



[English] [Malay]

Kuala Lumpur Structure Plan 2020

Preface

Acknowledgement

1 Introduction

2 International and National Context of Growth

3 Vision and Goals of Kuala Lumpur

4 Economic Base and Population

5 Income and Quality of Life

6 Land Use and Development Strategy

7 Commerce

8 Tourism

9 Industry

10 Transportation

10.1 Introduction

10.2 Existing situation and issue

10.2.1 General

10.2.2 Public transport

10.2.3 Private transportation

10.2.4 Road infrastructure

10.2.5 Non-motorised transport

10.2.6 Freight transport

10.3 Objective

10.4 Policy and proposal

10.4.1 General

10.4.2 Public transport

10.4.3 Private transportation

10.4.4 Road infrastructure

10.4.5 Non-motorised transport

10.4.6 Freight transport

10.5 Future requirement

10.5.1 Integrated public transportation system

10.1 Introduction

382. Comprehensive and efficient transportation system networks with good inter and intra city linkages are essential enabling factors to ensure Kuala Lumpur's position as an international commercial and financial centre.
383. For the residents of Kuala Lumpur, the City must be able to provide an efficient and equitable city structure that, as far as possible, allows all members of the community equal accessibility to all areas and facilities so that everyone may enjoy the maximum benefits of city living.
384. The basic structure is now in place with a comprehensive road and rail network that has been built up since 1984, and the programme now for Kuala Lumpur will be to develop, refine and integrate this transportation system to serve the City and its population until 2020. In this respect, CHKL shall assist in the implementation of a fully integrated transportation system.

10.2 Existing situation and issue

10.2.1 General

a) Transport modal share

i. Existing situation

385. Between 1985 and 1997, the modal share of public transport decreased from 34.3 percent to 19.7 percent. This represents a major shift away from public transport and in particular bus transport, which is partly attributable to higher personal affluence leading to an increase in car ownership and also to deficiencies in the bus services. The increasing reliance on private transportation, in particular private cars, has created considerable pressure on the road network which has contributed to the problems of traffic congestion.

ii. Issue

- Low public transport modal share resulting in high demand on road infrastructure and traffic congestion.

b) Travel demand

i. Existing situation

386. Increased affluence and out migration from Kuala Lumpur have both contributed to the present traffic congestion

10.5.2 Road system

11 Infrastructure and Utilities**12 Housing****13 Community Facilities****14 Urban Design and Landscape****15 Environment****16 Special Areas****17 Strategic Zone****18 Implementation****Abbreviations****Glossary****FAQ**

problems in the City Centre. Between 1980 and 1997, the population of Kuala Lumpur maintained an annual growth rate of 1.1 percent while from 1985 to 1997 person trips by cars increased at an average annual growth rate of 4.2 percent in the Klang Valley Region.

387. It is also significant that, although the population of the City Centre accounts for only 3.3 percent of total population of the Klang Valley Region, approximately 19 percent of the 8.3 million person trips made daily within the Klang Valley Region are trips generated in the City Centre.

388. The high travel demand has been met in large part by private transportation in particular, private cars. As a consequence, there has been congestion and a serious deterioration of travel speed on major roads in many parts of Kuala Lumpur, especially in the City Centre as well as in the east and south, due to major traffic routes operating at or above capacity during peak hours. Low vehicle occupancy has further aggravated the problem.

ii. Issue

- High travel demand to and from the City Centre during peak hours.

c) Traffic management**i. Existing situation**

389. Traffic management measures are aimed at optimizing the existing infrastructure to improve flow capacities and to be more responsive to traffic demand at different times of the day.

390. Various measures have been successfully implemented in Kuala Lumpur. The principal means of traffic control in the City presently comprises a computer based area traffic signal coordination system (SCATS/ITACA) that operates 130 intersections, supplemented by the traffic police during peak hours. Extension of the existing traffic control system, together with an upgrading of the system's capability, is currently being implemented in phases.

391. Other traffic control measures which contribute to traffic management in Kuala Lumpur include the one-way street system, reversible lanes to increase lane capacity during morning peak hours, exclusive bus/taxi lanes, penalties for illegal on-street parking and regulations controlling heavy vehicle entry into the City Centre during peak hours.

392. Additional measures that relate to road safety are through the use of traffic signage, barriers, pavement line marking and pedestrian bridges. Driver awareness campaigns and strict provisions for the issuance of driving licenses are also relevant contributions to effective traffic management.

ii. Issue

393. Although traffic management measures have done much to ease traffic flows particularly in the City Centre, they cannot continue to do so indefinitely if traffic demand on the roads continues to grow.

- Traffic management measures alone cannot effectively increase existing road capacity levels.

d) Transportation institutional framework**i. Existing situation**

394. The institutional structure responsible for urban transportation within Malaysia and, more specifically, Kuala Lumpur is divided between federal departments and City Hall Kuala Lumpur (CHKL) (refer to Table 10.1).
395. The CHKL Urban Transport Department is entrusted with wide ranging coordination and administrative functions for the planning of urban transport in an effective manner. The Federal Government deals more with nationwide transportation plans, policy guidelines and matters concerning overall transport administration and planning.
396. Private sector involvement in the provision of transport infrastructure has expanded from the original role of bus and taxi transport operations to toll road construction and the implementation, operation and maintenance of the commuter, light rapid transit (LRT) and people mover rapid transit (PRT) systems.

