

## **National Transport Policy in Malaysia – from the Time of Independence until Today**

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**Abstract:** The objective of the paper is to assess the historic development of Malaysian transport policy. It explores the transport strategy which was initiated for the first time, from whom, and which purpose was pursued. The paper is structured as follows; first, some background information about Malaysia was discussed. Then, the history of construction of transport infrastructure, divided by means of transport; railway, highway, seaports and airports were discussed. Subsequently, we analyzed the land use change, the land public transport master plans and non-motorized transport master plan that have been published by the Malaysian government. The objectives of the master plans, the indicators used to monitor the success of the master plans, the policy measures and packages considered, and the intentions for implementation and monitoring.

*Keywords:* Transport policy, Malaysia, Transport Master Plan

### **1. INTRODUCTION**

Growing numbers of population and urbanization in Malaysia, as well as in other Southeast Asian countries, have increased transport issues like congestion, air quality and missing infrastructure. The main challenge facing the deteriorating transportation in the country is the unsustainable growth in private transport demand. High use of private vehicles has been adding more pressure on existing and fixed road capacity causing traffic congestion. This issue affects the community indirectly. Most transport facilities fail due to lack of proper planning and design. Besides, the pedestrians and non-motorized vehicle users are less considered when planning the transport system that creates mixture of traffic in the roads and further complications.

There is a need to make sure that the needs of everyone are properly acknowledged and addressed in the development of infrastructures and services. National transport master plans are the key documents that have used by any countries to mitigate negative impacts of transportation as well as to address the issues. This paper aims to summarize the measures that have been taken in the past and new strategies to tackle the challenges. As a British colony, the transport policy in Malaysia was strongly influenced by the UK in former times. The focus of the paper is set on the time after Malaysia gained its independence in 1957.

## 2. BACKGROUND INFORMATION ON MALAYSIA

Malaysia is a country in Southeast Asia which consists of 13 states (11 on Peninsular Malaysia and 2 on Borneo) and three federal territories (two on Peninsular Malaysia and one on Borneo Island). The 13 states have their own government, which serves themselves as regional governments, while the 3 federal territories are governed directly by the Federal Government. Out of 13 states, 9 of the peninsular states are sultanates, inheriting the historical Malay Kingdoms. Former British settlements and crown colonies of Penang and Malacca (both peninsular), and Sabah and Sarawak (both on Borneo) each have a titular Governor (styled Yang di-Pertua Negeri) appointed by the Yang di-Pertuan Agong and an executive Chief Minister or Ketua Menteri. The country is geographically separated by the South China Sea into two similarly sized regions, Peninsular Malaysia and East Malaysia (Malaysian Borneo). The capital city is Kuala Lumpur and the federal government is based in Putrajaya. Malaysia became independent from the United Kingdom on 31 August 1957, when the peninsular part and the British government reached to an agreement, and Federation of Malaya was formed. In 1963, the two states in East Malaysia joined in to form Malaysia. In 1965, Singapore became separate to be an independent country. Figure 1 depicts the map of Malaysia.



Figure 1: Map of Malaysia

Table 1: Basic information about Malaysia

<b>Capital</b>	Kuala Lumpur
<b>Total Area</b>	330, 803 km <sup>2</sup> (0.3% water)
<b>Population</b>	32.6 Million (Dec 2018)-increase by 1.1% as compared to Dec 2018
<b>Density</b>	94.92 sq. Km
<b>Household Size</b>	4.03 person (August 2018)
<b>Ethnic Groups</b>	Malay and indigenous 61.7%, Chinese 20.8%, Indian 6.2%, other 0.9%, non-citizens 10.4% (2017 est.)
<b>GDP per capita</b>	\$29,100 (2017)

Malaysia's road network is extensive, covering more than 63,445 km, including more than 1,630 km of expressways (Ministry of Transport). The main highway of the country

extends over 800 km, reaching from the Thai border to Singapore. The main modes of transport in Peninsular Malaysia include buses, trains, cars and to an extent, airplanes. The railway system is state-run, and covers a total of 1798 km, in Peninsula Malaysia only. The most popular within the cities is AGT (Automated Guided Transit), which is locally called Light Rail Transit.

### **3. HISTORICAL CONSTRUCTION OF TRANSPORT INFRASTRUCTURE**

#### **3.1 History of Railway Construction in Malaysia**

The railway in Peninsular Malaysia started with a 12.8-km line connecting Taiping and Port Weld to transport tin ore, which was constructed in 1885 (Lowtan 2004). In 1913, Padang Besar, a city in today's northern Malaysia on the Thai border, and Singapore is connected by railway. Since the independence from Britain in 1957, not much improvement has been done for a few decades. Since the 1990s, in the capital region, urban passengers started using the national network, called *KTM Komuter*. Other form of urban railways such as light rail transit system (LRT) and airport railway are also constructed since the 1990s, but these are managed separately. Since 2000s, electrification and addition of double-track have been going on in the capital region around Kuala Lumpur, and further on the main line along the west coast. There is was a plan for a high-speed railway link between Kuala Lumpur and Singapore. Initially it was intended to start the service in 2020 offering 1h30m travel time, while it is suspended at the moment of writing this paper. In East Malaysian on Kalimantan (Borneo), a small network connects Kota Kinabaru in Sabah and some cities nearby. This is managed separately from the railway on the peninsula, and under *Sabah State Railway Department*.

Today's Malaysian railway network extends 1,856km in total, consisting of 1,799-km Meter-gauge mainline network, and a 57-km Standard-gauge line connecting Kuala Lumpur International Airport and the city center. 350 km of the network is electrified, with AC25kV-50Hz standard being used. At the very beginning, the railways are operated as provincial railways, but later it was integrated as Federal Malay States Railways (FMSR). In the postwar time, it was reorganized as Malayan Railway Administration, and then KTM (*Keretapi Tanah Melayu* – Malaysian State Railway). In the 1990s, based on a Railway Act 1991, a vertical separation for infrastructure (Railways Asset Corporation: RAC) and train operation (KTMB) was made, and in 1997 the concession for passenger trains were given to a private consortium *Marak Unggul* with a 5-year contract, while it was again nationalized in 2002 and this structure remains until today. Nowadays, KTMB has three main divisions, one in charge of intercity trains (KTM Intercity), another one for urban service (KTM Komuter), and the other one operating freight trains (KTM Cargo). At the ministerial level, the competences related to the railway is currently settled at the Ministry of Transport (MOT).

