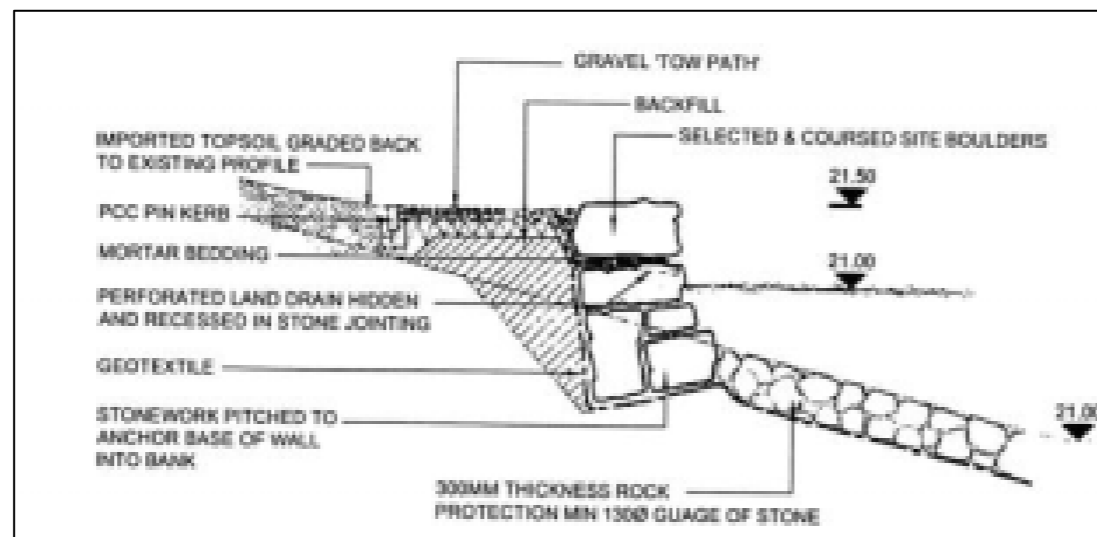
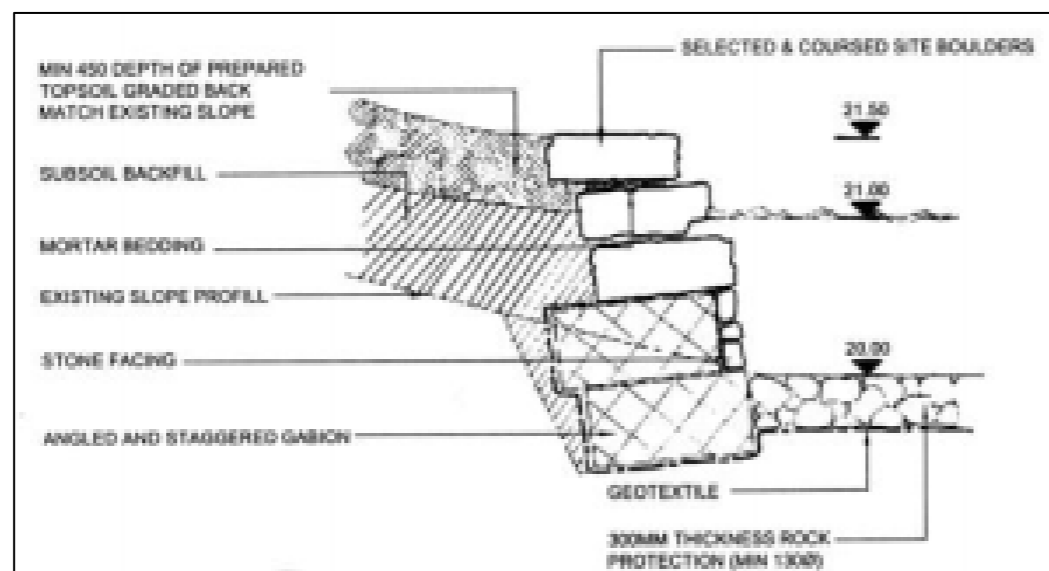


**Figure 10.19**  
**Protected Edge - Minimum Standard Treatment**

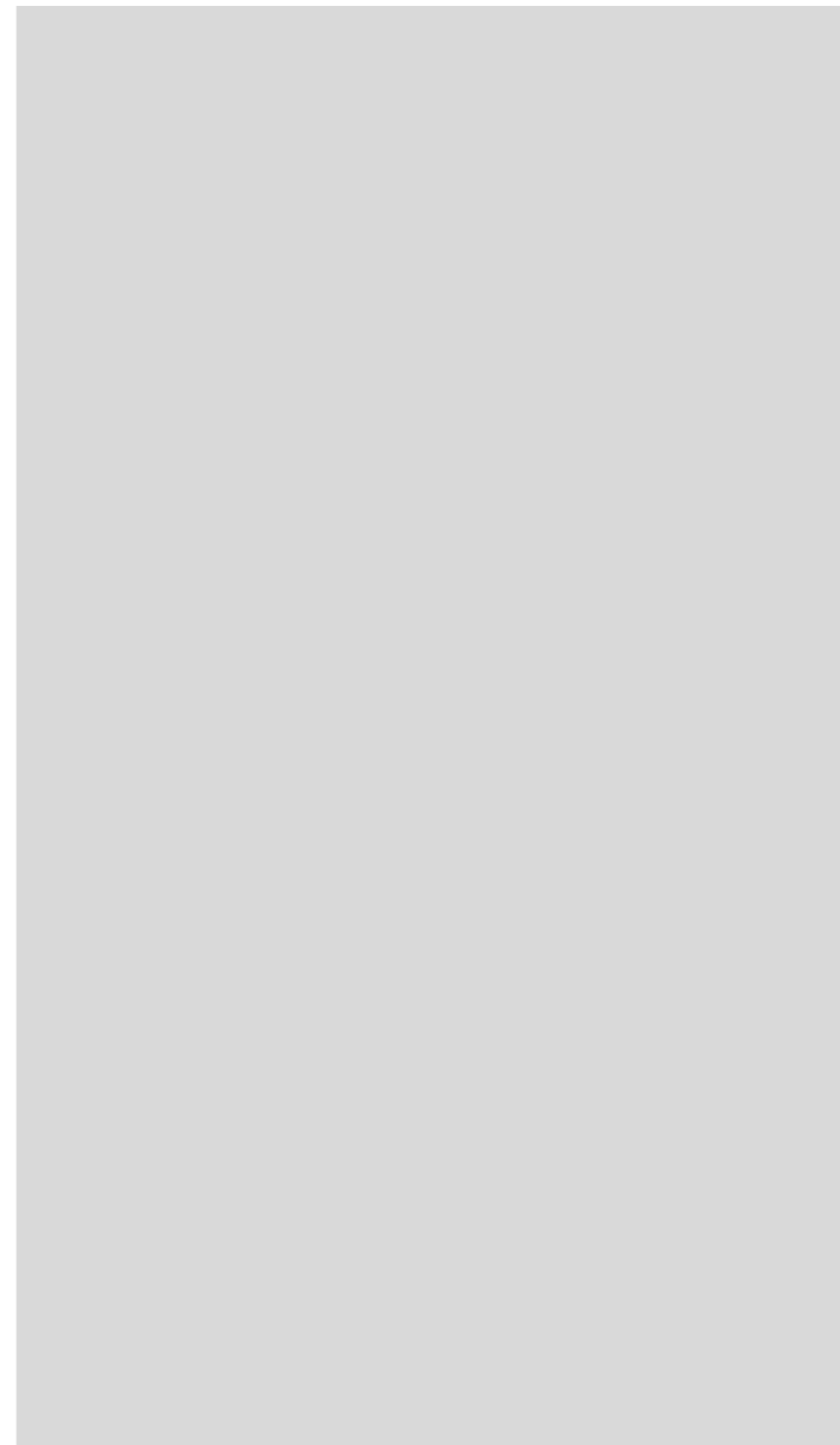


**Figure 10.20**  
**Protected Edge - Localised Variation 1**



**Figure 10.21**  
**Protected Edge - Localised Variation 2**

PROTECTED EDGE





SOFT EDGE

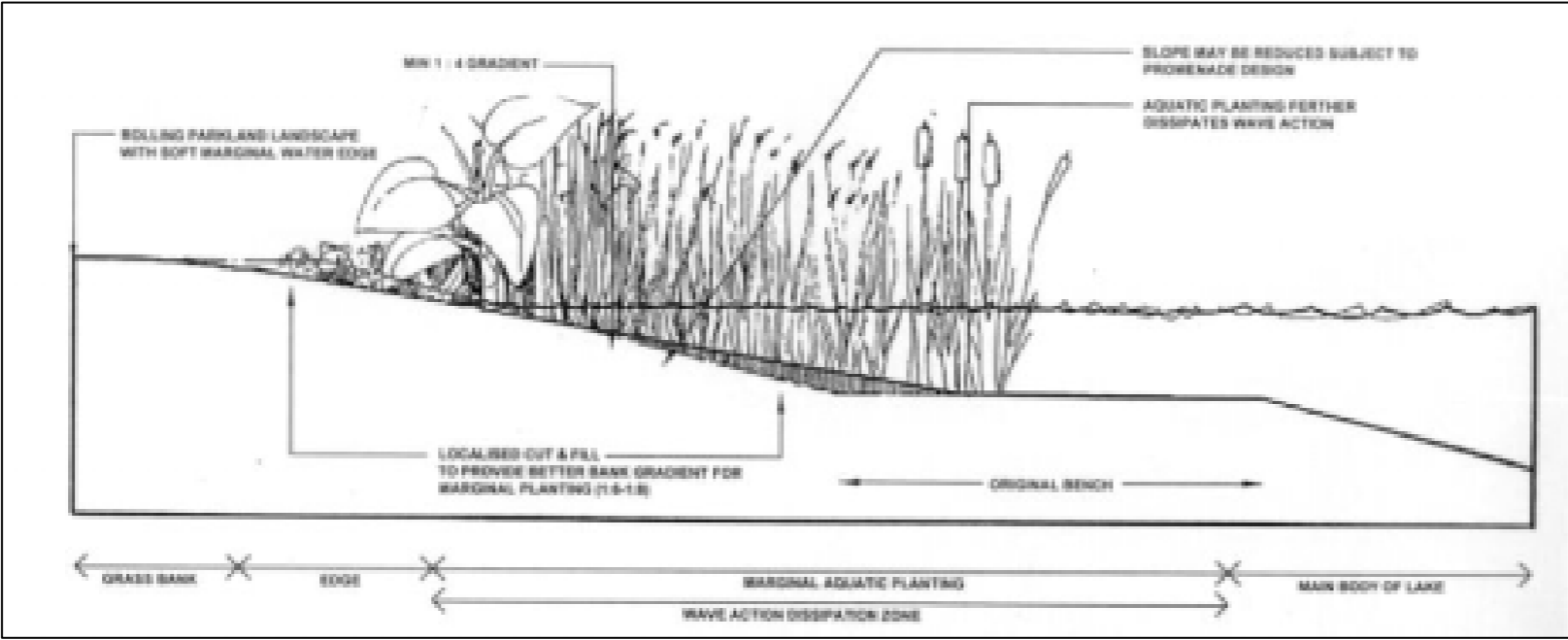
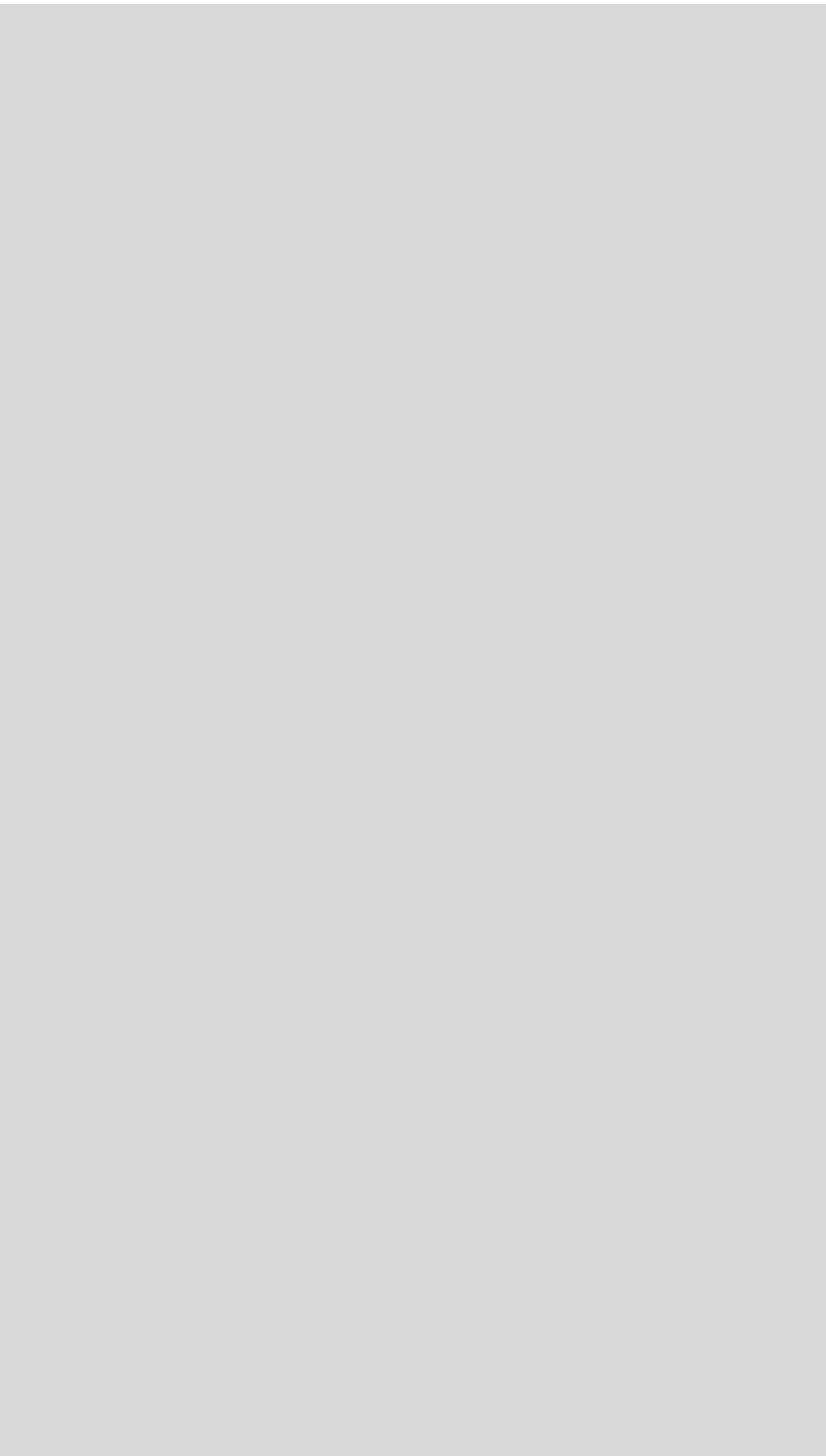


Figure 10.22  
Soft Edge - New Edge Construction

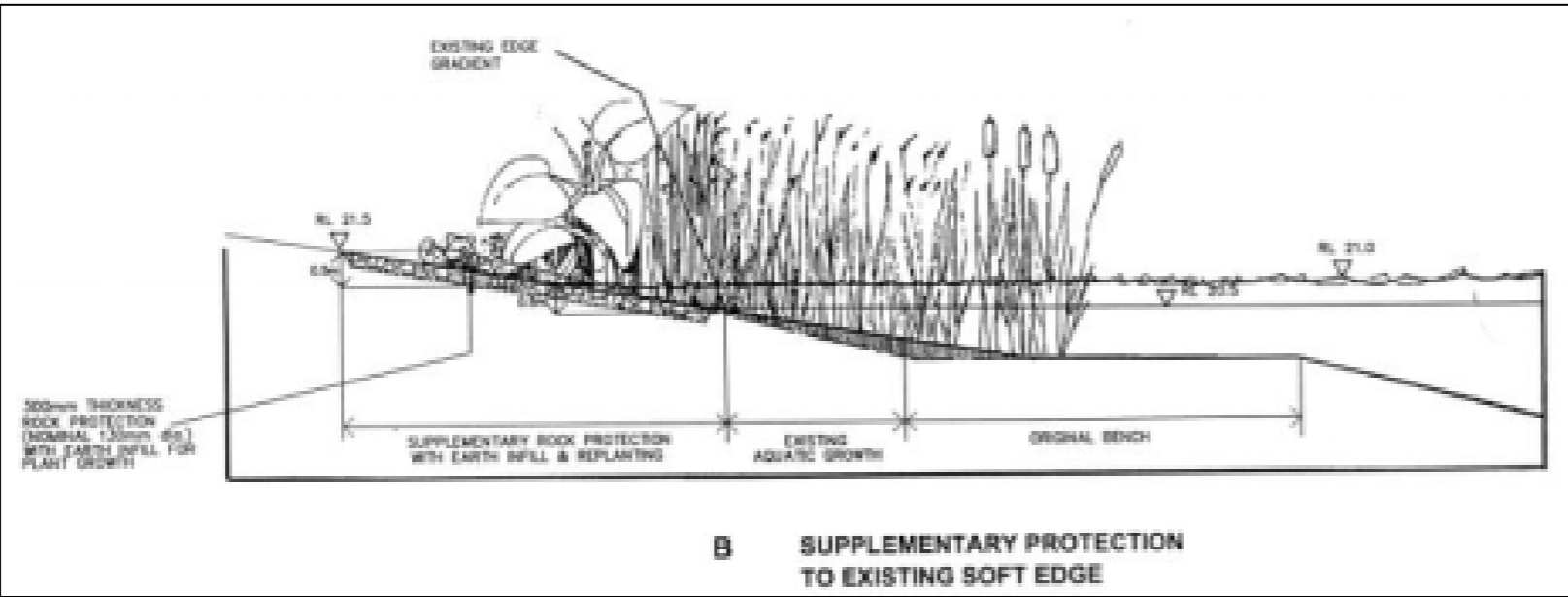
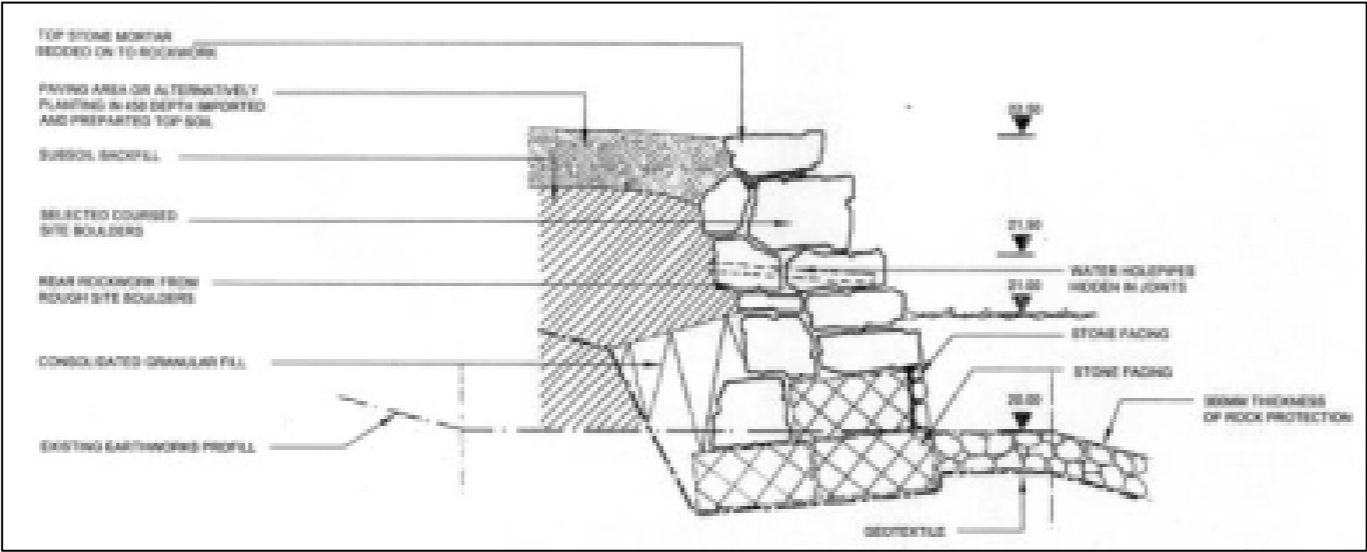


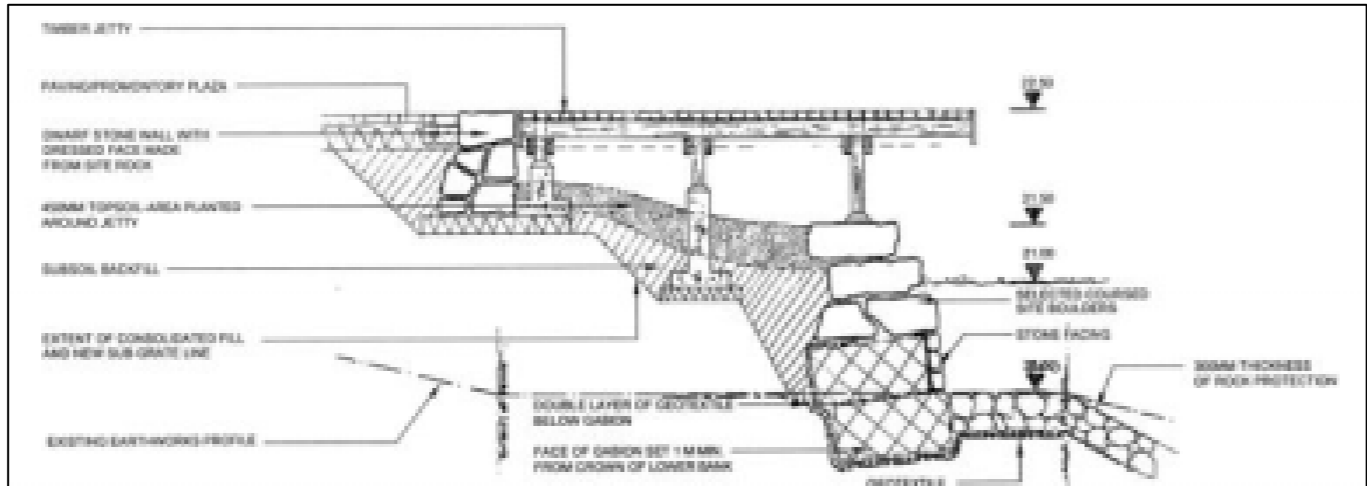
Figure 10.23  
Soft Edge - Supplementary Protection To Existing Soft Edge



# PROMONTORY



**Figure 10.24**  
**Promontory**



**Figure 10.25**  
**Promontory - Fishing Jetty**

## 10.5 ENVIRONMENTAL CONSIDERATIONS

Environmental consideration with regard to promenade, lake edge and water bodies are related closely to activities on the promenade and in the Putrajaya Lake, which is considered as one of the environmental sensitive areas within the Local Plan area.

Activities in and around the lake should conform to the guidelines set out in this Manual and other guidelines or regulations already in existence as follows: -

- i. Putrajaya Lake Use and Navigation Master Plan and Lake and Wetland Emergency Response Plan, 2001
- ii. Putrajaya Stormwater Management Design Guidelines, 1998
- iii. Irrigation Master Plan for Putrajaya, 2001
- iv. Manual Saliran Mesra Alam (MaSMA, 2000)
- v. Environmental Quality (Perbadanan Putrajaya)(Water Pollution Control) Regulations, 1998
- vi. Environmental Quality (Control of Emissions From Diesel Engines) Regulations 1996
- vii. Environmental Quality (Control of Emissions From Petrol Engines) Regulations 1996.

## ENVIRONMENTAL CONSIDERATIONS

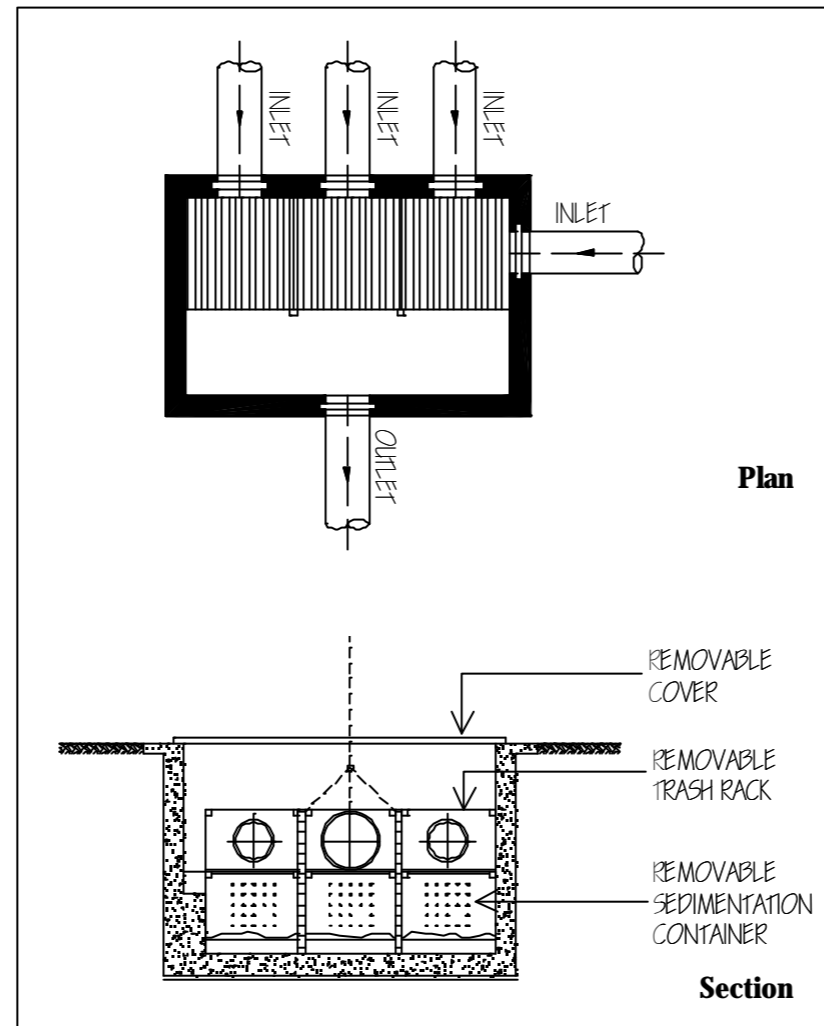
### **Discharge into Putrajaya Lake**

- Discharges into the Putrajaya Lake from land or water based activities should comply to the Environmental Quality (Perbadanan Putrajaya)(Water Pollution Control) Regulations, 1998 and comply with standards as indicated in **Table 10.1**.

