5.3 ACCESS

Access into petrol station is essentially related to egress and ingress points from public roads.

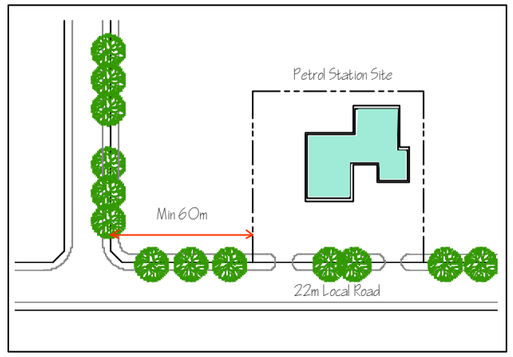


Figure 5.3
Distance of Petrol Station from Junction

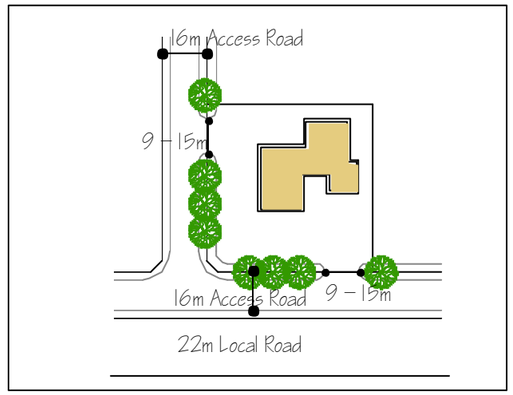


Figure 5.4
Egress/Ingress into Petrol Station from Access Road

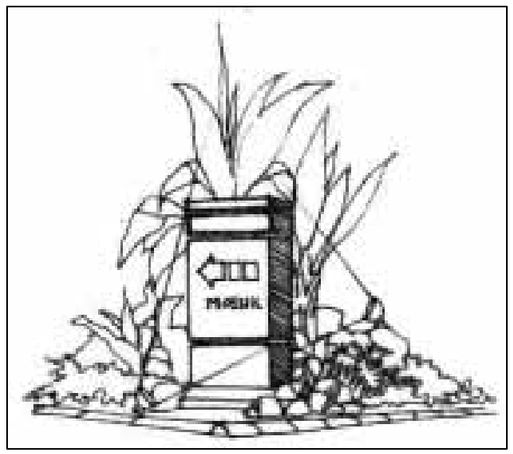


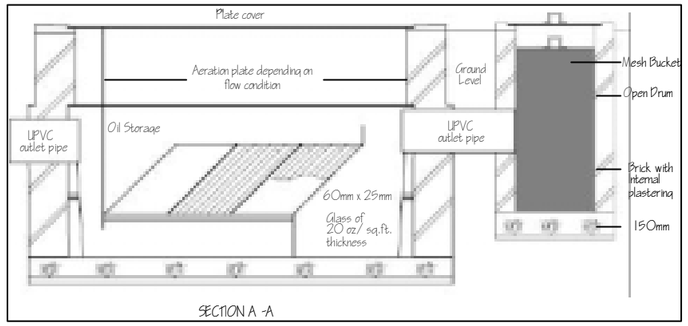
Figure 5.5
Access Signage into Petrol Station

ACCESS

- Petrol stations shall be located fronting access roads. In the instance where petrol station is located fronting higher hierarchy road, an access road must be provided.
- Direct entrance into petrol stations from higher hierarchy roads other than access road shall not normally be allowed. Direct entrance into petrol station from higher hierarchy roads shall only be allowed if the petrol station is located at a minimum distance of 60m away from a junction or a roundabout **(Figure 5.3).**
- Two ingress and egress points shall desirably be provided for all petrol station sites. The width of the ingress/egress shall not be less than 9m and not more than 15m. The egress/ingress points shall be located farthest away from any junction **(Figure5.4).**
- Signage indicating 'MASUK' and 'KELUAR' shall be provided with sufficient lighting to improve visibility at night **(Figure5.5**). Signage shall conform to requirement set out in **Signage and Advertisement Design Guidelines for Putrajaya, 1999.**
- Access into petrol stations located fronting spine roads shall be slip-in and slip-out only. Crossover from opposite direction shall not be allowed.
- If the platform level between the petrol station sites differs from finished road level, gradient for access to the petrol station site from the main road shall not be more than 1:15 or any other ratio as determined by Perbadanan.

5.4 Environmental Consideration

Environmental consideration for development of any petrol station within the Local Plan Area shall be related to provision of oil interceptor and separator to ensure discharge of wastes and effluents conform to required environmental regulations.



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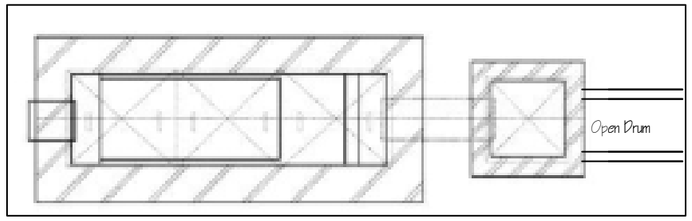

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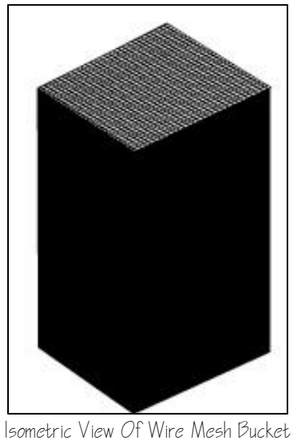

Isometric View Of Wire Mesh Bucket

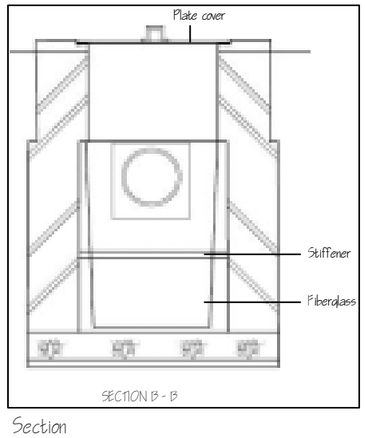

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Figure 5.6
Typical Oil Separator and Interceptor

ENVIRONMENTAL CONSIDERATION

- Oil interceptor and oil separator shall be provided for all petrol stations. Excess oil shall be stored as scheduled waste and shall conform to **Environmental Regulation (Scheduled Waste) 1987**.
- Discharge of effluent into drainage system must conform to **Class II National Water Quality Standard and Environmental Quality (Perbadanan Putrajaya) (Water Pollution Control) Regulations, 1998.**

Table 5.1 Putrajaya Ambient Lake Water Quality Standards and Standard for Discharge into Lake Area and Sewer

Parameters	Unit	Putrajaya Ambient Lake Water Quality Standards	Standard For Discharge Into The Lake Area Or Onto Land	Standard For Discharge Into Sewer
Temperature	°C	-	38	45
pH		6.5-9.0	6.0-9.0	5.0-9.0
BOD	mg/l	3	10	400
COD	mg/l	25	30	1000
Suspended solids	mg/l	50	50	400
Mercury	mg/l	0.001	0.001	0.10
Cadmium	mg/l	0.005	0.01	1.0
Hexa-Chromium	mg/l	0.05	0.05	2.0
Arsenic	mg/l	0.05	0.05	2.0
Cyanide	mg/l	0.02	0.02	2.0
Lead	mg/l	0.05	0.05	2.0
Tri-Chromium	mg/l	-	0.20	10
Copper	mg/l	1.0	0.10	10
Manganese	mg/l	0.1	0.20	10
Nickel	mg/l	0.02	0.20	10
Tin	mg/l	0.05	0.20	10
Zinc	mg/l	5	1.0	10
Boron	mg/l	1	1.0	50
Iron	mg/l	0.3	1.0	2.0
Phenol	mg/l	0.01	0.001	2.0
Free Chlorine	mg/l	-	1.0	-
Sulphide	mg/l	-	0.5	2.0

6.0 WESTERN TRANSPORT TERMINAL (WTT)

6.1 USE

This guideline shall be used to guide the development of the Western Transport Terminal located in PB 7.1, Putrajaya. **Figure 6.1.**

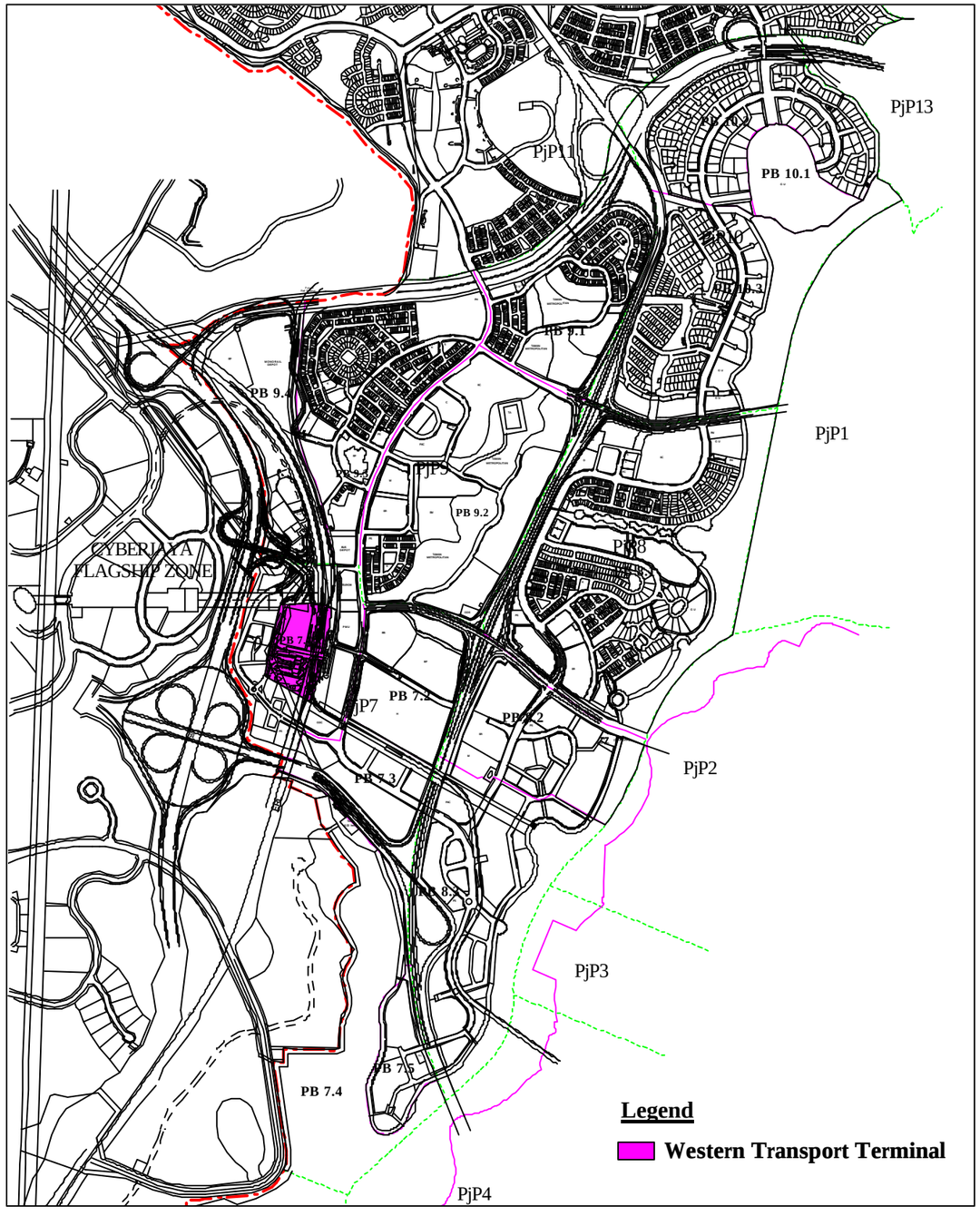


Figure 6.1
Location of the Western Transport Terminal

6.2 PHYSICAL PLANNING REQUIREMENTS

6.2.1 Size and Component

Western Transport Terminal is located on a 13.3-hectare site in PB 7.1. The main components of the WTT complex are: -

- Monorail Station
- Commuter Rail Services Station (CRS)
- Commuter and Local Bus Terminal
- Taxi Station
- Park and Ride Facility

Other components includes:-

- Retail and commercial outlets.
- Associated use related to operation of WTT such as infrastructure

Plot Ratio *as defined by The Town and Country Planning Act, 1976, is the ratio of the total floor area of a building to the area of the building plot as measured between the survey boundary lines or, if there are no survey boundary lines, between the provisional boundary lines.*