#### **3.2 History of Highway Construction in Malaysia**

##### **3.2.1 The Overview of Malaysian road**

The history of road in Malaysian modern road system begins during British colonial at the end of the 18<sup>th</sup> century and the transport network is now diverse and developed. Before the independence in 1957, the British colonial built the road in Malaysia. Malaysia's road network is extensive, covering 144, 403 kilometers, which 116, 169 kilometers is paved and 1,821 kilometers is expressway. The main highway of the country outspreads over 800 kilometers reaching the border of Thailand and all the way to Singapore. The second longest is East-Coast

Highway crossing over 500 kilometers from Kuala Lumpur to Kuala Terengganu, Terengganu. The Peninsular Malaysia has an extensive road network while in East Malaysia, it is not as well-developed. Recently, the construction of Pan – Borneo Highway was approved under 2015 Malaysian Budget. The project spans over 1,663 kilometers which 936 kilometers in Sarawak and 727 kilometers in Sabah, mirroring the existing trunk roads and it includes the widening works of the present 3.0 meters wide single-carriageway into dual-carriageway.

### **3.2.2 History of road development**

The Federation of Malaysia comprises of two main parts, which is West or Peninsular Malaysia and East Malaysia which includes the states of Sabah and Sarawak located on the island of Borneo. Despite competition from river transport in the early days, and later from rail, roads proved to be more flexible and thus became the main mode of transport in Malaysia. The road network is relatively better developed in West Malaysia which accounts for 40% of the land area and 79% of the road length. Topography was an important factor affecting the development of roads. A large part of the road network is built along the relatively flat coastal areas since the interior regions of both East and West Malaysia are dominated by inaccessible mountain ranges. Malaysia road system consists of toll highway, federal highway, state road, urban road municipal road and rural road. Federal highway or as Malaysian describes as “Lebuhraya Persekutuan” or Highway Federal by Klang Valley citizens is a highway connecting the capital city of Kuala Lumpur and Klang in Selangor. The highway starts from Seputeh in Kuala Lumpur to Klang in Selangor. It is by far the busiest highway in Klang Valley during rush hour from and to Kuala Lumpur.

### **3.2.3 Malaysian road network system**

The Malaysia road networks systems are basically consist of the expressway system, the federal roads system and state roads system. Malaysian expressway network is considered the best controlled-access expressway network in Southeast Asia after China, Japan and South Korea. Constructed in phases over a period of seven years, it was officially opened on 8 September 1994, indicating the coming of age of Malaysia’s road transportation system. They were 30 expressways in the country and the total length is 1,821 kilometers and another 219.3 kilometers is under construction (Olszewski 1996). All Malaysian toll expressways are controlled-access highway and managed in the Build-Operate-Transfer (BOT) system. The expressway in West Malaysia and East Malaysia is in better connection whereby in Figure 2, the route passes through all the major cities and conurbations in West Malaysia such as Penang, Ipoh, Klang Valley and Johor Bahru. Most of the Malaysian federal state roads were built before 1957 in which in Sabah the road were built during the occupation of British Borneo. In Sarawak however, no road network was developed during the rule of White Rajah Brooke dynasty. It was then changed when Sarawak joined the federation of Malaysia on 16 September 1963. The federal government of Malaysia started to build a road network system connecting Sarawak to Sabah which is in Figure 3, the overview of the connection of Pan Borneo highway serves as the connector between the states of Sarawak, Brunei and Sabah. For Malaysian state roads system, it is considered as the secondary roads in Malaysia. The construction is funded by Malaysian Public Work Department (JKR). The standards are similar with the federal roads except for the coding system, for example Johor state is labeled as J32 for Johor State Road number 32. The codes given to each state is the same as those of the car number plate except for Sabah.



Figure 2: Overview of North – South Expressway



Figure 3: Overview of Pan Borneo Expressway

### 3.2.4 Malaysian highway network development plan

After the Malaysian government gained independence in 1957, the efforts to improve the road system have been done appropriately by going through a rapid development planning. The federal government has launched a 5-year national development plan in showing the commitment towards the development of road network. After the formation of Malaysia in 1963, the 5-year national development plans integrated road development as one of the significant elements for the overall economic and social improvement of the country. Figure 4 illustrates the growth in the expenses on road development plans under each consecutive 5-year Malaysia Plan, which was articulated from 1966 to 2005.

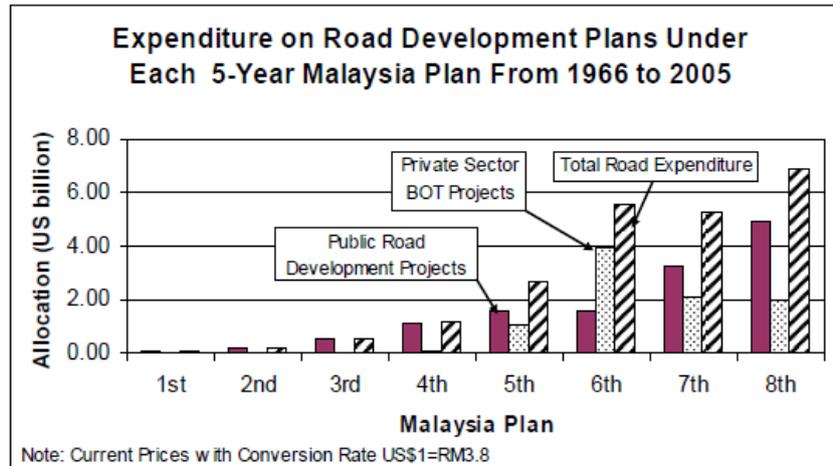


Figure 4: Expenditure on Road Development Plans in Malaysia, 1996 - 2005

The Highway Network Development Plan (HNDP) Study covering the Peninsular Malaysia, Sabah and Sarawak was completed in 1993. The study identified 72 projects in Peninsular Malaysia for implementation up until 2010. However, approximately 36% of the roads plans in 2009 were implemented with some partial completion due to the repackaging of some project into smaller scale. A few strategies have been identified in HNDP which are to rationalize and strengthen the East Coast and the West Coast networks in order to achieve and sustain the regional economic expansion. The existing road network in the West Coast shall be further strengthened and expanded to meet the traffic demand in the future by providing a high level of service and enhance reliability. Other than that, the provision of new linkages for East–West movement would enhance development of smaller growth centers. In tackling the socio-economic and land use development, effective linkages are provided for further development of new growth areas and future high economic activities. As to increase the road development level in each state, a denser road network is provided to meet future traffic demand generated by the increase in socio economic activities in existing and future growth centers.

