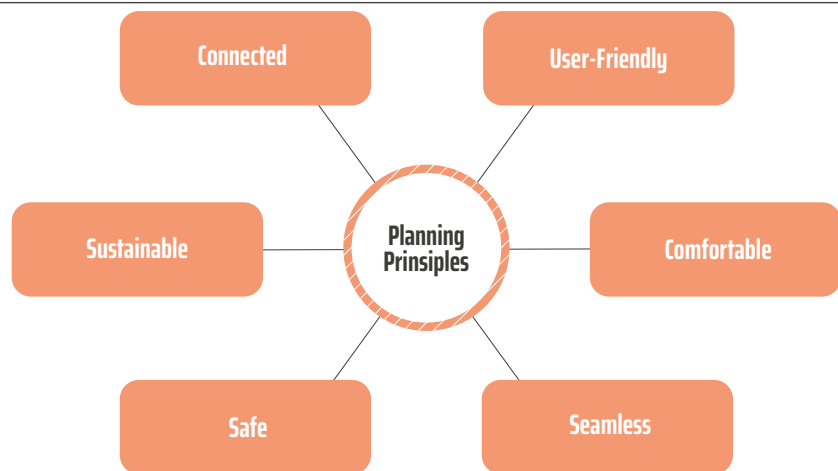
Supporting actions in completing the pedestrian network include:

1. A user-friendly pedestrian environment and suitable for all community groups;
2. Implementation of the Kuala Lumpur Pedestrian and Cycling Master Plan 2019-2028;
3. Pedestrian network on river reserves;
4. Pedestrian network in the creative and cultural districts; and
5. Pedestrian walkways between buildings.



PEDESTRIAN CROSSING AT BUKIT BINTANG, KUALA LUMPUR

FIGURE G5.16: KEY PLANNING PRINCIPLES FOR PEDESTRIAN-FRIENDLY ENVIRONMENT



Source: Adapted from Healthy Walkable City Implementation Guidelines, PLANMalaysia, 2017

SUPPORTING ACTION

MC2.1A: Create a user-friendly pedestrian environment and suitable for all community groups

A user-friendly pedestrian environment suitable for all community group is intended to facilitate and attract the public thus, making this mode preferable especially in the hotspot areas. The provision of pedestrian networks should be emphasised to meet users' needs including children, elderly and the disabled group. Measures to ensure the provision of user-friendly pedestrian walkways are:

1. Impose a condition in the Development Order (DO) to provide pedestrian walkways that comply with universal design requirements prioritising pedestrian safety such as separation from vehicle lanes, seamless and without obstruction;
2. Enforcement action on any agency or person who constructs or places physical objects either temporarily or permanently that may obstruct the pedestrian walkways;
3. Intensify the construction of pedestrian crossings at the road level and reduce the need for elevated walkways to facilitate the accessibility of all community groups;
4. Installation of Accessible Pedestrian Signals (APS) in every needed area especially at the pedestrian crossing zones;
5. Consider the Safe Cities Guidelines by implementing Crime Prevention Through Environmental Design (CPTED) in the provision of CCTV on buildings to help monitor the situation on pedestrian walkways;
6. Provide pedestrian walkway maps and information for public use through social media, signage and various suitable mediums; and
7. Provide covered pedestrian walkways or tree-lined landscapes that offer shade.

SUPPORTING ACTION
MC2.1B: Implement the Kuala Lumpur Pedestrian and Cycling Master Plan 2019-2028

KLCH has prepared the Kuala Lumpur Pedestrian and Cycling Master Plan 2019-2028 to support public transport facilities. This master plan should be implemented to achieve the following objectives:

- 1. Increase the quantity and quality of walking and cycling facilities in Kuala Lumpur;
- 2. Promote walking and cycling as a seamless connectivity supporting component in alignment with public transport; and
- 3. Connect attractive public spaces with safe and comfortable walking and cycling facilities.

The master plan targets an increase to 40 percent by year 2028 (Figure G5.17). KLSP2040 aims to achieve 60 percent of pedestrian and cyclist by 2040. This is part of the effort to achieve the 70% modal split of public transport in Kuala Lumpur.

This master plan is generally applicable to the following areas:

- 1. Neighbourhood areas;
- 2. Commercial areas and employment centres; and
- 3. Transit station areas.

FIGURE G5.17: CURRENT AND TARGETTED PEDESTRIAN AND CYLIST UNTIL YEAR 2028 AND 2040



Source: Adopted from Kuala Lumpur Pedestrian and Cycling Master Plan 2019-2028

a. Neighbourhood area

Neighbourhood areas are focal points for providing public facilities such as community centre where the accessibility level, especially for pedestrians and cyclist, should be comprehensive. Thus, creating pedestrian and cycling networks is appropriate in increasing usage and promoting active mobility modes to reduce dependency on motor vehicles.

Pedestrian and cycling networks in the neighbourhood areas emphasise travel from home to the following hotspots:

- 1. Transit station;
- 2. School;
- 3. Parks and open space; and
- 4. Health clinic, community centre and other public facilities.

b. Commercial area and employment centre

Pedestrian and cycling networks help to create a vibrant atmosphere as well as attract more people to commercial and employment areas by providing properly designed facilities for bicycle parking spaces. It can also reduce the use of private vehicles for short-distance travel within a 400m walking radius especially for daily activities.

c. Transit station area

Pedestrian and cycling networks are crucial in transit station areas to encourage more people to use public transportation. Planning and design at transit stations should emphasise integrating mobility modes, way-findings and accessibility. Pedestrian and cycling networks around the transit area should be distinct and reduce conflict with other modes of travel. In addition, reserve areas around the transit station should be utilised for facilities such as cycling and pedestrian pathways, scheduled stall business as well as mechanical parking spaces.

Key Measures

The key measures in forming a comprehensive, safe, comfortable and connected pedestrian network in neighbourhoods, commercial and employment centres as well as the transit station area are:

1. Develop a comfortable, shady and green pedestrian environment;
2. Diversify business activities and services around pedestrian hotspots to attract more people;
3. Ensure motor vehicles access without compromising the safety and comfort of pedestrian and cyclist with appropriate restrictions based on the needs, time and type of vehicles;



THE ENVIRONMENT IN THE RIVER OF LIFE (RoL)

4. Provide pedestrian and cycling-friendly pathways, crossings and access to users from transit stations to hotspot destinations;
5. Ensure the safety level with the application of CPTED, cleanliness and high standards of physical maintenance; and
6. Provides a variety of attractive pedestrian and cyclist support facilities such as sheltered spaces, kiosks, vending machines (drinks, food, umbrellas, city/tourism maps) and others.

SUPPORTING ACTION

MC2.1C: Development of pedestrian network on river reserves

Utilise river reserves by developing seamless pedestrian networks towards better accessibility for the public.

The Klang and Gombak Rivers are the main rivers in Kuala Lumpur that are preserved and protected natural assets. The provision of pedestrian networks along the river promotes the River of Life (RoL) area and helps raise awareness among the residents of Kuala Lumpur on the importance of nature. The following measures should be adopted:

1. Imposing the provision of a connected pedestrian walkway towards the river for development application on lots located at least 400m until 500m from the river reserve;
2. Ensuring no physical barriers for pedestrians around 250m from the river area; and
3. Encouraging the residents' involvement in preparation of pedestrian walkways especially around the affected neighbourhoods.



PEDESTRIAN FACILITIES ALONG THE RIVER OF LIFE (RoL) CORRIDOR



PEDESTRIAN WALKWAY HOTSPOT AT JALAN MASJID INDIA, KUALA LUMPUR

EXAMPLE OF BEST PRACTICES



REDEVELOPMENT OF FLYOVER AS A PEDESTRIAN HOTSPOT ZONE IN SEOUL, SOUTH KOREA (SEOULLO 7017)

Source: aasarchitecture.com



STREET CULTURE AT HIGASHIYAMA KYOTO, JAPAN

Source: japan365days.com

SUPPORTING ACTION

MC2.1D: Pedestrian walkways network in creative and cultural district

There are many challenges in providing continuous pedestrian walkways and networks in Kuala Lumpur. However, some spaces have been and have the potential to be a priority pedestrian boulevards to empower economic activity and reactivate the identified areas.

The measures to be implemented in creative and cultural district are:

1. Identify priority areas for the implementation of pedestrian walkways;
2. Improve pedestrian walkways around transit stations;
3. Improve the Kuala Lumpur Walkway and Cycle Lane Design Guidelines;
4. Provide pedestrian facilities such as maps and way-findings to facilitate the delivery of information of the activities hotspot areas; and
5. Introduce and implement periodical operating hours for pedestrian hotspot zone as a traffic circulation control action.

PEDESTRIAN WALKWAY HOTSPOT AT CENTRAL MARKET, KUALA LUMPUR



SUPPORTIVE ACTION**MC2.1E: Improve pedestrian linkages between buildings**

Continuity between buildings is highly encouraged especially buildings that allow access to the public by:

1. Ensure the provision of connected pedestrian walkway and barrier-free between buildings, into buildings or to link bridges;
2. Promote the use of back lanes and side lanes of shop buildings as pedestrian walkways;
3. Prepare a dedicated action plan for pedestrian walkway networks in suitable locations to create pedestrian-friendly environments;
4. Enhance the provision of security facilities such as CCTV, panic buttons and other safety equipment to limit crime risk;
5. Implement Safe City design through the implementation of CPTED;
6. Improve facilities such as information maps and way-findings to assist and facilitate pedestrians to their destination;
7. Improve the existing pedestrian bridge with appropriate width through additional elements such as convenience kiosks, landscape, gallery spaces, water mist, sitting area and others; and
8. Ensure that no physical barriers such as street furniture, utilities and trees interfere with the seamless pedestrian movements.



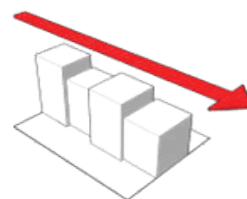
LINK BRIDGE BETWEEN MID VALLEY MEGAMALL AND THE GARDENS MALL, KUALA LUMPUR



LINK BRIDGE BETWEEN THE GARDENS MALL AND KL ECO CITY MALL, KUALA LUMPUR



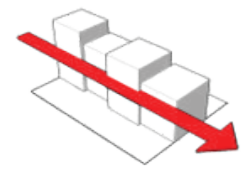
RESTORATION OF WUJIANG ROAD, SHANGHAI
Source: Flickr.com



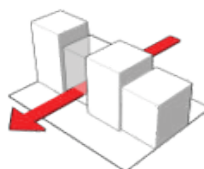
PATH ABOVE



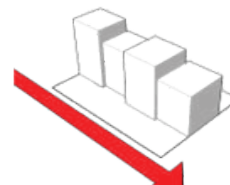
UNDERGROUND PATH



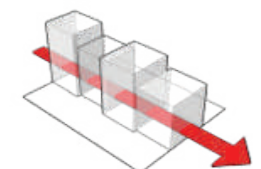
CONNECTED PATH



SHORT-CUT PATH



PARALLEL PATH OUTSIDE BUILDING



CLOSED PATH BETWEEN BUILDINGS

CATEGORIES OF PEDESTRIAN WALKWAYS BETWEEN BUILDING (THROUGH-BLOCK CONNECTOR)

Source: Healthy Walkable City Implementation Guidelines, PLANMalaysia, 2017

ACTION**MC2.2: PROVIDE INFRASTRUCTURE TO ENHANCE ACCESSIBILITY FOR MICROMOBILITY VEHICLES**

A micromobility vehicle is powered by electrical source, an internal combustion engine or human power or combination of electricity, an internal combustion engine or human power with a maximum speed of 50km/h.

According to BIS Research (2019), the global market for the micromobility vehicles is projected to reach almost RM32 billion by year 2029. By 2050, nearly two-thirds of the world's population will use micromobility vehicles.

Micromobility vehicles will play an essential role in contributing to two (2) aspects which are improving environmental quality and time-saving travel. It is also a solution to the first mile and last mile in reaching a destination such as the activity hub or nearest railway station to improve connectivity and accessibility.

QUICK INFO**Micromobility Vehicles Category**

There are three (3) categories of micromobility vehicles namely:

1. Moped - powered by electrical source, internal combustion engine or both;
2. Bicycle or electric bicycle - powered by human power or electrical source; and
3. Personal Mobility Devices (PMD) - powered by human power, electric source or internal combustion engine or both and Personal Mobility Aids (for individuals with movement or disability problem).

SUPPORTING ACTION**MC2.2A: Expand the development of micromobility vehicles pathways network in residential and employment areas**

The micromobility vehicles network in Kuala Lumpur can be developed by integrating micromobility vehicles pathways in road reserves on pedestrian and bicycle pathways or providing a dedicated path for micromobility vehicles. The following are measures to expand the use of micromobility vehicles:

1. Improve the existing guidelines or develop new guidelines specifically for micromobility vehicles;
2. Formulate a specific master plan for the planning of a comprehensive micromobility vehicles;
3. A condition in the Development Order (DO) for the provision of micromobility vehicles pathways that consider universal design;
4. Provide a dedicated pathways networks that are continuous and separated from the pedestrian walkways;
5. Provide micromobility vehicles facilities such as signages, multi-vehicle parking spaces, charging stations, rest areas and others especially in transit station areas;
6. Enforcement action on any party that builds or places permanent or temporary structures that may obstruct the passage of micromobility vehicles;
7. Utilise river, infrastructure and utility reserves as part of the micromobility vehicles pathways;
8. Encourage the residents' involvement in the planning of pathways and placement of micromobility vehicles facilities; and
9. Collaborate with relevant agencies in the planning of micromobility vehicles networks.

SUPPORTING ACTION**MC2.2B: Provide facilities for safer use of micromobility vehicles**

The planning and development of micromobility vehicles in Kuala Lumpur shall emphasise on competent and efficient management of micromobility vehicles facilities by:

1. Operating micromobility vehicles theft prevention system using technological innovations such as mobile applications and regulated micromobility vehicles parking systems;
2. Ensuring that public transportation such as buses and rail transportation provide space or parking for micromobility vehicles;
3. Limiting the speed of vehicles that are using micromobility vehicles pathway in order to increase the level of safety;
4. Collaborating with relevant agencies in the aspect of data collection to improve and review the need for micromobility vehicles in an area; and
5. Adopting geo-fencing and geo-sensing technologies to control the micromobility vehicles' speed and boundary limits such as pedestrian walkways that affect public safety.

ACTION**MC2.3: CONDUCT PUBLIC AWARENESS AND SAFETY CAMPAIGNS**

Public awareness promotion and campaigns are critical in cultivating a walking and cycling culture in Kuala Lumpur. In addition, this programme will help to increase users safety through cooperation with relevant agencies such as government agencies, non-governmental organisations (NGOs) and the community.

SUPPORTING ACTION**MC2.3A: Intensify educational campaigns**

Educational campaigns to pedestrians as well as users of micromobility and motorised vehicles are essential for the safety of all parties. This is the most impactful and cost-effective way to reduce safety risks while increasing public confidence in walking and using micromobility vehicles. Programmes that can be implemented are:

1. Raise awareness on the benefits of walking and using micromobility vehicles as well as awareness of safety aspects such as conducting safety workshops;
2. Develop mobile applications that help the public to plan their journeys and navigate their way easily;
3. Conduct safe access to schools for students in the neighbourhood area;
4. Enhance the promotion of Kuala Lumpur as a primer city on walking and using micromobility vehicles; and
5. Provide incentives for pedestrian and micromobility vehicles users.

SUPPORTING ACTION**MC2.3B: Escalate enforcement**

Traffic law enforcement can improve safety and inculcate traffic safety habits among the public. These actions can be implemented through:

1. Enforce the existing rules to protect the rights and safety of pedestrians and micromobility vehicles continuously;
2. Coordinate with relevant agencies for the provision of micromobility vehicles parking spaces in public transport in particular rail and bus;
3. Provide platforms for reporting damage to pedestrian and micromobility vehicles infrastructure through mobile technology applications; and
4. Perform design audits on pedestrian and micromobility vehicles pathways construction.



PEDESTRIAN WALKWAY EQUIPPED WITH SAFETY ELEMENTS

STRATEGIC DIRECTION

MC3: EFFECTIVE TRAFFIC MANAGEMENT

Traffic management is essential in supporting more efficient urban growth and providing comfort of Kuala Lumpur City's residents and visitors.

An efficient road network can increase the accessibility level and the city's economic activity. However, the increasing number of private vehicles entering Kuala Lumpur has resulted in traffic congestion.

The peak hour congestion in the Kuala Lumpur will cause economic losses as travel time increases and air pollution worsen. Therefore, traffic management should emphasise on:

1. Enhance the current transportation system operation;
2. Better utilisation of existing traffic infrastructure capacity;
3. Encourage users to plan the journey by changing travel patterns to reduce traffic congestion; and
4. Increase the use of public transportation and reduce the negative impact from the journey.

ACTION

MC3.1: MANAGE TRAFFIC WITHIN KUALA LUMPUR

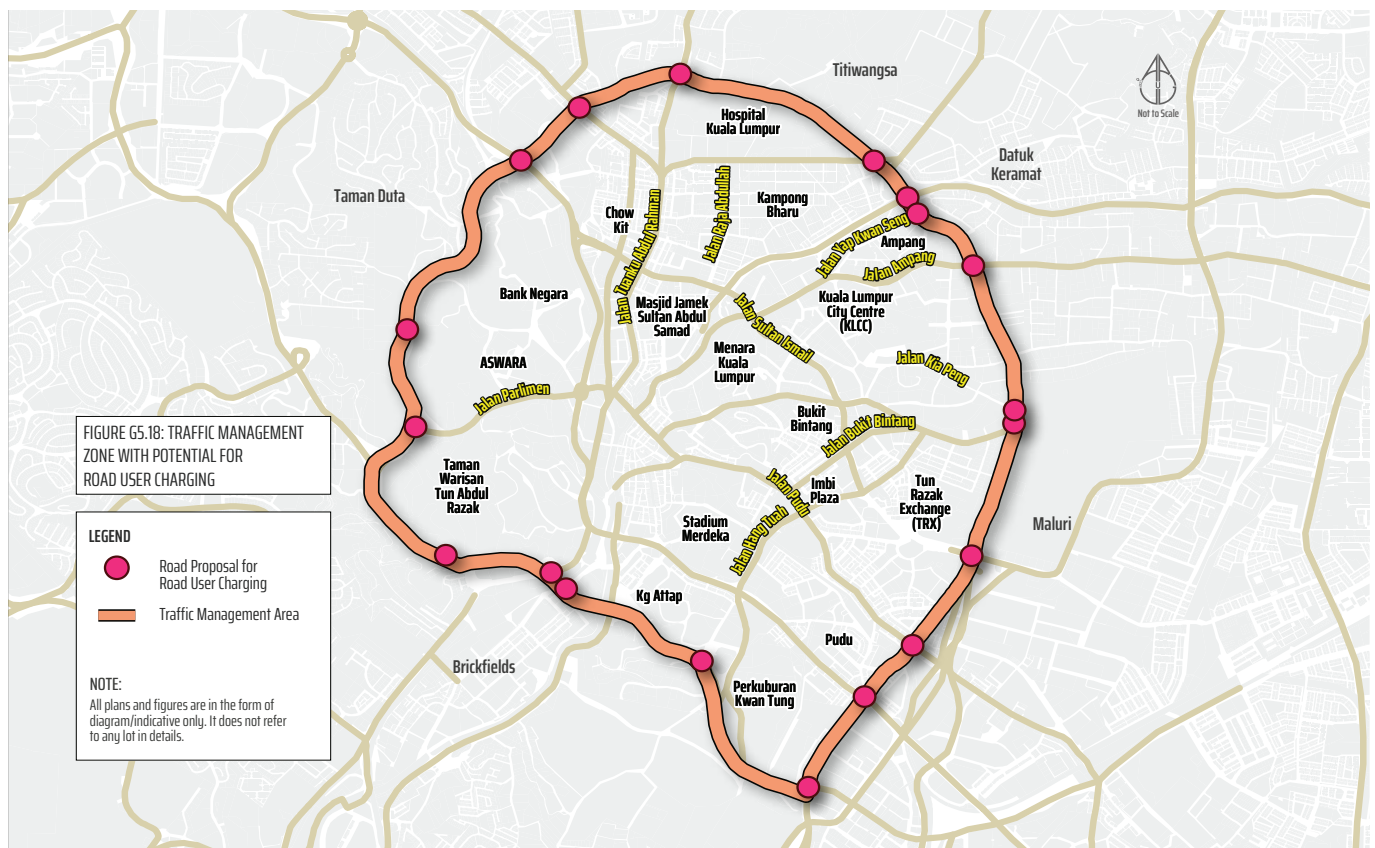
Traffic management in Kuala Lumpur should be planned more systematically and effectively in reducing traffic congestion which will also affect economic and environmental activities. This traffic management needs to consider various circumstances whether the implementation is regular or periodic as needed as well as to be more flexible and viable.

SUPPORTING ACTION

MC3.1A: Formulate a mechanism for Road User Charging (RUC) scheme

The Road User Charging (RUC) scheme mechanism is aimed at reducing road congestion by limiting the entry of private vehicles into the Kuala Lumpur City Centre. This scheme will be implemented after all developments of public transportation networks are complete and connected (Figure G5.18). The following are the measures to implement the RUC:

1. Conduct a detailed impact and effectiveness study on RUC at the main road towards the city centre. This study should take into account the proposed targets for reducing carbon emissions from private vehicles;
2. Provide technology facilities to support the use of RUC such as RUC vehicle movement recognition devices at every major entrance to the city centre and RUC card top-up kiosks;
3. Collaborate with relevant agencies on the use of RUC devices in every private vehicle and e-hailing that can be integrated with information collection systems for purposes other than traffic such as MySejahtera and other related applications;
4. Study the suitability of parking areas as park and ride and traffic circulation management for the implementation of RUC; and
5. Establish the RUC financial management system and designated roles of federal and local agencies. The revenues from this RUC can be proposed to be used for environmental preservation as well as public transportation and urban area improvements in the RUC control zone.



Selection of roads for the RUC scheme should be based on the following criteria:

1. The main entrance road to the city centre;
2. Roads that experience traffic congestion during peak hours such as Jalan Kinabalu, Jalan Maharajalela and Jalan Tun Razak;
3. High level of public transportation accessibility; and
4. Roads that have a comprehensive network of pedestrian and micromobility vehicles.

SUPPORTING ACTION

MC3.1B: Develop an Intelligent Transportation System (ITS)

Intelligent Transportation System (ITS) is defined as a technology application used to improve transportation management efficiency, dissemination of information, safety and environmental quality. Developing this integrated system requires cooperation and sharing of data with related agencies.

ITS can be implemented through the latest transportation management systems and applications. This includes traffic control devices such as:

1. The latest Travel Information System (Variable Message Sign (VMS)) provides real-time and delayed information to drivers and users;
2. Implementation of the transport pricing system. This includes the electronic toll payments collection, Myjourney Planner and the distance-based travel system (Vehicle Miles Travelled (VMT)) as implemented in Iskandar Malaysia, Johor;
3. Convenient and integrated cashless and cash payment systems;
4. Integrated intelligent management system. This system allows wider communication between assets in the transportation system; and
5. Development of Smart Eco Driving Applications using real-time data to calculate environmental performance based on low-carbon vehicles usage.

ACTION**MC 3.2: MANAGE PARKING SPACE**

The management of parking supply and distribution should be streamlined in Kuala Lumpur to increase the use of public transportation and eventually reduce traffic congestion. Parking spaces management should focus on Kuala Lumpur City Centre and urban redevelopment areas identified as Transit Oriented Development (TOD) zone.

In this regard, Kuala Lumpur will not allow temporary open parking space activities in the city centre in the future whether on government or private land.

SUPPORTING ACTION**MC3.2A: Manage integrated parking spaces**

The parking provision especially in Kuala Lumpur City Centre shall be managed to ensure the facilities are integrated with transit stations around TOD and in key hotspot areas in the city centre.

The measures to be taken into account in managing parking are:

1. Provide integrated parking spaces equipped with pedestrian walkways connected to transit stations for any urban redevelopment located around the TOD zone;
2. Reduce parking requirements for development in TOD zones and periodically for areas with complete public transportation infrastructure especially in the Kuala Lumpur City Centre. This is to achieve modal split of 70:30 by year 2040;
3. The provision of indoor parking or park and ride available around transit stations outside Kuala Lumpur City Centre or in suitable areas; and
4. Promote innovative smart parking systems to reduce the use of space in the city.

SUPPORTING ACTION**MC3.2B: Reduce the provision of on-street parking**

Reduce the provision of on-street parking especially in Kuala Lumpur City Centre area, primary commercial centres and other employment hotspots once the provision of public transportation networks and facilities including pedestrian and micromobility vehicles pathways network are adequately provided.

This parking area can then be converted for the following purposes:

1. Pedestrian and micromobility vehicles expansion pathways;
2. Provision of street furniture and landscape;
3. More user-friendly road design such as road diet;
4. Additional reserves for urban commuter routes; and
5. Parklets which are the mini public spaces.

EXAMPLE OF BEST PRACTICES**Rotary Type Automatic Parking System in Jalan Tun Razak, Kuala Lumpur**

Mechanical parking is a new dimension in providing additional and more systematic as well as environmental-friendly parking spaces. In addition, these mechanical car parks are ideal for use or placed at high density areas such as business complexes, condominiums and luxury apartments. The advantages of mechanical parking are:

1. Solve the problem of inadequate parking space in the city centre; .
2. Saving space with 40 car parks that can accommodate 128 cars;
3. Not exposed to rain and heat;
4. Minimise risks such as flood, fallen trees and others; and
5. Reduce the risk of car theft and crime.



