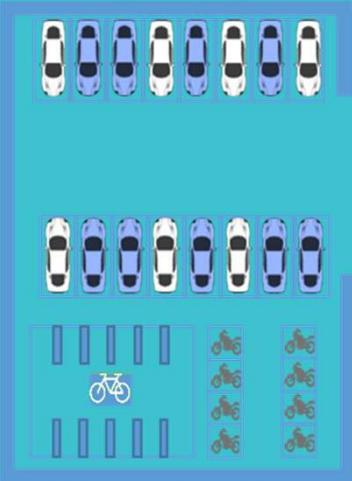
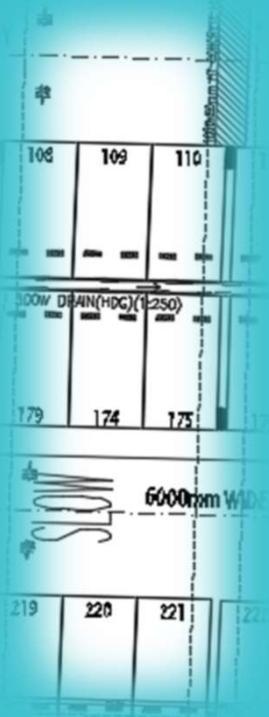


# Code of Practice

2019 EDITION

# Vehicle Parking Provision

in development proposals



Development & Building Control

Land Transport Authority

**CODE OF PRACTICE  
FOR VEHICLE PARKING PROVISION  
IN DEVELOPMENTS  
(2019)**

**Purpose**

This Code of Practice (COP) outlines the requirements of the Parking Places (Provision of Parking Places and parking Lots) Rules (“the Rules”) for provision of parking places and lots. It also cites examples of good practices in the industry. Diagrams, sketches and photographs are used to illustrate some of the parking requirements and practices.

The Rules stipulates the following:

- a) The number of parking lots to be provided for various uses; and
- b) The minimum dimensions of such parking lots, circulation aisle, access ramps and other details on the arrangement of the parking place and lots.
- c) The conditions, include payment of money, under which the Land Transport Authority (LTA) may grant a waiver on the parking provision.

In using the information in this COP, users should always make reference to the Rules. The Authority reserves the right to impose conditions on individual development proposal not covered in the COP, on a case-by-case basis.

## Introduction

There are two key considerations a Qualified Person (QP) must take when designing a parking place. The first is the number of parking lot requirement and the second is the layout of the parking place.

The parking place layout should be safe and functional to facilitate smooth and convenient passage for motorists. QPs should design the parking place with this in mind. While the minimum dimensions of a parking place stipulated in the Rules meet the lot and manoeuvring requirements of most vehicles in Singapore, provision in excess of the minimum dimensions may be made to further enhance the layout of the parking place.

Where land comes at a premium and competing uses in the development constraints the provision of conventional parking lots, mechanised parking systems offer a feasible option for providing parking lots. These systems typically operate either on a stacking basis or a storage basis. Car lifts replace the conventional ramp system for access to the parking place. Mechanised parking systems can be incorporated in a parking place as long as they meet the requirements stipulated in the Rules. QPs must give due consideration to the safety of motorists, pedestrians and vehicles in the design of mechanical parking systems, as it involves heavy moving machinery, to avoid harm and damage to property.

## **Disclaimer**

The contents of the Code of Practice (COP) are subject to revision from time to time. A circular will be sent to inform the professional organisations of changes. Users are advised that this COP is a guide to the Rules. Where there are ambiguities or perceived conflicting requirements, the Rules will have precedence. Users are also advised to consult the LTA at as early a stage in their development as possible to ensure that the needs of the developer are met holistically.

While every endeavour is made to ensure that the information provided is correct, the Authority disclaim all liability for any changes or loss that may be caused as a result of an error or omission in the COP.

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## CHAPTER 1: PROVISION OF PARKING LOTS

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### Overview

The Parking Places (Provision of Parking Places and Parking Lots) Rules stipulate the parking provision standards.

This chapter illustrates the method adopted for the computation of the required number of parking lots a development should provide.

### 1.1 Parking Provision

The parking provision standards for the various development uses are given in [Appendix A](#). Parking requirements are usually based on the quantum of the gross floor area or the number of units of the development uses.

Where a parking standard is not available for a proposed use, the QP may carry out his own assessment on the parking requirement and submit it with justification to the Authority for approval. This assessment should include the following information, where relevant:

- Visitorship / staff strength and mode share;
- Car / motor-cycle parking occupancy data of existing / similar developments;
- Parking demand management measures (e.g. parking rates, allocation of parking lots);
- Plans to improve first-last mile connectivity, travel and parking demand measures (e.g. shuttle bus services, car-pooling programmes, telecommuting initiatives);
- Explanation of operations and/or operational needs of development.

## 1.2 Zonal Standards

Singapore Island is divided into four (4) zones.

Zone 1 comprises of the city (Restricted Zone) and the Marina Bay.

Zone 2 refers to the areas within 400m radius from Rapid Transit System (RTS) stations outside Zone 1.

Zone 3 is the rest of the island, excluding Zones 1, 2 & 4.

Zone 4 refers to car-lite precincts.

The boundaries of Zones 1, 2 and 4 can be found in [OneMap](#).

## 1.3 Car Parking

The Rules allow for a range-based parking provision for developments island-wide. Developers may propose a parking provision within the lower-bound and upper-bound, without the need for additional approval from the Authority.

Residential developments that provide fewer car parking lots than the number of dwelling units will have to inform buyers of the parking situation upfront in the Option to Purchase and Sales & Purchase Agreement.

## 1.4 Motor-Cycle Parking

Developers are required to provide motor-cycle parking lots within their developments to prevent indiscriminate parking of motor-cycles on walkways and carriageways.

Building owners are also encouraged to allow despatch riders to park temporarily at their loading/unloading bays to facilitate delivery by motorcycles.

## **1.5 Loading bays, coach and other heavy vehicle parking facilities**

There are requirements for loading bays, coach, bus and lorry parking for Office, Retail, Hotel, School, Industrial and Warehouse uses respectively. Designers shall ensure that such facilities are adequately and appropriately provided so that parking of these vehicles do not overspill onto the nearby roads, causing disamenity to the neighbourhood.

Although residential developments are not required to provide loading & unloading bays, designers should incorporate in their design sufficient area within the development to facilitate house moving / delivery by heavy vehicles.

Other than residential developments, if a premise is used for overnight parking of heavy vehicles, the owner is required by law to apply for a licence from LTA. Please visit [www.onemotoring.com.sg](http://www.onemotoring.com.sg) (go to Quick Access -> eServices & Info -> Heavy Vehicle Parking -> Apply for New Heavy Vehicle Park Licence).

## **1.6 Bicycle Parking**

The Walk Cycle Ride SG vision aims to make walking, cycling and riding public transport the way of life for Singaporeans and a means of enhancing liveability in Singapore. To help realise this vision, developers are required to provide bicycle parking facilities within developments.

## **1.7 Other Considerations**

Parking provision serving a development must be made concurrent or prior to the completion within the site of the development use. Temporary parking provision cannot be considered as provision to meet the lower-bound parking requirement of a permanent development.

Deletion and conversion of existing parking lots is permitted if it does not result in parking deficiency in the development. That is, after deletion and conversion, the remaining number of parking lots must be sufficient to meet the lower-bound requirement.

Prior approval from LTA is required before a developer / building owner carries out any changes to the approved / existing parking layout or provision.

Where existing parking lots serving building(s) are temporarily displaced for construction work, interim-parking provision in the vicinity of the building(s) shall be provided.

The requirement for the number of accessible and family parking lots provided in accordance with the BCA's Code on Accessibility in the Built Environment (Accessibility Code) shall be over and above LTA's minimum parking requirements.

Use of mechanised parking system and car lifts are allowed. Guidelines for provision of mechanised parking system and car lifts are given in Chapter 3.

## **1.8 Computation for the Number of Parking Lots Required**

The parking provision standards in [Appendix A](#) shall be used to calculate the number of parking lots to provide. The calculation for the number of parking lots required for the lower and upper bound is to be rounded to the nearest integer. It is important to note that the rounding off is done for each use before adding up to obtain the total requirement for the development. Common areas shared by two or more uses, are computed together with main use of the development. Refer to sample computation of parking requirement in [Appendix C](#).

Developments within car-lite precincts (Zone 4) are intended to cater for a lower level of private car transport usage and will have better support for alternative transport options. For Government Land Sales (GLS) sites within Zone 4, the number of parking lots to be provided will be stipulated in the sale conditions upon the launch of the GLS site. Developers intending to develop land within Zone 4 shall consult LTA on the planned parking provision for the plot.

For Additions & Alterations and/or Extension proposals where the floor area information of the existing development is not available, the computation for additional parking requirement will be based on the increase in floor area of the proposal.

For Change of Use proposals, the difference in parking requirements of the proposed use and the existing approved use of the development gives the additional number of parking lots to be provided. Please refer to sample parking computation for a change of use proposal in [Appendix C](#).

A fully-restored development in a gazetted conservation area is exempted from parking provision if the development is conserved according to URA conservation requirements. Clearance for parking provision from LTA is not required for a fully-conserved building.

However, new developments in conservation areas are required to comply with the parking provision for the whole development within the site. For conserved buildings with rear or side extension that comply with URA conservation requirements, the conserved portion of the building is exempted from parking provision. However, the extension is subject to normal parking requirements. A sample computation of the parking requirement for a conserved building with rear extension is illustrated in [Appendix C](#).

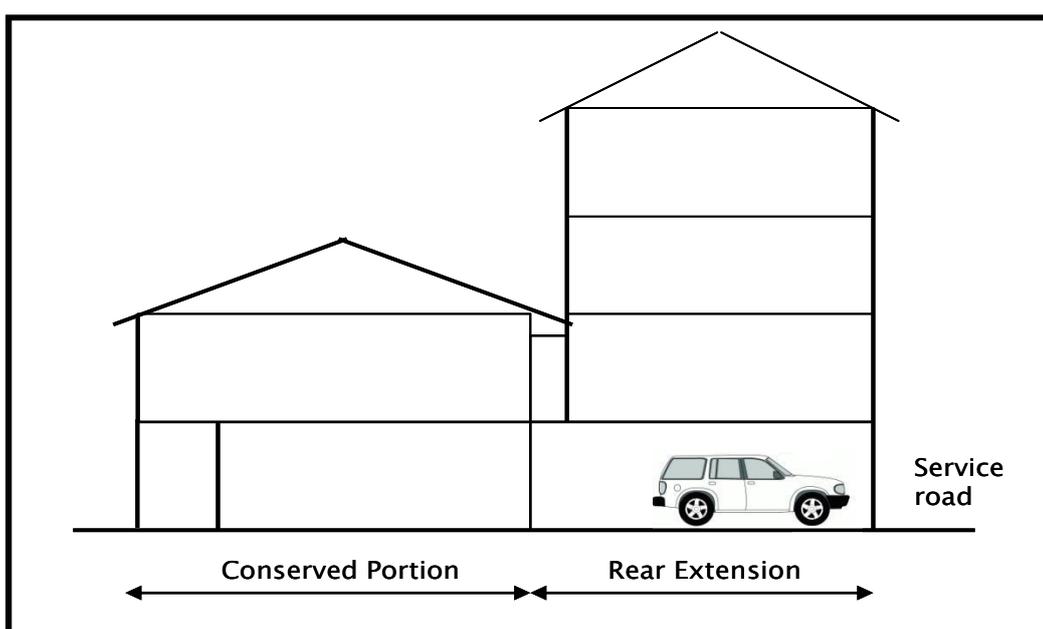


Fig 1.1 Conserved building with rear extension

## 1.9 Review of Parking Provision

Developers/designers must make effort to comply with the parking standards within the development boundary. LTA has the discretion to review the parking provision for a development, below the lower bound, if it is satisfied that it is technically and physically impossible to make full parking provision. The QP / developer shall also demonstrate that the deficiency would not result in illegal/indiscriminate parking.

For provision of parking lots above the upper bound, the developer must provide justifications for the overprovision. Information such as nature of business, staff population, visitorship, parking / travel demand management measures, traffic & parking impact study, etc. shall be submitted for evaluation.

Application to LTA for review of the parking provision should be made prior to submission of the proposed development to the Competent Authority for approval. QPs are to keep developers informed of any application to review the requirements. To ensure that developer accepts the application, a letter of undertaking according to LTA's standard format by the developer is to accompany the application.

Please refer to Chapter 5 for submission procedure for application for review of the number of parking lots to be provided.

If the application to review the parking provision is accepted by the Authority, the developer is required to pay a deficiency charge as shown in Table 1.1.

<b>Types of Parking Lots</b>	<b>Deficiency Charge</b>
Car Parking Lots	\$16,000 per lot
Motorcycle Parking Lots	\$5,500 per lot
Lorry, Loading & Unloading Bay and Coach Parking Lots	\$40,000 per lot
Bicycle Parking Lots	\$580 per lot

Table 1.1 : Rates of Deficiency Charge

Where temporary written permission is granted by the Competent Authority, the deficiency charge payable for non-provision of the required parking lots is 20% of the full charge for each year or part thereof of the written permission up to 5 years.

## CHAPTER 2: PARKING LAYOUT DIMENSIONS

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### Overview

The Parking Places (Provision of Parking Places and Parking Lots) Rules stipulate the minimum parking layout dimensions for cars, heavy vehicles, motor-cycles and bicycles parking places. When designing a parking place, QPs must ensure that all the geometric dimensions are complied with. Where necessary, provision in excess of the minimum dimensions should be made to meet the actual parking needs of the development.

Columns, ducts, services and other items that would affect the standard parking dimensions must be clearly indicated on the plans. These items, in a completed/constructed parking place, must not hinder the minimum dimensions specified in the Rules. QPs should also consider the good practices in Chapter 4 in their design and implementation of the parking place.

<b>Terminology</b>	<b>Definitions</b>
<b>Accessway</b>	refers to a driveway that provides access to the parking place. Accessway do not have adjacent parking lots.
<b>Clearway ramps</b>	are inclined floors that provide access between two levels. Clearway ramps do not have parking lots adjacent to them.
<b>Inside lane of curve</b>	is to the innermost lane, nearest to the centre point of curve.
<b>Inside radius of lane</b>	of curved accessway and driveway is the distance measured from the inside curve edge to the centre point of the curve.
<b>Multi-lane</b>	is where more than one vehicle can pass through at any given time and there is no physical separation/divider, such as kerbs, railings, parapets or walls, between the lanes.
<b>Maximum gradient</b>	is the steepest gradient of ramp measured along the centre line of the lane.

<b>Outside lane of curve</b>	refers to any lane positioned after the innermost lane.
<b>Parking Lot</b>	refers to the space for parking of one vehicle. The parking lot should be rectangular, with the longer side known as length and the shorter side is the width. In parallel parking, the longer side is parallel to the parking aisle or driveway.
<b>Parking aisle</b>	refers to an access lane or driveway with adjacent parking lots.
<b>Parking angle</b>	is the angle measured between the longer side of the parking lot and the line of traffic flow of the aisle.
<b>Parking ramps</b>	are inclined floors that provide access to adjacent parking lots. These are sloping aisles with parking lots adjacent to them.
<b>Single-lane</b>	is a lane where only one vehicle can pass through at any given time.
<b>Traffic Flow</b>	refers to the direction of vehicle movement.

## 2.1 Car Parking Places

### 2.1.1 Minimum dimensions of parking lots

The minimum dimensions required of a car parking lot are as follows:

Width	2.4m
Length	4.8m
Length for parallel parking	5.4m

The area of each lot shall be flat and free from kerbs and other encumbrances.

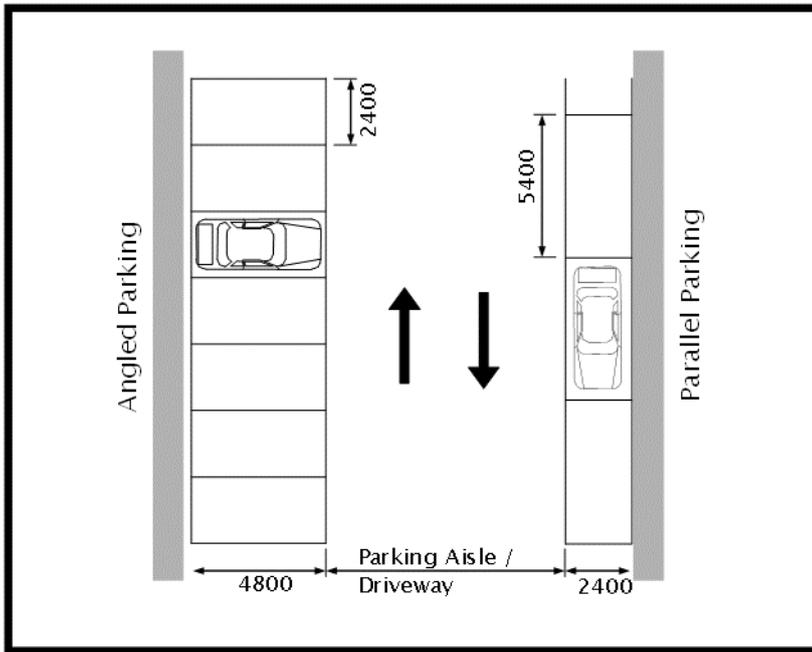


Fig 2.1.1a Minimum Dimensions of Car Parking Lots

Where there is an object or obstruction, adjacent to a lot, located within the middle 2800mm of the parking length, the parking lot shall be widened. If the obstruction is on one side, the minimum lot width shall be 2700mm. If the obstruction is on both sides, then the minimum lot width shall be 3000mm. Any large element above 175mm such as columns, walls or ducts constitutes an obstruction.



Fig 2.1.1b Parking lot obstructed by a wall

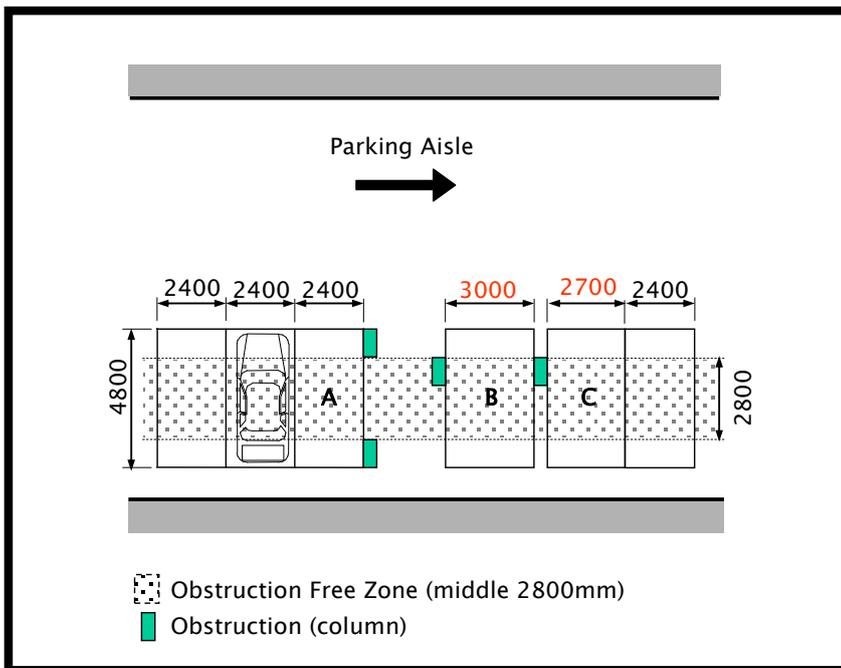


Fig 2.1.1c Parking lots with adjacent obstructions

Lot A: without any obstruction within Obstruction Free Zone

Lot B: with obstruction on both sides

Lot C: with obstruction on one side

For parallel parking, where cars cannot be parked by reversing, minimum lot length must be 7.2 m. Where a lot is adjacent to any obstruction, the minimum lot length must be 6.0 m as shown in Fig 2.1.1d.

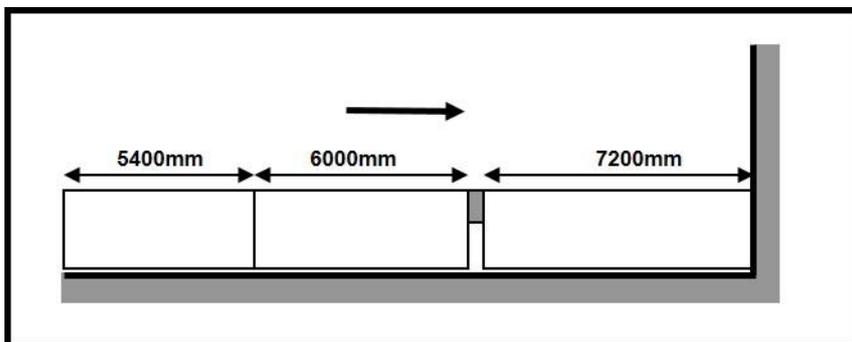


Fig 2.1.1d Width of parallel parking lots

Motorists tend not to park their cars completely inside a parking lot. In areas where parking lots are designed perpendicularly to each other, this would restrict the cars from moving off or it becomes impossible for the lot to be occupied. To avoid such undesirable situations, perpendicular parking lots shall have 300mm gaps vertically and horizontally as shown in Fig 2.1.1e and Fig 2.1.1f.

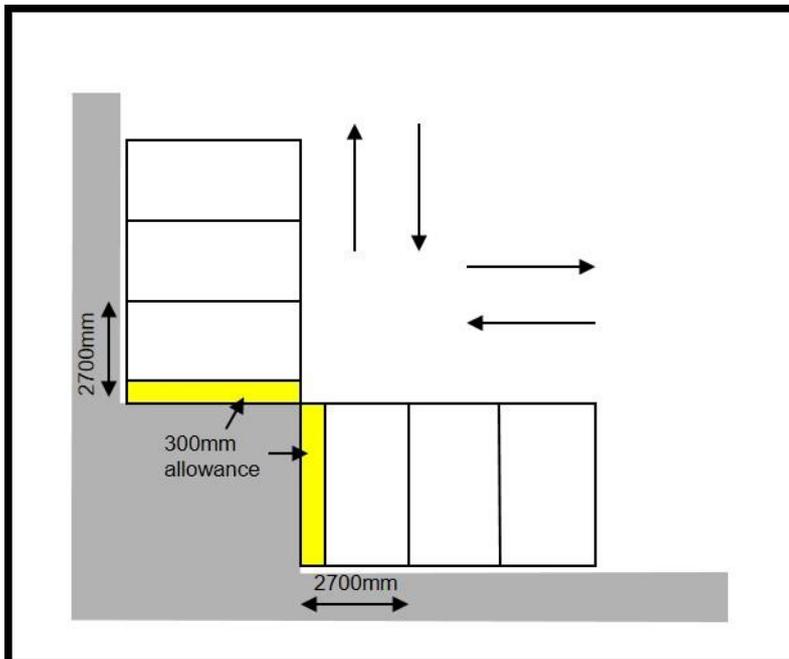


Fig. 2.1.1e Plan showing increase width of perpendicular lots

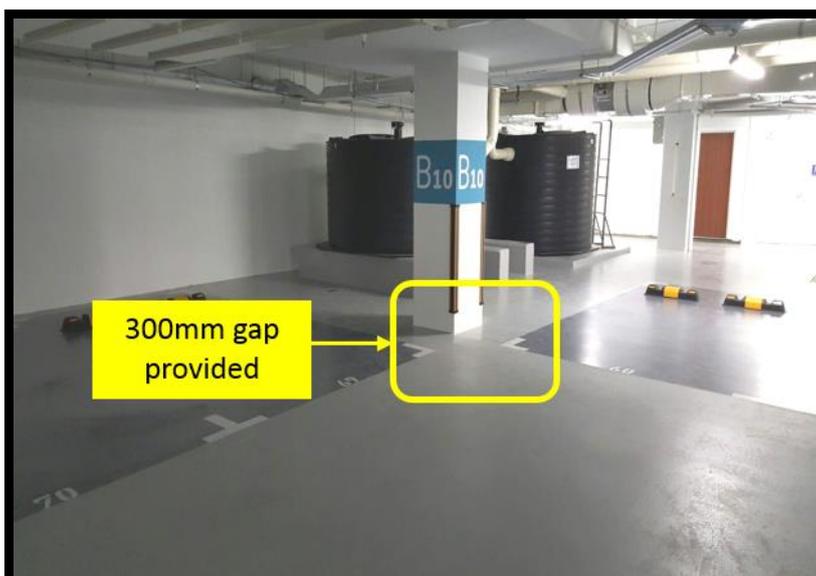


Fig. 2.1.1f Increase width of perpendicular lots

Dead-end aisles should be avoided wherever possible, as manoeuvring and parking at those corner-ends would be difficult for drivers. If dead end aisles cannot be avoided, the end-lot shall be widened to 3000mm to facilitate parking.