Plinth Area *as defined by the Town and Country Planning Act 1972 is the proportion to be covered by building of the area of any lot.*

Open Space Coverage *is the portion of plot area outside plinth area. It may comprise of internal circulation, open space and both hard and soft landscape elements.*

Gross Floor Area (GFA) *is the sum of the plan areas of all floor levels (inclusive of the plan area of all walls, windows, columns, elevator shafts) and the plan area of all internal and external stairs, landing, ramps, escalators, or other means of access between levels, or at each level in the building.*

Building Height *is the limit to the vertical extent of a building. It is measured as a number of storeys or floors from the ground level.*

PHSIYCAL PLANNING REQUIREMENT

- Plot ratio, building heights, plinth area, gross floor area (GFA) for the Western Transport Terminal shall conform to the planning standard as indicated in **Table 6.1** and **Table 6.2.**

Table 6.1 Development Components

Development Components	Storey	Max Height (m)	Max GFA (m^2)
Main Concourse	1 (elevated)	21	4080
Monorail Station	2 (elevated)	21	2800
ERL/CRS Station	2	21	2180
Commuter Bus Terminal	2	15	3400
Local Bus Terminal	2	15	3400
Taxi Drop-Off/ Lay-By	-	-	750
Park & Ride	4	14	77690
Total GFA (Max)			94300

Source: Veritas Architect, LCP for the Western Transport Terminal, August 2000

Table 6.2 Plot Ratio, Plinth Area and Building Setback

Plot Ratio	0.9
Max Plinth Area (%)	45
Max Gross Floor Area (m^2)	95,000
Building Setbacks ▪ Front ▪ Side	 ▪ 6m ▪ 6m

6.3 Access and Parking

Access *refers to vehicular entrance and exit into development plot.*

Parking *is the manner of storage and accommodation of vehicles when not in use.*

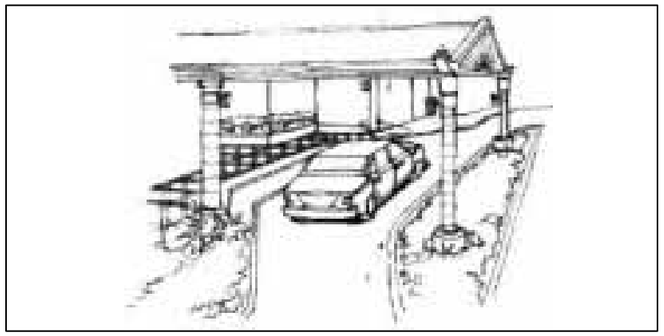


Figure 6.2
Drop Off

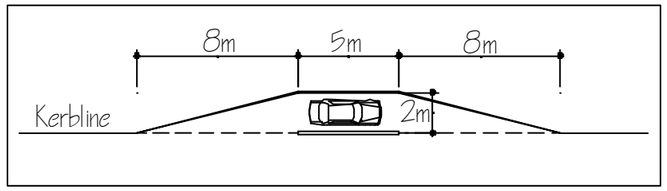


Figure 6.3
Lay By For Taxi

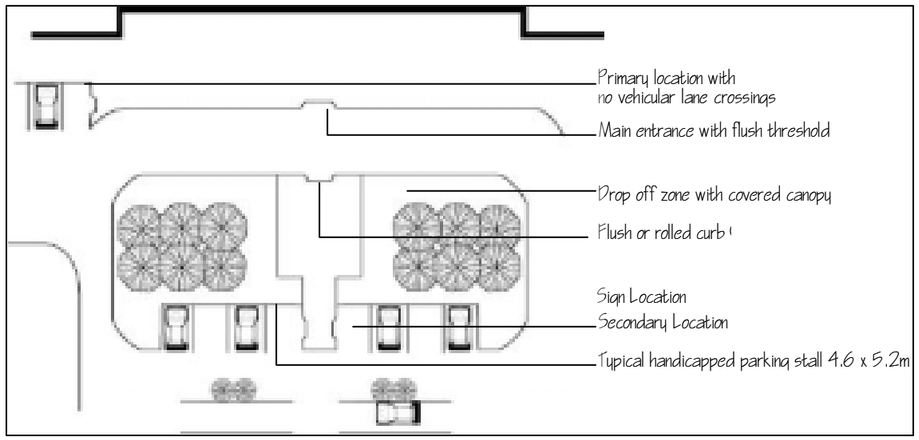


Figure 6.4
Parking For Disabled

PHSIYCAL PLANNING REQUIREMENT

- A traffic management scheme shall be required within the transport terminal to prevent through movement of cars. Vehicular traffic must be controlled by an easily understood hierarchy of vehicles lanes.
- Main pedestrian route should be segregated from vehicles.
- Drop off area should be provided with amenities, plus links to other buildings with canopies to protect user from rain and sun.
- Entrance to the bus station should be controlled by bus priority signals. Other main junction on the site should be signal controlled with a pedestrian crossing phase. Signage shall conform to the requirements of the **Signage and Advertising Design Guidelines For Putrajaya, 1999.**
- Parking shall be provided in accordance to the following:-

Table 6.3 Parking for WTT

Commuter Bus	Local Bus	Private Car (Park and Ride)	Motorcycle (Park and Ride)	Bicycle
22	10	3000	100	5

- Short term parking for picking up and dropping off passengers should be provided near to the station concourse. Parking and lay by for taxis should be similarly provided.
- Additional parking shall be provided at strategic location grade/street level for emergency vehicles, police and handicapped.
- There should be convenient pedestrian connections to the other building spaces in the transport interchange. Provisions for handicapped shall also be incorporated.
- Adequate lighting, ventilation and fire security precautions must be provided which meet the best of international codes.

6.4 URBAN DESIGN

Buildings in the Transport Terminal Complex will provide the first impression of Putrajaya for a large proportion of visitors. The architectural design and materials should therefore emphasize on the quality and technologically advanced features of the city.

VIEW AND VISTA

- Façade treatment should be of innovative design that reflect modern technology, transport architecture and modern local features.
- Monotonous and large plain facades should be avoided.
- Elevation of the terminal should be in scale and proportion with the overall composition of the area.
- The terminal should fit into its surroundings. Considerations that should be taken into account are:-
  i. Appropriate massing, which complements but not compete with the towers in the Sub-Commercial Centre.
  ii. The need for 'human scale' in space and façade treatment, especially at street level.
- Architectural design should be consistent throughout the area and compatible with the Sub-Commercial Centre. Suitable materials are stainless steel, glass, colour coated metals, natural or reconstructed stone.
- The block containing the concourse, the bus station, short term parking, LRT and ERL facilities should be of a unified architectural composition and theme. The complex should be easily identifiable by the public.
- Special elevation treatment and/or roof structures should emphasize key locations such as the station entrance when approached from the Sub-Commercial Centre, the vehicle approach from the expressway and the entrance to the retail/pedestrian hub.
- Multi storey parking structure should be bright and airy. Skylight or atria are encourage for these purposes, as well as providing a good sense of orientation.

Sidewalk *is the layer of the streetscape dedicated exclusively to pedestrian activity and small-wheeled oriented vehicles. It is normally situated within the road reserve or within the setback area of a development plot.*

Clear Sidewalk Zone *is the zone within the streetscape where pedestrian flow is in continuity and uninterrupted by any structures such as columns or any landscape furniture such as trees, benches, kiosks and utility elements such as covers and gratings.*

Kerb *is the detailing of the edge of thoroughfare pavement separating the level of vehicular carriageway and sidewalk. There are two types as the following:-*

i. Raised kerb
ii. Flat bed kerb
iii. Flat kerb
iv. Drop kerb

Raised Kerb *is a raised paving of the sidewalk where level is higher than the carriageway and is used to demarcate the limits of carriageway.*

Flat Bed Kerb *is the smooth transition paving differentiating two different materials of the sidewalk and the carriageway that is laid flush with the surface or shallow ramp. This type of kerb is typically used along kerb cut zones where provision of vehicular access or drop off is made.*

Flat Kerb *is the edge between sidewalk and carriageway where change of level is minimal and the domain between pedestrian and vehicular is normally demarcated by kerb barriers. Typically used at public spaces such as parks.*

Drop Kerb *is the area where kerb reduces in height at pedestrian crossings and kerb cut zones.*

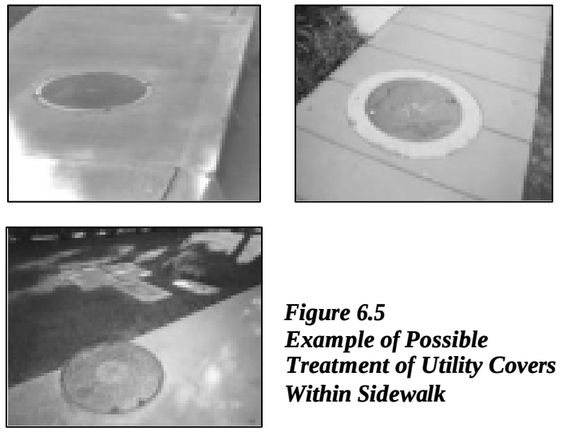


Figure 6.5
Example of Possible Treatment of Utility Covers Within Sidewalk

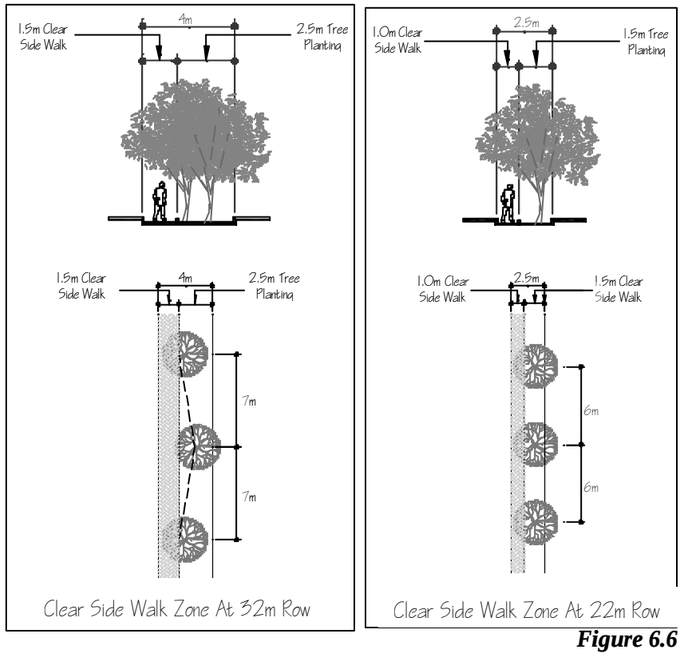


Figure 6.6
Clear Sidewalk Zone

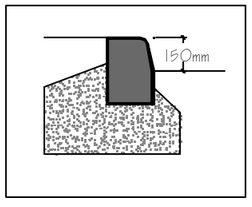


Figure 6.7
Raised Kerb

STREETSCAPE

- All sidewalks shall have a clear sidewalk zone where the sidewalk shall not be interrupted by any permanent or temporary structures including utility covers and gratings. Utility gratings and covers within the sidewalk shall be flush with the surface of the sidewalk.
- A minimum width of 1.5m shall be desirable to attain a clear sidewalk zone on all sidewalks.
- At the following locations, drop kerb should be used:-
  i. Intersections with pedestrian crossing facilities
  ii. Other pedestrian road crossings
  iii. Service/access zone
  iv. Parking Zone/parking access
  v. Drop off zone
- The width of drop kerb crossing threshold shall be equal to the width of crossing demarcated on the thoroughfare surface. Kerb height at the crossing threshold shall be raised 15mm from the carriageway surface and shall have bull nose or chamfered edge profile.
- A band of 800mm tactile paving shall be positioned behind the crossing threshold and surface of crossing threshold shall be differentiated from the entire sidewalk pavement to facilitate sight-impaired pedestrians.
- Materials, colours and finishes for sidewalk should be durable, non-with minimal maintenance. Paving shall desirably be of interlocking pavers or concrete with design that create a unified pattern throughout a particular stretch of the sidewalk.
- Gradient along sidewalk shall be 5% maximum generally. Gradient up to 8% can be allowed only for short length sidewalk.
- Sidewalk surface shall accommodate for disabled users especially for the visually impaired and people on wheel chairs.
- Raised kerb should be more than 150m in height measured from the finished road level to the finished sidewalk level.