### 3.3 Ports and Airports

Malaysia has a total of seven (7) major Federal ports and ports in Sabah and Sarawak are under the jurisdiction of the State Government of Sabah and Sarawak respectively. The ports in Peninsular Malaysia namely Port Klang, Johor Port, Port of Tanjung Pelepas, Kuantan Port, Penang Port, Bintulu Port and Kemaman Port as shown in Figure 5. The street of Malacca is the busiest water way in the world, historically, and this was where most of the trade happened.

As shown in Figure 5 and Figure 6, there are three international airports on the Malaysian peninsula (KLIA, KLIA2 and Senai International Airport) and one international airport in the province of Sarawak (Kuching International Airport). Additionally, there are a number of domestic airports. Airports in Malaysia are governed by the Aviation Division of the Ministry of Transport. The objectives declared by the Aviation Division are (1) To develop an efficient, economical and safe air transport system for passengers and cargo and (2) To plan and implement infrastructural projects to meet the demands of the air transport industry. (Source: <http://www.mot.gov.my/en/about-mot/divisions-units/aviatioan-division>). The airports are managed by “Malaysia Airports Holdings Berhad” (MAHB), a public limited company that is listed on the Malaysian Stock Exchange since 1999. The previous state-run airport operator had already been privatized in 1992. Today, the largest shareholder of the company is the

governmental wealth fund “Khazanah Nasional Berhad” with about one third of the shares (MAHB 2018). Malaysia Airports Holdings Berhad manages 39 airports across Malaysia (five international airports, 16 domestic and 18 STOLports) and one international airport in Turkey (Source: <https://www.malaysiaairports.com.my>)

Geographically speaking, there are four international airports on the Malaysian Peninsula (see map in Figure 5): Langkawi, Penang, KLIA (Kuala Lumpur International Airport incl. the second terminal KLIA2) and Senai International Airport, which is not managed by MAHB. As in Figure 6, on the island of Borneo, there are two international airports (Kuching International Airport in Sarawak and Kota Kinabalu International Airport in Sabah). Additionally, there are a number of domestic airports and STOLports on the Malaysian Peninsula as well as on Borneo. The busiest airport in Malaysia is KLIA with more than 58.5 million passenger movements in 2017 (MAHB 2018).

As discussed in a paper by Karim et al. (2003), there have been major plans in the 8th Malaysian Plan (2001-2005) and more elaborated objectives by the Ministry of Transport in 2002 concerning airports. In the 11th Malaysia Plan, airports are only briefly mentioned in chapter 7 “Strengthening infrastructure to support economic expansion”. According to that chapter, new investments in road, rail and air services are planned in order to boost regional development and the government announced to create a better integration of the different modes of transport to create connectivity for people and goods. There is no official document by the government concerning policies or strategies for air transport.