**Table 10.2 Putrajaya Lake Ambient Water Quality Standards and Standard for Discharge into Lake Area**

Parameters	Unit	Putrajaya Ambient Lake Water Quality Standards	Standard for discharge into the lake area or onto land
<b>Temperature</b>	°C		<b>38</b>
pH		6.5-9.0	6.0-9.0
BOD	mg/l	3	10
COD	mg/l	25	30
Suspended solids	mg/l	50	50
Mercury	mg/l	0.001	0.001
Cadmium	mg/l	0.005	0.01
Hexa-Chromium	mg/l	0.05	0.05
Arsenic	mg/l	0.05	0.05
Cyanide	mg/l	0.02	0.02
Lead	mg/l	0.05	0.05
Tri-Chromium	mg/l	-	0.20
Copper	mg/l	1.0	0.10
Manganese	mg/l	0.1	0.20
Nickel	mg/l	0.02	0.20
Tin	mg/l	0.05	0.20
Zinc	mg/l	5	1.0
Boron	mg/l	1	1.0
Iron	mg/l	0.3	1.0
Phenol	mg/l	0.01	0.001
Free Chlorine	mg/l	-	1.0
Sulphide	mg/l	-	0.5

- Input into the lake shall be controlled through direct measures such as structures or traps and also through indirect measures using landscape features.



**Figure 10.26**  
**Typical Example of GPT**

## ENVIRONMENTAL CONSIDERATIONS

- Gross Pollutant Trap (GPT) shall be installed at locations as specified in the Local Plan to trap floating materials in the water before entering the lake.
- No discharge of any substances such as organic or inorganic solvents refuse, garbage or solid waste shall be allowed into the lake.

### **Noise Control**

- Noise generated from boating activities in the lake shall not disturb the peace of the public and residents around the lake. Noise from boats should be measured and limited as follows:-
  - i. Maximum allowable offshore noise is 75 dB(A) measured at any distance from the shoreline.
  - ii. Maximum idling noise, measured between 1 to 2 metres from the boat, should not exceed 88 dB(A).
  - iii. An approved sound level meter should be used to measure the boat noise levels.
- Boats should adopt noise reduction design features such as:-
  - i. Mufflers fabricated from marine materials for exhaust noise
  - ii. Air cleaners in conjunction with intake mufflers for intake noise.
  - iii. Use of enclosure to confine engine noise.
  - iv. Use of damping materials to treat mechanical noise.
  - v. All access panels and plumbing must be properly gasketed and secured.
  - vi. All vents must be provided with acoustical traps for maximum effectiveness.

### **Air Quality**

- Emissions from marine engines should comply with the standards of air emissions for diesel and petrol engines as prescribed in the **Environmental Quality (Control of Emissions From Diesel Engines) Regulations 1996** and the **Environmental Quality (Control of Emissions From Petrol Engines) Regulations 1996**

# 11.0 CIRCULATION

## 11.0 USE

This guideline shall be used for all developments located within the Local Plan area of Precincts 7, 8, 9 and 10, Putrajaya.

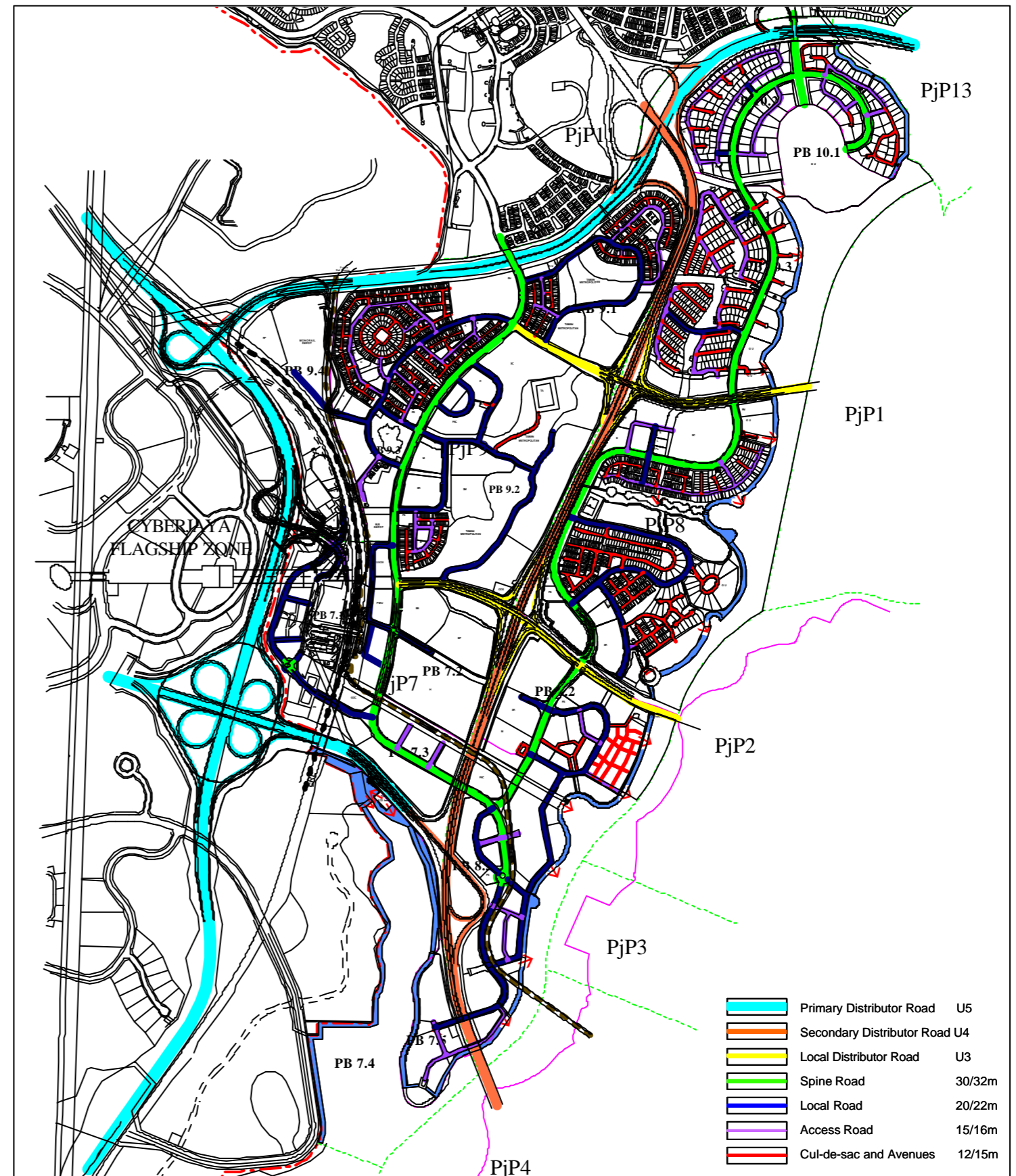
## 11.1 ROADS

### 11.1.1 Road Hierarchy

**Hierarchy** is the organization of a road system into higher and lower ranks.

Within the Local Plan area, the road hierarchy is organized as the following: -

- Primary Distributor Road
- Secondary Distributor Road
- Local Distributor Road
- Spine Road
- Local Road
- Access Road
- Avenues And Cul-De-Sacs



**Figure 11.1**  
**Road Hierarchy**

**Primary Distributor** is the highest hierarchy of road in the Local Plan area. Its primary function is to provide strategic linkage between longer distant urban area or from expressway to urban area. This is a dual carriageway road with a 70 meters road reserve. This is the only road where provision for motorcycle lane is required.

**Secondary Distributor** is the third ranking road after Expressways and Primary Distributor in terms of hierarchy in the Putrajaya Road Network. It is a 6 lane highway with a road reserve of 65 metres. It distributes traffic from other primary routes within Putrajaya to precincts in the Local Plan area.

**Local Distributor** is the fourth ranking road classification in terms of hierarchy in the Putrajaya Road Network. It is a 6-lane highway with reserve of 50 metres. It provides link into local road network.

**Spine Road** is the fifth ranking road classification in terms of hierarchy in the Putrajaya road network. It is the main route serving neighbourhoods and normally be used as the main route for bus services. It is a dual two lane carriageway road with reserve of 32 metres.

**Local Road** is the sixth ranking road in the Putrajaya Road Network. It has a reserve of 22 metres and serves to connect spine road to access and service roads.

**Access Road** is road that provides circulation to residential area or other developments and normally carries traffic from local road into individual development pockets.

An **avenue** is road that is used outside the building lots to enter, drop off and pick up as well as parking. It provides circulation within residential estates or other developments and normally handles low traffic volume.

**Cul-de-sac** is road that provides access to individual buildings and does not normally carry through traffic. It normally creates a relatively secure and safe environment particularly if located within residential areas.

The primary distributor, also known as The Putra Link is located to the west of Local Plan area where it links to the upgraded B15 road.

The secondary distributor runs north-south and dissect at the middle of the Local Plan area.

Spine road provides linkages between Precincts 7, 8, 9 and 10 and brings local residents to the higher level of roads and access to the other Precincts.

## ROAD HIERARCHY

- Road network of individual development schemes within the Local Plan area shall be planned and developed to follow the road hierarchy as indicated in **Figure 11.1**. At design stage, it is important that designers and developers take note of this hierarchy to ensure that the correct road type is selected for specific location and that adequate reserve as well as other technical and design requirements are provided for.

**11.1.2 Road Network**

Road network within the Local Plan area are categorised into two types; the Strategic Network and the Local Network.

**i. Strategic Network**

These are the long distance inter-precinct road such as expressway, primary distributor, secondary distributor and local distributor. Planning, design and development of these strategic networks shall follow JKR standard and conform to specific requirements as adopted in **Transport Design Guide for Putrajaya, 1998**.

**ii. Local Network**

These are the roads serving a more localised catchments such as residential and commercial. These roads are spine road, local road, access road, avenues and cul-de-sac; the detailed guideline of which will be covered in this manual.

STRATEGIC ROAD

- Design and development of strategic roads shall conform to specific requirement as specified in the **Transport Design Guide for Putrajaya, 1998** Refer Transport Design Guide for Putrajaya, 1998.

**Table 11.1 Typical Character of Strategic Road**

Hierarchy	Reserve	No of Lanes	Carriageway	Median	Walkway, Drain and Utility Reserve
Primary Distributor	70m	6	10.5m	4m	19m
Secondary Distributor	55m	6	10.5m	3m	13m
Local Distributor	50m	6	10.5m	2.5m	11m



**11.1.3 Road Character**

**Character** is the suitability of a road as a setting for pedestrian activities and as a location for a variety of building types. It is physically manifested by associated buildings and frontages that align a particular section of the road. The associated terminology for character is **streetscape**. See also streetscape.

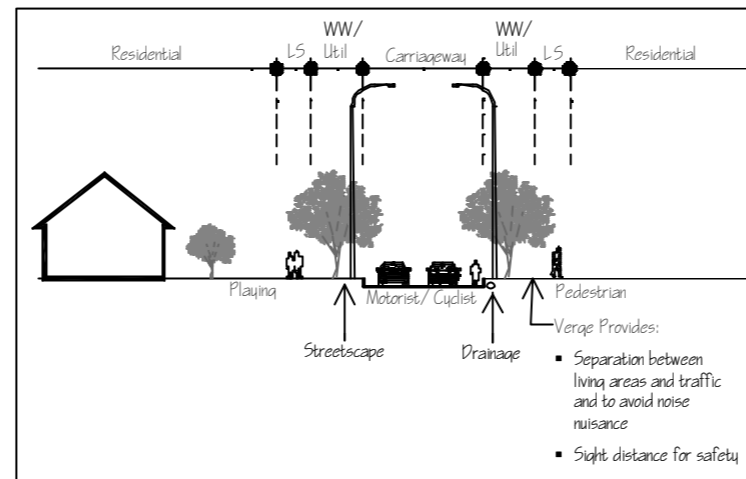
Road character depends on the area it serves. For the purpose of this manual the character of roads are divided into :-

- Residential Street
- Commercial Road

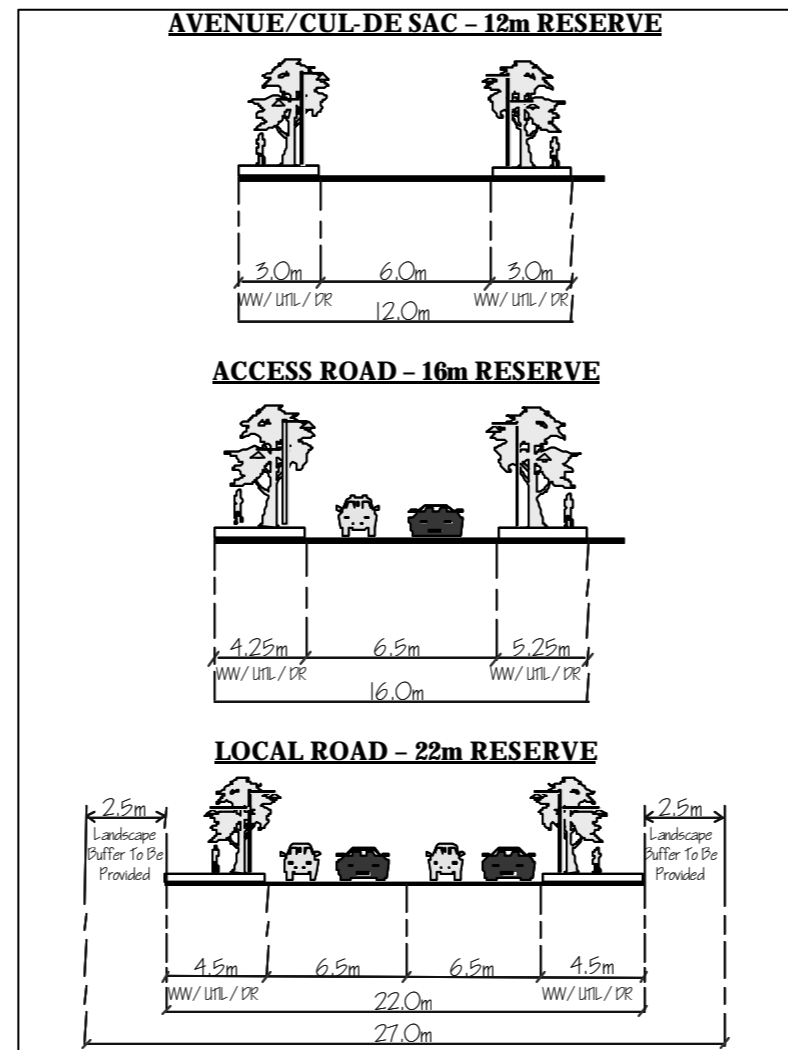
**i. Residential Street**

**Residential streets** are streets in residential areas which serve a number of functions :-

- Access to residences
- Parking for visitors vehicles and overspill of residents vehicles
- Social and activity space for neighbours to interact and children to play
- Setting and approach for residences located on it, desirably with high aesthetic and amenity quality
- Stormwater drainage path
- Service location for utility to residences



**Figure 11.2**  
**Function of A Residential Street**



**Figure 11.3**  
**Typical Section of Residential Streets**  
Source: Transport Design Guide For Putrajaya, 1998

**RESIDENTIAL STREET**

- Planning for street within the residential area shall aim to establish a street network that provides convenient linkages to activity centres and local facilities either within or adjoining the development.
- The design of residential street shall aim for the following:-
  - i. Fulfil their designated functions within the street network and hierarchy
  - ii. Accommodate public utility services and drainage system
  - iii. Provide acceptable level of safety and convenience for all street users in residential areas
  - iv. Minimising the negative impact of through-traffic
- Design of residential street shall provide for requirements and criteria as shown in **Table 11.2**. Traffic on these streets should be subservient, speed and volume are low, and pedestrian and cyclist movements are facilitated. Vehicle speed should be controlled by manoeuvring the street alignments and avoiding through traffic and employing various traffic calming devices.

**Table 11.2** Typical Character of Residential Streets

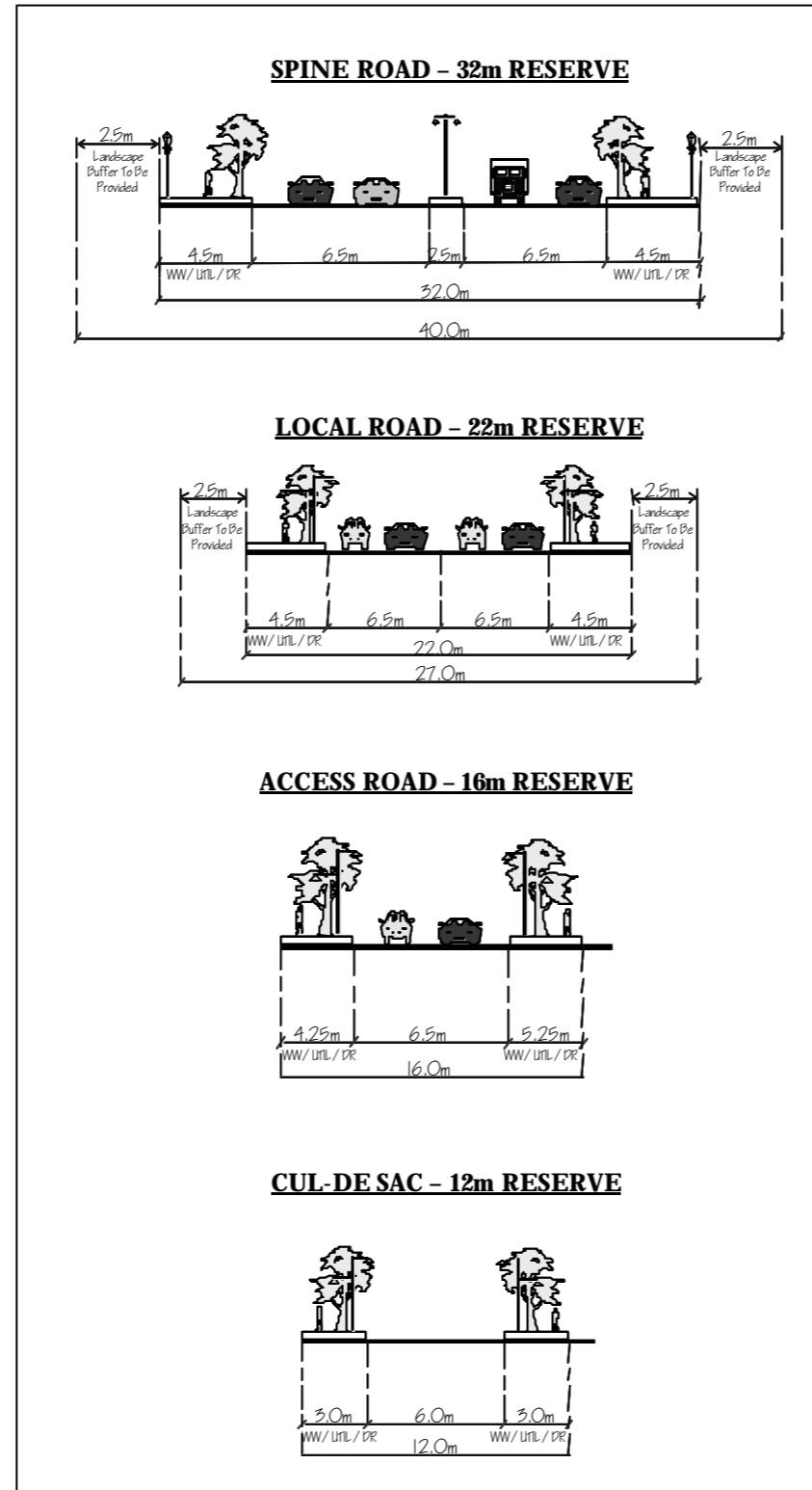
Hierarchy	Reserve	No. of Lanes	Carriageway	Median	Walkway, Drain and Utility Reserve
Local Road*	22m	4	6.5m	-	4.50m
Access Road	16m	2	6.5m	-	4.75m
Cul-de-sac and Avenues	12m	2	6.0m	-	3.0m

\* 2.5 Landscape buffer shall be provided on both sides

ii. Commercial Road

**Commercial Roads** are roads that serve traffic within commercial areas.

In the context of Precinct 7, 8, 9, & 10 Local Plan areas, these roads are to be adopted for **PB7.1, PB7.3 and PB8.3**. They normally carry higher volumes of traffic.



**Figure 11.4**  
**Typical Section of Commercial Roads**  
Source: Transport Design Guide For Putrajaya, 1998

COMMERCIAL ROAD

- Roads located within **PB7.1, PB7.3 and PB8.3** in the Local Plan area shall typically be constructed to have the characteristics as indicated in **Table 11.3** below.

**Table 11.3** Typical Character of Commercial Roads

Hierarchy	Reserve	No of Lane	Carriage way	Road Divider/ Median	Walkway, Drain and Utility Reserve
Spine road	32m	4	7.0m	2.5m	7.75m
Local Road	22m	4	6.5m	-	4.5m
Access Road	16m	2	6.5m	-	4.75m
Avenue	12m	2	6.0m	-	3.0m
Service Road	6m	2	6.0m	-	0.6m
Back lane/ Side Lane	6m	2	6.0m	-	0.6m

#### 11.1.4 Junctions

A **junction** or intersection is formed when two or more roads, cross or meet. Junctions or intersections can be classified as grade separated or at-grade or partially grade separated.

Grade separated or partially grade separated junctions are normally reserved for strategic roads (i.e. Expressways, Primary Distributors, and Secondary Distributors), while at-grade or partially grade separated are normally for lower tier road (i.e. Local Distributor, Spine Road, Local Road and Access Road).

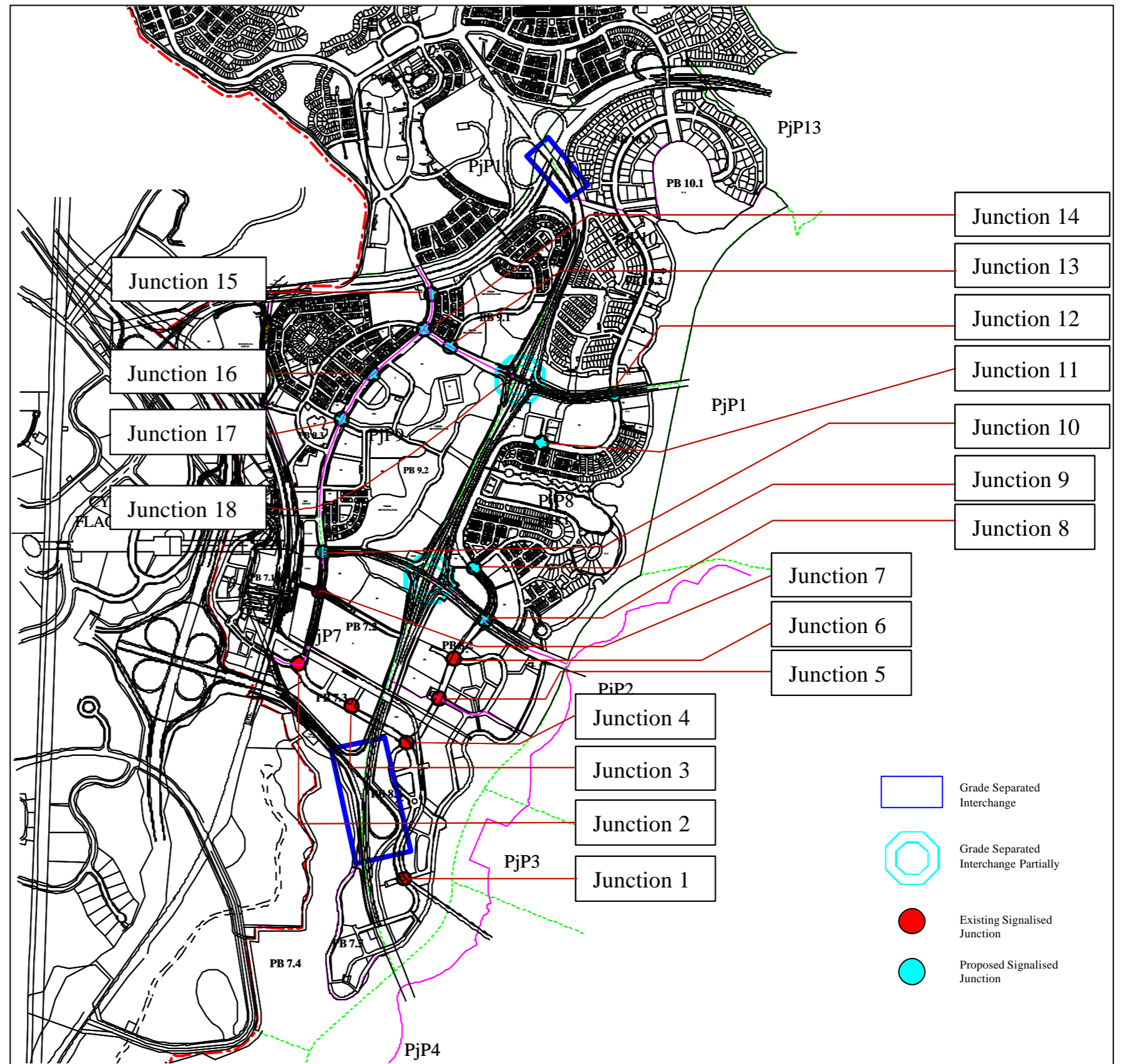
Further classification for at-grade junctions or partially grade separated junctions can be categorised as follows:-

- a. Signalised Junctions;
- b. Roundabouts; and
- c. Priority Junctions.