Federal Government / Local Government Tier	Departments Related to Transportation
Prime Minister's Department	<ul style="list-style-type: none"> Economic Planning Unit Federal Territory Development and Klang Valley Planning Division
Ministry of Home Affairs	<ul style="list-style-type: none"> Royal Malaysian Police
Ministry of Works	<ul style="list-style-type: none"> Public Works Department Highway Planning Unit Malaysian Highway Authority
Ministry of Transport	<ul style="list-style-type: none"> Road Transport Department Department of Railways Railway Asset Corporation
Ministry of Entrepreneur Development	<ul style="list-style-type: none"> Commercial Vehicle Licensing Board
City Hall Kuala Lumpur	<ul style="list-style-type: none"> Urban Transportation Department Public Works Department Enforcement Directorate

Source: Information Book: Dewan Bandaraya Kuala Lumpur, 1993. Dealing with the Malaysian Civil Service - 2nd Edition: Pelanduk Publications (M), 1994.

Table 10.1: Urban Transportation Responsibilities - Federal and Local Government Departments

ii. Issue

397. There is a degree of overlap and duplication in the functions of the various agencies responsible for Kuala Lumpur's transportation network which has led, in some instances, to conflicting policies or programmes. This has made it more difficult to formulate policies for public and private transportation which are consistent.
- Inadequate coordination of policies concerning public transport and public/ private transport modes.

10.2.2 Public transport**a) Rail - Based public transport**

i. Existing situation

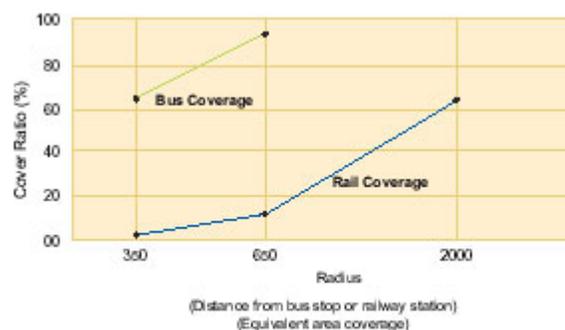
398. Rail services have become a significant factor in public transport in Kuala Lumpur since the opening of the Light Rail Transit (LRT) System 1, Sistem Transit Aliran Ringan Sdn Bhd (STAR) in 1996 and subsequently the LRT System II or Projek Usaha Sama Transit Ringan Automatik (PUTRA) in 1998. Together they provide approximately 50 kilometres of rail network with 40 stations. In addition to the LRT, the People Mover Rapid Transit (PRT), a monorail system recently completed, serves major office and other commercial developments within the City Centre. The monorail's 10-kilometre route with 10 stations act as a downtown people mover operating on an elevated track.
399. The Express Rail Link (ERL), a dedicated high-speed rail system, connects KL Sentral and Kuala Lumpur International Airport (KLIA). The ERL terminus at KL Sentral functions as a city airport terminal for KLIA. At KL Sentral station, an intermodal facility is being provided with KTM Commuter, PRT and LRT System II, where users can transfer between the various modes to their desired destinations.
400. The upgrading of KTMB rail services and the operation of the KTM commuter added about 137 kilometres of rail services between Rawang - Seremban and between Sentul - Port Klang passing through 39 stations and halts. This service allows commuters to capture a significant portion of the long distance daily travel needs between Kuala Lumpur and the suburbs.



Photo 10.1: Rail services have become a significant factor in public transport in Kuala Lumpur...

ii. Issue

401. LRT and commuter rail usage has been encouraging. However, optimal usage has still to be achieved due to:
- inadequate interchange facilities at stations including car and motor cycle parking and pedestrian linkages;
 - lack of integration between rail-based stations; and
 - poor support services including inadequate feeder bus frequency and service coverage.
402. Figure 10.1 indicates the relative accessibility of bus and rail-based public transport. It is clear that rail-based public transport services are far less accessible than bus services and, consequently, their ability to service patrons in a single trip from origin to destination is very limited. The 2-kilometre radius coverage of the feeder buses that operate from stations is not enough to ensure sufficient accessibility.
- Poor accessibility to rail-based public transport.



Note: 2000m distance based on an average area 2000m x 650m to allow for proximity of stations.

Figure 10.1: Rail and Bus Accessibility

b) Bus services

i. Existing situation

403. At present there are four major private companies operating about 15,000 bus trips per day. Each company operates about 30 routes, most of which are radial in nature, terminating at the City Centre.
404. Improvements to the bus network are being facilitated by CHKL providing exclusive bus and taxi lanes in the City Centre and comfortable stop facilities. Together these improvements are intended to offer passengers a quick, comfortable and convenient transport option.

ii. Issue

405. Despite the improvements to the bus system and road infrastructure, bus utilisation is low, primarily as a consequence of route duplication, unreliable service frequency, overcrowding during peak hours and the poor

condition of buses.

- Under utilisation of bus services; and
- Unreliable and poor quality of services.



Photo 10.2: Improvements to the bus network are being facilitated by CHKL providing exclusive bus/taxi lanes in the City Centre and comfortable shelter/stop facilities.

406. The existing main bus terminal is at Puduraya in the City Centre. The majority of inter city buses and coaches terminate there, thus adding to traffic congestion and consequently, longer journey times for passengers.
- Central location of main bus terminal contributing to traffic congestion.

c) Taxis

i. Existing situation

407. Taxis are an important element of the public transport system offering a convenient form of alternative transport particularly outside peak hours. There are approximately 24,721 taxicabs licensed in Kuala Lumpur, run by 4,183 operators. A traffic classification survey carried out by Japan International Cooperation Agency (JICA) in 1997 indicated that taxis constituted 4 to 6 percent of the total number of vehicles passing through the City Centre.

ii. Issue

408. There is no shortage of taxis but availability is frequently a problem at peak periods and during bad weather.
- Unreliable taxi services.