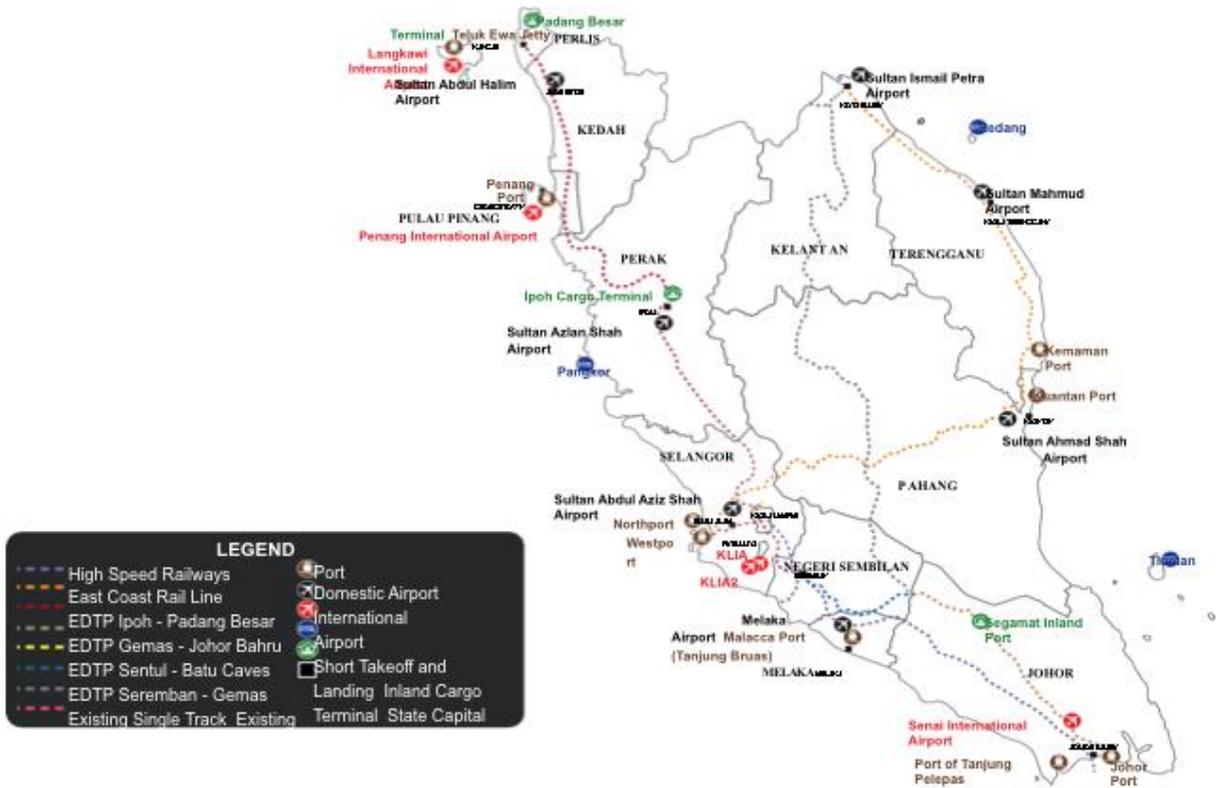


Figure 5: Port and Airport Locations in Peninsular Malaysia



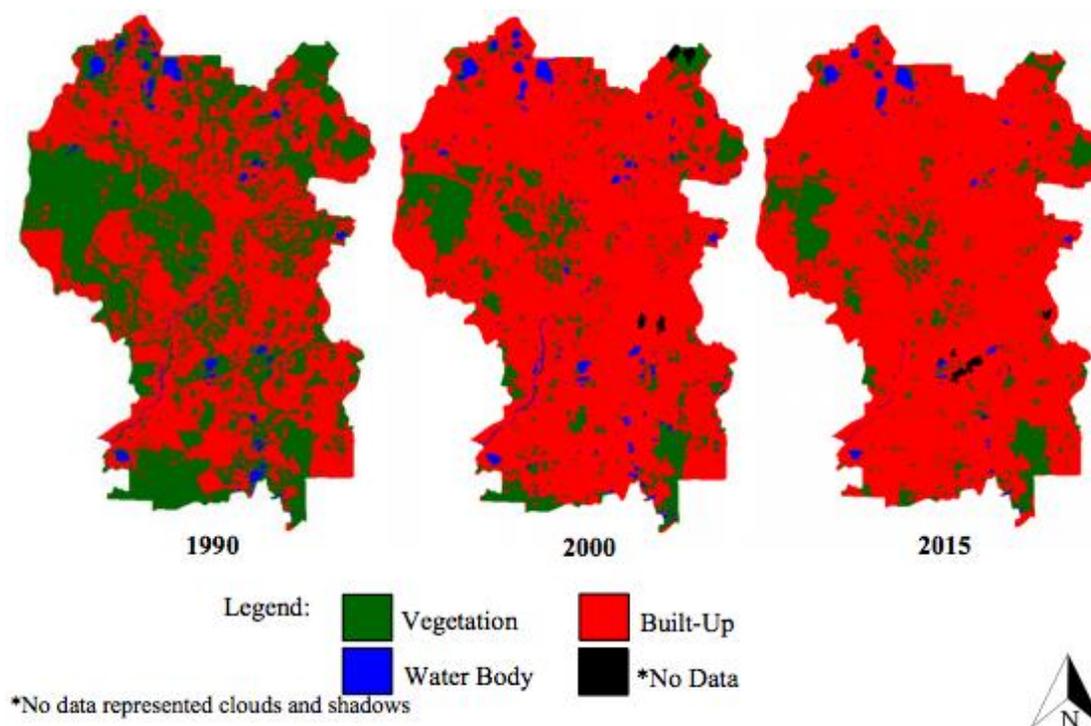


Figure 7: Distribution of land use and land cover change in Kuala Lumpur the year 1990, 2000 and 2015

Table 2: Statistics of total area of land use and land cover in Kuala Lumpur in 1990, 2000 and 2015

Year / Type of Land Use	1990		2000		2015		Percentage of changes (25 years)
	Area (Hectares)	Percentage (%)	Area (Hectares)	Percentage (%)	Area (Hectares)	Percentage (%)	
<b>Vegetation</b>	10,212	41.91	3,670	15.06	2,779	11.41	-72.79
<b>Water Body</b>	416	1.71	558	2.29	298	1.22	-28.37
<b>Built Up</b>	13,737	56.38	20,066	82.36	21,228	87.12	+54.53
<b>*No Data</b>	0	0	71	0.29	60	0.25	-
<b>Total</b>	24,365	100	24,365	100	24,365	100	-

\*No data represented clouds and shadows

Source: Asnawi, N.H., et.al (2018)

The built up areas cover more than 50% of total area for the year 2015 as it increased tremendously with 54.53% increased within 25 years. Unlike built up area, the vegetation experience a decreasing trend with 72.79% decline within those 25 years. Generally, the three stages period of study clearly indicated a varying rate of changes for LULC in Kuala Lumpur. At large, the growth of development in Kuala Lumpur had greatly affected the land use changes. This development will definitely benefit the people but, uncontrolled development could lead to negative implication.

Sprawling of Malaysia's cities results in long commutes to work and heavy reliance on car use. The share of transport costs in household income is 50% higher than Hong Kong and

Tokyo, which undermine livability, quality of life and environmental sustainability. (PlanMalaysia). Figure 8 depicts the urban sprawl formation in Kuala Lumpur from the year 1850s until now.

