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9 – 11 APRIL 2018

ADELAIDE, AUSTRALIA

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Smart Cities:

For a Sustainable City Development in Kuala Lumpur

City Planning City Hall Kuala Lumpur October 2016





55% of Asians: 2.7 billion people will live in urban areas by 2022

Urban vs. Rural Population Growth in Asia: 1950-2030 (billions of persons)



Source: United Nations, Department of Economic and Social Affairs, Population Division. 2012. World Urbanization Prospects: 2011 Revision, CD-ROM.

Smart Cities Through Green Initiatives



Source: Asian Development Bank

The Case for Greening Cities

Economic Benefits

- Agglomeration economies i.e. provision of affordable housing near workplace/public transport
- Lower infrastructure and operating cost – go for public transport, cycling and walking
- Reduced congestion cost – fuel and parking fee

Social Benefits

- Job creation and employment opportunities
- Poverty reduction and social equity
- Improvement in quality of life provision of public parks and tree planting programs
- Reduced crime rates and improved public safety thru cpted concept in urban design

Environmental and Health Benefits

- Reducing pollution and improving public health i.e non fuel vehicle
- Ecosystem services and risk reduction i.e. Open spaces, parks, vegetation and landscapes help reduce risk exposure to flooding and land slide
- Implementation of GBI lower energy consumption for buildings





RACE	POPULATION	PECENTAGES (%)
Malay	679,236	40.56
Chinese	655,413	39.14
Indian	156,316	9.33
Others	9,539	0.57
Other Bumiputera	17,444	1.04
Non - Nationality	156,632	9.35
Total Population	1,674,621	100.00

KL Population 1998-2020



KL Landuse 2015





Zoning PTKL 2020

Land Use Category	Land Use Zone 2	2020	Area (Hectares)	96
	City Centre Commercial	(CCC)	369.20	1.52
	Major Commercial	(MC)	575.39	2.38
COMMERCIAL	Commercial	(C)	969.74	4.00
	Local Commercial	(LC)	207.71	0.86
	Mixed Use	(MX)	1,241.73	5.13
		Sub Total	3,363.77	13.89
	Residential 1	(R1)	1,234.92	5.10
	Residential 2	(R2)	1,027.37	4.24
DECIDENTIAL	Residential 3	(R3)	1,074.07	4.43
RESIDENTIAL	Traditional Village	(TV)	228.74	0.94
	Established Housing	(EH)	3,291.39	13.59
	Public Housing	(PH)	16.53	0.07
		Sub Total	6,873.02	28.38
	Industry	(IP)	243.60	1.00
INDUSTRIAL	Mixed Use Industry	(MXI)	99.08	0.41
	Technology Park	(TP)	152.19	0.63
		Sub Total	494.87	2.04
INSTITUTIONAL	Institutional	(INT)	2,386.92	9.85
		Sub Total	2,386.92	9.85
	Public Open Space	(OS1)	1,860.49	7.68
OPEN SPACE	Private Open Space	(OS2)	449.52	1.85
	Forest Reserve	(FR)	69.07	0.29
		Sub Total	2,379.09	9.82
	Public Facilities	(PF)	1,127.79	4.66
OTUFAC	Cemetery	(CE)	359.80	1.49
UTHERS	Transportation	(TR)	6,053.04	24.99
	Infrastructure and Utility	(IU)	1,182.76	4.88
		Sub Total	8,723.39	36.02
	TOTAL		24,221.05	100.00





Draft Kuala Lumpur City Plan 2020

Development Thrusts

- 1. Dynamic World Class Business City
- 2. Connectivity & Accessibility
- 3. Sustainable Land Use
- 4. City Living Environment
- 5. Protecting & Enhancing the Environment
- 6. Enhancing Green Network & Blue Corridor

Strategic

Directions

- 7. Distinctive Image & Identity
- 8. Green Infrastructure



Initiatives

Dynamic World Class Business City



Strengthening Kuala Lumpur's Role as a World Class City

- Enhancing the Premier
 Financial and Business
 Precincts
- 2. Developing an attractive Retail Clusters
- 3. Promoting International Urban Tourism