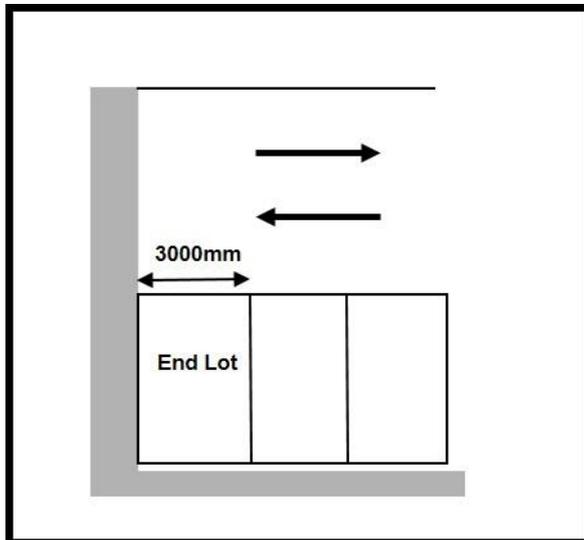
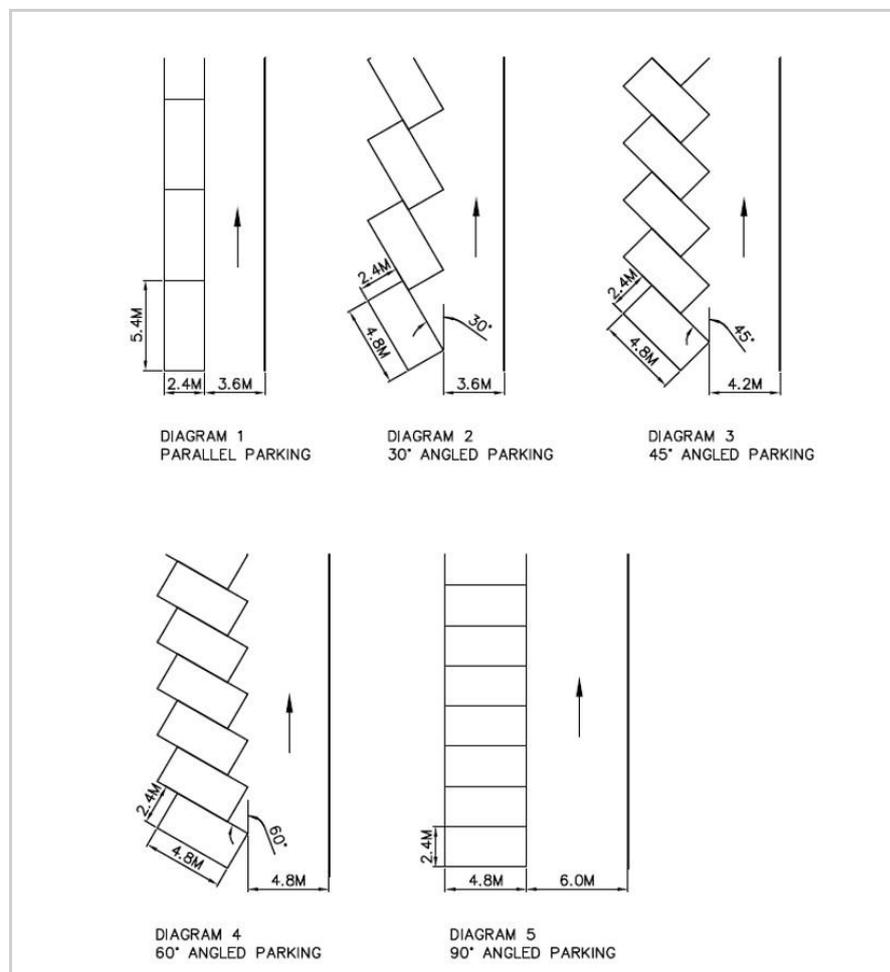


Fig 2.1.1g Increase width of end-lot

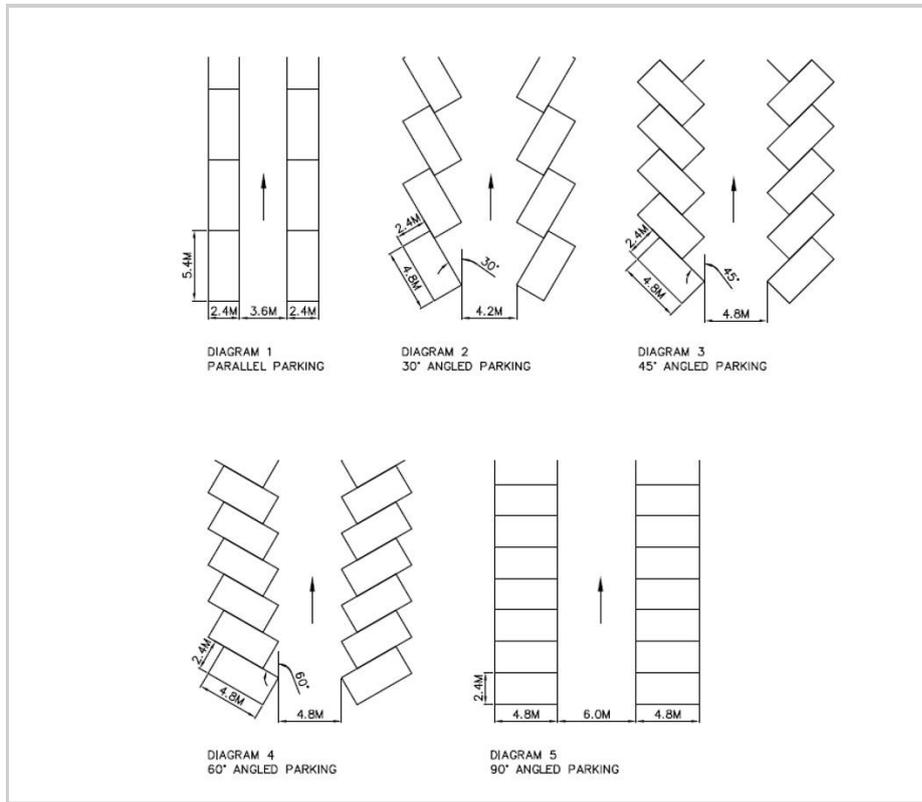
## 2.1.2 Minimum Width of Parking Aisle

The minimum width of parking aisle shall be as follows:

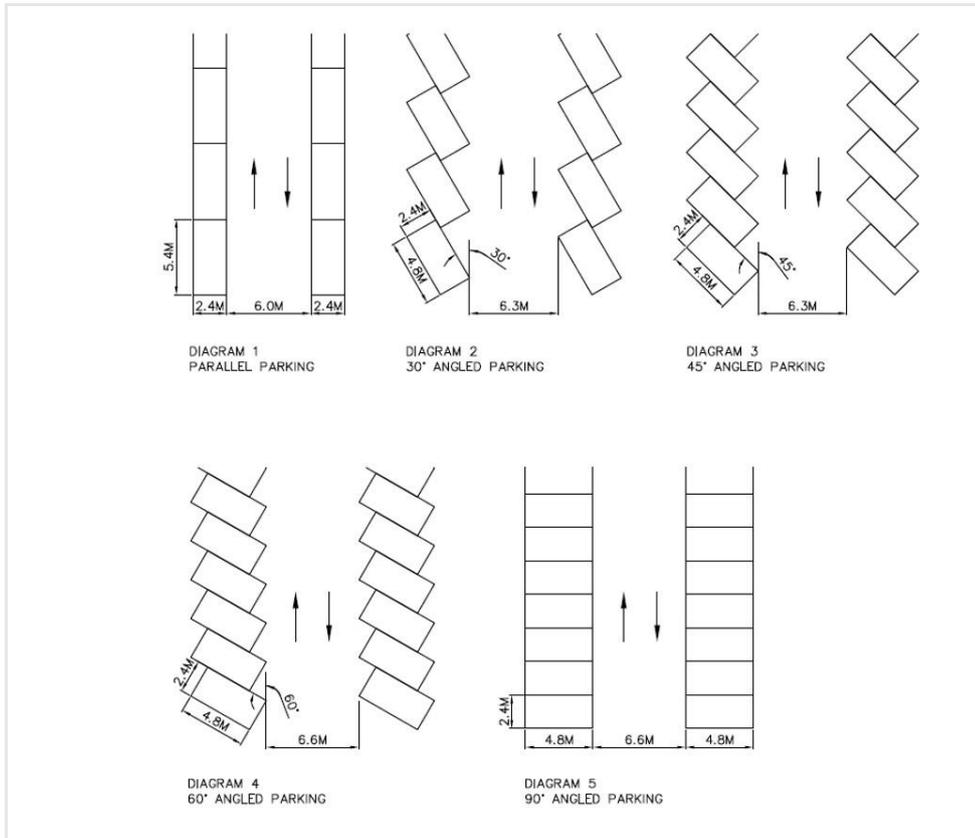
Parking Angle	1-way Traffic Flow		2-way Traffic Flow
	Bays on 1 side	Bays on 2 sides	Bays on 1 or 2 sides
Parallel	3600mm	3600mm	6000mm
30°	3600mm	4200mm	6300mm
45°	4200mm	4800mm	6300mm
60°	4800mm	4800mm	6600mm
90°	6000mm	6000mm	6600mm



BAYS ON 1 SIDE — 1-WAY TRAFFIC



**BAYS ON 2 SIDES — 1-WAY TRAFFIC**



**BAYS ON 2 SIDES — 2-WAY TRAFFIC**

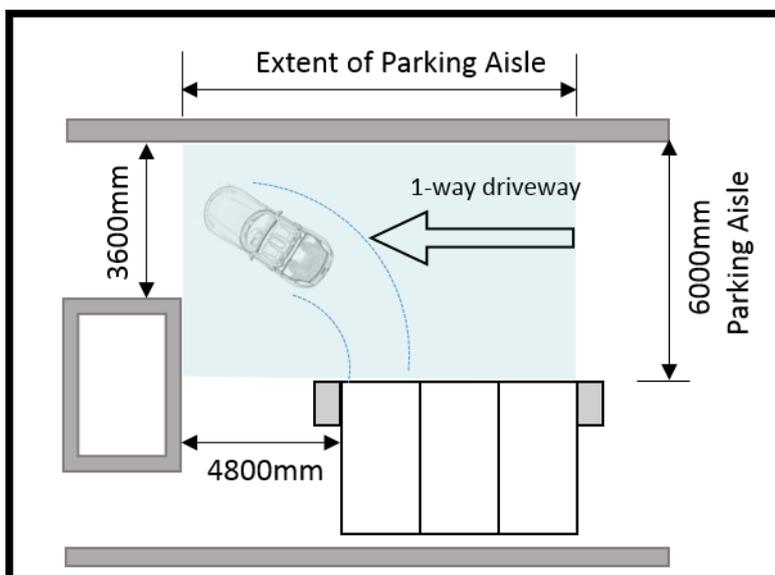


Fig 2.1.2a Extent of parking aisle

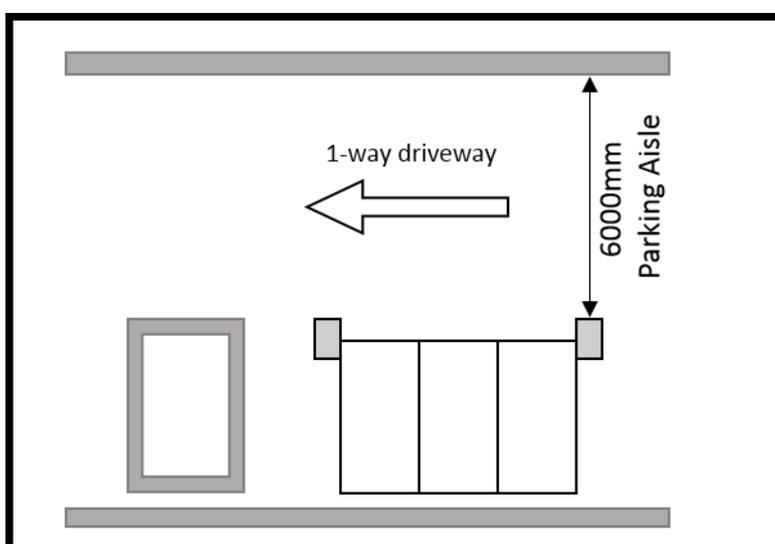


Fig 2.1.2b Clear width of parking aisle

### 2.1.3 Minimum dimensions of Clearway Ramps and Accessways

	Single-lane	Multi-lanes
Width of straight clearway ramp and accessway	3600mm	3000mm per lane
Width of inside lane of curved clearway ramp and accessway	4200mm	3600mm per lane
Width of outside lane of curved clearway ramp and accessway	4200mm	3300mm per lane
Inside radius of curved clearway ramp and accessway	4500mm	
Gradient of clearway ramp and accessway	1:10 (10%) Preferred 1:8.3 (12%) Maximum	

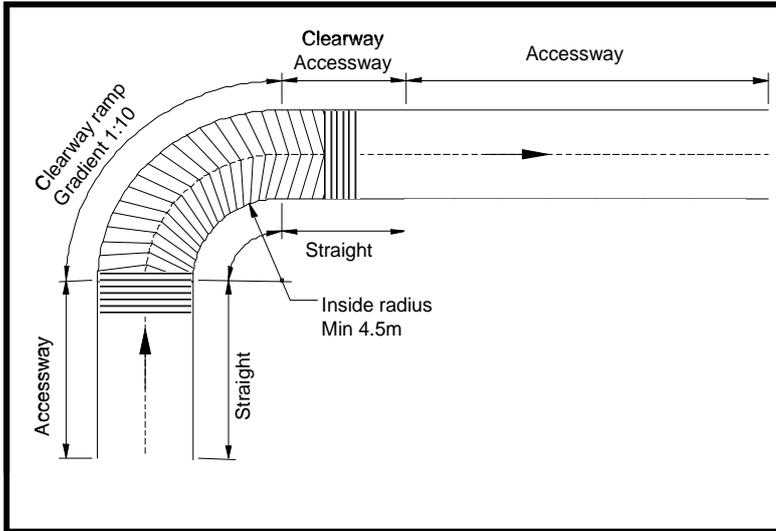


Fig 2.1.3a Example of clearway ramp and accessway

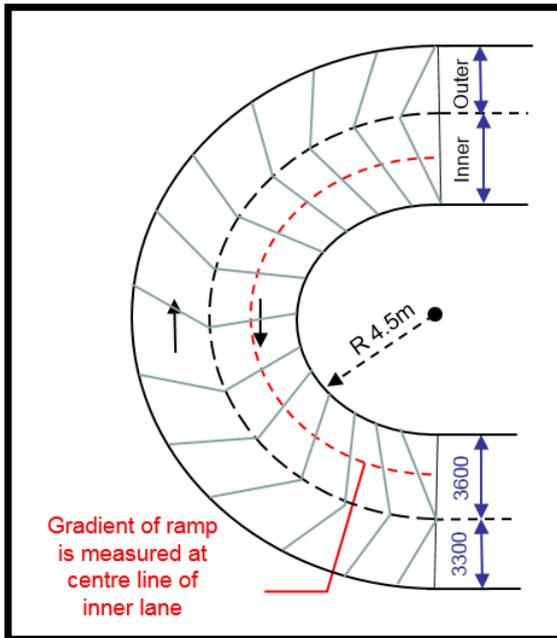


Fig 2.1.3b For multi-lane, the gradient is measured along the centre-line of inner lane

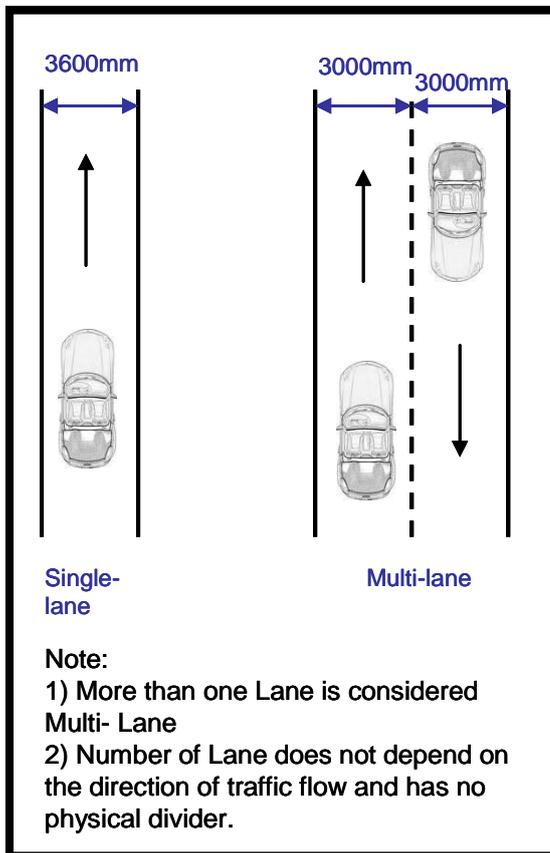


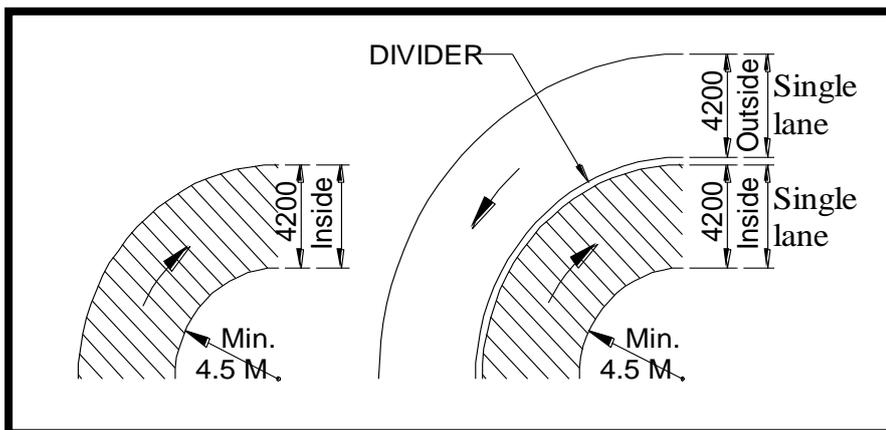
Fig 2.1.3c Example of straight, single & multi-lanes



Fig 2.1.3d Example of a single, straight lane



Fig 2.1.3e Example of a straight, multi-lane



NOTE:  
More than one Lane without physical separation  
is considered as Multi Lane and It doesn't depend  
on direction of traffic flow

