APPENDIX A

DESIGN OF LINEAR PARKING CONTROL PANELS AND SIGNS

A1 SCOPE

This Appendix specifies the design and dimensions of panel components for Linear Parking Control panels and their spacing on the panels, gives examples of messages in each category of panel component and recommends a system of arranging panels to form multiple panel signs.

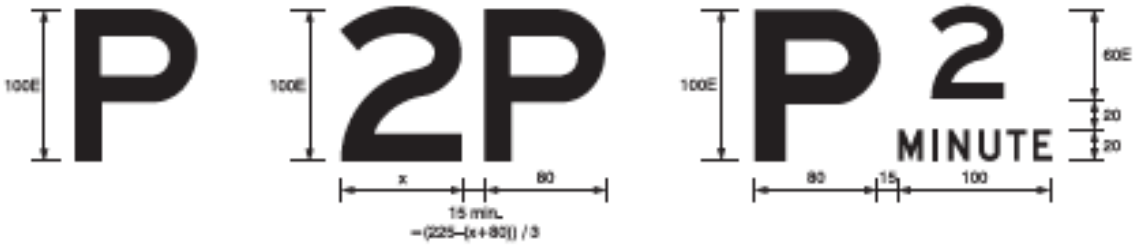
A2 DESIGN AND DIMENSIONS OF PANEL COMPONENTS

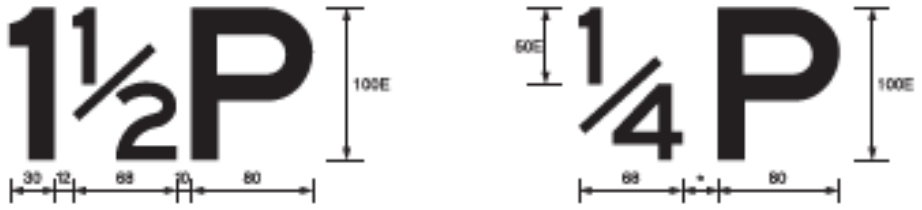
A2.1 General

The design and dimensions of standard panel components in millimetres shall be as specified below. Where a length is specified for a word rather than a letter series and spacing, a computer generated intermediate letter series and spacing will be needed to meet that requirement.

A2.2 Type of control and method of parking

Design and dimensions of these panel components shall be as indicated by the following examples and accompanying notes:



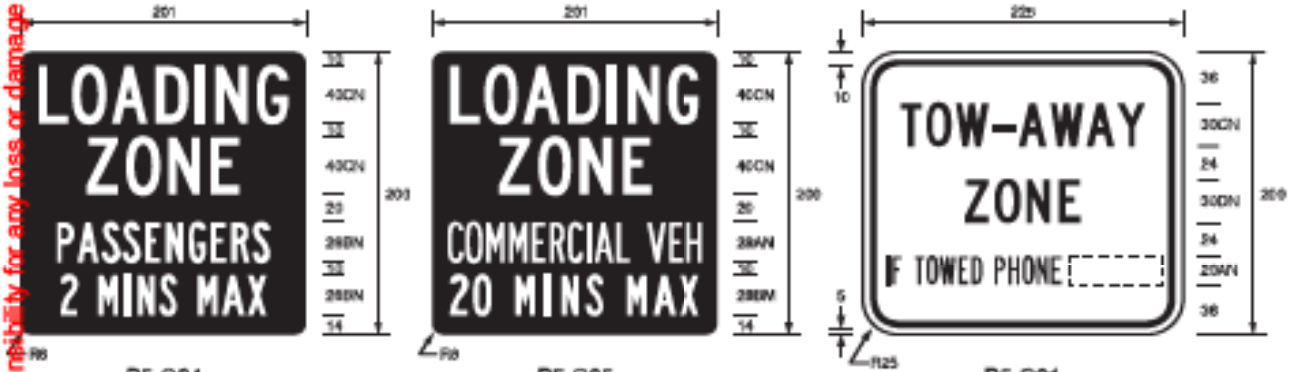


* Spacing 26 mm. Use this same spacing for 1/2 P.