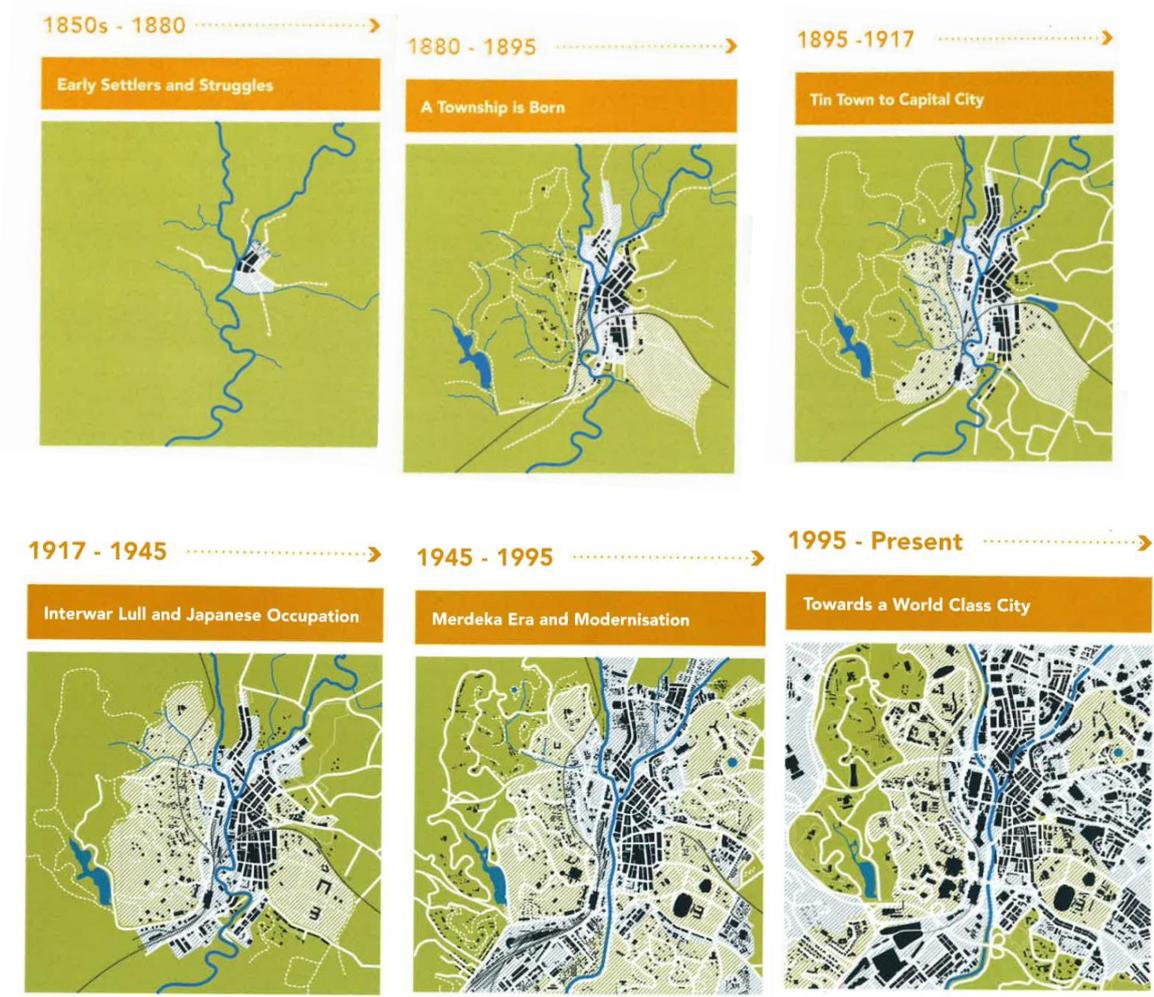


Figure 8: Urban Sprawl formation in Kuala Lumpur from the year 1850s until now  
 Source: PlanMalaysia

In Malaysia, urban land grew from around 3,900 km<sup>2</sup> to 4,400 km<sup>2</sup> between 2000 and 2010 with an average annual growth rate of 1.5% which is lower than the average of 2.4% for the region. Nevertheless, the absolute amount of urban spatial expansion was among the highest in the region covering approximately 1.4% of the total area in the country in 2010, making urban areas in Malaysia among the least dense in East Asia (PlanMalaysia). Figure 9 illustrates the population density to distance from city centers

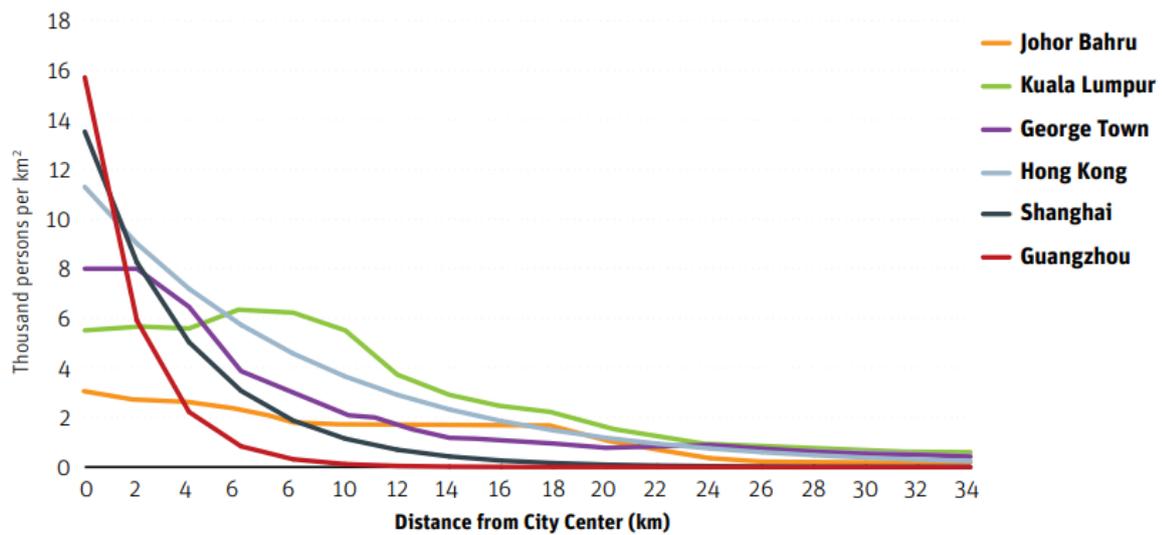


Figure 9: Illustration of population density to distance from city centers (KM)

Source: PlanMalaysia

Ideally, if the development is being planned for residential area nearby public transportation stations, within a highly dense populated area, the public transportation ridership will be high. This is because distribution of different land use types within the public transport services will influence passenger ridership. Residential areas are considered as the trip origins and commercial services, industrial, institutional, open spaces and recreation activities are considered as trip destinations. The examples of land use distribution for LRT services in Kuala Lumpur are shown in Figure 10 and Figure 11.