10.2.3 Private Transportation

a) Cars and car parking

i. Existing situation

409. Based on the Road Transport Department report, the ratio of registered cars and motorcycles in Kuala Lumpur was 985.7 per 1,000 population in 2000. However, based on the Home Interview Survey carried out by JICA in 1998 the estimated possession ratio in vehicles represents approximately 211 cars per 1,000 population and 164 motorcycles per 1,000 population. Private cars account for 56.6 percent of all motorised trips in Kuala Lumpur.
410. CHKL through the town planning approval process controls the number of car and motorcycle parking spaces to be provided for new development. However, at present parking charges are subjected to market forces and are not regulated.
411. In order to alleviate traffic congestion, CHKL has successfully implemented roadside parking restrictions on all major arterial roads in the builtup areas.
412. There are approximately 65,206 car parking spaces in the City Centre (refer to Figure 10.2). Office buildings record the highest utilisation of spaces averaging 71.0 percent, followed by retail premises (49.0 percent average) and mixed-use (47.0 percent average). Generally, car-parking provision in the City Centre is more than adequate.

ii. Issue

413. Parking charges in the City Centre favour regular long-term parking with many car park operators offering cheap seasonal parking tickets. This, together with the flexibility afforded by private transport, encourages commuters to continue to use private transport into the City Centre.
- The low cost of long-term parking in the City Centre together with the abundance of parking spaces and the flexibility of movement associated with car transport, has made car transport the preferred means of travel in the City.
414. Outside the City Centre there is a shortage of car parking spaces in areas close to public transport and also in shop lot development where there are no multi-storey or underground car parks.
- Shortages of parking spaces outside the City Centre in locations which have reasonable access to public transport and in shop lot development.

b) Motorcycles**i. Existing situation**

415. Motorcycles account for approximately 23 percent of all road users in Kuala Lumpur. Principally used by the young and lower income groups, they provide a fast, flexible and economical means of transportation around the City.
416. About 52 percent of the total numbers of fatal and serious accidents in Kuala Lumpur involve motorcycles. Motorcycles are the major source of urban air and noise pollution. Noise emission from motorcycles in the City Centre exceeds permissible noise limits (Malaysia Environmental Quality Report 1996, DOE).

ii. Issue

- The accident rate involving motorcycles is higher than for all other forms of transport; and
- Motorcycles contribute significantly to noise and air pollution.

10.2.4 Road infrastructure ↑

i. Existing situation

417. Under the privatization policy, the road building programme for the Klang Valley set out in the KLSP 1984, which comprised 23 new roads and 21 major road improvement projects, has mostly been completed together with some additional toll highways. The road network now in place has succeeded in its primary purposes of eliminating through traffic from the City Centre, reducing congestion on minor roads and efficiently dispersing traffic from the City Centre.
418. In addition, there are a number of road building projects already under way, and some for which a concession agreement has already been signed, or for which approval in principle has been given (refer to Table 10.2).

ii. Issue

419. Discontinuities in the old city street layout have resulted in a lack of direct routes being available for traffic entering or leaving the City Centre, specifically from the south along Jalan Syed Putra and from the east along Jalan Kuching. Access to Bukit Bintang from these directions require through traffic to pass along narrow streets within the old city precinct.
- Constraints in expanding existing routes for traffic entering or leaving the City Centre.



Photo 10.3: The road network now in place has succeeded in its primary purposes of eliminating through traffic from the City Centre.