MECHANICAL CAR PARK LOCATED IN FRONT OF JALAN TUN RAZAK

ACTION**MC3.3: STRENGTHEN THE EXISTING ROADS' FUNCTIONS**

Strengthening the function of the road hierarchy and enhancing connectivity can be implemented by applying flexible design standards that can be applied in local contexts.

The total length of the main road (highway and Federal Road) in Kuala Lumpur is 342.25km in year 2021. The road network in Kuala Lumpur will be almost complete when all committed and ongoing development projects are completed in the near future.

If standard practices such as building more roads in Kuala Lumpur continue, the following adverse effects are expected to occur:

1. Short term solution to traffic problems as it will cause more vehicle usage and create another traffic problems (induced demand);
2. Deterioration in quality and well-being of life resulting from traffic congestion will adversely affect social interaction; and
3. Involves high-cost expenses for maintaining as well as addressing traffic demand and problems.

SUPPORTING ACTION**MC3.3A: Limit the need for highway construction**

Limiting the proposed development of new highways in Kuala Lumpur by taking into account the following measures:

1. Allowing missing links only to complete the road circulation; and
2. Allowing only the extension of highway to another for the purpose of traffic dispersal and smooth flow (Figure G5.19) which are:
 - i. Duta-Ulu Klang Expressway Phase 2A (DUKE 2A)-(Istana Link and Kampong Bharu Link);
 - ii. DUKE 2-AKLEH Link;
 - iii. KL-North Dispersal Expressway (KL-NODE); and
 - iv. New Pantai Expressway Phase 2 (NPE2).

SUPPORTING ACTION**MC3.3B: Allow road sharing for bus priority lanes, urban commuters, pedestrians and micromobility vehicles**

In order to achieve Kuala Lumpur's target of being an efficient and environmental-friendly redesigned mobility city, the road reserve structure needs to be revisited so that the existing road design can be improved to allow co-use and space sharing between private vehicles, public transportation, pedestrians and micromobility vehicle users. A detailed study should be conducted by KLCH to:

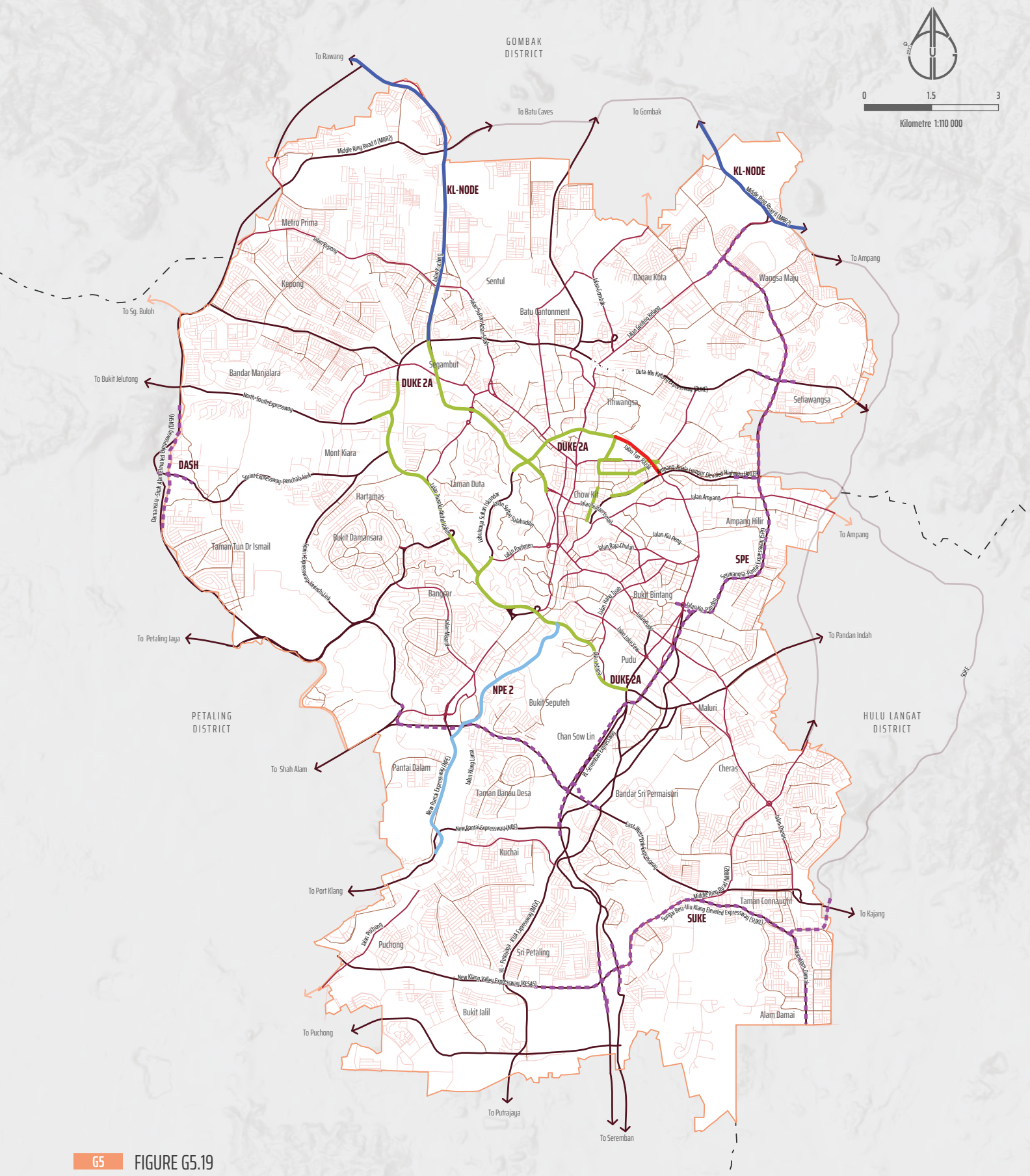
1. Identify suitable roads for sharing with bus priority lanes, urban commuters, pedestrians and micromobility vehicles in the initial stage;
2. Limit vehicle speed especially in the city centre areas;
3. Implement road diet on roads that prioritised pedestrians especially in the city centre, neighbourhood and transit station areas; and
4. Review the parking requirements at these areas.



BEFORE AND AFTER IMPLEMENTATION OF ROAD DIET IN SAN DIEGO, UNITED STATES OF AMERICA
Source: pps.org

SUPPORTING ACTION**MC3.3C: Enhance road maintenance systems**

1. Physically improve the existing road structures through joint maintenance management of any infrastructure improvement work on the surface, under and shoulders of the road;
2. Use smart application technology for road-related complaints; and
3. Record road repair status and share information with users via online and electronic board.



G5

FIGURE G5.19
EXISTING ROAD NETWORKS AND HIGHWAYS APPROVED FOR EXTENSION

LEGEND

- Highways Approved for Extension
 - Duta-Ulu Klang Expressway Phase 2A (DUKE 2A-Istana Link and Kampong Bharu Link)
 - DUKE 2-AKLEH Link
 - KL-North Dispersal Expressway (KL-NODE)
 - New Pantai Expressway Phase 2 (NPE2)
 - Highways under construction (SPE, DASH, and SUKE)

- Existing Road
 - Expressways
 - Main Distributor Roads
 - District Distributor Roads
 - Local Roads

- Others
 - FTKL Boundary

NOTE:

All plans and figures are in the form of diagram/indicative only. It does not refer to any lot in details.

SUMMARY

Kuala Lumpur as an efficient and environmental-friendly mobility city by year 2040 will be achieved by implementing 10 actions formulated under three (3) strategic directions. All these actions focus specifically on increasing the use of public transportation to achieve a modal split target of 70:30 by year 2040.

It will emphasise on planning and development towards comprehensive use of public transportation including first mile and last mile.

Kuala Lumpur's transportation system is vital in shaping Kuala Lumpur as a developed global city at par with other global cities. KLCH and Kuala Lumpur's transportation agencies need to improve the flexibility of transportation planning to ensure immediate implementation and prepare for new trends and challenges.

TABLE G5.3: SUMMARY OF MULTI-DIMENSIONAL ACTIONS BASED ON THE AIM OF SUSTAINABLE DEVELOPMENT GOALS 2030
























ACTION	RELATED SGD
MC1.1: Expand the Rail Network and Enhance Supporting Infrastructure	
MC1.1A: Complete the connection for a comprehensive rail network and continuously upgrade existing rail services	
MC1.1B: Increase access to rail services through an integrated feeder bus	
MC1.1C: Improve provision of facilities at rail stations	 
MC1.1D: Incorporate low carbon designs at the existing and new rail lines and stations	 
MC1.2: Develop Urban Commuter System in Kuala Lumpur City	
MC1.2A: Implement transit development in the city centre	
MC1.2B: Implement intercity transit development	
MC1.3: Prioritise The Development of Public Bus Services	
MC1.3A: Expand the local public bus route network	 
MC1.3B: Integrate Bus Expressway Transit (BET) services with local public buses	
MC1.3C: Implement bus priority lanes	 
MC1.4: Plan for Taxi and E-hailing Services	
MC1.4A: Coordinate taxi and e-hailing management system	

TABLE G5.3: SUMMARY OF MULTI-DIMENSIONAL ACTIONS BASED ON THE AIM OF SUSTAINABLE DEVELOPMENT GOALS 2030 (CONT.)

ACTION	RELATED SGD
MC2.1: Ensure A Safe, Quality, Seamless, Connected and Easily Accessible Pedestrian Network	
MC2.1A: Create a user-friendly pedestrian environment and suitable for all community groups	 
MC2.1B: Implement the Kuala Lumpur Pedestrian and Cycling Master Plan 2019–2028	
MC2.1C: Development of pedestrian network on river reserves	
MC2.1D: Pedestrian walkways network in cultural and creative district	
MC2.1E: Improve pedestrian walkways between buildings	  
MC2.2: Provide Infrastructure to Enhance Accessibility for Micromobility Vehicles	
MC2.2A: Expand the development of micromobility vehicles pathways network in residential and employment areas	 
MC2.2B: Provide facilities for safer use of micromobility vehicles	
MC2.3: Conduct Public Awareness and Safety Campaigns	
MC2.3A: Intensify educational campaigns	
MC2.3B: Escalate enforcement	
MC3.1: Manage Traffic within Kuala Lumpur City	
MC3.1A: Formulate a mechanism for Road User Charging (RUC) scheme	 
MC3.1B: Develop an Intelligent Transportation System (ITS)	
MC3.2: Manage Parking Spaces	
MC3.2A: Manage integrated parking spaces	 
MC3.2B: Reduce the provision of on-street parking	
MC3.3: Strengthen the Existing Roads' Functions	
MC3.3A: Limit the need for highway construction	
MC3.3B: Allow road sharing for bus priority lanes, urban commuters, pedestrians and micromobility vehicles	  
MC3.3C: Enhance road maintenance systems	

GOAL 6

KUALA LUMPUR SUSTAINABLE CITY AND INTEGRATED DEVELOPMENT



SKYLINE AROUND DATARAN MERDEKA, YEAR 2021

Kuala Lumpur in the future will focus on its potential to grow by empowering land management and sustainable development as well as promoting integrated planning and development.

This is in line with the continuous population increase and development in Kuala Lumpur, which is expected to put pressure on land use planning. Limited land availability is also a major challenge for development management in Kuala Lumpur. Kuala Lumpur's land use and spatial management strategy by 2040 is through:

1. Optimal and more productive use of land;
2. Renewal of old areas;
3. Integration of land development and public transportation;
4. Prioritise urban space sharing; and
5. Special area management.

The strategic directions formulated to support this goal are:

BM1

Optimal and Productive Use of Land

BM2

Renewal of Old Areas

BM3

Integration of Land Development and Public Transportation

BM4

Urban Space Sharing

BM5

Special Area Management

5 STRATEGIC DIRECTIONS

15 ACTIONS

Goal 6 is to make Kuala Lumpur an integrated and sustainable development city supported by five (5) strategic directions and 15 planning priorities and implementation actions.



FIGURE G6.1: STRATEGIC DIRECTION AND ACTIONS OF GOAL 6

KUALA LUMPUR DEVELOPMENT TRENDS

INFRASTRUCTURE PLANNING AND DEVELOPMENT POLICIES SHAPE KUALA LUMPUR'S DEVELOPMENT TREND

Kuala Lumpur started to develop rapidly since the 1970s and experienced more significant development pressures around the 1990s. This growth and development pattern has changed from market influenced development to development based on the gazetted development plan.

The main focus of Kuala Lumpur's planning based on the first KLSP was to create new growth centres such as Bandar Baru Bukit Jalil and Bandar Baru Wangsa Maju. Meanwhile, KLSP2020 prioritises the quality of development that enhances Kuala Lumpur's image as a World-Class City. This strategy indirectly puts pressure on the need to provide infrastructure facilities in Kuala Lumpur to accommodate growth and encourage investment

The development of Kuala Lumpur during the period 2010-2021 was also affected by the opening of new highways such as the Duta - Ulu Klang Expressway (DUKE), Maju Expressway (MEX), Shah Alam Expressway (KESAS) and the opening of public transportation networks such as Light Rail Transit (LRT), Monorail and Mass Rapid Transit (MRT).

This transportation network has enhanced the accessibility of Kuala Lumpur (Figure G6.2). This trend has directly influenced the growth expansion of Kuala Lumpur and the present land use development.

FIGURE G6.2: DEVELOPMENT TRENDS 2010-2021

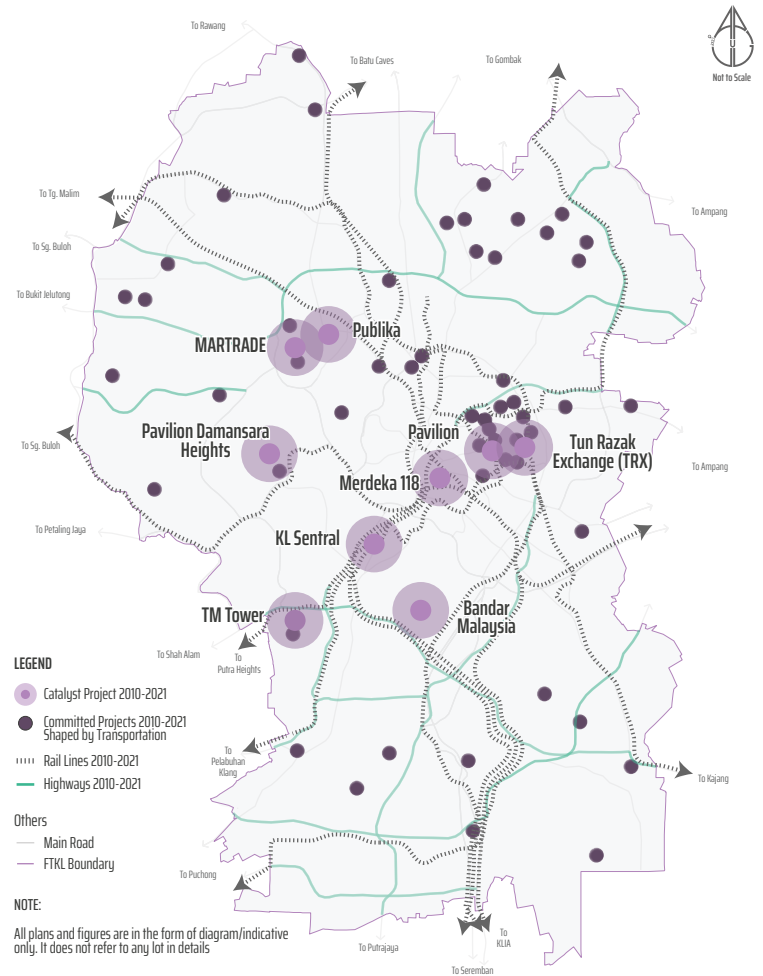


TABLE G6.1: COMMITTED DEVELOPMENT IN KUALA LUMPUR, YEAR 2000-2021

CATEGORY	TOTAL COMMITTED DEVELOPMENT YEAR 2000-2021	PERCENTAGE (%)
Residential	2,217	61.0
Commercial	937	25.8
Industrial	23	0.6
Mixed Development	165	4.5
Institution and Public Facilities	98	2.7
Open Space and Recreation	194	5.3
TOTAL	3,634	100.0

Based on the trend of land use development in Kuala Lumpur in year 2000-2021, the focus of development comprises residential, commercial as well as open space and recreation encompass 61 percent, 25.8 percent and 5.3 percent of the total committed development (Table G6.1). This development trend is also influenced by planning policies that encourage more comprehensive development in Kuala Lumpur.

EXISTING LAND USE, YEAR 2021

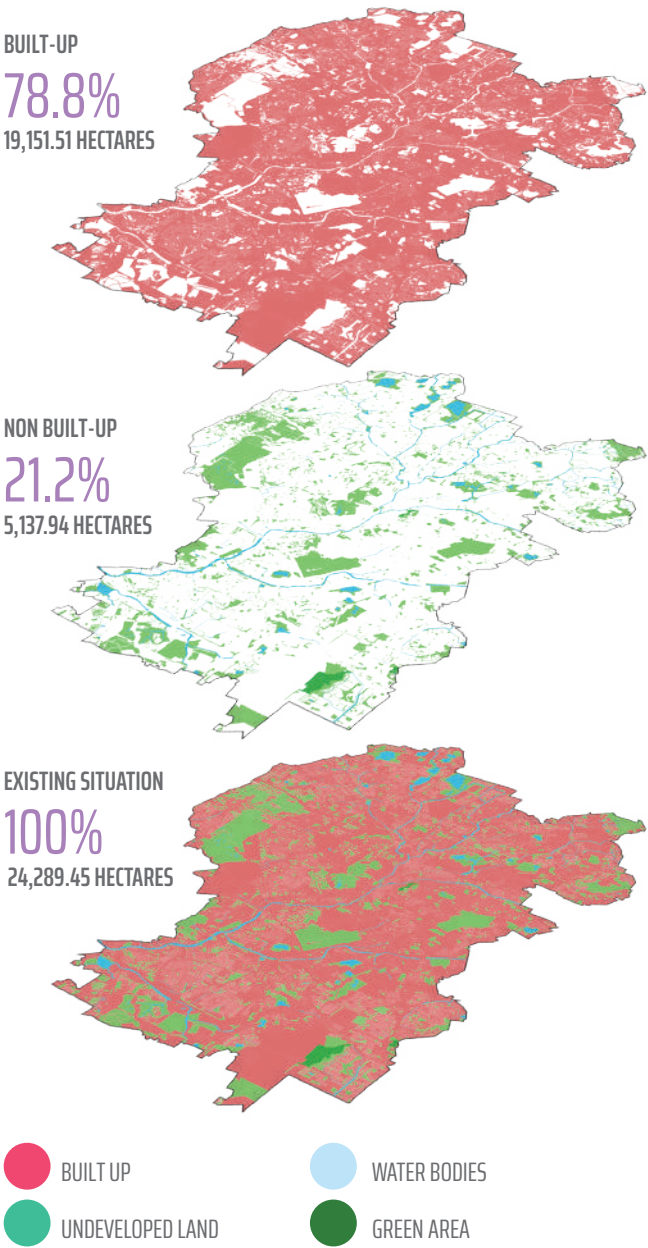
KUALA LUMPUR LAND AVAILABILITY

Kuala Lumpur has built-up area of 19,151.51 hectar (78.8 percent). While the non built-up area is 5,137.94 hectares (21.2 percent). However, undeveloped land (vacant land) is 2,121.14 hectares equivalent to 8.7 percent of the Kuala Lumpur's total area (Table G6.2).

TABLE G6.2: EXITING LAND USE, YEAR 2021

CATEGORY	AREA (HEC)	PERCENTAGE (%)
Built-Up	19,151.51	78.8
Industrial	538.90	2.2
Infrastructure and Utilities	613.88	2.5
Institution and Public Facilities	3,170.12	13.1
Commercial	1,795.58	7.4
Mixed Development	640.74	2.6
Transportation	5,875.97	24.2
Housing	6,189.75	25.5
Cemetery	326.57	1.3
Non Built-Up	5,137.94	21.2
Water Bodies	819.90	3.4
Forest	84.62	0.4
Undeveloped Land	2,121.14	8.7
Open Space and Recreation	2,112.28	8.7
TOTAL	24,289.45	100.0

FIGURE G6.3: EXISTING BUILT-UP AND NON BUILT-UP, YEAR 2021



QUICK INFO

Existing land use refers to the utilisation of the existing land, encompassing both natural features and man-made structures on that land. It includes categories of built-up and non-built-up areas. The current land use category is only applicable to Kuala Lumpur.

Built-Up

Built-up refers to existing urban land use activities, i.e., those that already exist physically on the site (excluding committed developments that have not been constructed yet) in a development land, such as:

1. Industry;
2. Infrastructure and utilities;
3. Institution and public facilities;
4. Commercial;
5. Mixed development;
6. Transportation;
7. Housing; and
8. Cemetary.

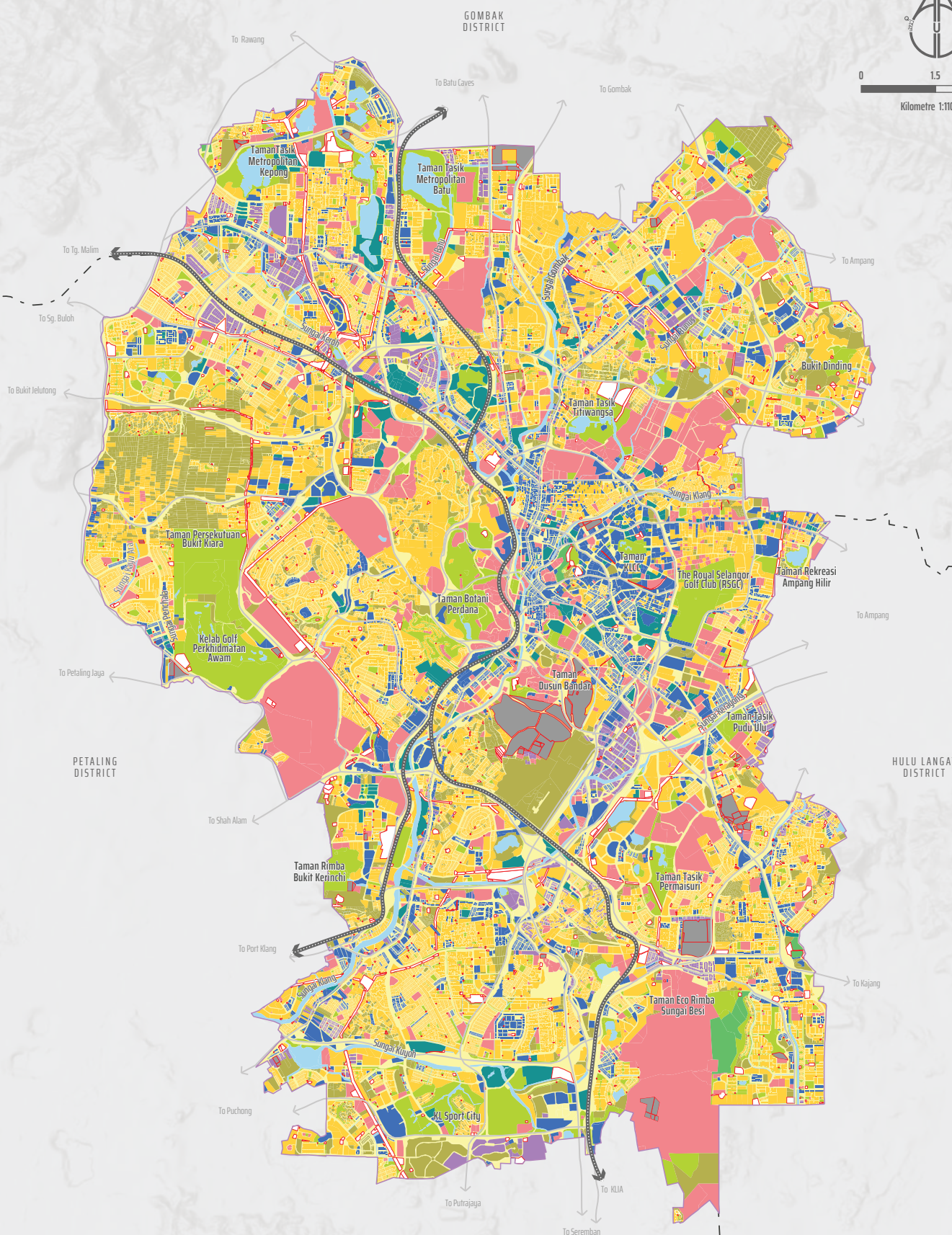
Non Built-Up

Non-built-up activities are undeveloped land and land dedicated to:

1. Water bodies;
2. Forest;
3. Undeveloped land; and
4. Open space and recreation.



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Kilometre 1:110 000



G6 FIGURE G6.4
EXISTING LAND USE OF KUALA LUMPUR, YEAR 2021

LEGEND

Existing

- Industrial
- Infrastructure and Utilities
- Institution and Public Facilities
- Commercial
- Mixed Development
- Transportation
- Residential
- Cemetery

- Water Bodies
- Forest
- Vacant Land
- Open Space and Recreation

Others

- Main Road
- Railway Line (KTM)
- FTKL Boundary

PROSPECT AND TARGETS FOR LAND DEVELOPMENT IN KUALA LUMPUR

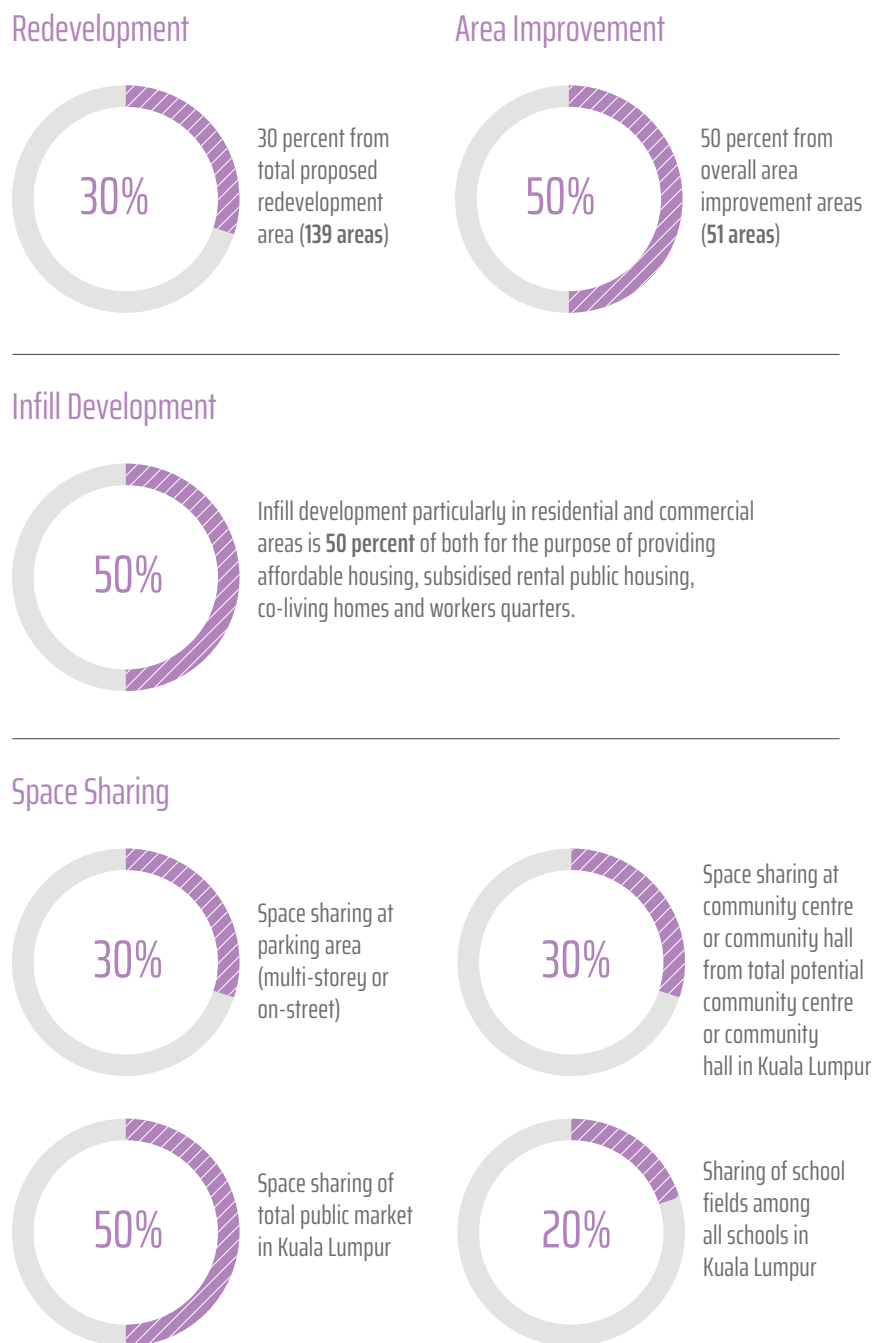
The strategy of Kuala Lumpur towards integrated and sustainable development by year 2040 needs to be supported by efficient land use planning targets. Among the targets in the aspects of redevelopment, area improvement, infill development and space sharing (Figure G6.5).