 Inside Single - Lane

Fig 2.1.3f Example of curved, single & multi-lanes



Fig 2.1.3g Example of a single, curved lane

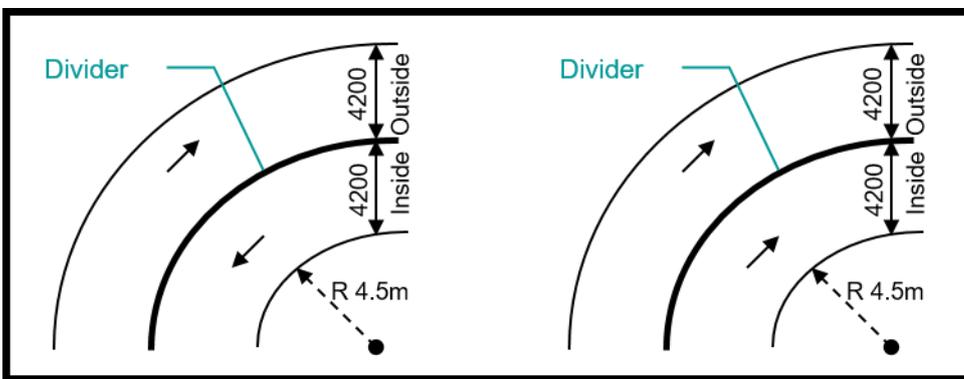


Fig 2.1.3h Example of curved, single-lane separated by physical divider

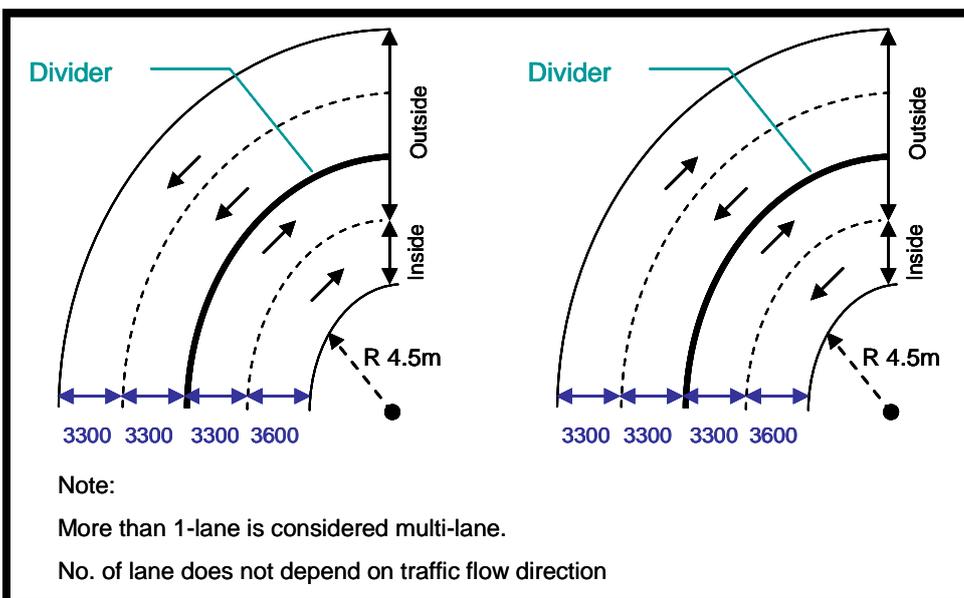


Fig 2.1.3i Example of curved, multi-lane separated by physical divider

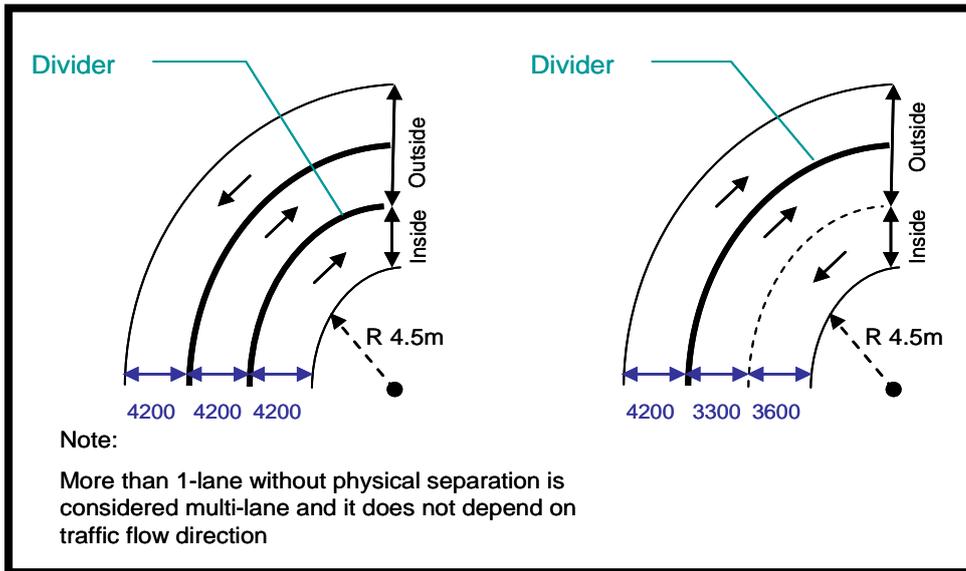


Fig 2.1.3j Example of curved, outside single-lane separated by physical divider

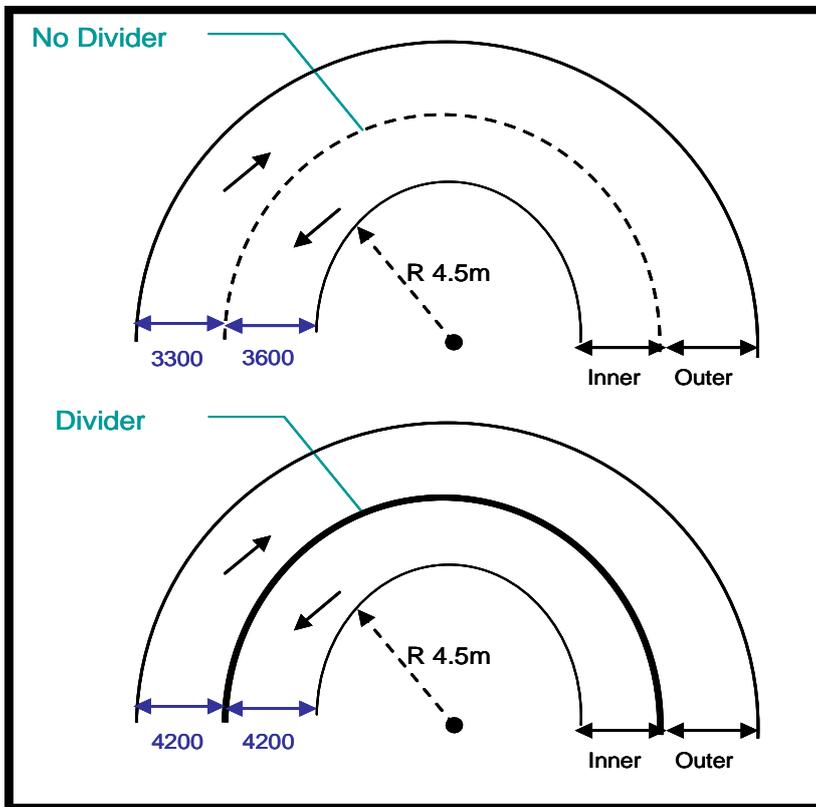


Fig 2.1.3k Example of U-turns

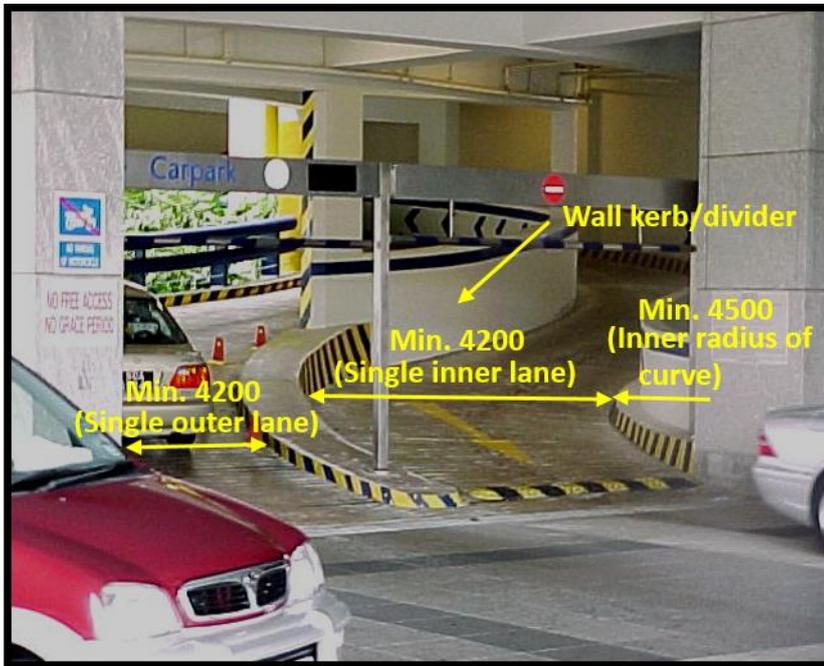


Fig 2.1.3l Example of single, curved lanes

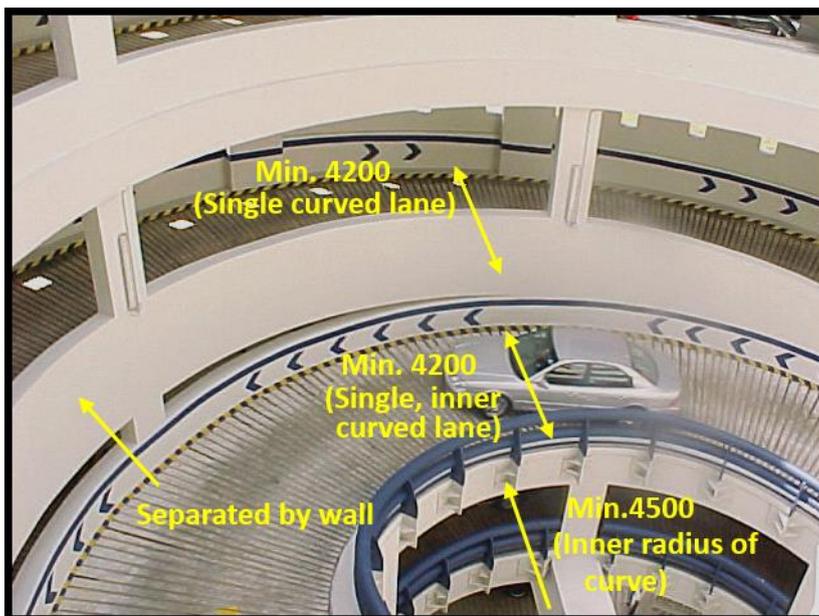


Fig 2.1.3m Example of single curved lanes

Where a curve ramp/driveway meets a straight ramp/driveway, the joint must be extended beyond the tangent point of the curve. Adequate transition of ramp grades at floor levels shall be provided.

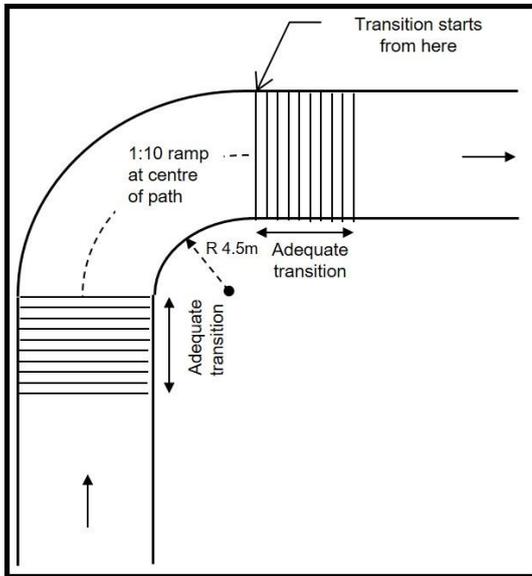


Fig 2.1.3n Transition at the start & end of a ramp

### 2.1.4 Minimum dimensions of adjacent parking ramps (sloping floor)

The gradient of parking ramps shall preferably be 1:25 (4%) and the maximum gradient shall not be steeper than 1:20 (5%).

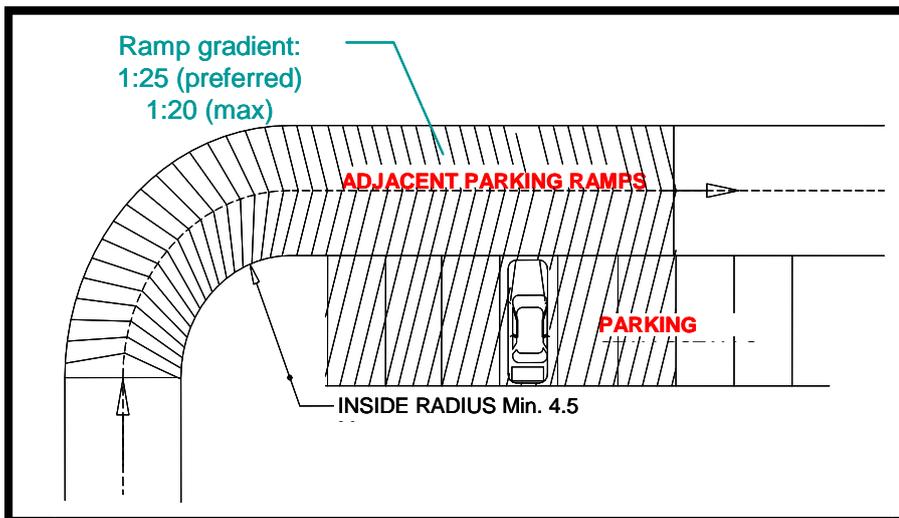


Fig 2.1.4a Example of a parking ramp

### 2.1.5 Minimum headroom

The minimum headroom or height clearance from floor level to the underside of any projections including beams, direction signs, sprinkler heads, electrical fittings, etc shall be 2200mm.

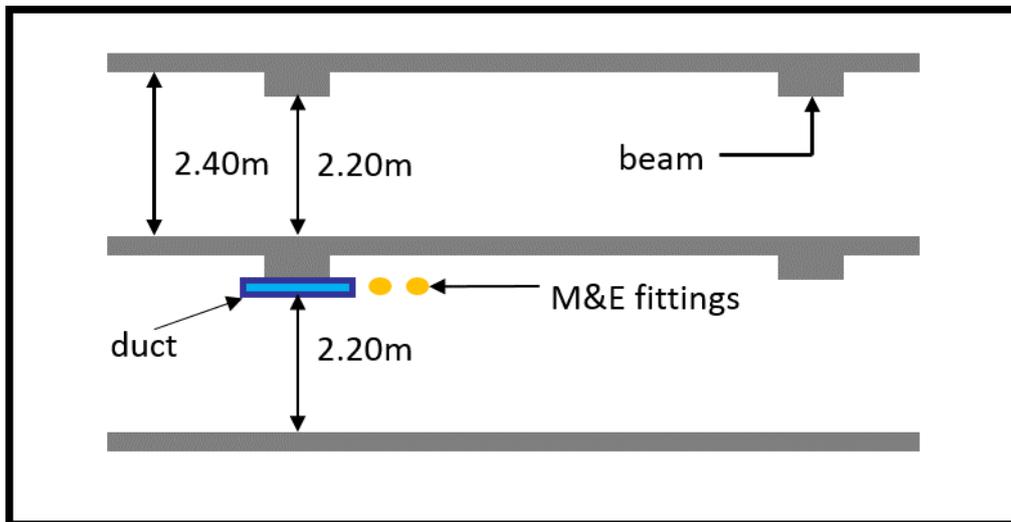


Fig 2.1.5a Minimum headroom clearance



Fig 2.1.5b Example of minimum headroom clearance

## 2.2 Heavy Vehicle Parking Provision

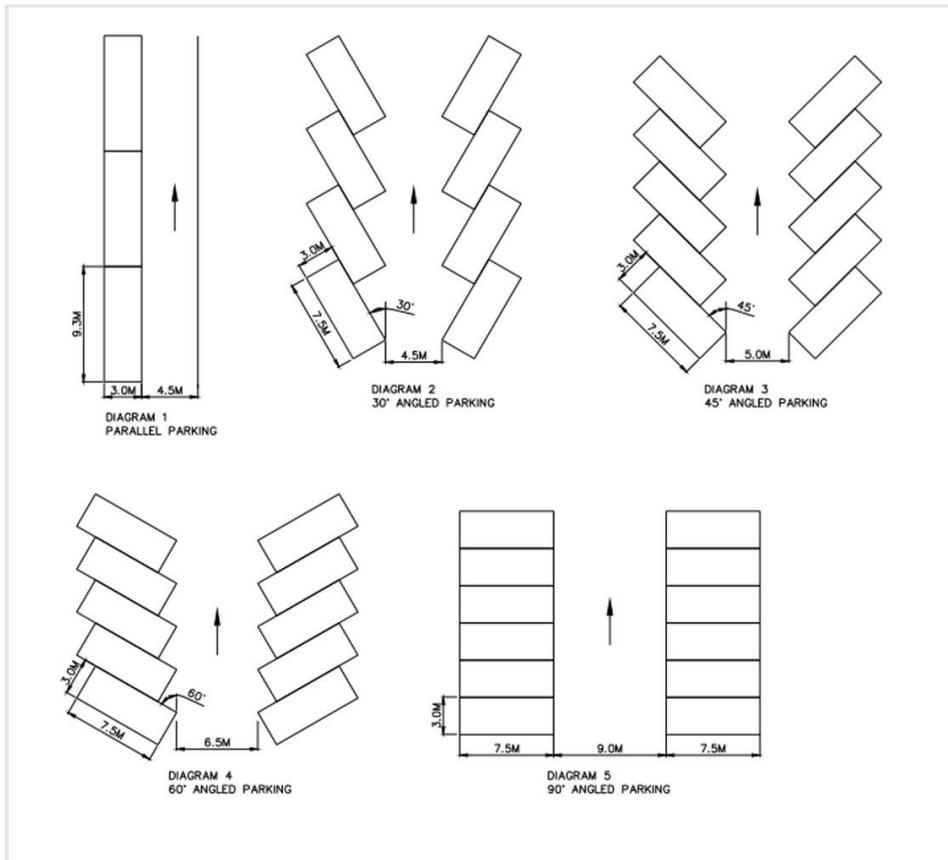
Heavy vehicle parking provision refers to lorry, coach and loading & unloading bays required under the Rules. They are categorised into three groups:

- a) Rigid-framed vehicles of length < 7.5m
- b) Rigid-framed vehicles of length > 7.5m
- c) Articulated vehicles (eg. prime movers, 20',40' & 45' trailers)

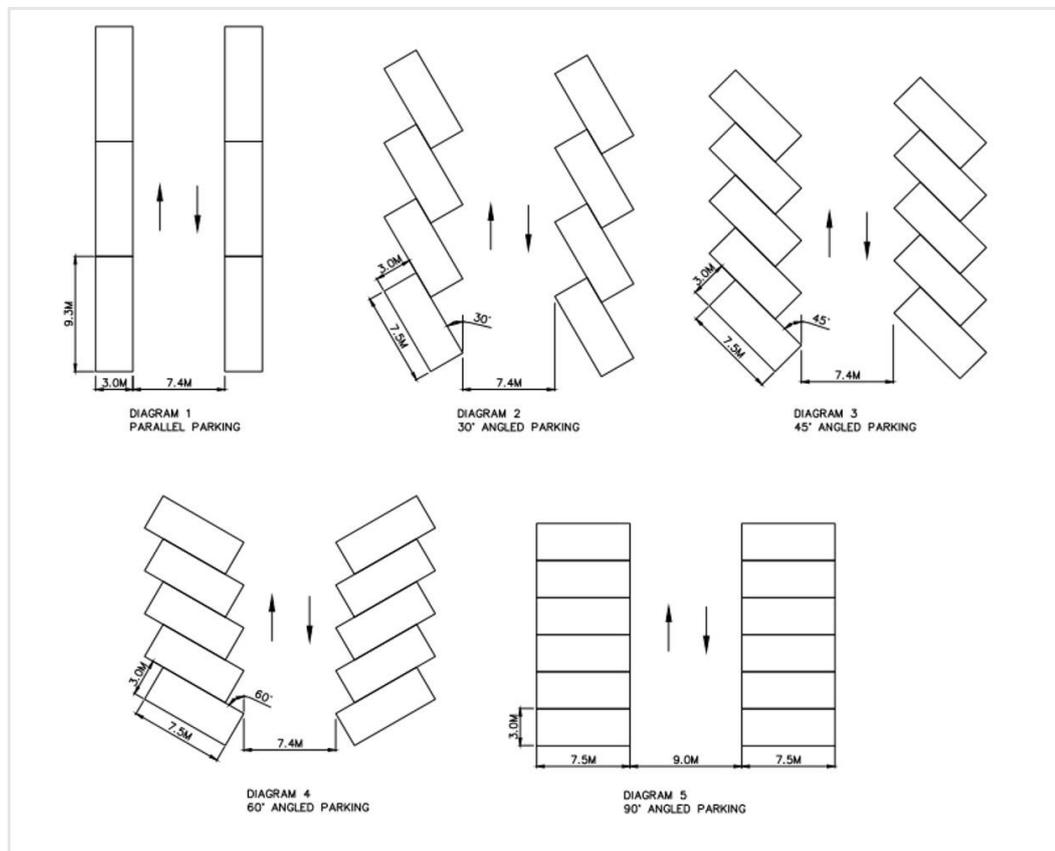
## 2.2.1 Minimum Dimensions for heavy vehicle parking

Items	Rigid-framed vehicles of length < 7.5m		Rigid-framed vehicles of length $\geq$ 7.5m		Articulated vehicles (eg. prime movers, 20',40' & 45' trailers)	
<b>a) Parking lot:</b> Parallel parking Angled parking	9.3m x 3.0m 7.5m x 3.0m		14.0m x 3.3m 12.0m x 3.3m		19.0m x 3.3m 14.0m x 3.3m	
<b>b) Width of parking aisle:</b> Parallel parking 30°-parking 45°-parking 60°-parking 90°-parking	<u>1-Way</u>	<u>2-Way</u>	<u>1-Way</u>	<u>2-Way</u>	<u>1-Way</u>	<u>2-Way</u>
	4.5m	7.4m	4.5m	7.4m	4.5m	7.4m
	4.5m	7.4m	4.5m	7.4m	7.0m	7.4m
	5.0m	7.4m	5.5m	7.4m	9.5m	9.5m
	6.5m	7.4m	7.0m	7.4m	11.0m	11.0m
	9.0m	9.0m	11.0m	11.0m	12.0m	12.0m
<b>c) Width of Accessway:</b> On Straight	<u>1-way</u>	<u>2-way</u>	<u>1-way</u>	<u>2-way</u>	<u>1-way</u>	<u>2-way</u>
	4.5m	7.4m	4.5m	7.4m	4.5m	7.4m
On Curve	5.5m per lane		7.5m per lane		9.0m per lane for 40' & 45' trailer  6.0m per lane for 20' trailer	
<b>d) Inner turning radius of curve</b>	6.0m		6.0m		6.0m	
<b>e) Maximum gradient of ramp:</b> Straight ramp Curved ramp	1:12 1:15		1:12 1:15		1:15 1:20	
<b>f) Headroom clearance</b>	4.2m		4.2m		4.5m (4.75m at ramps)	

RIGID-FRAMED VEHICLES OF LENGTH < 7.5:

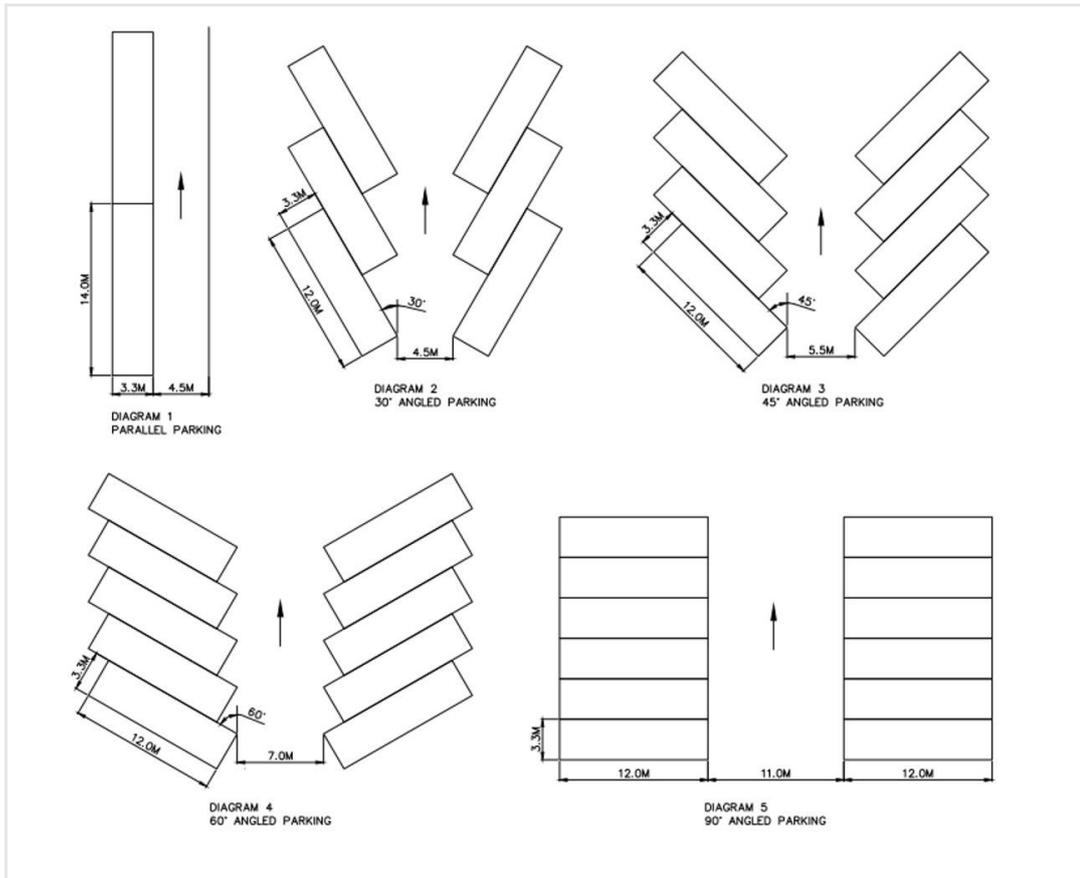


1-WAY TRAFFIC

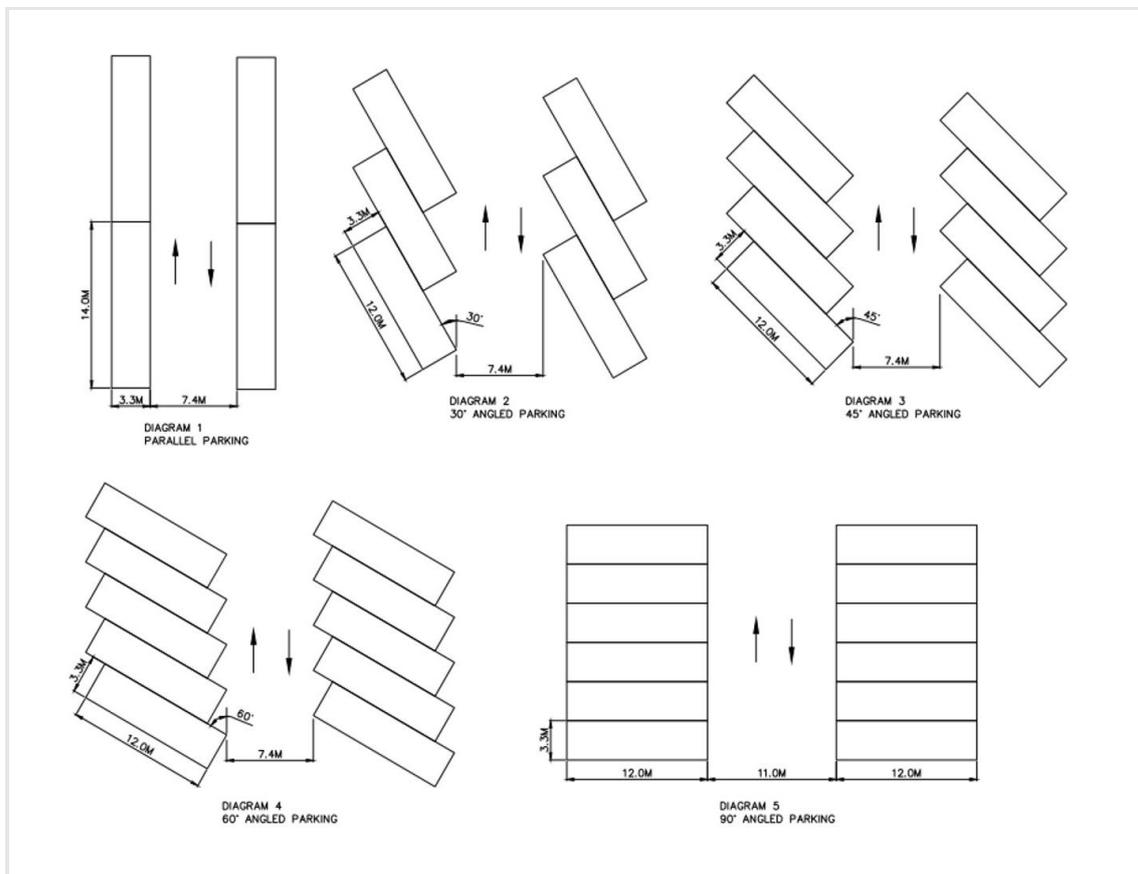


2-WAY TRAFFIC

## RIGID-FRAMED VEHICLES OF LENGTH $\geq 7.5\text{M}$

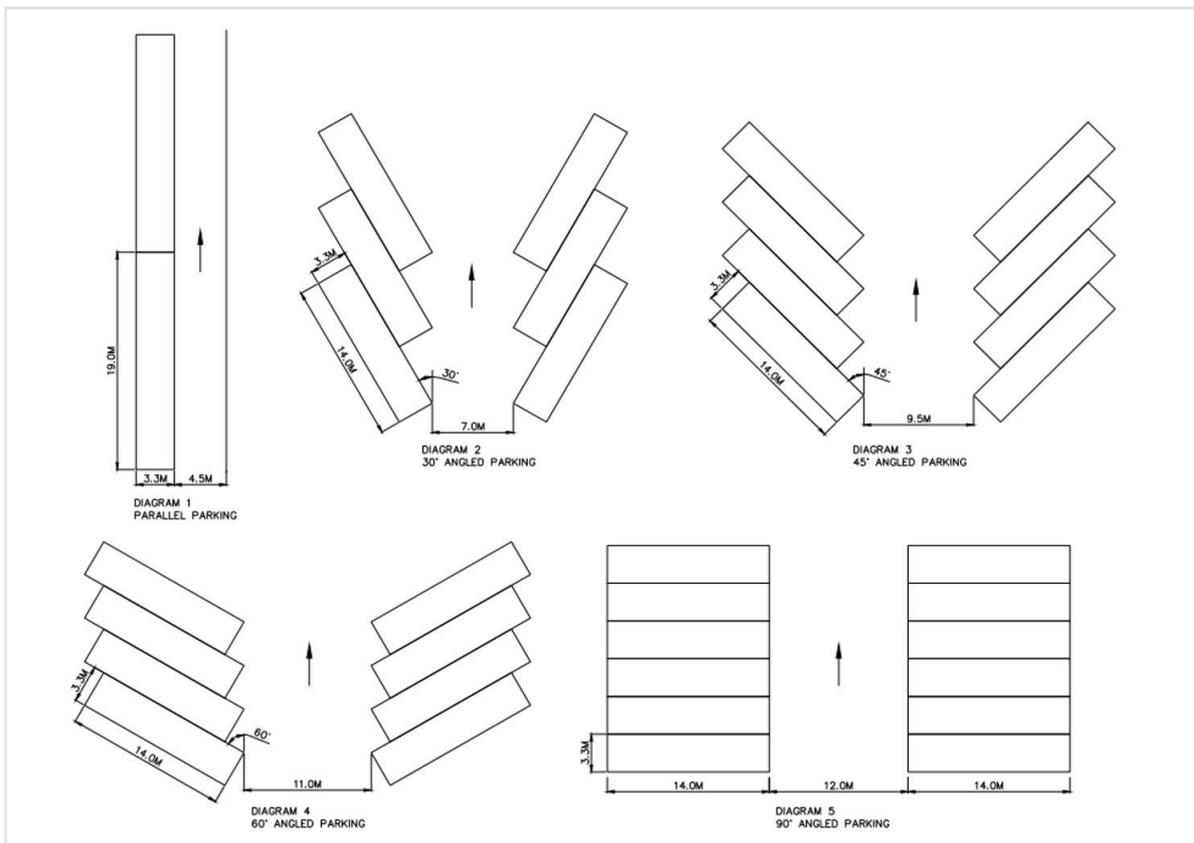


1-WAY TRAFFIC

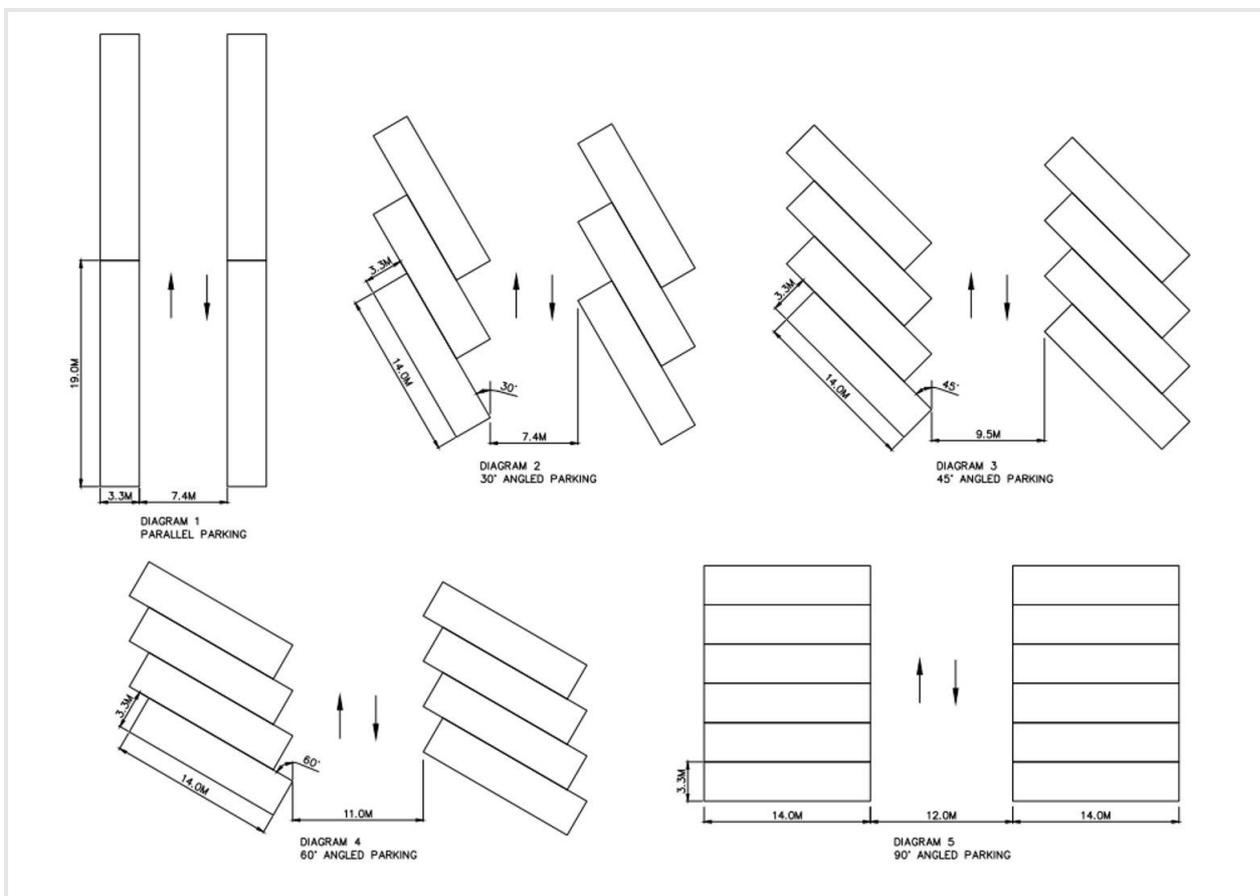


2-WAY TRAFFIC

ARTICULATED VEHICLES (EG. PRIME MOVERS, 20',40' & 45' TRAILERS)



1-WAY TRAFFIC



2-WAY TRAFFIC

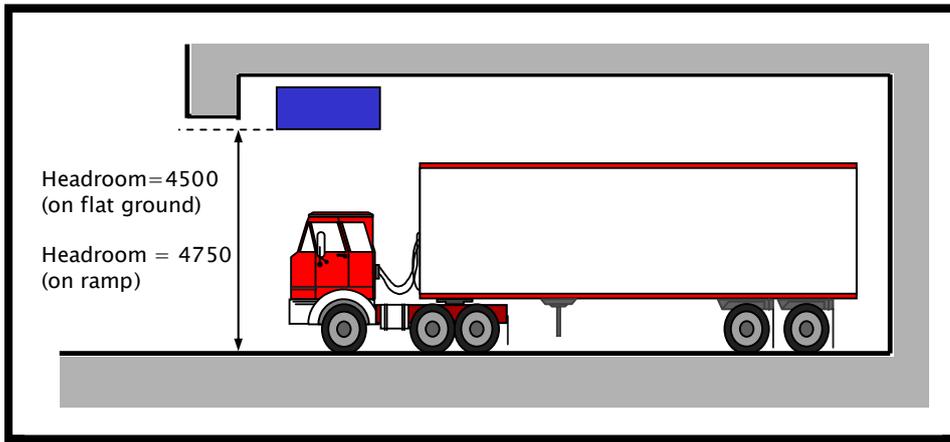


Fig 2.2.1a Headroom for clearance articulated heavy vehicles (eg. prime movers, 20', 40' & 45' trailers)

Heavy vehicles require a wider turning path, unlike cars. Due consideration shall be made to ensure that wider lane shall be provided for the entire curved path before gradually returning to the straight path. An example is shown in Fig 2.30.

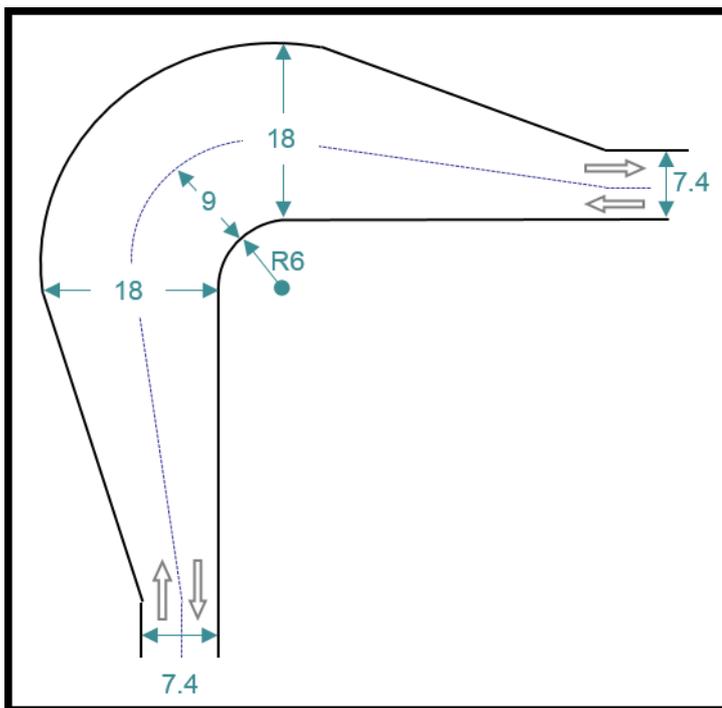


Fig 2.2.1b Driveway design for heavy vehicles

### 2.3 Motor-cycle Parking Provision

	Minimum	Preferred
Width	800mm	1000mm
Length	2400mm	2500mm

Developers are required to provide motor-cycle parking within their developments. These motor-cycle lots can be provided at corners or any available space within the parking place, preferably isolated from car parking. The lots should not obstruct movement of other vehicles and pedestrians. If provided next to car parking lots, it is recommended that a gap of 500mm be provided between car and motor-cycle lots.

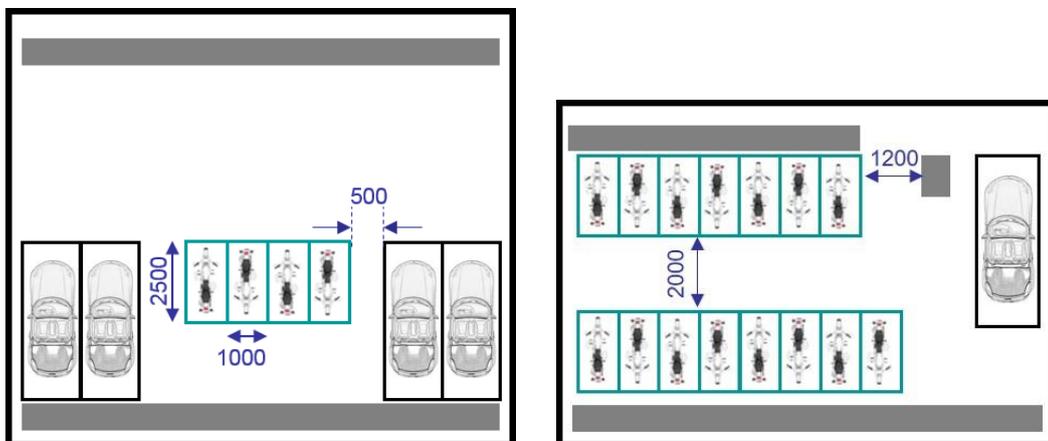


Fig 2.3.1a Preferred dimensions of motor-cycle lots



Fig 2.3.1b Example of motor-cycle adjacent to car lot



Fig 2.3.1c Parking aisle for motor-cycle

## 2.4 Bicycle Parking Provision

Bicycle parking lots shall be ideally located at visible and convenient spots, taking into consideration of any cycling paths in the vicinity. If there are constraints to consolidate all bicycle parking lots in one location, it is acceptable to propose more than one bicycle parking location within a development. There should be, at least, 10 bicycle parking lots within a location.

Bicycle parking lots shall be separated from the car park area, where possible. The route taken for cyclists to reach the bicycle parking lots shall avoid vehicular ramps and driveways.

A bicycle parking rack shall be provided for each bicycle parking lot and anchored to the ground so as to allow cyclists to lock their bicycles with ease. The rack should support the bicycle upright by its frame. Designers should consider high density bicycle parking racks, where possible. Otherwise, designers may follow the common designs of single-tier or double-tier bicycle parking racks.

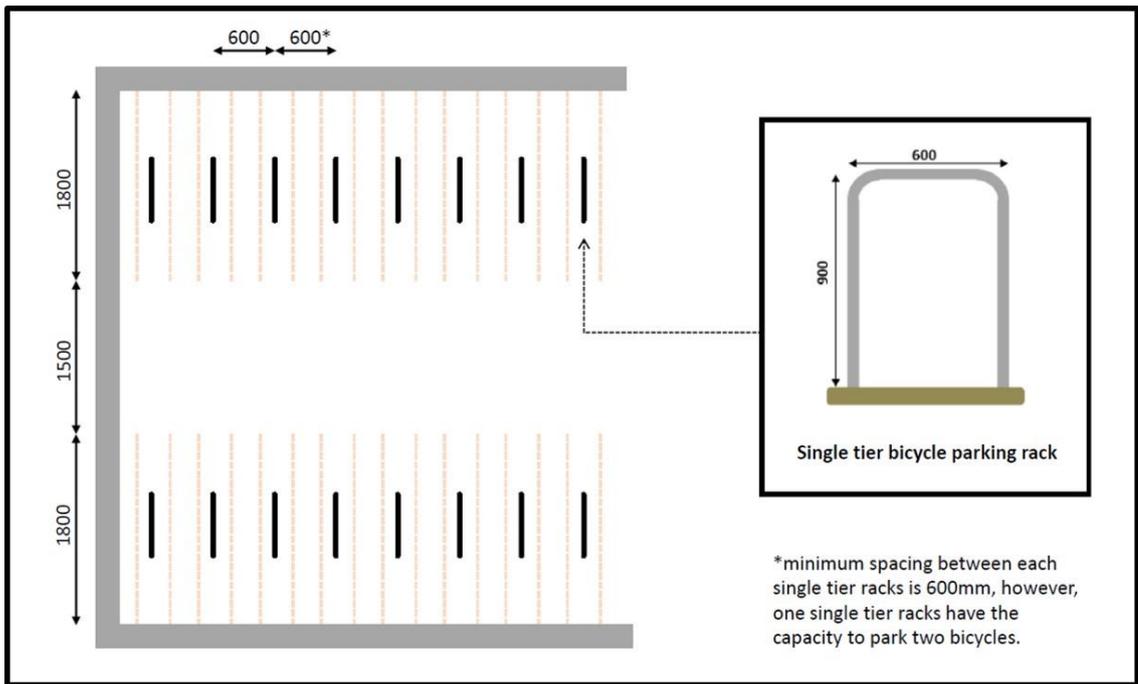


Fig 2.4a Single-tier bicycle parking layout

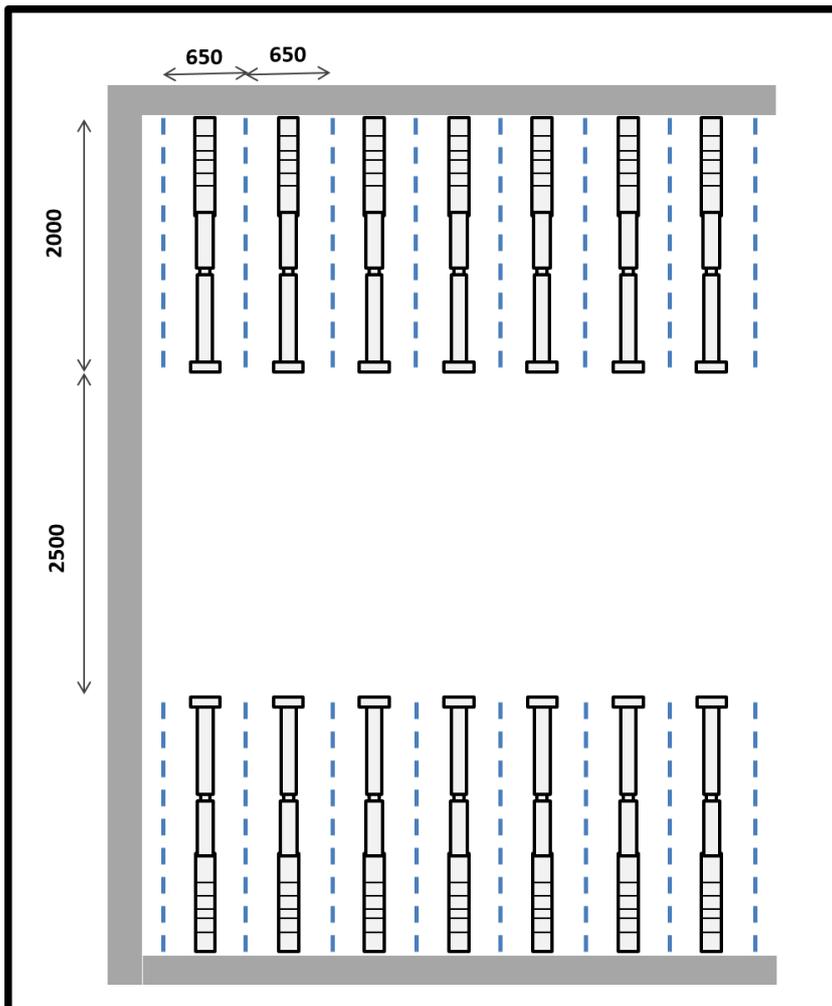


Fig 2.4b Double-tier bicycle parking layout

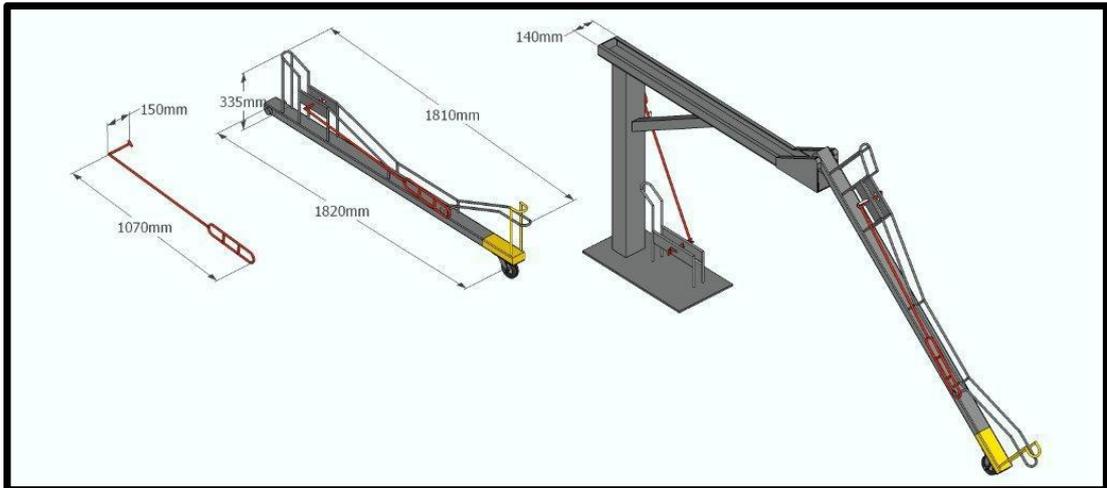


Fig 2.4c Double-tier bicycle parking rack

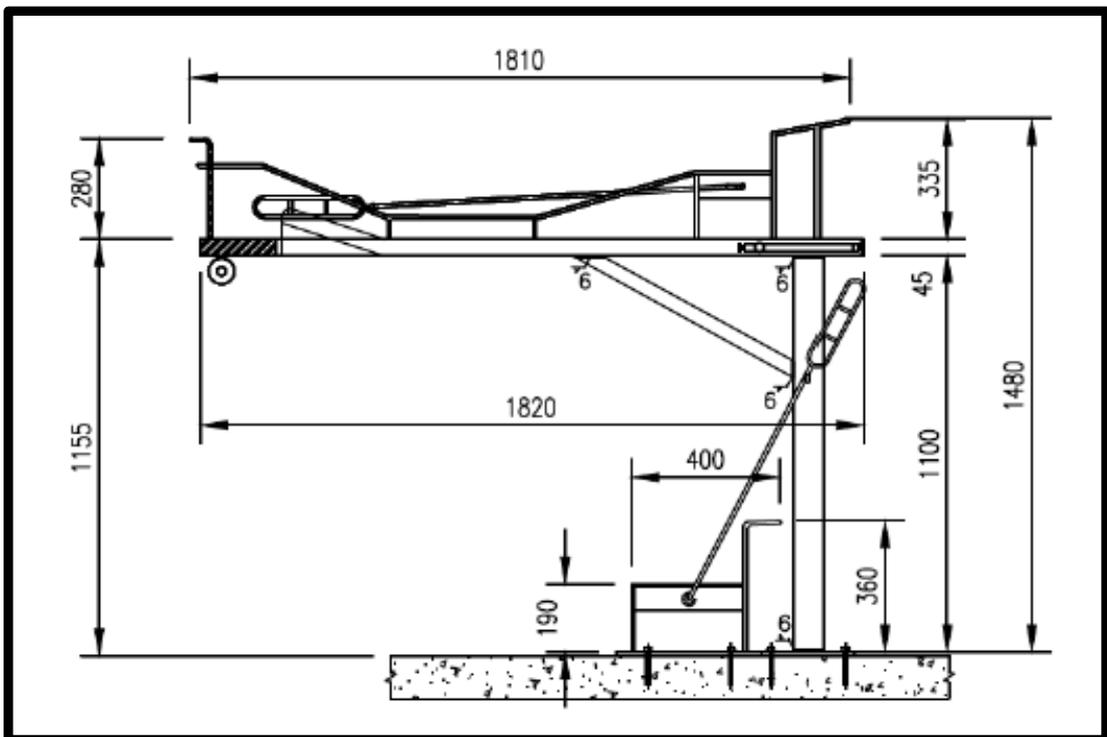


Fig 2.4d Double-tier bicycle parking rack dimensions

Providing end-of-trip facilities can improve user experience and promote the use of bicycles. Further details on end-of-trip facilities can be found in the section on Walking & Cycling Plan (WCP) found in the Code of Practice on Street Work Proposals Relating to Development Works.