† Use Series D, except when word length would otherwise exceed 196 mm, in which case, letter width is reduced so that word length is 195 mm. Use narrow spacing.

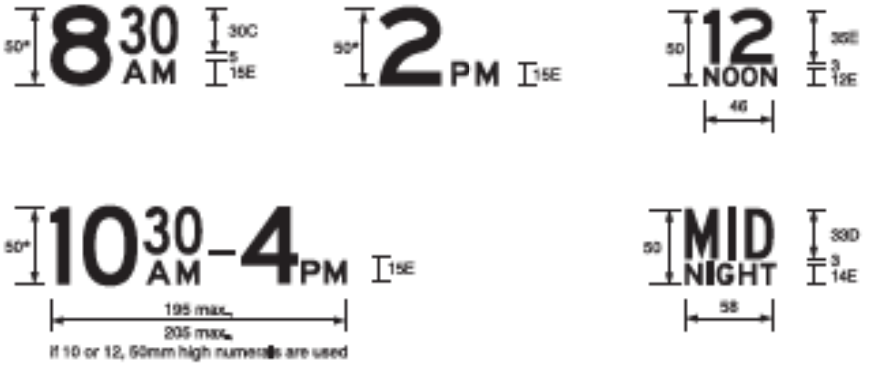
* Zone type: BUS, TAXI, MAIL - Series EN
LOADING, TRUCK, PERMIT, WORKS - Series C
with letter spacing adjusted to give word length
= 181 mm

** ZONE: In conjunction with BUS, TAXI, MAIL - Series E
with letter spacing adjusted to give word length
= 181 mm
In conjunction with LOADING, TRUCK, PERMIT,
WORKS - Series CN