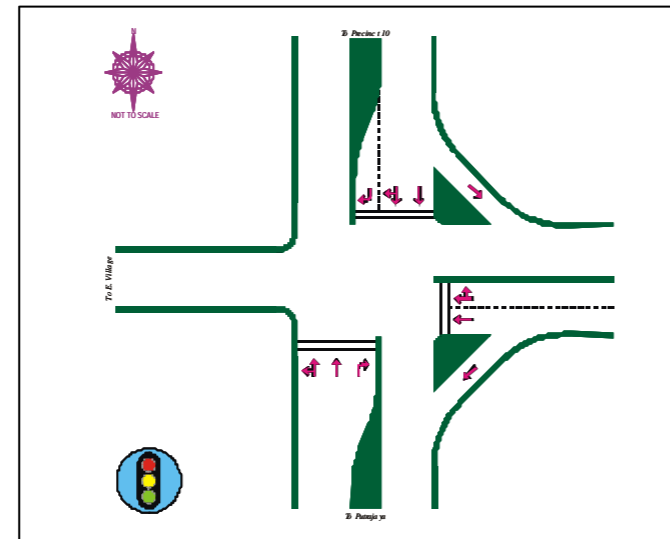
Proper junction design is important in any road scheme, as the performance of the junctions will determine the efficiency of the surrounding road network. Various factors such as traffic volume, road type, environmental constraints including topography and nature of developments are involved in the design of junctions. In addition, cycle and pedestrians should also be considered in the design of junctions.

## JUNCTIONS

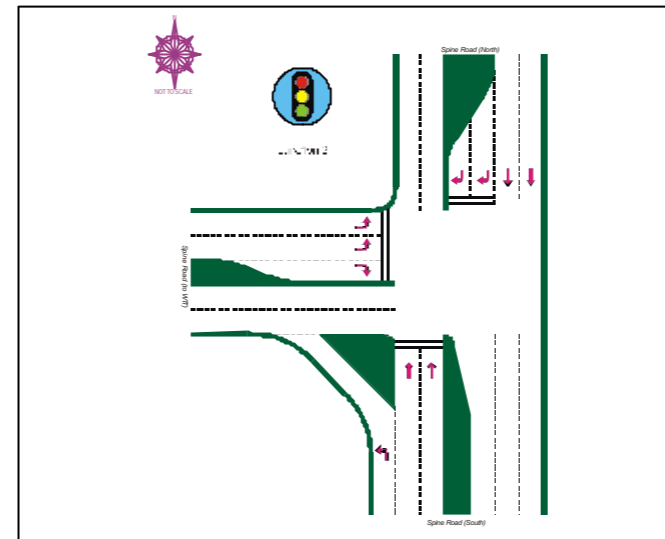
- The type of junction or form of control for a junction should be determined early in the design process, as this may have an influence on its land requirements. Normally, for the strategic roads, type of junctions are confirmed during a Masterplan Study whilst for the lower tier roads a Traffic Impact Assessment (T.I.A) study will look into the type of junction control in the study area.
- Junctions for roads located within the local plan area shall conform to types as indicated in **Figure 11.13 and Figure 11.14.**



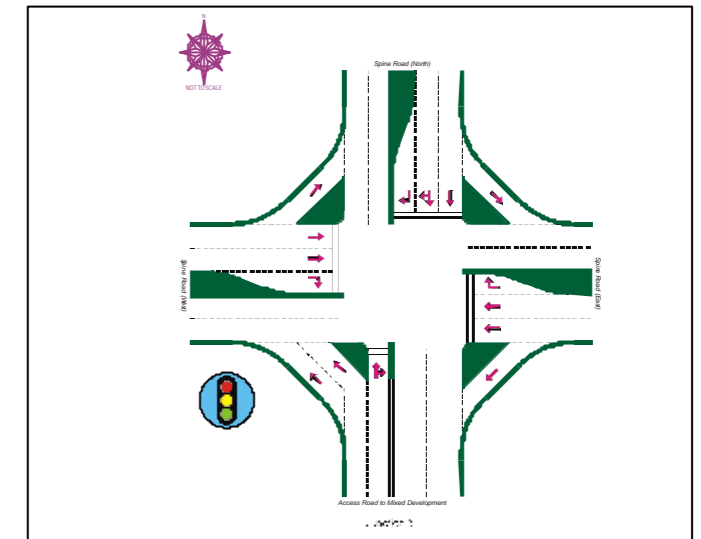
**Figure 11.5**  
**Key Plan For Junction Control Within Local Plan Area**



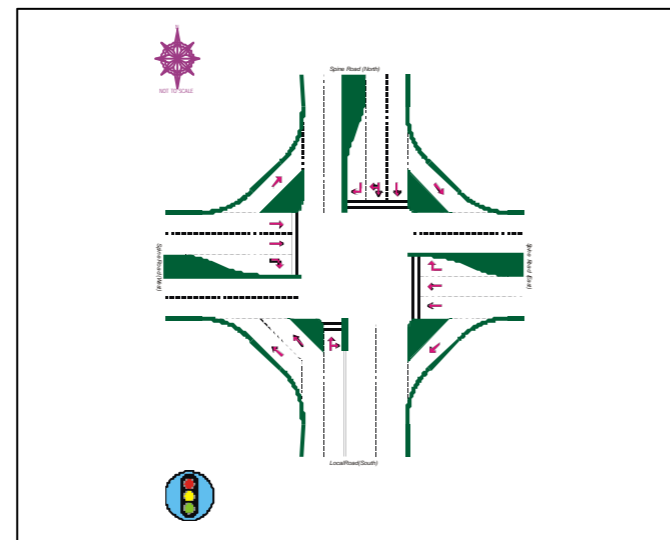
**Junction Control 1**



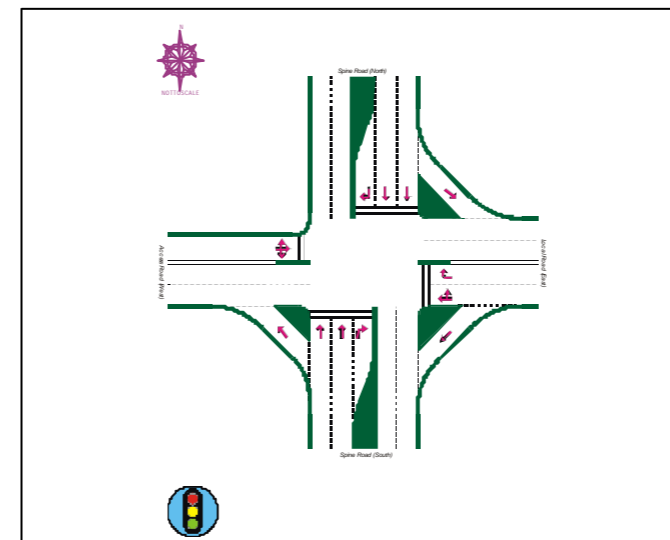
**Junction Control 2**



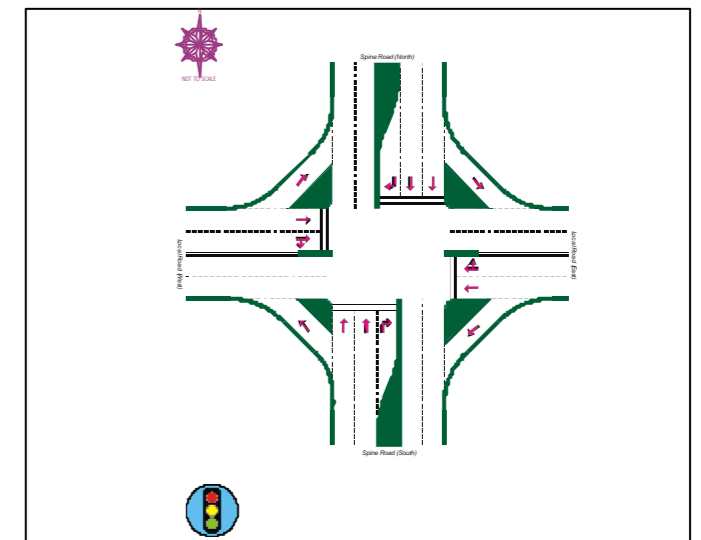
**Junction Control 3**



**Junction Control 4**

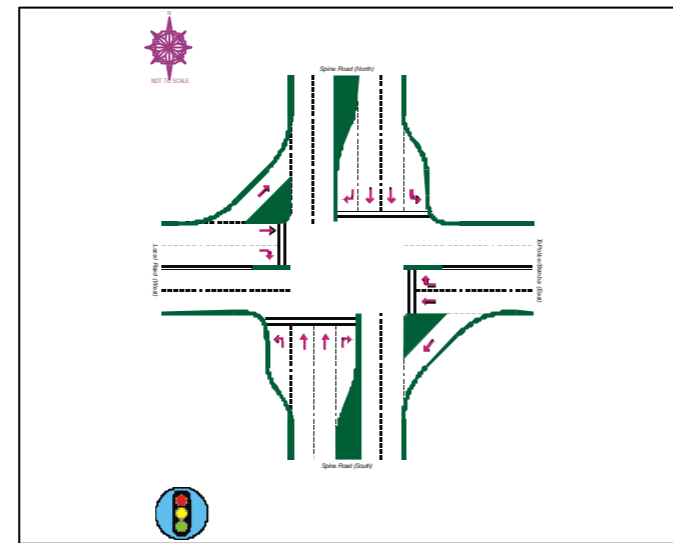


**Junction Control 5**

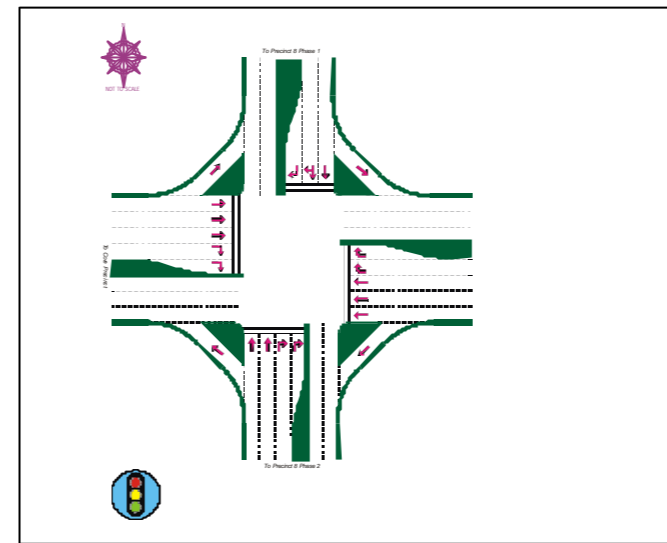


**Junction Control 6**

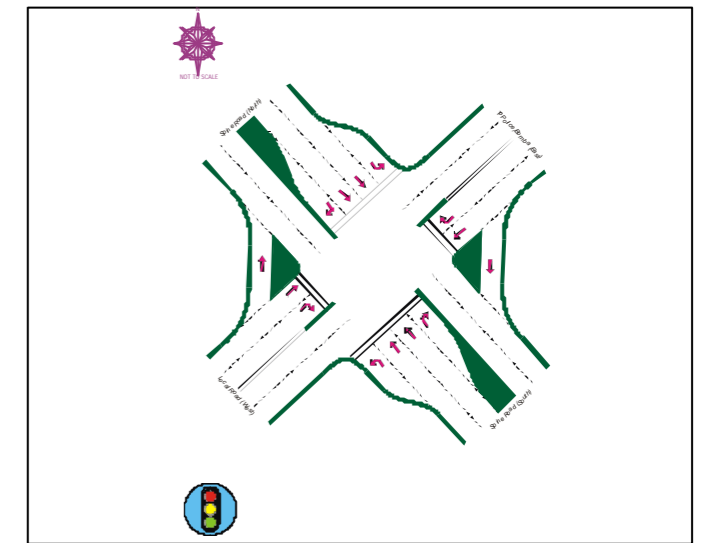
**Figure 11.6**  
**Junction Controls within Local Plan Area**



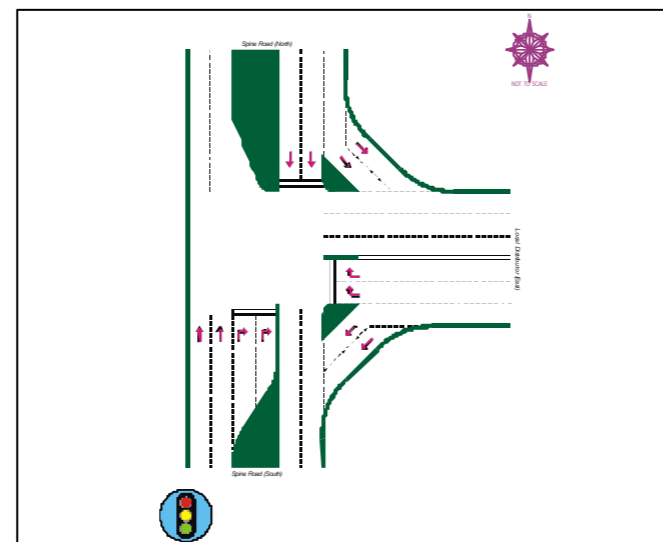
**Junction Control 7**



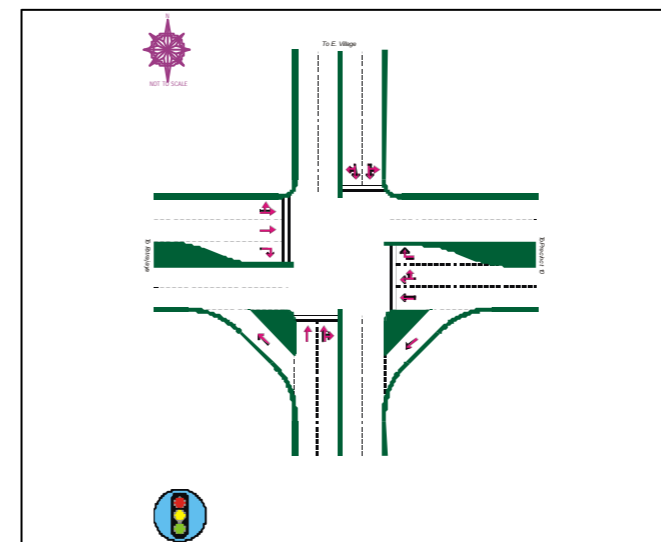
**Junction Control 8**



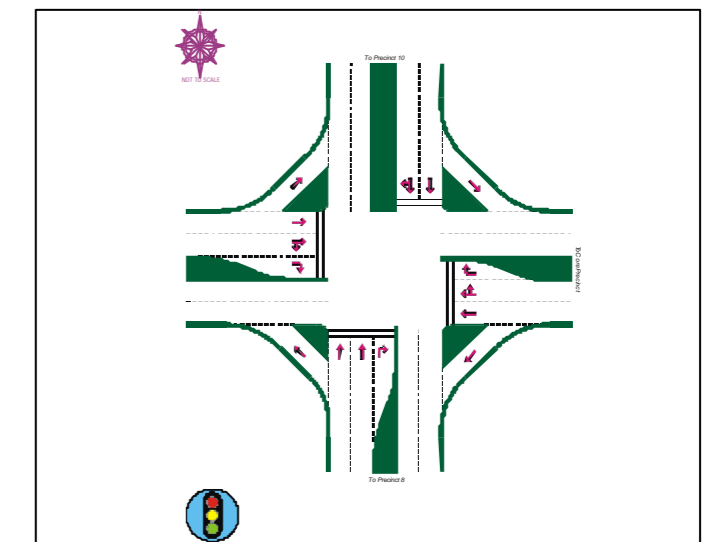
**Junction Control 9**



**Junction Control 10**

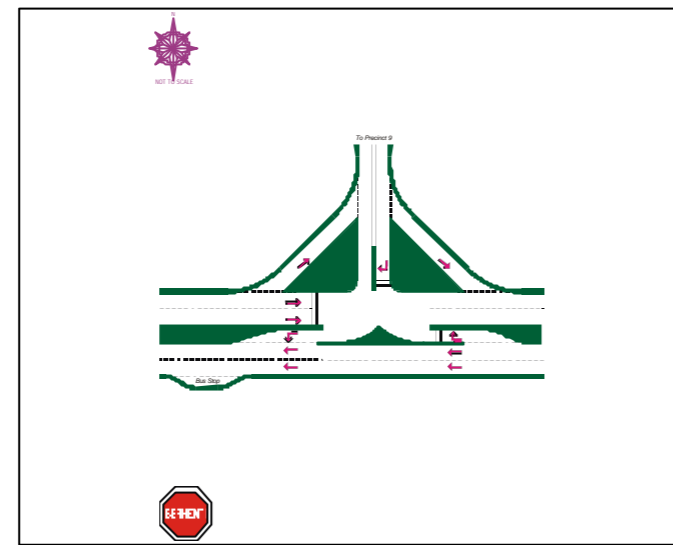


**Junction Control 11**

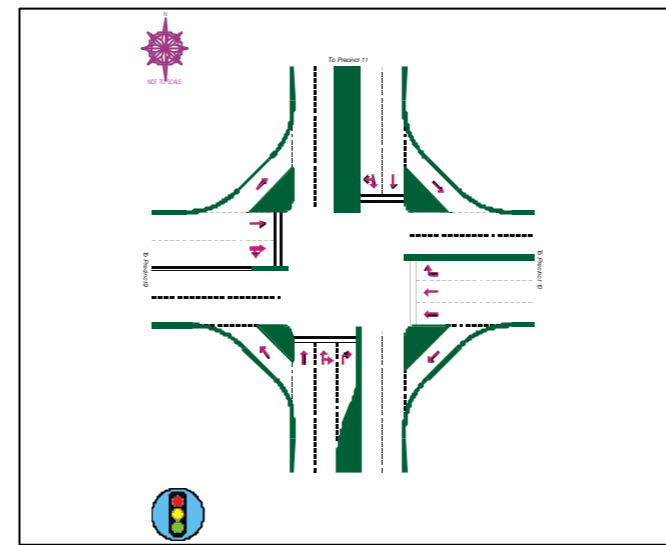


**Junction Control 12**

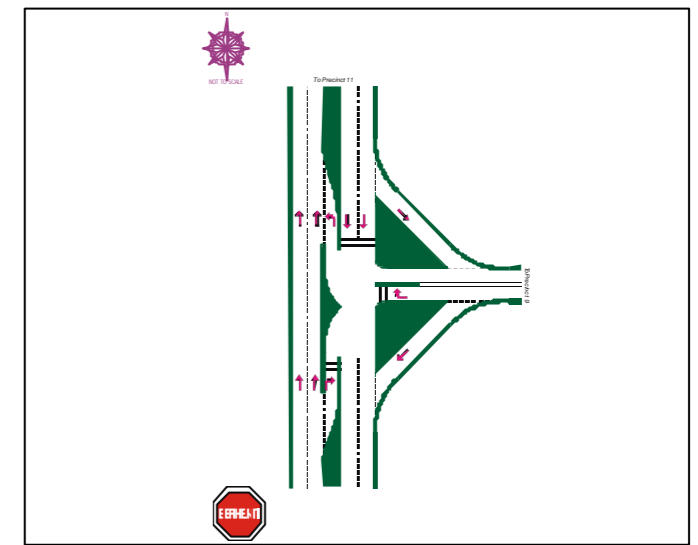
**Figure 11.6**  
**Junction Controls within Local Plan Area (Cont.)**



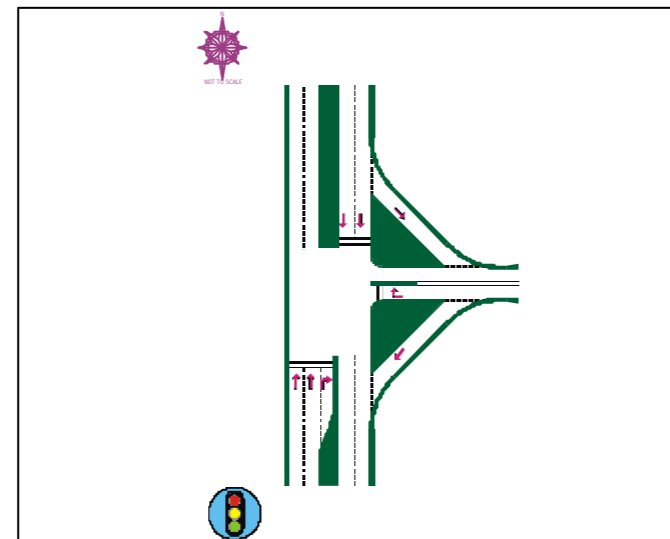
**Junction Control 13**



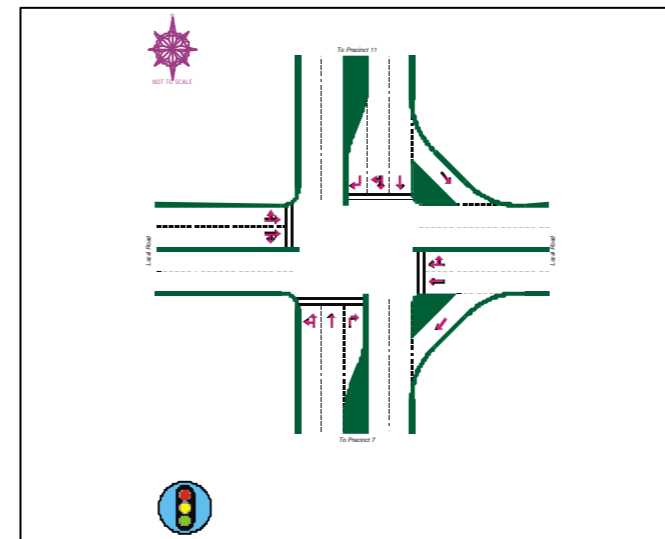
**Junction Control 14**



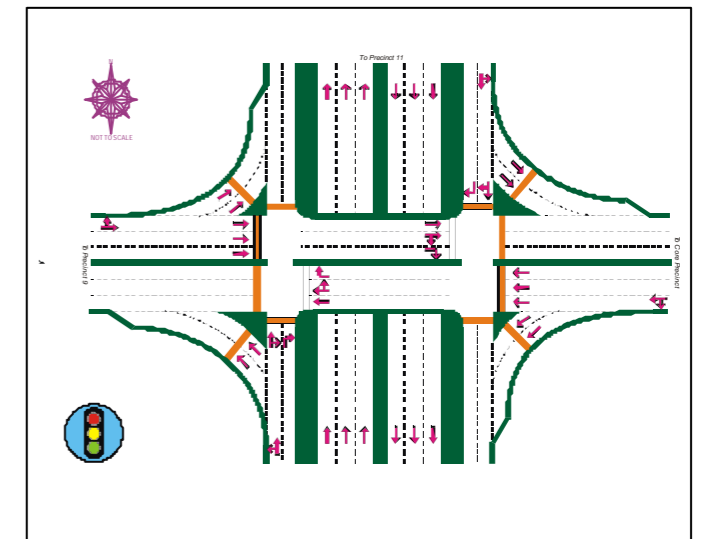
**Junction Control 15**



**Junction Control 16**



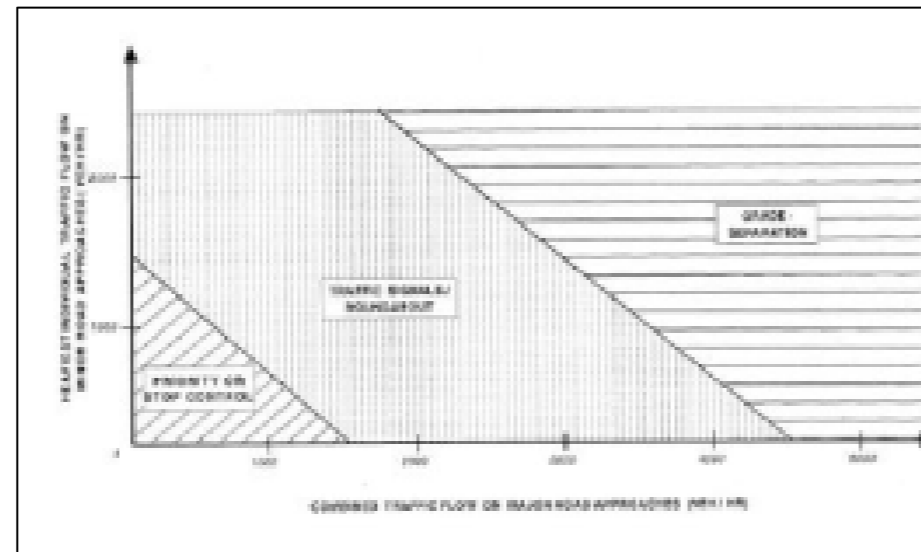
**Junction Control 17**



**Junction Control 18**

**Figure 11.6**  
**Junction Controls within Local Plan Area (Cont.)**

JUNCTIONS



**Figure 11.7**  
**Warrant For Junction Control Diagram**  
 Source: *Transport Design Guide for Putrajaya, 1998.*

- For road sections where junction type is not determined in this Manual, a detailed junction analysis is required to confirm the type of junction control, particularly the choice between signals and roundabouts and the design the junction layout itself (**Figure 11.16**).
- The following considerations should be taken into account during the design process.
  - a. The selection of junction type should follow **JKR Arahan Teknik 11/87 (Table 2-2A Selection of Intersection Type)**
  - b. Traffic signals should incorporate pedestrian crossing phasing wherever there is high volume of pedestrians that is expected to cross the junctions.
  - c. Roundabouts may be suitable where flows are relatively low and the approaches all have similar priority or where U-turning is required.
  - d. Priority control is only adequate at low traffic volume
- The detailed analysis and design of junctions should be undertaken using appropriate software packages such as, SIDRA (**S**ignalised and **U**nsignalised **I**ntersection **D**esign and **R**esearch **A**id), the TESS suite of softwares (ARCADY, PICADY, and OSCADY) produced by UK Transport Research laboratory (TRL). The results of the individual junction analyses should be reported in the Traffic Impact Assessment (TIA) report.