## CHAPTER 3: MECHANISED PARKING SYSTEMS & CAR LIFTS

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### Overview

This part explains the guidelines for the provision of mechanised parking system and lifts in parking places. As mechanical systems evolve with time, the guidelines are general in nature. Each parking proposal would be evaluated on its merit.

The Authority does not regulate the mechanism of the parking system and car lifts.

### 3.1 General

Mechanised parking systems are an innovative solution to provide parking needs. In using mechanised parking systems, typically space used for ramps and driveway is significantly reduced. Designers should take into consideration the user experience in selecting the most appropriate system. Essentially, any mechanised system should provide an acceptable level of comfort and convenience to users.

Mechanised systems should, generally, not cause limitations to the type of cars that can use the system as compared to conventional parking lots. Developers should make known to purchasers or users upfront about the provision of mechanised parking in a development. All details and specifications of the proposed parking systems are to be stated in the Sales & Purchase Agreement.

Mechanised parking system can be broadly categorised under three groups:

- a. Fully–Automated Systems
- b. Vertical Systems
- c. Puzzle Systems

In fully-automated systems, a car is parked onto a platform in a car lobby. After the driver leaves the car lobby, the platform will transport the car automatically to an empty car storage space that is available within the mechanised parking area.

In vertical systems, cars are parked and then lifted vertically into storage spaces.

In puzzle systems, cars are parked on a platform at ground level. The top layer platforms can move up and down, lower layer platforms can move either left to right or up and down to position car into storage space.

Some examples of mechanised parking systems are given in Figures 3.1a to 3.1d.



Fig 3.1a Entry point of fully-automated system



Fig 3.1b Car storage space of a fully-automated system

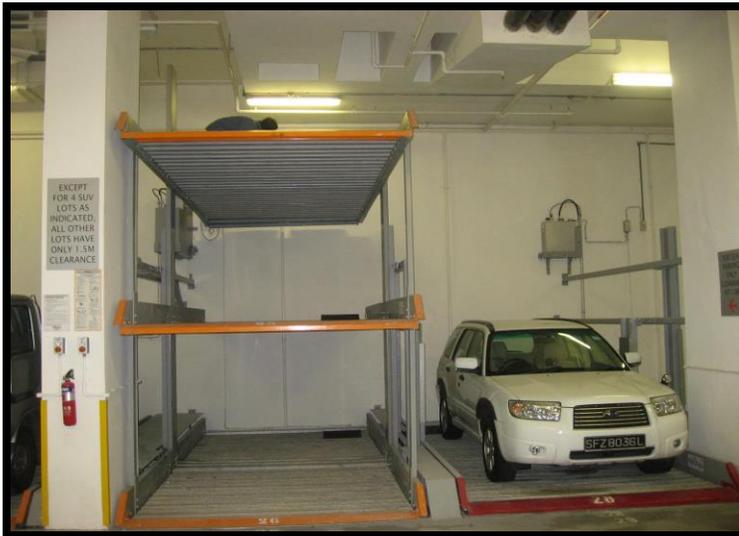


Fig 3.1c Stack-type vertical system

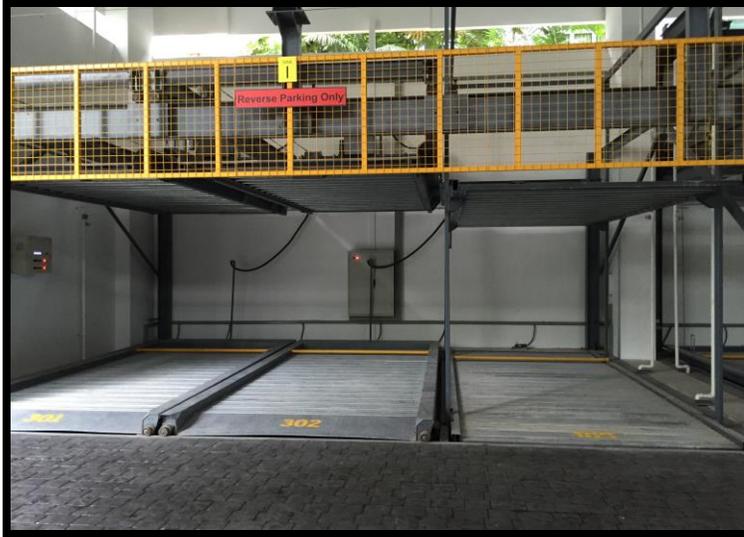


Fig 3.1d Puzzle-type system

## 3.2 Guidelines for mechanised parking places

These guidelines deal with the car parking provision and layout aspects. Notwithstanding the guidelines, each mechanised parking proposal shall be evaluated on its own merit. Designers would be required to seek clearances or approvals on other operational aspects of the system, such as fire system, security etc. from other relevant authorities.

### 3.2.1 Requirements for Fully-Automated Systems

Car lobby internal dimension	6.2m long x 3.0m wide
Entrance width	2.6m clear
Platform size	5.4m long x 2.4m wide
Headroom clearance	2.2m clear
Holding bay	At entrance and exit
Queuing spaces	5% of total car lots

Table 3.2.1 Requirement of Fully-Automated systems

- a. A holding bay in Figure 3.2.1a is required for fully-automated systems that require vehicles to enter or exit from a closed chamber.



Fig 3.2.1a Holding bay

- b. At the ingress, queuing spaces shall be provided. The queue length shall be sufficient to hold 5% of the total number of parking lots served by the mechanised system.
- c. Clearway access ramp up to the parking lot may be treated as a queuing space.

d. Entire queuing space should be within the premises of the development as shown in Fig 3.2.1 b.

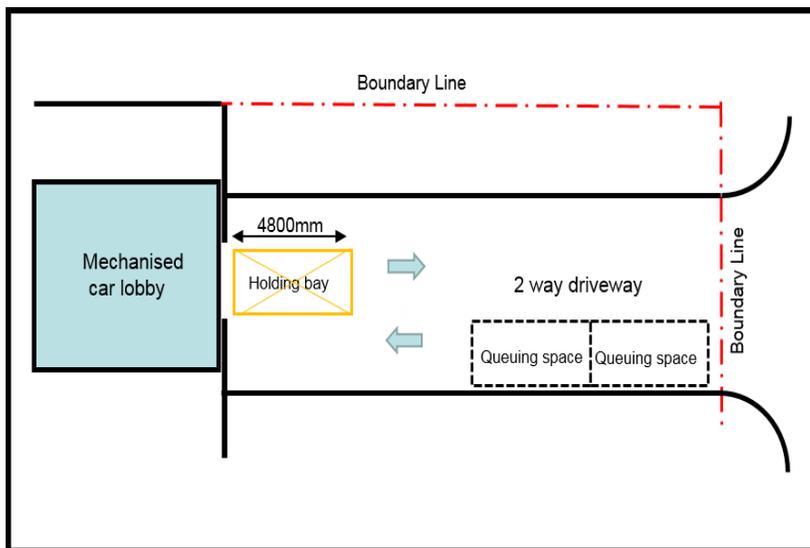


Fig 3.2.1b Queuing spaces to be within development boundary

### 3.2.2 Requirements for Stack & Puzzle Vertical Systems

Platform size (min)	5.4m long x 2.4m wide
Clear Width at entry/exit (min)	<ul style="list-style-type: none"> <li>- 2.4m (no obstruction)</li> <li>- 2.7m (obstruction on one side)</li> <li>- 3.0m (obstruction on both sides)</li> </ul>
Headroom clearance (min)	2.2m clear

Table 3.2.2 Requirements for stack & puzzle parking system

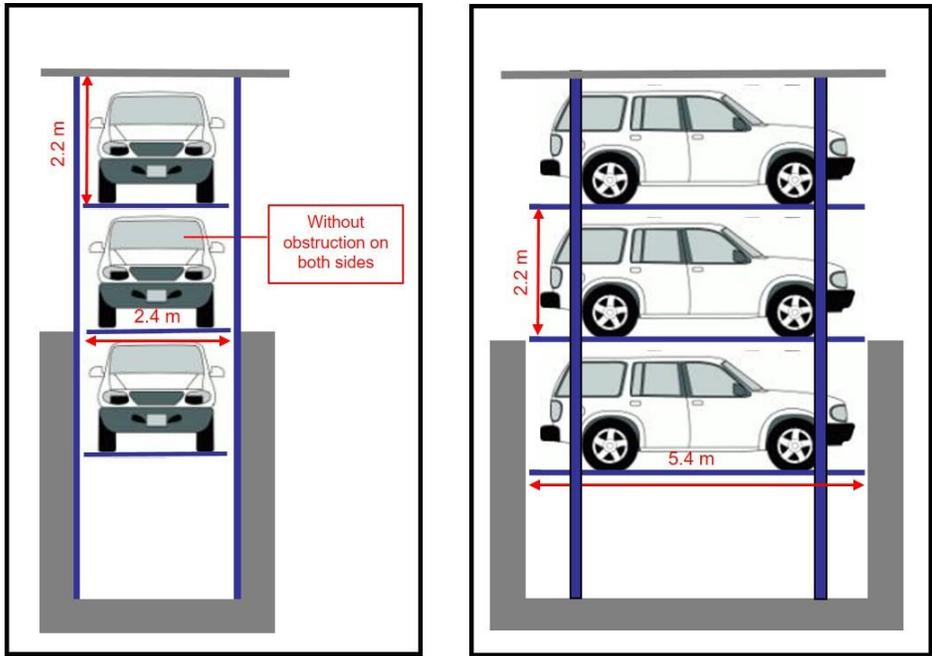


Fig 3.2.2a Critical dimensions for vertical parking system

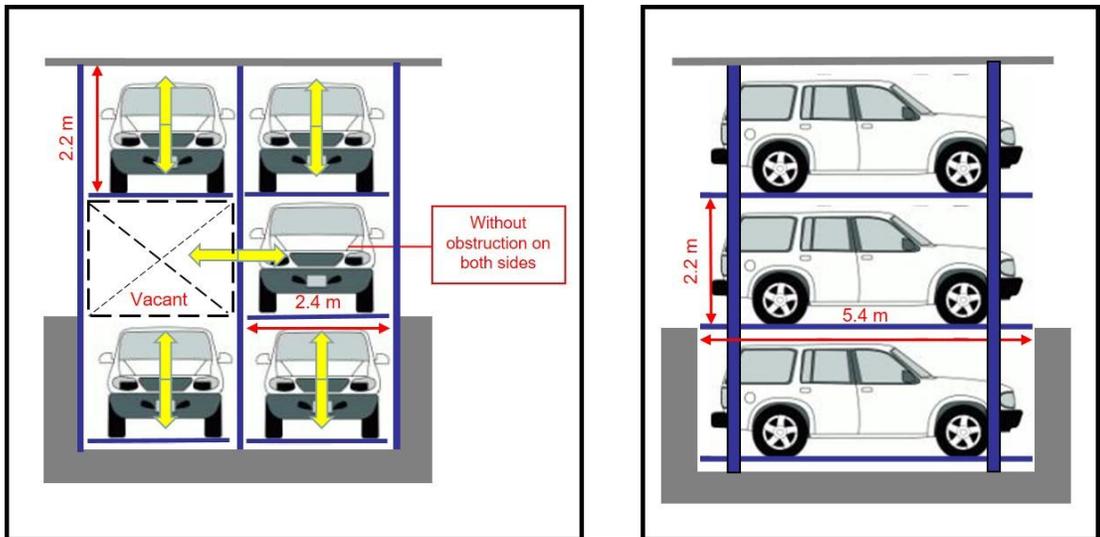


Fig 3.2.2b Critical dimensions for puzzle parking system

### 3.3 Provision of Car Lifts in Car Parking Places

Car lifts replace the access ramps for vertical transportation of cars to the parking floors. All the other requirements pertaining to the parking design remain the same as the conventional parking places and lots. Mechanism of the system does not come under jurisdiction of the Authority.

### 3.3.1 Guidelines for provision of car lifts

Car lift internal dimension	6.2m long x 2.6m wide
Entrance width	2.6m clear
Headroom clearance	2.2m clear
Minimum speed	30m/min
Minimum discharge capacity	30 cars/hr
Holding bay	At entrance and exit
Queuing spaces	15% of car lots served by car lift

Table 3.3.1 Requirements for car lifts



Fig 3.3.1a Car lift system

### 3.3.2 Ratio of car Lifts to Parking Capacity

- a. One car-lift for every 50 parking lots.
- b. Maximum number of parking lots to be served by car-lifts should not exceed 200
- c. Minimum of 2 lifts

### 3.3.3 Queuing spaces and Holding bays

- a. At the ingress, minimum queuing length should be 15% of the parking lots proposed.
- b. Entire queuing space should be within the development boundary.
- c. At the ingress, a holding bay of at least one car lot in front of each car-lift should be provided. Such holding bays must be within the development boundary.
- d. At the egress (where it is separate from ingress), a minimum of one car length holding space should be provided, which must be within the development boundary.

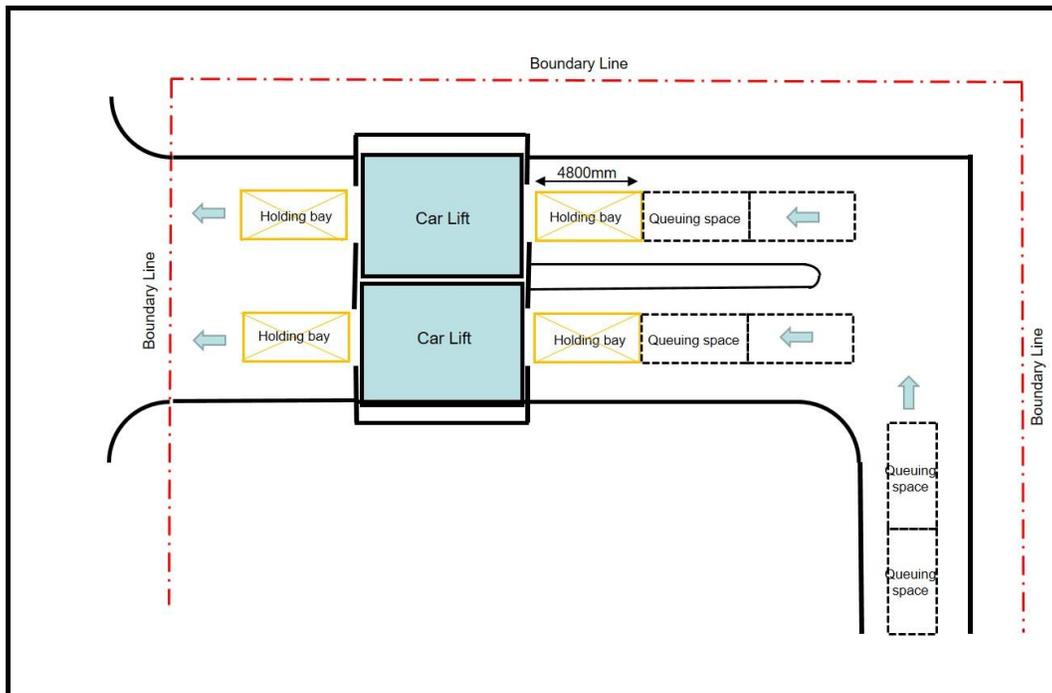


Fig 3.3.1b Queuing spaces and holding bays within development boundary

## CHAPTER 4: GOOD PRACTICES

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### Overview

This chapter provides some examples of good practices in design and operation of parking places.

In designing a parking place, besides complying with the minimum parking dimensions, it is prudent for the designer to ensure that it is operationally friendly. Such good practices make it easier for motorists to find their way in parking places.

### 4.1 Vehicle conflict with other users

An important consideration in the design of parking facilities is at the intersection of vehicles, cyclists and pedestrians movements. Separation of these user groups, through the development of special paths or walkways is advantageous. Parking network should be designed to reduce conflict in terms of exposure to risk and the relative speed and vulnerability of different user groups. Pedestrian and cyclists movement should be minimised on circulation roads/driveways since these primarily involve movement of vehicular traffic. It is also important to reduce the flow of vehicles in areas where the flow of pedestrian is high.



Fig 4.1a Provide safe crossing point for pedestrians along driveway

#### 4.2 Provide Adequate Sight Distance

In the vicinity of driveways, adequate stopping sight distance should be provided. Adequate sight distances such as “clear sight distance triangles” or splay corners for exiting driveways should be provided in order to allow sufficient line of sight for motorists to see approaching pedestrians crossing the driveways and vice versa. No sign, wall or other obstruction should be erected within these clear sight distance triangles. Convex mirrors are also alternative safety measures to be located appropriately at sharp building edges and blind spot areas.

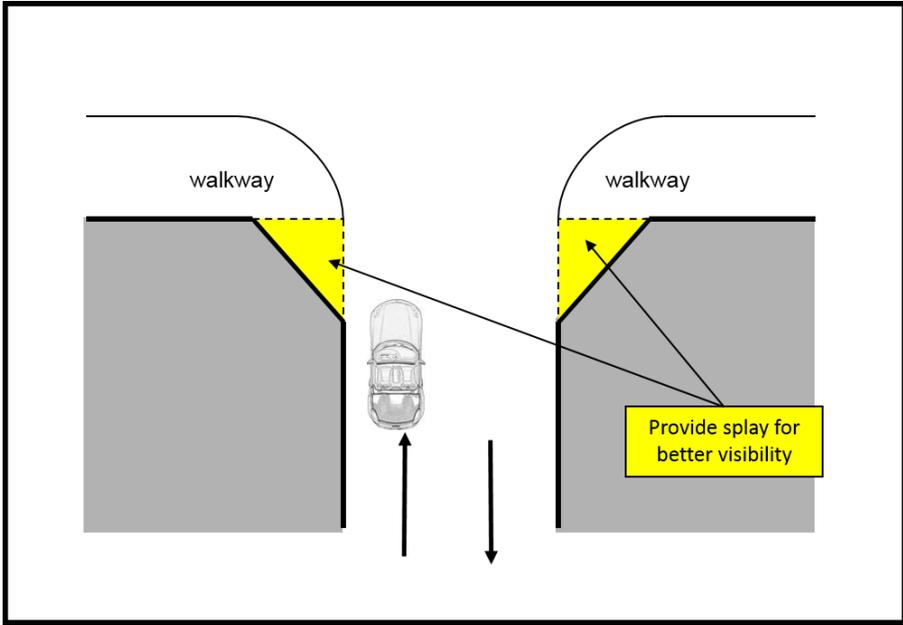


Fig 4.2a Improve visibility at car-park exit

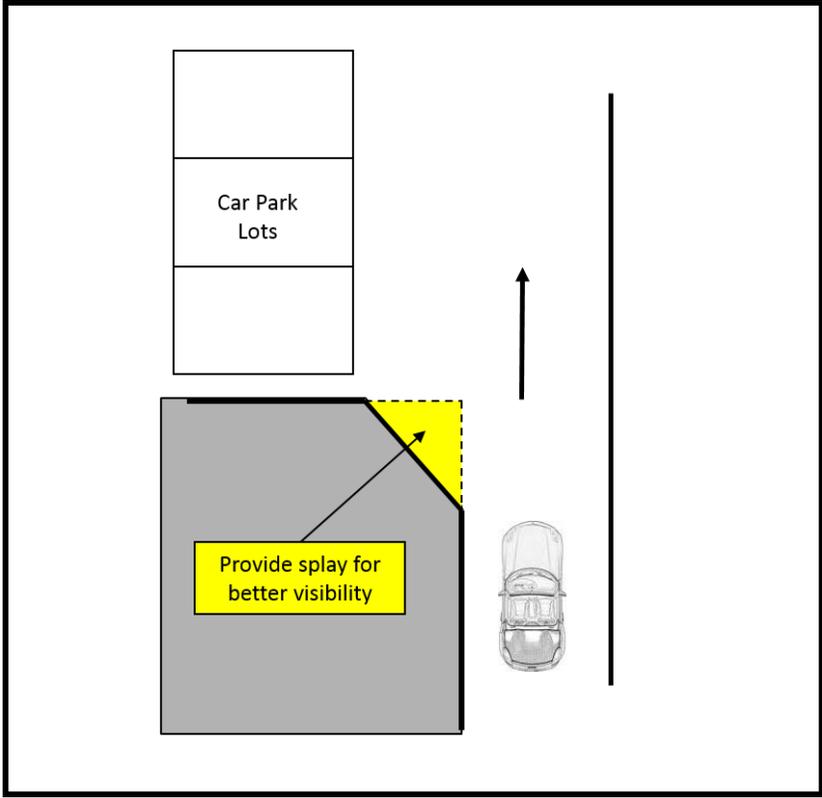


Fig 4.2b Improve visibility where there are walls

### 4.3 Provide Splay Corner at Bend or Turn

In situations where there is a bend or turn, a splay/curve corner should be provided in order to widen the turning manoeuvring space for vehicle to turn smoothly and safely without having to worry so much on accidentally hitting the wall or any obstruction.