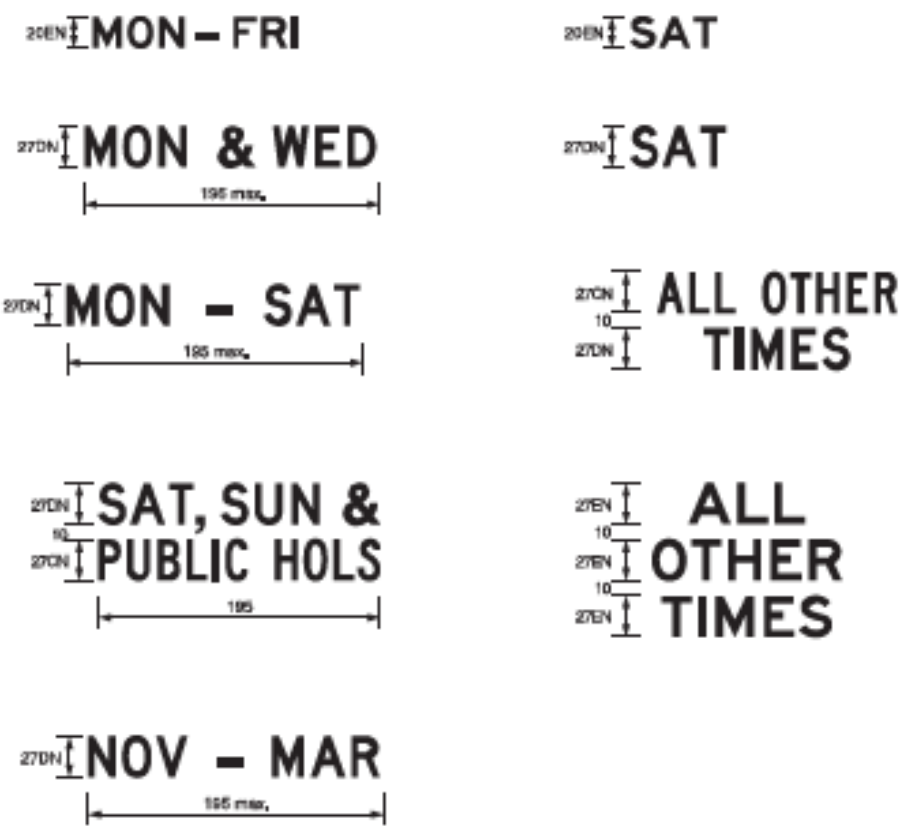


A2.3 Times of operation

Design and dimensions of Times of Operation panel components shall be as indicated by the following examples and accompanying notes:



* Use Series E, except for 10 and 12 (50 mm high) which are series D.



A2.4 User limitations

The size of lettering for the legend of these panel components shall be 35 mm. Series D narrow spacing shall be used, except when the word length would otherwise exceed 195 mm, in which case, the letter width shall be reduced so that the word length is 195 mm. Dimensions of symbols are specified as follows:

The dimensions for time limits on Zone panels should be as follows:

A2.5 Arrows

The dimensions of single-headed and double-headed arrows shall be as follows:

A2.6 Spacing of components on panels

The spacing between adjacent lines, components and panel edges should be as follows:

(a) *Between the lines of one component:*

(i) Between two different times of operation on two different sets of days - 15 mm.

(ii) Between the parking duration symbol and a method of parking or payment - 15 mm min.

(iii) Otherwise - 10 mm.

(b) *Between two components:*

(i) Above an arrowhead - 10 mm min.

(ii) Below a No Stopping, No Parking or Clearway symbol - 10 mm min.

(iii) Below a Zone block - 13 mm min.

(iv) Between a Zone block and a time limit on a narrow panel - 13 mm.

(v) Otherwise - 15 mm min.

(c) *Between a component and a panel edge:*

(i) Between a Zone block and the top or side edges - 12 mm.

(ii) Between the hours of operation and the side edges, if 10 or 12 (50 mm high) - 10 mm min.

(iii) Between the hours of operation and the side edges, other cases - 15 mm min.

(iv) Between the duration symbol and the side edges for 1 1/2 hour parking - 12 mm.

(v) Between the arrowhead and the bottom edge - 13 mm.

(vi) Between a time limit on a wide Zone panel and the top edge - 12 mm.

(vii) Otherwise - 15 mm min.

(d) *Other:*

If bolt holes are required, they shall be centred across each plate, 10 mm clear of the top and bottom edge.

A2.7 Other panel and sign dimensions

Every line of text or symbol in a narrow panel shall be centred across the panel. On wide panels, information within each half should have a common vertical centreline. In both cases the whole panel should have a balanced appearance.

Lines separating panels shall be 5 mm wide and shall encroach equally within the dimensions of the abutting panels (see also Clause 3.2).

Corners of all plates shall be rounded with a 20 mm radius.

A3 PANEL COMPONENT MESSAGES

A3.1 General

The following lists the panel component messages in common use. Where a requirement is met by one of the messages listed it shall be used.

A3.2 Times of operation

Times of operation messages shall follow the principles illustrated in the following examples:

(a) Time period - AM only:

6.30-8.30 AM

7-9 AM

7-9.30 AM

(b) Time period - PM only:

2.30-3.30 PM

3-4 PM

4-6.30 PM

(c) Time period - spanning noon:

6.30 AM-6.30 PM

7 AM-6 PM

9 AM-4.30 PM

7 AM-12 NOON // 12 NOON-9 PM*

(d) Time period - starting or ending at noon:

9 AM-12 NOON

12 NOON-4.30 PM

(e) Time period spanning midnight:

8.30 PM-1 AM

10 PM-2 AM

6.30 PM-MIDNIGHT // MIDNIGHT-6.30 AM†

(f) Days of the week:

MON-FRI

SAT

MON-SAT

SAT & SUN

SAT, SUN & PUBLIC HOLS**

PUBLIC HOLS

SCHOOL DAYS**

(g) Months of the year:

NOV-MAR

(h) ALL OTHER TIMES

A3.3 Methods of parking and payment

The following messages are applicable only to panels permitting parking:

(a) *Method of parking:*

PARALLEL (see Note 1)

ANGLE (see Note 2)

...° ANGLE (specify degrees) (see Note 2)

REAR IN

FRONT IN

CENTRE (see Note 3)

NO LIMIT (see Note 4)

---

* Used where a driver could mistake 7 AM-9 PM as being 7 AM-9 AM. '//' indicates a line break.

† Used where a driver could mistake 6.30 PM-6.30 AM for an all-day period rather than an all-night period. '//' indicates a line break.

** These are placed on two lines (lines with more than 10 letters should be avoided).

NOTES:

1. It is not usually necessary to include PARALLEL on a parking panel as most regulations specify parallel-parking as the method to be used when no other method is indicated. However, where most parking is at an angle and parallel-parking applies to a short section of kerb, it may be necessary to specify PARALLEL.

   Where parking is at an angle and the method of payment has to be indicated on the sign, ANGLE may be omitted from the sign if individual parking bays are marked.

   In most cases the word CENTRE need not be used as the P symbol and arrow indicate the direction of a legal parking area.

   NO LIMIT shall only be used within an area controlled by Parking Area signs, where it is desired to override the general parking time limit.

   References to parking permit schemes are not included on parking panels (see Clause 3.3.4).

(b) *Method of payment:*

METER
TICKET
VOUCHER
DISC
COUPON
PAY & DISPLAY

3.3.4 User limitations

The following messages are applicable to the panel types as listed below. The qualifying terms ONLY and EXCEPTED shall be used strictly in accordance with Clause 3.3.4.

(a) *Parking panels* (see Note 1)

Bicycles//ONLY
Symbol of access//ONLY
CARS WITH//CARAVAN//ONLY
CARS WITH//TRAILER//ONLY
MOTOR//BIKES//ONLY
ON VERGE

(b) *Zone panels*

LOCAL (for Bus Zone) (see Notes 2 and 3)
INTERCITY (for Bus Zone) (see Notes 2 and 3)
15 MINS MAX
1 HOUR MAX

(c) *No stopping and No parking panels* (see Notes 1,4 and 5)

PRIVATE//VEHICLES//EXCEPTED
CONSULAR//VEHICLES//EXCEPTED
EMERGENCY//VEHICLES//EXCEPTED
AMBULANCES//EXCEPTED
FIRE B'GADE//VEHICLES//EXCEPTED
BLOOD BANK//VEHICLES//EXCEPTED
POLICE//VEHICLES//EXCEPTED
ON VERGE

NOTES:

1. '//' indicates a break of line (avoid lines with more than ten letters).

2. These user limitations should only be used where other buses or coaches may otherwise block a bus stop. Bus service information is placed on the bus stop sign and not on the zone panel.

3. In other cases, specify the permitted user, e.g.
   Bus line (e.g. MTA, for bus zone) (see Note 2)
   AREA ..... (specify no. for permit zone)
   NO..... (specify no. for permit zone).

4. The use of this type of user limitation is limited as the common types of exceptions are catered for by zone panels.

5. In other cases, specify the excepted users, e.g.
   ..... //EXCEPTED (specify user class).

A4 PANEL ARRANGEMENT ON SIGNS

Recommended arrangements for panels on multi-panel signs are shown in Figure A1. For convenient reference purposes, each arrangement has a code number.