LANDSCAPE

- Buildings and generous landscape treatment should enclose parking and service areas particularly with regards to the view of the terminal from the expressway and from the approach from Sub-Commercial Centre.
- The car park and bus terminal should be adequately landscaped to soften their visual impact.. Grasscrete material should be used for the surface.
- Landscape in and around the terminal shall be visually impressive to signify 'gateway' entrance, welcoming visitors and pleasant.
- Signage shall be adequately provided along all pedestrian routes and shall conform in terms of design, scale, colour, material, position to the **Signage and Advertising Design Guidelines for Putrajaya, 1999.**

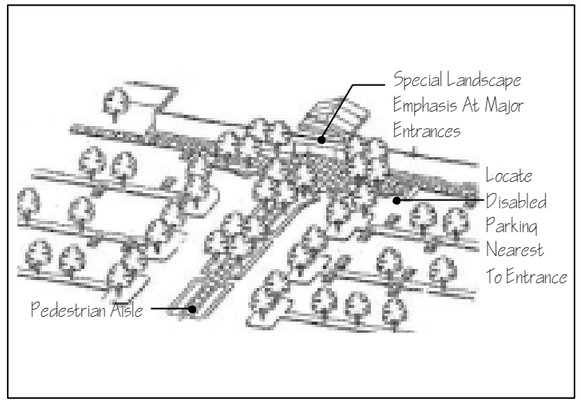


Figure 6.8
Plantings Used to Soften the Environment

Figure 6.9
Grasscrete Material

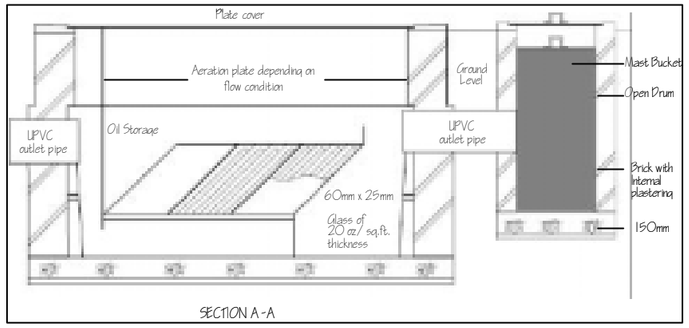
6.5 ENVIRONMENTAL CONSIDERATION

In order to minimize the impact of the terminal complex to the surrounding environment, it is paramount that the Environment Impact Assessment (EIA) Conditions of approval and Environment Management Plan (EMP) be complied throughout every phase of the development project.

The Environment Management Plan (EMP) can be categorised into two category as indicated below:

- Environment during the construction phase
- Environment management during the operation phase

***EMP** contains detailed description of practices to be followed and activities to be undertaken for the environmental management of the development area.*



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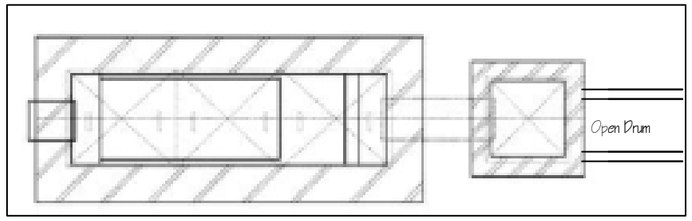

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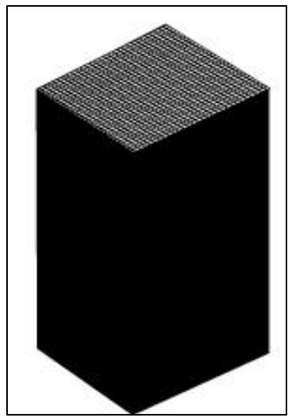

Isometric View Of Wire Mesh Bucket

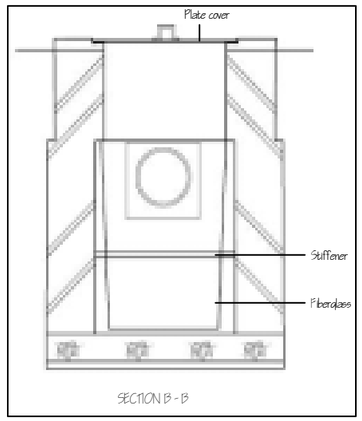

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Figure 6.10
Typical Oil Separator and Interceptor

ENVIRONMENTAL CONSIDERATION

- Development of WTT shall conform to The Environmental Planning Compliance Table as specified in the EMP **(Table 6.4 and 6.5)**.
- Oil separator and interceptor shall be installed at drainage outlet before going into the main drainage system. Parking areas shall also be installed with oil, grease, and grit trap (OGGT).

Table 6.4 Environmental Planning Compliance Table (Construction Phase)

A. Impact on Physical Environment		
Environmental Concerns	**Compliance Reference (EIA Approval Conditions)**	**Planning Design Compliance**
Land Structure	12	▪ Slopes have to be design and maintain in such a way to ensure their stability. Turfing and hydro seeding technique should be applied immediately after slope cut and fill formation is completed
Topography	10	▪ The natural topography has to be maintain wherever possible
Natural streams / ground water	23	▪ Surface water flow from the project site to the detention pond need to be maintain (safeguard)
Flora	Not Relevant	-
Fauna	Not Relevant	-
B. Impact on Air Quality		
Environmental Concerns	**Compliance Reference (EIA Approval Conditions)**	**Planning Design Compliance**
Land preparation activities	18,19,32	▪ Roads in the construction site must be paved and kept clean ▪ Exposed earth, need to be kept to avoid dust formation throughout the construction phase ▪ No open burning are allowed
Vehicle movement	20,25,40	▪ Vehicles wheels need to be clean before entering public roads ▪ Trucks load need to be entirely covered during transportation

C. Impact on Water Quality		
Environmental Concerns	**Compliance Reference (EIA Approval Conditions)**	**Planning Design Compliance**
Surface run-off	5,13,16,17,22, 23	▪ Silt trap should be constructed prior to commencement of earthwork and be maintain ▪ Development activities should be monitored in order to minimised air pollution ▪ Expose earth should be covered (revegetated) as soon as possible
Liquid Effluent-Sewage	14,28	▪ Proper drainage system need to be constructed ▪ Temporary toilets need to meet the specification of Sewage Service Department

Table 6.5 Planning Compliance Table (Operation Phase)

A. Impact on Physical Environment		
Environmental Concerns	**Compliance Reference (EIA Approval Conditions)**	**Planning Design Compliance**
Land Structure	Not Relevant	-
Topography	Not Relevant	-
Natural streams / ground water	Not Relevant	-
Flora	Not Relevant	-
Fauna	Not Relevant	-
B. Impact on Air Quality		
Environmental Concerns	**Compliance Reference (EIA Approval Conditions)**	**Planning Design Compliance**
Vehicle Emmision	46	▪ An area for air monitoring by Department of Environment need to be reserve

Table 6.5 Planning Compliance (Operation Phase) (cont.)

C. Impact on Water Quality		
Environmental Concerns	**Compliance Reference (EIA Approval Conditions)**	**Planning Design Compliance**
Surface run-off	Not Relevant	
Liquid Effluent-Sewage	14,27	▪ Proper channelling of effluent need to be establish ▪ No sewage and sullage shall be release before going through proper treatment
C. Impact on Water Quality		
Environmental Concerns	**Compliance Reference (EIA Approval Conditions)**	**Planning Design Compliance**
Surface run-off	Not Relevant	
Liquid Effluent-Sewage	14,27	▪ Proper channelling of effluent need to be establish ▪ No sewage and sullage shall be release before going through proper treatment

- Additional control measure shall also be adopted during the construction and operational phase of the project to ensure minimal disturbance or pollution to the environment as indicated in **Table 6.6 and 6.7**

Table 6.6 Environmental Planning Compliance (Construction Phase)

Project Activities	Compliance Approval (EIA Approval Condition)	Control Measures
Earthwork	10,12,15,16, 17,20,22	▪ Natural topography should be maintain where possible ▪ Slopes have to be designed in such a way to ensure their stability ▪ Land clearance should be carried out only at the earthwork project site during the construction phase ▪ Cleared areas should be protected and revegetated immediately ▪ Construction vehicles wheels need to be clean before entering public roads ▪ Detention pond should be build simultaneously with earth work
Erosion, sedimentation and flood	13,17,22,23	▪ Silt trap should be constructed prior to commencement of earthwork and be maintain throughout the construction phase ▪ Cleared areas should be protected and revegetated immediately ▪ Detention pond should be build simultaneously with earth work ▪ Surface runoff to flood detention pond and tributaries of Langat River must be observe to prevent flooding
Water Pollution	13,14,47	▪ Silt trap should be constructed prior to commencement of earthwork and be maintain throughout the construction phase ▪ Proper drainage system need to be constructed ▪ Water quality monitoring need to be establish

Table 6.6 Environmental Planning Compliance (Construction Phase) (cont.)

Project Activities	Compliance Approval (EIA Approval Condition)	Control Measures
Air Pollution	18,19,25,32, 46	▪ Roads in the construction site must be paved and kept clean ▪ Exposed earth, need to be kept wet to avoid dust formation throughout the construction phase ▪ Trucks load need to be entirely covered during transportation ▪ No open burning are allowed ▪ An area for air monitoring by Department of Environmental need to be reserved
Noise Pollution	24,26,39,40	▪ Construction vehicle route need to be planned to insure minimum disturbance ▪ Vehicles and machinery should be maintain to avoid excessive noice ▪ Nouse level need to be maintain at 65dB in the day time and 55dB at night time
Liquid Waste (non-schedule)	14,27,28	▪ Proper channelling of effluent need to be establish ▪ No sewage and sullage shall be released before going through treatment
Solid Waste (non-schedule)	36	▪ Proper waste management system need to be establish
Schedule Wastes	37	▪ No schedule waste shall be release according to the Environmental Quality (Schedule Waste) Regulation, 1989
Agrochemical	41,42,43	▪ An integrated pest management concept using biological control should be adopted ▪ The usage of pesticide and herbicide need to follow the guidelines by the Agriculture Department of Malaysia ▪ Only slow release and easy to decompose organic fertilizer shall be used
Health	44,45	▪ Proper sanitation and regular monitoring of potential harmful organism such as E. coli should be practice

Table 6.7 Environmental Planning Compliance (Operation Phase)

Project Activities	Compliance Approval (EIA Approval Condition)	Control Measures
Earthwork	Not Relevant	
Erosion, Sediment and flood	14	▪ Proper drainage system should be establish
Water pollution	14,47	▪ Water quality monitoring need to be establish
Air pollution	46	▪ An area for air monitoring by Department of Environment need to be reserve
Noise pollution	Not Relevant	
Liquid Waste (non-schedule)	27	▪ Proper Sewage Treatment System should be establish. No sewage and sullage shall be release before going through proper treatment
Solid Wastes	36	▪ Proper waste management system need to be establish
Schedule Waste	37	▪ No schedule waste shall be release according to the Environmental Quality (Schedule Waste) Regulation, 1889
Agrochemical	41,42,43	▪ An integrated pest management concept using biological control should be adopted ▪ The usage of pesticide and herbicide need to follow the guidelines by the Agricultural Department of Malaysia ▪ Only slow release and easy to decompose organic fertilizer shall be used
Health	44,45	▪ Proper sanitation and regular monitoring of potential harmful organism such as E. coli should be practice

7.0 PUBLIC AMENITIES

7.1 USE

This guideline shall be used for development of all public amenities located within the Local Plan area of Precinct 7, 8, 9 and 10, Putrajaya.

Public amenities under the provision of this Manual include the following: -

1. Education
2. Religious
3. Health Clinics
4. Emergency Services
5. Community Services

7.2 EDUCATION

Educational amenities are categorised in four types as the following:-

i. Kindergarten / Taska
ii. Primary School
iii. Secondary School
iv. School Complex

7.2.1 Kindergarten / Taska

Kindergartens *are pre-school education facilities for children from ages of 3 to 6 years. It may sometimes be combined with nursery facilities for infants and toddlers within the same compound or area of a kindergarten.*

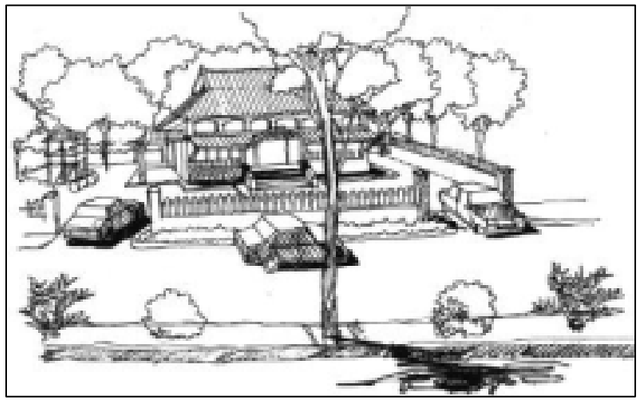


Figure 7.1
Pick-up and drop-off point for kindergarten

KINDERGARTENS

Requirement for Provision

- Provision of kindergarten site or space shall be calculated based on the criteria as shown in **Table 7.1**.