- Accommodating Economic Growth Spatially
- 1. Sustaining and Enhancing Vitality of Urban Centres
- 2. Providing Sufficient Commercial Floor Area
- 3. Modernising and Integrating the Informal Sector
- 4. Enhancing Industrial Areas

Creating an Innovative City

- Encouraging Upscaling of Existing Economies
- 2. Encouraging ICT Clusters Through Development Of Cybercities and Cybercentres



Connectivity & Accessibility

3 STRATEGIC DIRECTIONS

15 KEY INITIATIVES



Friendly Transport Infrastructure
1. An integrated Transit
Network

Building a More Sustainable,

Integrated and Environmentally

- 2. Extending Urban Rail Network With Regional rail Network
- 3. Integrated Transportation Terminal and Park & Ride Facilities
- 4. Developing Taxi Transformation Plan
- 5. Establishing Functional Road Hierarchy
- 6. Giving Priority to Buses

Moving Towards Travel Demand Strategies

- 1. Dispersing Peak-Period Traffic
- 2. Reducing SOV and Providing Incentives to Road Users
- 3. Restraining Traffic within City Centre
- 4. Managing Car Parking
- 5. Integrated Traffic Information System IT IS
- 6. Managing Heavy Vehicles

Integrating Developments with Pedestrian Connectivity

- 1. Providing a Safe and Comfortable Walking Environment for All Groups of Pedestrian Network Users
- 2. Improving Pedestrian Connectivity and Accessibility at Key Locations
- 3. Developing Cycling Routes and Facilities

		City Living Environment	
3 STRATEGIC DIRECTIONS	Meeting the People's Need for Housing	Promoting City Living That Will Create a Vibrant and Safe City	Providing for Quality Living Spaces
12 KEY INITIATIVES	 Planning for Growth and Ensuring Adequate Housing Land Providing Affordable Houses for the Middle Income and younger population in Strategic Location Improving Quality of Existing Public Housing and Providing New Public Housing Providing Housing for Special Groups 	 Encouraging Mixed Use Development within the City Centre Protecting Stable Residential Areas as Established Housing (EH) for the City Retaining Traditional Village and Preserving Their Characters 	 Distributing Residential Intensities for Sufficient Housing Provision Adopting Safe Community Guidelines Promoting Sustainable Principles of Neighborhood Planning Providing quality and Sufficient Community Facilities

		Protecting & En	hancing the Environ	ment
4 STRATEGIC DIRECTIONS	Protecting Environmentally Sensitive Areas	Enhancing River Value and River Water Quality	Ensuring Safety and Best Use of Contaminated Sites	Improving Urban Environmental Quality
7 KEY INITIATIVES	 Preserving Forest and Wildlife Reserves Protecting Hill Land and Hillsides Preserving Lakes and Former Mining Ponds 	1. Improving River Water Quality	1. Regulating Use of Former Landfill Sites	 Managing Noise to Acceptable Level Improving Air Quality



Enhancing Green Network & Blue Corridor

2 STRATEGIC DIRECTIONS

6 KEY INITIATIVES

Comprehensive Green Network for Greener Kuala Lumpur

- 1. Establishing Interconnected Green Network throughout Kuala Lumpur and Increasing the City's Green Density
- 2. Protecting Public Open Spaces and Maintaining Recreational Facilities
- 3. Securing Land for City's Green Areas
- 4. Providing Quality and Functional Recreational Facilities

River Corridor as the City's Waterfront Zone

- 1. Enforcing A Riverside Corridor Requirement in Development Applications
- 2. River as a Blue Connectors for the City



Distinctive Image & Identity

3 STRATEGIC DIRECTIONS	Enhancing and Strengthening City Character and Identity	Enhancing and engthening City Character and Identity	
11 KEY INITIATIVES	 Promoting Good Urban Design for New Developments and Redevelopments Enhancing Character and Quality of Public Spaces Creating Distinctive Urban Skyline between Centres Encouraging Iconic Places and Landmarks Developments 	 Reinforce Kuala Lumpur's Structure Into a Coherent and Legible Pattern Defining Kuala Lumpur's Capital City Function Improving Physical Environment as Impetus for Regeneration Kampong Bharu Regeneration as a Comprehensive 	 Protecting Heritage Zones, Sites and Buildings Managing and Monitoring Heritage Zones and Buildings Conserving Significant Traditional Villages and Intangible Heritage Value