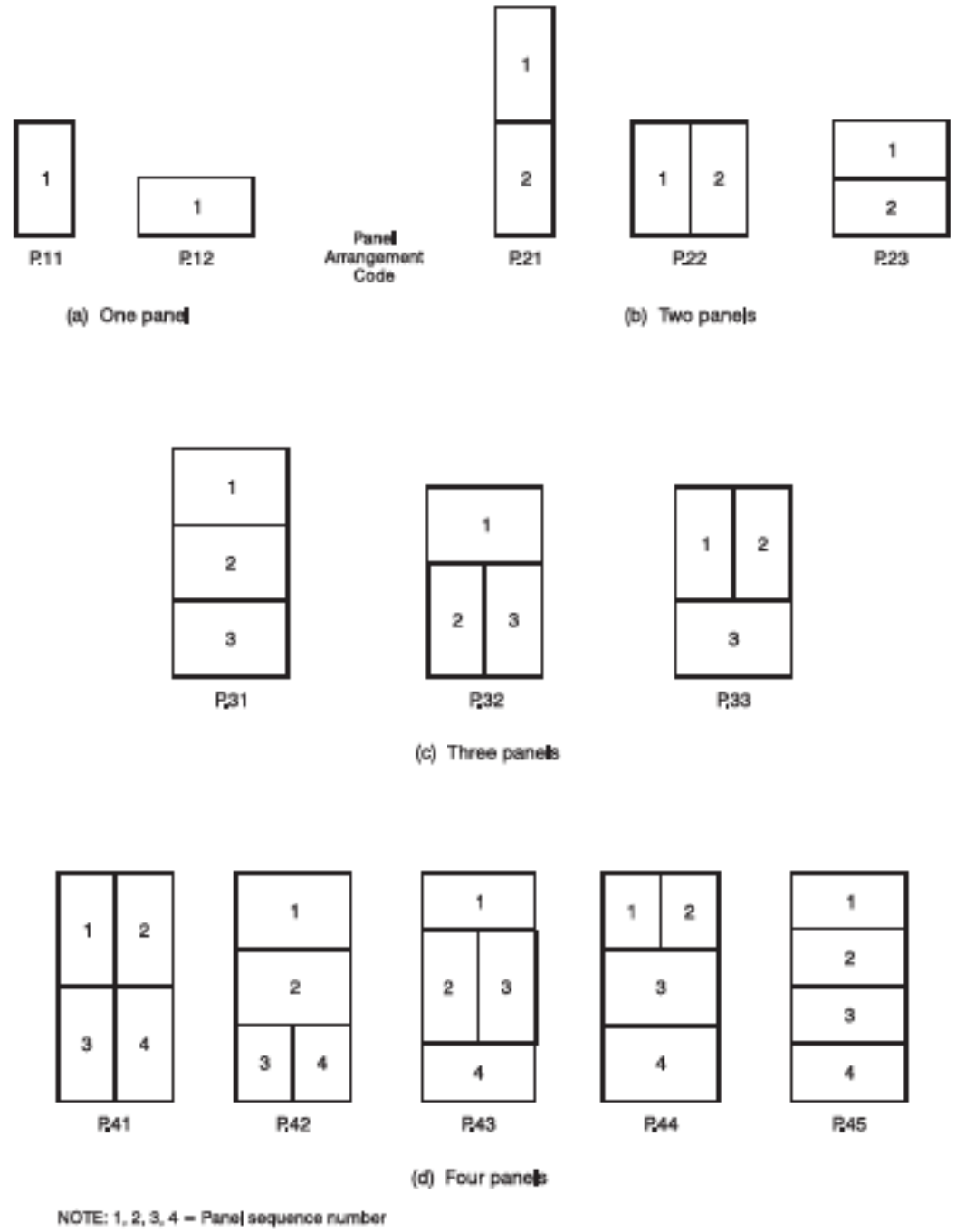


Figure A1 PANEL ARRANGEMENTS ON SIGNS

A5 EXAMPLES OF MULTIPLE PANEL SIGNS

The examples of multiple-panel signs shown in Figure A2 indicate the way in which various parking control panels may be combined on one plate to make up one sign and alternatively, how individual parking control panels may be mounted side by side. These signs are used for the examples in Appendix B.