Table 7.1 Provision Standard for Kindergarten

		Standard
Provision Threshold		1 for every 500 units
Assumed Number of Kindergarten Going Children Per Family		0.6 child / Family
Number of Children / Classroom		15 Children / Classroom
Number of Classrooms		Min 2 classes @ 30 children
		Max 5 classes @ 75 children
Min. Kindergarten Size (if within building for strata residential development)	Min. Classroom Size	245m^2 / class
	Garden / Play area	600m^2 (min)
	Total Floor Area	1090m^2
Min. Lot Area (if free standing building)		0.20 hectare (min)

- Sites identified for kindergarten in the Proposal Map shall be developed as kindergarten only and shall not be subdivided further.

KINDERGARTENS

- Development of kindergarten building on free-standing site shall conform to the requirements as specified in **Table 7.2**.

Table 7.2 Planning Standard For Kindergarten

Plinth Area	30% (max)
Height	2 storey (max)
Setback from access road	12m (min)
Setback at side/rear	6m (min)
Parking	▪ 1 CPS : 4 staffs ▪ min 3 car length for pick up and drop off point.

Note: CPS – car parking space
MPS – motorcycle parking space

- Kindergartens within apartment blocks should be located at ground floor level, or between adjacent blocks: as free standing buildings.

- Must be accessible by footpath from the dwelling units without having to cross any streets. If a street must be crossed, it shall only be a minor street.

- Building design shall provide bright open space with colourful and integrated play structure.

- Building shall incorporate low windows at child eye level.

- A for drop-off, pick-up, and waiting for parents shall be provided for a minimum length of 3 cars. This lay by area shall be provided within the land area allocated for the kindergarten and shall not be part of the public road reserve.

- Layout plan should indicate total gross net areas of indoor play, outdoor play, roofed shade and other outdoor shade areas.

- Play equipments that can nurture and enhance the children's psychological development. Garden or play area should have a minimum area of 600 sq.m. Play equipments shall conform to SIRIM standards.

KINDERGARTENS

- Play area should be physically segregated from other activities particularly vehicular circulation areas such as street and car parking areas. Plant species used as fencing shall be of 'child-friendly'. Guidelines as stated in **Putrajaya Fencing Design Guidelines Manual, 1999** should be adhered to.

7.2.2 Primary School

The primary school is one of the most important elements of a neighbourhood development. The primary school is for children from 7 years to 12 years and is planned complete with its own field and other necessary amenities.

PRIMARY SCHOOL

Provision Requirement

- Primary school shall be provided at location as indicated in Proposal Map and according to size as indicated in **Table 7.3**.

Table 7.3 Provision of Primary School

Planning Block	Unit	Size (min. hectare)
PB 8.1	1	2.43 (on site as indicated in Proposal Map)
PB 8.2	1	2.64 (on site as indicated in Proposal Map)
PB 9.2	1	2.42 (on site as indicated in Proposal Map)

Planning Requirement

- Schools shall be provided in accordance to requirements as specified in **Table 7.4.**

Table 7.4 Planning Requirement for Provision of Primary School (Maximum)

Threshold Provision	1 for every 10,800 people
Assumed Number of Primary School Going Children	13% of Population
No of Classroom	40 classes (max)
No of students/class	35 students (max)
Min Land Area	2 hectares.

- Development of primary school shall conform to the requirements as specified in **Table 7.5**

Table 7.5 Planning Standard for Primary School

Plinth Area	30% (max)
Height	4 storey (max)
Setback from access road	12m (min)
Setback at side/rear	6m (min)
Parking	1 car parking space : 8 staffs + 10% for visitors
	1 motorcycle parking space : 10 staffs
	1 bicycle rack : 50 students
	min 10 car lay-bys for drop off /pick up
	bus bay : min 3 bays
	Min. 2 handicapped parking spaces

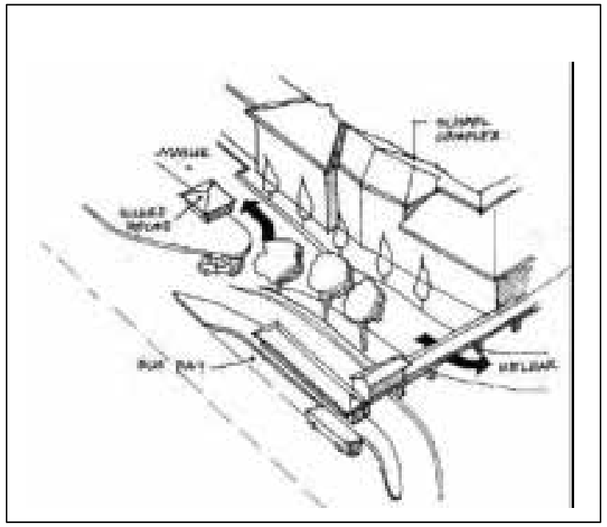


Figure 7.2
Access Going To School Site Together With Lay-by for Bus

PRIMARY SCHOOL

Building Massing

- Relate to Malaysian culture and its regional architecture to create a sense of national identity with distinctive character. Building shall also blend harmoniously with the adjacent architecture within the precinct / locality

- Response to the surrounding open-space framework and create appropriate spatial enclosure within the site as well as linking it with the public spaces of the particular neighbourhood.

- Vary building heights and setbacks, so as to established frontages at a human scale adjacent to pedestrian areas.

- Establish the main building as a “landmark”.

- Incorporate verandahways in facades at street-level, with a minimum width 1.5m.

Circulation and Parking

- Access to schools must be from a local access road. No direct access is permitted from local distributor road or higher category roads.

- Vehicular entry points from local access road shall be minimised. Main entrance into school compound shall be clearly identified through landscaping, landmarks or gateway. Clear separation between pedestrian and vehicular routes shall also be established. Traffic calming features and pedestrian crossing shall be introduced at strategic location.

- All major facilities or components shall be linked via covered walkways.

- Lay-by and drop-off zone shall be provided at strategic locations. The drop-offs/pick up bays and waiting areas should be sited away from the major routes. The lay bys can be outside the school gate but must be within the land area allocated as school reserve. They shall not be part of the public road reserve

- Parking spaces shall be provided in accordance to the requirement as specified in **Table 7.5**. Parking spaces for Bicycles rack and motorcycle parking shall be located to have clear visual surveillance.

7.2.3 Secondary School

The secondary school facilities are provided for children of ages 13 to 17 years old. The schools are sited at approximately 0.8-1.6 km of walking radius and has a population catchment of 17,500 people.

SECONDARY SCHOOL

Provision Requirement

- Secondary school shall be provided at location as indicated in proposal map and according to size as specified in **Table 7.6**.

Table 7.6 Provision of Secondary School

Planning Block	Unit	Min. Size
PB 9.2	1	3.26 hec (On site as indicated in Proposal Map)

Planning Requirement

- Secondary schools shall be provided accordance to requirements as specified in **Table 7.7.**

Table 7.7 Planning Requirement For Provision of Secondary School

Threshold Provision	1 for every 17,500 people
Number of Primary School Going Children	10% of population
No of Classroom	50 classes
No of students/class	35 students
Min Land area	3.0 hectare

- Development of secondary school shall conform to the requirements as specified in **Table 7.8.**

Table 7.8 Planning Standard for Secondary School

Plinth Area	30% (max)
Height	4 storey (max)
Setback from access road	12m (min)
Setback at side/rear	6m (min)
Parking	1 car parking space : 8 staffs + 10% for visitors
	1 motorcycle parking space : 10 staffs 1 motorcycle parking space : 20 student (form 5 & 6)
	1 bicycle rack : 50 students
	min 10 car lay-bys for drop off /pick up
	bus bay : min 3 bays
	Min. 2 handicapped parking spaces

SECONDARY SCHOOL

Building Massing

- Relate to Malaysian culture and its regional architecture to create a sense of national identity with distinctive character. Building shall also blend harmoniously with the adjacent architecture within the precinct/ locality.

- Response to the surrounding open-space framework and create appropriate spatial enclosure within the site as well as linking it with the public spaces of the particular neighbourhood.

- Vary building heights and setbacks, so as to established frontages at a human scale adjacent to pedestrian areas.

- Establish the main building as a “landmark”.

- Incorporate verandahways in facades at street-level, with a minimum width 1.5m.

Circulation and Parking

- Access to schools must be from a local access road. No direct access is permitted from local distributor road or higher category roads.

- Vehicular entry points from access road shall be minimised. Main entrance into school compound shall be clearly identified through landscaping, landmarks or gateway. Clear separation between pedestrian and vehicular routes shall also be established. Traffic calming features and pedestrian crossing shall be introduced at strategic location.

- All major facilities or components shall be linked via covered walkways.

- Lay-by and drop-off zone shall be provided at strategic locations. The drop-offs/pick up bays and waiting areas should be sited away from the major routes. The lay bys can be outside the school gate but must be within the land area allocated as school reserve. They shall not be part of the public road reserve

- Parking spaces shall be provided in accordance to the requirement as specified in **Table 7.9**. Bicycles rack and motorcycles parking shall be provided to have clear visual surveillance.

7.2.3 School Complex

School complex *is an integrated school development that will house a primary and secondary school where some of the common facilities such as sports ground and multi-purpose hall can be shared between the two. The two schools also share common vehicular entrance and exit for better security.*

Figure 7.3
Existing School Complex in Local Plan Area

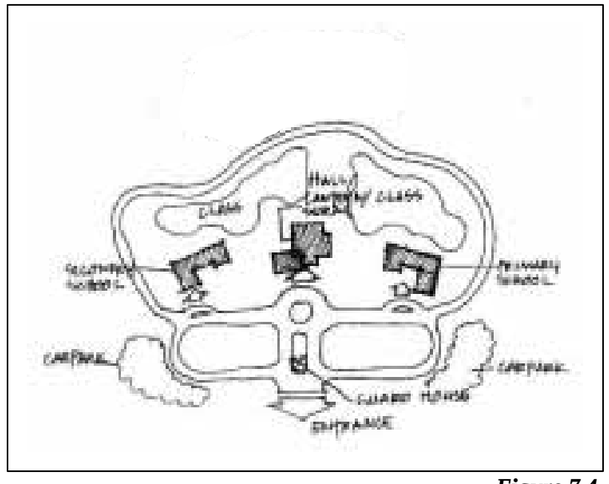


Figure 7.4
Illustration Showing Relationship of Primary and Secondary School in A School Complex

SCHOOL COMPLEX

Provision Requirement

- School complex shall be provided at location as indicated in Proposal Map and according to size as specified in **Table 7.9**.

Table 7.9 Provision of School Complex

Planning Block	Unit	Min. Size
PB 8.1	1	6.00 hec (On site as indicated in Proposal Map)
PB 9.2	1	6.07 hec (On site as indicated in Proposal Map)

Planning Requirement

- Development of school complex shall conform to the requirements indicated in **Table 7.10** with regards to building setback, height, plinth area and parking provision.

Table 7.10 Planning Standard For School Complex

Plinth Area	30% (max)
Height	4 storey (max)
Setback from access road	12m (min)
Setback at side	6m (min)
Parking	1 car parking space : 8 staffs + 10% for visitors
	1 motorcycle parking space : 10 staffs 1 motorcycle parking space : 20 student (form 5 & 6)
	1 bicycle rack : 50 students
	min 10 car lay-bys for drop off /pick up
	bus bay : min 6 bays

Site and Design Consideration

- Backyards to all buildings shall optimise visual surveillance; at both front and back allotments.

- Design and planning should reflect a progressive design image, allow for maximum visual integration of the indoors with the external landscape and views and provide interesting spaces for student interaction (within the school complex).

SCHOOL COMPLEX

- The school may share indoor multi-purpose halls, playing fields and jogging tracks. Multi-purposes hall and outdoor sports area should be adjacent to one another. School field should be interposed between academic and busy road. These areas should be adaptable to after hours sharing.

- The circulation system within the complex should include a covered lobby or concourse: in linking the academic and non academic facilities where possible

Building Massing

- Relate to Malaysian culture and its regional architecture to create a sense of national identity with distinctive character. Building shall also blend harmoniously with the adjacent architecture within the precinct/ locality.