Fig 4.3a Splay corner at bend for better manoeuvring space

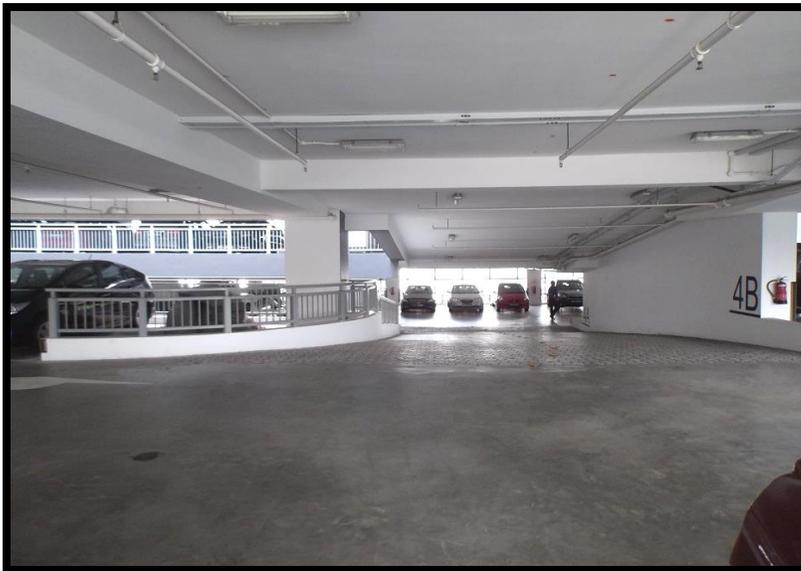


Fig 4.3b Curved at bend for better manoeuvring space

#### 4.4 Avoid Dead-End Aisles

Motorists have difficulty to park their car at the end-parking lot. By providing an additional manoeuvring parking aisle, it improves the manoeuvring space for motorist to park the car. An example of this scenario is shown in Fig 4.4a.

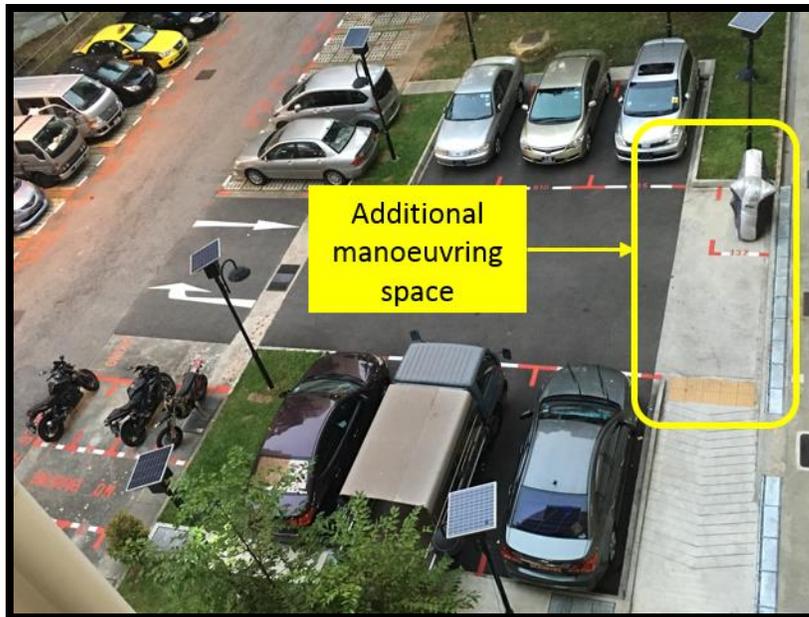


Fig. 4.4a Increase manoeuvring space for end lots

#### 4.5 Increase Space Between Parking Lots and Wall

To avoid vehicle from hitting the wall or protrude into the driveway when parking, we recommend to have a 300mm gap from the car lot and adjacent to the rear wall as shown in Fig 4.5a.

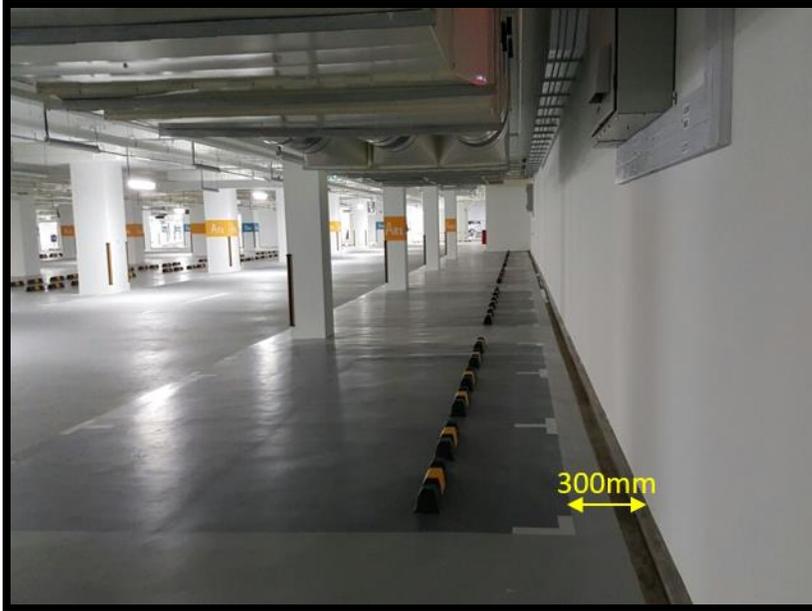


Fig. 4.5a Parking lots with 300mm space to rear wall

#### 4.6 Demarcation of Parking Lots

Parking lots should be clearly demarcated within the parking place. The demarcation lines guide drivers to park their vehicle in the centre of the parking lot. Some helpful demarcations of parking lots are shown in Fig 4.6a and 4.6b.

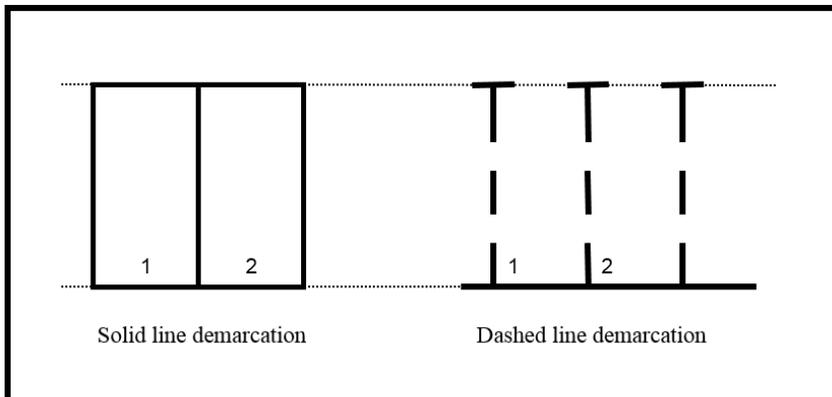


Fig. 4.6a Various ways to demarcate parking lots and numbering



Fig. 4.6b Demarcation of parking lots using different colour tone and serially numbered

#### 4.7 Provide a Continuous Centre Line at Bend/Corner

In a turning situation at bend and corner within a 2-way driveway, drivers need to be guided to remain within their lane. QPs can design for a continuous white line and use appropriate chevron markings to guide drivers as illustrated in Fig. 4.7a.

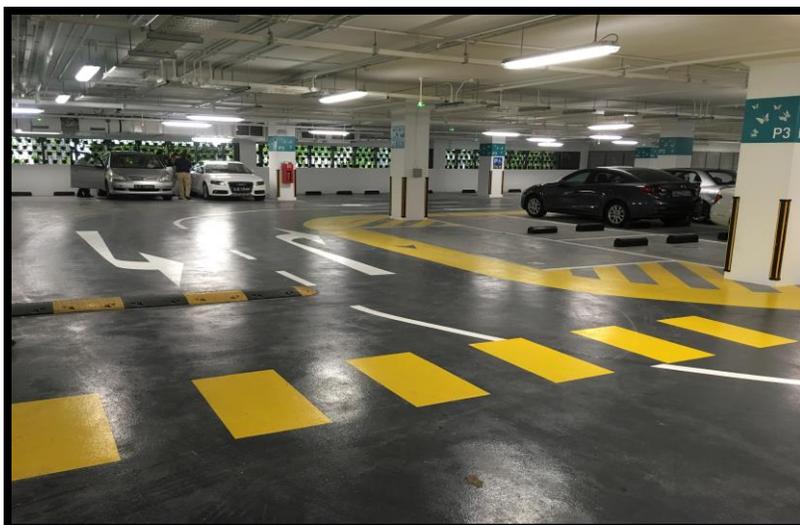


Fig 4.7a Continuous centre white line at bend of 2-way driveway

## 4.8 Provide Clear Information to Motorists

Without clear directions, a driver can be disoriented. Adequate signage and road markings should be provided to guide motorists moving in the parking place. Chevron markings, guiding lines and use of different coloured or textured paving stones can be used to guide driver and vehicle in particular directions.

Direction of travel information should be provided at the entrances and throughout the parking facility. The use of signs can aid in providing information.

Signage for parking places should consist of a system of signs and graphics which will provide motorists with directional information, proper traffic flow and use of parking lots and present a coordinated appearance. Some of the signs are shown below.

Parking availability signs at the entrance of car parks and each car parking floor helps drivers to make decisions faster. This, in turn, prevents queuing at the car park entrance.



Fig. 4.8a Parking availability sign

No-entry signs at the end of one-way aisles could aid in the reduction on movement in the wrong direction.



Fig. 4.8b No-entry sign

Directional arrows, markings on the floor surfaces and walls/columns aids motorists to pause and make decisions before moving off.

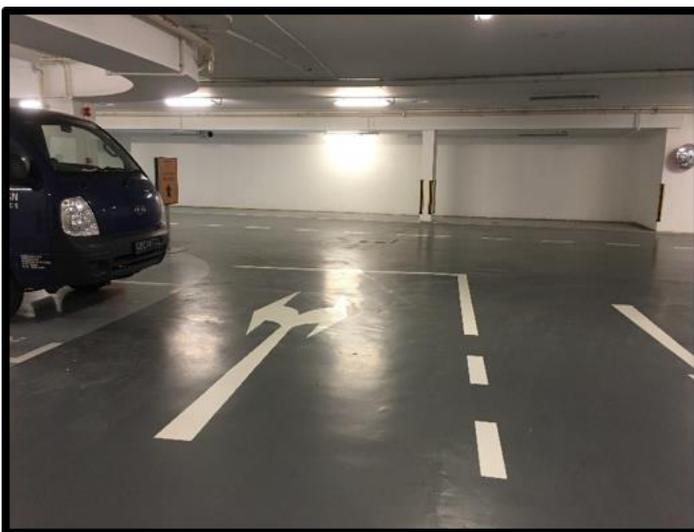


Fig. 4.8c "Stop" line at junction with clear, directional arrows

Height clearance signs serve to inform drivers of the presence of height restrictions in a car park. A clearance bar could also be suspended at the entrance, so that any tall vehicle or vehicles with protruding objects can reverse out of the car park.

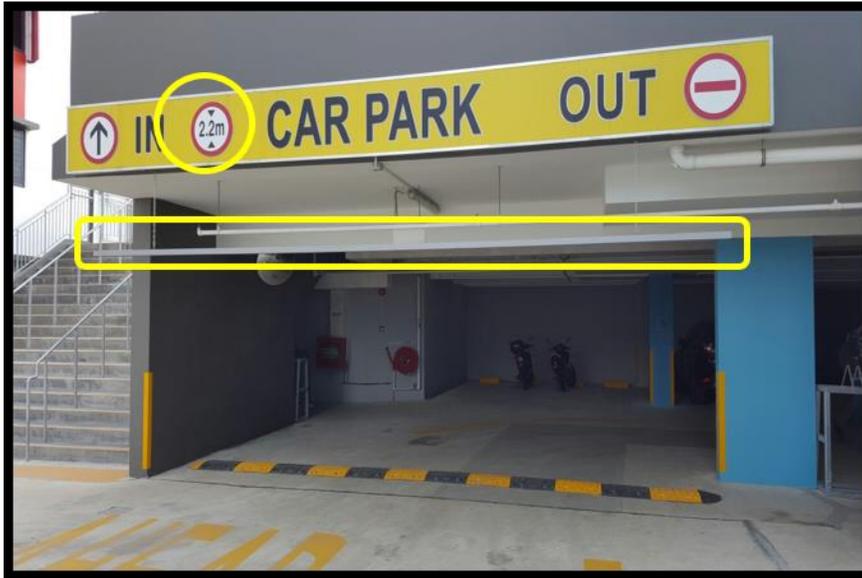


Fig. 4.8d Example of height clearance bar and height-limit signs

Parking rates, operation hours and other restrictions, eg. wheel clamping for unauthorised parking.



Fig. 4.8e Other useful information signs

#### 4.9 Reduce Visual Intrusion/Effect

Navigating in an enclosed space may be challenging for motorists. Designers could plan the choice of surface materials and the detailing of surfaces in enclosed areas. Large expanses of hard surface can be reduced in scale by the meaningful use of lines and areas of different colours and texture. Consideration could be given to the appropriate use of surface materials, lines, textures and colours. Care must be taken in the choice of the walls surrounding and within car parks to not introduce unsafe practice, reducing sight distance in crucial areas such as in circular access ramps. Adequate lighting levels shall also be provided within the car park driveways and parking lots.

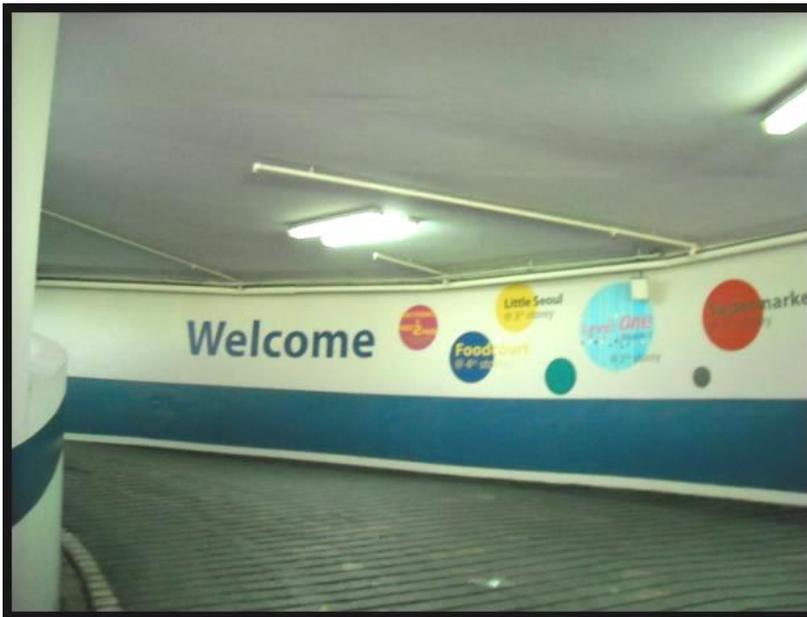


Fig. 4.9a Using visuals along circular ramps

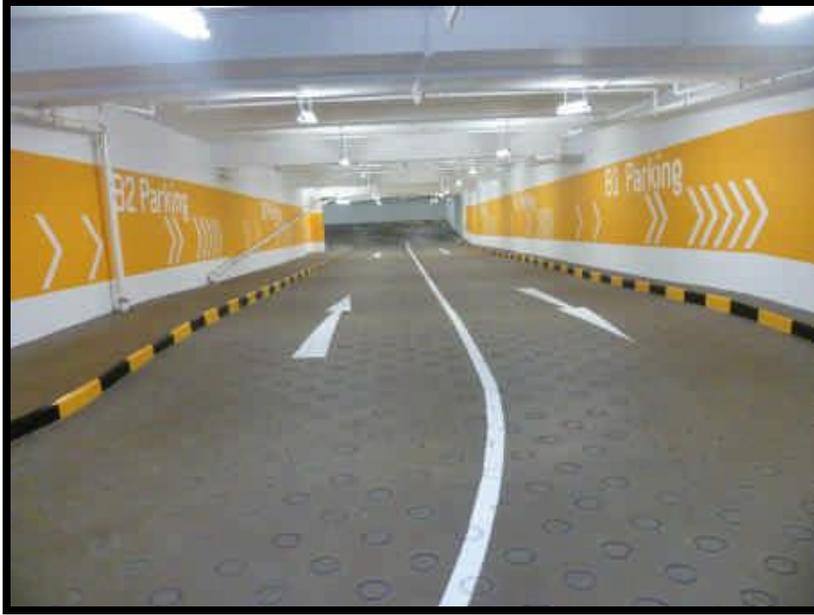


Fig. 4.9b Use of traffic markings, painted kerbs along narrow driveway



Fig 4.9c Convex mirror can be provided at corners and blind spot areas to provide better visibility for motorists and pedestrian.

## 4.10 Designing Spiral Ramps

As a guide, it is a good practice when designing spiral multi-storey ramps to limit the spiral ramps to not more than 4-storeys before entering the car park deck level.



Fig. 4.10a Continuous spiral ramps shall be limited to 4-stories

It is also advisable to use different colours on different levels on the ramp walls, intermediate markings or information on the expected distance to the car park deck or to the exit. At least two different appropriate colour schemes on spiral wall ramps would give a better contrasting effect especially at the drivers' eye level and would give drivers a sense of depth from the walls.

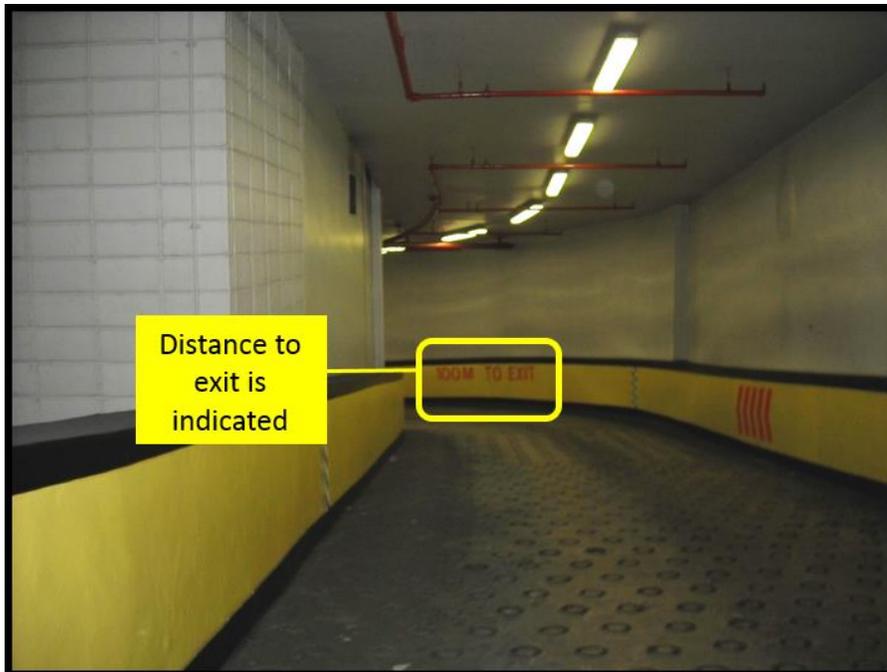


Fig. 4.10b Indicate distance for driver's information

#### 4.11 Efficient Parking Layout

Parking places that experience high turnover, eg shopping centres, entertainment establishments, town centres, food centres, etc. shall be designed for the most efficient layout. It is a good practice to separate the driveways for in-coming vehicles from the out-going vehicles. This helps to discharge cars faster from the property. Otherwise, a gridlock can occur such that the out-going vehicles are prevented from exiting the parking place by in-coming vehicles. Designers can choose to provide separate ramps for exiting vehicles or provide 2-way driveway throughout the parking place.

#### 4.12 Designing at Entrance/Exit to Mechanised Car Lobby

For mechanised parking system where vehicle needs to enter or exit from a car lobby, the position of vehicle at the holding bay has to be straightened before entering the car lobby. Sufficient turning radius and length should be provided in order for vehicle to easily straighten the

vehicle before entering and exiting smoothly from a car lobby as illustrated in fig 4.12a. There should not be any obstructions along the turning path of the vehicle.

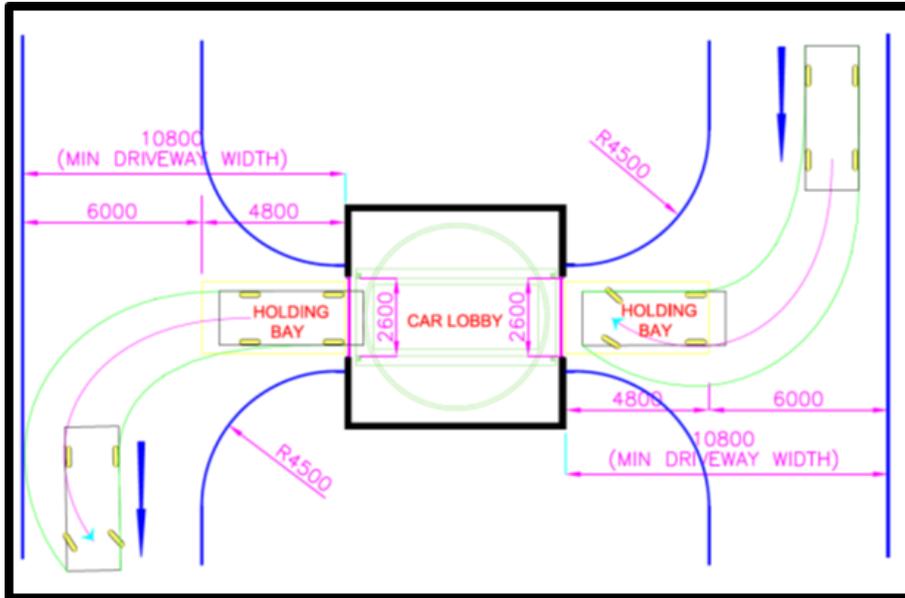


Fig 4.12a Design for entry to car lobby

### 4.13 Positioning Car-Park Barriers

The positioning of car-park barriers is critical as they allow for cars to queue within a development. Such an arrangement helps to prevent congestion along the main road and causing inconvenience to other motorists.

Typically drop-barriers shall be located as far inside a development to achieve the longest queue. In addition, the drop-barrier should not be positioned along an up-ramp as there are many cars that roll-backwards when starting off. Car-park barriers should not be located within circular ramp or immediately after a bend. These locations are not prominent and are inconvenient to motorists especially while waiting on the ramp.