A total of 139 redevelopment areas and 51 renewal areas (Refer to Action BM2.1 and BM2.2), where by the year 2040, 30 percent of redevelopment areas and 50 percent of renewal areas are projected to be implemented. Additionally, Kuala Lumpur also needs to achieve a 50 percent infill development for affordable housing, subsidised rental public housing, co-living residences and worker quarters particularly in residential and commercial areas.

The limited land availability is also a significant factor in the implementation of Kuala Lumpur's development towards space sharing to ensure more productive and effective use of space. The targets of KLSP2040 in space sharing are as follows:

1. 30 percent sharing of parking spaces, community centres and community halls;
2. 50 percent share of space for public markets; and
3. 20 percent space sharing for shared use of school field.

FIGURE G6.5: INTEGRATED AND SUSTAINABLE DEVELOPMENT TARGET FOR KUALA LUMPUR BY YEAR 2040



STRATEGIC DIRECTION

**BM1: OPTIMAL AND PRODUCTIVE
USE OF LAND**

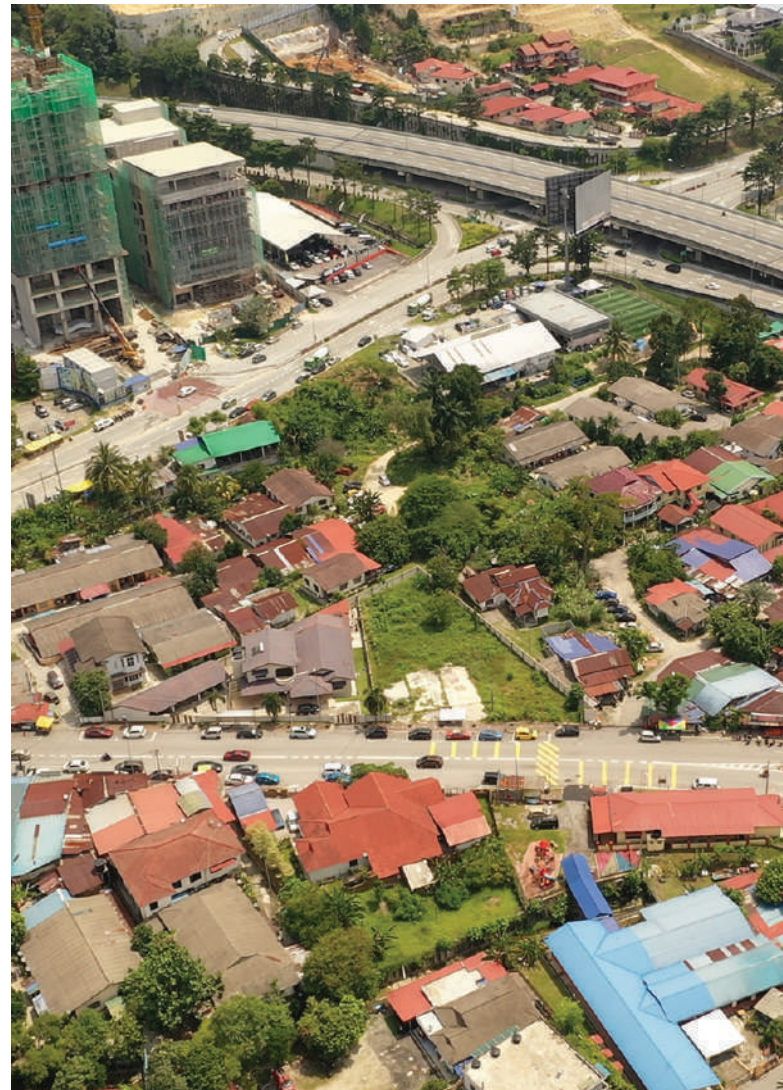
Land is a limited resource that needs to be managed optimally and productively to achieve a balance in economic growth, physical development and contribute to the quality of life.

ACTION

**BM 1.1: MANAGE THE USE OF UNDEVELOPED LAND
EFFICIENTLY**

Undeveloped areas are the focus of Kuala Lumpur's future development. Currently, the undeveloped land is only 2,121.14 hectares, equivalent to 8.7 percent of the total area of Kuala Lumpur. This land is mainly located in Kampung Sungai Penchala, Bukit Segambut and parts of Wangsa Maju areas as well as vacant lands located within the existing development area.

However, not all undeveloped land is suitable for development due to physical barriers, such as high-risk sloped areas. In addition, this undeveloped land is located in rural areas where the primary land use is residential. Considering these factors, the land that can be developed without impediments is only 554.50 hectares, equivalent to only 2.3 percent of the area of Kuala Lumpur. The future development in Kuala Lumpur needs to be optimally planned to ensure more efficient land use, considering the suitability of surrounding developments in the future.



DEVELOPMENT IN KAMPUNG SUNGAI PENCHALA
Source: mydash.com.my

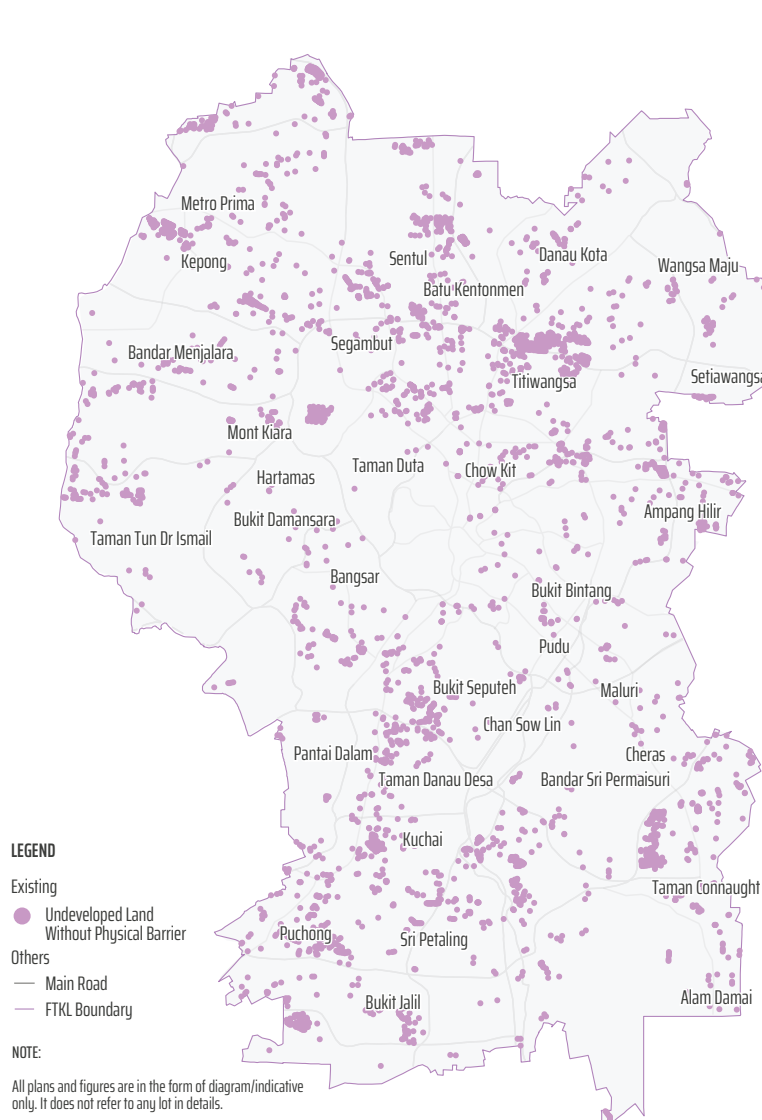
The undeveloped land in Kuala Lumpur currently includes land committed for development, those without future plans, and excludes land identified as open spaces and recreational facilities (Figure G6.6).

The ownership status of undeveloped land is:

1. Private land (owned by private companies and individuals); and
2. Reserved land for government use, such as public facilities including schools and halls that have not been developed.

State owned land or land reserved for the government should be developed accordance to it's original planning uses such as public facilities, infrastructure and other government uses. Such land may be allowed for development and redevelopment with socio-economic benefits. In this regard, if the land is developed for other purposes or uses as decided by the Cabinet Minister, it is subject to the suitability of land use and activities, location and the local area carrying capacity of public facilities, traffic and infrastructure.

FIGURE G6.6: DISTRIBUTION OF UNDEVELOPED LAND WITHOUT PHYSICAL BARRIER



These lands are located throughout the Kuala Lumpur area and are small-sized lots that require detailed planning for development that integrate with the surrounding area.

TOTAL UNDEVELOPED LAND

2,121.14 HECTARES

UNDEVELOPED LAND WITHOUT COMMITTED DEVELOPMENT

1,981.02 HECTARES

UNDEVELOPED LAND WITHOUT PHYSICAL BARRIER

554.50 HECTARES

Land required to accommodate population by year 2040

The current population of Kuala Lumpur is 1.98 million people, equivalent to a population density of 320 people per hectare. By year 2040, the population of Kuala Lumpur is projected to increase to 2.35 million people, an addition of 367,888 people.

Kuala Lumpur is estimated to require an area of 1,149.65 hectares for residential purposes (Table G6.3) based on current development trends to accommodate this population growth. Therefore, Kuala Lumpur needs to focus on high-intensity development in suitable areas in the future.

TABLE G6.3: LAND REQUIREMENTS TO ACCOMMODATE POPULATION GROWTH

CATEGORY	AREA (ACRES)	AREA (HECTARES)
The estimated land required for residential purposes to accommodate the population in the year 2040 (2.35 million people) is based on the current overall density of Kuala Lumpur.		
High-Intensity	919.72	372.19
Medium-Intensity	3,065.73	1,240.65
Low-Intensity	9,197.20	3,721.97



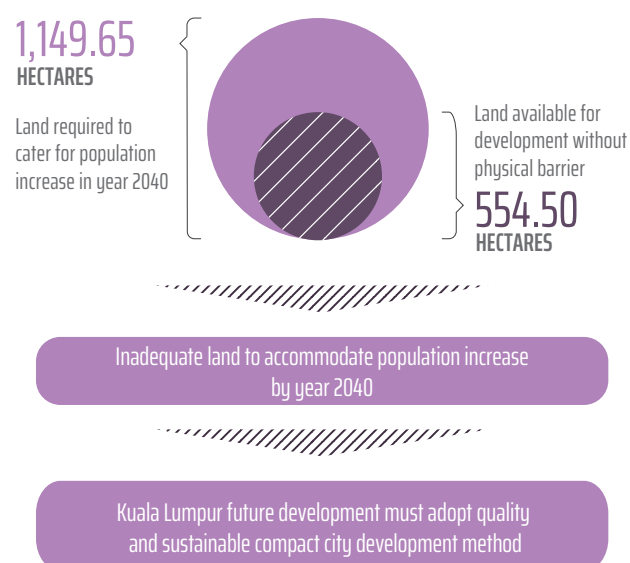
KUALA LUMPUR CITY

SUPPORTING ACTION

BM1.1A: Planning of compact city development

Kuala Lumpur requires urban development planning that emphasises high-density solutions to address the issue of limited land availability. Compact city development entails high population density integrated with better accessibility to public facilities, infrastructure and public transportation, emphasising the concept of Transit Oriented Development (TOD).

FIGURE G6.7: LAND REQUIREMENT TO ACCOMMODATE THE 2040 POPULATION



Compact city development will utilise land resources efficiently and optimally to create an accessible city and thus reduce the impact on the environment with more integrated planning and sustainable land use.

Sustainable intensity should be emphasised for compact city planning, where the intensity should be according to the suitability of the development site i.e. appropriate with existing neighbourhood conditions, infrastructure readiness and social facilities that can accommodate the proposed intensity (Table G6.3).

SUPPORTING ACTION**BM1.1B: Flexible land use activity zoning that are sustainable-base performance**

Limited land availability in Kuala Lumpur requires land use planning to be implemented in a detailed manner by introducing the concept of flexible land use zoning based on sustainable performance.

Flexible land use zone activities based on sustainable performance refer to planning zones that consider the impact of such zoning on the neighbourhood and its surroundings. This concept can be applied to development and renewal areas as well as special high-impact development in Kuala Lumpur.

Sustainable performance considers natural, social, and physical aspects of the development site and the neighbourhood that will be affected by the new development. Therefore, the proposed development activity and intensity as well as their design need to pay detailed attention to their impact and take appropriate action to improve the sustainable performance of the development proposals.

Among the benefits of flexible zoning based on sustainable performance are:

1. Balancing development with site capacity;
2. Allows for multiple and mixed uses;
3. Reduce potential land use conflicts with detailed planning;
4. Offer flexible development opportunities according to current demand;
5. Increase more efficient land use; and
6. Fulfilling the goal of a sustainable city in Kuala Lumpur.

A detailed set of guideline should be prepared to determined the form of land use zone performance that can be set as a measure of sustainability compared to the existing of land use zone. It will result in more flexibility and sustainability land use planning in Kuala Lumpur.

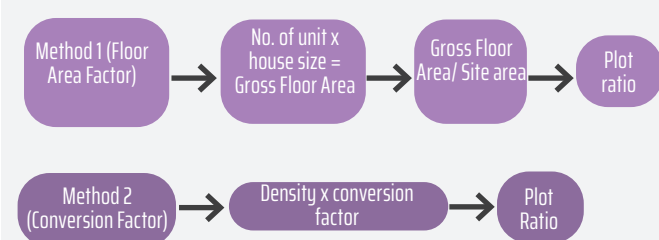
SUPPORTING ACTION**BM1.1C: Effective development intensity control**

Effective land utilisation capacity should be determined for future development control in Kuala Lumpur. **Plot Ratio** can be used as a control measure to determine the maximum floor space allowed for each lot. The application of the plot ratio will help to:

1. Control the maximum land-use intensity;
2. Determine the potential value of the land; and
3. Identify the impact of development capacity on infrastructure and utilities, public facilities, public transportation and others.

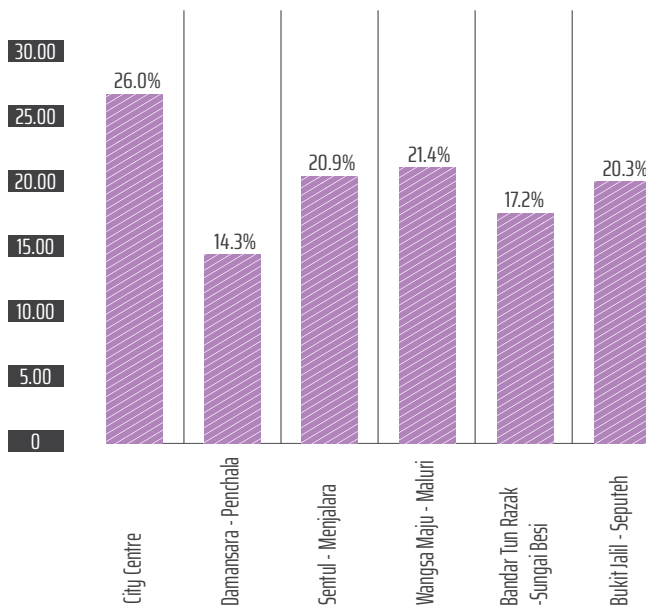
The city centre has the most productive land use distribution in Kuala Lumpur, followed by Sentul - Menjalara and Wangsa Maju - Maluri. The city centre recorded the service sector's annual gross production rate of RM105,053.68/km² or 22.8 percent. Meanwhile, the Sentul - Menjalara strategic zone recorded annual gross production of RM10,493.59/km² or 41 percent in the manufacturing sector. Overall, Kuala Lumpur needs to enhance land use productivity in development areas to ensure rapid and sustainable economic growth.

Figure G6.8 shows the overall economic density for both Kuala Lumpur's services and manufacturing sectors. The city centre recorded the highest economic density of 26 percent compared to other strategic areas. Thus, land use planning based on the economic density rate should be balanced and comprehensive.

QUICK INFO**Plot Ratio Calculation from Density****Definition of Plot Ratio as per the Federal Territory (Planning) Act 1982 (Act 267)**

The ratio between the total floor area of a building and the area of the building plot.

FIGURE G6.8: MANUFACTURING AND SERVICE SECTOR ECONOMIC DENSITY ACCORDING TO KUALA LUMPUR AREA, YEAR 2021



ACTION **BM1.2: PROMOTE INFILL DEVELOPMENT IN DEVELOPMENT PRESSURE AREAS**

The land availability to accommodate future development needs is a significant issue in Kuala Lumpur. Infill development is a method that can enhance optimal land use, encourage more efficient investment especially in designated development areas with existing infrastructure and public facilities.

Infill development involves the following land plot:

1. Vacant land in the development pressured area;
2. Uneconomic existing and abandoned buildings;
3. Small-sized land or uneconomic shape; and
4. The land is within the existing built-up area or the urban renewal zone.

The importance of infill development is as follows:

1. Efficient use of land resources for the growth of smart cities;
2. Development that can improve the quality of life and physical environment of the city;
3. Regeneration with activities and uses that reactivate the area; and
4. More effective use of urban spaces, promotes social interaction and opportunities to provide new facilities according to the local community's needs.

Two (2) significant types of infill development in Kuala Lumpur which are residential parcels in established housing areas and commercial or industrial areas in the city centre or major local centres.

Investment in infrastructure upgrades such as transit systems and roads can support the development of infill areas. It can also increase the potential of the surrounding area in addressing the demand for development in Kuala Lumpur.

QUICK INFO

Infill is a development in parcels/lots either vacant or has uneconomic use in existing built-up areas. The area has good infrastructure, utilities and public facilities.

Principles of infill development

Several principles of infill development that need to be considered in planning:

1. Coordinate the detailed zoning and intensity of the infill development area/parcel should be specified in the Kuala Lumpur Local Plan;
2. Ensure harmony in the overall design of the development area and the well-being of the local residents;
3. Ensure infills that are appropriate with the surrounding development;
4. Provide detailed and flexible planning guideline and infill design for site development and building design;
5. Engage stakeholders and the local community in the comprehensive infill development design process;
6. Increase the diversity of transportation facilities, including micromobility vehicles and pedestrian; and
7. Improve the quality of public spaces such as public roads, plazas, parks, civic spaces and spaces that support infill development as a main component.

SUPPORTING ACTION**BM1.2A: Encourage infill development in city centre and commercial centre areas**

Some vacant sites are underused to the full potential in the city centre and the commercial area of Kuala Lumpur. These sites are either located as stand-alone or among other developed lots.

Land use and sites identified with the potential to be developed on an infill basis are:

1. Old warehouse buildings in industrial areas or zoned as commercial areas;
2. Separate hypermarket sites (stand-alone);
3. Open parking spaces;
4. Old shophouse/vacant shop sites;
5. Abandoned, unproductive and non-operational industrial sites/buildings;
6. Old petrol station sites; and
7. Inactive utility sites.

Infill activities such as mixed developments are encouraged for diversification with several activities suitable with the site's location such as a mixed of residential, commercial, cultural, recreational, institutional and modern industrial activities to revitalise the infill site.

SUPPORTING ACTION**BM1.2B: Urban Design Plans for Infill Development Areas**

Infill development should provide a detailed urban design plan to support the proposed infill-based application. The urban design plan should include specific descriptions such as:

1. The proposed building design;
2. Height and profile of the building;
3. Access to the building;
4. Building setback; and
5. Green area for the infill development site.

The suitability of the building's design for the infill site should be considered:

1. Scale of surrounding development;
2. Sufficient building lighting;
3. Unblocked view of surrounding buildings; and
4. Building design complements with the surrounding area.

SUPPORTING ACTION**BM1.2C: Encourage infill development of detached residential parcel**

Residential infill involves development on a detached residential parcel with extensive land area in areas under development pressure in Kuala Lumpur.

Residential infill can potentially be developed on:

1. Established residential areas under developmental pressure due to urbanisation and transit infrastructure such as LRT and MRT;
2. Vacant and unoccupied/abandoned detached housing lots; and
3. Detached housing area in the city centre surrounded by commercial developments.

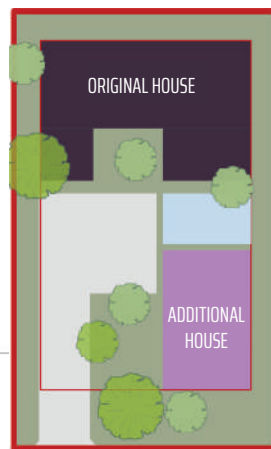
Potential areas include Bukit Damansara, Bangsar, and Segambut.

This residential infill development will particularly:

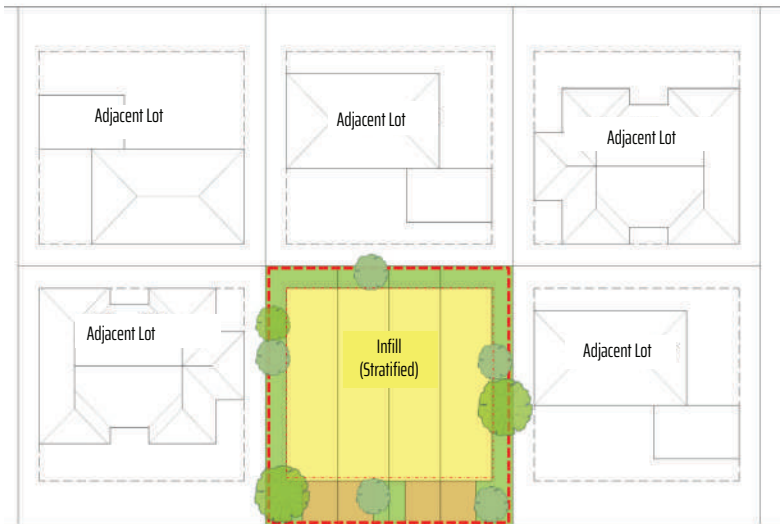
1. Accommodate housing demand for the population increase in Kuala Lumpur;
2. Increase the provision of affordable housing within the city centre;
3. Increase the supply of diverse housing type;
4. Introduce the concept of multi-family residence and inter-generational housing;
5. Reactivate and conserve established residential areas; and
6. Increase property market feasibility to remain dynamic in Kuala Lumpur.