- Response to the surrounding open-space framework and create appropriate spatial enclosure within the site as well as linking it with the public spaces of the particular neighbourhood.

- Vary building heights and setbacks, so as to established frontages at a human scale adjacent to pedestrian areas.

- Establish the main building as a “landmark”.

- Incorporate verandahways in facades at street-level, with a minimum width 1.5m.

Circulation and Parking

- Access to schools must be from a local access road. No direct access is permitted from local distributor road or higher category roads.

- Vehicular entry points from access road shall be minimised. Main entrance into school compound shall be clearly identified through landscaping, landmarks or gateway. Clear separation between pedestrian and vehicular routes shall also be established. Traffic calming features and pedestrian crossing shall be introduced at strategic locations.

- All major facilities or components shall be linked via covered walkways.

SCHOOL COMPLEX

- Lay-by and drop-off zone shall be provided at strategic locations. The drop-offs/pick up bays and waiting areas should be sited away from the major routes. The lay bys can be outside the school gate but must be within the land area allocated as school reserve. They shall not be part of the public road reserve.

- Parking spaces shall be provided in accordance to the requirement as specified in **Table 7.10**. Bicycle rack and motorcycle parking shall be provided to have clear visual surveillance.

7.3 Religious Facilities

Religious facilities referred to within the Local Plan area are categorised into three types as the following:-

i. Mosque
ii. Surau
iii. Religious Reserve

7.3.1 Mosque

Mosque *refers to a dedicated building for where prayers including Friday prayers and other related Islamic religious activities could be undertaken.*

Within the Local Plan area, there are two locations for the mosque i.e. in PB8.2 and PB9.2. The mosque in PB8.2 shall serve neighbourhood areas of Precinct 7 and 8 whilst mosque in PB9.2 shall serve Precinct 9 and 10.

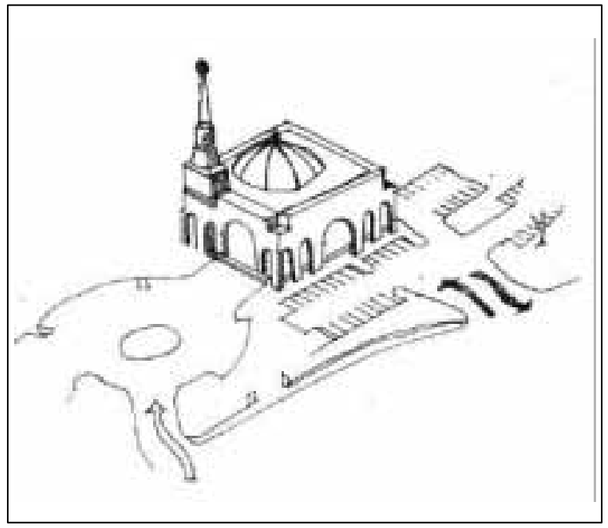


Figure 7.5
Access into Mosque

MOSQUE

Provision Requirement

- Mosque shall be provided at location as indicated in proposal map and according to size as specified in **Table 7.11**.

Table 7.11 Requirement For Provision of Mosque

Planning Block	No.	Size (min. hectare)
PB 8.2	1	1.82 (on site as indicated in Proposal Map)
PB 9.2	1	1.61 (on site as indicated in Proposal Map)

Planning Requirement

- Development of mosque shall conform to the requirements indicated in **Table 7.12** with regards to building setback, height, plinth area and parking provision.

Table 7.12 Planning Standard For Mosque

Mosque	
Lot Area	1.62 hectare (min.)
Plinth Area	50% (max)
Setback from access road	12m (min)
Setback at side/rear	6m (min)
Max. Capacity	8000 persons
Parking	1 car parking space : 150 GFA
	1 motorcycle parking space : 300 GFA
	Minimum 1 bicycle rack
	Min. 2 handicapped parking spaces or 1 % on top of the required provision whichever is higher

Note: GFA is in square meter.

Circulation and Parking

- Parking should be segregated from main pedestrian routes.
- Pedestrian accessibility into the mosque shall be maximised.

MOSQUE

Design consideration

- Formal relationship with adjacent open spaces shall be established and pedestrian linkages provided.
- Prominent gateway into the mosque compound and leading it onto internal courtyard to achieve a progression of spatial and religious experience shall be provided.
- The main entrance should face the open space, with secondary entrances on the remaining side except for walls facing the Qiblat.
- Classes can be included as one of the component of the mosque.
- The mosque should be well ventilated, airy and well lighted.
- Colours and materials shall follow and conform to traditional Islamic standard and practice.

Building Massing

- The mosque shall establish itself as major landmark and a community node.
- The design of the mosque should incorporate the iconography of Malaysian building elements as well as the principles of traditional Islamic design.

7.3.2 Surau

Surau *refers to a building or space within building where daily prayers and other daily religious activities such as learning of the Quran can be performed.*

Within the Local Plan area, sites for suraus have been identified in the Proposal Map. In addition to the allocated suraus, surau shall also be provided within development of multi-dwelling units in accordance to the standard specified in this Manual. See also guidelines for Residential (Chapter 2.0).

SURAU

Provision Requirement

- Notwithstanding the threshold requirement for provision as shown in **Table 7.13**, sites identified for surau in Proposal Map shall be developed as surau and shall not be subdivided further.

Planning Requirement

- Development of surau shall conform to the requirements indicated in **Table 7.13** concerning building setback, height, plinth area and parking provision.

Table 7.13 Planning Standard for Surau

Surau	
Threshold Provision	1: 500 dwellings
Land Area	0.25 hectare
Plinth Area	50% (max)
Height	2 storey (max)
Setback from access road	12m (min)
Setback at side	6m (min)
Parking	1 car parking space : 75 GFA Additional 2 CPS for surau with KAFA class
	1 motorcycle parking space : 150 GFA
	Minimum 1 bicycle rack 1 rack : 50 student for surau with KAFA class
	Min. 2 handicapped parking spaces or 1 % on top of the required provision whichever is higher

Design consideration

- Establish an integrated and formal relationship with other building in the neighbourhood.

- Surau on free-standing sites shall also accommodate for classroom to be used as religions school. Each classroom shall accommodate a maximum of 35 students and each surau shall accommodate for a maximum of 6 classrooms (for KAFA classes).

- Establish itself as a focal point ; to encourage a sense of identity for each neighbourhood.

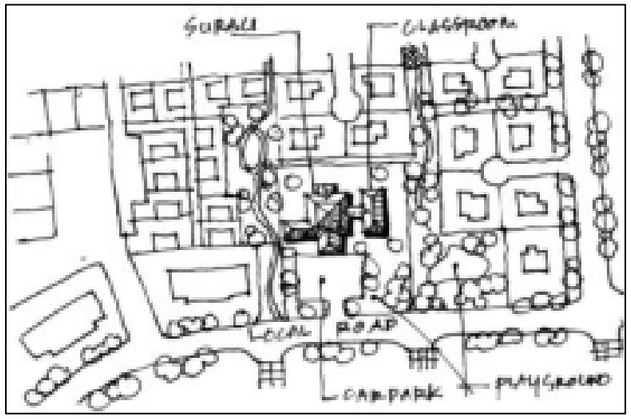


Figure 7.6
Typical Concept for Surau

SURAU

- Be incorporated as part of the public space network and link in with key “green” areas which unify neighbourhood.

Building Massing

- Surau should project an image compatible with character of the residential-neighbourhood within which it is set..
- The design of surau should, while maintaining its own distinctive, character, blend with the neighbourhood.
- The design of the surau should incorporate the iconography of Malaysian building elements; while recognising the heritage and principles of Islamic design.

Circulation and Parking

- Main entrance should be clearly visible, identifiable and easily accessible to the public.
- Pedestrian linkage should be connected to public walkway to facilitate easy access.

7.3.3 Other Religious Reserve

Other religious reserves *refer to land areas reserved for use as places of worship for other religions such as Buddha, Hinduism and Christianity.*

In the Local Plan area, these reserves are located in PB9.3 and PB 9.4, as shown in the Proposal Map.

OTHER RELIGIOUS RESERVES

Provision Requirement

- Religious reserve shall be provided at locations as indicated in Proposal Map and **Table 7.14**.

Table 7.14 Requirement For Provision of Religious Reserve

Planning Block	No.	Size (min. hectare)
PB 9.3	1	0.41 (on site as indicated in Proposal Map)
PB 9.4	1	0.40 (on site as indicated in Proposal Map)

Planning Requirement

- Development of place of worship on the religious reserve shall conform to the requirements indicated in **Table 7.15**.

Table 7.15 Planning Standard for Place of Worship on Religious Reserve

Other Religions Reserve	
Plinth Area	50% (max)
Setback from access road	12m (min)
Setback at side/rear	6m (min)
Max. height	1 storey
Parking	1 car parking space : 75 GFA
	1 motorcycle parking space : 150 GFA
	Minimum 1 bicycle rack
	Min. 2 handicapped parking spaces

Note: GFA is in square meter.

Design consideration

- The proposed place of worship should respect adjacent development.

- The building, while reflecting their respective religions and cultures shall, at the same time, be able to blend in the overall context of their respective sites.

Circulation and Parking

- Parking should be set apart from main pedestrian routes and within the component of the religious reserve.

- Pedestrian accessibility into these places of worship shall be optimised.

7.4 HEALTH SERVICES

Health services within the local plan area are categorised in two tiers as the following:-

i. Clinic
ii. Hospital

7.4.1 Clinic

The proposed health clinic is to provide an adequate health service within neighbourhood. The 1.5 hectares land in PB 9.2 (as shown in Proposal Map) will offer outpatient medical services mainly for the residents of Precinct 9 and 10, Putrajaya.

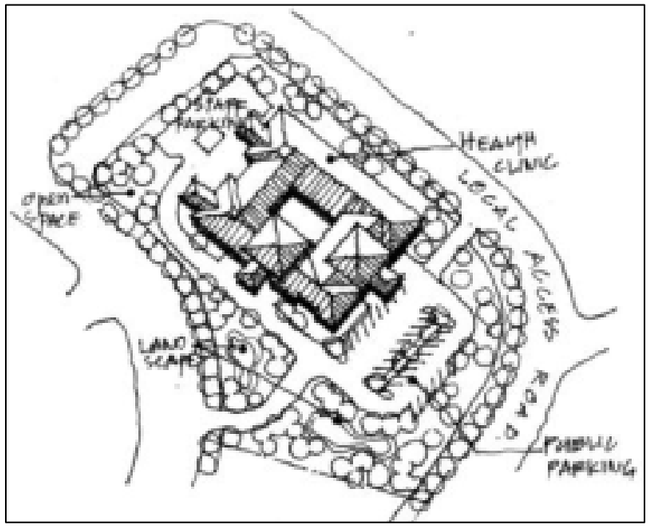


Figure 7.7
Typical Concept for Clinic

CLINIC

- Health clinic shall be provided at location as indicated in Proposal Map and in **Table 7.16**.

Table 7.16 Health Clinic

Planning Block	Unit	Size (min. hectare)
PB 9.2	1	1.51 (on site as indicated in Proposal Map)

Planning Requirement

- Development of clinic shall conform to the requirements indicated in **Table 7.17** with regards to building setback, height, plinth area and parking provision.

Table 7.17 Planning Standard for Clinic

Lot Area	1.5 hectare
Plinth Area	30% (max)
Height	4 storey (max)
Setback from access road	12m (min)
Setback at side/rear	6m (min)
Parking	1 car parking space : 75 GFA + 10% for visitors
	1 motorcycle parking space : 100 GFA + 10 for visitors
	1% on top of the total parking requirement or min. 2 handicapped parking space; whichever is more.

Note: GFA is in square meter

- Clinic should comprise the following elements:

a. Out-patient clinic
b. Diagnosis and treatment department
c. Medical support services department
d. Non-medical support services department

CLINIC

Circulation and Parking

- Main entrance should be clearly visible, identifiable, and easily accessible to the public.
- Where possible vehicular access to the clinic should not cross main pedestrian routes.
- Adequate space for easy manoeuvring of ambulances should be provided.
- Parking spaces shall be provided in accordance to the requirement as specified in **Table 7.17**.

Building Massing

- The design should respond to the natural topography and geo-morphology of the site.
- The building image projected should not imitate and perpetuate the traditional “standard design” of medical facilities buildings.

7.4.2 Hospital

The Hospital in the Local Plan area is located on a 11.013 hectare site in PB 7.2 as indicated in the Proposal Map.

The hospital will be a 'Centre of Excellence' in health services in Malaysia. It is estimated that the hospital will cater about 140,000 outpatients and 35,000 inpatient when fully completed.