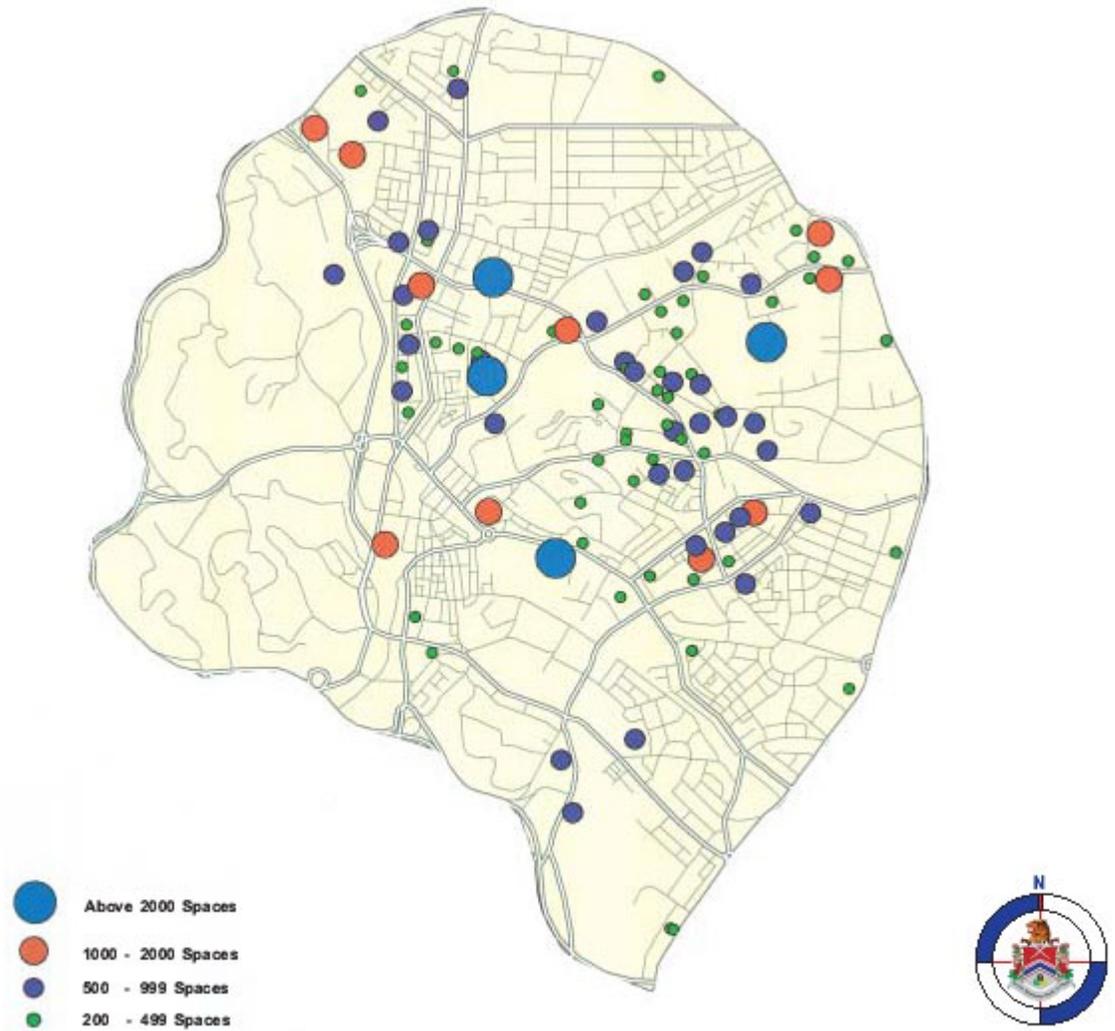


Figure 10.2 : Location of major car parking stations in the city centre, 2000

No.	Road Projects	Status
1.	Middle Ring Road 2	Completed
2.	New Pantai Highway	Under construction
3.	Western Kuala Lumpur Traffic Dispersal Scheme (Damansara, Kerinchi, Penchala Link)	Under construction
4.	Sungai Besi Highway	Completed
5.	Ampang Elevated Highway	Completed
6.	New Klang Valley Expressway (NKVE) - North Link	Completed
7.	Salak Expressway	Completed
8.	East - West Link	Completed
9.	Middle Ring Road 1	Completed
10.	Inner Ring Road	Completed
11.	Puchong - Sungai Besi Road	Completed
12.	Jalan Pahang	Completed
13.	Jalan Genting Klang (upgrading)	Planning stage
14.	Jalan Gombak (upgrading)	Planning stage
15.	Kuala Lumpur Karak Highway (upgrading)	Planning stage

Table 10.2: Highway and Road Building Projects, 2000

420. Although the road-building programme is, to all intents and purposes, complete, there remain instances where connections between major roads or major and minor roads are incomplete. In addition, in some instances there is traffic back up at atgrade junctions which are unable to cope with the traffic flow. These factors cause traffic bottlenecks that lead to traffic congestion particularly at peak hours.
- Discontinuities in the road network; and
 - Traffic back up at at-grade junctions.
421. Because no requirement has been made in privatization agreements, major toll highways have been built without any specific provision for public transport or freight vehicles. The potential for maximising the utilisation of these highway routes for high-speed public transport connections to outlying areas has not been exploited.
- Lack of specific provision in toll highways for public transport or freight vehicles.
422. The development of major roads in Kuala Lumpur has not always fully observed road classification requirements. In addition, some roads have assumed functions for which they were not originally designed such as residential roads that have become trunk roads due to ill-considered road connections. These anomalies have presented difficulties in the design and management of the overall road network.
- Existing designation of major roads does not reflect actual usage.
423. Plot ratios for commercial spaces within the City Centre have progressively increased over the years and created increased pressure on the road network. Large-scale projects planned and committed will increase private vehicle travel demand even further.

- Increased pressure on the road network due to intensive and large-scale commercial development.

10.2.5 Non-motorised transport ↑

a) Pedestrian

i. Existing situation

424. A pedestrian network is progressively being implemented in the City Centre. This will facilitate pedestrian and non-motorised vehicle movement at activity centres, connect transit stations and terminals for convenient inter-modal transfer, provide pedestrian malls and act as traffic restraint measures. The network will also help increase the utilisation of public transportation and reduce short vehicle trips.
425. The existing situation and issues relating to pedestrian movement are outlined in Chapter 14: Urban Design and Landscape.

b) Bicycles

i. Existing situation

426. Cycle ways have, for some time, been incorporated into new housing estates and recreational areas. Despite the relatively flat terrain of Kuala Lumpur, cycling as a convenient means of transport is under utilised partly due to local climatic conditions. There are also, however, some shortcomings in the existing cycle way network which contribute to the under utilisation of bicycles.



Photo 10.4: ...pedestrian and non-motorised vehicle movement at activity centres, connect transit stations and terminals for convenient inter-modal transfer...

ii. Issue

427. Opportunities exist for bicycle transport in providing connections to public transport services and short distance local travel. Other cities have utilised their roads, rail and open space corridors to create a comprehensive local area cycle way network.

- Cycle ways in housing estates suffer from under usage, misuse (illegal parking) and poor maintenance; and
- Lack of continuity in the cycle way networks.

10.2.6 Freight Transport

i. Existing situation

428. Lorry vehicular trip production is mainly focused in the industrial areas peripheral to the City Centre. Heavy lorry flows are concentrated more in external zones to the south and passing through the region on a north-south axis.
429. Within Kuala Lumpur there is some heavy goods vehicle (HGV) movement although this is prohibited during the morning and evening peak hours.

ii. Issue

430. There are areas in the north and south of the City where the illegal parking of HGVs, construction vehicles and coaches in residential areas causes inconvenience to the residents.
- Illegal parking of heavy goods vehicles and construction vehicles in residential and commercial areas due to the lack of proper parking facilities and consequent enforcement difficulties.