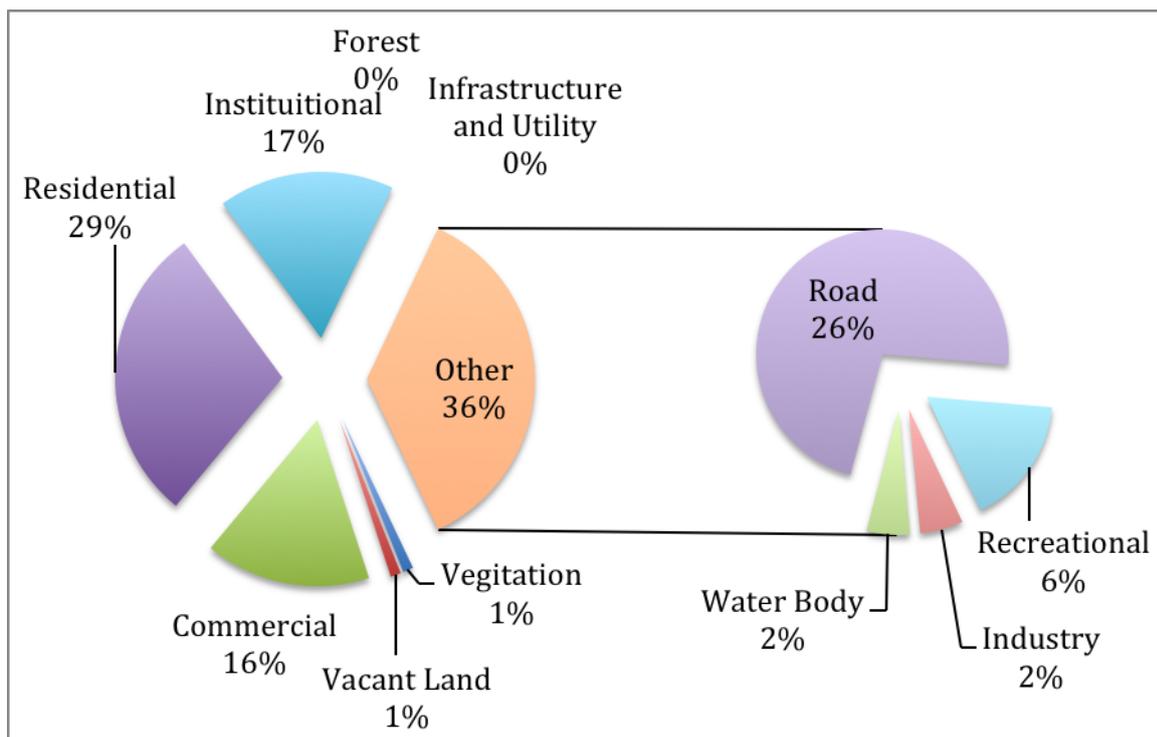


Figure 10: Land use distribution at Kelana Jaya LRT Line (based on 1000m radius)

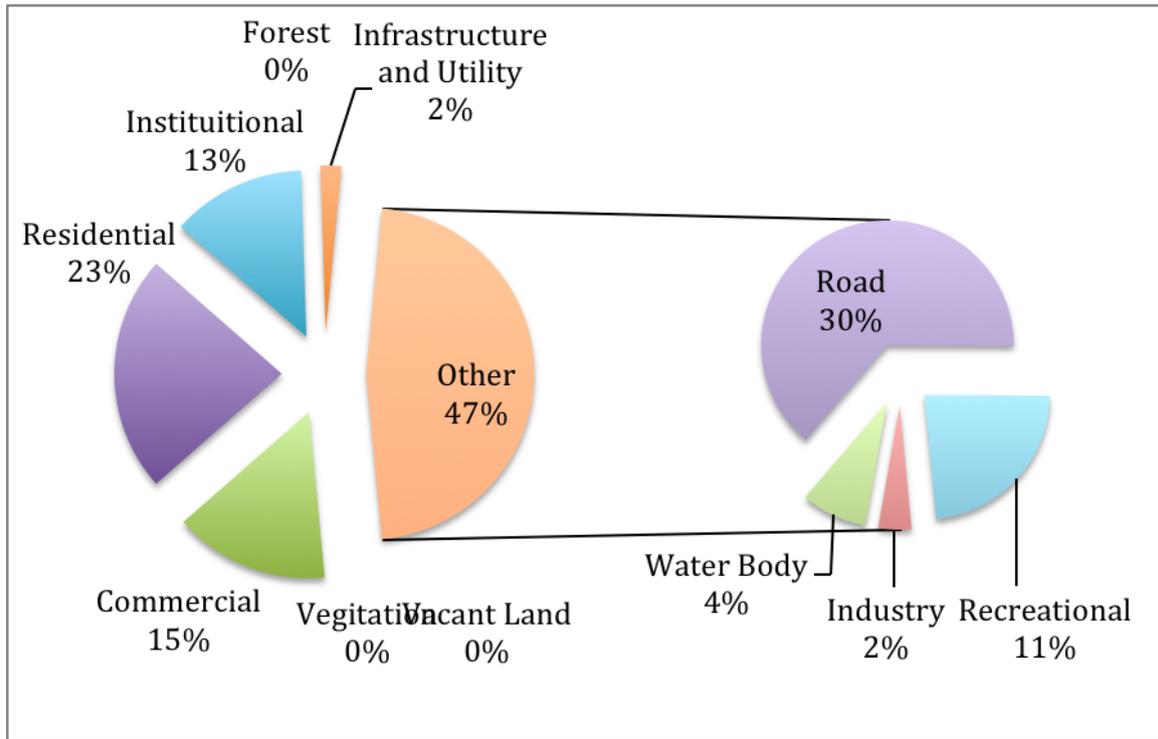


Figure 11: Land use distribution at Ampang LRT Line (based on 1000m radius)

Source: Mohamad Zulkifli, S.N.A. et.al (2017)

From Figure 10 Kelana Jaya Line covers 29% of residential area, 17% of institutional areas and 16% of commercial area. From Figure 11, the Ampang LRT Line covers 23% of residential areas, 15% commercial area and 13% institutional areas. Figure 8 depicts the thematic map of land use at LRT stations along Kelana Jaya and Ampang Line.