HOSPITAL

- Hospital shall be provided at location as indicated in Proposal Map.
- The provision for the hospital shall be provided accordingly as set out in **Table 7.18**.
- Development of hospital building or space shall conform to standard as indicated in **Table 7.19**.

Table 7.18 Hospital

Planning Block	No.	Size (min. hectare)
PB 7.2	1	11.013 (on site as indicated in Proposal Map)

Table 7.19 Planning Standard for Hospital

Hospital	
Lot Area	11 hectare
Plinth Area	16%
Plot Ratio	0.35%
Height	5 storey
Setback from access road	12m (min)
Setback at side/rear	6m (min)
Parking	1 car parking space : 5 beds + 10% for visitors
	1 motorcycle parking space : 10 beds + 10 % for visitors
	1% on top of the total parking requirement or min. 2 handicapped parking spaces whichever is more.

Note: GFA is in square meter

7.5 Community Services

The type of community services included in this manual are:-
i. Market
ii. Food Court
iii. Community Hall / Public Amenities Centre

7.5.1 Market

Market in the Local Plan Area is located in PB 8.1 as indicated in the Proposal Map.

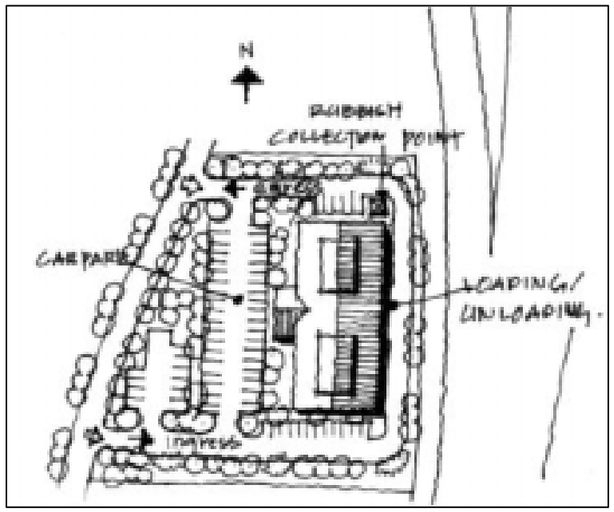


Figure 7.8
Typical Concept for Market

MARKET

Provision Requirement
- Market shall be provided at location as indicated in Proposal Map and **Table 7.20**.

Table 7.20 Provision of Market

Planning Block	Unit	Size (min. hectare)
PB 8.1	1	0.42 (on site as indicated in Proposal Map)

Planning Requirement
- Development of market facilities shall conform to the requirements indicated in **Table 7.21** with regards to building setback, height and plinth area.

Table 7.21 Planning Standard for Market

Markets	
Plinth Area	40% (max) of site coverage
Height	2 storey (max)
Setback from access road	12m (min)
Setback at side / rear	6m (min)
Parking	1 car parking space : 35 GFA
	1 motorcycle parking space : 160 GFA
	1% on top of the total parking requirement or min. 2 handicapped parking spaces whichever is more.
	Minimum 1 bicycle rack

Note: GFA is in square meter

Circulation and Parking
- Public access should be segregated from service access entrances.
- A sufficient number of service-vehicles bays shall be provided for loading and unloading; and also for waiting service vehicles.

MARKET

- Sufficient public car parking space shall be provided in accordance to requirement in **Table 7.21.**

- Adequate space must be allowed for the turning movement of service vehicle; (including refuse collection vehicles) without the need for any vehicles to back out onto public roads.

Design consideration

- The design should be as open as possible to attract shoppers and facilitate the selling of fruit, vegetable and other commodities and shall preferably have more than one street frontage.

- Distinct separation between areas allocated for fish, meat, vegetable, fruits, sundry and convenience goods shall be established. There will be further separation of halal and non-halal goods/food-stuff.

- Distinct separation between customer areas and seller areas.

- Good toilets facilities shall be located away from activities area.

- Central rubbish collection centre shall be located within walking distance. Bins areas and collection areas shall be screened, and provided with good wash-down facilities.

- Docking area for loading and unloading activities shall be provided away from main activity area.

- Management office should also be provided.

Building Massing

- The building should project a bright clean and hygienic image.

- The choice of building material to facilitate the maintenance of appropriate hygiene. Externally, the choice of material and roof-form should blend with adjacent residential areas and /or other buildings in the neighbourhood.

- Building should be rectilinear plan with double height space (atrium) over the central area. A wide verendah/circulation space shall be provided at second-storey level to give full and uncluttered access to the convenience shop located at this level. The roof should be double-pitched with skylights designed and fitted to provide good natural through-ventilation and light.

Floor and Wall Finishes

- Robust and low-maintenance materials should be used extensively in the building (externally and internally) and as the following: -

Table 7.22 Detail of Finishes

Item	Description/Material/Finishes
Internal Wall	Tile or smooth, impervious and coloured finishes
Floor	Durable, hard wearing, non-slip, washable and substantially low maintenance
Customer aisles	Elevated to maintain dry walkway
Work-tops	Easy maintenance
Solid Waste	Stainless steel basket for trapping the waste

Provision For Garbage Truck

- Garbage truck will generally utilize the normal standard roads to access residential, commercial and public amenities area. The normal standard road is not a major concern for garbage trucks; however, internal circulation system for multi-stories facilities and complexes should incorporate certain provision for garbage trucks.

- Issues that need to be examined at an early stage in the design should include the following:-

i. To maintain a minimum height clearance of 4.1 meters, wherever the path for the garbage trucks have been identified;

ii. To maintain a minimum slope of 1:12 for the design of access road for garbage trucks; and

iii. Provision for " 3 point turns" or "Cul-de-Sac" should be incorporated wherever necessary.

7.5.2 Food Court

Food Courts in the Local Plan Area are located in PB 8.1 and PB 9.2 as indicated in the Proposal Map. These are the free–standing buildings on independent sites.

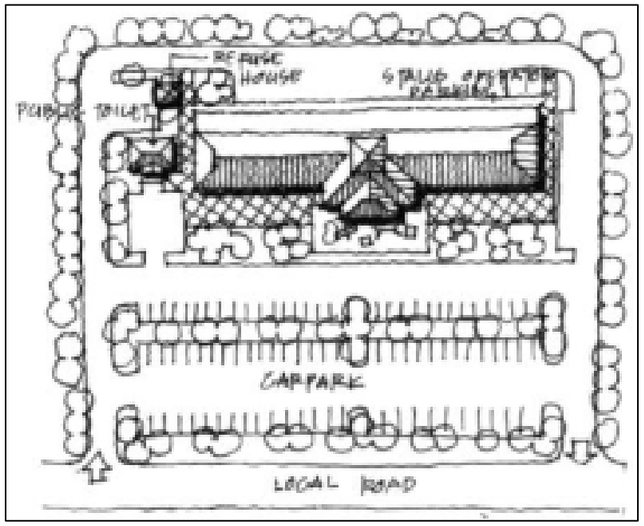


Figure 7.9
Typical Concept for Food Court

FOOD COURT

Provision Requirement

- Food court shall be provided at locations as indicated in Proposal Map and **Table 7.23**.

Table 7.23 Requirement for Provision of Food Court

Planning Block	No.	Size (min. hectare)
PB 8.1	1	0.20 (on site as indicated in Proposal Map)
PB 9.2	1	0.44 (on site as indicated in Proposal Map)

Planning Requirement

- Development of food court shall conform to the requirements indicated in **Table 7.24** with regards to building setback, height, plinth area and parking provision.

Table 7.24 Planning Standard for Food Court

Food Court (stand-alone)	
Min. size	0.2 hectare
Plinth Area	30% (max)
Height	2 storey (max
Setback from access road	12m (min)
Setback at side/rear	6m (min)
Parking	1 car parking space : 20 GFA
	1 motorcycle parking space : 70 GFA
	Minimum 1 bicycle rack
	1% on top of the total parking requirement or min. 2 handicapped parking spaces whichever is more.

- Service road must cater for turning radii for all service vehicles including refuse trucks.

Design consideration

- All area to be well ventilated and lit. Natural ventilation and daylight should be optimised.

- Adequate provision for service areas are necessary and must be screened from public view.

FOOD COURT

- Kitchen work-tops, hygiene and fire safety shall conform to health and safety standards and Building By-Law.

- All signage must conform to **Signage and Advertisement Design Guidelines for Putrajaya, 1999.**

- Ample covered cooking area (min 15m^2) and dining areas (min 20m^2) must be provided for each stall.

- A minimum of one refuse house/chamber must be provided, and concealed from dining/public view.

Building Massing

- Massing of building should respect the general scale of the site and the context of its surrounding.

- Design should incorporate appropriate low-maintenance building materials such as stainless steel work-tops and sinks, metal or clay/concrete tile roofs and non slip floor tiles.

Provision For Garbage Truck

- Garbage truck will generally utilize the normal standard roads to access residential, commercial and public amenities area. The normal standard road is not a major concern for garbage trucks; however, internal circulation system for multi-stories facilities and complexes should incorporate certain provision for garbage trucks.

- Issues that need to be examined at an early stage in the design should include the following:-

i. To maintain a minimum height clearance of 4.1 meters, wherever the path for the garbage trucks have been identified;
ii. To maintain a minimum slope of 1:12 for the design of access road for garbage trucks; and
iii. Provision for " 3 point turns" or "Cul-de-Sac" should be incorporated wherever necessary.

7.5.3 Community Hall/Public Amenity Centre (PAC)

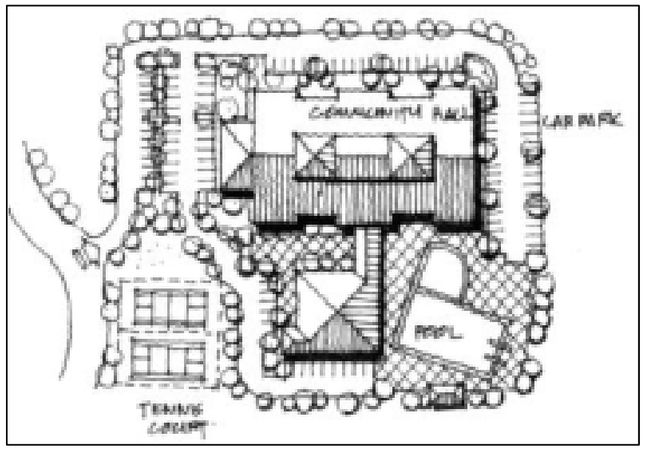


Figure 7.10
Typical Concept for Community Hall

COMMUNITY HALL/PAC

Provision Requirement

- Community hall/PAC shall be provided at location as indicated in proposal map and as specified in **Table 7.25**.

Table 7.25 Requirement for Provision of Community Hall/PAC

Planning Block	No.	Min. Size (hectare)
PB 8.1	1	0.80 (on site as indicated in Proposal Map)
PB8.3	1	1.62 (on site as indicated in Proposal Map)
PB 9.2	1	2.32 (on site as indicated in Proposal Map)

Planning Requirement

- Development of community hall/PAC shall conform to the requirements indicated in **Table 7.26** below.

Table 7.26 Planning Standard for Community Hall/PAC

Community Hall/PAC	
Lot Area	0.8 hectare or more
Plinth Area	30% (max)
Height	3 storey (max)
Setback from access road	12m (min)
Setback at side/rear	6m (min)
Capacity	300 person (max)
Parking	1 car parking space : 5 seats
	1 motorcycle parking space : 10 seats
	Minimum 1 bicycle rack
	1% on top of the total parking requirement or min. 2 handicapped parking spaces whichever is more.

COMMUNITY HALL

Design consideration

- Community hall/PAC should provide/incorporate the following:-

a. Sports and recreation facilities
b. Badminton court
c. Swimming pool
d. Outdoor plying activities
e. Squash court
f. Table tennis
g. Hall of ceremonies, communal gatherings etc
h. Recourse and information centre
i. Toilets and other facilities
j. Facilities for handicapped
k. Library
l. Food Court
m. Service centre for Perbadanan Putrajaya

Circulation and Parking

- Shall be accessible to the public, with pedestrian linkages to the local neighbourhood parks and other amenities.
- Shall ensure distinct segregation of pedestrian and cycle routes for user of community hall.
- Public access from service areas shall be segregated.

8.0 OPEN SPACE

8.1 USE

This guideline shall be used for all open space developments in the Local Plan area for Precincts 7, 8, 9 and 10, Putrajaya.