FIGURE G6.9: EXAMPLE OF INFILL DEVELOPMENT ON THE EXISTING LOT

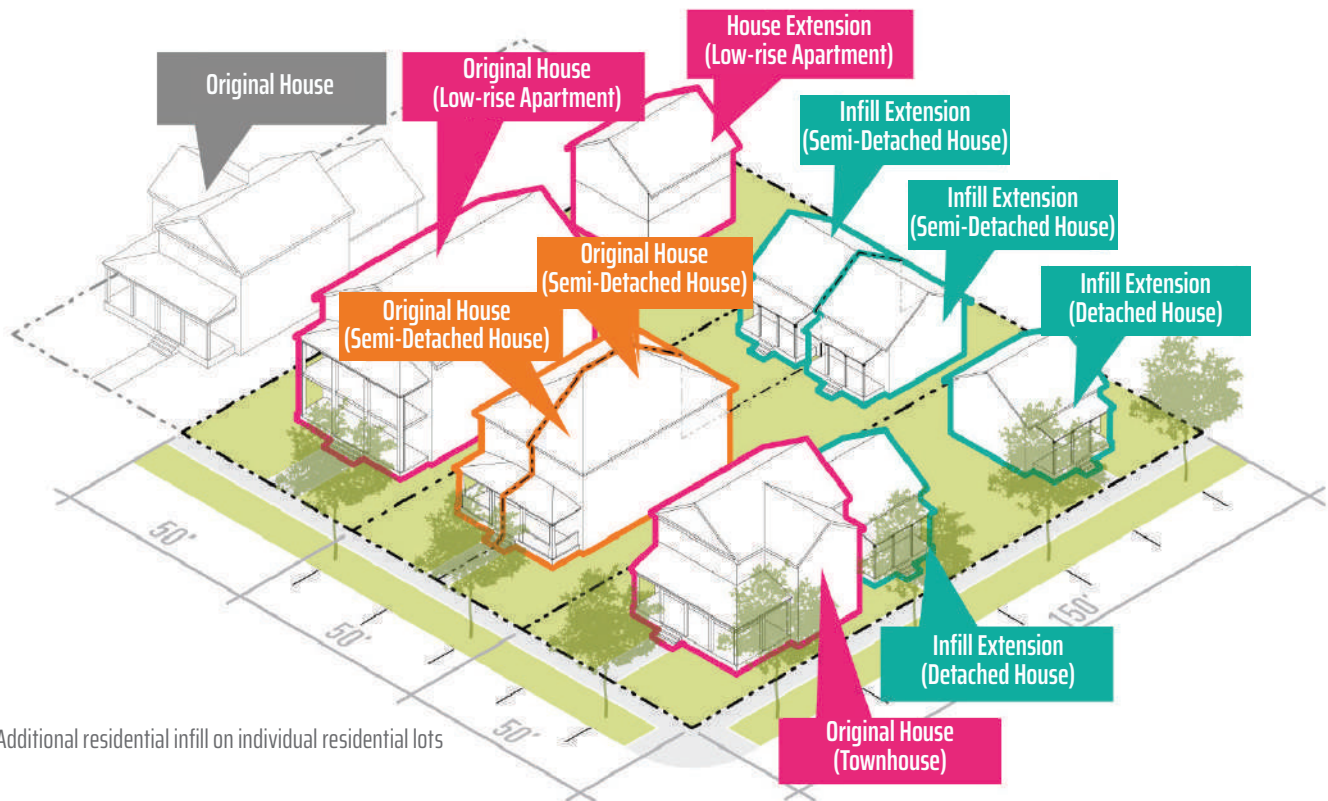
Residential infill development is to provide new residence in a mature neighbourhood area in Kuala Lumpur without affecting the quality of the residential area.



Infill development encourages inter-generational occupancy within the same residential site.



Residential infills should ensure the harmony of local neighbourhoods with responsive design to the existing built environment.



Additional residential infill on individual residential lots

TABLE G6.4: EXAMPLE OF DETAILED INFILL DEVELOPMENT GUIDELINES

TYPES OF RESIDENTIAL		LOT SIZE	PERMITTED INTENSITY	TYPE OF PLANNING CONTROL	BUILDING DESIGN
Detached residential	<ul style="list-style-type: none"> Stable housing Low Density Housing 	Over 8,000 square feet	Low (maximum 20 person)	<ul style="list-style-type: none"> Strata detached house Semi-detached, Townhouse Setback must be consistent with surrounding area Façade facing main road Car park within residential lot 	<ul style="list-style-type: none"> Maintaining neighbouring house privacy by providing appropriate windows and doors Design does not obstruct lighting of neighbouring house Provide private courtyard Visible access and car park
Detached residential	Medium density housing	Over 25,000 square feet	Low Medium (maximum 40 person)	<ul style="list-style-type: none"> Townhouse, Apartment Detached/semi-detached house Setback must be consistent with surrounding area Façade facing main road Planned car park No conflict of entrance and exit access 	<ul style="list-style-type: none"> Maintaining neighbouring house privacy by providing appropriate windows and doors Design does not obstruct lighting of neighbouring house Green area for common use and facing main road Provide common courtyard facilities Visible access and car park
Semi-Detached/Terrace residential	<ul style="list-style-type: none"> Low density housing Medium density housing 	Existing Lot/site	As existing	<ul style="list-style-type: none"> Townhouse Setback must be similar Car park within residential lot 	<ul style="list-style-type: none"> Maintaining neighbouring house privacy by providing appropriate windows and doors Design does not obstruct lighting of neighbouring house Ground floor of houses shall provide common shared space Visible access and car park

EXAMPLE OF BEST PRACTICES

Second-unit Home, California

Second-unit homes are additional small-scale houses built on the existing houses lot. The additional units consist of various types, i.e. single-storey detached houses or two (2) or three (3) storey detached houses where the upper floor houses are attached to the main house.

The construction of these second-unit homes must obtain approval from the local authority. Under development laws in California, local authorities play a role in determining a suitable location for the construction of second-unit homes on the same lot.

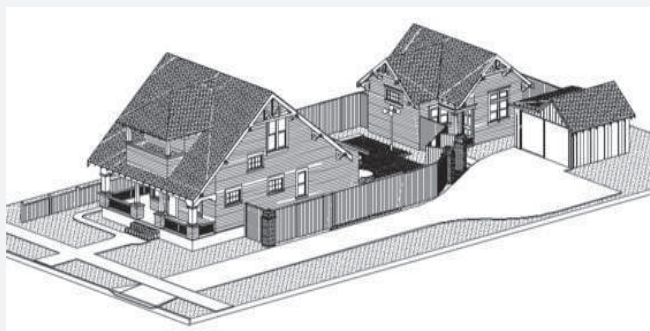
The designation of this area is based on criteria such as water supply and sewerage readiness, implications to traffic flow. California local authorities set guidelines for parking, permitted building height, setback width and maximum size of second-unit homes. California Local Authorities have offered loan programs, fee waivers, or tax credits to reduce construction costs to encourage homeowners to develop homes on the same lot.

The California Department of Housing and Community Development is actively promoting second-unit development to help address the rental homes shortage, maximise land use and existing infrastructure, increase density, activate residential areas, and increase homeowners' income sources.

EXAMPLE OF SECOND-UNIT HOMES DEVELOPMENT IN LOS ANGELES, CALIFORNIA



Source: medium.com



Source: joelcaricoarchitect.com

STRATEGIC DIRECTION

BM2: RENEWAL OF OLD URBAN AREAS

Part of Kuala Lumpur's built-up areas encompass stable and old areas. Consequently, the focus will be on the old area regeneration programmes to create an excellent urban image and quality, as well as urban design that supports a sense of place comparable to new development areas.

Regeneration will also contribute to sustainable development by reuse of land and buildings for more economically and potentially to accommodate the increasing population and provide better quality local community facilities.

ACTION

BM2.1: IMPROVE THE QUALITY AND REACTIVATE OLD AREAS THROUGH AREA IMPROVEMENT PROGRAMME

Area Improvement Programme (AIP) is an upgrade programme for the current urban activity and quality. The AIP comprising Commercial Area Improvement (CAI), Industrial Area Improvement (IAI) and Neighbourhood Area Improvement (NAI) is to activate and enhance the quality of old, obsolete and abandoned residential, industrial and commercial areas throughout Kuala Lumpur. A total of 51 AIP areas have been identified in the KLSP2040, which will be carried out comprehensively and inclusively between KLCH and the participation of all owners of business, industrial and residential premises.

Detailed plans such as Action Plan or Area Master Plan should be prepared to ensure more comprehensive planning and add value to the AIP areas. These plans shall determine the boundaries of the AIP area and identify land/buildings/premises owners and stakeholders in the area so that the planning considers their views. Participation of the relevant government and private agencies in this programme is crucial to produce an integrated development.

QUICK INFO

24

TOTAL PROPOSED CAI AREA (COMMERCIAL)

13

TOTAL PROPOSED IAI AREA (INDUSTRY)

14

TOTAL PROPOSED NAI AREA (NEIGHBOURHOOD)

Implementing improvement programmes also encourages the community and premise owners to work with KLCH to take collective responsibility in ensuring that the affected areas will be more vibrant, viable and liveable.



MEDAN PASAR

TABLE G6.5: CRITERIA FOR AREA SELECTION OF COMMERCIAL, INDUSTRY AND NEIGHBOURHOOD AREA IMPROVEMENT PROGRAMME

CRITERIA FOR AREA SELECTION OF COMMERCIAL, INDUSTRY AND NEIGHBOURHOOD AREA IMPROVEMENT			
CHANGE OF AREA PROFILE	<ul style="list-style-type: none"> Decrease in number of residents/traders in existing residential areas Opening of new business areas nearby that change the image of the district/surrounding area 	ECONOMIC IMPACT	<ul style="list-style-type: none"> Low rental rate Changes in existing employment structure Inability to pay taxes and rent
CHANGE OF BUSINESS PATTERNS	<ul style="list-style-type: none"> More frequent change of business forms Declining number of customers Change in unhealthy and uneconomical business activities and employment 	INFRASTRUCTURE AND TRAFFIC CONDITIONS	<ul style="list-style-type: none"> Limited infrastructure and narrow roads Unmanaged traffic system Blocked/obstructed routes No pedestrian access facilities No parking facilities
URBAN IMAGE	<ul style="list-style-type: none"> Less attractive urban image Unmaintained, dilapidated and abandoned premises Lack of landscaping and street furniture Physical condition and façade of the building are deteriorating/obsolete 	PUBLIC SPACES	<ul style="list-style-type: none"> No significant/visible public spaces Poor environmental quality in public spaces Potential as a criminal/unsafe area Neglected green spaces

SUPPORTING ACTION**BM2.1A: Potential areas for Area Improvement Programme (AIP)****COMMERCIAL (CAI)**

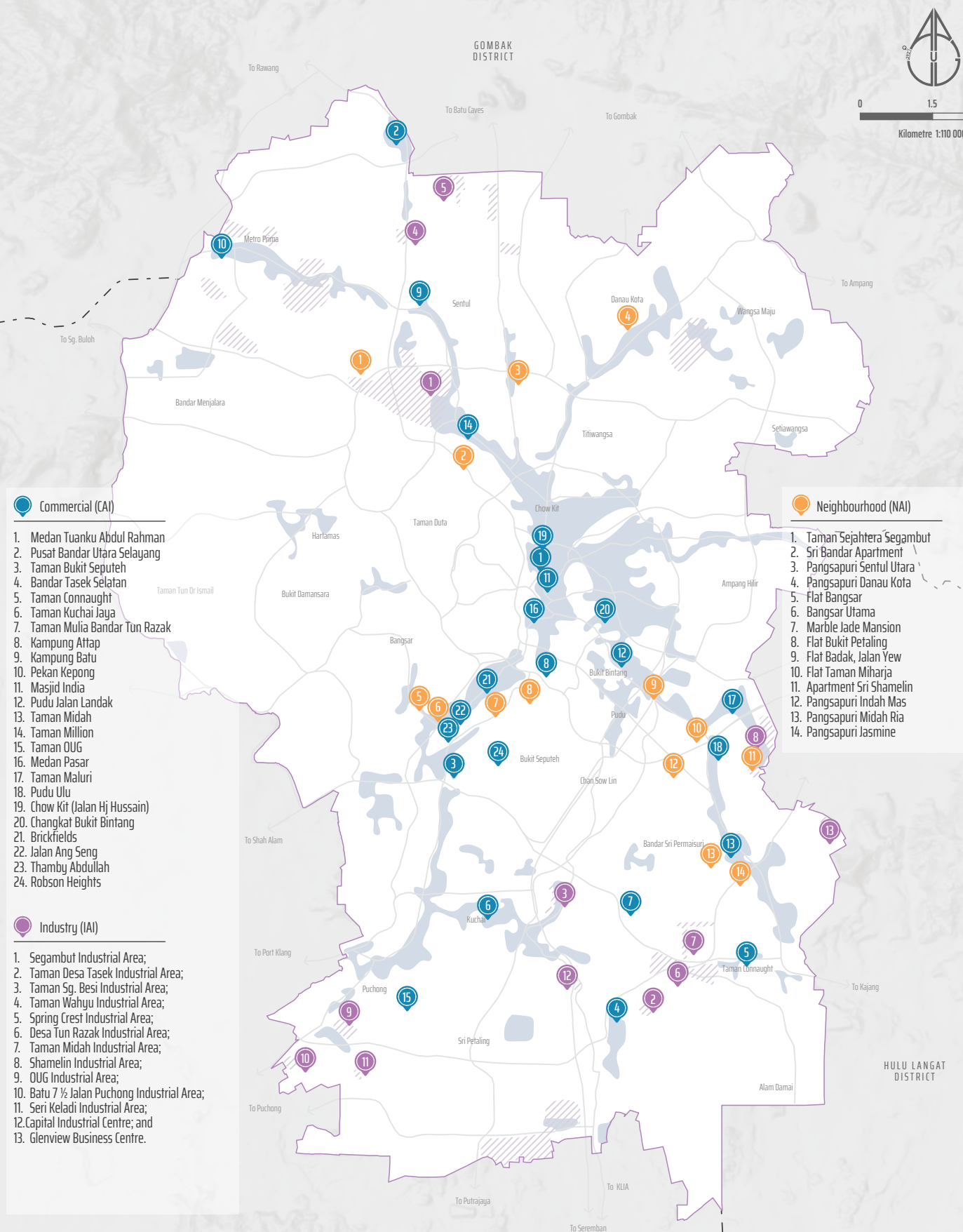
1. Medan Tuanku Abdul Rahman;
2. Pusat Bandar Utara Selayang;
3. Taman Bukit Seputeh;
4. Bandar Tasek Selatan;
5. Taman Connaught;
6. Taman Kuchai Jaya;
7. Taman Mulia Bandar Tun Razak;
8. Kampung Attap;
9. Kampung Batu;
10. Pekan Kepong;
11. Masjid India;
12. Jalan Landak Pudu;
13. Taman Midah;
14. Taman Million;
15. Taman OUG;
16. Medan Pasar;
17. Taman Maluri;
18. Pudu Ulu;
19. Changkat Bukit Bintang;
20. Chow Kit (Jalan Hj Hussain);
21. Brickfields;
22. Jalan Ang Seng;
23. Thamby Abdullah; and
24. Robson Heights.

INDUSTRY (IAI)

1. Segambut Industrial Area;
2. Taman Desa Tasek Industrial Area;
3. Taman Sg. Besi Industrial Area;
4. Taman Wahyu Industrial Area;
5. Spring Crest Industrial Area;
6. Desa Tun Razak Industrial Area;
7. Taman Midah Industrial Area;
8. Shamelin Industrial Area;
9. OUG Industrial Area;
10. Batu 7 ½ Jalan Puchong Industrial Area;
11. Seri Keladi Industrial Area;
12. Capital Industrial Centre; and
13. Glenview Business Centre.

NEIGHBOURHOOD (NAI)

1. Taman Sejahtera Segambut;
2. Sri Bandar Apartment;
3. Pangsapuri Sentul Utara;
4. Pangsapuri Danau Kota;
5. Flat Bangsar;
6. Bangsar Utama;
7. Marble Jade Mansion;
8. Flat Bukit Petaling;
9. Flat Badak, Jalan Yew;
10. Flat Taman Miharja;
11. Apartment Sri Shamelin;
12. Pangsapuri Indah Mas;
13. Pangsapuri Midah Ria; and
14. Pangsapuri Jasmine.



G6

FIGURE G6.10
POTENTIAL AREAS FOR AREA IMPROVEMENT PROGRAMME (AIP)

LEGEND

Proposed

Commercial Area Improvement (CAI)

Industrial Area Improvement (IAI)

Neighbourhood Area Improvement (NAI)

Existing

Commercial Area

Industrial Area

Others

Main Road

FTKL Boundary

NOTE:

All plans and figures are in the form of diagram/indicative only. It does not refer to any lot in details.

SUPPORTING ACTION**BM2.1B: Prepare Action Plan for Area Improvement Programme (AIP)**

Each AIP area needs to prepare detailed plans such as a Master Plan or Action Plan to produce comprehensive planning. The process of preparing an inclusive plan is also encouraged by involving land/buildings/premises owners to provide views and inputs for the success of the AIP. Among the improvements to the area to be included in the detailed plan are:

1. Improvement of the city's image such as the provision of comprehensive landscapes and street furniture;
2. Improvement of area safety design adaptation of Crime Prevention Through Environmental Design (CPTED);
3. Improvement of area cleanliness;
4. Improvement of existing buildings (height, building façade and heritage value buildings);
5. Improvement of infrastructure such as electricity, water, drainage, telecommunications and other;
6. Improvement of access to public transport, pedestrian and micromobility vehicles, traffic circulation and parking; and
7. Upgrading public spaces and other public facilities such as halls, surau, retail spaces and others.

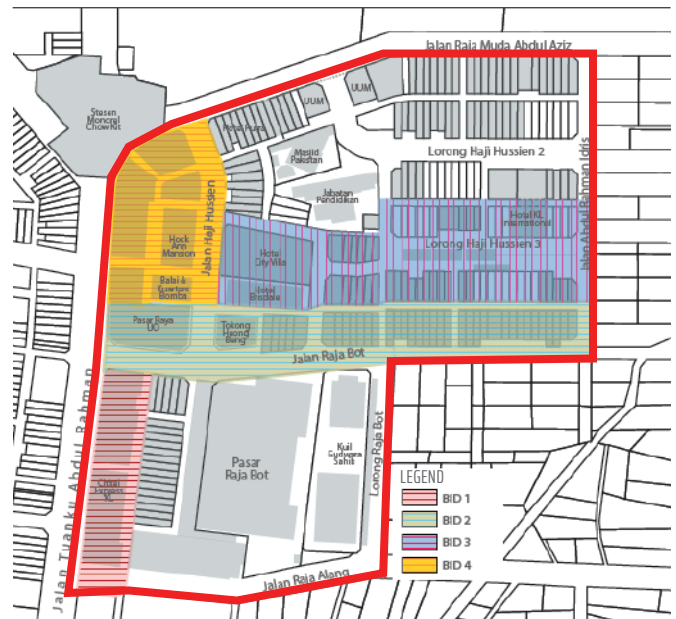
The roles of KLCH in this area improvement programme is as follows:

1. Setting the boundaries of the AIP area;
2. Prepare a detailed plan of AIP; and
3. Engage land/buildings/premises owners in the planning process and development.



BACK LANE AREA IMPROVEMENT AT BUKIT BINTANG, KUALA LUMPUR

FIGURE G6.11: PROPOSAL FOR COMMERCIAL AREA IMPROVEMENT PROGRAMME AT JALAN RAJA BOT, KAMPONG BHARU

**LEGEND**

- Proposed Food Alley in the back lane near Pasar Raja Bot landscape
- Proposed beautification of Jalan Raja Bot
- Proposed road landscape beautification at Lorong Haji Hussien
- Proposed walkways hotspot zone (boulevard)
- CAI Area (Commercial Area Improvement)

Source: Pelan Induk Pembangunan Kampung Bharu 2040

QUICK INFO

Raja Bot area is one of the active business areas in Kuala Lumpur City Centre. The proposed implementation through the CAI seeks to provide continuous injections for owners and traders to maintain the characteristics of current business activities and enhance economic and business competitiveness in a better and quality environment.



AREA IMPROVEMENT AT JALAN YAP AH LOY, KUALA LUMPUR

Source: Thestar.com.my

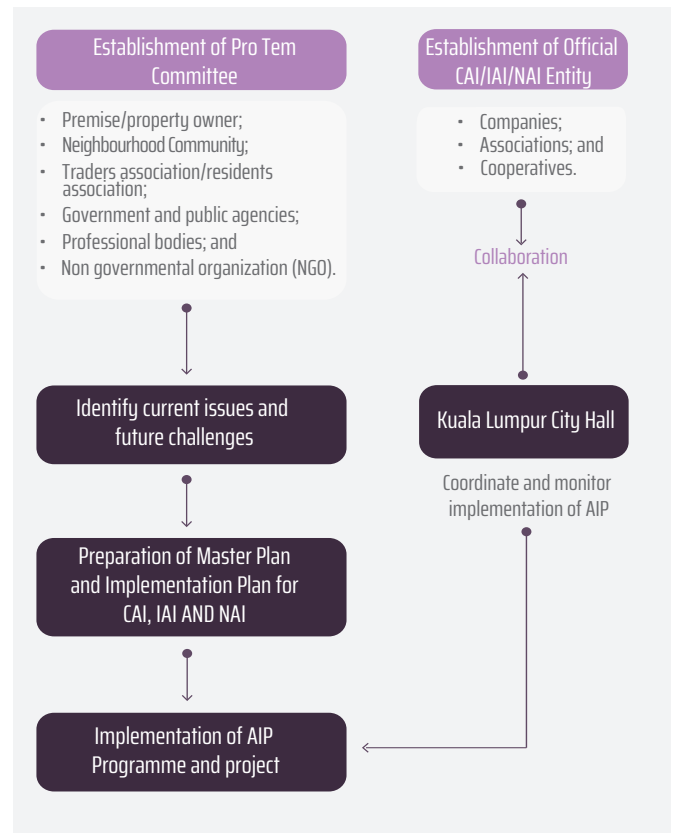
SUPPORTING ACTION

BM2.1C: Formulate the process and mechanisms for Area Improvement Programme (AIP)

The AIP implementation mechanism needs to be determined comprehensively before the programme is implemented. The AIP process and mechanism proposed in KLSP2040 started with the establishment of an AIP pro tem committee determined by KLCH. This committee is responsible for coordinating the preliminary works of the improvement program, such as identifying current issues and problems, future challenges, and the preparation of the AIP Master Plan/Action Plan.

This plan is an implementation plan prepared after the stakeholders agree on the programme to be carried out. The implementation of programmes and projects in the AIP Action Plan will be coordinated, approved, and monitored by KLCH. Furthermore, the establishment of an official AIP entity is encouraged to ensure ownership of the programme in the long term. This entity will work with KLCH to ensure the success of AIP.

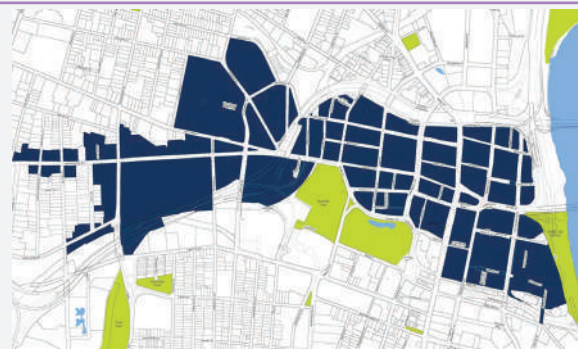
FIGURE G6.12: ESTABLISHMENT OF AIP COMMITTEE



EXAMPLE OF BEST PRACTICES

Hartford Business Improvement District (HBIDS), Hartford, Connecticut, United States of America

The implementation of HBIDS in Hartford is to bring about positive change and enhance Hartford's economic vitality and quality of life. A joint venture between the Mayor's Office, Police Department and Public Works Department, and more than 100 other business owners and organisations in Hartford, HBIDS has implemented initiatives that create a safer, cleaner and more attractive environment for employees, residents and visitors to Hartford.



ACTION**BM2.2: CREATE DEVELOPMENT OPPORTUNITIES IN URBAN REDEVELOPMENT AREAS**

The redevelopment in Kuala Lumpur is a comprehensive new development of dilapidated areas and unoccupied and derelict buildings. It involves demolishing the original building structure (total redevelopment) or portion (partial redevelopment). Among the benefits of redevelopment are:

1. Enhance the quality of the environment, which provides investment opportunities and more integrated land management for the future;
2. Provide more efficient and well planned community facilities, public spaces, open spaces and more efficient infrastructure;
3. Increase land value through the generation of economical diversified activities;
4. Improve the quality of life and economy of the Kuala Lumpur's residents;
5. Provide necessary housing and offer mixed activities to support the needs of current and future residents; and
6. Encourage mixed and integrated development to enhance more efficient land use.

There are 139 areas in Kuala Lumpur identified as redevelopment areas until year 2040. It involves brownfield areas with uneconomic usage, old industrial areas, and potential areas resulting from the investment in transit infrastructure, river conservation and others (Figure G6.13). The impact of the potential redevelopment is expected to increase more than 139 areas and it is highly encouraged to create a more attractive environment in Kuala Lumpur.