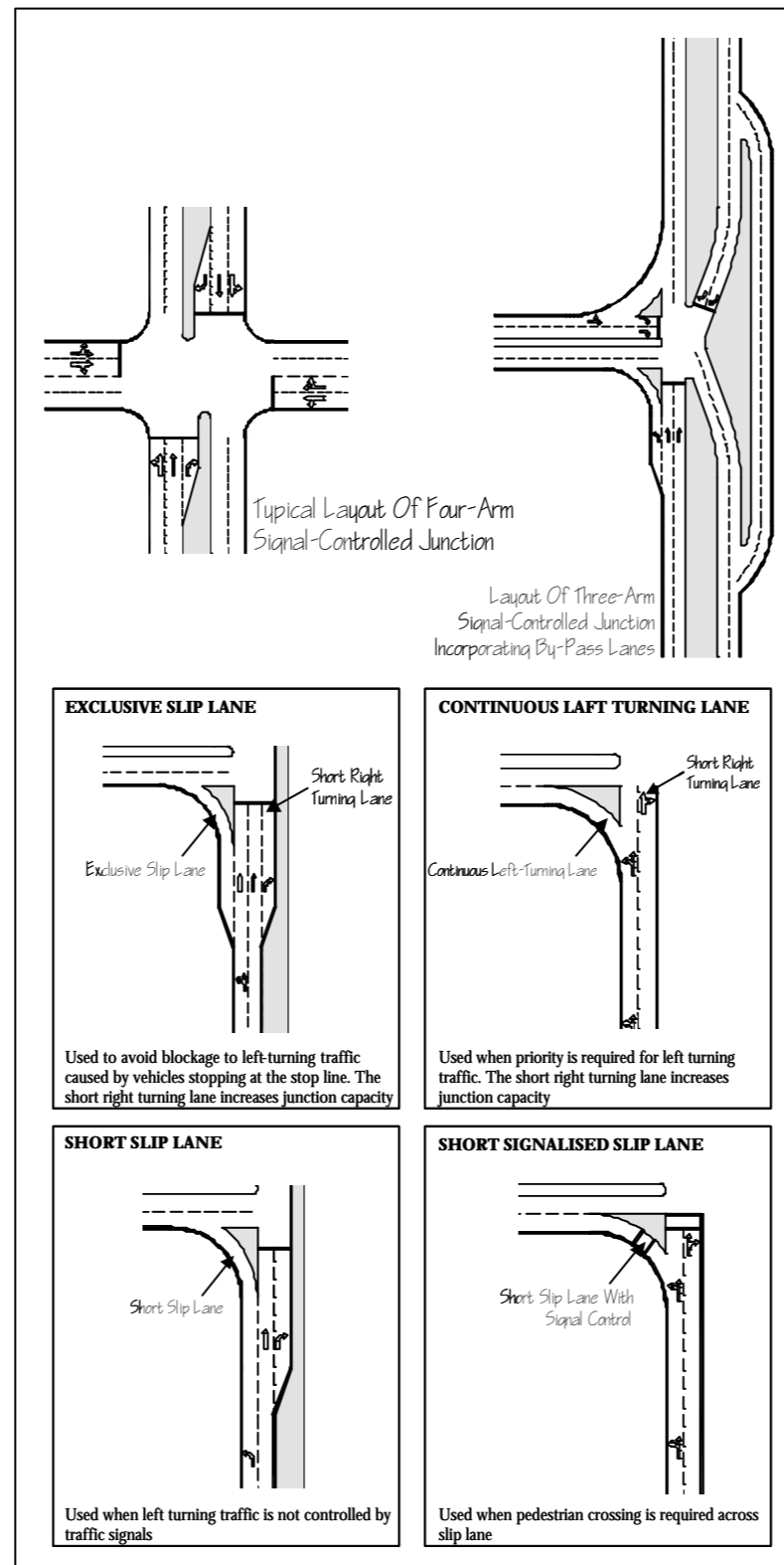
**11.1.5 Signalised Junction**

**Signalised Junctions** are three or four arm junctions managed and controlled by traffic signals. The newer signalised junctions are computer controlled and linked to operate at a optimum level of efficiency.

Traffic signals allow positive control of junction flows in a safe and efficient manner and are widely adopted in urban areas where the road network is likely to be subject to high peak hour loadings. Signals can reduced congestion, improve safety for motorists, cyclist and pedestrians and support the following types of traffic management strategy:-

- Reinforce route hierarchy;
- Priority treatment for public transport;
- Provision for pedestrian and cycle crossings;
- To limit traffic flows;
- To manage queues;
- To improve safety; and
- To give priority to emergency vehicles or VIP movements.

Traffic signals offer a high degree of flexibility, particularly where they are demand-actuated, to deal with changes in the volumes and peak directions of traffic flow or to accommodate controlled pedestrian crossings. Good design and maintenance of signal layouts and timing plan is however essential to avoid the creation of unnecessary delays and subsequent abuse by motorist.



**Figure 11.8**  
**Typical Signalised Junction**

Source: *Transport Design Guide for Putrajaya, 1998.*

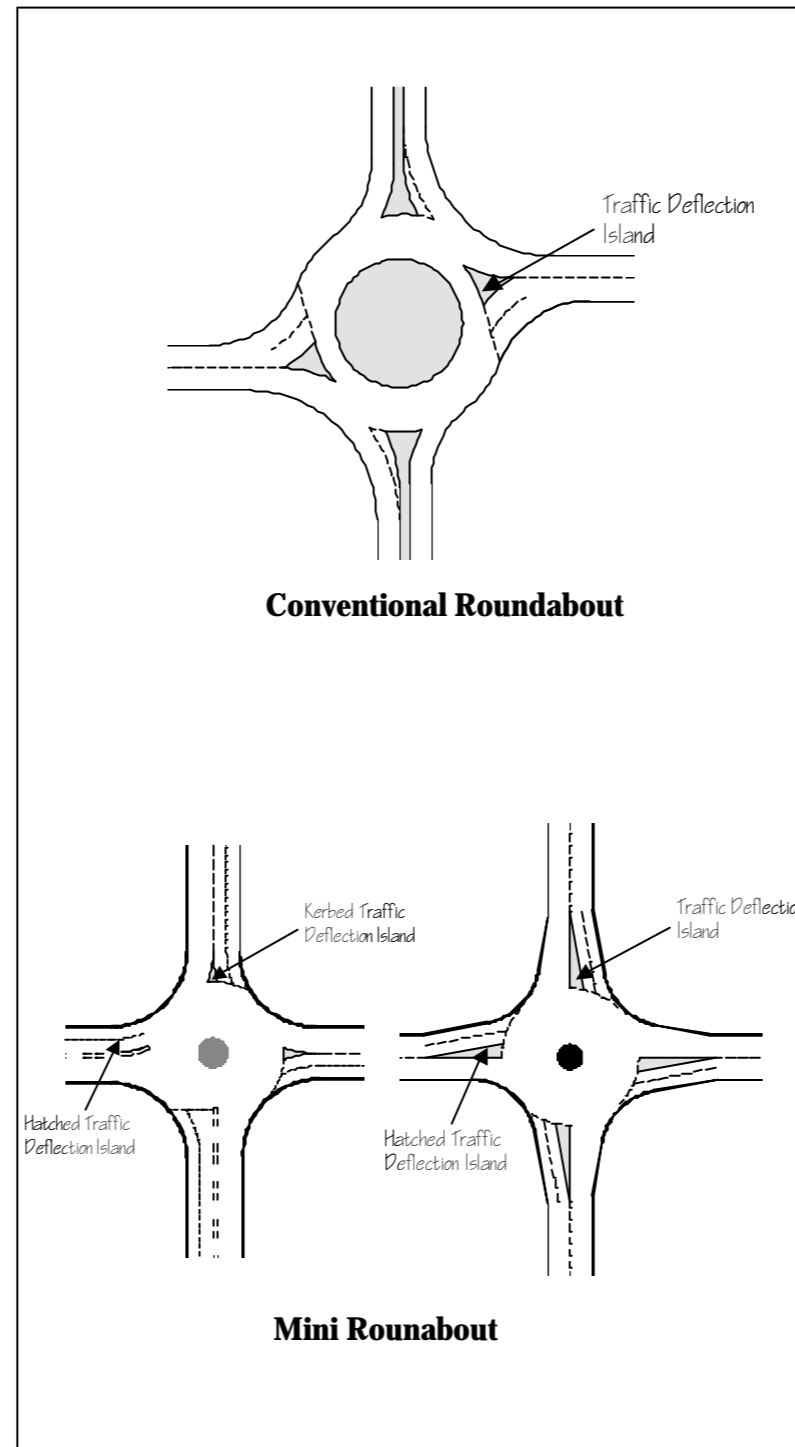
SIGNALISED JUNCTIONS

- The type of signalised junctions to be adopted should be identified early in the design process as they may influence the overall layout, the required land take and the siting of pedestrian crossings. Additional lanes may be required on the approaches to signal-controlled junctions, for left and right turning traffic.
- The requirements for pedestrian crossings shall also be taken into consideration in the design and choice of signalised junction to ensure that all pedestrian movements are made under direct signal control.

**11.1.6 Roundabout**

**Roundabout** is a central space at intersections, which makes vehicles to circle it instead of straight across. It acts as 'slow point' on all intersecting thoroughfares. It allows more than two thoroughfares to converge at a single point and at acute angles and all thoroughfares are considered as of equal traffic significance. It operates in a one-way clockwise direction. Roundabout presents excellent opportunities to improve streetscape and incorporate green spaces into development proposals.

Roundabouts (or rotary junctions) may be appropriate at certain locations, particularly where U-turning is required or, for example where change in direction is to be made to a road. However, they are less safe for cyclist and pedestrians compared to traffic signals.



**Figure 11.9**  
**Typical Roundabout Design**  
Source: Transport Design Guide for Putrajaya, 1998.

**ROUNDABOUTS**

- The choice of roundabout shall depend on location and use together with capacity of the roads. The types of roundabouts that can be employed by any new development shall be based on characteristic as indicated in **Table 11.5**.

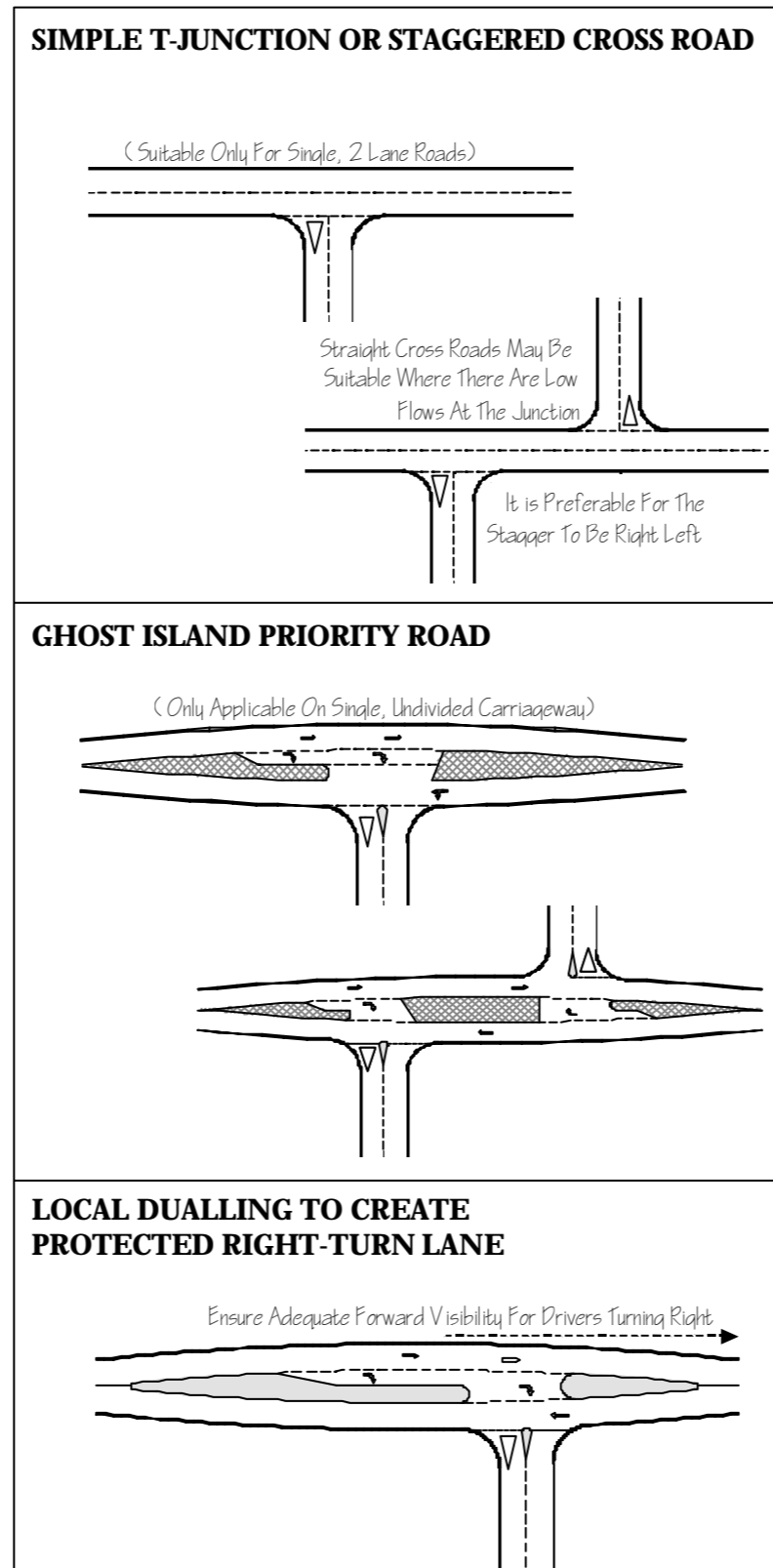
**Table 11.5 Types of Roundabouts and Their Applications**

Roundabout Type	Description	Typical Use/Location
Conventional	<ul style="list-style-type: none"> <li>Kerbed island with diameter greater than or equal to 4m.</li> <li>Flared approaches to allow multiple entry lanes.</li> </ul>	<ul style="list-style-type: none"> <li>New development and construction.</li> <li>Junctions within or at end of dual carriageways</li> <li>To change direction of a new road at a junction.</li> </ul>
Mini	<ul style="list-style-type: none"> <li>Flush or slightly raised central island less than 4 m. diameter.</li> <li>Road markings indicate pattern of movement.</li> <li>No street furniture on central island in order to allow long vehicles to overrun.</li> </ul>	<ul style="list-style-type: none"> <li>To improved the performance of existing junctions where space is severely constraint.</li> <li>Mainly as conversion from other type of roundabout and junction types.</li> <li>At site subject to a 50kph or less speed of.</li> </ul>

- The efficiency and safety of a roundabout is dependent on good design, based on a clear understanding of traffic behaviour. The treatment of approach arm layout and geometry is therefore of critical importance. Enhancements, such as segregated left-turn lanes or bus and cycle lane approaches, may be also incorporated in certain cases.

**11.7 Priority Junction**

**Priority Junction** is road junction that does not have any form of control except to the Highway Code to access and cross-junction. It is suitable at junction where traffic flows are relatively low, particularly where the flow on minor road is small and can feed into major road traffic stream using natural breaks in the flow.



**Figure 11.10**  
**Typical Priority Junctions**  
 Source: Transport Design Guide for Putrajaya, 1998.

**PRIORITY JUNCTIONS**

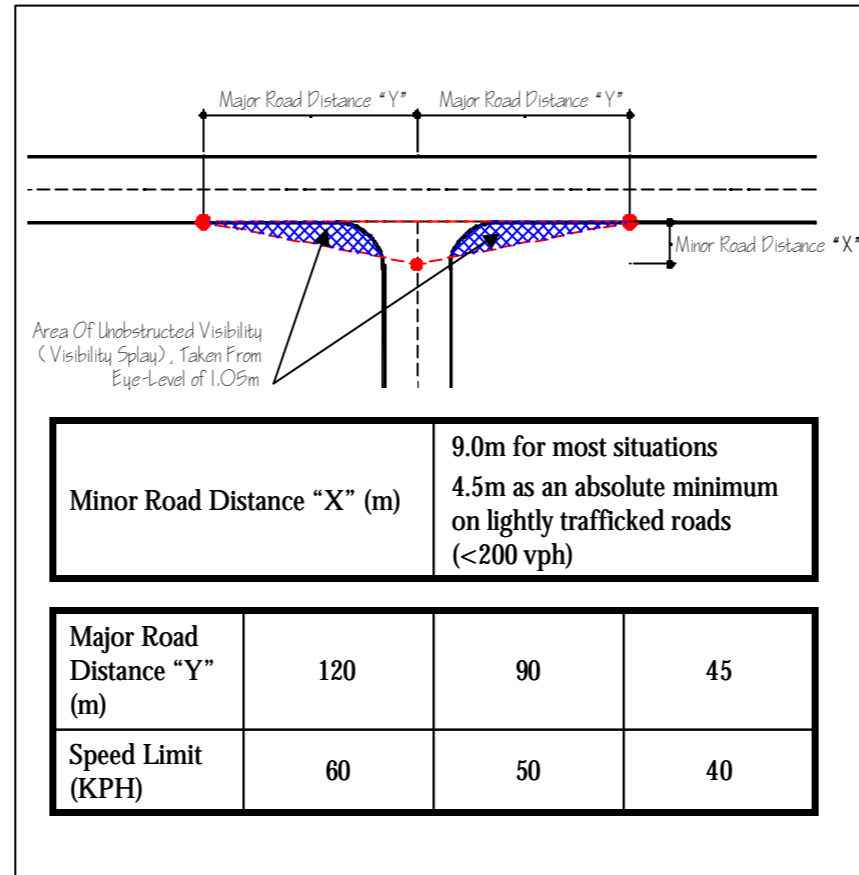
- The use of priority-controlled junctions should be limited to 2-lane carriageway roads where traffic flows are relatively low. Guidance on the application and suitability of various priority junctions for different locations is given in **Table 11.6**.

**Table 11.6 Selection of Priority Junction Type**

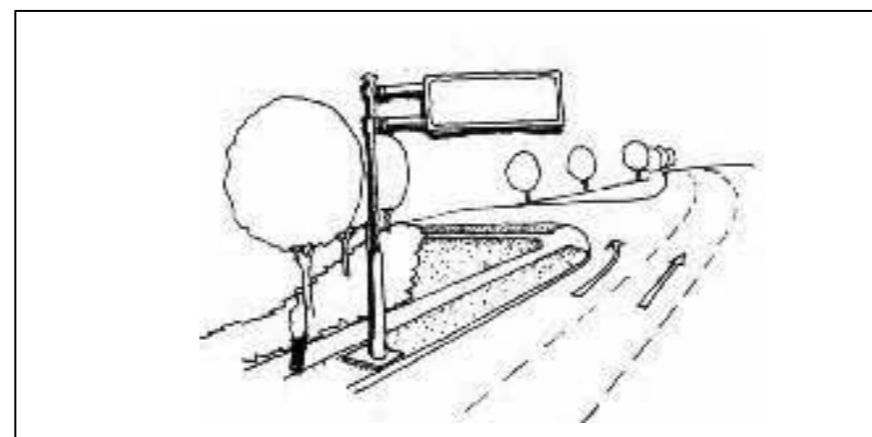
Road Type	Priority Junction Type								
	Simple			Ghost Island			Local Duelling		
	T-junction	Staggered Cross-Roads	Straight Cross-Roads	T-junction	Staggered Cross-Roads	Straight Cross-Roads	T-junction	Staggered Cross-Roads	Straight Cross-Roads
Single 2-lane	✓	✓	Maybe	✓	✓	X	✓	✓	X
Single 4-lane	X	X	X	✓	✓	X	✓	✓	X
Dual 2-lane	X	X	X	X	X	X	✓	✓	X
Dual 3-lane	X	X	X	X	X	X	X	X	X

- Layout and design of priority junction should achieve adequate standard of visibility. Sight distances should take account of the speed of the traffic on the major road.

**Visibility Cone/Splay** is the unobstructed clear sight distance required to on-coming and on-going traffic from an intersection. Adequate sight distance will permit drivers entering an intersection to see approaching traffic from a long enough distance to allow them to decide when to enter or accelerate in advance of the approaching traffic.



**Figure 11.11**  
**Visibility Standard For Priority Junctions**  
Source: Transport Design Guide for Putrajaya, 1998.



**Figure 11.12**  
**Planting Within Visibility Splay**

VISIBILITY SPLAY

- The standards for providing clear visibility for minor road traffic are set out in **Figure 11.19**. The standards vary according to speed of traffic on the major road to allow for increased stopping distances at high speeds. The drivers view from the minor road is always measured from a standard height of 1.05m.
- Visibility splays shall be generally clear of trees and shall not be obstructed by any planting or fixed objects higher than 450mm and any vertical objects (excluding street lighting) with a diameter or sectional profile greater than 200mm.

**11.1.8 Parking**

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

**Parking Standard** is a requirement for provision of parking spaces based on number of dwelling units for residential development and on gross floor area for commercial and other developments

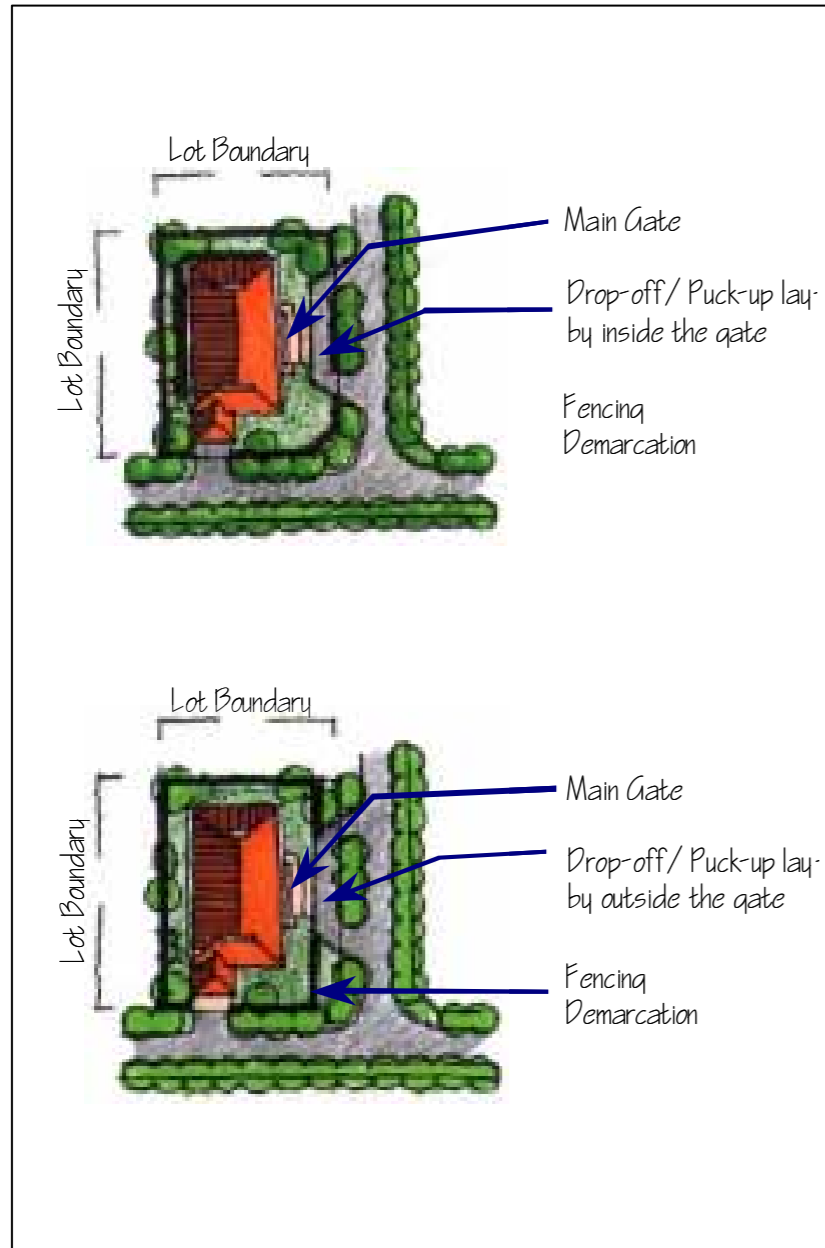
**PARKING**

▪ **Parking** is to be provided according to the following parking standards as indicated in **Table 11.7**.