10.3 Objective

431. To create an efficient and equitable city structure for Kuala Lumpur, CHKL aims to:
- provide a comprehensive and integrated transportation system that caters for the needs of inter and intra city travel;
 - reverse the decline in public transport usage and to achieve a targeted public: private transport modal split of 60:40 by the year 2020;
 - optimise the road and rail transportation infrastructure so that it operates at its full capacity and maximum efficiency;
 - ensure that the overall configuration of land use is integrated with road and public transportation networks to optimise the development of land; and
 - ensure that all areas within the City enjoy the same high quality and standard of provision of public transport services.
432. To enhance the city living environment, CHKL aims to:
- create a city that is highly accessible for all its occupants and users, in particular, one that is pedestrian and handicapped friendly.

10.4 Policy and proposal ↑

10.4.1 General

a) Travel demand management

433. If current trends continue, motorised trips by car in 2020 are expected to be almost double those of 1997. Increasing road capacity by constructing new roads and widening existing roads do not, in the long run, resolve the situation but simply postpone the problem until more roads need to be built. Most areas in the City, especially the City Centre, are now built up and land acquisition for road development is becoming increasingly difficult and expensive.
434. CHKL is, therefore, moving towards a Travel Demand Management strategy that aims to redirect movement patterns from private to public transport by integrating transport modes, extending and promoting public transport and discouraging the use of private transport. The public transport system in the City must be competitive, convenient, userfriendly and accessible to all income groups.

Policy	
TI 1:	CHKL shall determine Travel Demand Management measures to increase public transport usage and liaise with the relevant authorities to ensure that these measures are implemented.
TI 2:	CHKL shall implement a private vehicle restraint programme to improve traffic circulation in the City Centre by discouraging car travel to and from the City Centre during peak hours and enforcing measures to limit access to certain parts of the City.

b) Traffic management system

435. In order to optimise the traffic management system now in place, the system needs to be upgraded to one that can monitor and control all aspects of traffic movement in the City.

Policy	
TI 3:	CHKL shall enhance the traffic management system.

c) Transit oriented development

436. A principal objective of the transportation sector is the integration of land use with transportation and the development of a Transit Oriented Development Strategy. This strategy, which is detailed in Chapter 6: Land Use and Development Strategies, will promote intensified development along the rail network. Any planned extension to

the rail network must, therefore, complement this policy by ensuring that rail stations serve designated urban centres.

Policy	
---------------	--

TI 4:	CHKL shall establish a Transit Planning Zone to facilitate intensification of transit oriented residential, commercial and mixed use development around rail stations.
--------------	--



Photo 10.5: ...will promote intensified development along the rail network.

10.4.2 Public transport ↑

a) Public transport administration

437. The increased emphasis and capital expenditure on public transport requires complementary coordination between government departments and other related agencies. CHKL shall take pro-active measures in ensuring the implementation of government policy in relation to the public transport administration.

Policy	
---------------	--

TI 5:	CHKL shall assist to coordinate the planning, development and operation of public transport and related private transport matters.
--------------	---

b) Public transport integration

438. Consistent with the government's policy, emphasis will be on providing an integrated, flexible, wide ranging and efficient public transport system orientated towards passenger accessibility and convenience. Central to this approach is the integration of public transport modes with each other and with private transport so that, with streamlined inter-modal transfer facilities and integrated ticketing, passenger trips become as convenient and seamless as possible.

439. In order to avoid traffic congestion occurring on local streets, major bus and rail park-and-ride interchange facilities

will be located at the points of intersection of the rail stations and major roads. The recommended locations of these interchanges are shown in Figure 10.3.

Policy	
TI 6:	CHKL shall assist in the implementation of a fully integrated transportation system in line with the government's policy.

c) Rail-based public transport

440. The rail network is the most efficient means of providing high capacity rapid public transport. Medium and long-term plans for the introduction of different types of rail systems such as tram and the expansion of the rail network to outlying areas should be regularly examined in every 10 years for their feasibility.
441. The major growth areas in Kuala Lumpur are now well linked to the City Centre except those on the east-west axis. The feasibility of a new Damansara - Cheras LRT line linking growth areas in the east and west shall be investigated together with new rail links to serve district centres, comprehensive development areas and growth areas.



Photo 10.6: ...the integration of public transport modes...

442. It is also proposed that the STAR LRT line from Sentul Timur station be extended northward towards Taman Wahyu and westward towards Kepong and another line be extended from Sri Petaling station westward to serve the area around Bukit Jalil.
443. A further extension to the LRT is proposed from KL Sentral station to the proposed district centre at Bukit Indah. These five future lines will add a further 41.9 kilometres to the existing network.

Policy	
TI 7:	CHKL shall assist in the preparation of feasibility studies for future extensions to the rail network and coordinate with the relevant authorities with regard to implementation.

d) Bus services

444. Buses will remain the principal form of public transport especially outside the City Centre for the foreseeable future. In order to encourage greater usage of bus services, it is essential that measures be undertaken to improve their reliability, coverage, comfort and convenience.

Policy

TI 8: CHKL shall assist in determining measures to improve bus services with maximum penetration into growth areas and all major employment and retail centres and coordinate with the relevant agencies and operators.