Fig. 4.13a Example of single entry/exit point

Designers should also plan for multiple barriers at the entry or exit points to allow for better discharge.



Fig. 4.13b Example of multiple entry/exit points and long queuing space

#### 4.14 Provide Short-term / Long-term Bicycle Parking Lots

Short-term bicycle parking lots cater mainly for visitors who park for three hours or less. This lot shall be easily accessible by public, located on the ground floor and near to entrances of a development.

Long-term bicycle parking lots cater mainly for employees working in a development. This parking lot shall be fully protected against inclement weather and designed for protection against vandalism and theft. Long-term bicycle parking lots may be located on any level of a development.

The proportion of short-term bicycle parking lots and long-term bike parking lots is recommended as follows:

Type	Use	Long term bicycle parking	Short term bicycle parking
1	Residential, Hotel, Office, Industrial	80%	20%
2	Retail, F&B, Health & Medical Care, Civic & Community Institutions, Places of worship, Sports & Recreation Facilities	40%	60%

## CHAPTER 5: PLAN SUBMISSION PROCEDURE

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### Overview

Under the Parking Places (Provision of Parking Places and Parking Lots) Rules, developments are required to obtain Authority's approval for their parking proposal and plans.

### 5.1 Submission of Parking Proposal and Plans

All submissions to the Authority for approval of parking proposal and plans are to be submitted through CORENET e-Submission system using Form LTA-DBC-VEHICLE\_PARKING.xfd. The submission will not be accepted unless all items of the form are fully completed. The submissions shall conform to requirements for CORENET submissions.

Where car park processing fee is applicable, payment must be made prior to submission. A copy of the official payment receipt is required to be attached during submission. Payment of the processing fees can be made via LTA e-services available at <https://onipay.onemotoring.com.sg/onipay/fees/listFees.do>.

Cheque payments shall be hand-delivered to LTA's Development & Building Control Division at 251, North Bridge Road, Singapore 179102. Cheque payment should be accompanied by a cover letter indicating the project details, BP/Project reference and the GFA involved in the proposal. Cheques shall be crossed and addressed to "Land Transport Authority". GST is not applicable.

## 5.2 Pre-Consultation

(Application Type 1 in Form LTA-DBC-VEHICLE PARKING.xfd)

Pre-consultation for LTA (Vehicle Parking) is only required for proposals stated in paragraph 5.2.1 to 5.2.4. QPs are required to ensure that the proposed development complies with the parking requirements in this Code of Practice and other relevant guidelines.

If the parking proposal plans and information are found to be acceptable at the time of pre-consultation, an in-principle approval for vehicle parking will be given. The plans and details of the proposal will be verified when a formal submission is made at the Building Plan stage.

QP is required to follow-up with a formal submission according to paragraph 5.3 and 5.4 to LTA to obtain formal approval for the development after obtaining approval for the proposed development from URA.

5.2.1 Where parking provision guideline/standard is not available in Appendix A for a proposed use, QP should carry out his own assessment on the parking requirement and submit it with justification to LTA for approval as a pre-consultation before formal submission.

5.2.2 Where it is required by other agencies such as URA and BCA to obtain approval for parking provision, a copy of the Advice Letter/Provisional Permission from the Agency is to be enclosed in the pre-consultation. The proposed vehicular access arrangement has to be cleared with LTA (Roads & Transport).

5.2.3 Where the proposal involves mechanised car parking proposal and car lifts, QPs and developers are required to submit their car parking proposals to the Authority before a development application is submitted to the Urban Redevelopment Authority (URA) for planning permission. The intention is to allow architects, engineers and developers

to incorporate the necessary requirements into the design of the development upfront to minimise abortive work and major revisions to development proposals later.

5.2.4 Where the proposal is for conversion of surplus car parks in Central Area.

### **5.3 Application for Approval of Parking Proposal and Plans** (Application Type 2 in Form LTA-DBC-VEHICLE PARKING.xfd)

All developments for Commercial, Residential and Mixed (Commercial & Residential) uses with indoor parking are to be submitted under Application Type 2. Other development types are to be lodged for approval under paragraph 5.4. This formal application for approval for the parking proposal and plans of development proposals is to be submitted upon obtaining approval from the URA. A copy of the approval from URA for the proposed development is to be enclosed in the submission.

Prior approval from the Authority is required for any subsequent change/addition & alteration to the existing/approved development that affect the gross floor area, uses, addition/deletion of parking lots and rearrangement of parking layout.

Parking provision in development proposals is required to comply with full parking guidelines & requirements in this Code of Practice.

A processing fee of \$10 per 100sqm of the gross floor area involved in the proposal, subject to a minimum of \$120, is applicable. The processing fee shall be rounded off to the nearest 5 cents. Payment must be made prior to submission. A copy of the receipt for payment of the requisite car park processing fee is to be enclosed in the submission.

#### **5.4 Lodgement for Approval of Proposal and Plans**

(Application Type 3 in Form LTA-DBC-VEHICLE PARKING.xfd)

Development types not covered under Application Type 2 (refer to paragraph 5.3) are to be submitted as lodgement for approval of parking proposal and plans. Lodgement approval includes public housing developments by the Housing & Development Board (HDB).

A copy of the approval from URA (Written Permission/Acknowledgement of URA Plan Lodgement Submission) for the proposed development is to be submitted with the lodgement.

It is the QP's responsibility to check and ensure the accuracy and project deliverance for proposed plans lodged with the Authority. The proposal is required to comply fully with the requirements for provision of parking places and lots before making the lodgement. The authority may disapprove any proposals that deviated from the standard requirements.

Car park processing fees payable is same as indicated in paragraph 5.3. A copy of the receipt for payment of the requisite car park processing fee must be enclosed in the submission.

#### **5.5 Application for Certificate of Statutory Completion (CSC) Clearance**

(Application Type 4 in Form LTA-DBC-VEHICLE PARKING.xfd)

Upon completion of proposed parking places and lots, an application for CSC Clearance is required to be submitted to Authority.

For single-user industrial/warehouse developments where the proposal involves open surface parking lots, and/or covered parking of 50 or less parking lots, photographs verifying completion of the parking place and lots are to accompany the submission. Site photographs for all parking

lots shall be taken in a clear and systematic manner, capturing all the parking lots as provided on site and corresponding with the approved plans. Deviation from the approved plans should be highlighted in the “as-built” plan. QP is required to ensure compliance with full parking guidelines & requirements in this Code of Practice and to indicate in the submission that the as-built parking place and lots were inspected and accepted by the owner/developer of the development.

For other development proposals, Authority’s officer will arrange with QP for a site inspection of the completed parking place and lots.

For provision of mechanised parking and car lifts, the QP is required to arrange for a demonstration on the operation of mechanised parking lots or car lifts during the site inspection to verify that the provided parking place is functioning properly in terms of practical accessibility and manoeuvrability. The QP shall also ensure that the parking system and parking lots are in accordance with the plans approved by the Authority.

## **5.6 Application for Review of Requirement on Layout Arrangement/Dimensions or Design of Parking Facilities**

(Application Type 5 in Form LTA-DBC-VEHICLE PARKING.xfd)

The layout arrangement/dimensions of parking facilities is required to comply with the guidelines & requirements in this Code of Practice. QP is required to submit an application to review the requirements if the layout arrangement/dimension deviates from the standards.

It is important that the owner/developer is informed and is agreeable with the parking proposal and any deviation from the requirements. In this connection, the developer is required to submit an undertaking of their awareness and responsibility on the deviation according to Form LTA-VP-LOU.

Any application to review the requirement on the minimum geometric dimensions should be supported robustly on technical grounds. The applications should be accompanied by technical assessments demonstrating clearly that various options have been studied. We encourage QPs to make use of appropriate design software to verify the turning path of vehicles to determine its practicality before making any applications to LTA. The developer will be required to obtain consent of the owners/purchasers for deviations from the approved plans.

A processing fee of \$80 per dimension/item is payable for application to review the requirement on the layout arrangement/dimensions or design of parking facilities.

The Authority may disapprove the application if in the Authority's assessment, the proposal may have adverse effect on the end users of the parking place or other road users.

### **5.7 Application for Review of Requirement on Number of Parking Lots to be Provided**

(Application Type 6 in Form LTA-DBC-VEHICLE PARKING.xfd)

The development proposal is required to comply with the parking requirements and guidelines in terms of the number of parking lots to provide.

Where the proposed number of parking lot is below the lower bound or beyond the upper bound, QP is required to submit an application to review the shortfall or surplus parking provision.

A processing fee of \$120 per item is payable for application to review the requirement on number of parking lots to be provided.

The Authority may disapprove the application if in the Authority's assessment, the proposal may have adverse effect on the end users of the parking place or other road users.

## **5.8 Exemption from Vehicle Parking Submission**

The Authority exempts certain types of developments from obtaining approval. The list of developments exempted from submission is given in [Appendix D](#).

**Table 5.1 – Submission Requirements**

S/N	Type of Submission	Application Form (LTA-DBC_VEHICLE PARKING.xfd)	URA's WP/ PP/Advice	Parking Proposal Plans	Attachment Forms					Processing Fees
					LTA-VP FORM	LTA-VP SCHR	LTA-VP LOU	LTA-VP OCC	LTA-VP DMGT	
1.	Pre-Consultation: No Parking Standard listed in Appendix A	✓	PP/Advice	✓	✓					
	Required by other agencies	✓	PP/Advice	✓	✓					
	Mechanised Parking Systems	✓		✓	✓					
	Conversion of existing car parks	✓	PP/Advice	✓	✓			✓	✓	
2.	Application for Approval of Parking Proposal and Plans	✓	WP	✓	✓					✓ See Note a
3.	Lodgement for Approval of Proposal and Plans	✓	WP	✓	✓					✓ See Note a
4.	Application for CSC Clearance	✓		✓ (As-built)						
5.	Application for Review of Requirement on Layout Arrangement / Dimensions or Design of Parking Facilities	✓		✓		✓	✓			✓ See Note b
6.	Application for Review of Requirement on Number of Parking Lots to be Provided	✓		✓	✓	✓	✓			✓ See Note c

Notes:

- Application and attachment forms are obtainable from CORENET.
- Payment of processing fees can be made via LTA e-services.
- Fees schedule:
  - a. **\$10 per 100 sqm**, subject to a minimum of \$120, is applicable to the following type of proposals:
    - For new erections
    - Amendments to approved plans (only affected GFA to be considered)
    - Additions & alterations (only affected GFA to be considered)
    - Change of use proposals (only affected GFA to be considered)(The processing fee shall be rounded to the nearest 5 cents.)
  - b. **\$80 per dimension/item** is applicable for application for review of requirement on layout arrangement/dimensions or design of parking facilities.
  - c. **\$120 per item** is applicable for application for review of requirement on number of parking lots.

**Table 1: Range-Based Parking Provision Standards**

S/n	Uses	Lot Types	Lower Bound			Upper Bound		
			Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
1	Residential	Car	1 lot per 2 dwelling units	1 lot per 1.25 dwelling units		1 lot per 1.25 dwelling units	1 lot per dwelling unit	
		M/cycle						
		Bicycle	1 lot per 4 dwelling units		1 lot per 6 dwelling units	No Upper Bound		
		HV						
2	Serviced apartments	Car	1 lot per 4.2 dwelling units		1 lot per 2.6 dwelling units	1 lot per 2.1 dwelling units		
		M/cycle	1 lot per 80 dwelling units		1 lot per 50 dwelling units	1 lot per 40 dwelling units		
		Bicycle	1 lot per 4 dwelling units		1 lot per 6 dwelling units	No Upper Bound		
		HV						
3	Offices	Car	1 lot per 950m <sup>2</sup>	1 lot per 530m <sup>2</sup>	1 lot per 260m <sup>2</sup>	1 lot per 590m <sup>2</sup>	1 lot per 330m <sup>2</sup>	1 lot per 210m <sup>2</sup>
		M/cycle	1 lot per 18,000m <sup>2</sup>	1 lot per 10,000m <sup>2</sup>	1 lot per 5,000m <sup>2</sup>	1 lot for the first 590m <sup>2</sup> & 1 lot per subsequent 11,250m <sup>2</sup>	1 lot per 6,250m <sup>2</sup>	1 lot per 4,000m <sup>2</sup>
		Bicycle	Refer to Table 2, Category 1		Refer to Table 2, Category 2	No Upper Bound		
		HV	1 loading and unloading bay per 10,000m <sup>2</sup> up to 50,000m <sup>2</sup>			No Upper Bound		

S/n	Uses	Lot Types	Lower Bound			Upper Bound		
			Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
4	(a) Shops and departmental stores (excluding supermarkets with gross floor area $\geq 1,500\text{m}^2$ )	Car	1 lot per $840\text{m}^2$	1 lot per $420\text{m}^2$	1 lot per $200\text{m}^2$	1 lot per $530\text{m}^2$	1 lot per $210\text{m}^2$	1 lot per $160\text{m}^2$
		M/cycle	1 lot per $16,000\text{m}^2$	1 lot per $8,000\text{m}^2$	1 lot per $3,750\text{m}^2$	1 lot for the 1 <sup>st</sup> $530\text{m}^2$ & 1 lot per subsequent $10,000\text{m}^2$	1 lot per $4,000\text{m}^2$	1 lot per $3,000\text{m}^2$
		Bicycle	Refer to Table 2, Category 1		Refer to Table 2, Category 2	No Upper Bound		
		HV	1 loading and unloading bay per $4,000\text{m}^2$ of the sum of GFA under 4(a) & 4(b)			No Upper Bound		
	(b) Supermarkets with gross floor area $\geq 1,500\text{m}^2$	Car	1 lot per $530\text{m}^2$	1 lot per $80\text{m}^2$	1 lot per $70\text{m}^2$	1 lot per $420\text{m}^2$	1 lot per $60\text{m}^2$	1 lot per $50\text{m}^2$
		M/cycle	1 lot per $10,000\text{m}^2$	1 lot per $1,500\text{m}^2$	1 lot per $1,250\text{m}^2$	1 lot every $8,000\text{m}^2$	1 lot per $1,200\text{m}^2$	1 lot per $1,000\text{m}^2$
		Bicycle	Refer to Table 2, Category 1		Refer to Table 2, Category 2	No Upper Bound		
		HV	1 loading and unloading bay per $4,000\text{m}^2$ of the sum of GFA under 4(a) & 4(b)			No Upper Bound		
5	Hawker Centres	Car		3 lots per 5 stalls	1 lot per stall		3 lots per 2 stalls	2 lots per stall
		M/cycle		3 lots per 100 stalls	1 lot per 20 stalls		2 lots per 25 stalls	1 lot per 10 stalls
		Bicycle	Refer to Table 2, Category 1		Refer to Table 2, Category 2	No Upper Bound		
		HV						

S/n	Uses	Lot Types	Lower Bound			Upper Bound		
			Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
6	Restaurants, night-clubs, coffee-houses, cars, cafeterias, eating-houses and canteens	Car	1 lot for the first 160m <sup>2</sup>			1 lot for the first 160m <sup>2</sup>		
			1 lot per subsequent 130m <sup>2</sup>	1 lot per subsequent 130m <sup>2</sup>	1 lot per subsequent 70m <sup>2</sup>	1 lot per subsequent 80m <sup>2</sup>	1 lot per subsequent 60m <sup>2</sup>	1 lot per subsequent 50m <sup>2</sup>
		M/cycle	1 lot for the first 160m <sup>2</sup>			1 lot for the first 160m <sup>2</sup>		
			1 lot per subsequent 2,400m <sup>2</sup>	1 lot per subsequent 2,400m <sup>2</sup>	1 lot per subsequent 1,250m <sup>2</sup>	1 lot per subsequent 1,500m <sup>2</sup>	1 lot per subsequent 1,200m <sup>2</sup>	1 lot per subsequent 1,000m <sup>2</sup>
		Bicycle	Refer to Table 2, Category 1		Refer to Table 2, Category 2	No Upper Bound		
		HV						
7	Hotels and residential clubs (including rooms, lobby, shop, restaurant, swimming pool, gymnasium and other related uses)	Car	1 lot per 530m <sup>2</sup>	1 lot per 530m <sup>2</sup>	1 lot per 260m <sup>2</sup>	1 lot per 330m <sup>2</sup>	1 lot per 260m <sup>2</sup>	1 lot per 210m <sup>2</sup>
		M/cycle	1 lot per 10,000m <sup>2</sup>	1 lot per 10,000m <sup>2</sup>	1 lot per 5,000m <sup>2</sup>	1 lot for the 1 <sup>st</sup> 330m <sup>2</sup> & 1 lot per subsequent 6,250m <sup>2</sup>	1 lot per 5,000m <sup>2</sup>	1 lot per 4,000m <sup>2</sup>
		Bicycle	Refer to Table 2, Category 1		Refer to Table 2, Category 2	No Upper Bound		
		HV	1 loading and unloading bay per 8,000m <sup>2</sup> . For hotels, 1 coach lot per 90 rooms.			No Upper Bound		

S/n	Uses	Lot Types	Lower Bound			Upper Bound		
			Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
8	Cinemas, theatres and concert halls	Car	1 lot per 16 seats		1 lot per 13 seats	1 lot per 13 seats		1 lot per 11 seats
		M/cycle	1 lot per 300 seats		1 lot per 250 seats	1 lot per 240 seats		1 lot per 200 seats
		Bicycle	Refer to Table 2, Category 1		Refer to Table 2, Category 2	No Upper Bound		
		HV						
9	Warehouses	Car						
		M/cycle						
		Bicycle						
		HV	1 lorry/loading and unloading bay per 800m <sup>2</sup>			No Upper Bound		
10	Factories (a) Flatted factories / multi-user factories  (including areas used as offices up to a maximum of 25% of total floor area and ancillary storage space)	Car	1 lot per 460m <sup>2</sup>			1 lot per 370m <sup>2</sup>		
		M/cycle	1 lot per 8,750m <sup>2</sup>			1 lot per 7,000m <sup>2</sup>		
		Bicycle	Refer to Table 2, Category 1		Refer to Table 2, Category 2	No Upper Bound		
		HV	1 lorry/loading and unloading bay per 3,000m <sup>2</sup>			No Upper Bound		

S/n	Uses	Lot Types	Lower Bound			Upper Bound		
			Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
	Factories (b) Terrace factories  (including areas used as offices up to a maximum of 25% of total floor area and ancillary storage space)	Car	1 lot for the first 840m <sup>2</sup> and 1 lot per subsequent 460m <sup>2</sup>			1 lot per 320m <sup>2</sup> for the first 840m <sup>2</sup> and 1 lot per subsequent 370m <sup>2</sup>		
		M/cycle	1 lot for the first 840m <sup>2</sup> and 1 lot per subsequent 8,750m <sup>2</sup>			1 lot per 320m <sup>2</sup> for the first 840m <sup>2</sup> and 1 lot per subsequent 7,000m <sup>2</sup>		
		Bicycle	Refer to Table 2, Category 1		Refer to Table 2, Category 2	No Upper Bound		
		HV	1 lorry/loading and unloading bay per 1,500m <sup>2</sup>			No Upper Bound		
	Factories (c) Detached factories / single-user factories  (including areas used as offices up to a maximum of 25% of total floor area and ancillary storage space)	Car	1 lot per 790m <sup>2</sup>			1 lot per 630m <sup>2</sup>		
		M/cycle	1 lot per 15,000m <sup>2</sup>			1 lot per 12,000m <sup>2</sup>		
		Bicycle	Refer to Table 2, Category 1		Refer to Table 2, Category 2	No Upper Bound		
		HV	1 lorry/loading and unloading bay per 1,500m <sup>2</sup> up to 13,500m <sup>2</sup>			No Upper Bound		
	Factories (d) Office  (in excess of 25% of total floor area)	Car	1 lot per 260m <sup>2</sup>			1 lot per 210m <sup>2</sup>		
		M/cycle	1 lot per 5,000m <sup>2</sup>			1 lot per 4,000m <sup>2</sup>		
		Bicycle	Refer to Table 2, Category 1		Refer to Table 2, Category 2	No Upper Bound		
		HV						

S/n	Uses	Lot Types	Lower Bound			Upper Bound		
			Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
11	Childcare centres, Nurseries and Kindergartens	Car	1 lot per 260m <sup>2</sup>			1 lot per 210m <sup>2</sup>		
		M/cycle	1 lot per 5,000m <sup>2</sup>			1 lot per 4,000m <sup>2</sup>		
		Bicycle						
		HV						
12	Primary Schools (including foreign and special education schools)	Car	5 lots per 16 classrooms			2 lots per 5 classrooms		
		M/cycle	1 lot per 60 classrooms			1 lot per 48 classrooms		
		Bicycle						
		HV	4 coach lots			No Upper Bound		
13	Secondary Schools (including foreign and special education schools)	Car	5 lots per 13 classrooms and 1 lot per 400m <sup>2</sup> of workshops / labs			10 lots per 21 classrooms and 1 lot per 320m <sup>2</sup> of workshops / labs		
		M/cycle	1 lot per 50 classrooms and 1 lot per 7,500m <sup>2</sup> of workshops / labs			1 lot per 40 classrooms and 1 lot per 6,000m <sup>2</sup> of workshops / labs		
		Bicycle						
		HV	4 coach lots			No Upper Bound		

S/n	Uses	Lot Types	Lower Bound			Upper Bound		
			Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
14	Junior Colleges	Car	1 lot per 40 day-time staff and student population			1 lot per 30 day-time staff and student population		
		M/cycle	1 lot per 750 day-time staff and student population			1 lot per 600 day-time staff and student population		
		Bicycle						
		HV						
15	ITEs	Car	1 lot per 40 day-time staff and student population <u>OR</u> 1 lot per 30 night-time staff and student population (whichever is greater)			1 lot per 30 day-time staff and student population <u>OR</u> 1 lot per 20 night-time staff and student population (whichever is greater)		
		M/cycle	1 lot per 750 day-time staff and student population <u>OR</u> 1 lot per 500 night-time staff and student population (whichever is greater)			1 lot per 600 day-time staff and student population <u>OR</u> 1 lot per 400 night-time staff and student population (whichever is greater)		
		Bicycle						
		HV						
16	Polytechnics and Universities	Car	1 lot per 30 staff and student population			1 lot per 20 staff and student population		
		M/cycle	1 lot per 500 staff and student population			1 lot per 400 staff and student population		
		Bicycle						
		HV						

S/n	Uses	Lot Types	Lower Bound			Upper Bound		
			Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
17	Community Centres	Car		1 lot per 610m <sup>2</sup>	1 lot per 310m <sup>2</sup>		1 lot per 400m <sup>2</sup>	1 lot per 210m <sup>2</sup>
		M/cycle		1 lot per 11,580m <sup>2</sup>	1 lot per 5,870m <sup>2</sup>		1 lot per 7,670m <sup>2</sup>	1 lot per 4,010m <sup>2</sup>
		Bicycle	Refer to Table 2, Category 3		Refer to Table 2, Category 4	No Upper Bound		
		HV						
18	Welfare houses (to exclude ancillary facilities within the premises that are exclusively used by the residents)	Car	1 lot per 260m <sup>2</sup>			1 lot per 210m <sup>2</sup>		
		M/cycle	1 lot per 5000m <sup>2</sup>			1 lot per 4000m <sup>2</sup>		
		Bicycle	Refer to Table 2, Category 3		Refer to Table 2, Category 4	No Upper Bound		
		HV						
19	Libraries	Car	1 lot per 260m <sup>2</sup>			1 lot per 210m <sup>2</sup>		
		M/cycle	1 lot per 5000m <sup>2</sup>			1 lot per 4000m <sup>2</sup>		
		Bicycle	Refer to Table 2, Category 1		Refer to Table 2, Category 2	No Upper Bound		
		HV						