Criteria for urban redevelopment

Urban redevelopment sites must comply with the following criteria:

1. Mixed developments consist of residential, retail, office, business service, and public use;
2. Development that emphasise on the public interest for the site owned by the government or its agencies;
3. Principles of inclusive, equitable development and discussion with relevant stakeholders;
4. Provision of mixed-income housing, which is at least 30 percent of the total development, with priority given to current residents of the site;
5. Provision of affordable retail and office space to

- encourage entrepreneurial activities;
6. Reduction of parking standards for redevelopment in transit zone areas;
7. Provision of integrated, quality and inclusive green spaces, open spaces and public facilities;
8. Preparation of building design and use of technology that reduces the impact on social, environmental and urban management aspects; and
9. Preparation of social impact studies for existing housing sites, environmental impact studies for existing industrial sites, and traffic impact studies to consider development proposals.

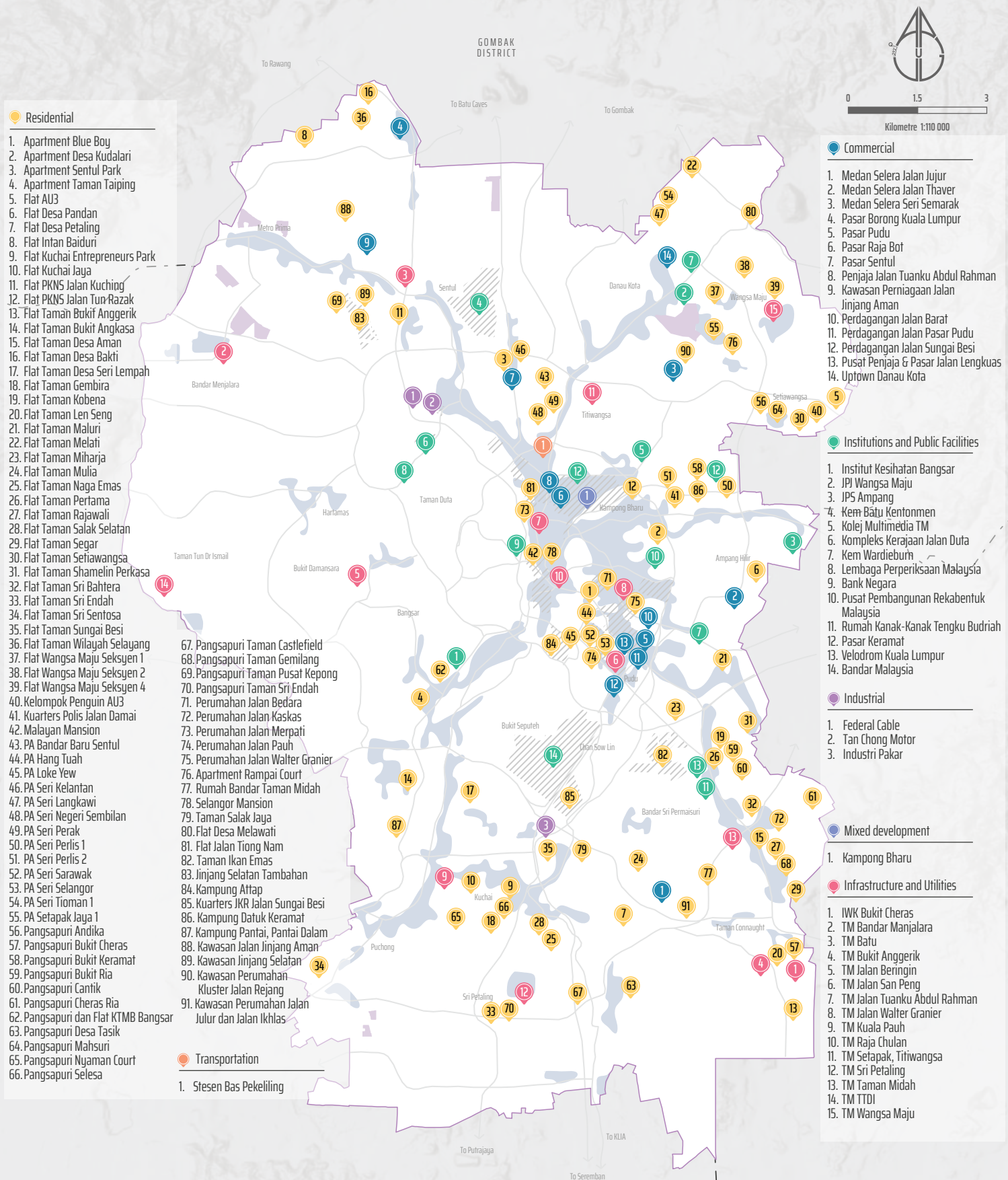
SUPPORTING ACTION**BM2.2A: Intensify redevelopment in transit zone areas**

The rapid transit system planning and construction are taking place rapidly in Kuala Lumpur and around the Klang Valley area. It is expected to be the primary mode of transport in the future.

The redevelopment area around the transit zone will have a higher intensity than the rest and should blend with the surroundings. Redevelopment land use zones around the transit area are also encouraged for mixed development activities to enhance a more integrated environment.

There are several transit zones identified as redevelopment areas namely:

1. Federal Cable;
2. Jalan Berangan;
3. Jalan Kenanga;
4. Jalan Tiong Nam;
5. Jalan Haji Taib;
6. Jalan Alor;
7. Jalan Raja Bot;
8. Jalan Rahmat;
9. Jalan Melayu - Jalan Masjid India;
10. Jalan Raja Laut;
11. Jalan Petaling;
12. Jalan Inai;
13. Jalan Maharajela; and
14. Jalan Talalla.



G6

**FIGURE G6.13
POTENTIAL AREAS FOR REDEVELOPMENT**

SUPPORTING ACTION**BM2.2B: Intensify renewal of the brownfield areas**

The renewal of the brownfield area aims at creating sustainable and liveable development. The requirements for the implementation of the renewal are as follows:

1. The limited supply of land requires more efficient planning and use of urban land;
2. Generate more vibrant job opportunities and economic activities than the original situation;
3. Inject new synergies by re-aligning existing development areas in line with current and future living needs; and
4. Promote the adoption of existing infrastructure more optimally and restore the vibrancy and attractiveness of the old town centre areas.

The identified brownfield areas are:

1. Dilapidated public and private housing areas;
2. Market, hawkers and food courts areas;
3. Dilapidated residential areas;
4. Dilapidated industrial areas; and
5. Dilapidated commercial areas.

SUPPORTING ACTION**BM2.2C: Ensure comprehensive implementation mechanism for urban renewal areas**

An implementation mechanism should be formulated to ensure that comprehensive renewal considers the following:

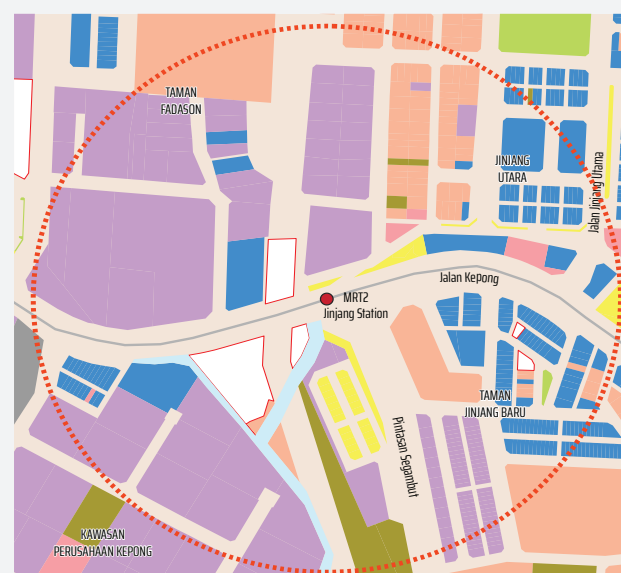
1. Increase the permissible intensity according to the suitability of sustainable infrastructure and urban scale;
2. Prioritise ownership and occupancy to existing residents for sites involving housing;
3. Ensure comprehensive involvement of residents and provide dedicated social funds to overcome issues as a renewal implementation agency; and
4. Establish a special unit at KLCH as the implementing agency to carry out urban renewal activities and manage the area.

SUPPORTING ACTION**BM2.2D: Prepare detailed urban design plans for urban renewal area**

Planning for the urban renewal area requires a detailed urban design plan to guide the building design and built environment, which is more integrated, inclusive and low carbon.

FIGURE G6.14: EXISTING LAND USE AT TAMAN JINJANG, KEPONG, YEAR 2021

An example of renewal is in the brownfield area of Taman Jinjang, Kepong. This area is an old industrial area located within the TOD radius that has the potential for renewal.



Radius 400m			Rail and MRT2 Station		
CATEGORY		AREA (HEC)	PERCENT (%)		
Built-Up		37.18	93.5		
	Residential	9.16	23.0		
	Commercial	5.25	13.2		
	Industrial	18.06	45.4		
	Institution and Public Facilities	0.54	1.4		
	Cemetery	1.38	3.5		
	Utility	1.31	3.3		
	Transportation	1.49	3.7		
Non Built-Up		2.62	6.5		
	Undeveloped Land	2.57	6.4		
	Open Space and Recreation	0.05	0.1		

ACTION**BM2.3: REACTIVATE THE FUNCTION OF THE CITY THROUGH URBAN AND OLD BUILDING CONSERVATION**

Kuala Lumpur needs to secure more productive and quality use of spaces by the year 2040. In this regard, urban conservation and unused old buildings conservation should be given new injections to reactivate the area and function of the building.

Urban conservation will reduce development pressure and the rate of physical changes to areas with special and unique social, environmental and historical values. Reusing old buildings in the area should be encouraged rather than left obsolete, unmaintained and inactive to reflect a better quality urban identity. Measures to reactivate the functioning of the old area and building are:

1. Designate conservation area zones;
2. Prepare an inventory of old buildings that require reactivation; and
3. Prepare detailed guidelines, which include:
 - i. Activities permitted as adaptive uses, especially for creative business activities, community hubs, exhibition spaces and co-working spaces;
 - ii. Rehabilitation of areas and buildings with appropriate urban design;
 - iii. Residential activities may be permitted to encourage more dynamic and diverse use; and
 - iv. Specific guidelines for buildings with cultural and heritage values.

Areas with potential buildings for reactivation are:

1. Medan Pasar;
2. Jalan Tangsi;
3. Stesen Keretapi Kuala Lumpur; and
4. Sungai Besi Market.

EXAMPLE OF BEST PRACTICES**The Row, Jalan Doraisamy**

The Row consists of 22 shops since year 1950 at Jalan Doraisamy, Kuala Lumpur, formerly known as 'The Asian Heritage Row'. A new lease of life was given to be reused with a physical refurbishment injection of the building facade and used as a mixed activity.

BEFORE

Source: Studiobikin.com

AFTER

AFTER REGENERATION OF THE BUILDING'S FUNCTION

SUPPORTING ACTION**BM2.3A: Prepare a Conservation Action Plan**

A Conservation Action Plan should be prepared to ensure that the surrounding conservation areas and buildings are reactivated for more economical use. This action plan includes the following aspects:

1. Detailed conservation area development plan;
2. Integrate the urban design plan and the existing Urban Design Guidelines of Kuala Lumpur (UDGKL);
3. Determination of the detailed use activities of areas, and buildings;
4. Provision of supporting infrastructure;
5. Traffic Impact Assessment, Social Impact Assessment and Heritage Impact Assessment (if necessary);
6. Accessibility plans for the planning of public transport facilities, micromobility vehicles, pedestrian and bicycles routes;
7. Guidelines on the renovation of old buildings considering the facilities provided are age-friendly and disabled-friendly; and
8. Public Realm Plan for the planning of public spaces, green spaces, and urban landscapes.

SUPPORTING ACTION**BM2.3B: Increase community involvement in the regeneration of functions of old areas and buildings through open application systems**

The old buildings in Kuala Lumpur with the potential to be regenerated should be identified. It requires community cooperation in determining its location through an open application system accessible to the residents of Kuala Lumpur and the local community. This application also fosters the residents' level of awareness on the importance of heritage and history and the need to improve the urban quality by reactivating the surrounding area.

KLSP2040 has identified areas and old buildings that have the potential to regenerate their function such as:

1. Area with heritage and cultural values;
2. Significant and valuable government buildings;
3. Historical old shophouses; and
4. Historical sites.

EXAMPLE OF BEST PRACTICES**Rumah Tangsi**

Loke Chow Kit Mansion is also known as Rumah Tangsi. The house is owned by Loke Chow Kit and was completed in year 1907. In year 1908 it was known as Hotel Empire and renamed Hotel Peninsular in year 1919.

Building conservation work has been actively carried out and completed since year 2017. Presently, this building is widely used for activities such as seminars, exhibitions, and others.



REACTIVATION OF RUMAH TANGSI

STRATEGIC DIRECTION

BM3: INTEGRATED LAND DEVELOPMENT AND PUBLIC TRANSPORTATION

Kuala Lumpur City is equipped with a completed transit system as well as at the planning stage. Integrating land development with public transportation is essential to create an integrated development and accessible city.

ACTION

BM3.1: PROMOTE TRANSIT ORIENTED DEVELOPMENT (TOD)

Transit Oriented Development (TOD) in Kuala Lumpur aims to create efficient land use to ensure optimal utilisation of transit stations. It is an integrated development that combines land use and building activities such as residential (including affordable housing), commercial, mixed use development, community facilities and recreation within walking zones around transit stations. This development can help enhance the mobility of residents through the use of public transportation services.

TOD planning should emphasise the accessibility aspects of public transportation, pedestrian and micromobility vehicles. TOD development is more suitable for areas within the catchment of high capacity and high frequency transit service stations such as High Speed Rail (HSR), Light Rail Transit (LRT), Mass Rapid Transit (MRT), KTM Komuter, KTM Electric Train Service (ETS) and Bus Rapid Transit (BRT).

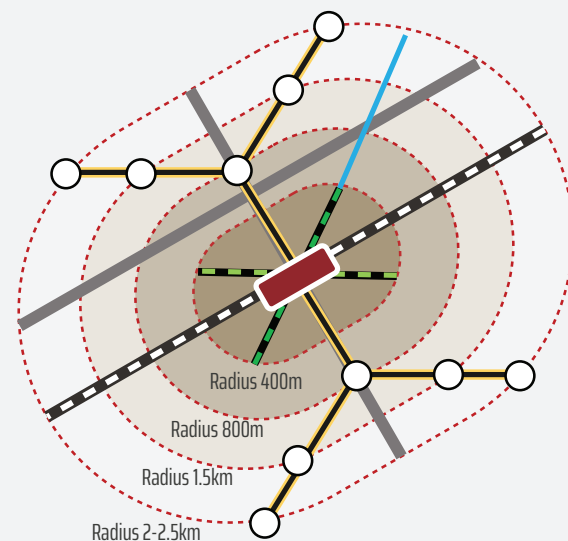
TOD development also generate an extensive impact to the areas surrounding transit stations, which benefit improvement in healthy lifestyle, environment protection as well as boosting the local economy.

The TOD zone (Figure G6.15) is a vibrant areas and encourages walking activities by ensuring that the area is highly accessible, safe and attractive. Therefore, the road and building design in TOD area should have appropriate scale and pedestrian-friendly.

QUICK INFO

Transit oriented development (TOD) is an integrated development within walking distance range of public transportation.

EXAMPLE OF TOD ZONE PLANNING



LEGEND

- Rail Station
- Rail Lines
- Zone 1 (Core Zone) within 400m radius
- Zone 2 (Neighbourhood Zone) within 800m radius
- Zone 3 (Supporting Zone) within 1.5km radius
- Zone 4 within 2-2.5km radius
- Bus Priority Lane & Peak Hour HOV
- Dedicated Pedestrian Walkway
- Dedicated Bicycle Lane
- Arterial/Distributor Road
- Green Path from station direct to activity centre
- Bicycle Lane
- Bus Stop every 400m

Park and ride activities are not encouraged in TOD zones inside of city centre to limit the private vehicles to enter the area. Park and ride is permitted in transit stations located outside city centre and located within the catchment area of the transit.

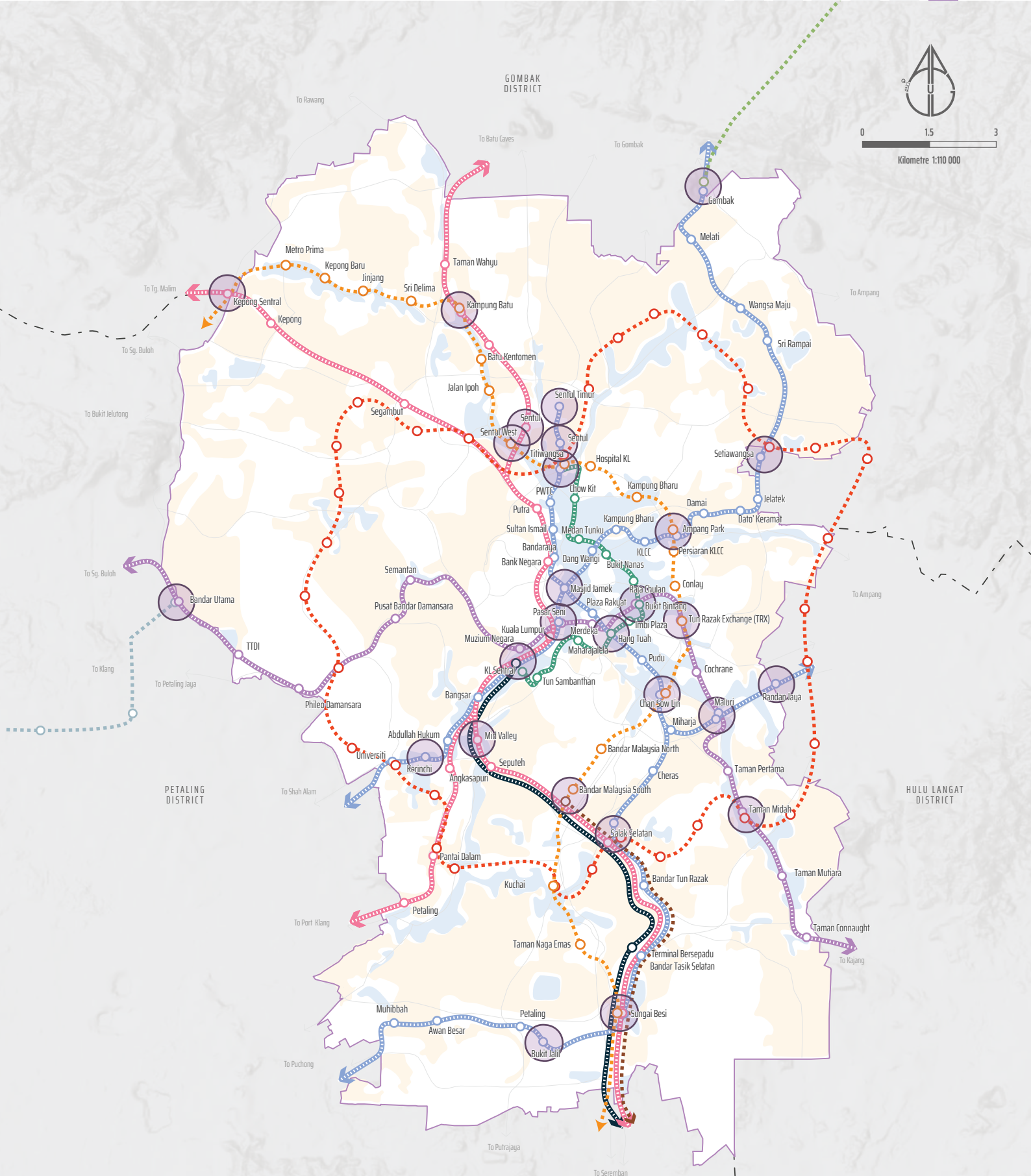
KLSP2040 has identified five (5) types and categories of TOD for Kuala Lumpur. The TOD category is according to the main activities of a transit station that influence the area's character, the transit usage pattern and the capacity of the transit station. This indirectly shapes the scale and intensity of the planned development at each transit station (Table G6.6). TOD Guidelines need to be prepared to control the development in TOD areas.



DEVELOPMENT SURROUNDING BANGSAR LRT STATION

TABLE G6.6: TOD GUIDELINES FRAMEWORK

TYPE CATEGORIES	TOD				
	TOD 1 City Centre (CBD)	TOD 2 Main Growth Centre	TOD 3 Neighbourhood Area	TOD 4 Institution and Public Facilities Area	TOD 5 Suburban Area
PATTERNS OF URBAN ACTIVITY	<ul style="list-style-type: none"> • Main business hotspot centre • High intensity mixed development • High intensity housing • Main office area 	<ul style="list-style-type: none"> • Business hotspot centre • Medium high mixed development • High and medium high intensity housing • Office area 	<ul style="list-style-type: none"> • Housing area • Neighbourhood business area 	<ul style="list-style-type: none"> • Higher education centre • Main sports centre, cultural/civic centre • Administrative office area 	<ul style="list-style-type: none"> • Housing • Industry • Institution • Specific employment activity
TYPES OF STATION	<ul style="list-style-type: none"> • Transportation Hub • Integrated interchange station 	<ul style="list-style-type: none"> • Integrated interchange station • rail station 	<ul style="list-style-type: none"> • Rail station 	<ul style="list-style-type: none"> • Rail station 	<ul style="list-style-type: none"> • Rail station
TRANSIT SERVICE	<ul style="list-style-type: none"> • > 2 types of transit services in the core TOD zone (KTM, MRT, LRT, monorail, BRT, tram, high-speed rail). 	<ul style="list-style-type: none"> • > 2 types of transit services in the core TOD Zone (KTM, MRT, LRT, monorail, BRT, tram, high-speed rail). 	<ul style="list-style-type: none"> • 1 type of transit services in the secondary zone 	<ul style="list-style-type: none"> • 1 type of transit services in the secondary zone 	<ul style="list-style-type: none"> • 1 type of transit services in the supporting zone
DEVELOPMENT INTENSITY/ SUITABLE INCENTIVES	<ul style="list-style-type: none"> • High intensity 	<ul style="list-style-type: none"> • Medium high intensity 	<ul style="list-style-type: none"> • Medium intensity 	<ul style="list-style-type: none"> • Medium intensity 	<ul style="list-style-type: none"> • Medium intensity
FACILITIES PROVIDED	<ul style="list-style-type: none"> • Feeder bus • Pedestrian connector network until secondary zone • Micromobility vehicles connector network until supporting zone • Taxi, e-hailing service etc 	<ul style="list-style-type: none"> • Feeder bus • Pedestrian connector network until secondary zone • Micromobility vehicles connector network until supporting zone • Taxi, e-hailing service etc 	<ul style="list-style-type: none"> • Feeder Bus • Pedestrian connector network until secondary zone • Micromobility vehicles connector network until supporting zone • Taxi, E-Hailing service etc 	<ul style="list-style-type: none"> • Feeder bus • Pedestrian connector network until secondary zone • Micromobility vehicles connector network until supporting zone • Taxi, e-hailing service etc 	<ul style="list-style-type: none"> • Feeder bus • Pedestrian connector network until secondary zone • Micromobility vehicles connector network until supporting zone • Taxi, e-hailing service etc. • Park and ride facilities



G6

**FIGURE G6.15
PROPOSED POTENTIAL TRANSIT ORIENTED DEVELOPMENT (TOD)**

LEGEND

▼ Proposal

○ Proposed Potential Transit Oriented Development

▼ Rail Lines

— KTM Line

— LRT Line

— MRT Line

— Monorail Line

— ERL Line

— MRT2 Line

— LRT3 Line

— MRT3 Corridor (Planned)

— HSR Corridor (Planned)

— ECRL Corridor (Planned)

▼ Existing Land Use

— Housing Area

— Commercial Area

▼ Others

— Main Road

— FTKL Boundary

NOTE:

All plans and figures are in the form of diagram/indicative only. It does not refer to any lot in details

STRATEGIC DIRECTION

BM4: SHARED URBAN SPACES

Kuala Lumpur needs to be creative and innovative in its land management through shared urban space to overcome the gaps in the provision of community facilities and infrastructure to the local community and meet the needs of the diverse urban population. This innovative and creative shift can ensure the needs of residents in development planning can be fulfilled.

ACTION
BM4.1: ENCOURAGE SPACE SHARING OF UTILITY RESERVES, RAILWAY RESERVES, RIVER RESERVES, AND ROAD RESERVES FOR DEVELOPMENT

Future population increases and limited land availability in Kuala Lumpur require coordination to support the ongoing development in Kuala Lumpur. Encouraging space sharing in suitable areas should be done intensively and continuously to optimise the productivity and effectiveness of space usage by year 2040.

Shared space implementation should be supported by guidelines to ensure harmony and safety in the identified reserved areas. The guidelines must specify the types of permitted and non-permitted activities and subsequently translate them in the Kuala Lumpur Local Plan. Among the example of activities allowed are:

1. Community garden;
2. Public parks/pocket parks;
3. Public recreation spaces;
4. Playground;
5. Pedestrian and micromobility vehicles;
6. Nursery; and
7. Parking space.

Space sharing beyond those listed above, such as affordable housing development, needs to be thoroughly examined, subject to compliance with legal aspects, meet safety requirements, suitability of reserve land area, and other compliance with the technical requirements of the regulatory agency.

Space sharing guidelines should be supported by the implementation of the following:

1. Develop a database of identified suitable reserves for space sharing activities;
2. Set up a one-stop centre to ease the coordination of permits in approving appropriate activities; and
3. Promote local community involvement in the implementation of appropriate activities.

TABLE G6.7: LAND AREA AND UTILITY RESERVE LENGTH

CATEGORY	LENGTH (KM)	LAND SIZE (HECTARE)
Transmission line (easements included)	102.1	455.61
Main River	92.7	524.15
Rail Line	156.00	-

EXAMPLE OF BEST PRACTICES

Space Sharing on Utility Reserve - Urban Farms (Hijrah Warrior)

The Hijrah Warrior urban farms is located at the Anjung Kelana Homeless Transformation Centre, Taman Danau Desa. It aimed at providing scales and open up job opportunities related to farming and agriculture to the homeless.