Green Infrastructure

3 STRATEGIC DIRECTIONS	Providing Infrastructure and Utilities to Support Growth of the City	Mitigating Floods and Managing Stormwater	Addressing Climate Change by Encouraging Low Carbon Cities Initiatives
7 KEY INITIATIVES	 Promoting A Coordinated Approach in the Provision of Infrastructure and Utility to Meet Future Requirements Achieving Highest Reliability and Standard in Utility Provision 	 Implementing Kuala Lumpur's Drainage Master Plan Managing Urban Storm water in A Sustainable Manner 	 Promoting Energy Efficient Development and Use of Green Technologies to Reduce City's Carbon Emission Promoting Rain Water Harvesting, Recycling and Water Savings Reducing Waste



Sustainable Land Use

Integrating Transport and

Spatial Development

3 STRATEGIC DIRECTIONS

6 KEY INITIATIVES

of Land and Intensity of Development 1. Providing Clear

Framework for Future

Incompatible Land Use

Use of Land and

Intensity of

Regulating

2.

Development

and Activities

Managing and Guiding Use

- 1. Directing New Transit Corridors and Interchange Points to Priority Areas
 - 2. Designating Transit Planning Zones
- 3. Encouraging Mixed Use Developments

1. Regenerating Older Areas

Redeveloping Previously

Developed Sites and

Regenerating Older Areas

2. Redeveloping Previously Used and Under Utilised Land or Buildings

Greening Urban Sectors: KL Initiatives



Rail System

Mass Rapid Transit (MRT)

- MRT1 Sg. Buloh-Kajang Line (51 km) Phase One will become operational by the end of 2016
- MRT2 Sg. Buloh-Serdang-Putrajaya Line (59.5 km)

- MRT3 – Circle Line

Light Rapid Transit (LRT)

- LRT1 Ampang Line (27 km) 18.1 km to Putra Heights is under construction
- LRT2 Kelana Jaya Line (29 km) 17.4 km to Putra Heights is under construction
- Ridership 190,000 people per day

KL Monorail Line

- 8.6 km
- Ridership 75,000 people per day

Rail System

Express Rail Link (ERL)

- KLIA Express (57 km) non-stop airport rail link service
- KLIA Transit (57 km) commuter rail service
- Ridership 6,200 per day

KTM Komuter

- Port Klang Line (45 km)
- Seremban Line (105 km)
- Ridership 51,200 per day

Tramline in KL City Centre

- Proposed in Urban Design Guideline, KL City Centre
- Total length of 18.5 km



Bus System

Rapid Bus

- Currently, there are 165 routes which integrates with Klang Valley's Rail Systems
- Providing services to more than 1,000 residential areas in Klang Valley and Selangor, RapidKL operates more than 800 buses daily with a ridership of more than 300,000 passengers per day.



Go KL City Bus

- The Go KL City Bus service was introduced in 2012 to improve public transport within city centre
- Go KL is a free bus service which is designed to function as a feeder bus service providing last-mile connectivity integrating other modes of public transport.
- Thre are four lines:

Green Line : KLCC – Bukit Bintang (14 stops / 45 mins)

Purple Line : Pasar Seni – Bukit Bintang (15 stops / 60 mins)

Blue Line : Medan Mara – Bukit Bintang (17 stops / 45 mins)

Red Line : KL Sentral – Jalan Tuanku Abdul Rahman (19 stops / 60 mins)

Proposed Bus Rapid Transit (BRT)

- From Pasar Seni to Klang
- Total length of 32 km



Bicycle Lane

- 5.5 km dedicated bicycle lane from Dataran Merdeka to Mid Valley
- Proposed dedicated bicycle lanes in city centre: LRT Station Taman Melati to LRT Station Wangsa Maju (2.1 km)
 Kg. Batu Muda – Taman Metropolitan Batu (2.0 km)