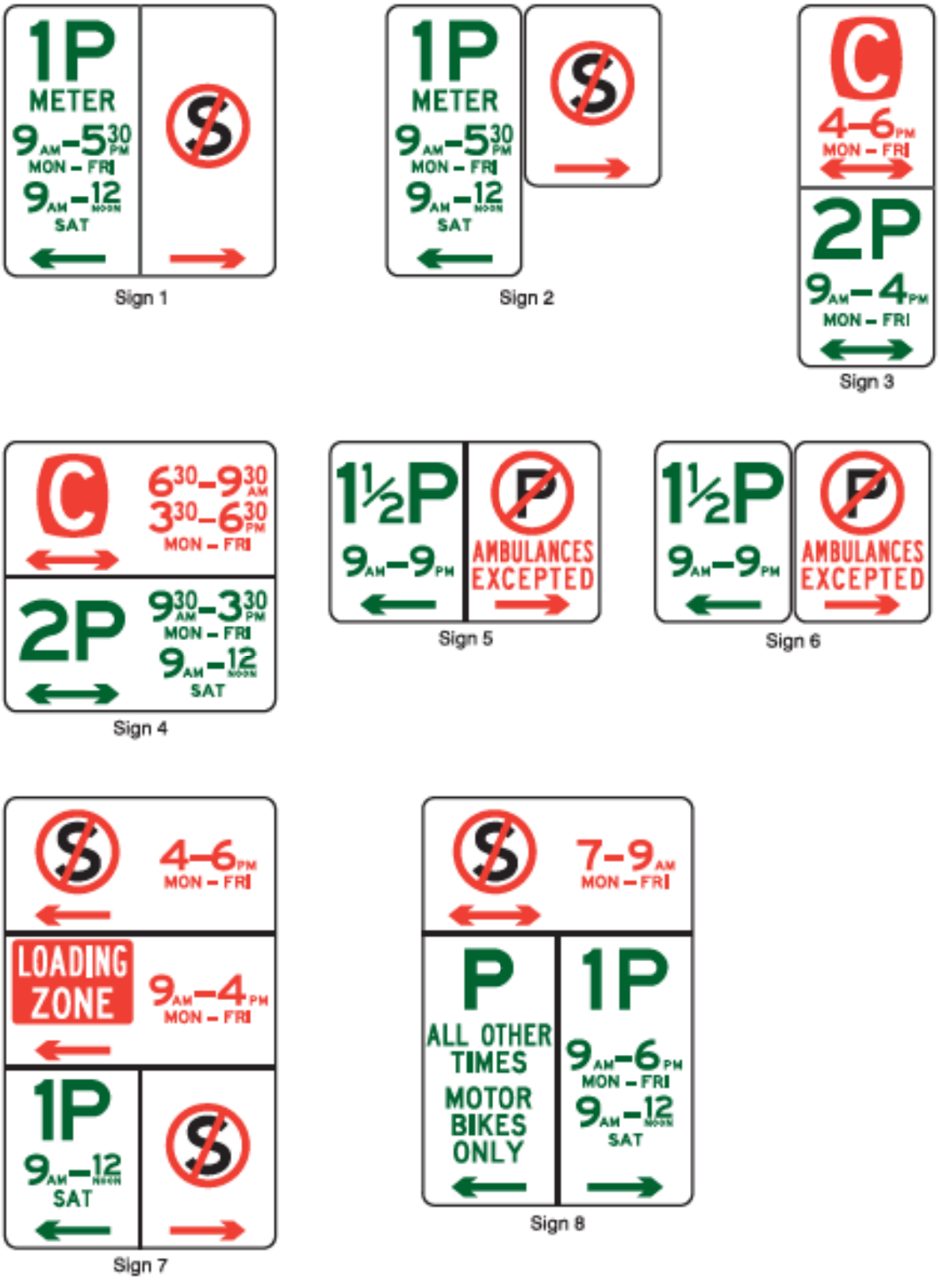


Figure A2 EXAMPLES OF MULTIPLE PANEL SIGNS

APPENDIX B

EXAMPLES - DESIGN OF LINEAR PARKING CONTROL SIGNS

(This Appendix does not form an integral part of this Manual)

B1 SCOPE

This Appendix gives examples of how the principles in Section 3 may be used to design Parking Control panels. In each example, the type of parking control along each road has been agreed to and the examples show how the desired control is translated into panel and sign designs (see also Figure A2).