ACTION**BM4.2: PLAN FOR INTEGRATED USE OF UNDERGROUND SPACE**

The use of underground spaces, or as defined in the National Land Code (NLC), 1965 (Amendment) 1990, Act A752, refers to the subsurface land that becomes an alternative option to maximise space utilisation to meet the high demand for land. The development and utilisation of underground spaces should be encouraged in and around Kuala Lumpur for purposes such as:

1. Business activities;
2. Public community facilities;
3. Parking spaces;
4. Pedestrian and micromobility vehicles;
5. Public transportation routes; and
6. Pathways and Utility uses.

Whilst, the development and use of underground space should consider several aspects to ensure the effectiveness and safety of activities in the underground space. These aspects are as follows:

1. Creative and robust design;
2. Flood risk;
3. Soil stability and structural stiffness;
4. Ventilation and lighting systems;
5. Construction impact management;
6. Maintenance of space; and
7. Safety and comfort of users.

QUICK INFO**Development and Use of Underground Space**

The Underground Land concept was introduced in the National Land Code (NLC), 1965 (Amendment) 1990, Act A752, and Section 92A of the NLC has defined three (3) aspects:

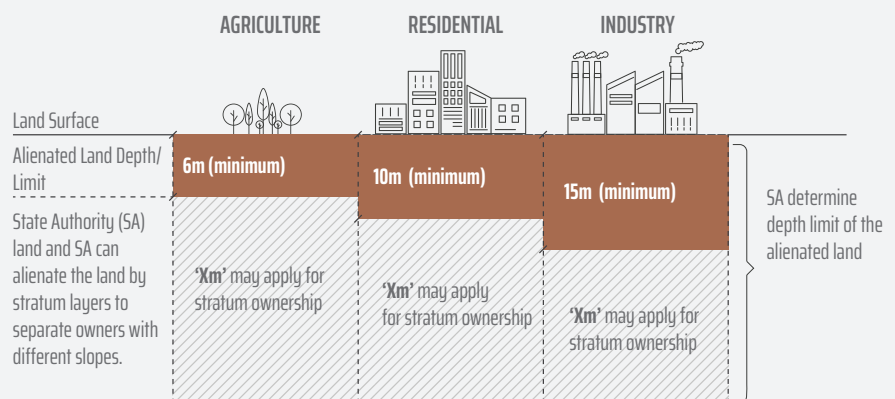
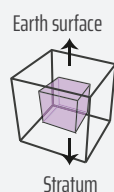
1. Underground land terminology: land which lies below the surface of the earth.
2. Stratum: A layer of subsurface land; and
3. Adjoining underground land: Strata bordering a stratum above, below, and adjacent to that stratum.

Stratum depth: The depth of the stratum is as prescribed by the State Authority. However, the minimum depth specified in the NLC from Surface Land is:

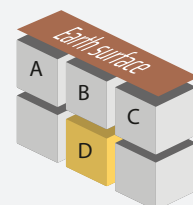
1. 6 meter for agricultural land category;
2. 10 meter residential land category; and
3. 15 meter industrial land category.

While the land surface height level is based on Mean Sea Level.

FIGURE G6.16: THE CONCEPT OF UNDERGROUND SPACE USAGE

**1. Underground Land****2. Stratum**

Stratum is underground land that has been identified for disposal or independent and not connected uses.

3. Adjoining/layered stratum

Stratum adjoining with another stratum.

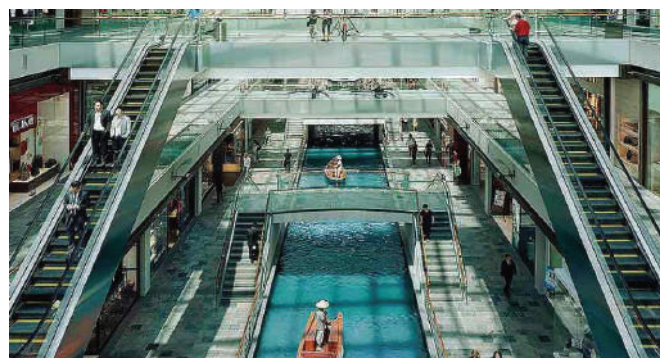
Example of stratum B adjoining stratum A, C and D.

Source: Pekeliling KPTG 1/2008

SUPPORTING ACTION**BM4.2A: Planning and development of underground space**

Future Kuala Lumpur will require a comprehensive plan for the use of underground space. Some potential activities that can be developed underground are road infrastructure, rail and underground stations, pedestrian walkways, utility tunnels, utility plants, shopping malls, data centres, etc.

In addition, land use should also consider the depth limits of the alienated land, such as a depth of 6 meters for agricultural land, 10 metres for residential land and 15 metres for industrial land. Therefore, activities on land involving several titles such as tree planting, basement and building utility, etc., should consider this factor; the provision of Part 5A, National Land Code (NLC), 1965 Amendment (1990) (Act A752) – Disposal of Underground Land whereby stratum alienation can be made to separate owners and subject to building plan approval.



UNDERGROUND DEVELOPMENT - MARINA BAY SANDS MALL, SINGAPORE

Source: Iris.polito.it

The Underground Space Master Plan shall be prepared together with guidelines to translate the use and development of stratum space towards long term sustainability and more efficient management.

FIGURE G6.17: MEASURES FOR UNDERGROUND LAND USE PLANNING



PLANNING

ORGANISE AND IDENTIFY SITE FOR FUTURE DEVELOPMENT OF UNDERGROUND SPACE

Several measures should be considered to facilitate the future use of underground space:

1. Prepare guidelines on underground space;
2. Conduct surveys to produce cavern and underground structures plan for suitable development sites identification; and
3. Conduct detailed research on proposals involving relevant agencies (PTG, JKPTG).



DATA AND MANAGEMENT

EASY ACCESS DATA AND EFFICIENT UNDERGROUND SPACE MANAGEMENT

The development of comprehensive and reliable information system to enhance the efficiency level in data management as follows:

1. Data collection such as soil structures and geology to facilitate the planning and development of future land spaces; and
2. Establish an efficient maintenance system to ensure the quality of space and underground tunnels.



RAIL LINE, TRAFFIC NETWORK, PEDESTRIAN WALKWAYS AND UTILITY TUNNEL

PRIORITISING THE USE OF UNDERGROUND LAND TO SUPPORT INFRASTRUCTURE DEVELOPMENT

The development of infrastructure and underground transportation in Kuala Lumpur can be implemented through best planning and innovative practices for underground space development such as:

1. Planning of infrastructure and commercial use to create more business space;
2. Establish underground goods and logistics mover system to reduce the number of heavy vehicles on the road; and
3. Incorporate underground utility facilities for better quality of living environments.

ACTION**BM4.3: PLANNING FOR THE USE OF AIR RIGHTS**

Apart from using underground land as an alternative option to maximise space usage, development and use of air rights should be encouraged in Kuala Lumpur for:

1. Pedestrian walkways;
2. Continuous business and shopping activities; and
3. Public and recreational spaces.

Currently, the development of air rights is limited to the existing NLC provision whereby under Section 75A, air rights development is only permitted on state land/reserve land or reserved land such as roads and rivers.

Guidelines on Air Rights Development

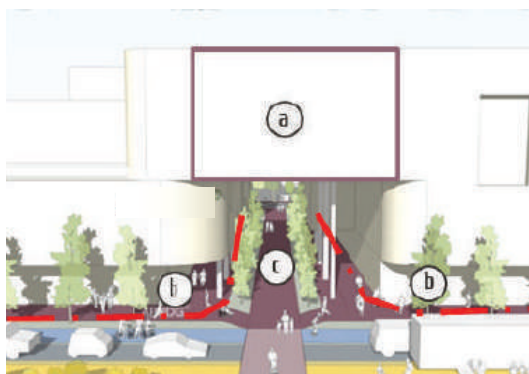
The development and use of air rights should consider several aspects to ensure effectiveness and user safety, especially for people with disabilities (OKU), children, and the elderly. These aspects are as follows:

1. Creative, attractive and sustainable design;
2. Buildings setback for air rights structure;
3. Stability of building structures;
4. Good lighting;
5. The type of permit to be applied;
6. Interesting visual impact;
7. Construction impact management; and
8. Maintenance of air rights.

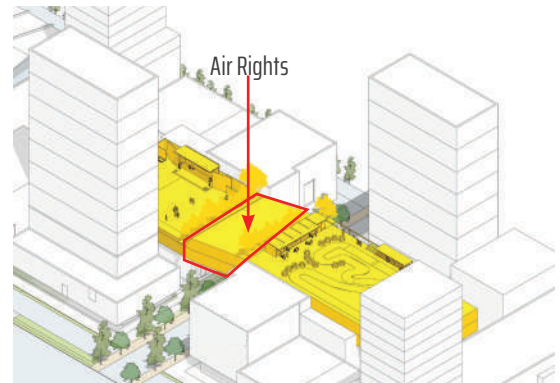
Air rights can be created on:

1. State land; and
2. Reserve land.

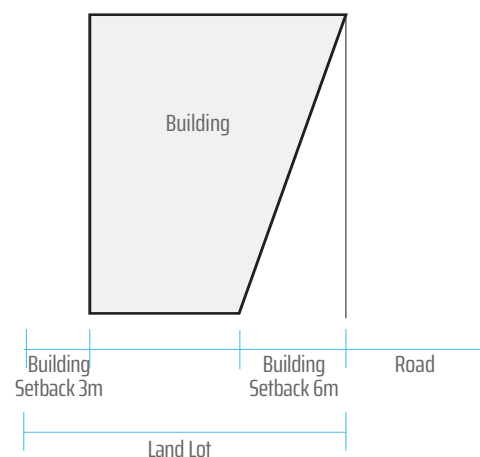
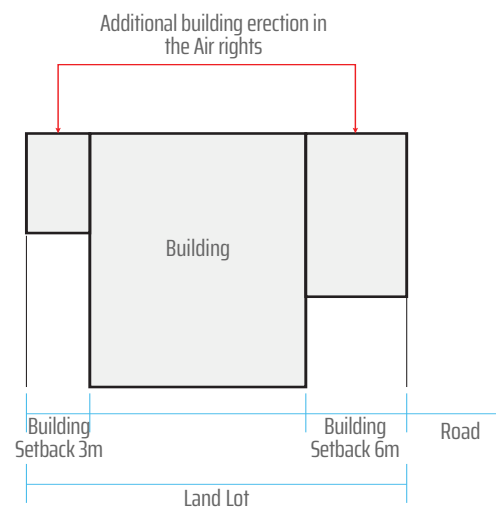
KLSP2040 also proposes that air rights development above the building setback line be allowed for more optimal and efficient land use.



a. Air Rights Structure
b. Boundary of development lot
c. Public Path



USE OF AIR RIGHTS FOR COMMON USE AREA SUCH AS PUBLIC SPACE AND RECREATION



EXAMPLE OF AIR RIGHTS USE ON THE BUILDING SETBACK LINE OF PRIVATE LOT

ACTION**BM4.4: INTENSIFY THE SPACE SHARING FOR PUBLIC FACILITIES BUILDING**

Space sharing should be encouraged in the existing and planned public facilities buildings to provide various community facilities and activities in Kuala Lumpur. This indirectly activates areas that provide only one type of facility. The sharing of community facilities space can improve the number of public facilities and the quality of services to the community through a strategic collaboration between various agencies that provide different facilities and activities locally.

The concept of Urban Transformation Centres (UTC) may also apply to these public facility buildings. Public can do various business with government and private departments in the same building that can also be called as one stop centre.

The types of potential public facilities for building space sharing are as follows:

1. Education such as kindergartens and nurseries;
2. Structured parking spaces;
3. Library/ reading and learning rooms;
4. ICT Centres;
5. Community centres/community halls/local centres;
6. Sports and recreational facilities; and
7. Surau.

ACTION**BM4.5: PLANNING VERTICAL DEVELOPMENT WITH OVERLAPPING OWNERSHIP THROUGH THE CONCEPT OF SPATIUM**

The limited availability of land for development and the increasing demand for land in Kuala Lumpur necessitate the adoption of new concepts in future development planning.

The spatium concept, which allows for overlapping development on existing structures with layered ownership, is an innovative approach that warrants consideration.

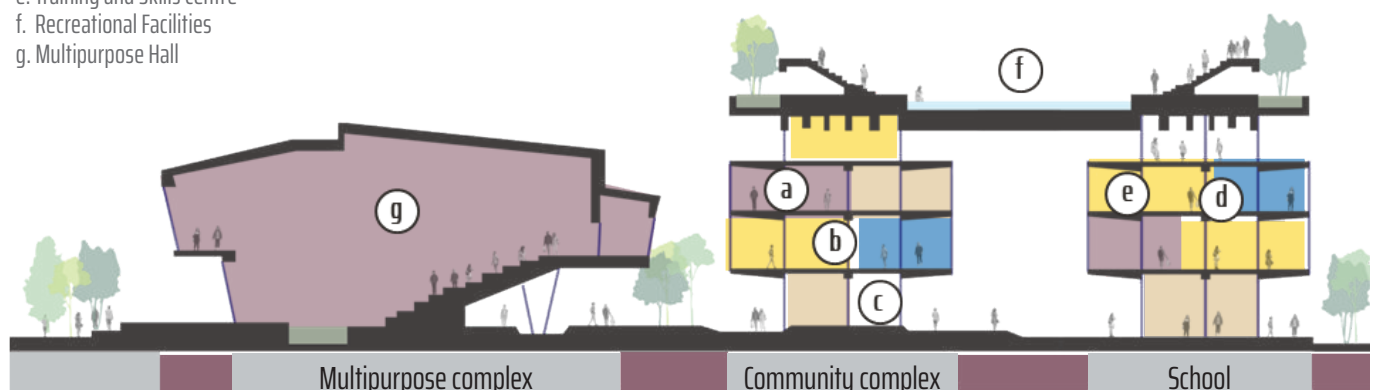
The implementation of the spatium mechanism will be examined from the aspects of legislation, social considerations, highway safety, and traffic impact, taking into account the suitability of the location, site area, and availability of infrastructure.



THE SHARING OF OWNERSHIP RIGHTS BETWEEN THE LRT CORRIDOR AND THE GRAND MARIS SUITE BUILDING

FIGURE G6.18: EXAMPLES OF SPACE SHARING FOR STRATA AND NON-STRATA PUBLIC FACILITIES BUILDINGS

- a. Public Service Centre
- b. Community Centre
- c. Public Market
- d. School
- e. Training and Skills Centre
- f. Recreational Facilities
- g. Multipurpose Hall



STRATEGIC DIRECTION

BM5: SPECIAL AREA MANAGEMENT

Kuala Lumpur is a city with fascinating special features that are attractive due to its diverse nature and architecture that reflects its character and heritage, as well as the areas that complement it as a city.

KLSP2040 emphasises the planning and development of areas with natural and biodiversity protection, cultural and historical conservation to safeguard the significance of the area as well as to ensure that its functions and ecosystems are not affected by development pressures.

ACTION

BM5.1: REGULATE DEVELOPMENT IN HIGHLANDS AND SLOPED AREAS

Continuous rapid development in Kuala Lumpur needs to be managed to ensure the sustainability of economic development and be responsive to disaster risks. Areas frequently prone to disaster are considered high risk where development needs to be controlled and carried out systematically.

Disaster risk areas in Kuala Lumpur include highland and slope areas are exposed to the threat of erosion due to climate change. Land use planning should consider the impact of disaster risk, especially for areas under high development pressure.

SUPPORTING ACTION

BM5.1A: Development control in highland areas of 300m AMSL and hilly areas

The area in Kuala Lumpur, which exceeds 300m above main sea level (AMSL) is at Bukit Tabur with 320m in height, and almost the entire Kuala Lumpur area consists of land below 300m. However, there is 7.7 percent of terrain in the Kuala Lumpur area located in Class III (25-35 degrees) and Class IV (above 35 degrees). Eight (8) highland and hilly areas identified in the Development Planning Guidelines in the Hill and Slope Area of the Federal Territory of Kuala Lumpur, 2010 (GPWPKL2010) as a restricted development area for the sole purposes of infrastructure, utilities, leisure facilities, maintenance need and strategic importance. The area are as follow:

1. Bukit Nanas Permanent Forest Reserve (95m);
2. Part of Bukit Sungai Besi (295m);
3. Part of Bukit Arang (within the University of Malaya campus area) (140m);
4. Part of Bukit Gasing (edge in Pantai Dalam area) (155m);
5. Part of Bukit Dinding in Wangsa Maju (295m);
6. Part of Bukit Batu Tabur & Bukit Mas (320m);
7. Part of Bukit Pudu (165m); and
8. Part of large-scale public park, Bukit Kiara (260m).

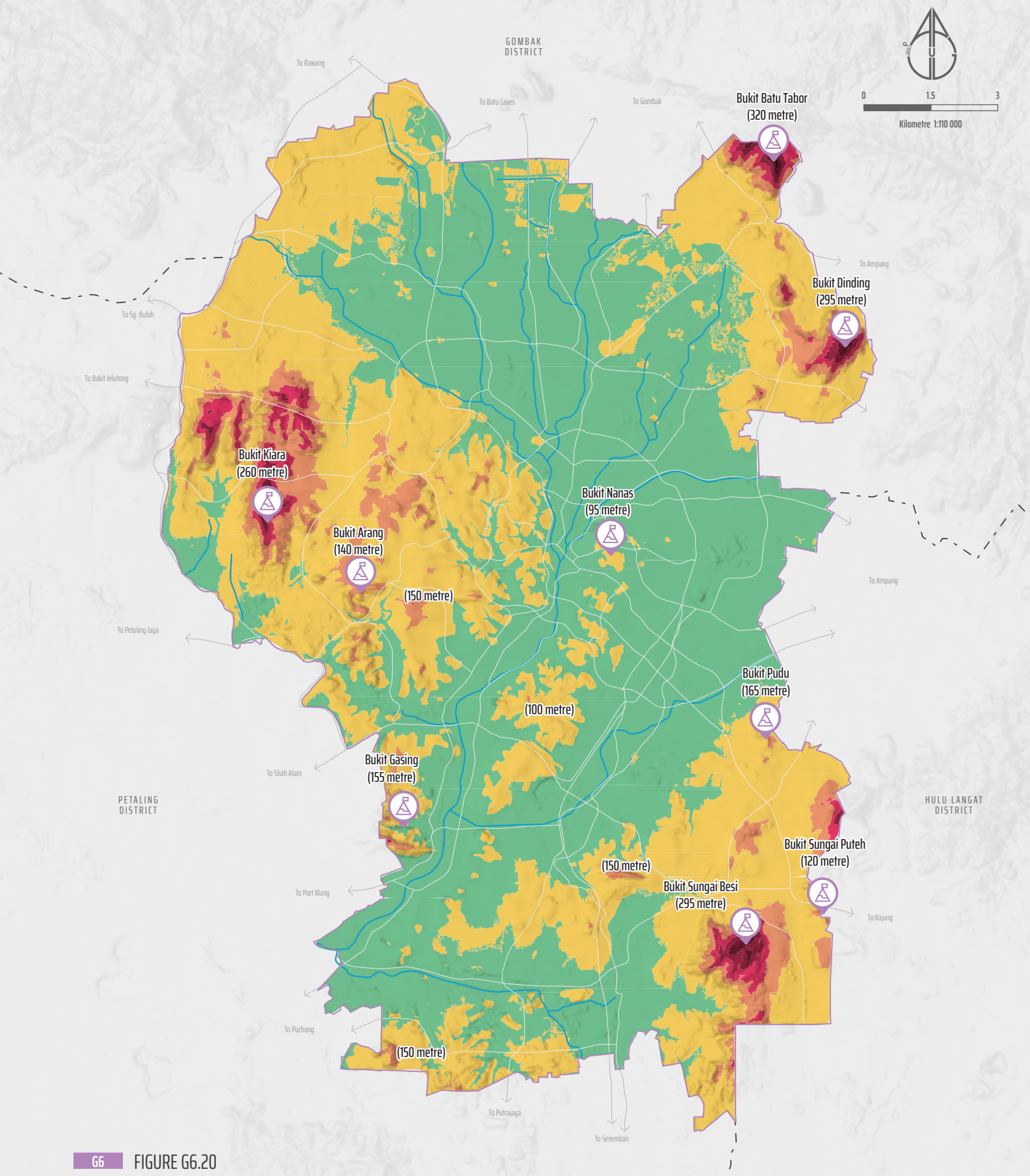
QUICK INFO

Areas not permitted for any development

Based on the Development Planning Guidelines in the Hill and Slope Area of the Federal Territory of Kuala Lumpur, 2010 (GPWPKL2010), no development is allowed in the following areas:

1. Areas declared as hill land under Part II, Section 3 of the Land Conservation Act 1960;
2. Areas of geological importance that have been identified or gazetted as study or research areas;
3. Hill areas with historical value or tourist attractions such as limestone caves or natural geomorphological characteristics;
4. Areas that have been identified as areas containing mineral resources;
5. Areas located in water catchment areas; and
6. Areas that have been gazetted as permanent forest reserves include production forest areas or productive forests and protected areas.

HSK Bukit Nanas is the only forest reserve and Dipterocarp Pamah forest that still exist in the middle of Kuala Lumpur City.



G6

FIGURE G6.20
LAND HEIGHT IN KUALA LUMPUR

LEGEND

Height of Land

- < 50m
- 50m - 100m
- 100m - 150m
- 150m - 200m

- 200m - 250m
- 250m - 300m
- > 300m
- ▲ Hill Land

Others

- Main Road
- FTKL Boundary
- Main River

NOTE:

All plans and figures are in the form of diagram/indicative only. It does not refer to any lot in details.

SUPPORTING ACTION**BM5.1B: Development control on hill and Slope**

Development on hill and slope areas needs to maintain its natural character and harmonised with nature. (Refer GPWPKL2010).

TABLE G6.8: CRITERIA FOR HILL LAND AND SLOPE

CATEGORY OF HIGHLAND/ HILL/ SLOPE	TYPES AND LOCATION	OBJECTIVE	CONDITIONS FOR DEVELOPMENT
Hill Land	<p>Hill land is vital in preserving the natural environment and biodiversity of Kuala Lumpur.</p> <p>Location:</p> <ol style="list-style-type: none"> 1. Bukit Nanas Permanent Forest Reserve; 2. Part of Bukit Sungai Besi; 3. Part of Bukit Arang (within the University of Malaya Campus area); 4. Part of Bukit Gasing (the outskirts of Pantai Dalam area); 5. Part of Bukit Dinding in Wangsa Maju; 6. Part of Bukit Batu Tabor and Bukit Mas; 7. Part of Bukit Pudu; and 8. Part of a Taman Awam Berskala Besar, Bukit Kiara. 	<ol style="list-style-type: none"> 1. Protect highland areas above 300m as non-development areas; 2. Protect the hill land area from disturbance caused by uncontrolled urban development; 3. Preserve nature, ecosystem and biodiversity of hill land areas; and 4. Maintain the aesthetic quality and beautiful view of the hill and area. 	<p>Restrict development for purposes solely for research activities, recreational facilities, and utilities with the need for maintenance.</p>
Slope	<p>Slope is a sensitive slope area based on the degree of gradient factor.</p> <p>Slope Type:</p> <p>Class I (Area with low geotechnical limitation)</p> <ol style="list-style-type: none"> 1. In situ terrain with a slope of not more than 15 degrees; and 2. The terrain is cut in slopes not exceeding 15 degrees. <p>Class II (Areas with moderate geotechnical limitations)</p> <ol style="list-style-type: none"> 1. In situ terrain with slopes from 15 degrees to 25 degrees with no signs of erosion and unstable slopes; 2. The terrain is less than 15 degrees with signs of erosion and unstable slope; 3. The terrain is less than 15 degrees with colluvium or sensitive geological material; and 4. Flood threat areas. 	<ol style="list-style-type: none"> 1. Minimise the potential for geological failure and danger to life and property; 2. Conserve the natural characteristics of the site such as topography, natural drainage, plants; 3. Other physical characteristics; 4. Minimise the cutting of plants in the slope area; 5. Maintain the natural characteristics of the Slope; and 6. Ensuring that development does not stand out but instead creates harmony between the built and natural environment. 	<p>Conduct comprehensive Engineering Studies, including preparation of:</p> <ol style="list-style-type: none"> 1. Preparation of Geotechnical Investigation Report and Slope Stability Analysis; 2. Preparation of Geological mapping and geomorphology report; 3. Preparation of Drainage and Irrigation Report under the Environmental Friendly Drainage Manual (MSMA); 4. Preparation of EIA Report for development exceeding 50 hectares; and 5. Preparation of Earthworks Plan. <p>EIA requirements are subject to KLCH.</p>

Source: GPWPKL2010

TABLE G6.8: CRITERIA HILL LAND AND SLOPE (CONT.)