Pedestrian Network

- Comprehensive pedestrian network with anti climb fence with landscaping, barrier free and handicapped-friendly
- Completed pedestrian network by year:

2011 (12.60 km) – Jalan Raja Laut, Jalan P. Ramlee, Jalan Tuanku Abdul Rahman, Jalan Sultan Ismail

2012 (13.37 km) – Jalan Raja Laut – Jalan Ipoh, Jalan Ampang – Jalan Sultan Ismail, Jalan Bukit Bintang, Jalan Raja Chulan, Jalan Tung Shin, Jalan Pudu

2013 (12.80 km) – Part of Jalan Ipoh, Jalan Pahang, Jalan Tun Razak, Jalan Raja Muda Abdul Aziz, Jalan Dr. Latiff, Jalan Binjai, Persiaran KLCC, Jalan Kia Peng, Jalan Tun Razak, Persiaran Stonor, Jalan Dang Wangi, Jalan Conlay, Jalan Khoo Teik Ee, Jalan Melati, Jalan Horley, Jalan Pahang Barat

2014 (12.70 km) – Jalan Sultan Ismail, Changkat Raja Chulan, Changkat Bukit Bintang, Jalan Hang Jebat, Jalan Imbi, Jalan San Peng

KL Initiatives: Buildings

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Green Building Index (GBI)

- Designed to save energy and resources, recycle materials and minimise the emission of toxic substances throughout its life cycle.
- As of April 2015, the numbers of GBI Certified Buildings in Kuala Lumpur is 105 which include residential and non-residential buildings.

KL Initiatives: Energy



Energy-efficient Buildings

- Greenhouse gas emissions from buildings could be reduced by integrating affordable designs to maximise energy efficiency and minimise waste
- Energy-efficient building is one of the criteria needed to be a Certified GBI Building.
- Currently, there 105 Certified GBI Buildings in Kuala Lumpur



Euro 5 NGV for Public Transport

 Use of cleaner Euro 5 NGV for Go KL City Buses reduce the greenhouse gas emissions

KL Initiatives: Environment

Open Spaces



•An integrated park system will be created to include parks of all sizes, landscaped boulevards and paths and public open spaces, where different open spaces in the city are connected through green trails.

•DBKL through initiative in Urban Design Guidelines will create Green Pedestrian Walkways connecting Perdana Botanical Garden with Merdeka Square, Petaling Street, Bukit Bintang and KLCC

•As of December 2014, there are 2266.65 hectares of public open spaces in Kuala Lumpur with 997.09 hectares have been gazetted.



Tree Planting Programme

DBKL aims to plant 30,000 trees around Kuala Lumpur per year, or 100,000 trees by 2020, to achieve the goal of Greener KL to provide 14m2 per person for Kuala Lumpur citizens.
In 2014, DBKL has planted 39,636 trees. Between 2011 and 2014, 135,734 trees have been planted which is well exceeded the target for 2020.



Vertical Green

- •DBKL aims to employ creative landscaping methods including dense rooftop greening and vertical landscaping. DBKL will extend its current tree planting initiatives from 30,000 trees to 100,000 trees
- •Through rooftop greening, 150,000 square meters of unused rooftops in KL city can be leveraged to increase green space that can generate up to 20 percent of additional green surface

KL Initiatives: Environment

Community Garden



DBKL through Local Agenda 21 has been promoting and implementing community garden in Kuala Lumpur involving Residents Associations as well as private sectors.
Currently, there 2 Community Garden that have been implemented in KL which is Taman Herba LA21 KL Sg. Midah and PPR Air Panas

Preserving Forest



- •Hutan Simpan Bukit Nanas (10.5 hectares) Gazetted as Wildlife and Bird Sanctuary in 1934
- •Hutan Simpan Bukit Sungai Puteh Gazetted as Wildlife Reserve in 1932
- •Hutan Simpan Bukit Sungai Besi (42.29 hectares)
- •Hutan Simpan Bukit Lagong Tambahan (2.10 hectares)

KL Initiatives: Water



River of Life

- Master planning and beautification works that will be carried out along a 10.7km stretch along the Klang and Gombak river corridor
- River cleaning project aims to clean and improve the 110km stretch along the Klang River basin from current Class III-V to Class IIB by 2020
- Cleaning and beautification works will spur economic investments into the areas immediately surrounding the river corridor



Rainwater Harvesting

 Rain water is harvested to help conserve water in the building and to reduce the use of treated water from the utility that can be applied to the cooling system condenser as well as being used to water the landscape and for general cleaning purposes.