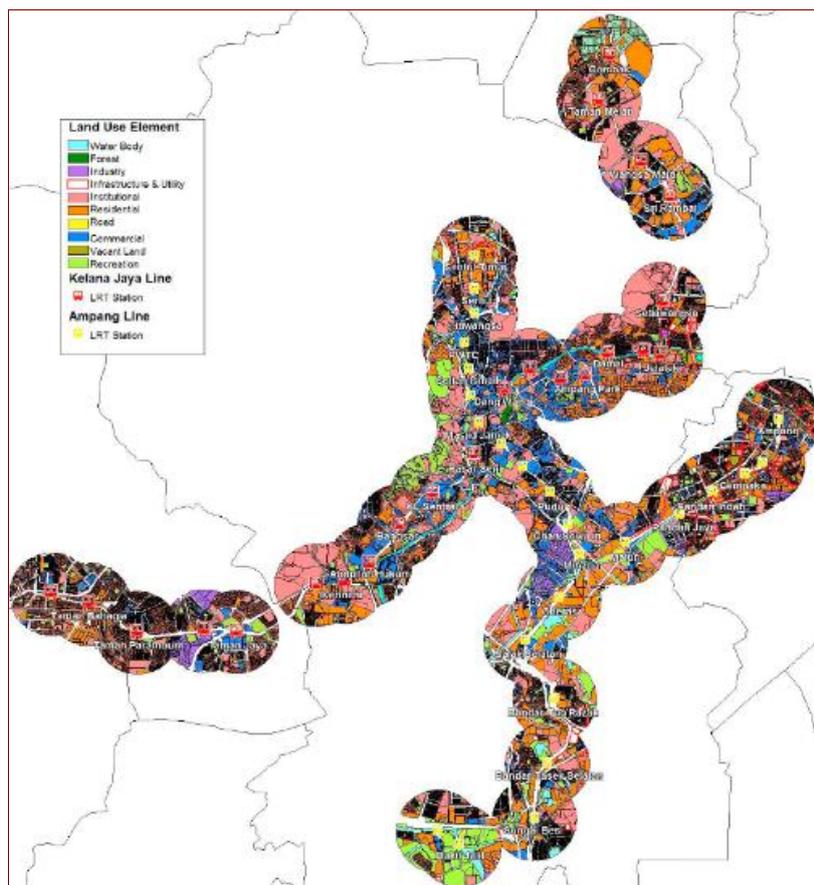


Figure 12: Land use at LRT stations along Kelana Jaya and Ampang Line.

Source: Mohamad Zulkifli, S.N.A. et.al (2017)

#### 4. MASTER PLANS FOR LAND PUBLIC TRANSPORT

In 2013, for the first time, National Land Public Transport Master Plan was published. Land Public Transport Commission (SPAD), was in charge of this master plan. In the same year, also with an initiative of SPAD, Greater Kuala Lumpur / Klang Valley Land Public Transport Master Plan was published. It is the first regional master plan specifically made for public transport, and it has a scope of approximately 15 years to 2030. In this regional master plan, some measures are proposed, with consideration of financial resources and monitoring plans.

In this regional master plan, transport corridors are subcategorized into primary, secondary and feeder corridors based on the travel demand by public transport. Primary corridors which are identified as those with the highest demand over 25,000 Passengers per hour per direction (PPHPD) while secondary corridors will have demands in the range 5,000 to 25,000 PPHPD. Conceptual hierarchy of public transport network is presented, and appropriate travel mode is proposed in relation to this hierarchy and travel distance. The suggested measures include construction of urban railway (MRT – Mass Rapid Transit), upgrading existing interchange stations, adjustment of bus routes, implementation of journey planner, implementation of fixed-tariff 30-day public transport pass, and so on.

As key performance indicators, the following ones are listed. As seen in Table 3, it is a mixture of outcome targets related to travel behavior (“outcome target” in the field Remark), operational target for effective use of the infrastructure and/or for a better revenue as well as

quality of service provided (“Operational target”), milestones of some project (“Milestone”), and supply-side target (“Supply target”). Of note, the KPI “Population residing within 400m of public transport nodes” is classified as a Supply Target because, in the context of this master plan, it is associated to the densification of public transport network to extend the area coverage, rather than to encourage relocation of settlement closer to public transport.

Table 3: Key Performance Indicators of Regional Master Plan

<b>KPI used in the regional master plan</b>	<b>Remark</b>
<b>Public Transport Modal share</b>	Outcome target
<b>Total PT User AM Peak</b>	Operational target
<b>Population residing within 400m of public transport nodes</b>	Supply target
<b>KTM Komuter Load Factor</b>	Operational target
<b>KL Monorail Project Load factor</b>	Operational target
<b>Bus Load Factor</b>	Operational target
<b>Customer Satisfaction Level</b>	Operational target
<b>BRT Corridor 1 (KL-Klang) : SST Letter</b>	Milestone
<b>Bus Network Revamp Lembah Klang</b>	Supply target
<b>KTM punctuality performance during AM peak hour time</b>	Operational target
<b>Total parking area in Lembah Klang</b>	Milestone
<b>Total number of taxi</b>	Supply target
<b>Completion of design stage of Automated Fare Collection (AFC) Project</b>	Milestone
<b>TT Gombak Project: Confirmation of extra contract</b>	Milestone

*Source: Ministry of Transport Malaysia*

It has to be noted that the feeder considered in this master plan has a strong orientation of vehicular traffic such as feeder buses and drop-off, and the extent of the coverage of pedestrian traffic, which is in many cities the primary mode to access public transport, is limited. As for cycling, which is in many cities also serves as important feeder especially to rail-based public transport, it appears only in an odd sentence in a diagram together with walking as a feeder mode to public transport. In addition, because of the nature of this master plan focusing on public transport, this master plan does not reach to the strategy and relevant policy instruments to reduce the usage of automobile in a comprehensive manner. As such, this master plan has a strong character of a sectoral plan, and it has a lot of potentials in terms of comprehensiveness in order to encourage users to use public transport.

As mentioned above, this is the master plan for a particular region Greater Kuala Lumpur and Klang Valley, while it is initiated by a national commission SPAD, which was settled under the prime minister’s office. Of note, since 2018, it is settled as Local Public Transport Agency (APAD) under the Ministry of Transport.

Currently, there are three main focuses of the ministry which involved public transport that are to make sure efficient public transport system, safe and accessible to all groups including disabled and senior citizens; and cost that is not burdensome to the public. To further step up the handling of transportation issues, the government has agreed to set up Malaysian Transport Safety Board (MTSB), an investigating body that conduct investigation on the incident of transportation accident freely, transparent, professional, and comprehensive. Besides, Ministry of Transport is committed in ensuring the reduction of carbon emission in the country thus, more public will utilize public transportation. Based on the

commitment in the Paris Agreement, where Malaysia is one the members of the United Nations Framework Convention on Climate Change (UNFCCC), Malaysia intends to reduce the carbon emission intensity of 45% based on GDP by 2030 compared to the intensity in 2005. By 2030, Malaysia hope to achieve 40% public transportation modal share in Greater Kuala Lumpur and major urban centres in Peninsular Malaysia and to increase public transportation ridership in GKL/KV from 1,350,000 in 2010 to 1,400,000 in 2019.