CATEGORY OF HIGHLAND/ HILL/ SLOPE	TYPES AND LOCATION	OBJECTIVE	CONDITIONS FOR DEVELOPMENT
Slope	<p>Class III (Areas with high geotechnical limitations)</p> <ol style="list-style-type: none"> 1. The in situ terrain with slopes from 15° to 25° with signs of moderate to severe erosion and unstable slopes; 2. The in situ terrain slopes from 15 degrees to 25 degrees with colluvium or sensitive geological material having unstable slopes; 3. Areas composed of limestone, swamp, peatland and former mines; and 4. Mudslide threat areas. <p>Class IV (Areas with extreme geotechnical restrictions)</p> <ol style="list-style-type: none"> 1. In situ terrain with slopes of 35 degrees and more with no signs of erosion and unstable slope; 2. In situ terrain with slopes of 25 degrees to 35 degrees with signs of erosion and unstable slope; 3. In situ terrain with slopes of 15 degrees to 25 degrees with colluvium or other sensitive geological materials shows unstable slopes; 4. Debris flow threat areas; and 5. Hilltops or ridge. 	<ol style="list-style-type: none"> 1. Minimise the potential for geological failure and danger to life and property; 2. Conserve the natural characteristics of the site such as topography, natural drainage, plants; 3. Other physical characteristics; 4. Minimise the cutting of plants in the slope area; 5. Maintain the natural characteristics of the slope; and 6. Ensure that development does not stand out but instead creates harmony between the built and natural environment. 	<p>Conduct comprehensive Engineering Studies, including preparation of:</p> <ol style="list-style-type: none"> 1. Geotechnical Reporting; 2. Geological mapping and Geomorphology Report; 3. Preparation of Environmental Impact Assessment (EIA)/ Environmental Management Plan (EMP) report including Rain Erosion Mapping Report; and 4. Preparation of Drainage and Irrigation Reports according to the Environmental friendly Drainage Manual (MSMA). <p>Prioritise development in lower areas (see GPWPKL2010)</p> <p>Construction monitoring in slope areas.</p> <p>The developer should provide an Erosion and Sediment Control Plan (ESCP) for earthworks control and appoint qualified engineers to supervise slope works at the construction site.</p> <p>The maintenance of slope areas must comply with the Guideline on Slope Maintenance in Malaysia,</p> <p>For Class III, prepare EIA Reports for all development projects.</p> <p>For Class IV, prepare detailed EIA Reports for all development projects.</p>

Source: GPWPKL2010

ACTION**BM5.2: ESTABLISH A KAMPONG BHARU SPECIAL DEVELOPMENT AREA**

Kampung Bharu was one of the early settlements in Kuala Lumpur that existed since 1899, whereby the then Selangor British Residents had agreed to set up a Malay village in Kuala Lumpur.

In 1900, Kampung Bharu was recognised as a Malay settlement and reserved as the Malay Agricultural Settlement (MAS). After more than 120 years, Kampung Bharu is now under developmental pressure due to its location in the middle of a fast-growing city.

In 2011, a special body Kampung Bharu Development Corporation, was established specifically to manage the administration of Kampung Bharu under the provisions of the Kampung Bharu Corporation Act 2011 (Act 733).

KLSP2040 designates Kampung Bharu as a special development area that will be developed holistically with a direction and detailed development plan in line with the provision of a master plan and planning guidelines through the following steps:

- Maximising the innovative development of Kampung Bharu by considering its strategic location in the city centre and surrounded by high-intensity developments, connected with comprehensive public transportation facilities;
- Preserving the interests of Malay ownership;
- Considering traditional, historical and heritage elements of Kampung Bharu; and
- Encouraging the involvement of public and private companies in the development of Kampung Bharu.

QUICK INFO**123.20 Hectares**

Total area of Kampung Bharu

41.7%

Residential land use

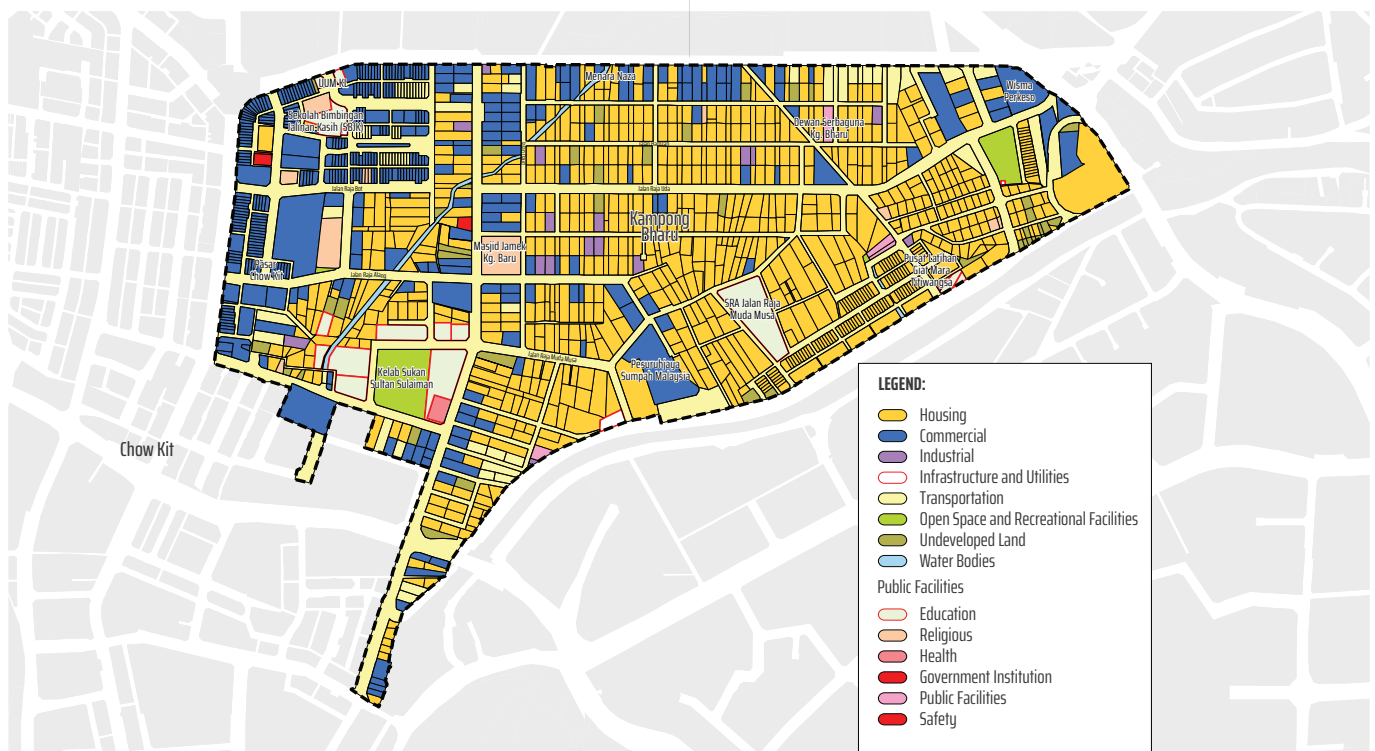
1,384 lots

Total lots

Almost 90% lots

are small lots that is not suitable for development

FIGURE G6.21: EXISTING LAND USE OF KAMPONG BHARU, YEAR 2020



ACTION**BM5.3: PLANNING FOR QUALITY DEVELOPMENT IN TRADITIONAL VILLAGE AND OTHER VILLAGE**

Kuala Lumpur has urban typology and settlement patterns that reflect the dynamic growth of the city including village settlements. There are 37 villages around Kuala Lumpur comprising Malay Reserve Area (MRA), non-MRA and New Village.

There are also traditional villages that still remain which highlight the local design and architecture that contribute to the uniqueness of Kuala Lumpur City.

KLSP2040 recognises six (6) traditional villages consisting of Traditional and Semi-Traditional Villages. Development that can enhance communities' quality of life by improving the physical environment of the villages are encouraged. This includes infrastructure and utilities, social facilities and green areas to maintain a harmonious and comfortable village atmosphere.

In addition, about seven (7) villages were identified with development potential based on current development pressures and the potential for infrastructure enhancement. Development suitability studies for this area, such as control and development limits as well as lot amalgamation incentives for suitable sites, should be conducted to ensure that the developments implemented do not adversely impact the surrounding areas.

KLSP2040 also identified 24 ordinary villages, including five (5) New Chinese Villages that require more flexible control in terms of planning control and use class order.

QUICK INFO**Traditional Villages**

Traditional Village is a settlement with high traditional characteristics physically and socio-culturally influenced by the race and ethnicity of the villagers.

Characteristics of the Traditional Village

1. Exist naturally planned and unplanned;
2. The village atmosphere is characterised by local architecture such as Malay houses for traditional Malay villages;
3. A clustered or linear arrangement of houses;
4. Most houses are not gated and have plenty of open spaces for community activities;
5. Equipped with complete infrastructure and utilities on the main route;
6. Homeownership owns by individual or family inheritance; and
7. Has a history of its origins.

Semi-Traditional Villages

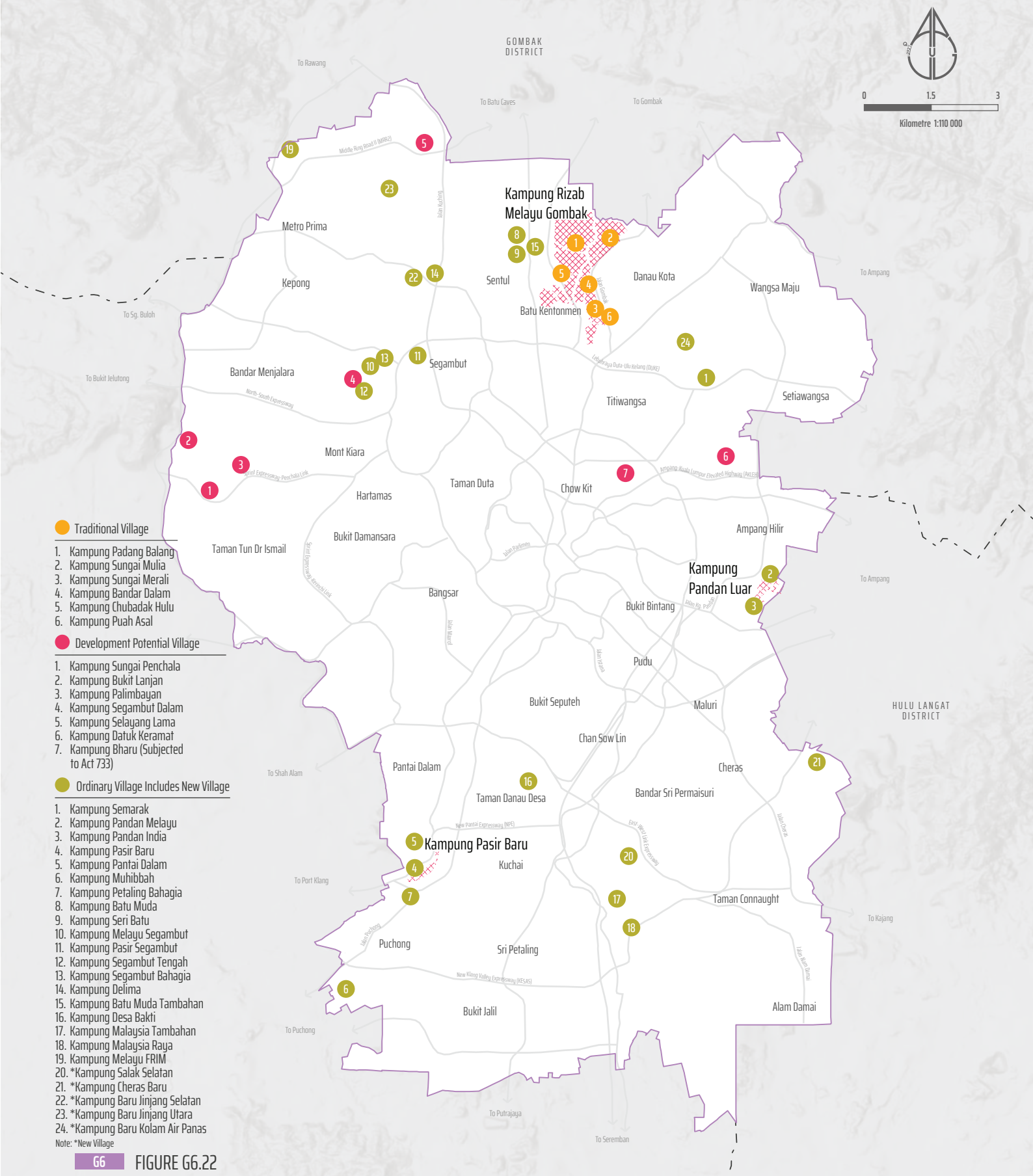
The Semi-Traditional Village is an area permitted for development with specific conditions, serving as a transition zone between the Traditional Village and the development area.

Characteristics of the Semi-Traditional Village

Modern residential features, such as terrace houses or multi-story homes, may be allowed with a design that incorporates traditional Malay house characteristics.



THE UNIQUENESS OF THE HOUSE IN TRADITIONAL VILLAGE



G6

FIGURE G6.22
PRESERVATION OF TRADITIONAL VILLAGES AND OTHER VILLAGES

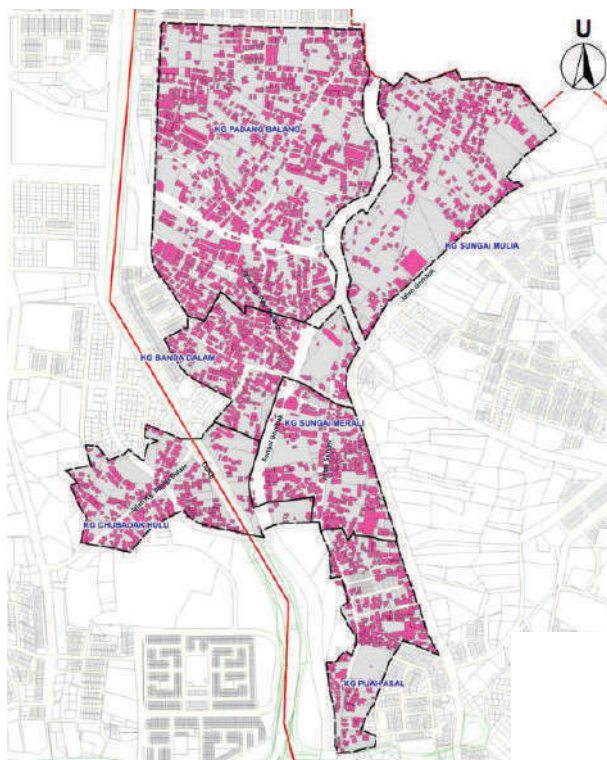
LEGEND

- Existing
- Traditional Village
- Other Village
- Development Potential Village
- Traditional Village Zone

- Others
- Main Road
- FTKL Boundary

NOTE:

All plans and figures are in the form of diagram/indicative only. It does not refer to any lot in details



GOMBAK MALAY RESERVE AREA



VILLAGE TYPOLOGY-KAMPUNG PADANG BALANG

SUPPORTING ACTION**BM5.3A: Set the boundary of Traditional Village zone**

The total area of Traditional Village in Kuala Lumpur is 231.2 hectares. The boundaries for the existing villages need to be set and preserved to create a more significant planning zone. Table G6.9 lists the traditional village and semi-tradisional village areas in Kuala Lumpur.

TABLE G6.9: EXISTING PROFILE OF TRADITIONAL VILLAGE, 2020

NO	ZONE	AREA (HECTARE)
Preserved Traditional Villages		
1	Part of Kampung Padang Balang	54.94
Preserved Semi-Traditional Villages		
1	Part of Kampung Padang Balang (other than those zone as traditional village)	35.64
2	Kampung Sungai Mulia	26.32
3	Kampung Sungai Merali	23.09
4	Kampung Banda Dalam	24.53
5	Kampung Chubadak Hulu	28.33
6	Kampung Puah Asal	20.64

List of ordinary villages including Chinese New Village

- | | |
|--------------------------|-------------------------------|
| 1. Kg. Semarak | 14. Kg. Delima |
| 2. Kg. Pandan Melayu | 15. Kg. Batu Muda Tambahan |
| 3. Kg. Pandan India | 16. Kg. Desa Bakti |
| 4. Kg. Pasir Baru | 17. Kg. Malaysia Tambahan |
| 5. Kg. Pantai Dalam | 18. Kg. Malaysia Raya |
| 6. Kg. Muhibbah | 19. Kg. Melayu FRIM |
| 7. Kg. Petaling Bahagia | 20. *Kg. Salak Selatan |
| 8. Kg. Batu Muda | 21. *Kg. Cheras Baru |
| 9. Kg. Seri Batu | 22. *Kg. Baru Jinjang Selatan |
| 10. Kg. Melayu Segambut | 23. *Kg. Baru Jinjang Utara |
| 11. Kg. Pasir Segambut | 24. *Kg. Baru Kolam Air Panas |
| 12. Kg. Segambut Tengah | |
| 13. Kg. Segambut Bahagia | |

Note: *New Village

List of potential villages for development

- | | |
|------------------------|----------------------|
| 1. Kg. Sungai Penchala | 5. Kg. Selayang Lama |
| 2. Kg. Bukit Lanjan | 6. Kg. Datuk Keramat |
| 3. Kg. Palimbayan | 7. Kampong Bharu |
| 4. Kg. Segambut Dalam | |

SUPPORTING ACTION**BM5.3B: Preserve the quality and character of the Malay Traditional Village**

Traditional villages in Kuala Lumpur are part of the city's pulse that are characterised by early settlements in Kuala Lumpur. These villages play an essential role in the planning and development of Kuala Lumpur with their distinct character and village atmosphere with clustered layouts and significant Malay architectural features.

These areas are facing development pressures that will affect the quality of life and traditional village's character.

Thus, the village area, mainly traditional villages, needs to be given attention to preserve the character and quality of life of the locals. Implementable actions include:

1. Preparation of a masterplan and a detailed urban design plan for traditional village areas;
2. Specific controls in the local plan to coordinate detailed land use activities and planning controls for the area and its surrounding areas;
3. Provision of community facilities, recreation, infrastructure, accessibility and public transport facilities based on the area's suitability;
4. Identify village regeneration programmes and projects that can improve the physical environment's quality without affecting the village's cultural values; and
5. Review the Transfer of Development Right (TDR) mechanism of traditional village to maintain the village's character for a longer duration.

EXAMPLE OF BEST PRACTICES**Kampung Morten, Melaka**

Based on the Draft Special Area Plan, the Conservation Management Plan of Melaka Historical City has outlined three (3) main zones to control sustainably and conserve heritage buildings and areas with historical heritage trails in line with the criteria set by UNESCO.

Kampung Morten is a conservation area under the heritage village category with about 22.99 hectares or 56.81 acres. The area is zoned to create a heritage village that is unique and rich in traditional architectural identity.



Source: www.sharulnizam.com

ACTION**BM5.4: MANAGE SPECIAL AREA DEVELOPMENT**

The management of specific areas development shall be addressed to ensure the city's environmental harmony. Specific areas to be looked into are:

1. Important target sites, protected areas and restricted places of the Federal Territory of Kuala Lumpur following the Protected Areas and Protected Places Act 1959 (Act 298);
2. Cemetery areas;
3. Solid waste disposal site; and
4. Government land.

State owned land or land reserved for the government should be developed accordance to it's original planning uses such as public facilities, infrastructure and other government uses. Such land may be allowed for development and redevelopment with socio-economic benefits. In this regard, if the land is developed for other purposes or uses as decided by the Cabinet Minister, it is subject to

the suitability of land use and activities, location and the local area carrying capacity of public facilities, traffic and infrastructure.

This designated area requires management and planning action in the local plan. Among the main points to be taken into account are:

1. Land use and detailed activities for specific areas as well as adjacent lot and surrounding areas;
2. Design guidelines for designated areas and surrounding areas;
3. Federal and reserved land shall be used for the purpose of public facilities, infrastructure and for government use only;
4. Infrastructure facilities, accessibility and transportation needs; and
5. Buffer zone (if necessary) for the immediate vicinity, especially for solid waste disposal sites and designated activities for this zone.

EXAMPLE OF BEST PRACTICES**Raudhatul Sakinah Project, Kuala Lumpur**

Raudhatul Sakinah project under the Federal Territory Islamic Religious Department (IAWI) is a new innovation development project to improve and beautify the cemetery.

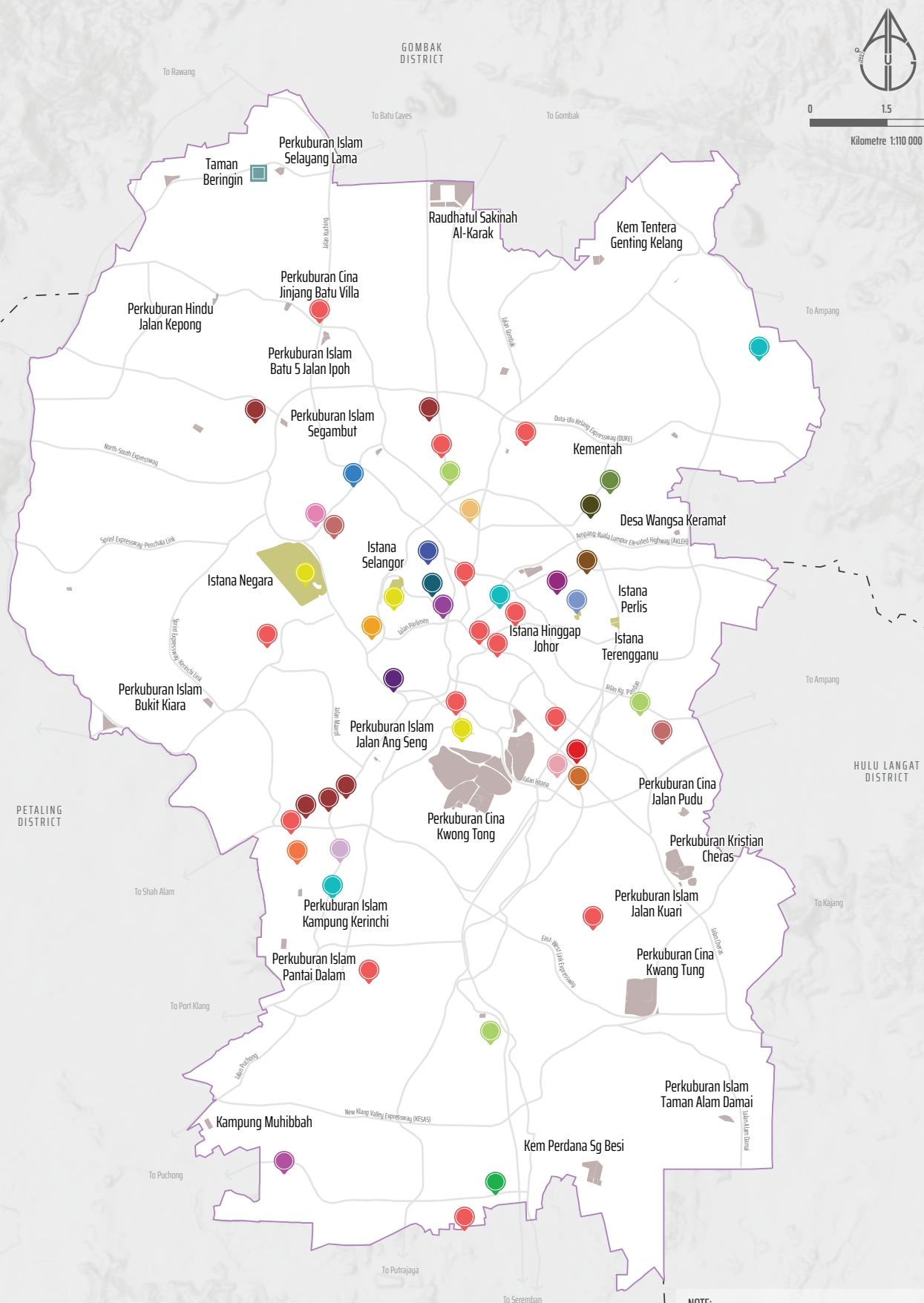
This project seeks to provide comfort and beauty to the KL-Karak Islamic Cemetery, which had slightly inappropriate soil conditions. It provides a positive perspective to the public about the cemetery. The project was implemented in three (3) phases at the KL-Karak Muslim Cemetery within three (3) years.

This project used the 5S concept as the guideline to improve the efficiency of cemetery management in delivering services to the people. Among the things that have been implemented are:

1. Cleaning of the area;
2. Improvement of public facilities;
3. Damage repair;
4. Prevention of encroachment; and
5. Implementation of uniform grave enclosure rules.

The cemetery development plan in the project covers 80 percent of burial sites, 6 percent of infrastructure and management facilities sites and 14 percent pedestrian network. Facilities that have been improved in the project include prayer room, parking, resting area, access road facilities, water pipe facilities and park lighting. It is also equipped with comprehensive landscape planning such as suitable tree crops and shade.





NOTE:
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G6 **FIGURE G6.23**
SPECIAL AREAS

LEGEND

Existing

- Cemetery Site
- Old and New Palace
- Solid Waste Landfill Area

- Malaysia Remote Sensing Agencies
- Archive
- Astro
- Bank Negara Malaysia
- Bekalan Air Selangor
- Palace
- Department of Social Welfare
- Malaysia Civil Defence Force
- Department of Survey and Mapping Malaysia

- Department of Prime Minister's
- Ministry of Foreign Affairs
- Ministry of Communications and Multimedia Malaysia
- Ministry of Home Affairs
- Board of Examination Malaysia
- Petronas Twin Tower
- Exxonmobil Tower
- Munora Holdings
- Parliament

- Percetakan Keselamatan Berhad
- Percetakan Nasional Berhad
- Pos Malaysia
- SS SYSTEMS SDN. BHD.
- MCMC
- Malaysia Anti-Corruption Commission
- Telekom Malaysia Berhad
- Tenaga Nasional Berhad

Others

- Main Road
- FTKL Boundary

SUMMARY

The strategies and actions of Goal 6 will be implemented through a range of initiatives and programmes by various government and private agencies. KLCH as the development leader of Kuala Lumpur will detail each Goal 6 initiative through a specific implementation plan.

This strategic plan generally comprises priority actions according to the implementation phase and details the leading agencies and other supporting agencies to implement the strategic direction and actions of this goal.