**Table 11.7 Parking Standards**

Type of Development	Number of Car Parking Spaces (CPS)	Number of Motorcycle Parking Spaces (MPS)	Number of Bicycle Parking Spaces (BPS)	Others	
<b>RESIDENTIAL (Strata)</b>					
Affordable Homes	1 CPS : 1.5 units + 10% for visitors	50% of the total housing units	1rack : 50 housing units	▪ Handicapped parking – 1% on top of the required parking provision or minimum 2 parking spaces whichever is higher.	
Apartment	1 CPS : 1 units + 10% for visitors	50% of the total housing units	1rack : 50 housing units		
Condominium	2 CPS : 1 units + 10% for visitors	50% of the total housing units	1rack : 50 housing units		
Town House	1 CPS : 1 units	-	-	-	
<b>RESIDENTIAL (Landed)</b>					
Terrace	1 CPS : 1 units	-	-	-	
Semi-D	2 CPS : 1 units	-	-	-	
Bungalow	2 CPS : 1 units	-	-	-	
<b>COMMERCIAL</b>					
Office	1 CPS : 70 GFA.	1 MPS : 150 GFA.	-	▪ Handicapped parking – 1% on top of the required parking provision or minimum 2 parking spaces whichever is higher.	
Office (within 200m of monorail stations)	1 CPS : 85 GFA	1 MPS : 200 GFA	-		
Hotel	Bedrooms	1 CPS : 5 Bedrooms + 10% for visitors	1 MPS : 10 Bedrooms	-	▪ Handicapped parking – 1% on top of the required parking provision or minimum 2 parking spaces whichever is higher. ▪ min 2 coach bays for hotel with at least 100 rooms
	Shopping arcades/mall & Commercial Office	1 CPS : 60 GFA	1 MPS : 200 GFA	-	
	Restaurants, Dining areas, Night Clubs/ Discotheques, Public Bars, cocktail Lounges, Supper Clubs, Cafeterias, Grill Rooms	1 CPS : 20 GFA	1 MPS : 165 GFA	-	
	Conference Halls, Auditoriums, Seminar Rooms, Theatrettes, Ballrooms Exhibition Halls, Display Galleries	1 CPS : 8 Seats.	1 MPS : 20 Seats	-	

Note: CPS - Car Parking Space  
MPS- Motorcycle Parking Space  
GFA- Is in Square Meter  
1 Rack Can Accomodate 10 Bicycle Parking Spaces



**Figure 11.13**  
**Typical Layout of Lay-by for Tadika/Kindergarten**

PARKING

**Table 11.7 Parking Standards**

Type of Development	Number of Car Parking Spaces (CPS)	Number of Motorcycle Parking Spaces (MPS)	Number of Bicycle Parking Spaces (BPS)	Others
Superstores/Hypermarket	1 CPS : 60 GFA	1 MPS : 160 GFA	-	<ul style="list-style-type: none"> <li>Handicapped parking – 1% on top of the required parking provision or minimum 2 parking spaces whichever is higher.</li> </ul>
Retail	1 CPS : 70 GFA	1 MPS : 200 GFA.	See note below	
Shop Office	1 CPS : 70 GFA	1 MPS : 150 GFA	See note below	
Shopping Arcade	1 CPS : 60 GFA	1 MPS : 160 GFA	-	
Restaurants	1 CPS : 20 GFA.	1 MPS : 160 GFA	See note below	
Cinema & Theatres	1 CPS : 5 seats	1 MPS : 3 seats	-	
Nightclubs/ Discos/ Dance Hall/Cabarets	1 CPS : 25 GFA	1 MPS : 160sq.m.	-	
Bowling	2 CPS : 1 Lane	1 MPS : 1 Lane	-	
Other Amusement and Entertaining Services	1 CPS : 70 GFA.	1 MPS : 200 GFA	-	
Conference	1 CPS : 8 Seats	1 MPS : 20 Seats	-	
Showroom	1 CPS : 70 GFA	1 MPS : 100 GFA.	-	
Market	1 CPS : 35 GFA	1 MPS : 160 GFA	-	
Food Court	1 CPS : 20 GFA	1 MPS : 70 GFA	See note below	
<b>EDUCATION</b>				
Day Care Centre (Taska)	1 CPS : 4 Staff	-	-	<ul style="list-style-type: none"> <li>Min. of 3 car length for pick-up and drop-off</li> </ul>
Kindergarten (Tadika)	1 CPS : 4 Staff	-	-	<ul style="list-style-type: none"> <li>3 lay-by for bus + 10 car lay-by for pick-up and drop-off (must not be in road reserve)</li> </ul>
Primary School	1 CPS : 8 Staff	1 MPS : 10 Staff	1 Rack : 50 student	
Secondary School	1 CPS : 8 Staff	1 MPS : 10 Staff 1 : 20 Student (Form 5 & 6)	1 Rack : 50 student	<ul style="list-style-type: none"> <li>6 lay-by for bus + 10 car lay-by for pick-up and drop-off (must not be in road reserve)</li> </ul>
School Complex (Primary & Secondary)	1 CPS : 8 Staff	1 MPS : 10 Staff 1 : 20 Student (Form 5 & 6)	1 Rack : 50 student	
Public Colleges	1 CPS : 2 Staff 1 CPS : 25 student	1 MPS : 10 Staff 1 MPS : 5 student	1 Rack : 50 student	<ul style="list-style-type: none"> <li>Handicapped parking – 1% on top of the required parking provision or minimum 2 parking spaces whichever is higher.</li> </ul>
Public University				
Special School	1 CPS : 4 Staff + 20% for visitors	1 MPS : 5 Staff	-	<ul style="list-style-type: none"> <li>min 1 bus bays</li> </ul>

Note: CPS - Car Parking Space  
MPS- Motorcycle Parking Space  
GFA- Is in Square Meter  
1 Rack Can Accomodate 10 Bicycle Parking Spaces  
If located in local or neighbourhood commercial centre a minimum of 1 bicycle rack is to be provided



**Figure 11.14**  
**Example of Bicycle Parking Space**



**Figure 11.15**  
**Example of Motorcycle Space**

**PARKING**

**Table 11.7 Parking Standards**

Type of Development	Number of Car Parking Spaces (CPS)	Number of Motorcycle Parking Spaces (MPS)	Number of Bicycle Parking Spaces (BPS)	Others
<b>HEALTH</b>				
Hospital	1 CPS : 5 Beds + 10 % for visitors	1 MPS : 10 Beds + 10 % for visitors	-	▪ Handicapped parking – 1% on top of the required parking provision or minimum 2 parking spaces whichever is higher.
Health Clinic	1 : 75 GFA + 10 % for visitors	1 MPS : 100 GFA + 10 % for visitors	-	
Handicapped Centre (Government, NGO)	1 CPS : 4 Staff + 20% for visitors	1 MPS : 5 Staff	-	
<b>EMERGENCY AND SECURITY SERVICES</b>				
Police Headquarters	1 : 75 GFA + 10 % for visitors	1 MPS : 100 GFA + 10 % for visitors	-	▪ Handicapped parking – 1% on top of the required parking provision or minimum 2 parking spaces whichever is higher.
Police Station	1 : 75 GFA + 10 % for visitors	1 MPS : 100 GFA + 10 % for visitors	-	
Fire Station	1 : 75 GFA + 10 % for visitors	1 MPS : 100 GFA + 10 % for visitors	-	
<b>RELIGIOUS USE</b>				
Mosque	1 CPS : 150GFA	1 MPS : 300 GFA	Min. 1 Rack	▪ Min. 1 Bus Parking Space ▪ Handicapped parking – 1% on top of the required parking provision or minimum 2 parking spaces whichever is higher.
Surau	1 CPS : 75GFA Add 2 CPS for surau with KAFA class	1 MPS : 150GFA	Min. 1 Rack 1 Rack : 50 Students for surau with KAFA class	▪ Handicapped parking – 1% on top of the required parking provision or minimum 2 parking spaces whichever is higher.
Other Religious (Church/Chapel, Chinese Temple, Hindu Temple, others)	1 CPS : 75GFA	1 MPS : 150GFA	Min. 1 Rack	

Note: CPS - Car Parking Space  
MPS- Motorcycle Parking Space  
GFA- Is in Square Meter  
1 Rack Can Accomodate 10 Bicycle Parking Spaces

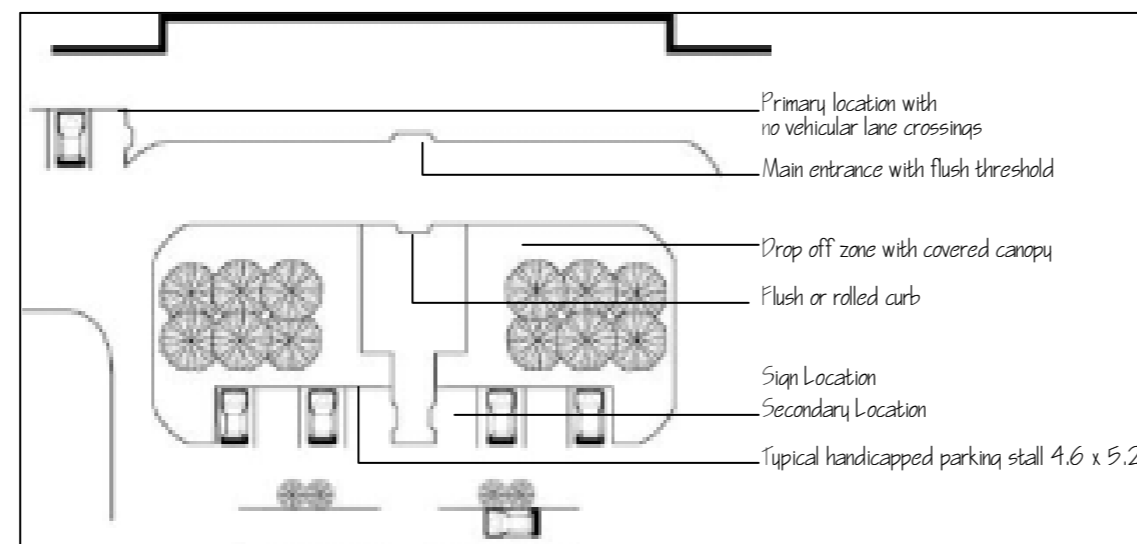
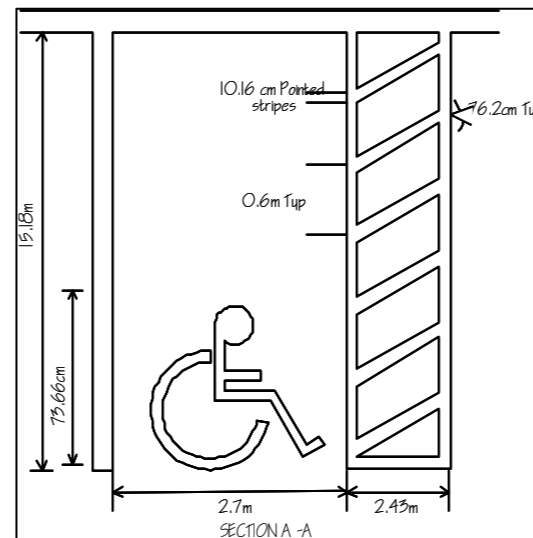
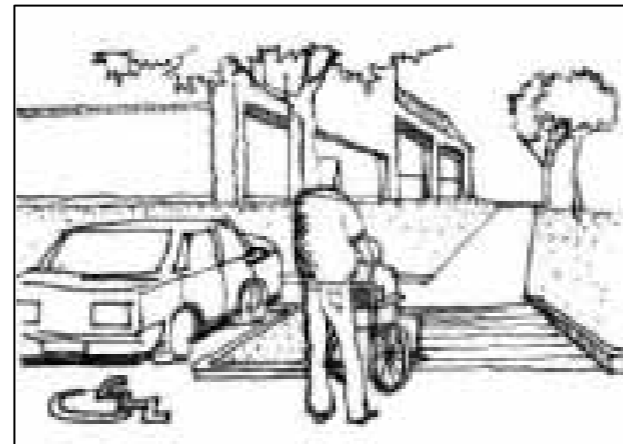
PARKING

**Table 11.7 Parking Standards**

Type of Development	Number of Car Parking Spaces (CPS)	Number of Motorcycle Parking Spaces (MPS)	Number of Bicycle Parking Spaces (BPS)	Others
<b>PUBLIC AMENITIES CENTRE / OTHER AMENITIES</b>				
Community Hall	1 CPS : 5 Seats	1 MPS : 10 Seats	Min. 1 Rack	<ul style="list-style-type: none"> <li>Handicapped parking – 1% on top of the required parking provision or minimum 2 parking spaces whichever is higher.</li> </ul>
Multi-Purpose hall	1 CPS : 5 Seats	1 MPS : 10 Seats	Min. 1 Rack	
Civic & Cultural Activities	1 CPS : 5 Seats	1 MPS : 10 Seats	Min. 1 Rack	
Information Centre	1 CPS : 100 GFA	1 MPS : 130 GFA	Min. 1 Rack	
Library	1 CPS : 100 GFA	1 MPS : 130 GFA	Min. 1 Rack	
Mini Sport Complex	1 CPS : 5 Seats	1 MPS : 10 Seats	Min. 1 Rack	
Public Recreation Club (Swimming Pool, Gymnasium, etc)	1 CPS : 30 GFA	1 MPS : 60 Seats	Min. 1 Rack	
Cinema/Cineplex	1 CPS : 5 Seats	1 MPS : 20 Seats	Min. 1 Rack	
Bowling	2 CPS : 1 Lane	1 MPS : 1 Lane	Min. 1 Rack	
Food Court	1 CPS : 20 GFA	1 MPS : 70 GFA	Min. 1 Rack	
Market	1 CPS : 30 GFA	1 MPS : 160 GFA	Min. 1 Rack	
<b>WELFARE HOMES</b>				
Orphanage Homes	1 CPS : 160 GFA	1 MPS : 260 GFA	-	<ul style="list-style-type: none"> <li>Handicapped parking – 1% on top of the required parking provision or minimum 2 parking spaces whichever is higher.</li> </ul>
Elderly homes	1 CPS : 160 GFA	1 MPS : 260 GFA	-	
Other Special Care Homes	1 CPS : 160 GFA	1 MPS : 260 GFA	-	
<b>OPEN SPACE</b>				
Metropolitan Park	1 CPS : 0.1 Hectare	1 MPS : 0.35 Hectare	1 Rack : 5 Hectare	Min. 4 Bus Parking
District Park	1 CPS : 0.05 Hectare	1 MPS : 0.15 Hectare	Min. 1 rack	-
Local Park	1 CPS : 0.05 Hectare	1 MPS : 0.15 Hectare	Min. 1 rack	-
Neighbourhood Park	1 CPS : 0.05 Hectare	1 MPS : 0.15 Hectare	Min. 1 rack	-
Playground	-	-	Min. 1 rack	-
<b>OTHERS</b>				
Monorail Station at SCC/Commercial	5 CPS	-	-	<ul style="list-style-type: none"> <li>Handicapped parking – 1% on top of the required parking provision or minimum 2 parking spaces whichever is higher.</li> </ul>
Monorail Station at Residential Area	Max. 20 CPS	5 MPS	1 Rack	
Park and Ride	3000 CPS	Min. 10 MPS	-	
Ferry Terminal	17 CPS for pick-up and drop-of 20 CPS for Long Term Parking	5 MPS	1 Rack	<ul style="list-style-type: none"> <li>3 CPS for Handicapped</li> </ul>
Petrol Station	1 CPS : 150 GFA	-	-	

Note: CPS - Car Parking Space  
MPS- Motorcycle Parking Space  
GFA- Is in Square Meter  
1 Rack Can Accomodate 10 Bicycle Parking Spaces





**Figure 11.16**  
**Disable Parking Spaces**

**PARKING**

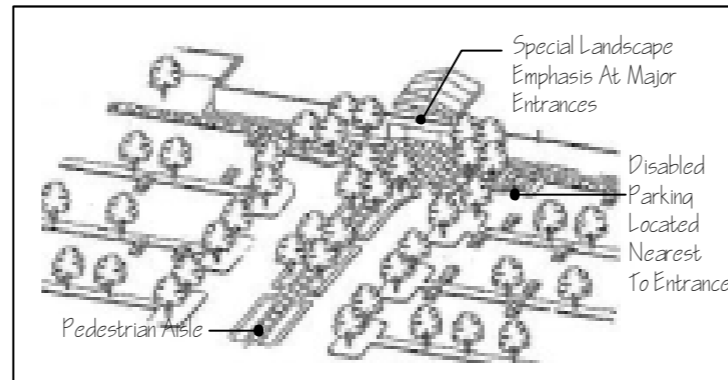
- The design parameter for parking shall be based on **Table 11.8**

**Table 11.8 Design Parameters for Parking**

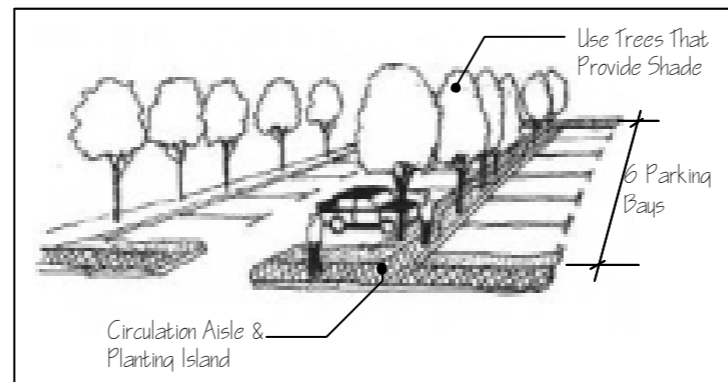
Design Item	Type	Design Parameter
<b>Car Parking Space</b>		
Width	Long-stay (commuters)	2.3m
	General parking	2.4m
	Short-stay (shoppers)	2.5m
Length	Disabled users	3.2-3.6m
	Angled parking	4.75 – 5.0m
	Parallel parking	6.0m
<b>Circulation Aisle Width</b>		
90° Parking	One-way circulation	6.0m
	Two-way circulation	6.75 – 7.3m
60° Parking	One-way circulation	4.8m
	Two-way circulation	6.7m
45° Parking	One-way circulation	4.2m
	Two-way circulation	
Circulation Routes/Ramp	Straight	3.0m (min)
	Curved	3.7m (min)
Min. Inner Kerb Radius		4.6m
Ramp Gradient (on centre line)	Straight	14% max 10% preferred
	Circular	12% max 8% preferred
Two-way ramp	Kerb width	0.23m
	Kerb height	0.15m

- Parking spaces for the handicapped shall be located in the closest possible proximity to the intended destination.
- Handicapped parking shall be clearly indicated to differentiate it from the rest of the parking spaces.

**Surface parking** is parking area at grade adjacent to building either at its rear, side or front. It provides convenient pedestrian access from the parking area to destination of the trip.



**Figure 11.17**  
**Surface Parking**



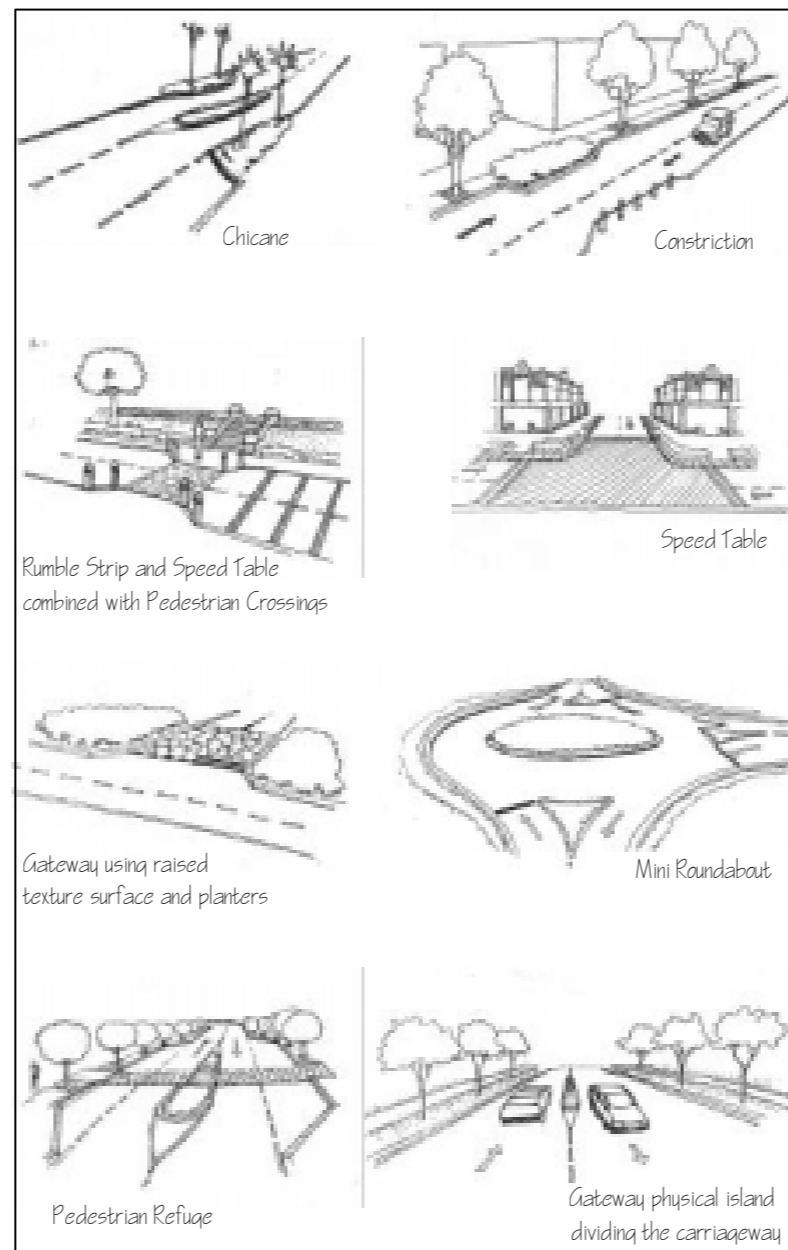
**Figure 11.18**  
**Planting Island**

PARKING

- Surface parking shall be located in pockets and as near to the pedestrian entry. Access for pedestrians via walkway and ramps where required shall be provided.
- Landscape features shall be used to soften hard surface of parking courts, intersections, pedestrian crossing and islands. Linear rows of car parking bays shall be avoided and shades shall be provided. Planting island of 1m shall be incorporated for every 6 parking bays.

**11.1.6 Traffic Calming**

**Traffic Calming** is a series of measures to deliberately slow traffic in a commercial or neighbourhood. Typical measures are streets with different riding surface, non-linear streets, a typical parking layout and introduction of junctions.



**Figure 11.19**  
**Example of Traffic Calming Devices**

TRAFFIC CALMING

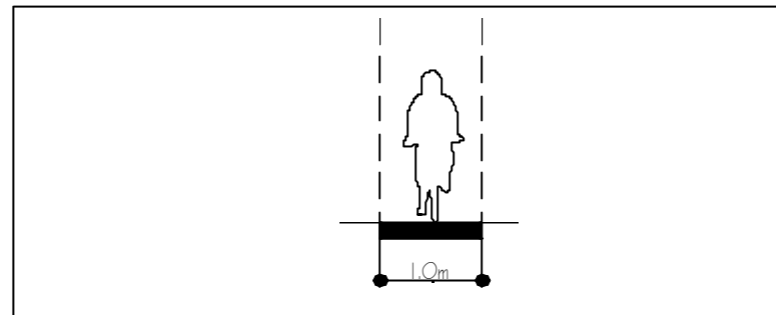
- Speed control devices should be included as part of traffic management programme especially within residential development to achieve the targeted speed for which the road was designed for.
- Any slow points including road narrowing should be designed to take account the need of cyclists, either by ensuring speed compatibility, adequate space for concurrent passage or by off-street diversions.

**11.2 Pedestrians and Cyclists**

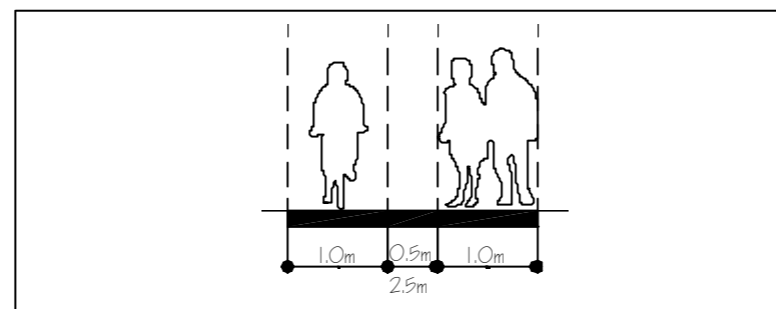
**Pedestrian network** is a comprehensive system of walkways and linkages dedicated for pedestrian. It is a separate walkway network from the vehicular carriageway but includes the roadside walkway. Its function is to provide the pedestrians an alternative way of moving around.

**Segregated Cycle Path** is a dedicated lane for cyclist.

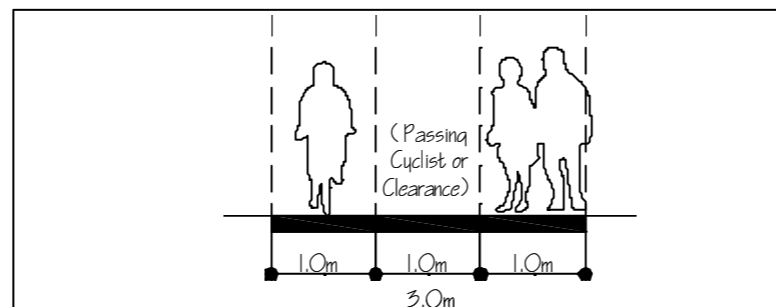
**Dual-use Path** is footpath whose right of way is shared by both pedestrian and cyclist within the same lane.