8.2 CLASIFICATION

Open space can be classified into eight major categories as stated below and as shown in **Figure 8.1**: -

- Metropolitan Park
- District Park (Urban Park)
- Local Park
- Neighbourhood Park
- Playground
- Green Links/Connectors
- Promenade and Lake Edge
- Water Bodies

The guideline in this manual however shall only cover Metropolitan Park to Green Links/Connectors but shall not cover Promenade, Lake Edge and Water Bodies, which shall be covered separately under another section within this manual.

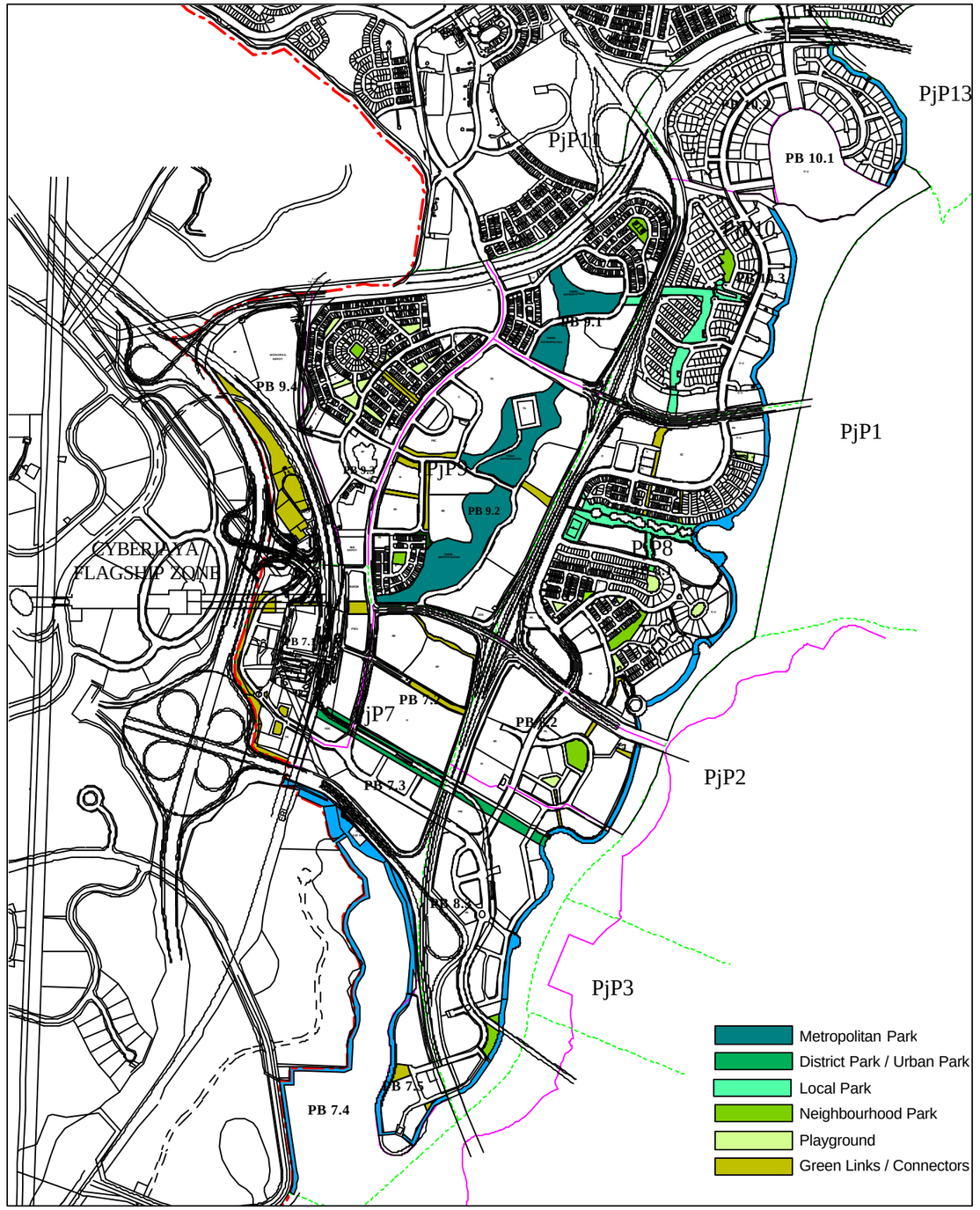


Figure 8.1
Category of Open Spaces

8.3 Metropolitan Park

Metropolitan Park *is a green space designated to cater for recreational and knowledge needs for the population of the Local Plan Area of Precincts 7, 8, 9 and 10 as well as other areas of Putrajaya as a whole.*

8.3.1 Location and Catchments Area

Metropolitan Park, which is also known as the Ridge Line Park, stretches north south on high land in the middle of PB9.1 and PB9.2. It covers a total area of 21.498 hectares and serves catchments population of 50,000 people or more.

8.3.2 Function

The Metropolitan Park is the highest hierarchy of open space serving the Local Plan Area of Precincts 7, 8, 9, and 10. The functional emphasis of the park shall be as open air, informal education facilities with concentration on rainforest and wildlife environment.

8.3.3 Character

Park character shall be naturalistic or woodlands with broad variety of lowland rain forest species and robust or heavy-duty hard landscape elements.

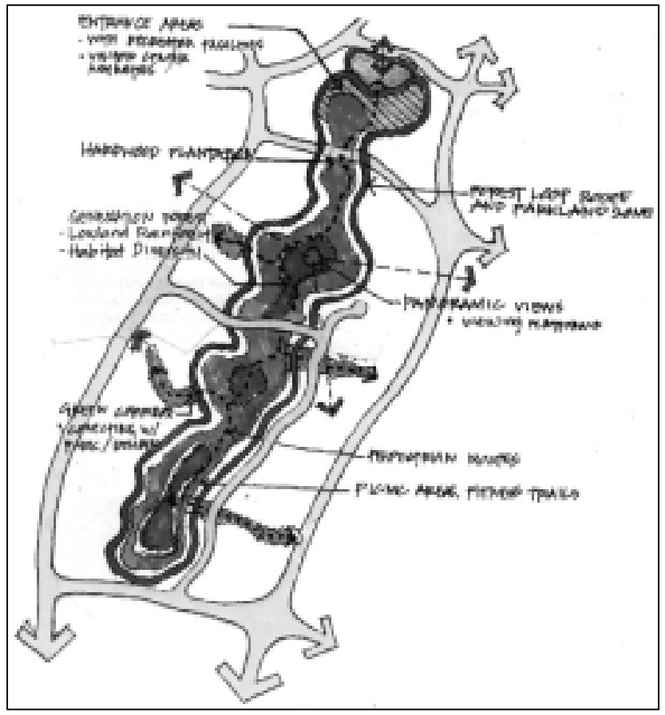


Figure 8.2
Concept of Metropolitan Park

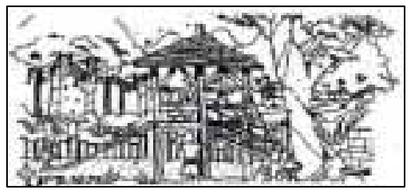


Figure 8.3
Adventure Children Playground Using Natural Materials

Figure 8.4
Use of Natural Materials such as Pebble/Gravel Footpath and Timber Boardwalks

METROPOLITAN PARK

1. Facilities

- Facilities shall consist of the following, which are minimum provisions required to ensure the realisation of the overall naturalistic character of the Metropolitan Park in future detail design: -
  - i. Interpretative centre
  - ii. Open air classroom
  - iii. Nature trail/canopy walk explaining the vegetation and wildlife relevant to the specific topic
  - iv. Active recreation facilities
  - v. Picnic facilities
  - vi. Adventure playground
  - vii. Specialised garden
  - viii. Associated amenities

2. Linkage and Circulation

- The park shall be connected to other adjacent open spaces within the Local Plan Area by Green Corridors.
- Internal circulation within the park shall be through informal network of trail/footpath and segregated cycle path.
- Circulation shall be clear and well signed with the use of views and hierarchy of routes providing orientation. Location and design of signboards shall complement to the overall character of the park as well as to the provisions of the **Signage and Advertisement Design Guidelines for Putrajaya, 1999.**
- Access such as ramps for the handicapped shall be provided at all parts and facilities within the park.
- Car parking area shall be provided in pockets and shall be located adjacent to main entrances and other highly concentrated areas such as picnic areas, visitor centres, etc. Parking shall be provided in accordance to the following ratio: -

Parking	1 car parking space : 0.1 hectare
	1 motorcycle parking space : 0.35 hectare
	1 bicycle rack : 5hectares
	Minimum 4 bus parking spaces

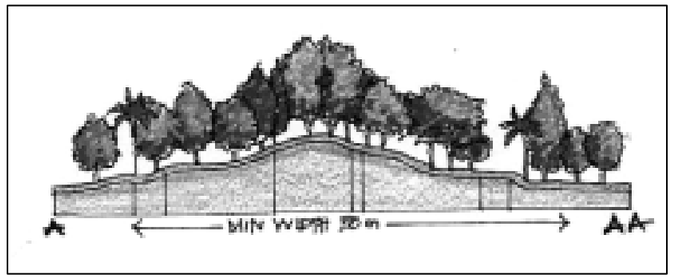


Figure 8.5
Section Showing Planting Across Metropolitan Park

METROPOLITAN PARK

- Surface of the parking area shall use pervious materials and surface run-offs shall be discharged in accordance to the guidelines and recommendations specified in the **Manual Saliran Mesra Alam (MaSMA, 2000**) by the Jabatan Pengairan & Saliran (JPS).

3. View Corridors

- Look out points shall be provided and focused on specific views corridors. Specific views to be encouraged shall be those towards the lake and the Core Area of Putrajaya.

4. Topography

- Existing natural topography shall be retained, fully maximised and integrated with the new landscape features.

- Cut and fill shall be minimised.

5. Vegetation

- Planting shall be in 3 layers as the following: -

Table 8.1 Layers of Planting for Metropolitan Park

Layer	Location	Planting
Core	Top of the ridge	Lowland rainforest
Intermediate	In between core and periphery	Hardwood plantation
Periphery	Lowest boundary of the park	Ethno-Botanic parkland

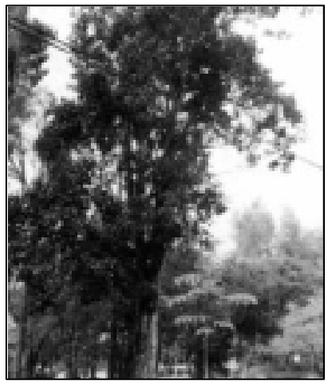
- Existing palm oil trees shall be retained initially and later followed by reforestation. Drought tolerant species are encouraged to reduce demand for water for irrigation purposes. Recommendations with regard to irrigation of the park as highlighted in **Irrigation Master Plan for Putrajaya**, **2001** shall be taken into consideration. Refer **Irrigation Master Plan for Putrajaya, 2001** for list of drought tolerant species.

- Buffer vegetation shall be provided between parks and the adjacent built form land use and roads.

- Recommended species shall be as in **Table 8.2**.