The implementation of this Goals 6 will also be aligned with the achievement of the SDGs based on the key actions of PSKL2040 (G6.11).

TABLE G6.10: SUMMARY OF MULTI-DIMENSIONAL ACTIONS BASED ON THE AIM OF SUSTAINABLE DEVELOPMENT GOALS 2030

















ACTION	RELATED SDG
BM1.1: Manage the Use of Undeveloped Land Efficiently	
BM1.1A: Compact city development planning	
BM1.1B: Flexible land use activity zoning that are sustainable-base performance	
BM1.1C: Effective development intensity control	 
BM1.2: Promote Infill Development in Development Pressure Areas	
BM1.2A: Encourage infill development in city centre and commercial centre areas	
BM1.2B: Urban Design Plans for Infill Development Areas	 
BM1.2C: Encourage infill development of detached residential parcel	
BM2.1: Improve the Quality and Reactivate Old Areas through Area Improvement Programme	
BM2.1A: Potential areas for Area Improvement Programme (AIP)	
BM2.1B: Prepare action plan for Area Improvement Programme (AIP)	
BM2.1C: Formulate the process and mechanisms for Area Improvement Programme	
BM2.2: Create Development Opportunities in Urban Redevelopment Areas	
BM2.2A: Intensify redevelopment in transit zone areas	
BM2.2B: Intensify renewal of the brownfield areas	
BM2.2C: Ensure comprehensive implementation mechanism for urban renewal areas	
BM2.2D: Prepare detailed urban design plans for urban renewal area	

TABLE G6.10: SUMMARY OF MULTI-DIMENSIONAL ACTIONS BASED ON THE AIM OF SUSTAINABLE DEVELOPMENT GOALS 2030 (CONT.)

ACTION	RELATED SDG
BM2.3: Reactivate the Function of the City Through Urban and Old Building Conservation	
BM2.3A: Prepare a Conservation Action Plan	
BM2.3B: Increase community involvement in the regeneration of functions of old areas and buildings through open application systems	
BM3.1: Promote Transit-oriented Development (TOD) in Transit Area	 
BM4.1: Encourage the Sharing of Utility Reserves, River Reserves and Road Reserves for Public Facilities	 
BM4.2: Plan for Integrated Use of Underground Space	
BM4.2A: Planning and development of underground space	 
BM4.3: Planning For the Use of Airspace	 
BM4.4: Intensify the Space Sharing for Public Facilities Buildings	 
BM4.5: Planning Vertical Development with Overlapping Ownership Through the Concept of Spatium	
BM5.1: Regulate Development in Highlands and Sloped Areas	
BM5.1A: Development control in highland areas of 300m AMSL and hilly areas	
BM5.1B: Development control on hill and sloped areas	
BM5.2: Establish a Kampong Bharu Special Development Area	
BM5.3: Plan for Quality Development in Traditional Villages and Other Villages	
BM5.3A: Set the boundary of Traditional Village zone	 
BM5.3B: Preserve the quality and character of the malay traditional village	
BM5.4: Manage Special Area Development	

Glossary

TERMS	INTERPRETATION
Active mobility	It's about the ability to move freely and safely, as well as living environmentally-friendly and sustainable with active and healthy lifestyles.
Adaptation	Adaptation encompasses actions that help communities and ecosystems to cope with real and anticipated climate change. Examples include changes in weather patterns, rising sea levels, and natural disasters such as droughts and floods.
Adaptive Reuse	Adaptive reuse practices are effective conservation methods in the effort to preserve abandoned buildings, allowing them to be applied as much as possible according to contemporary needs, even though their original functions may differ.
Affordable Housing	Affordable housing covers low-cost, medium-cost and medium-cost housing with sales prices ranging from RM42,000 to RM150,000 per unit to meet the needs of low- and middle-income households with household incomes between RM1,500-RM4,000 per month.
B40 Group	The lowest 40% income group refers to households earning less than RM4,849.
Biodiversity	The Convention on Biological Diversity defines biodiversity as the diversity of living organisms from a variety of sources that includes land, marine and aquatic ecosystems and the ecological complexes that form part of them including species diversity, interspecies and ecosystems.
Bioswales	Bioswales are landscape features that collect polluted stormwater runoff, absorb it into the soil, and filter out pollutants.
Buffer zone	The buffer zone usually takes the form of a green zone, which separates the two (2) land-use activities which do not complement, for example, residential and industrial areas.
Built-Up	An area where main land uses are consist of residential, commercial, industrial, institutional and other infrastructure facilities.
Bunded Storage	It is a man-made pond or lake that has a reservoir for the purpose of storing a water source for emergency purposes
Centralised Labour Quarters	Centralised or grouped residential facilities for workers (foreign and local) in a specific area or designated building equipped with various amenities and facilities for the comfort of the residents.
Climate Change	The significant climate change seen in the climate of an area between two reference periods.
Conurbation	Economic growth areas of municipalities that include cities, major cities as well as physically incorporated municipalities, have economic relationships and experience population growth to form a continuously developing built-up area.
Conducive	Appropriate and can help achieve or encourage the production of something good.
Constructed Wetland	Man-made wetlands indirectly serve to treat wastewater and ensure sustainable water management when the treated wastewater is reused with low, simple, and cost-effective energy requirements.
COP-21	The Paris Climate Conference is officially known as the 21st Conference of the Parties or COP to the United Nations Framework Convention on Climate Change (UNFCCC), which is responsible for climate issues and is based in Bonn, Germany.
Creative industries	Industries that involve individual creativity, skills and talents that have the potential to generate wealth as well as job creation through the exploitation of intellectual property.

Crowdfunding	It's an online crowdfunding process.
E-commerce	Any commercial transaction carried out over an electronic network, including information, promotion, marketing, supplying activities or delivery of goods or services, although payment and delivery related transactions may be conducted offline.
E-hailing	The process of ordering a car, taxi, limousine, or any other form of transportation through a virtual device: computer or mobile phone.
Eco Stepping Stone	Assisting the movement of wildlife from one habitat to another through landscape provision. This step also helps reduce the impact or effects of development and natural disasters.
Ecology	The relationship between living organisms and their environment.
Elderly	Individuals aged 60 and over.
First Mile and Last Mile	Describe the beginning or end of an individual's journey made primarily by public transport. The trip is easily accessible on foot, and by bicycle from public transit.
Greater KL/Klang Valley	It is Malaysia's Global City, covering an area of 5,195 square kilometers and having an estimated population of 7,564,000 people in 2018. Known as the Klang Valley.
Green House Gas	Any gas that absorbs infrared radiation, including water vapor, carbon dioxide (CO ₂), methane (CH ₄), nitrous oxide (N ₂ O), halogenated fluorocarbons (HCFCs), ozone (O ₃), perfluorinated carbon (PFCs), hydro fluorocarbons (HFCs) and sulfur hexafluoride (SF ₆).
Greenhouse Gas Emissions	Greenhouse gases absorb and emit infrared radiation in the wavelength range emitted by the earth.
Gross Domestic Product (GDP)	The total value of goods and services produced in a given period minus the cost of goods and services used in the production process. This value is the value before deduction of the fixed capital allocation value; i.e. the sum of value added at the ex-works price for resident producers plus import duties. This GDP is also equal to expenditure on GDP (at purchaser's price) which is the sum of all components of final expenditure on goods and services minus imports of goods and services.
High Carbon Stock (HCS)	A method to distinguish between forests valuable for protection and degraded forests with low carbon and biodiversity values.
High Conservation Value (HCV)	An area of forest that holds economic, environmental and social value, that is considered exceptional or highly importance in terms of its value, is categorised as a Permanent Reserved Forest (PRF)
Holistic	A holistic development that encompasses all aspects and factors related to human life from its physical, and environmental to psychological and spiritual.
Homeless	A person who has no home and no place to stay.
Inclusive	Inclusive means covering all aspects of society among citizens, whether in terms of gender, ethnicity, socioeconomic status, age, education, religion, and space
Infill development	Development or redevelopment carried out on vacant land or a developed site located within a built-up area and an area being developed.
Intangible Heritage or Asset	Intangible heritage refers to aspects of a culture that are non-physical and are transmitted from generation to generation through oral traditions, performing arts, rituals, social practices, language, and other forms of non-material expressions. Unlike tangible heritage, intangible heritage cannot be touched or physically interacted with but is deeply rooted in the cultural identity of a community.
Linear Corridor	Linear green or ecological zones that connect one area to another.

Liveable	A sustainable city for Malaysia means a city or an area that can provide employment, residential homes, accessibility to various infrastructures, physical and social amenities, safety, flexibility, excitement, and health, with tranquillity, serenity, and the greenery of the surrounding environment. Every citizen and their families should be able to enjoy comfort and peace in their lives.
Low carbon cities	A city that practices the principles of sustainable development and ensures the development needs of all segments of society are met. This city also contributes and demonstrates a commitment on a global scale to stabilise the emissions of CO ₂ and other greenhouse gases that cause climate change, through actions to reduce global pollution. The city is also capable of proving high efficiency in energy use, utilising low-energy sources, and advancing in technology production.
M40 Group	The middle income 40% households are households earning between RM4,850 to RM10,959.
Mercer's Quality of Living Report	A study that assesses the quality of life in cities worldwide. It considers various factors such as political stability, healthcare, education, public services, transportation, and other aspects that contribute to the overall well-being of the population.
Micromobility Vehicles	Micromobility Vehicles are a type of light vehicle mode of transportation such as electric scooters, bicycles, sharing bicycles, Electric Pedal-Assisted Bikes and others.
Mitigation	Actions taken to mitigate the impact of a natural disaster and climate change.
Mixed-Income Housing	Housing development that provides various types of residential units with different rental or sale prices, aiming to attract and accommodate residents from various income groups.
Mixed development	A development that contains various types of development such as residential, commercial and industrial.
Multi-family Living	It refers to a real estate plot that accommodates several separate residential units, each occupied by different families or individuals.
NEWater	Treated wastewater generated by the Public Utility Board of Singapore
Non-Revenue Water (NRW)	Water that is lost in distribution while being supplied to consumers.
Rain Garden	It refers to a park or landscaped area designed specifically to manage flowing rainwater by allowing it to be naturally absorbed into the ground instead of flowing into drains or rivers. It is also an environmentally friendly feature used to reduce the impact of urban development on water quality and effectively manage rainwater.
Peer to Peer (P2P)	A decentralised platform where two individuals interact directly with each other, without the involvement of a third party. Instead, buyers and sellers engage in transactions directly with each other through peer-to-peer (P2P) services.
Regional	Territory means an area that spans two (2) or more administrative areas. According to the Urban and Rural Planning Act, Act 172, the region consists of two (2) or more states.
Permeability	Unobstructed movement facilities for pedestrians from one place to another
Persons with Disabilities (PWD)	Following the Disability Act 2008, PWD includes those with long-term physical, mental, intellectual or sensory disabilities who, when interacting with various barriers, may hinder their full and effective participation in society.
Public Realm	Places and public spaces that are owned and accessible to everyone. This can include public roads, lanes, squares, plazas, pedestrian areas, parks, open spaces, transit systems, conservation areas, as well as buildings and institutions.
Plot Ratio	Plot ratio means the ratio between the floor space of a building relative to the building plot area as defined in Act 267 (Part 1, Section 2).

Public Space	A public space is a social space that is generally open and available for use by the public.
Seamless	Smooth and continuous conditions, without clear gaps or spaces between one part and the next.
Sense of Ownership Community	The concept to assess whose voice is heard, who holds influence over decisions, and who is affected by the processes and outcomes.
Sponge City Concept	This concept is an innovative water management strategy that integrates efforts to address the impacts of climate change, flood disaster mitigation and water abstraction.
Stationary Energy	The largest source of emissions for most cities. Emissions for this sector refer to the energy consumption of all types of buildings.
Stratum	A stratum is a subsoil that has been identified for independent and unrelated disposal or use purposes.
Sustainable Development Goals (SDGs)	It is an agenda to produce action plans that realize human rights, gender equality and empower women and children. The goal is to integrate and balance the three dimensions of sustainable development including economic, social and environmental.
Sustainable development	Development that enables current generations to meet their needs without compromising the ability of future generations to meet their needs.
Sympathetic	It refers to understanding and taking into account the values and characteristics of existing development.
T20 Group	The top 20% income group refers to households with a monthly income of RM10,959 and above.
Transit Oriented Development (TOD)	TODs are mixed residential and commercial areas designed to maximize access to public transportation and often combine features to encourage transit passengers.
Tangible Heritage or Asset	Tangible heritage refers to physical, touchable elements of a culture or society that hold historical, cultural, artistic, scientific, or architectural significance. This includes objects, artifacts, buildings, monuments, artworks, and landscapes that have a physical presence and are considered important for their cultural, historical, or artistic value.
Universal Design	Universal Design is defined as the design of environments and products that can be widely used by all classes of individuals without requiring any special adaptation or design.
Urban Observatory	A national data, reference, monitoring and reporting centre that monitors the level of wellbeing and sustainability of cities through social, municipal, economic and environmental aspects.
Vibrant	Lively, cheerful, energetic, vibrant, green-friendly, and smart urban condition
Water Sensitive Urban Design	Water Sensitive Urban Design (WSUD) is an approach to urban planning and design that aims to integrate water management into the urban environment, taking into account both the quantity and quality of water.
Youth	Individuals between the ages of 15 and under 30.

Abbreviations

4IR	National Fourth Industrial Revolution Policy
5G	Fifth Generation Mobile Technology
AI	Artificial Intelligent
Airbnb	Air Bed and Breakfast
AKLEH	Ampang-Kuala Lumpur Elevated Highway
ACT 172	Town and Country Planning Act, 1976
ACT 267	The Federal Territories (Planning) Act, 1982
ACT 298	Prohibited Areas and Prohibited Places Act 1959
ACT 685	Disability Act 2008
AMSL	Above Main Sea Level
APAD	The Land Public Transport Agency
APS	Accessible Pedestrian Signals
ART	Autonomous Rail Rapid Transit
ASEAN	Association of South East Asian Nations
AWCS	Automated Waste Collection Systems
B40	The lowest 40% income group refers to households earning less than RM 4,849
BaU	Business as Usual
BBCC	Bukit Bintang City Center
BET	Bus Expressway Transit
B&B	Bed & Breakfast
BIDS	Business Improvement District
BIOECODS	Bio-Ecological Drainage System
BoGs	Bill of Guarantees
BRT	Bus Rapid Transit
CAI	Commercial Area Improvement
CCTV	Close-Circuit Television
CENDANA	Cultural Economic Development Agency
CIDB	Construction Industry Development Board
CLQ	Centralised Labour Quarters
CM	Counter Measures
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
COP 21	21 st Conference of the Parties
COVID-19	Corona Virus Disease (2019)
CPTED	Crime Prevention Through Environment Design
CRZ	Critical Root Zone

DASH	Damansara - Shah Alam Highway
DID	Development Order
DO	Department of Irrigation and Drainage
DOE	Department of Environment
DCS	District Cooling System
DUKE	Duta-Ulu Klang Expressway
DSS	Decision Support System
DVD	Digital Video Disc
DWNP	Department of Wildlife and National Parks
E-Commerce	Electronic Commerce
ECRL	East Coast Rail Link
EE	Efficient Energy
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ERL	Express Rail Link
ESCP	Erosion and Sediment Control Plan
ETS	Electric Train Service
FGD	Focus Group Discussion
Fintech	Financial Technology
FRIM	Forest Research Institute Malaysia
FT	Federal Territory
FTKL	Federal Territory Kuala Lumpur
Greentech Malaysia	Malaysian Green Technology And Climate Change Corporation
GBPS	Gigabits Per Second
GCF	Garden City Fund
GCIP	Global Cleantech Innovation Programme
GDP	Gross Domestic Product
GEF	Global Environment Facility
GEO	Green Energy Office
GHG	Greenhouse gases
GGCO ₂ EQ	Giga Grams Carbon Dioxide Equivalent
GIS	Geographic Information System
GITT	Gombak Integrated Transportation Terminal
GUO	Global Urban Observatory
GPWPKL2010	Development Planning Guidelines in The Hill and Slope Area of The Federal Territory of Kuala Lumpur, 2010.

HCS	High Carbon Stock
HCV	High Conservation Value
HORAS	Hybrid Off River Augmentation System
HOV	High Occupancy Vehicle
HSR	High Speed Rail
HUD	Department of Housing and Urban Development (A.S)
IAI	Industrial Area Improvement
ICT	Information and communications technology
iDAM	Malaysia Livability Index
IDB	Institut Latihan Dewan Bandaraya Kuala Lumpur
IMUO	Iskandar Malaysia Urban Observatory
IoT	Internet of Thing
IRT	Iskandar Rapid Transit
IT	Information Technology
ITS	Intelligent Transport Systems
JAWI	Federal Territory Islamic Religious Department
JENDELA	Jalanan Digital Negara
JKPTG	Department of Director General of Land and Mines
JPBD	Department of Town and Country Planning or PLANMalaysia
JPJ	Road Transport Department
DID	Department of Irrigation and Drainage
JPWKL	Federal Territory of Kuala Lumpur Education Department
JWN	Department of National Heritage
KESAS	Shah Alam Expressway
KKM	Kementerian Kesihatan Malaysia
KL	Kuala Lumpur
KLCC	Kuala Lumpur City Centre
KLCCC	Kuala Lumpur Command and Control Centre
KLCH	Kuala Lumpur City Hall
KLIA	Kuala Lumpur International Airport
KLIA 2	Kuala Lumpur International Airport 2
KL-NODE	KL-North Dispersal Expressway
KLPAC	Kuala Lumpur Performing Arts Center
KLUO	Kuala Lumpur Urban Observatory
KL LCSBP 2030	Kuala Lumpur Low Carbon Society Blueprint
KLLP2040	Kuala Lumpur Local Plan 2040

KLSP	Kuala Lumpur Structure Plan
KLSP2020	Kuala Lumpur Structure Plan 2020
KLSP2040	Kuala Lumpur Structure Plan 2040
km	Kilometre
km/h	Kilometre Per Hour
KPKT	Ministry of Local Government Development
KtCO ₂	Kilotons of Carbon Dioxide
KtCO ₂ eq	Kilotons of Carbon Dioxide Equivalent
KTM	Keretapi Tanah Melayu
ktoe	Kiloton of Oil Equivalent
KUTS	Kuching Urban Transportation System
KWP	Ministry of Federal Territories
KV	Klang Valley
LA21	Local Agenda 21
LCCF	Low Carbon Cities Framework
LED	Light Emitting Diode
LEO	Low Energy Office
LEZ	Low Emission Zones
LRT	Light Rapid Transit
LRT3	Light Rapid Transit 3
LTSAAS	Sultan Abdul Aziz Shah Airport
LUAS	Selangor Water Management Authority
m	Metre
m ²	Square Metre
MARA	Majlis Amanah Rakyat
M40	Households with a median income of 40%, meaning households with incomes ranging between RM4,800 and RM10,959.
MAA	Malaysia Automotive Association
MAS	Malay Agricultural Settlement
MATRADE	Malaysia External Trade Development Corporation
Mbps	Megabits Per Second
MBPJ	Petaling Jaya
MBS	Seremban City Council
MBSA	Shah Alam City Council
MBSJ	Subang Jaya City Council
MCO	Movement Control Order

MDEC	Malaysian Digital Economy Corporation
MDTM	Tanjung Malim District Council
MEDEC	Malaysia Digital Economy Corporation
MESTECC	Malaysian Science and Technology Information Centre
METMalaysia	Malaysian Meteorological Department
MEX	Maju Expressway
MICE	Meetings, Incentives, Conferences and Exhibitions
MIDA	Malaysia Investment Development Authority
MIGHT	Malaysian Industry - Government Group for High Technology
MITI	Ministry of Investment, Trade and Industry
MNC	Multinational Companies
MOT	Ministry of Transport
MOSTI	Ministry of Science, Technology and Innovation
MPHS	Hulu Selangor Municipal Council
MPKS	Kuala Selangor Municipal Council
MPS	Selayang Municipal Council
MPAJ	Ampang Jaya Municipal Council
MPKJ	Kajang Municipal Council
MPK	Kelang Municipal Council
MPKL	Kuala Langat Municipal Council
MPPD	Port Dickson Municipal Council
MPSepang	Sepang Municipal Council
MPO	Malaysian Philharmonic Orchestra
MRA	Malaysia Reserve Area
MRR1	Middle Ring Road 1
MRR2	Middle Ring Road 2
MRT	Mass Rapid Transit
MRT1	Mass Rapid Transit Kajang Line
MRT2	Mass Rapid Transit Putrajaya Line
MRT3	Mass Rapid Transit Circle Line
MSC	Multimedia Super Corridor
MSMA	Urban Stormwater Management Manual
MTDC	Malaysian Technology Development Corporation
MUO	Malaysia Urban Observatory
MURNInets	Malaysian Urban-Rural National Indicators Network for Sustainable Development

MVEC	Mid Valley Exhibition Centre
MVV	Malaysian Vision Valley
MW	Megawatt
MWj	Megawatt Hour
MWp	Megawatt-peak
MyCREST	Malaysian Carbon Reduction & Environmental Sustainability
NAI	Neighbourhood Area Improvement
NAPIC	National Property Information Centre
NAWABS	National Water Balance Management System
NEM	Net Energy Metering
NGO	Non-Government Organisations
NFCP	National Fibersation on Connectivity Plan
NLC	National Land Code
NParks	Singapore's National Parks Board
NPE	New Pantai Expressway
NPP	National Physical Plan
NPPC	National Physical Planning Council
NPP4	Fourth National Physical Plan
NO ₂	Nitrogen Dioxide
NUP	National Urbanisation Policy
NRW	Non Revenue Water
NUA	New Urban Agenda
NUP	National Urbanization Policy
NZEB	Net Zero Energy Building
nZEB	Nearly Zero Energy Building
OTH	Our Tampines Hub
OUG	Overseas Union Garden
PA	Public Housing
PASS	Rental Subsidized Public Housing
PEERS	<i>Partners Engaging and Empowering Rough Sleepers</i>
PJ	Petaling Jaya
PKNS	Perbadanan Kemajuan Negeri Selangor
PLI	Poverty Line Income
PMB	Prasarana Malaysia Berhad
PMD	Personal Mobility Devices

PNB	Permodalan Nasional Berhad
PNSB	Permodalan Negeri Selangor
PPAM	Perumahan Penjawat Awam Malaysia
PPJ	Putrajaya Corporation
PPR	Program Perumahan Rakyat
PR1MA	Perumahan Rakyat 1Malaysia
PRF	Permanent Reserved Forest
PTG	Land and Mines office
PUNB	Perbadanan Usahawan Nasional Berhad
PWD	Persons with Disabilities
PV	Photovoltaics
PwC	PricewaterHouseCoopers (Company)
P2P	Peer to Peer
R&D	Research and Development
RE	Renewable Energy
REDHA	Real Estate & Housing Developer's Association
REDAC	River Engineering and Urban Drainage Research Centre
RFID	Radio Frequency Identification
RMCO	Recover Movement Control Order
RoL	River of Life
RMM	Affordable Housing
RTM	Radio dan Televisyen Malaysia
RUC	Road User Charging
RUMAWIP	Federal Territory Affordable housing
SA	State Authority
RWHS	Rainwater Harvesting System
SAIDI	System Average Interruptions Duration Index
SALAK	Salak Expressway / East-West Link Expressway
SDGs	Sustainable Development Goals
SEDA	Sustainable Energy Development Authority
SESB	Sabah Electricity Sdn. Bhd.
SI	Singapore Index
SIRIM	Standard and Industrial Research Institute of Malaysia
SME	Small Medium Enterprise
SMART	Stormwater Management and Road Tunnel

SMP	Spatial Management Plan
SOHO	Small Office Home Office
SOV	Single Occupancy Vehicle
SPE	Setiawangsa-Pantai Expressway
SPV	Shared Prosperity Vision
STIZ	Special Tourism Investment Zone
SUDS	Sustainable Urban Drainage Systems
SUKE	Sungai Besi-Ulu Kelang Expressway
SUP	Seoul Upcycling Plaza
Jalan TAR	Jalan Tuanku Abdul Rahman
tCO ₂	Ton Carbon Dioxide
tCO ₂ EQ	Ton Carbon Dioxide Equivalent
T20	The top 20% group refers to households with a monthly income of RM10,959 and above
TM	Telekom Malaysia
TDR	Transfer of Development Rights
TNB	Tenaga Nasional Berhad
TOD	Transit Oriented Development
TPO	Tree Protection Order
TRX	Tun Razak Exchange
TTDI	Taman Tun Dr. Ismail
UAV	Unmanned Aerial Vehicle / Drone
UDA	Urban Development Authority
UDGKL	Urban Design Guidelines Kuala Lumpur City Centre
UN	United Nations
UHI	Urban Heat Island
UMP	Urban Management Plan
UNCRPD	United Convention on the Right of Person with Disabilities
UNFCCC	United Nations Framework Convention on Climate Change
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNIDO	United Nations Industrial Development
UNICEF	United Nations International Children's Emergency Fund
USM	Universiti Sains Malaysia
UTC	Urban Transformation Centre
VOC	Volatile Organic Compound
VMS	Variable Message System

VMT	Vehicle Miles Travelled
WHO	World Health Organisation
WKN	National Conurbation Region
WSUD	Water Sensitive Urban Design
WTC	World Trade Center
WTE	Waste To Energy
ZEB	Zero Energy Building

Abbreviation for PSKL2040 Strategic Direction and Action

BM	Integrated and Sustainable Development
IP	Innovative and Productive
IS	Inclusive, Equitable and Liveable
MC	Efficient and Environmental-Friendly Mobility
PR	Climate-Smart and Low Carbon
SV	Green, Healthy and Vibrant

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