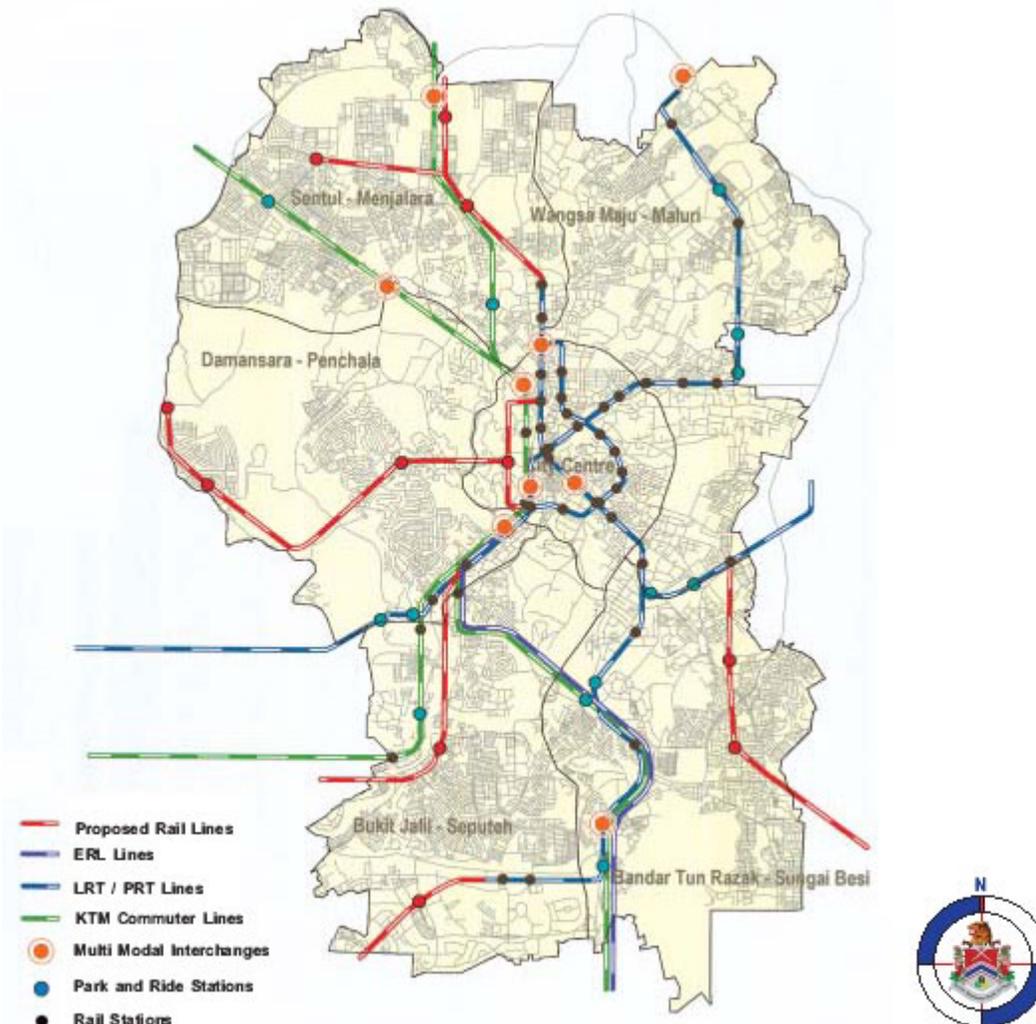


Figure 10.3 : Integrated rail based public transport system, 2000

445. CHKL shall also implement measures to create a network of bus terminals on the periphery of Kuala Lumpur for buses and coaches serving separate inter-regional and intra-regional services. These terminals will be integrated with the rail system via multi-modal interchanges to enable easy access to the City Centre and other areas of the City. Inter-regional terminals shall be located at Gombak (to serve the east), Bandar Tasik Selatan (to serve the south), Jalan Ipoh (to serve the north) and the station at CDA Jalan Duta (to serve the west). Hentian Putra, Pasarama Kota and Plaza Rakyat terminals will serve as the intra-regional terminals. Terminals to cater for local services shall be developed at various suitable locations in the City (refer to Figure 10.4).

Policy	
TI 9:	CHKL shall implement a bus terminal network for inter-regional, intraregional and local bus services.

e) Cars and car parking

446. By controlling the supply and distribution of car parking facilities in Kuala Lumpur, CHKL can help to reinforce public transport and Travel Demand Management objectives by making private transport a less attractive proposition than public transport, especially within the City Centre. This can further be reinforced by controlling the cost of car parking in different parts of the City.

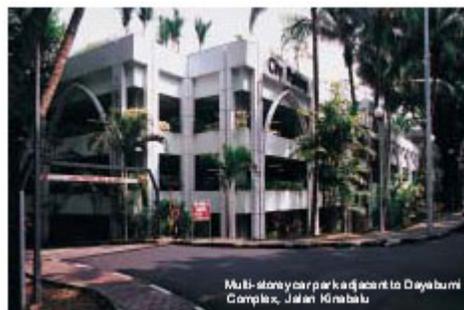


Photo 10.7: CHKL shall regulate the supply of parking facilities.

Policy	
TI 10:	CHKL shall regulate the supply of parking facilities.

f) Taxis

447. In view of the vital role that taxis play in the business and commercial life of the City, it is important that significant improvements are made to the levels of service and reliability. In achieving better overall public transport services, taxis need to be expanded with innovative services into new markets.

Policy	
TI 11:	CHKL shall assist in improving the reliability and availability of taxi services in coordination with the relevant agencies.

10.4.3 Private transportation**a) Motorcycles**

448. As Kuala Lumpur looks to a cleaner and safer living environment, the role of the motorcycle in transportation must be examined. A large percentage of motorcycle users are those that would benefit from a more comprehensive public transportation system. In a long term, measures to encourage motorcycle users to make greater use of public transport and limit motorcycle usage in the City Centre to only essential users should be looked into.
449. In the short and medium term, measures to improve safety for motorcycle users shall be implemented and more rigorous enforcement of existing regulations shall be exercised.

Policy	
TI 12:	CHKL shall assist and coordinate with the relevant authorities in the improvement of road infrastructure to enhance safety measures for motorcycle users.