KL Initiatives: Waste

Reduce, Reuse, Recycle (3R) Program



- Greater KL/KV will face major solid waste management (SWM) problems given current practices as solid waste generation per day in Greater KL/KV is expected to grow from 10kton to 17kton by 2020. Current limited sanitised landfills capacity, low recycling rates of 11%, lack of proper system for disposal of construction and demolition waste (C&D) need to be addressed
- Greater KL/KV EPP recommends the enhancement of the Reduce, Reuse, Recycle (3R) implementation by creating a recycling ecosystem to stimulate waste disposal reduction and to target a recycling rate of 40% by 2020 from current target of 22%.
- In 2014, out of 629.98 kilotons solid waste that been collected by Alam Flora, only 0.1 kiloton were recycled.

KL Initiatives: Infrastructure and Technology

Integrated Transport Information System (ITIS)



- A comprehensive traffic information system developed to monitor traffic flow and analyse the data on road conditions in the Klang Valley to provide useful traffic information to road users.
- A total of 1,200 CCTV's being used to better manage traffic as well as for crime prevention.
- ITIS covers 45 main road corridors within the Klang Valley that includes the Inner Ring Road (Jalan Raja Chulan), the Middle Ring Road 1 (Jalan Tun Razak), the Middle Ring Road 2, and major radials such as Federal Highway Route 2, Jalan Ampang, Jalan Sentul, KL-Seremban expressway etc. In total, there will be over 200 kms of roads which will be monitored.

Existing GIS System in DBKL

- 1. Development Control System (SKP)
- 2. GIS System Kul Submission
- 3. KLLP2020 EIS
- 4. Slope Hazard & Risk Map for Planning Approval
- 5. G-Asset

1. Development Control System (SKP)



1. Development Control System (SKP)



2. GIS System Kul Submission





EIS DESIGN CONCEPT

OBJECTIVE OF EIS

- To provide a web based, including multimedia based and GIS based information to end users
- To allow KLLP users to have access to KLLP reports and plans in "user friendly" manner.
- To display KLLP reports / information in a Systematic and Structured manner
- Information at "finger tips":
 - Written statements/reports
 - Maps and Plans
 - GIS database

EIS "SITE MAP"

EIS DESIGN GUIDELINES

User Manag

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Siti Hanim Abd Rahman Norazmin Adibah binti Othman Tel:03-2617 9549 Tel:03-2617 9567 "INTERACTIVE MAP/GIS"

3. Slope Hazard And Risk Map Kuala Lumpur (KLSIS)

3. Slope Hazard And Risk Map Kuala Lumpur (KLSIS)

3. Slope Hazard And Risk Map Kuala Lumpur (KLSIS)

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4. G-Asset : Geographic Information System & Asset Maintainance

Bil	Jabatan	
1	Jabatan Kejuruteraan Awam & Saliran (JKAWS)	
2	Jabatan Kejuruteraan Elektrikal & Mekanikal (JKME)	
3	Jabatan Landskap & Rekreasi (JLR)	
4	Jabatan Perancangan Infrastruktur (JPIF)	
5	Jabatan Pengangkutan Bandar (JPB)	
6	Jabatan Penilaian & Pengurusan Harta (JPPH)	
7	Jabatan Perancangan Fizikal (JPF)	
8	Jabatan Pelaksanaan Projek & Penyelenggaraan Bangunan (JPPPB)	
9	Jabatan Pelesenan & Pengurusan Penjaja (JPPP)	
10	Jabatan Ukur Bahan (JUB)	
11	Jabatan Rekabentuk Bandar & Bangunan (JRBB)	
12	Jabatan Pengurusan Maklumat (JPM)	

4. G-Asset : Geographic Information System & Asset Maintainance

Thank You