S/n	Uses	Lot Types	Lower Bound			Upper Bound		
			Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
20	Churches, mosques, temples, etc	Car	Prayer areas with seats; 1 lot per 13 seats Prayer areas without seats; 1 lot per 70m <sup>2</sup>			Prayer areas with seats; 1 lot per 11 seats Prayer areas without seats; 1 lot per 50m <sup>2</sup>		
		M/cycle	Prayer areas with seats; 1 lot per 250 seats Prayer areas without seats; 1 lot per 1,250m <sup>2</sup>			Prayer areas with seats; 1 lot per 200 seats Prayer areas without seats; 1 lot per 1,000m <sup>2</sup>		
		Bicycle	Refer to Table 2, Category 1		Refer to Table 2, Category 2	No Upper Bound		
		HV						
21	Columbarium (excluding columbarium that is built together with a place of worship)	Car	1 lot per 660 niches			1 lot per 530 niches		
		M/cycle	1 lot per 12,500m niches			1 lot per 10,000m niches		
		Bicycle						
		HV						
22	Funeral parlours / crematoriums	Car	10 lots per 1.3 parlours/crematoriums			10 lots per parlours/crematoriums		
		M/cycle	10 lots per 25 parlours/crematoriums			10 lots per 20 parlours/crematoriums		
		Bicycle						
		HV	To cater for at least 1 hearse parking					

S/n	Uses	Lot Types	Lower Bound			Upper Bound		
			Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
23	Sports Complex (a) Administrative areas and related uses	Car	Refer to Office use			Refer to Office use		
		M/cycle	Refer to Office use			Refer to Office use		
		Bicycle	Refer to Table 2, Category 3		Refer to Table 2, Category 4	No Upper Bound		
		HV						
	Sports Complex (b) Snack / coffee bar, restaurant	Car	Refer to Restaurant use			Refer to Restaurant use		
		M/cycle	Refer to Restaurant use			Refer to Restaurant use		
		Bicycle	Refer to Table 2, Category 3		Refer to Table 2, Category 4	No Upper Bound		
		HV						
	Sports Complex (c) Multi-purpose halls with gymnasiums, indoor courts, etc	Car	1 lot per 400m <sup>2</sup>			1 lot per 320m <sup>2</sup>		
		M/cycle	1 lot per 7,500m <sup>2</sup>			1 lot per 6,000m <sup>2</sup>		
		Bicycle	Refer to Table 2, Category 3		Refer to Table 2, Category 4	No Upper Bound		
		HV						

S/n	Uses	Lot Types	Lower Bound			Upper Bound		
			Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
	Sports Complex (d) Indoor games rooms, clubrooms, health clubs, etc	Car	1 lot per 200m <sup>2</sup>			1 lot per 160m <sup>2</sup>		
		M/cycle	1 lot per 3,750m <sup>2</sup>			1 lot per 3,000m <sup>2</sup>		
		Bicycle	Refer to Table 2, Category 3		Refer to Table 2, Category 4	No Upper Bound		
		HV						
	Sports Complex (e) Spectator galleries (for the largest spectator gallery only)	Car	1 lot per 13 seats			1 lot per 11 seats		
		M/cycle	1 lot per 250 seats			1 lot per 200 seats		
		Bicycle	Refer to Table 2, Category 3		Refer to Table 2, Category 4	No Upper Bound		
		HV						
	Recreational facilities (f) Tennis, squash, badminton, sepak takraw	Car	1 lots per 1.3 court			1 lot per court		
		M/cycle	1 lot per 25 courts			1 lot per 20 courts		
		Bicycle	Refer to Table 2, Category 3		Refer to Table 2, Category 4	No Upper Bound		
		HV						

S/n	Uses	Lot Types	Lower Bound			Upper Bound		
			Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
	Sports Complex (g) Soccer fields, basketball courts	Car	1 lot per 0.325 field/court			1 lot per 0.25 field/court		
		M/cycle	1 lot per 6.25 fields/courts			1 lot per 5 fields/courts		
		Bicycle	Refer to Table 2, Category 3		Refer to Table 2, Category 4	No Upper Bound		
		HV						
	Sports Complex (h) Bowling alleys	Car	1 lot per 1.3 lanes			1 lot per lane		
		M/cycle	1 lot per 25 lanes			1 lot per 20 lanes		
		Bicycle	Refer to Table 2, Category 3		Refer to Table 2, Category 4	No Upper Bound		
		HV						
	Sports Complex (i) Swimming pool (excluding wading / children's pool)	Car	1 lot per 50m <sup>2</sup> of pool area			1 lot per 40m <sup>2</sup> of pool area		
		M/cycle	1 lot per 1,000m <sup>2</sup> of pool area			1 lot per 800m <sup>2</sup> of pool area		
		Bicycle	Refer to Table 2, Category 3		Refer to Table 2, Category 4	No Upper Bound		
		HV						

S/n	Uses	Lot Types	Lower Bound			Upper Bound		
			Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
	Sports Complex (j) Ice / roller-skating rinks	Car	1 lot per 70m <sup>2</sup> of skating area			1 lot per 50m <sup>2</sup> of skating area		
		M/cycle	1 lot per 1,250m <sup>2</sup> of skating area			1 lot per 1,000m <sup>2</sup> of skating area		
		Bicycle	Refer to Table 2, Category 3		Refer to Table 2, Category 4	No Upper Bound		
		HV						
	Sports Complex (k) Golf ranges	Car	1 lot per 1.3 tee			1 lot per tee		
		M/cycle	1 lot per 25 tees			1 lot per 20 tees		
		Bicycle	Refer to Table 2, Category 3		Refer to Table 2, Category 4	No Upper Bound		
		HV						
24	Clinics / Dispensaries	Car	1 lot per 200m <sup>2</sup>			1 lot per 160m <sup>2</sup>		
		M/cycle	1 lot per 3,750m <sup>2</sup>			1 lot per 3,000m <sup>2</sup>		
		Bicycle	Refer to Table 2, Category 3		Refer to Table 2, Category 4	No Upper Bound		
		HV						

S/n	Uses	Lot Types	Lower Bound			Upper Bound		
			Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
25	Nursing homes	Car	1 lot per 16 beds			1 lot per 13 beds		
		M/cycle	1 lot per 300 beds			1 lot per 240 beds		
		Bicycle	Refer to Table 2, Category 1		Refer to Table 2, Category 2	No Upper Bound		
		HV						
26	Hospitals	Car	First 500 beds; 1 lot per 5 beds Exceeding 500 beds; 1 lot per 7 beds			First 500 beds; 1 lot per 4 beds Exceeding 500 beds; 1 lot per 5 beds		
		M/cycle	First 500 beds; 1 lot per 100 beds Exceeding 500 beds; 1 lot per 125 beds			First 500 beds; 1 lot per 80 beds Exceeding 500 beds; 1 lot per 100 beds		
		Bicycle	Refer to Table 2, Category 1		Refer to Table 2, Category 2	No Upper Bound		
		HV						
27	Retirement housing	Car	1 lot per 260m <sup>2</sup>			1 lot per 210m <sup>2</sup>		
		M/cycle	1 lot per 5,000m <sup>2</sup>			1 lot per 4,000m <sup>2</sup>		
		Bicycle	1 lot per 4 dwelling units		1 lot per 6 dwelling units	No Upper Bound		
		HV						

S/n	Uses	Lot Types	Lower Bound			Upper Bound		
			Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
28	Marina / Boat Sheds (a) Where vessels can be carried to land for storage	Car	1 lot per 3 boats			1 lot per 2 boats		
		M/cycle	1 lot per 50 boats			1 lot per 40 boats		
		Bicycle						
		HV						
	Marina / Boat Sheds (b) Where vessels cannot be removed from water	Car	1 lot per 1.3 boats			1 lot per boat		
		M/cycle	1 lot per 25 boats			1 lot per 20 boats		
		Bicycle						
		HV						
29	Convention and exhibition	Car	1 lot per 70m <sup>2</sup>			1 lot per 50m <sup>2</sup>		
		M/cycle						
		Bicycle	Refer to Table 2, Category 1		Refer to Table 2, Category 2	No Upper Bound		
		HV						

S/n	Uses	Lot Types	Lower Bound			Upper Bound		
			Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
30	Public parks	Car	9.7 lots per hectare			12 lots per hectare		
		M/cycle	0.5 lot per hectare			0.6 lot per hectare		
		Bicycle						
		HV						
31	Plant Nurseries	Car	Covered areas; 1 lot per 260m <sup>2</sup> Open areas; 1 lot per 860m <sup>2</sup> (minimum of 3 lots if situated away from HDB estates; minimum of 1 lot if situated within HDB estates)			Covered areas; 1 lot per 210m <sup>2</sup> Open areas; 1 lot per 680m <sup>2</sup>		
		M/cycle	Covered areas; 1 lot per 5,000m <sup>2</sup> Open areas; 1 lot per 16,250m <sup>2</sup>			Covered areas; 1 lot per 4,000m <sup>2</sup> Open areas; 1 lot per 13,000m <sup>2</sup>		
		Bicycle						
		HV						
32	Foreign workers dormitories	Car						
		M/cycle						
		Bicycle	Refer to Table 2, Category 3		Refer to Table 2, Category 4	No Upper Bound		
		HV	1 lot per 200 beds			No upper bound		

S/n	Uses	Lot Types	Lower Bound			Upper Bound		
			Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
33	Tourists attraction developments	Car	Applicant to submit proposal with relevant information such as expected daily visitors (tourists and locals), breakdown of uses, etc.			Applicant to submit proposal with relevant information such as expected daily visitors (tourists and locals), breakdown of uses, etc.		
		M/cycle						
		Bicycle						
		HV	1 coach lot per 100 tourists per day			No Upper Bound		
34	Hostels	Car	1 lot per 920m <sup>2</sup>			1 lot per 740m <sup>2</sup>		
		M/cycle	1 lot per 17,500m <sup>2</sup>			1 lot per 14,000m <sup>2</sup>		
		Bicycle	Refer to Table 2, Category 1		Refer to Table 2, Category 2	No Upper Bound		
		HV						
35	Business Parks	Car	Sum of individual parking requirements			Sum of individual parking requirements		
		M/cycle	Sum of individual parking requirements			Sum of individual parking requirements		
		Bicycle	Sum of individual parking requirements			No Upper Bound		
		HV	Sum of individual parking requirements			Sum of individual parking requirements		

S/n	Uses	Lot Types	Lower Bound			Upper Bound		
			Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
36	White sites (a) Non-residential	Car	1 lot per 895m <sup>2</sup>	Sum of individual parking requirements		1 lot per 560m <sup>2</sup>	Sum of individual parking requirements	
		M/cycle	1 lot per 17,000m <sup>2</sup>	Sum of individual parking requirements		1 lot per 10,620m <sup>2</sup>	Sum of individual parking requirements	
		Bicycle	Sum of individual parking requirements			No Upper Bound		
		HV	First 50,000m <sup>2</sup> 1 lot per 7,000m <sup>2</sup> Beyond 50,000m <sup>2</sup> 1 lot per 15,000m <sup>2</sup>	Sum of individual parking requirements		No Upper Bound		
			For Hotels, 1 coach lot per 90 rooms					
	White sites (b) Residential	Car	Refer to Residential use			Refer to Residential use		
		M/cycle	Refer to Residential use			Refer to Residential use		
		Bicycle	Refer to Residential use			Refer to Residential use		
		HV						

**Table 2: Bicycle Parking Requirement Matrix**

Development GFA	Category 1	Category 2	Category 3	Category 4
$1,000\text{m}^2 \leq \text{GFA} \leq 3,000\text{m}^2$	15 lots	10 lots	30 lots	20 lots
$3,000\text{m}^2 < \text{GFA} \leq 15,000\text{m}^2$	1 lot per $200\text{m}^2$	1 lot per $300\text{m}^2$	1 lot per $100\text{m}^2$	1 lot per $150\text{m}^2$
$\text{GFA} > 15,000\text{m}^2$	75 lots plus 1 lot for every subsequent $600\text{m}^2$	50 lots plus 1 lot for every subsequent $1,000\text{m}^2$	150 lots plus 1 lot for every subsequent $300\text{m}^2$	100 lots plus 1 lot for every subsequent $500\text{m}^2$

## APPENDIX B

### Types of Developments Exempted from Payment of Deficiency Charge

1. Development by non-profit making organisations.
2. Development by charitable organisations.
3. Use of parking lots or car waxing/polishing in developments with under-utilised parking lots including developments where there is no surplus parking provision.
4. Existing parking places affected by requirements of government departments.

NOTE: For developments by non-profit (not-for-profit) and charitable organisations where payment of deficiency charge is exempted, QP is required to provide documental evidence to verify their status.

Sample 1: General Computation of Parking Requirement

COMPUTATION OF PARKING REQUIREMENT FOR NEW ERECTION AND ADDITION & ALTERATION PROPOSALS											SECTION A-1									
<b>INSTRUCTIONS</b>																				
1. Please complete 'Section A-1' for all proposals except change of use proposals and conserved building with rear extension proposals.																				
2. Please ensure the upper and lower bound parking requirements are computed correctly.																				
3. Please refer to 'Code of Practice on Vehicle Parking Provision in Development Proposals' for the:																				
(a) Parking standards.																				
(b) Sample computation for the various types of proposals.																				
4. Floor area details given are the same as that given to CEO (URA), as Competent Authority. The gross floor area must tally with that in the Grant of Written Permission.																				
Parking Standard Zone : (1/2/3/4)*																				
* delete where applicable											Number of Parking Lots Required									
				Computed Lower Bound Requirement						Computed Upper Bound Requirement										
Proposed Usage	GFA (m <sup>2</sup> )	No. of units	Parking Standard	Car	Motor-cycle	Bicycle	Lorry/ Loading bay	Coach	Others ( )	Car	Motor-cycle	Bicycle	Lorry/ Loading bay	Coach	Others ( )					
Shops	2010.89		<b>Zone 3</b> <u>Lower bound</u> * 1 car lot / 200m <sup>2</sup> * 1 motor cycle lot / 3,750m <sup>2</sup> * Bicycle lot when 1,000m <sup>2</sup> = < 3,000m <sup>2</sup> * 1 LU bay / 4,000m <sup>2</sup>  <u>Upper bound</u> * 1 car lot / 160m <sup>2</sup> * 1 motor cycle lot / 3,000m <sup>2</sup>	(10.05) 10	(0.53) 1	10	(0.50) 1			(12.56) 13	(0.67) 1	-	-							
Office	759.5		<b>Zone 3</b> <u>Lower bound</u> * 1 car lot / 260m <sup>2</sup> * 1 motor cycle lots / 5,000m <sup>2</sup> * Bicycle lot when < 1,000m <sup>2</sup> * 1 LU bay / 10,000m <sup>2</sup> (up to 50,000m <sup>2</sup> )  <u>Upper bound</u> * 1 car lot / 210m <sup>2</sup> * 1 motor cycle lot / 4,000m <sup>2</sup>	(2.92) 3	(0.15) 0	0	(0.07) 0			(3.61) 4	(0.18) 0	-	-							
Restaurant	425.9		<b>Zone 3</b> <u>First 160m<sup>2</sup></u> * 1 car lot for the first 160m <sup>2</sup> * 1 motor cycle lot for the first 160m <sup>2</sup>  <u>Lower bound</u> (area exceeding 160m <sup>2</sup> ) * 1 car lot / 70m <sup>2</sup> * 1 motor cycle lot / 1,250m <sup>2</sup> * Bicycle lot when < 1,000m <sup>2</sup>  <u>Upper bound</u> (area exceeding 160m <sup>2</sup> ) * 1 car lot / 50m <sup>2</sup> * 1 motor cycle lot / 1,000m <sup>2</sup>	(4.79) 5	(1.21) 1	0			(6.31) 6	(1.26) 1	-	-								
<b>Total</b>	<b>3196.29</b>			<b>18</b>	<b>2</b>	<b>10</b>	<b>1</b>			<b>23</b>	<b>2</b>	<b>-</b>	<b>-</b>							

## Sample 2: Parking Computation for Change of Use Proposals

COMPUTATION OF PARKING REQUIREMENT FOR CHANGE OF USE PROPOSALS											SECTION A-2					
<b>INSTRUCTIONS</b>																
1. Please complete 'Section A-2' for change of use proposals only.																
2. Please ensure the upper and lower bound parking lots requirements are computed correctly.																
3. Please refer to 'Code of Practice on Vehicle Parking Provision in Development Proposals' for the:																
(a) Parking standards.																
(b) Sample computation for the various types of proposals.																
Parking Standard Zone : <del>(1/2/3/4)</del> *																
* delete where applicable																
	Usage	GFA (m <sup>2</sup> )	Parking Standard	Computed Lower bound Requirement						Computed Upper bound Requirement						
				Car	Motor-cycle	Bicycle	Lorry / Loading bay	Coach	Others ( )	Car	Motor-cycle	Bicycle	Lorry / Loading bay	Coach	Others ( )	
Original Use (A)	Shop	301.5	<b>Zone 3</b> <u>Lower bound</u> * 1 car lot / 200m <sup>2</sup> * 1 motor cycle lot / 3,750m <sup>2</sup> * Bicycle lot when < 1,000m <sup>2</sup> * 1 LU bay / 4,000m <sup>2</sup>  <u>Upper bound</u> * 1 car lot / 160m <sup>2</sup> * 1 motor cycle lot / 3,000m <sup>2</sup>	(1.50) 2	(0.08) 0	0	(0.07) 0				(1.88) 2	(0.10) 0	-	-		
Proposed Use (B)	Eating House	301.5	<b>Zone 3</b> First 160m <sup>2</sup> * 1 car lot for the first 160m <sup>2</sup> * 1 motor cycle lots for the first 160m <sup>2</sup>  <u>Lower bound</u> (area exceeding 160m <sup>2</sup> ) * 1 car lot / 70m <sup>2</sup> * 1 motor cycle lot / 1,250m <sup>2</sup> * Bicycle lot when < 1,000m <sup>2</sup>  <u>Upper bound</u> (area exceeding 160m <sup>2</sup> ) * 1 car lot / 50m <sup>2</sup> * 1 motor cycle lot / 1,000m <sup>2</sup>	(3.02) 3	(1.11) 1	0				(3.82) 4	(1.14) 1	-				
<b>Additional requirement for the change of use (B - A)</b>				<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>				<b>2</b>	<b>1</b>	-	-		

## Sample 3: Computation for Parking Requirement of a Conserved Building with Rear Extension

COMPUTATION OF PARKING REQUIREMENT FOR CONSERVED BUILDING WITH REAR EXTENSION PROPOSALS													SECTION A-3		
<b>INSTRUCTIONS</b>															
1. Please complete 'Section A-3' for conserved building with rear extension proposals only. 2. Please ensure the upper and lower bound parking lots requirements are computed correctly. 3. Please refer to 'Code of Practice on Vehicle Parking Provision in Development Proposals' for the: (a) Parking standards. (b) Sample computation for the various types of proposals.															
Parking Standard Zone : <u>(3/2/3/4)*</u> * delete where applicable															
PROPOSED DEVELOPMENT (WHOLE DEVELOPMENT)				Computed Lower Bound Requirement						Computed Upper Bound Requirement					
Proposed Use	GFA (m <sup>2</sup> )	Parking Standard	No. of units	Car	Motor-cycle	Bicycle	Lorry / Loading bay	Coach	Others ( )	Car	Motor-cycle	Bicycle	Lorry / Loading bay	Coach	Others ( )
Eating	158.9	Zone 2 First 160m2 * 1 car lot for the first 160m2 * 1 motor cycle for the first 160m2  <u>Lower bound</u> (area exceeding 160m2) * 1 car lot / 130m2 * 1 motor cycle lot / 2,400m2 * Bicycle lot when < 1,000m2  <u>Upper bound</u> (area exceeding 160m2) * 1 car lot / 60m2 * 1 motor lot / 1,200m2		(0.99) 1	(0.99) 1	0				(0.99) 1	(0.99) 1	-			
Office	355	Zone 2 <u>Lower bound</u> * 1 car lot / 530m2 * 1 motor cycle lot / 10,000m2 * Bicycle lot when < 1,000m2 * 1 LU bay / 10,000m2 (up to 50,000m2)  <u>Upper bound</u> * 1 car lot / 330m2 * 1 motor cycle lot / 6,250m2		(0.66) 1	(0.03) 0	0	(0.03) 0			(1.07) 1	(0.56) 0	-	-		
<b>Requirement whole development (A)</b>	<b>513.9</b>			<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>			<b>2</b>	<b>1</b>	<b>-</b>	<b>-</b>		
CONSERVED PORTION															
Conserved Use	GFA (m <sup>2</sup> )	Parking Standard	No. of units	Car	Motor-cycle	Bicycle	Lorry / Loading bay	Coach	Others	Car	Motor-cycle	Bicycle	Lorry / Loading bay	Coach	Others
Eating	68.8	Zone 2 First 160m2 * 1 car lot for the first 160m2 * 1 motor cycle lots for the first 160m2  <u>Lower bound</u> (area exceeding 160m2) * 1 car lot / 130m2 * 1 motor cycle lot / 2,400m2 * Bicycle lot when < 1,000m2  <u>Upper bound</u> (area exceeding 160m2) * 1 car lot / 60m2 * 1 motor cycle lot / 1,200m2		(0.43) 0	(0.43) 0	0				(0.43) 0	(0.43) 0	-			
Office	132.5	Zone 2 <u>Lower bound</u> * 1 car lot / 530m2 * 1 motor cycle lot / 10,000m2 * Bicycle lot when < 1,000m2 * 1 LU bay / 10,000m2 (up to 50,000m2)  <u>Upper bound</u> * 1 car lot / 330m2 * 1 motor cycle lot / 6,250m2		(0.25) 0	(0.01) 0	0	(0.01) 0			(0.40) 0	(0.02) 0	-	-		
<b>Requirement Conserved Portion (B)</b>	<b>201.3</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>	<b>-</b>	<b>-</b>		
<b>Requirement of the Rear Extension (A) - (B)</b>				<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>			<b>2</b>	<b>1</b>	<b>-</b>	<b>-</b>		

## APPENDIX D

The following developments are exempted from obtaining Vehicle Parking clearance:

1. Developments in off-shore islands;
2. Bungalows/detached houses, semi-detached and terrace houses where at least 1 car porch is provided per house;
3. Development of land for the purpose of farming;
4. Amendments, additions and alterations which do not involve additional floor area and conversion of use of floor area and which do not affect existing or approved parking layout or provision;
5. Ancillary use of HDB void decks;
6. Change of use of premises which involves less than 160 m<sup>2</sup> of gross floor area;
7. Developments within any rapid transit system stations;
8. Renewal of written permission in respect of new erections;
9. Additions or erections of covered linkways or walkways that do not affect existing or approved parking layout or provision;
10. Development of public bus interchanges, bus depots and rapid transit system depots;
11. Development of land within a conservation area designated under the Planning Act (Cap. 232) comprising solely the conservation of all the buildings on the land in accordance with the requirements of the conservation authority under that Act and for which written permission has been granted by the competent authority under that Act.