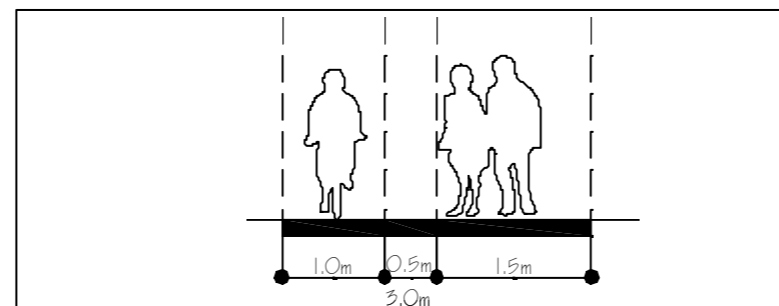
**Figure 11.20**  
**Desirable Minimum Width of Cycle Path**



**Figure 11.21**  
**Minimum Width of Dual-use Path**



**Figure 11.22**  
**Desirable Width of Dual-use Path**



**Figure 11.23**  
**Desirable Width of Dual-use Path Along Waterfront Promenade and Pedestrian Greenway**

PEDESTRIAN & CYCLIST

- At locations where dedicated cycle path have been identified, the minimum width of the cycle path shall be 1.0m. For dual-use path, the minimum width should be 2m and desirably shall be 3.0m
- Along all Waterfront Promenade and District Park in the Sub-commercial Centre, dual-use path should desirably be 3.0m wide.
- Design of footpath shall desirably follow the recommended standard as set out in **Table 11.9**.

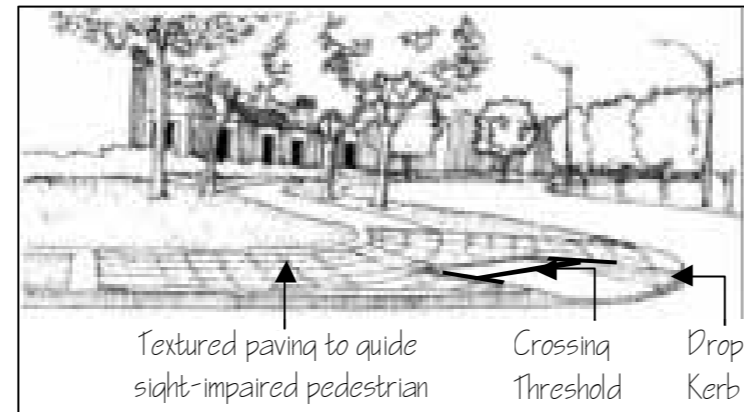
**Table 11.9 Recommended Footpath Standard**

Footpath Element	Minimum Recommended Standard
Footpath Width	<ul style="list-style-type: none"> <li>3m clear where identified as primary linkages</li> <li>3.3m in enclosed area, such as subways or under buildings</li> <li>2m minimum to allow for wheelchair access</li> </ul>
Headroom	<ul style="list-style-type: none"> <li>3m</li> </ul>
Gradients	<ul style="list-style-type: none"> <li>5% maximum generally but up to 8% for short length. Handrails to be provided on the steeper sections</li> </ul>

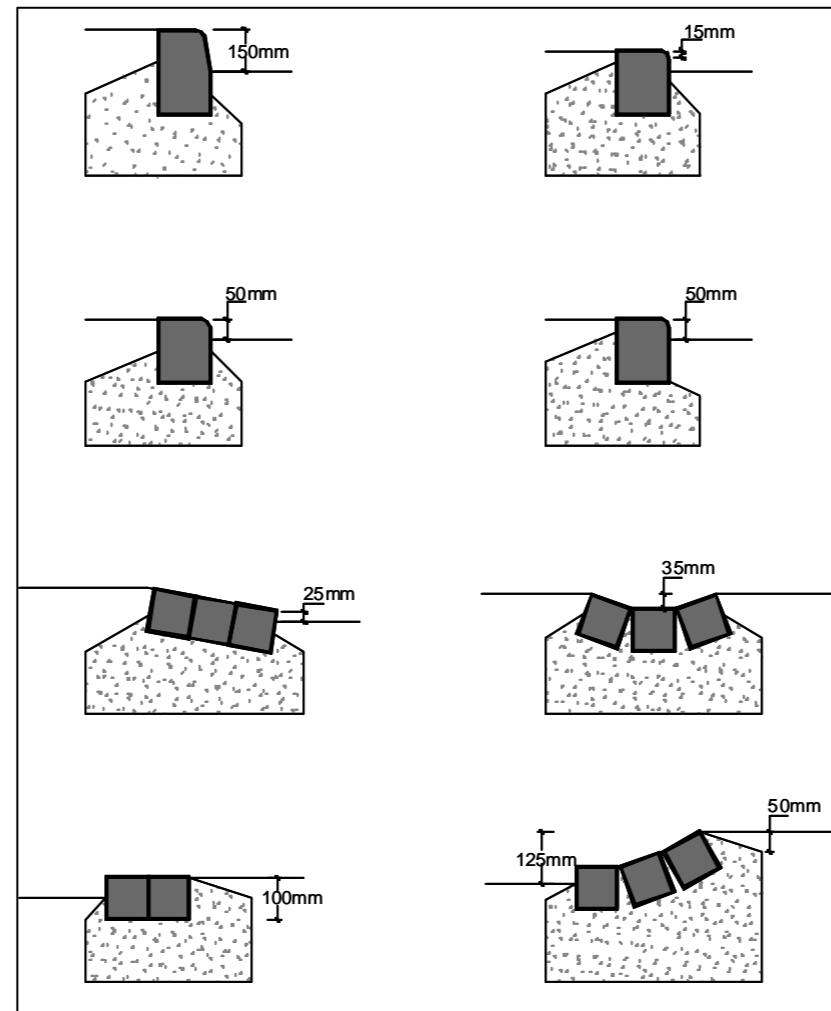
- Footpath and dual-use path shall have durable, non-skid surface with tactile paving at bus/taxi stops and traffic signals and at any other road crossing points to assist the visually impaired. It should also be well lit and well drained.

**Pedestrian Crossing** is a controlled point within the streetscape dedicated for pedestrian to cross the carriageway. It provides a barrier free transition within the public realm. There are two type of crossings; signalised and unsignalised.

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



**Figure 11.24**  
**Drop Kerb**



**Figure 11.25**  
**Specification for Kerb**

PEDESTRIAN CROSSING

- Raised kerb should be of maximum length of 150mm.
- Where footpaths/cycle paths cross roads, drop kerb shall be provided to ease crossings by pedestrians, bicycles, wheelchairs, baby carriages and other wheeled vehicles. Safety devices such as signs, signals and painted crosswalks should also be used.
- Drop kerb shall be used at every pedestrian crossing. The width of drop kerb crossing threshold shall be equal to the width of crossing demarcated on the road surface.
- 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.

11.3 Public Transport

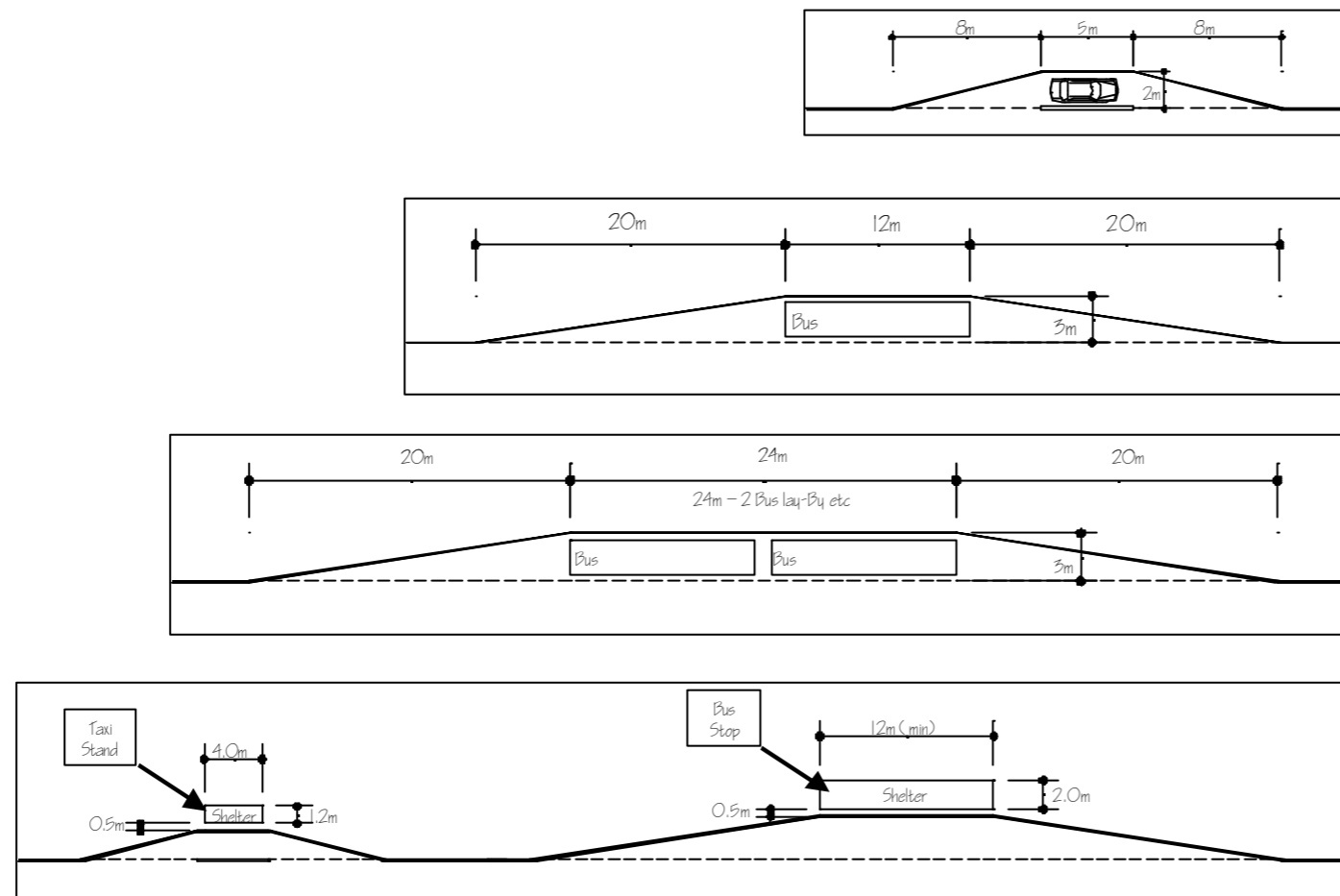


Figure 11.26  
Bus and Taxi Lay-By

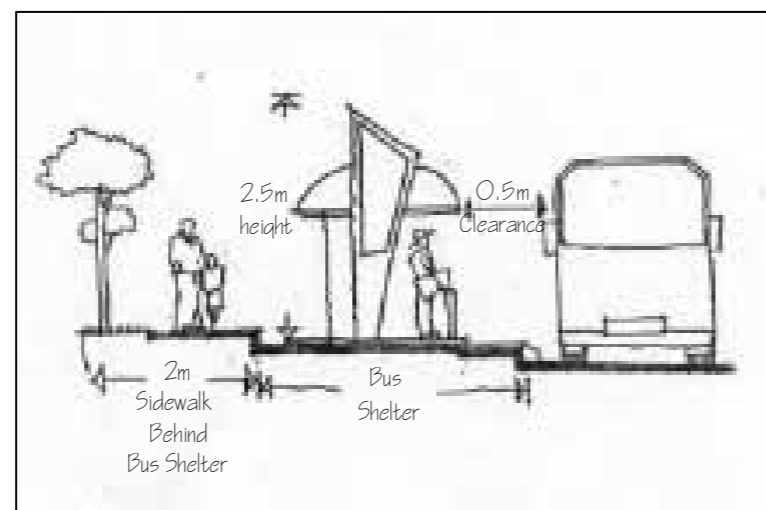


Figure 11.27  
Bus Stop

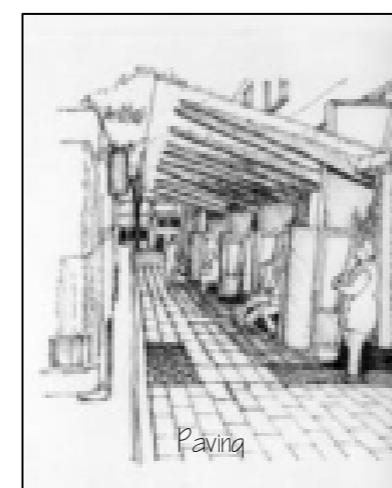


Figure 11.28  
Tactile Paving At Bus Stop  
To Assist the Visually Impaired

PUBLIC TRANSPORT

- Bus stops shall be located to serve walkable catchments at an average spacing of 300-400m.
- Locations of bus stops shall be at potential destinations including shopping area, mosque, and schools. It shall not obstruct or impede the movement of other vehicles. Taxi stops shall be sited adjacent to bus stop to enable commuters to switch modes.
- Provision should be made in the detailed design for sufficient verge width within the road reserve to accommodate possible indented bus lay-bys and passenger shelters.
- Shelters should be positioned well clear of visibility splay at junctions, site entries, and pedestrian crossings.
- Bus/taxi stop should comprise the following: -
  - a. A shelter (12m long and 2 m wide) with a balustrade on the roadside and loading and unloading points. Clearance from the kerb should allow 0.5m for the bus overhang.
  - b. A clear height of 2.5m
  - c. A clear footpath width of not less than 2m passing behind or in front of the shelter.
  - d. Design of shelter should aim to provide shade and full protection from wind and rain. It should also incorporate simple robust bench seating, illuminated service indicators, lighting, trash bin, advertising and service information panels, public telephone facility, and facilities for the disabled.
- Bus/taxi stops shall incorporate simple, elegant, uncluttered design with modular system for easy extension and be made of materials requiring minimum maintenance.
- Signage indicating routes and services as well as advertising boards shall be incorporated into the design and shall follow strictly to **Signage and Advertisement Design Guidelines for Putrajaya Part A Control Guidelines, 1999**.

**11.4 Environment Consideration**

ENVIRONMENT CONSIDERATION

**Noise Level**

- Noise levels along the main roads shall be within 50-80 dBA.
- Adequate buffer zones of at least 20m shall be provided to mitigate noise level between main road and residential areas / hospitals.
- Adequate buffer zone of at least 30m shall be provided between rail lines and residential areas / schools.
- Adequate buffer zone of at least 50m shall be provided between ERL lines and residential areas / schools.

**Air Quality**

- Buffer areas between road and residential areas shall also be planted with tall trees to minimise noise and air pollution.

**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.

FINAL DRAFT



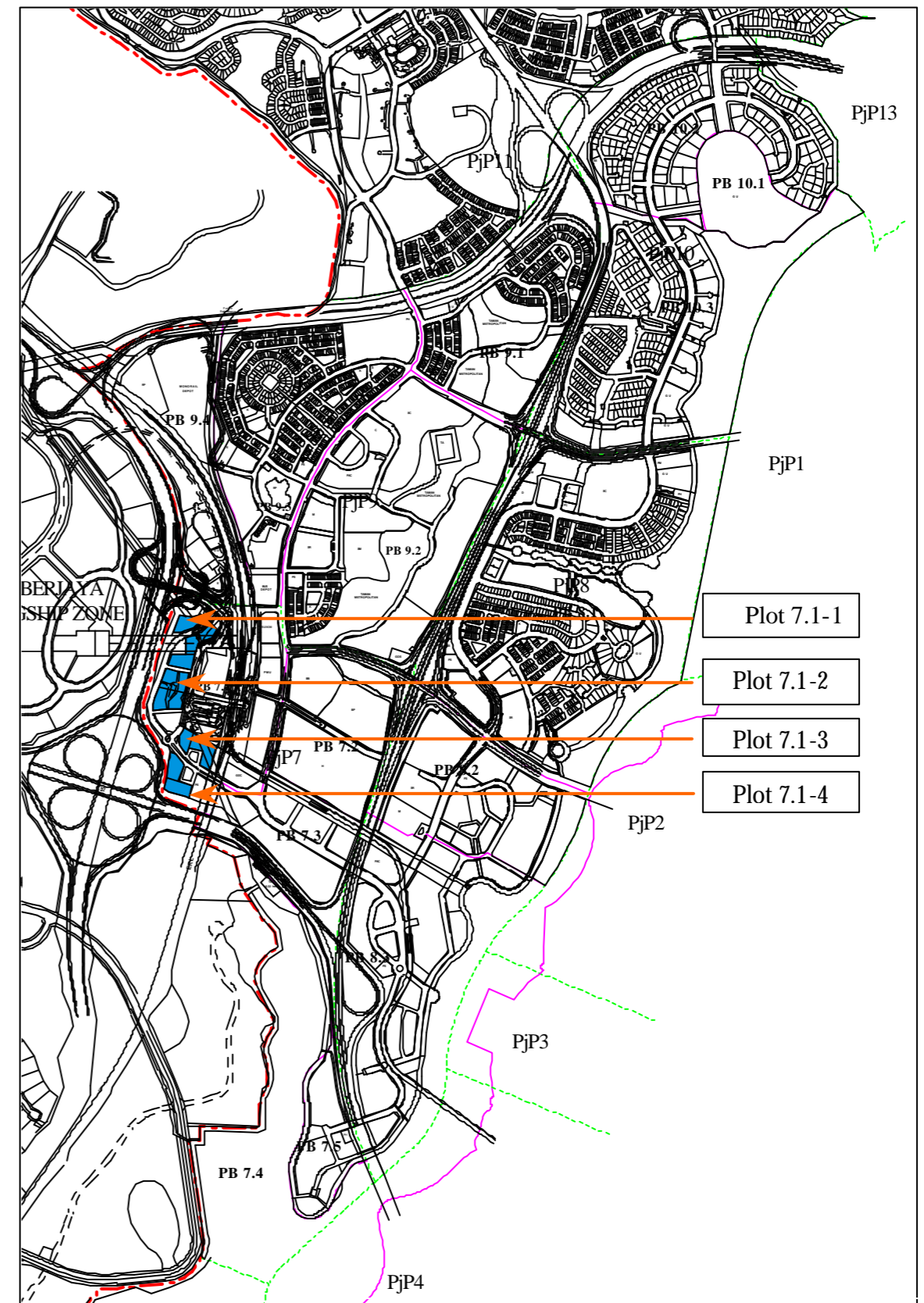


## 12.0 MIXED USE

### 12.1 USE OF GUIDELINE

This guideline shall be used for all developments located within the mixed use zone, namely in PB7.1 as indicated in the Proposal Map of the Local Plan for Precincts 7, 8, 9 and 10, Putrajaya (Figure 12.1).

**Mixed Use Development** is development located within the mixed-use zone of the Local Plan where it involves more than one activity on the same lot, such as dwelling, working or shopping, taking place in close and compatible proximity. Uses may mix horizontally on the same plot and/or vertically in the buildings but shall comply with the use class order specified under the Local Plan.

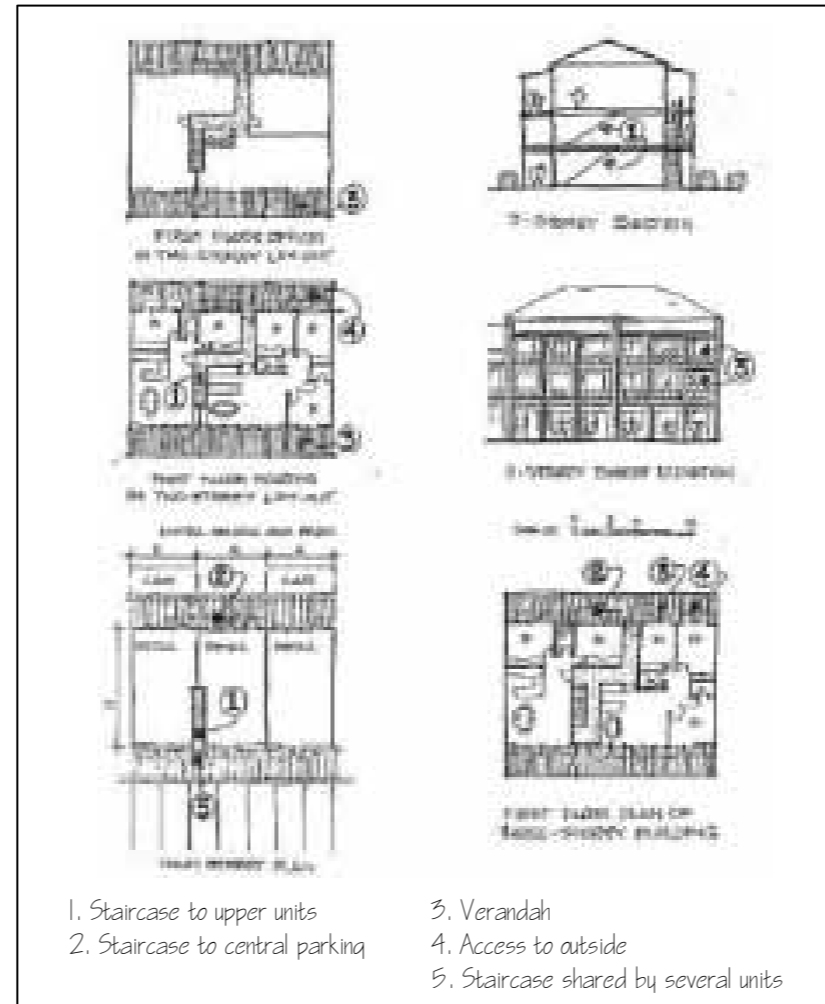


**Figure 12.1**  
Location of Mixed Use Zone within Local Plan Area

## 12.2 DEVELOPMENT MIX

**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 surveys boundary lines or, if there are no survey boundary lines, between the provisional boundary lines.

**Shop Office Home Office (SOHO)** refers to a premise designed in such a way to accommodate a mixed activity of office and home.



**Figure 12.2**  
**Typical Concept of SOHO**



**Figure 12.3**  
**Typical Example of SOHO Developments**

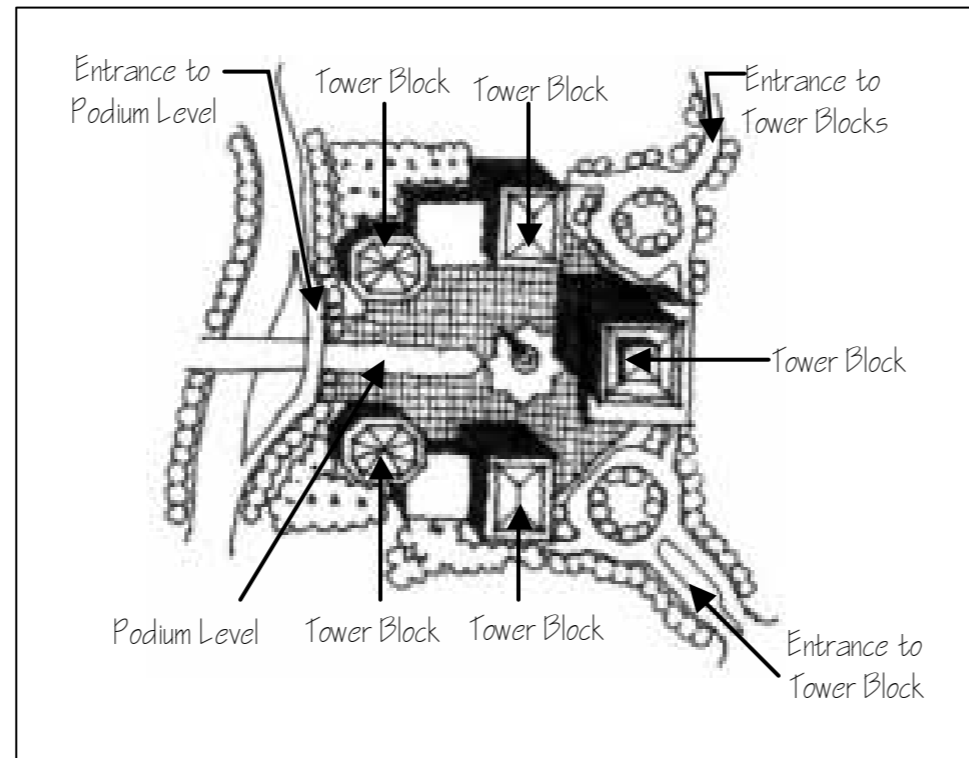
## DEVELOPMENT MIX

- All plots within the mixed-use zone shall contain a minimum amount of core commercial and residential uses. The mix of commercial and residential on one plot shall be as follows: -  
Commercial – 60%  
Residential – 40%
- The total plot ratio of the proposed development shall not exceed the maximum as indicated in **Table 12.1** below. This maximum plot ratio is the total for both commercial and residential components of the proposed development.

**Table 12.1 Maximum Plot Ratio for Mixed Development Plots**

Plot	Maximum Plot Ratio	Maximum Height
Plot P7.1-1	1.5	2
Plot P7.1-2	2.0	6
Plot P7.1-3	1.5	3
Plot P7.1-4	1.5	3

- Commercial uses especially retail are encouraged to be located on the ground floor fronting main streets whereas residential should be for upstairs levels and/or fronting secondary streets. Allowable activities within the plot shall conform to use class orders as specified in the Local Plan. Shop-office-home office (SOHO) concepts shall be considered as commercial use.
- Entries from the street to upper levels should be clearly identifiable. Entries for residential uses should also be separated from commercial uses to allow for privacy for residents.



**Figure 12.4**  
**Typical Integrated Mixed Development**

## DEVELOPMENT MIX

- Retail use should have appropriate delivery and garbage collection access, and related noise impacts on residents from early morning movements should be mitigated.
- Possible late night noise from restaurant activities should be contained so it does not impact nearby residents. The restaurants should be appropriately ventilated to minimise negative impact of cooking smells on upper storey occupants.
- Integrated mixed development where commercial and residential are on separate blocks within the same plot, should be well connected either at podium or atrium level. Each of these blocks should have its own servicing area and entrances.

12.3 URBAN DESIGN

12.3.1 Streetscape

**Streetscape** is the urban character of the public realm that is made up of an assemblage of landscape, walks and curbs between the lot line and the vehicular lanes. Its physical character and ambiance is further defined by building frontages aligning the public right of way.