Figure 10.4 : Location of bus terminals, 2000

10.4.4 Road infrastructure

a) New roads development

450. The major road systems currently in place together with those which are under construction or committed are considered sufficient to satisfy Kuala Lumpur's needs to the year 2020. However, two new roads are proposed that are principally intended to improve traffic flow in and out from the City Centre. In view of the difficulty of increasing existing road capacities in the City Centre and the high cost associated with obtaining new corridors, an underground expressway is proposed beneath Jalan Raja Chulan connecting to the Middle Ring Road in the east.

451. An inner city by-pass road is also proposed, part of which will be underground, to provide a direct link from Jalan Syed Putra in the south of the City Centre to Jalan Dang Wangi (refer to Figure 10.5 and Table 10.3).

Policy	
TI 13:	CHKL shall determine a road development programme and coordinate with the relevant authorities regarding implementation.

452. In future the requirement, if any, for new roads must be examined in the context of CHKL's general transportation policies. However, any new roads that may be deemed necessary should support CHKL's policies to promote public transportation by making provision for high-occupancy vehicles and/or trunk bus routes. The reserves of these roads should be clearly demarcated to prevent urban encroachment on the right of way.
453. Privatization bids on arterial roads must also conform to the network proposed in the structure plan and local plans and not be conceived independently.

Policy	
TI 14:	CHKL shall ensure that proposed and committed major roads are considered in the broader context of public transport services, freight movement and impact upon the community and environment.

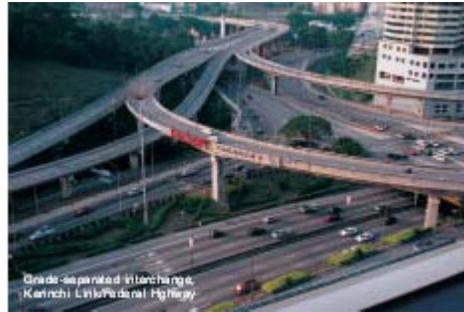


Photo 10.8: ... a road network improvement programme must be carried out to upgrade existing roads to arterial roads, build missing linkages and improve interchanges.

b) Improvements to the Existing Road Network

454. In order to complete the existing road network, increase its capacity and eradicate bottlenecks, a road network improvement programme must be carried out to upgrade existing roads to arterial roads, build missing linkages and improve interchanges (refer to Figure 10.5 and Table 10.3).

Policy	

TI 15: CHKL shall determine a road improvement programme and coordinate with the relevant authorities regarding implementation.

c) Hierarchy of Roads

455. In order to be able to better monitor and optimise usage of the existing road system, a review of the actual status of all existing roads and the road hierarchy system should be undertaken.