B2 EXAMPLE 1: SIGNS 1 AND 2 IN FIGURE A2

B2.1 Location description

Busy shopping street; shops open 5 1/2 days a week; parking meters operate.

B2.2 Parking control desired

One-hour meter parking, 9 am-5.30 pm Mon-Fri and 9 am-noon Sat.

B2.3 Sign positions

On the approach to an intersection at the extremity of meter parking and the start of No Stopping control.

B2.4 Panel arrangement

Use arrangement P.22 (see Paragraph A4), as the controls do not overlap. Consider arrangement P.23 with panel size W2 (see Clause 3.5) only if there is insufficient space on narrow panels.

B2.5 Panel components

(See Paragraphs A2.2 to A2.6).

Component	Details
Panel 1	
Type of control	One-hour parking Meter
Times	9 am-5.30 pm, Mon-Fri 9 am-12 noon, Sat
Arrow	Left
Panel 2	
Type of control	No stopping anytime
Arrow	Right

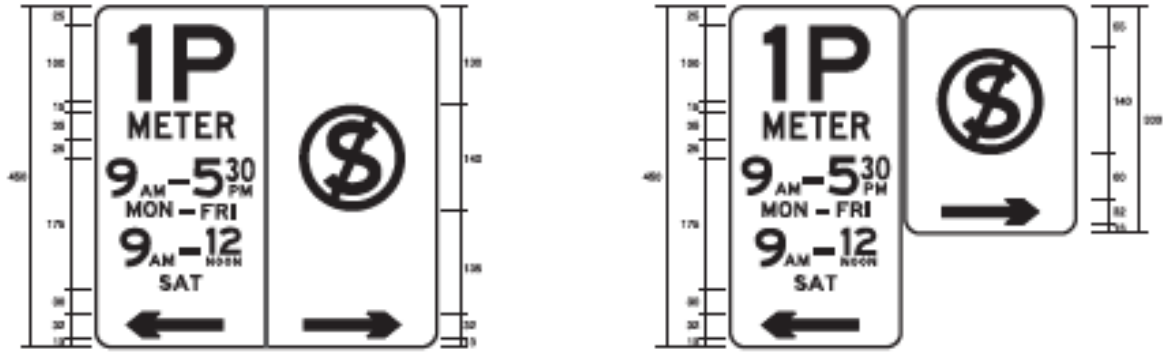
B2.6 Panel sizes

From the dimensions in Clause C2, the minimum depths and consequent panel sizes are as follows:

Panel	Minimum depth	Panel size
Panel 1	410 mm	N2
Panel 2	210 mm	N1 or N2

B2.7 Layout of signs

Figure B1 shows the sign layout when the panels are the same depth, as would be the case when the sign is made on one plate. It also shows the layout when the panels are made separately to minimum depths.



(a) Panels on one plate

(b) Panels on separate plates for mounting side by side

Figure B1 LAYOUT OF SIGNS – EXAMPLE 1

B3 EXAMPLE 2: SIGN 3 IN FIGURE A2

B3.1 Location description

Business area with offices open 5 days a week; afternoon clearway.

B3.2 Parking control desired

Two-hour parking, 9 am-4 pm Mon-Fri; Clearway 4-6 pm, Mon-Fri.

B3.3 Sign position

Midblock location with clearway and parking restrictions continuous on both sides of the sign.