**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.

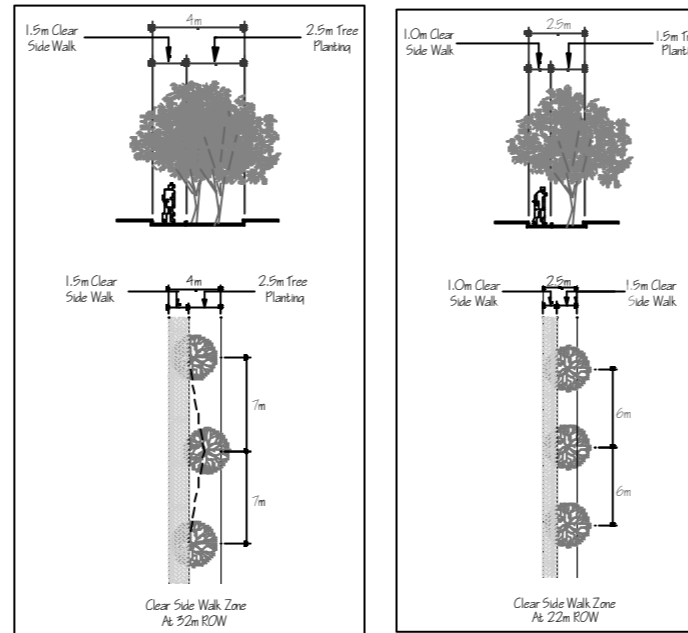


Figure 12.5  
Clear Sidewalk Zone

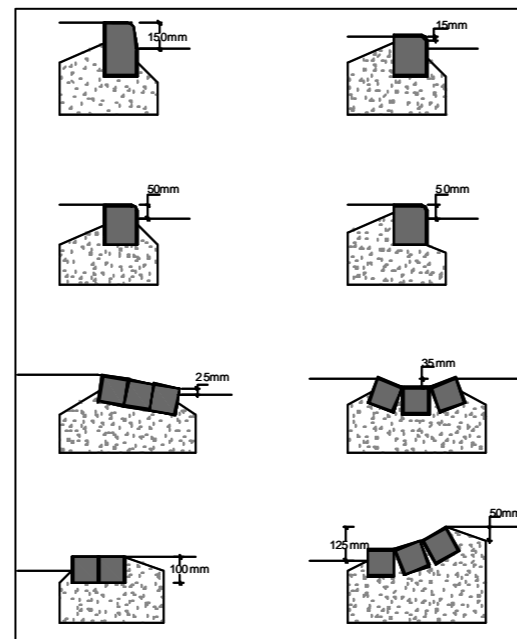


Figure 12.6  
Kerb

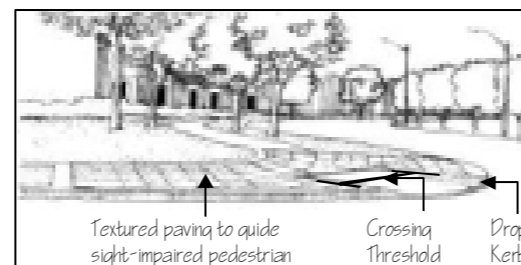


Figure 12.7  
Drop Kerb

STREETSCAPE

- Clear sidewalk zone shall be ensured along all 32m and 22m roads according to the following minimum width (**Figure 3.16**). The clear sidewalk zone shall not be interrupted by any permanent or temporary structures including trees, utility covers and gratings.
 

32m roads	-	minimum 1.5m
22m roads	-	minimum 1.0m
- The design of each street should convey to the user its primary function, character and identity, and encourage appropriate driver behaviour.
- Raised kerb should be of maximum height of 150mm.
- The inner edge of the flat bed kerb (next to the carriageway) shall be generally flush with the adjacent pavement. However, a 15mm chamfer is permissible where vehicular and pedestrian areas have to be differentiated. Gradient of flat bed kerb shall not exceed 1:10 (vertical: horizontal).
- Drop kerb shall be used at every pedestrian crossing. The width of drop kerb crossing threshold shall be equal to the width of crossing demarcated on the thoroughfare surface. Gradient of the drop kerb shall have a maximum grade of 1:12.
- 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.
- Continuous sidewalk shall be maintained along kerb cut zone and level changes on footpath zone shall be avoided where possible to ensure smooth pedestrian movement.
- Materials used shall of high durability, easily maintained and consistent with other kerb materials but may be selected to have a visual differentiation in terms of colour and design from the adjacent paving to clearly delineate a designated route.

## 12.3.2 Frontages and Facade

**Frontage** is the privately held layer between the façade of a building and the lot line that fronts the public streetscape. It is characterised by the dimensional depth of the front yard and the combination of architectural elements such as fences, stoops, porches and colonnades and is correlated with the distance within which the building is setback from the boundary line. See also *Setback Line*.

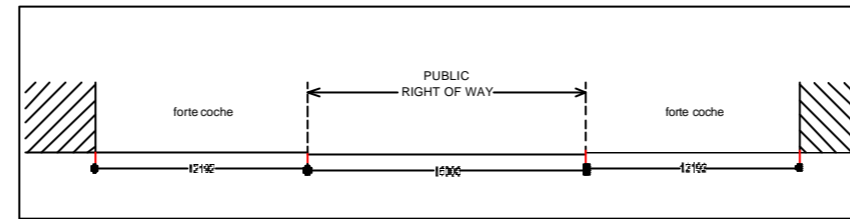
There are three typical frontage types as the following: -

- Forecourt
- Verandahway
- Stoop

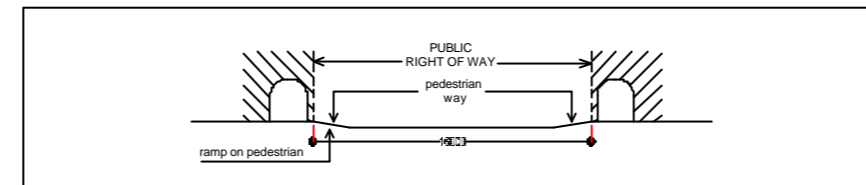
**Forecourt** is where the building façade is setback from the frontage line creating a forecourt suitable for vehicular drop-off, gardens and utility off-loading. This type is suitable for free-standing buildings.

**Verandahway** is where the ground level is setback from the lot line whilst the upper levels are aligned on the lot line. This accommodates pedestrian access along the frontage and more suitably applied to retail developments. Buildings are normally aligned on the boundary line. See also *Build-to-line*.

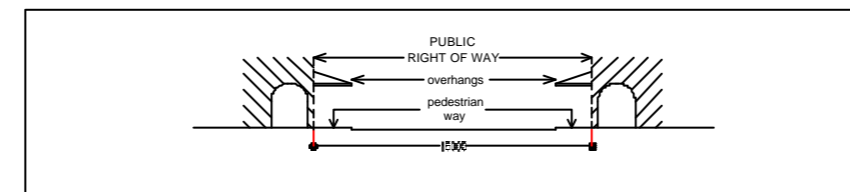
**Stoop Frontage** is where the façade is aligned build to line and the pedestrian way is elevated slightly from the street. Overhangs that extend into the public right of way are normally used to provide more coverage for pedestrians. See also *Build-to-line*.



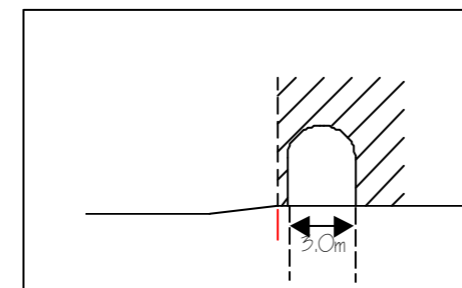
**Figure 12.8**  
**Forecourt Frontage**



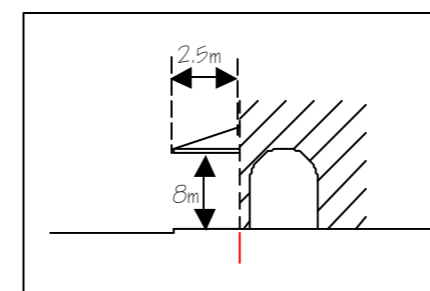
**Figure 12.9**  
**Verandahway Frontage**



**Figure 12.10**  
**Stoop Frontage**



**Figure 12.11**  
**Width of Verandahway**

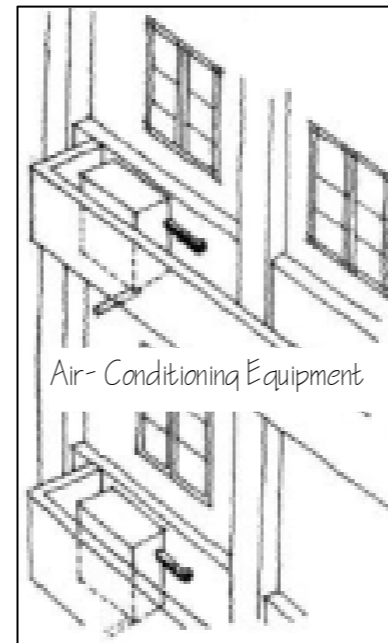


**Figure 12.12**  
**Overhang on Stoop Frontage**

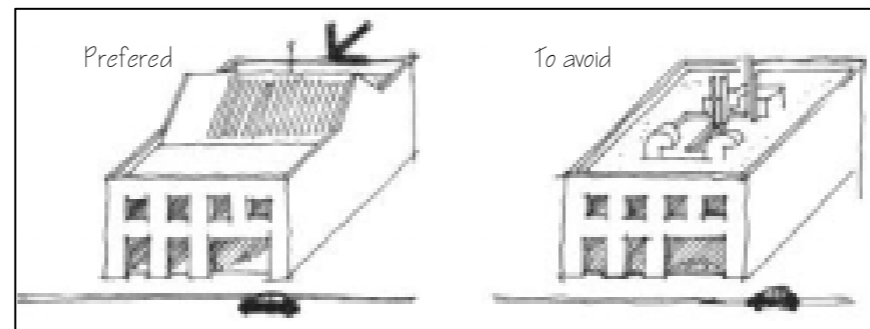
## FRONTAGE

- The width of any verandahway shall not be less than 3.0m and height clearance of 8m. Where there is a change in levels along the verandahway between adjoining lots, steps with riser not exceeding 150mm and treads not less than 275mm or a pedestrian ramp of gradient of not exceeding one in ten (1:10).
- Columns defining front verandahway shall be between 400cm and 600cm in depth.
- Overhangs on buildings with stoop frontage shall not be more than 2.5m in width and the height measured from the surface shall not be less than 8m.
- The façade treatment should: -
  - Provide sun shading
  - Incorporate tropical vernacularism design character
  - Avoid continuous blank walls or continuous or monotonous elevation treatment
  - Incorporate screening devices for mechanical units
  - Incorporate lively character for street level facades
  - Visually suggest uses within the building.

**12.3.3 Mechanical and Utility Appliances**



**Figure 12.13**  
**Compartment for Air Conditioning Equipment**



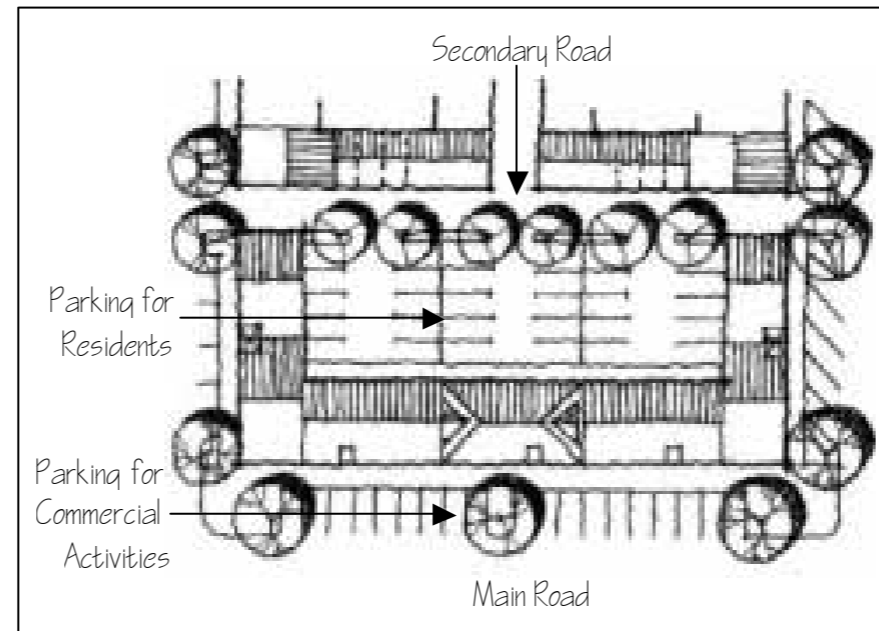
**Figure 12.14**  
**Service Equipment on Roof**

MECHANICAL & UTILITY APPLIANCES

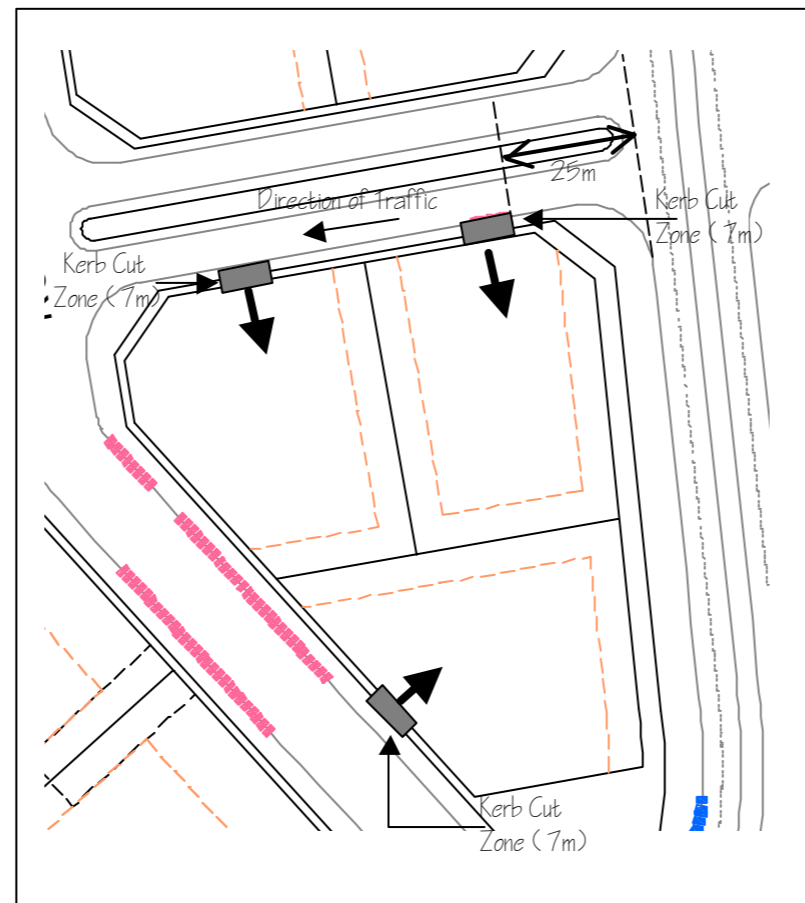
- Service equipments on roof shall be located within the roof cone and shall not be visible at ground level for up to a lateral distance of 57m from the façade of the building. They shall be position in such a way to minimise visual impact particularly from tall buildings and shall be housed in enclosures that are designed as a feature to effectively conceal any unsightly equipments.
- Air conditioning equipments should be contained in compartments that are designed as an integral component of the building to ensure they are hidden from view particularly from the public street. Air conditioning ducts shall not be exposed on the external surfaces of the buildings.
- Building design shall also take into consideration of placements of aerial and satellite dishes. For high-rise commercial buildings, a central reception system should be incorporated into building design. For other residential buildings, aerial and satellite dishes shall be located to avoid adverse impact on the amenity of adjoining buildings as well as character and appearance of the streetscape.
- All other service ducting shall not be exposed on the external surface of the buildings.

**12.4 ACCESS AND PARKING**

**Kerb Cut Zone** is the location where kerbs may be cut or discontinued for the purpose of incorporating vehicular and service access/drop off into the plots or easements without compromising the continuity of sidewalk.



**Figure 12.15**  
**Typical Example of Separate Access for Residential and Commercial Use**



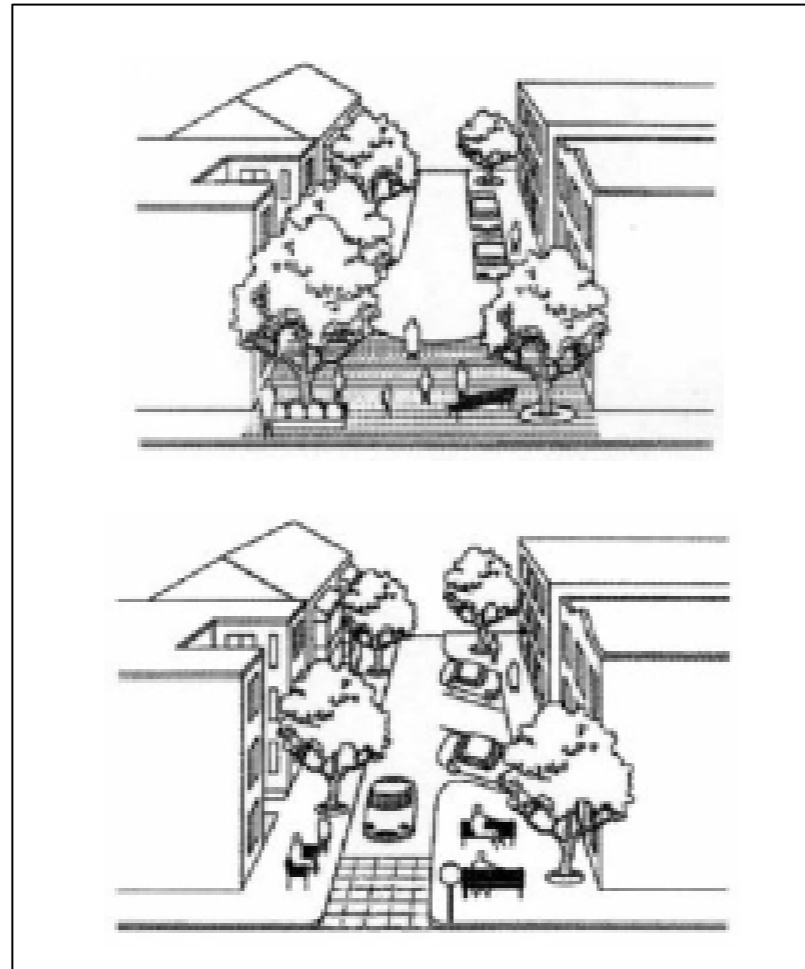
**Figure 12.16**  
**Kerb Cut Zone**

**VEHICULAR & PEDESTRIAN ACCESS**

**Vehicular and Pedestrian Access**

- A clearly identifiable road hierarchy and function segregating commercial and residential traffic should be established to provide safe circulation and some form of privacy for residents.
- Vehicular circulation should be segregated from pedestrian routes.
- Traffic calming devices should be introduced at strategic location especially along residential routes.
- Adequate provision should be provided for service and delivery vehicles and segregated from access for residents.
- Pedestrian routes should be segregated from vehicular circulation
- Plaza or open spaces should be created along important pedestrian street
- Shading devices such as awning, canopies etc should be incorporated along pedestrian routes
- Level changes along pedestrian routes shall be avoided.
- Main pedestrian route shall not be disrupted either by improper positioning of landscaping elements or any other utility equipments. Continuous pedestrian route or clear sidewalk zone must be maintained along important pedestrian route.
- Provision for disabled along main pedestrian route shall be made.
- Kerb cut zone should be allocated for all plot along all roads. The kerb cut zone shall be setback to a minimum distance of 25m from the nearest junction from which traffic is approaching. The kerb cut should be of minimum width of 7m to allow for egress/ingress of vehicles into development plot (**Figure 3.32**). Drop kerb with gradient not more than 1:12 shall be used at all kerb cut zones.

**Parking standard** is a requirement for provision of parking space based on number of dwellings units for residential development and on gross floor area for commercial and other developments.



**Figure 12.17**  
**Typical Dedicated Parking for Residential Use in Mixed Use Development**

**PARKING**

**Parking**

- Parking for commercial and residential use should be segregated and provided in accordance to the parking standard indicated in **Table 12.2**.
- Provide spaces for handicapped close to building entrance.
- Adequate lighting for security and safety reason especially for residents.

**Table 12.2 Parking Standard for Mixed Use Developments**

Type of Development	Number of Car Parking Spaces (CPS)	Number of Motorcycle Parking Spaces (MPS)	Others
Retail	1 CPS : 70 GFA	1 MPS : 200 GFA.	Handicapped parking – 1% on top of the required parking provision or minimum 2 parking spaces whichever is higher.
Shop Office	1 CPS : 70 GFA	1 MPS : 150 GFA	
Restaurants	1 CPS : 20 GFA.	1 MPS : 160 GFA	
Food Court	1 CPS : 20 GFA	1 MPS : 70 GFA	
SOHO	1 CPS : 70 GFA + 1 CPS : 1 unit	1 MPS : 200 GFA.	
Apartment	1 CPS : 1 unit + 10% for visitor	50% of total housing units	
Condominium	2 CPS : 1 unit + 10% for visitor	50% of total housing units	
Town House/ apartment	1 CPS : 1 unit + 10% for visitor	50% of total housing units	

Note: GFA is in square meter  
CPS – Car Parking Space  
MPS – Motorcycle Parking Space

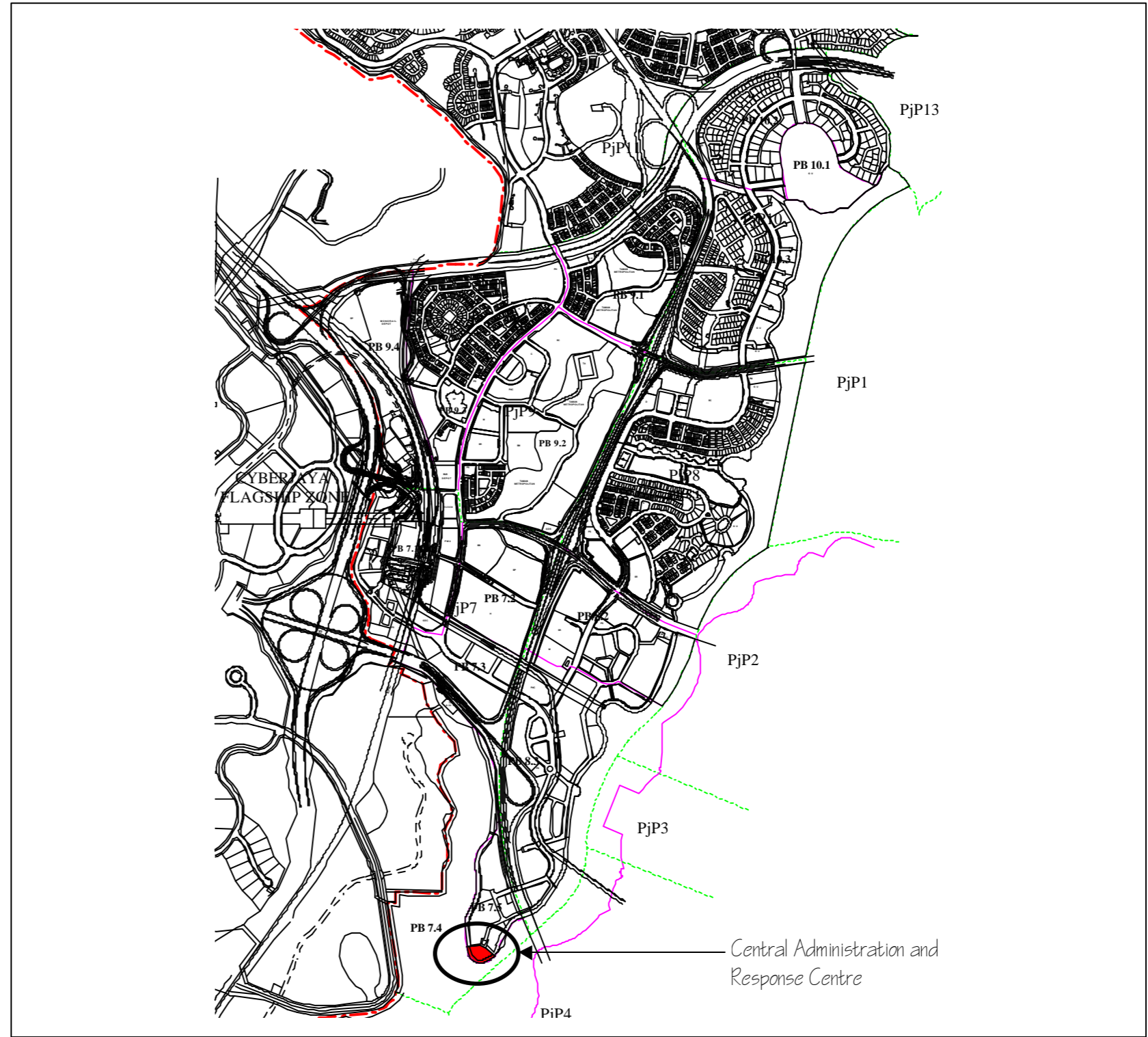
- Surface parking shall be located in pockets and as near to the pedestrian entry. Access for pedestrians via walkway and ramps where required shall be provided. Grasscrete surface shall be used for all surface parking to allow for infiltration surface runoff. Landscape features shall be used to soften hard surface of surface parking.
- Linear rows of car parking bays shall be avoided and shades shall be provided. Planting island of 1m shall be incorporated for every 6 parking bays.