In order to encourage public to use public transportation in Greater Kuala Lumpur and to make it more affordable to all, government agreed to give RM100 Rapid Rail Rapid Bus & RM50 Rapid Bus 30 Day Pass (discount card) to Malaysian citizens only. The rationale for the Pass is to reduce high cost of living of the rakyat. In addition, GoKL, a free bus service was introduced to offer a viable and economic alternative for commuters to travel within the Kuala Lumpur Central Business District (CBD) area. The bus service is designed to function as a feeder bus, providing last mile connectivity by integrating with other modes of public transport. Moreover, the government also encourage TOD and mixed development in which residents of the city have the opportunity to accomplish different activities of their daily lives, either to work or play as part of the overall strategy to avoid, move and shift the needs of commuting or private transport. Positive impacts of e-hailing include providing variety of choices for commuters to use as an alternative access mode in the first and last mile mode, and it will directly increase the commuters base to and from the transit, mainly the LRT and MRT.

Soon, the National Transport Policy (NTP) by Ministry of Transport, which has a very comprehensive set of strategies to strengthen infrastructure and provide a sustainable transport system, will be launched. The policy involves roads, rail, air and sea transportation systems. The short-term measures will start by 2019 and the medium and long term measures will start by 2021 or later. The relevant gaps to be addressed that necessitate need to mode shift & enhance traffic management are the mobility of Malaysian to increase more than three times.

#### **4. MASTER PLANS FOR NON-MOTORIZED TRANSPORT**

Kuala Lumpur City Hall (DBKL) is preparing the Kuala Lumpur Pedestrian and Bicycle Master Plan 2019-2028 to encourage city dwellers to walk or ride a bicycle. The objectives are :

- to increase the quantity and enhance the quality of walking and cycling facilities in KL
- to encourage, champion and incentivize walking and cycling as supporting components of seamless connectivity based on public transportation; and
- to connect vibrant and attractive public spaces created by place making with safe and comfortable walking and cycling facilities

Currently, Kuala Lumpur has 5.5 km dedicated bicycle lane from Dataran Merdeka to Mid Valley. Kuala Lumpur. Kuala Lumpur City hall has proposed dedicated bicycle lanes in city centre which connects LRT Station Taman Melati to LRT Station Wangsa Maju (2.1 km and Kg. Batu Muda – Taman Metropolitan Batu (2.0 km). Figure XX depicts the extension of bicycle lane.

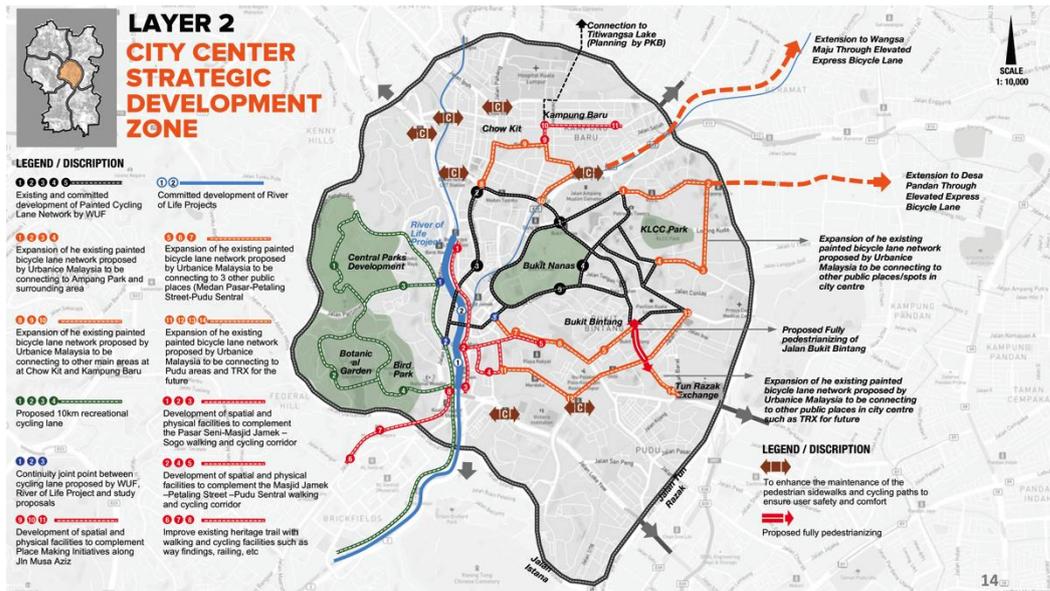


Figure 13 : The extension of bicycle lane

Source: Kuala Lumpur City Hall

A comprehensive pedestrian network with anti climb fences, barrier free and handicapped-friendly, together with landscaping are available in Kuala Lumpur. Table 4 lists the completed pedestrian network by year.

Table 4: Completed pedestrian network by year

Year	Length (KM)	Route
2011	12.6	Jalan Raja Laut, Jalan P. Ramlee, Jalan Tuanku Abdul Rahman, Jalan Sultan Ismail
2012	13.4	Jalan Raja Laut – Jalan Ipoh, Jalan Ampang – Jalan Sultan Ismail, Jalan Bukit Bintang, Jalan Raja Chulan, Jalan Tung Shin, Jalan Pudu
2013	12.8	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	12.7	Jalan Sultan Ismail, Changkat Raja Chulan, Changkat Bukit Bintang, Jalan Hang Jebat, Jalan Imbi, Jalan San Peng



Figure 14 :The pedestrian walkway

## 8. CONCLUSIONS

- 5-year development plan emphasizes the road transport very much, railway is put aside.
- Land public transport master plan covers only land based modes, does not deal with long-distance modes connecting different parts of the country (e.g. between peninsula and east Malaysia).
- Regional public transport masterplan is made on the national level, so far there is only one for the capital region (greater KL, Klang valley).
- Regional public transport masterplan has a strong focus on vehicular modes, access and egress on foot is somewhat considered but not strongly dealt with, access/egress by bicycle is practically not dealt with.
- Regional PTMP: structure of goal, measure (policy instruments) and timeline of implementation and monitoring, however the setting of the goal with key performance indicators is mixed with outcome indicators, supply targets, milestones in the project implementation and operational targets such as load factor; could be better structured in the future.
- In the past institutions not in the same ministry, now all under MOT (since May 2018); construction and maintenance of roads is still managed by Ministry of Public Works;
- No integrated urban/regional master plan covering all modes of transportation and also no integrated national level masterplan covering all modes
- Rail: the national rail network had been depending on the ones developed by the British times and the development started in the 1990s, since then modernization of railway is taking place more rapidly.

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