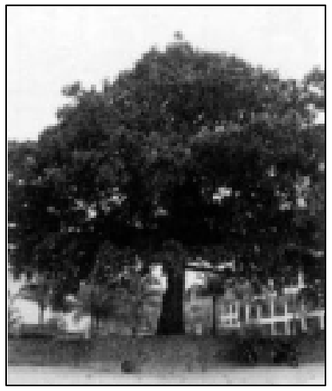
Ficus Benjamina

Milletia Atropurpurea

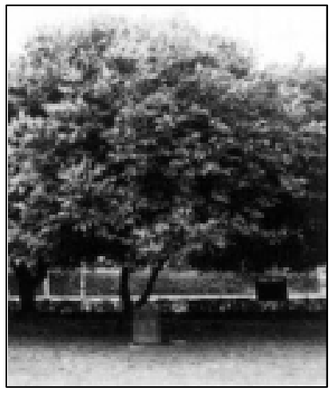


Eugenia Polyantha

Tamarindus Indica



Terminalia Catappa



Cinnamomun Iners

Figure 8.6
Example of Plant Species for Metropolitan Park

METROPOLITAN PARK

Table 8.2 Recommended Plant Species For Metropolitan Park

Species	Common Name
Dryobalanops Aromatica	Kapur Kuda
Dipterocarpus Baudii	Keruing Bulu
Shorea Parvifolia	Meranti Sarang
Dyera Costulata	Jelutong
Hopea Odorata	Merawan
Shorea Curtisii	Seraya
Vatica Spp	Resak
Intsia Palembanica	Merbau
Koompassia Excelsa	Tualang
Tectona Grandis	Jati
Chikrassia Tabularis	Surion Batu
Shorea Macroptera	Meranti Melantai
Pometia Pinnata	Kasai
Dillenia Indica	Simpong Gajah
Milletia Atropurpurea	Tulang Daing
Alstonia Angustiloba	Pulai
Elateriospermum Tapos	Perah
Ficus Benjamina	Beringin
Eugenia Polyantha	Salam
Messua Ferrea	Ironwood Tree
Ficus Elastica	Indian Rubber Tree
Tamarindus Indica	Asam Jawa
Pithecellobium Jiringa	Jering
Terminalia Catappa	Katapang
Canarium Vulgare	Java Almond
Peltophorum Pterocarpum	Batai Laut
Cinnamomun Iners	Kayu Manis
Gardenia Carinata	Chempaka Hutan

METROPOLITAN PARK

6. Landscape Elements

- Application and design of landscape elements and facilities shall conform to requirement in **Table 8.3.**

Table 8.3 Design Style of Landscape Elements for Metropolitan Park

Elements	Use/ Location	Design Style	Materials
Paving, Walls and Steps	Various location	Informal, sculptural	Clay brick, large pebbles gravel, tarmac
	Car park	Informal	Logs, stone grasscrete, gravel clay
	Cycle route	Smooth and informal	Block
	Nature trail through the woodland	Informal, natural	Tarmac, cut logs, pebbles, gravel
	Walls	Informal, texture	
	Public areas with heavy use	Formal	Random pebble finish clay blocks
Site Furniture	Picnic tables, bar-be-que pits, litter bins	Cotemporary, robust, informal	Sustainable hardwoods, concrete
Lighting	Lights for educational facilities, entry and exit nodes at pedestrian footpaths, viewing areas and access routes and car parks	Simple, robust	Aluminium, steel
Drainage	Swales in natural areas running primarily parallel to the contours	Swales	Rock boulders and stone
Structures and Shelters	Shade structures for seating, pavilions for viewing, entry gates	Natural, simple, informal and traditional	Sustainable hardwood, clay tiles

Table 8.3 Design Style of Landscape Elements for Metropolitan Park (cont.)

Elements	Use/ Location	Design Style	Materials
Play Features	Adventurous facility located in the forest	Robust, adventurous	Conform to SIRIM standard, sustainable hardwood
Sport Features	Trim trails, canopy walks, jogging tracks, cycle track	Solid, innovative, natural	Sustainable hardwood concrete basses
Bridges and Boardwalks	Viewing platforms, water crossing	Natural, robust, informal	Sustainable hardwood concrete basses
Signage	Entrance, educational guides	Natural, informal	Sustainable hardwood
Fences, Gates and Barriers	Separates children from vehicles, viewing platform railings	Cotemporary. Natural, informal	Sustainable hardwood
Water Features	Educational pond and wetland but mostly for drainage purposes	Naturalistic, informal	Natural rock, puddle clay
Art in the Environment	Incidental and located along a trail	Natural	Earth, wood, leaves

Source: Putrajaya Federal Government Administrative Centre Peripheral Areas: Urban Design Analysis and Strategy, Volume 3, Part 5(b): Landscape, 1 Dec 1998.

8.4 District Park (Urban Park)

District Park or Urban Park *is a public outdoor space located in the Sub-commercial Centre intended as an activity focus at the heart of intensive urban area.*

8.4.1 Location and Catchments Area

District Park or Urban Park with a total area of 3.64 hectares is located at PB7.3 and PB8.3. The park is 1.1 km long and 60m wide, lies east west within the sub-commercial centre of the Local Plan Area. It serves a catchments population of 50,000 people.

8.4.2 Function

The park, which shall also be known as 'Peoples Park", shall serve the Local Plan area of Precincts 7, 8, 9, and 10. It shall function as an urban park within a major commercial centre of the Local Plan area.

8.4.3 Character

In contrast to the Metropolitan Park, the Urban Park shall be predominantly urban in character suitable to its location within a sub-commercial centre. It will cater for all walks and ages of life and be integrated with the surrounding commercial activities within the sub-commercial centre.

It is divided into 7 activity zones with different character and theme as indicated below: -

- Waterfront Plaza
- Festival Square
- Civic Places
- Kiddies Park
- Station Plaza
- Sanctuary Garden
- Adventure Plaza

DISTRICT PARK/URBAN PARK

1. Facilities

- Facilities within each section of the Urban Park shall contribute towards achieving the intended character and activities as highlighted in **Table 8.4**: -

Table 8.4 Major Facilities Within Urban Park

Section of Urban Park	Character	Major Activities	Facilities (Min. Provision)
Waterfront Plaza	Hard, colourful, playful	Leisure	Synchronise Fountain, Benches, Jetty To Water Taxi
Festival Square	Hard, colourful, festive	Leisure, eating area, exhibition space	Grass Seating, Outdoor Table/Benches, Tensile Canopy For Shades
Civic Places	Hard and soft, active culture, colourful	Active, traditional games	Sepaktakraw Court, Dam Haji, Congkak, Gelanggang Gasing, Cakar Ayam
Kiddies park	Soft, active, noisy	Playing, adventure	Children Playground, Maze, Water Play, Benches
Station Plaza	Hard and soft, movement, interactive	Passenger boarding and getting down the monorail, waiting area and meeting place	Kiosks, News-Stand, Info Board, Vehicle Lay-By, Seating Area
Sanctuary Garden	Soft, quite, calm	Relaxing, walking and resting area	Manicure Garden, Benches, Playground
Adventure Plaza	Soft, active, shady	Physical activity, exercise, gathering area for passengers arriving at Western Transport Terminal	Flying Fox, Hanging Bridge, Toilet Facilities

Drop Kerb *is the area where kerb reduces in height at pedestrian crossings and kerb cut zones.*

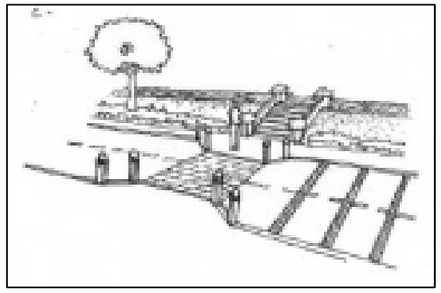


Figure 8.7
Pedestrian Crossing Facilities at Places Where Urban Park Meets Road

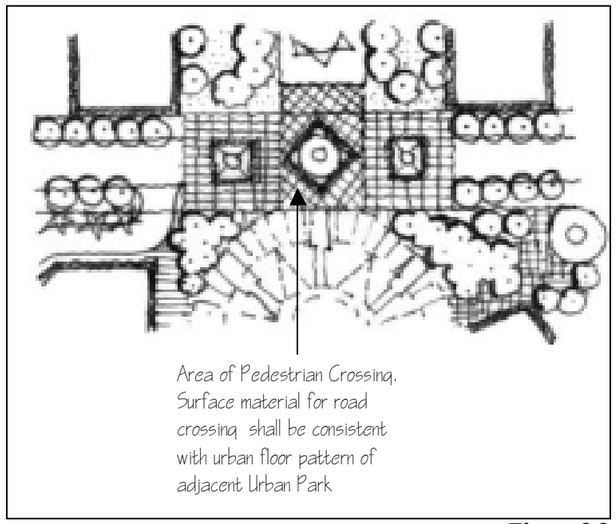


Figure 8.8
Change of Road Treatment to Indicate Pedestrian Crossing

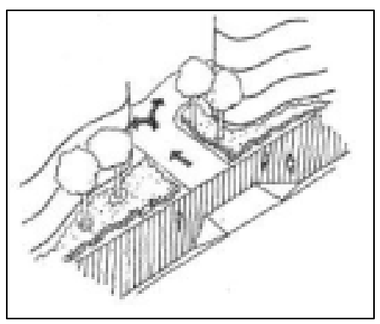


Figure 8.9
Drop Kerb At Pedestrian Crossing

DISTRICT PARK/URBAN PARK

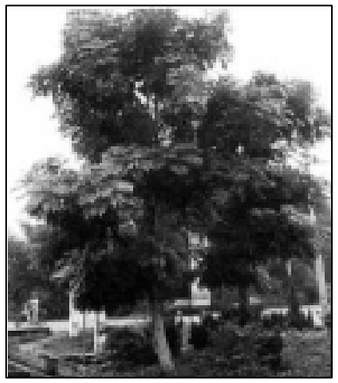
2. Linkage and Circulation

- In principle connections into the park from adjacent public realm such as commercial open spaces, plaza, courtyards, and pedestrian mall shall ideally be at grade or minimal change in level and barrier free.
- Internal circulation within the park shall be determined by individual designer. However, all major desire lines and linkages to other pedestrian routes shall be accommodated within the park.
- Where a road needs to be crossed to reach any segment of the urban park, designated controlled crossing points shall be identified by a change in material and other pedestrian crossing facilities. The material for crossing points shall be consistent with the floor material proposed within the urban park.
- Drop kerb shall be used at all pedestrian crossings.
- Circulation shall be clear and well signed with the use of views and hierarchy of routes providing orientation. Guidelines specified in **Signage and Advertisement Design Guidelines for Putrajaya, 1999** should be adhered.
- All changes in level shall accommodate adequate ramp or barrier free access for handicapped and semi ambulant people. Parking shall be provided in accordance to the following:-

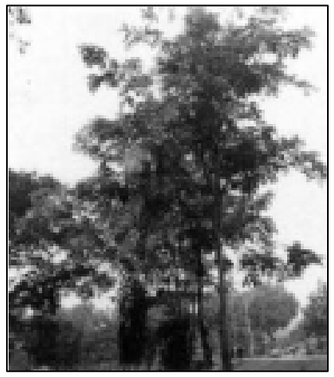
Parking	1 car parking space : 0.05 hectare
	1 motorcycle parking space : 0.15 hectare
	Minimum 1 bicycle rack

3. View Corridors

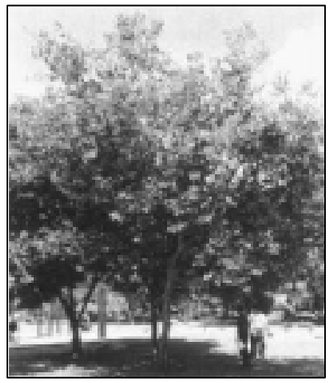
- At locations where section of Urban Park terminate vistas and visual lines, features within the landscape shall be used to act as focal point, physically and visually.



Khaya Senegalensis

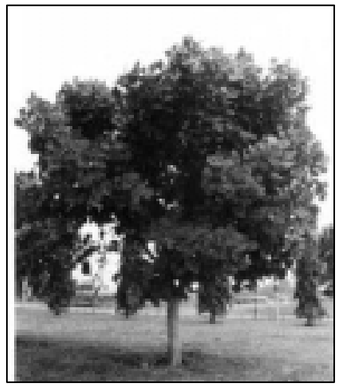


Bauhinia Purpurea

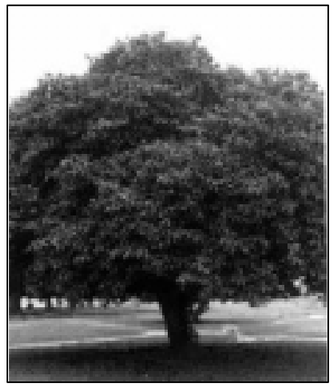


Cassia Fistula

Delonix Regia



Erythrina Galli



Mimosup Elengi

Figure 8.10
Example of Plant Species for Metropolitan Park

URBAN PARK

4. Vegetation

- Colourful flowering trees and shrubs shall be selected to add colour and interest into the urban form.
- Colourful shrubs and seasonal flowers planted in pots shall be used sparingly to highlight entry or focal points.
- Recommended plant species shall be as indicated in **Table 8.5**.

Table 8.5 Recommended Plant Species For Urban Park

Species	Common Name
Bauhinia Purpurea	Tapak Kuda
Cassia Fistula	Golden Shower
Casuarina Fistula	Rhu
Delonix Regia	Semarak Api
Entorobilium Samans	Rain Tree
Erythrina Galli	Dedap
Lagerstromea Flos Reginea	Bungor
Khaya Senegalensis	Khaya
Mimosup Elengi	Tanjung
Tabebula Pentaphylla	Tecoma
Crytoctachys Lakka	Palma Merah
Crysalicarpus Lutencens	Yellow Palm
Livistonia Rotundifolia	Serdang Daun Bulat
Ptychosperma Macarturi	Ptychosperma
Roystonea Oleracae	Cabbage Tree