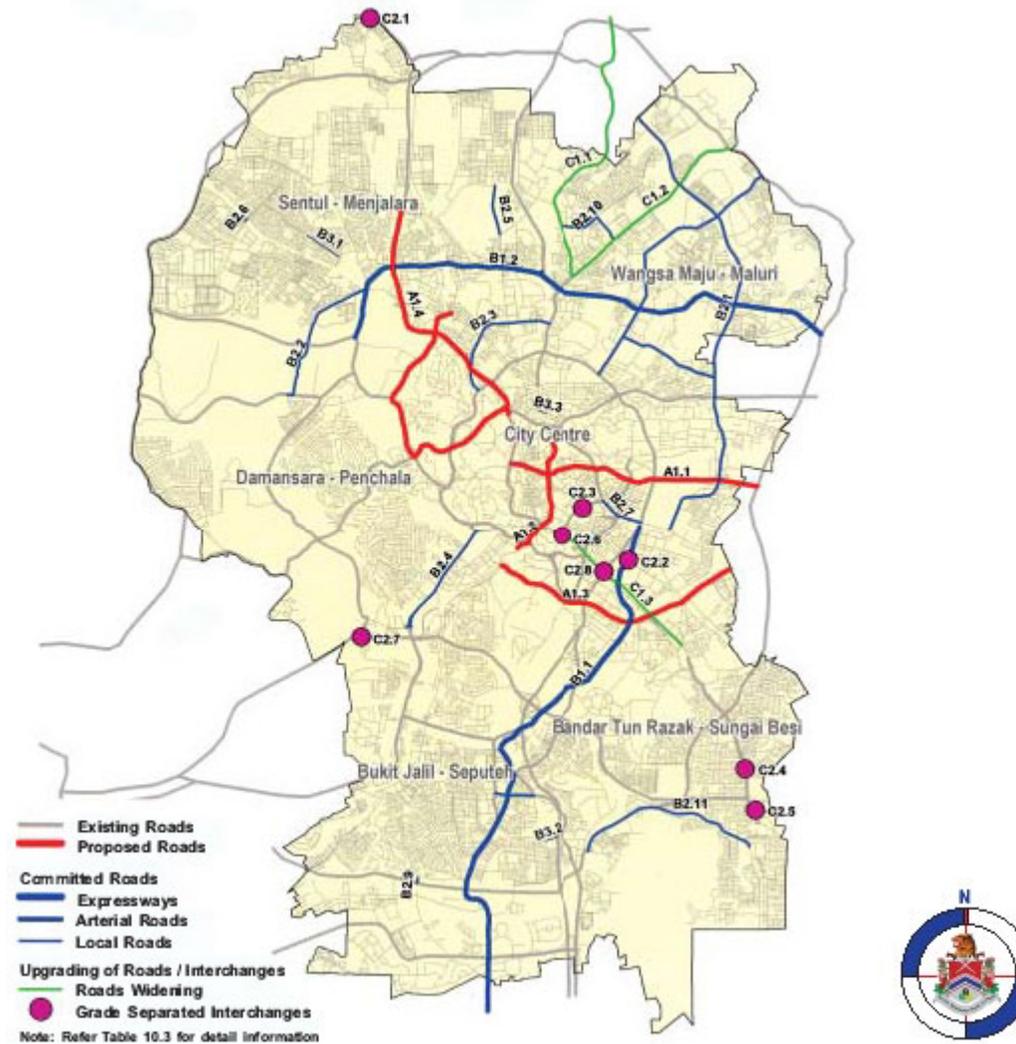


Figure 10.5 : Major road network, 2000

A. Proposed Roads	
1. Expressways	
1.1	Underground expressway beneath Jalan Raja Chulan connecting to the Middle Ring Road 2 in the east.
1.2	An inner city bypass road, part of which will be underground, a direct link from Jalan Syed Putra in the south of the City Centre to Jalan Dang Wangi
1.3	Pandan Corridor
1.4	Kuala Lumpur Transit
B. Committed Roads	
1. Expressways	
1.1	Dedicated expressway from Kuala Lumpur to KLIA
1.2	Kuala Lumpur North-East Expressway
2. Arterial Roads	
2.1	Eastern Route
2.2	Jalan Segambut linking KTM flyover to Mon' Kiara
2.3	Viaduct connecting Jalan Mahameru to Jalan Sentul and Jalan Pahang
2.4	Comprehensive road network for KL Sentul
2.5	Jalan Sentul extension (from Jalan Sentul/Jalan Kg. Bandar Dalam to Batu Caves)
2.6	Connecting road from Taman Bukit Maluri to Taman Kepong Baru
2.7	Jalan Sultan Ismail extension (from Jalan Imbi to Kg. Pandan roundabout)
2.8	Jalan Gembira extension (linking Jalan Klang Lama to Lebuhraya Sungai Besi)
2.9	Jalan Awan Besar extension (linking to Shah Alam Expressway)
2.10	Jalan Langkawi/Jalan Chengal extension (linking Jalan Genting Kelang to Jalan Gombak)
2.11	Road through Taman Alam Damai, Taman Len Seng, Taman Orchid Desa linking to Middle Ring Road 2
3. Local Roads	
3.1	Jalan Udaung Karang connecting Taman Petaling (Kepong Baru) to Taman Sri Segambut
3.2	Jalan 2/149 (linking Bandar Baru Sri Petaling to Lebuhraya Sg. Besi)
3.3	Jalan Stony extension (from Jalan Raja Abdullah to Jalan Tuanku Abdul Rahman)
C. Upgrading of Existing Roads/Grade Separated Interchanges	
1. Road Widening	
1.1	Jalan Gombak
1.2	Jalan Genting Kelang
1.3	Jalan Loke Yew
2. Grade Separated Interchanges	
2.1	Trumpet interchange from Federal Highway Route 1 to Pasar Borong Kuala Lumpur
2.2	Jalan Tun Razak/Jalan Pudu/Jalan Cheras/Jalan Chan Sow Lin interchange
2.3	Jalan Hang Tuah/Jalan Imbi interchange
2.4	Jalan Cheras/Jalan Manis (Taman Segar)/Jalan Dato' Harun (Taman Taynton View) interchange
2.5	Jalan Cheras/Taman Len Seng interchange
2.6	Viaduct connecting Jalan Hang Tuah/Jalan Lapangan Terbang Lama
2.7	Kg. Kerinch/Lebuhraya Persekutuan interchange
2.8	Istana interchange and Loke Yew/Sungai Besi roundabout

Table 10.3: New Roads Construction and Improvements to Existing Roads



Photo 10.9: ...review of the actual status of all existing roads and the road hierarchy system.

Policy	
TI 16:	CHKL shall implement an improved road hierarchy classification system.

10.4.5 Non-motorised transport ↑

a) Pedestrian

456. Policies regarding pedestrianisation are covered in Chapter 14: Urban Design and Landscape.
457. A pedestrian friendly environment will be created throughout the City with particular emphasis on the City Centre and other urban centres. Pedestrian networks in the City Centre will emphasise on linking public transport facilities and will incorporate urban design elements. A proposed parkland PRT loop passing through the parkland sector in the western part of the City Centre shall connect to the existing PRT line and complement the pedestrian network.
458. Special attention is to be given to areas around main transport interchanges to ensure that they incorporate facilities to make them fully accessible to the aged and handicapped.

Policy	
TI 17:	CHKL shall develop specific guidelines and standards to provide for the needs of the aged and handicapped to be applied to pedestrian networks, new public transport terminuses and stations as well as multi-modal interchanges.

b) Bicycles

459. Bicycles can and should continue to be encouraged as a healthy form of exercise and as an alternative means of private transportation for short journeys in residential and recreational areas.



Photo 10.10: Adequate lorry parks for the benefit of HGV owners residing in the City....

Policy	
TI 18:	CHKL shall improve the cycle way network and promote cycling activities in residential and recreational areas.

10.4.6 Freight Transport ↑

460. Adequate lorry parks for the benefit of HGV owners residing in the City shall be provided so that they do not have to resort to illegally parking in commercial or residential areas. These lorry parks will also include parking facilities for coaches and construction vehicles.

Policy	
TI 19:	CHKL shall provide adequate parking and other ancillary facilities for heavy goods vehicles, coaches and construction vehicles in appropriate locations at the City perimeter.

10.5 Future requirement ↑

10.5.1 Integrated public transportation system

461. The complete rail network to the year 2020 including integrated park-and-ride stations and multimodal interchanges are indicated in Figure 10.3.

10.5.2 Road network ↑

- 
462. Ultimately, Kuala Lumpur still needs a comprehensive road network in order to provide efficient and convenient road travel. The requirements for new roads and improvement to existing roads are indicated in Figure 10.5 and summarised in Table 10.3.