# 13.0 CENTRAL ADMINISTRATION AND RESPONSE CENTRE

## 13.1 USE OF GUIDELINE

This guideline shall be used for development of the Central Administration and Response Centre (CARC) located within PB7.5 as shown in **Figure 13.1**.



**Figure 13.1**  
**Location of CARC**

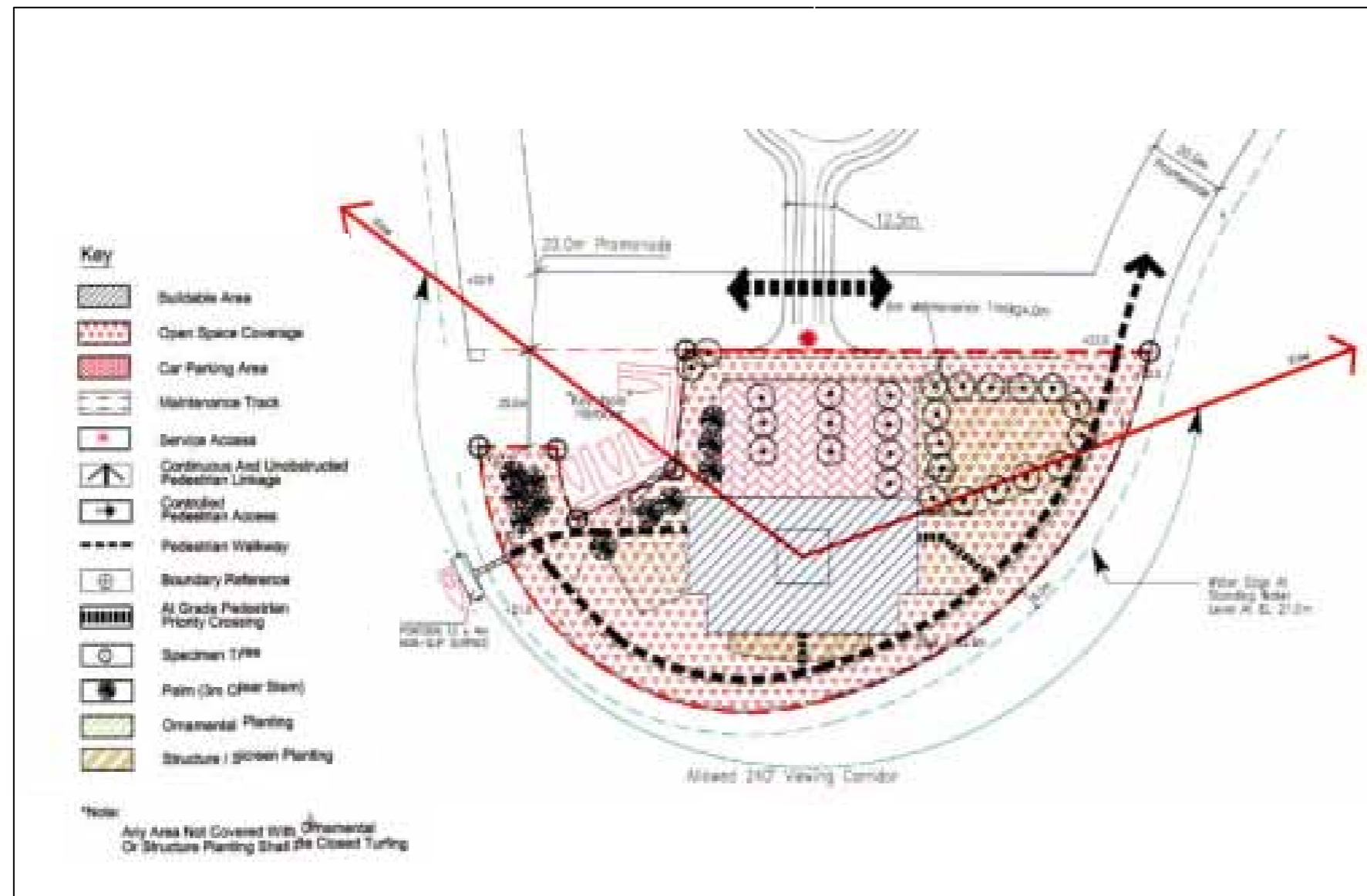
### 13.2 PLANNING REQUIREMENTS

**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.

**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.

**Reference Platform Level** refers to the highest ground level adjoining the building at the street where the building fronts at the nearest chainage point. It provides a reference level based on a universal scale as preliminary orientation of levels on site.

**Figure 13.2**  
Schematic Design Guideline for CARC  
Source : Hijjas Kasturi Sdn Bhd



### PLANNING REQUIREMENTS

- Activities within the CARC shall conform to Use Class Order as specified in the Local Plan.
- Development of the CARC shall conform to the following planning requirements: -

**Table 13.1 Planning Requirements for Development of CARC**

Plot Area	1.25 hectares (3.1 acres)
Maximum GFA	1687.27 sq.m.
Reference Platform Level (RPL)	RL 24.0m
Parking	40 car parking spaces 9 motorcycle parking spaces
Minimum Open Space Coverage	40.65%
Minimum Landscape Reserve	40% of open space coverage

- Access for emergency vehicles and maintenance vehicles to promenade shall be made at every 500m interval within the promenade. Maximum gradient for the access shall not be more than 1:12.
- A viewing corridor of minimum 240 degrees shall be provided for within the CARC building to allow for unobstructed view from the building into the lake as part of the administrative function of the building.
- Building of the CARC shall be designed as feature building that can become a focal point or icon within the immediate surrounding developments.

# GLOSSARY

**Access Road.** Provides circulation to residential area or other developments and normally carries traffic from local road into individual development pockets.

**Access.** Vehicular entrance and exit into development plot.

**Activity Nodes** are created along axis line to break up monotonous of space and to create interesting gathering areas which enhance the urban identity and character of the development.

**Alfresco Dining.** Outdoor dining associated with restaurant activities on commercial development located next to promenade.

**Angled Parking.** Pattern of parking where the vehicles are stored at an angle either 90°, 60° or 45°. It is easy to maneuver and provides higher parking density but creates the most negative sidewalk experience.

**Avenue** is a limited distance, free movement thoroughfare within an urbanized area. It is characterised by a median in the centre that may be wide enough to hold monuments or even buildings. Buildings or other structures to accentuate a focal point normally terminate its trajectory. An avenue may be conceived as an elongated square and access for vehicular traffic may be limited.

**Avenue.** Road that is used outside the building lots to enter, drop off and pick up as well as parking. It provides circulation within residential estates or other developments and normally handles low traffic volume.

**Axis.** An imaginary reference line linking two major points used for orientation and organization of urban elements along its trajectory.

**Benches.** Long seats for sitting on. This can be in the form of a freestanding structure or a low wall, and can include arms and back rests as well as integrating other street furniture and lighting elements depending on designers preference.

**Bollard.** Short upright post usually found in multiple linear placements. Bollard is use to circumscribe vehicles on continuous paved surface, as in the design of plazas.

**Boulevard.** A long-distance, free movements thoroughfare traversing an urbanized area. A boulevard is flanked by wide parkway on both side of the thoroughfare with landscaped median in the centre. Buildings are setback from the lot line to accommodate for additional landscape strip, sidewalk or service lanes.

**Building Façade.** The external vertical surfaces of buildings or structures. Façade shall respond to urban topological character and context to create a coherent urban environment and attractive streetscape. Elements such as veranda way, entrance and portals, window, vertical landscaping, exterior projections, expression lines, roof projections, utility such as gutters, drainpipes etc make up a harmonious entity of building façade.

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

**Building Orientation.** Arrangement of building façade to face certain direction normally the public realm.

**Build-to-line.** Compulsory alignment along a specific edge that is parallel to the street or public open space. It is a line graphically indicated as a setback dimension along which a façade or wall must be placed to enforce building alignment along specific edge.

**Character.** Suitability of a road as a setting for pedestrian activities and as a location for a variety of building types. It is physically manifested by associated buildings and frontages that align a particular section of the road. The associated terminology for character is *streetscape*.

**Clear Sidewalk Zone.** 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.

**Commercial Roads.** Roads that serve traffic within commercial areas..

**Corner Buildings.** Part of buildings located facing the chamfered section of a junction or public open space.

**Corner Plaza.** Plaza located enfronting 'corner building' and usually happen at road junction or two designated path i.e. where the Peoples Parks meet the Drive, and intended to highlight the building frontage and to frame the view corridor. Introduced to ensure interesting variation to the streetscape and to highlight and emphasize frontage.

**Covered parking.** A specialised building or part of building dedicated for parking. The parking is at basement, sub-basement, multi-level or rooftop. This type is normally suitable for commercial or high-rise residential buildings.

**Cul-de-sac.** Access to individual buildings and does not normally carry through traffic. It normally creates a relatively secure and safe environment particularly if located within residential areas.

**Density.** Ratio of dwellings to the area of the site they occupy (including communal street and communal open space). It is measured as unit per acre of land.

**Distance Between Buildings.** The minimum distance measured horizontally from the outermost projection of the building to another building.

**District Park.** Public outdoor space located in the Sub-commercial Centre intended as an activity focus at the heart of intensive urban area. Also known as *Urban Park*.

**Drive.** A thoroughfare along the boundary between an urbanized area and a natural condition, usually along a waterfront, a park, or a cape. One side of a drive has the urban character of a street or boulevard, with sidewalk and buildings, while the other has the qualities of a road parkway, with naturalistic planting and detailing.

**Drop Kerb.** Area where kerb reduces in height at pedestrian crossings and kerb cut zones.

**Dual-use Path.** Footpath whose right of way is shared by both pedestrian and cyclist within the same lane.

**Environmental Management Plan (EMP).** Detail description of practices to be followed and activities to be undertaken for the environmental management of the development area.

**Expression Line.** A visual horizontal line that shall be expressed architecturally at defined heights between the base zone and the mid zone. It defines the façade proportionately to street level and human scale. It is expressed by a variation of material or by a limited projection such as a moulding or any protruding elements.

**Feeder Pillar.** An electrical distribution board for street lighting supply fed from TNB substations or looping from another feeder pillar.

**Fencing.** A broad range of approaches to property boundary demarcation including residential and non-residential fences of masonry, timber and metal construction (hard fencing), fences comprised of hedges and other forms of landscape (soft fencing), or walls, including retaining structures, courtyard walls, and party walls.

**Fibre Distribution House (FDH).** Telecommunication infrastructure, which terminate the fibre optic cable of the main telecommunication backbone before the final lines/coaxial lines/multi mode fibre optic lines are pulled to individual consumers.

**Flat Bed Kerb.** 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.** 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.

**Focal Point.** Primary areas or elements that act as visual or directional landmarks; e.g.: where activities or main movement networks converge, primary open spaces, and important structures.

**Forecourt.** Building façade that is setback from the frontage line creating a forecourt suitable for vehicular drop-off, gardens and utility off-loading. This type is suitable for free-standing buildings.

**Formal Hard Edges.** Vertical or battered formed walls that have a profiled or decorative applied surface treatment. The main structural component of these walls will typically be reinforced concrete.

**Formal Promenade.** Promenade area characterised by hard paving with handrails where pedestrian access to the edge of the promenade immediately before the water is maximised. This type is normally associated with very urban ambiance particularly commercial areas and public realms.

**Frontage.** The privately held layer between the façade of a building and the lot line that fronts the public streetscape. It is characterised by the dimensional depth of the front yard and the combination of architectural elements such as fences, stoops, porches and colonnades and is correlated with the distance within which the building is setback from the boundary line.

**Frontage Street.** Residential road that face towards the main roads (i.e. Spine road and above). The frontage road will have similar characteristics of an Access Road, Avenues or Cul-de-sac.

**Gas Area Station.** The medium pressure gas line is regulated to low pressure 300mm H<sub>2</sub>O for residential use.

**Gas District Cooling Plant.** A centralised chiller plant using gas as the fuel to supply chilled water to mainly commercial buildings.

**Gas District Station.** A high-pressure gas line is regulated to medium pressure and fed to the Gas Area Stations.

**Gateway.** An urban element which marks the entrance or the threshold of a sector or a district, one of the elements useful for orientation within the urban fabric.

**Green Corridors.** Amenity spaces, which shall provide pedestrian and cycleway linkages between the metropolitan, local and neighbourhood open spaces. The green corridors are intended as a secondary level of access formed from either cycle and pedestrian routes or solely pedestrian routes. Also *Green Connectors*.

**Gross Floor Area (GFA).** 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.

**Hardscape Zone.** Open space area dominated by paving, urban furniture. Parking and vehicular driveways can also be classified as hardscape.

**Hierarchy.** Organization of a road system into higher and lower ranks.

**High Density Housing.** Housing area that provide high-density residential development to meet the requirement for demand of such housing especially in the case of affordable homes. The residential development shall normally be of apartment type.

**Junction.** Formed when two or more roads, cross or meet. Junctions or intersections can be classified as grade separated or at-grade or partially grade separated.

**Kerb Barriers.** Low level traffic barriers employed to circumscribe vehicles on continuous paved surface and to ensure safety of pedestrians. Include bollards, landscaping and street furniture.

**Kerb Cut Zone.** Location where kerbs may be cut or discontinued for the purpose of incorporating vehicular and service access/drop off into the plots or easements without compromising the continuity of sidewalk.

**Kerb.** The detailing of the edge of thoroughfare pavement separating the level of vehicular carriageway and sidewalk.

**Kindergartens.** 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 kindergarten.

**Kiosk.** A lightweight open-fronted booth or structure selling food, newspapers and other small consumer items.

**Lake Edge Treatment.** The treatment of the embankment of lake or the lake shoreline from the promenade boundary.

**Landmark.** A significant features or structure of superior or unique expression and form that adds interest to the urban fabric and language of the city.

**Landscape lighting.** Ornamental and atmospheric lighting to compound areas and public open space that is not governed by statutory regulations.

**Limited Commercial.** Development comprising of office, retail and residential within the same plot. It is similar to mixed use but is only applicable

**Local Centre.** An area where commercial activities and spaces are provided to serve a local community and are normally centrally located within one or several housing neighbourhood. Commercial activities usually include retail shops for convenient goods and the supply of basic services

**Local Distributor.** Fourth ranking road classification in terms of hierarchy in the Putrajaya Road Network. It is a 6-lane highway with reserve of 50 metres. It provides link into local road network.

**Local Park.** An open space that provides short distance recreational facilities for local population of various Planning Blocks within the Local Plan Area.

**Local Road.** Sixth ranking road in the Putrajaya Road Network. It has a reserve of 22 metres and serves to connect spine road to access and service roads.

**Lot Frontage.** The boundary line or part thereof, of the lot, which coincides with the alignment of a road, public open space, or promenade.

**Low Density Housing.** Area where all housing will be subject to provisions that seek to ensure a pleasant, low-density living environment. The intended development shall be of detached and semi-detached houses in an almost exclusively low-density residential environment.

**Maximum Roof Height.** Height of roof measured at top of roof cone of the building.

**Mechanical and Utility Appliances.** Appliances such as air conditioning equipments, service ducts for air-cons, drying yard, water tank, satellite dish, antenna etc

**Medium Density Housing.** Area comprises of terrace or link houses, which are in the form of row development with direct street frontage or town houses, which are multi-unit housing involving strata title.

**Medium High Density Housing.** Medium to high-density residential development in the form of multi-unit buildings of 4 storeys and above. Examples are terrace house, town house, condominium and low-rise apartment.

**Metropolitan Park** 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.

**Mixed Use Development.** Development located within the mixed-use zone of the Local Plan where it involves more than one activity on the same lot, such as dwelling, working or shopping, taking place in close and compatible proximity. Uses may mix horizontally on the same plot and/or vertically in the buildings but shall comply with the use class order specified under the Local Plan.

**Mosque.** Dedicated building for where prayers including Friday prayers and other related Islamic religious activities could be undertaken.

**Multi Dwelling Unit.** Residential building where strata title is involved. It includes residential buildings such as apartments, condominium, flats, as well as town houses.

**Natural Promenade.** Promenade area where the lake edge shall be screened using dense woodland and vegetation. Typically associated with parks and areas where public access to the waterfront and its adjoining landuse is restricted.

**Neighbourhood Commercial Centre.** A commercial area that serves a bigger catchments area than the local centre. It will serve several neighbourhoods and has the function and activities of higher order goods than a local centre.

**Neighbourhood Park.** An open space designated for neighbourhood sports and passive recreational facilities/activities of the residential population of each neighbourhood.

**Off-street parking.** Parking area located within a lot, away from the thoroughfare reserve. There are two types of off-street parking; surface parking and covered parking.

**One-stop Centre.** A block of commercial spaces located within one large plot where parking spaces are normally centralised and characterised by not more than two anchor tenants together with smaller retailers to support daily needs of the neighbouring residents.

**On-street parking.** A single line of car parking bays located along the kerb line of thoroughfare accessible directly from a moving lane.

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

**Other Religious Reserves.** Land areas reserved for use as places of worship for other religions such as Buddha and Hindu.

**Parallel Parking.** Pattern of parking where the vehicle is stored parallel to the kerb line. It permits a narrower street section and creates the most positive sidewalk experience. It is however difficult to manoeuvre.

**Park and Ride.** Facilities that provide common location for individuals to transfer from a low-occupancy travel mode to a high-occupancy travel mode. It is oriented towards providing parking spaces for automobiles connected with bus or rail stations and frequent transit services.

**Parking.** The manner of storage and accommodation of vehicles when not in use. There are two types of parking categories, on-street parking and off street.

**Parking Standard.** Requirement for provision of parking space based on number of dwellings units for residential development and on gross floor area for commercial and other developments.

**Paving.** Stone, brick, block or homogenous surface treatment applied to pedestrian or vehicular routes (pavements) to provide a solid, well defined, safe and easily negotiated surface on which both pedestrian and vehicular traffic can travel and to encourage as well as facilitate pedestrian movement in the public realm.

**Pedestrian Crossing.** A controlled point within the streetscape dedicated for pedestrian to cross the carriageway. It provides a barrier free transition within the public realm. There are two type of crossings; signalised and unsignalised.

**Pedestrian Network.** Comprehensive system of walkways and linkages dedicated for pedestrian. It is a separate walkway network from the vehicular carriageway but includes the roadside walkway. Its function is to provide the pedestrians an alternative way of moving around.

**Playground.** An open space area allocated for daily recreational facilities of school age children and toddlers living within the vicinity of respective housing areas/smaller neighbourhoods. It shall form part of the ten percent requirement of provision of open space within each development project.

**Plaza.** A public space at the intersection of important streets, set aside for civic purposes and commercial activity, including parking, circumscribed by building frontages, its landscape consisting of durable pavement and formally disposed trees, requiring limited maintenance.

**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.

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

**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.

**Primary Distributor.** Highest hierarchy of road in the Local Plan area. Its primary function is to provide strategic linkage between longer distant urban area or from expressway to urban area. This is a dual carriageway road with a 70 meters road reserve. This is the only road where provision for motorcycle lane is required.

**Priority Junction.** Road junction that does not have any form of control except to the Highway Code to access and cross-junction. It is suitable at junction where traffic flows are relatively low, particularly where the flow on minor road is small and can feed into major road traffic stream using natural breaks in the flow.

**Promenade Type.** Associated with adjacent landuse and lake edge treatments to the shoreline. Typically characterised as formal, semi formal and natural.

**Promenade.** Strip of land area located between the Putrajaya Lake and individual land parcels next to it, the width of which shall be 20m measured from the top of slope of the lake edge.

**Promontory.** Localised variations in the shoreline that allow the promenade to extend onto the 5m wide submerged bench. It is to facilitate for additional edge variation and to allow better access to deeper water for fishing.

**Protected or Reverted Edges.** Edges formed by loose laid and freestanding natural materials such as boulders, quarry stones, gabions, bakau piles or rock. A reverted edge shall be the minimal required treatment for this type of edge protection.

**Provision Threshold.** The minimum limit for any amenity to be able to provide service for. In most cases the provision threshold relates to minimum population requirement or unit for housing. This minimum provision threshold will be the minimum standards for requirement of public amenities.

**Public Amenities.** Amenities that need to be provided within development plot particularly strata residential developments for the use of the residents. It includes all amenities such as surau, mortuary/holding room, nursery/kindergarten facilities, laundrette, cafeteria, multi purpose room/hall and management office.

**Public Utilities.** Utilities that need to be provided within development plot for the use of the residents. It includes all utilities such as electric substations and feeder pillars, fibre distribution house (FDH) and solid waste storage and collection facilities.

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

**Reference Platform Level.** The highest ground level adjoining the building at the street where the building fronts at the nearest chainage point. It provides a reference level based on a universal scale as preliminary orientation of levels on site.

**Residential Streets.** Streets in residential areas which serve a number of functions.

**Roundabout.** Central space at intersections, which makes vehicles to circle it instead of straight across. It acts as 'slow point' on all intersecting thoroughfares. It allows more than two thoroughfares to converge at a single point and at acute angles and all thoroughfares are considered as of equal traffic significance. It operates in a one-way clockwise direction. Roundabout presents excellent opportunities to improve streetscape and incorporate green spaces into development proposals.

**School Complex.** 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.

**Sculpture.** Can take the form of carvings, freezes, murals installations, pictures, lighting, earthworks or applied and integrated into structures and paving.

**Secondary Distributor.** Third ranking road after Expressways and Primary Distributor in terms of hierarchy in the Putrajaya Road Network. It is a 6 lane highway with a road reserve of 65 metres. It distributes traffic from other primary routes within Putrajaya to precincts in the Local Plan area.

**Segregated Cycle Path.** A dedicated lane for cyclist.

**Semi-formal Promenade.** Promenade area where the predominant character shall be of park land with naturalistic plantings intermingled with series of events or activity points. Pedestrian access to the water edge shall typically through boardwalks. This type is typically associated with residential character on the adjoining land.

**Service Lane.** Dedicated road that is only allowed for utility service vehicles such as Bomba, or garbage truck and loading/unloading into commercial building. It is not meant for normal traffic. The road reserve for this road shall be 6m wide.

**Setback.** The minimum distance and a property boundary or a wall of another building.

**Shop Office Home Office (SOHO).** A premise designed in such a way to accommodate a mixed activity of office and home.

**Shophouse.** A row of commercial building where the frontage is associated normally with verandahway that allows pedestrian access from one end to the other. Shophouse also refers to mixed use of commercial activities at the lower ground and residential use at the upper floors.

**Shopoffice.** Row of commercial buildings where frontage is associated normally with verandahway that allows pedestrian access from one end to the other, and is used for commercial activities only.

**Side Setback.** Setback on the sides of the lot that adjoin another lot.

**Sidewalk.** 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.

**Signalised Junctions.** Three or four arm junctions managed and controlled by traffic signals. The newer signalised junctions are computer controlled and linked to operate at a optimum level of efficiency.

**Single Dwelling Unit.** Residential building on landed property with individual title given to individual unit. It includes detached or bungalow housing, semi-detached housing and terrace housing.

**Soft Edges.** Natural soil edge where the slope profile runs into the water with no protective barrier into the water with no protective barrier for wash and wave action.

**Softscape Zone.** Space within the urban fabric and open space network designated for soft landscape. The soft landscape zone may include all or a combination of trees, shrubs, ground cover planting and turfing.

**Spine Road.** Fifth ranking road classification in terms of hierarchy in the Putrajaya road network. It is the main route serving neighbourhoods and normally be used as the main route for bus services. It is a dual two lane carriageway road with reserve of 32 metres.

**Stoop Frontage.** Façade which is aligned build to line and the pedestrian way is elevated slightly from the street. Overhangs that extend into the public right of way are normally used to provide more coverage for pedestrians. See also *Build-to-line*.


**Storey.** The space within a building which is situated between the floor of one level and the floor of the level next above, or, if there is no level above, the top of the ceiling above. The term includes any mezzanine floor or any space on the roof of a building, which is covered by impermeable material and areas of uncovered roof, which are assessed as comprising part of the gross floor area of the building.

**Street Frontage.** Setback where lot/building frontage faces the following. Also refers to *Front Setback*.

- i. Street frontage for main roads such as local or spine roads
- ii. Street frontage for roadside buffer
- iii. Park/public open space
- iv. Green corridor linking neighbourhood centres or open space
- v. Waterfront/promenade

**Street.** A local slow movement thoroughfare that provides frontages for higher density buildings such as offices and shops. The frontages are mostly green setbacks of buildings aligning it and sidewalks along the carriageway.

**Streetscape.** Part of urban character of the public realm that is made up of an assemblage of landscape, walks and curbs between the lot line and the vehicular lanes. Its physical character and ambiance is further defined by the vehicular lanes and building frontages aligning the public right of way.



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

**Surface Parking.** Parking area at grade adjacent to building either as its rear, side or front. It provides convenient pedestrian access from the parking area to destination of the trip.

**Traffic Calming.** Series of measures to deliberately slow traffic in a commercial or neighbourhood. Typical measures are streets with different riding surface, non-linear streets, a typical parking layout and introduction of junctions.

**Tree Grilles** is material used to protect the tree pit.

**Tree Pit** A cavity as deep as the height of the ball of earth of the tree stock with side somewhat larger and unfilled with topsoil.

**Use Class Order.** The prescribed activity for the use of land or building. It is categorised into classes where change from one class to the other shall be deemed to constitute development and therefore shall require planning approval. Change within the same class however shall not require planning approval under the provision of the Local Plan.

**Verandahway.** The ground level is setback from the lot line whilst the upper levels are aligned on the lot line. This accommodates pedestrian access along the frontage and more suitably applied to retail developments. Buildings are normally aligned on the boundary line. See also *Build-to-line*.

**Visibility Cone/Splay.** Unobstructed clear sight distance required to on-coming and on-going traffic from an intersection. Adequate sight distance will permit drivers entering an intersection to see approaching traffic from a long enough distance to allow them to decide when to enter or accelerate in advance of the approaching traffic.



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