B3.4 Panel arrangement

Use arrangement P.21 or P.23 (see Paragraph A4) as the controls overlap. Firstly, consider using arrangement P.21, then consider P.23. Panel 1 is the Clearway panel (see Clause 3.4.2).

B3.5 Panel components

(See Paragraphs A2.2 to A2.6).

Component	Details
Panel 1	
Type of control	Clearway
Times	4-6 pm, Mon-Fri
Arrow	Double
Panel 2	
Type of control	Two-hour parking
Times	9 am-4 pm, Mon-Fri
Arrow	Double

B3.6 Panel sizes

From the dimensions in Clause A2, the minimum depths and consequent panel sizes are as follows:

Panel	Minimum depth	Panel size
Panel 1	300 mm	N1
Panel 2	265 mm	N1

B3.7 Layout of sign

Figure B2 shows that a sign layout for panel arrangement P.21 (see Paragraph A4) is possible. Panel arrangement P.23 would result in a larger sign, which may be more expensive, with two panels of size W1.

Figure B2 LAYOUT OF SIGN EXAMPLE 2

B4 EXAMPLE 3: SIGN 4 IN FIGURE A2

B4.1 Location description

Near a shopping centre; shops open 5 1/2 days a week; morning and afternoon clearways apply on both sides of the road.

B4.2 Parking control desired

Two-hour parking 9.30 am-3.30 pm, Mon-Fri and 9 am-noon Sat: clearway 6.30-9.30 am and 3.30-6.30 pm, Mon-Fri.

B4.3 Sign position

Midblock location with clearway and parking restrictions continuous on both sides of the sign.

B4.4 Panel arrangement

The same alternatives are available as in Example 2. In this example, both panels have additional lines of legend for the times of operation, compared with Example 2. This will not fit within narrow panels of size N1, but will fit within size N2, in both cases. The more compact panel arrangement P.23 is chosen in this example (see Paragraph A4).

B4.5 Panel components

(See Paragraphs A2.2 to A2.6.)

Component	Details
Panel 1	
Type of control	Clearway
Times	6.30-9.30 am
	3.30-6.30 pm
	Mon-Fri
Arrow	Double
Panel 2	
Type of control	Two-hour parking
Times	9.30 am-3.30 pm, Mon-Fri
	9 am-12 noon, Sat
Arrow	Double

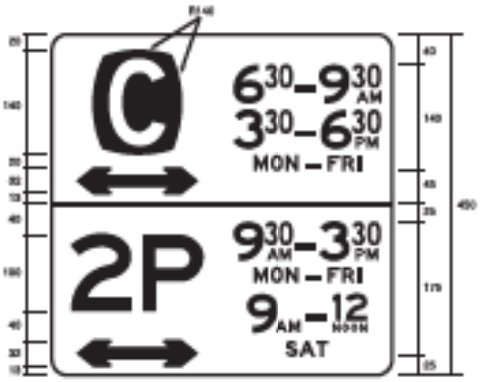
B4.6 Panel sizes

From Figure A2, Clause 3.4.1 and the dimensions in Clause A2, the minimum depths and consequent panel sizes are as follows:

Panel	Minimum depth	Panel size
Panel 1	210 mm	W1
Panel 2	205 mm	W1

B4.7 Layout of sign

Figure B3 shows the sign layout using panel arrangement P.23 (Paragraph A4).



NOTE: If the 2P restriction were only to the right, the 2P and right pointing arrow would be on the right side of the panel and the times would be on the left side.

Figure B3 LAYOUT OF SIGN – EXAMPLE 3

B5 EXAMPLE 4: SIGNS 5 AND 6 IN FIGURE A2

B5.1 Location description

Outside a hospital entrance, with visitor parking located in advance of a pickup/set down area also used for patient transfers by ambulance.

B5.2 Parking control desired

Visitor parking: 90 minute parking, 9 am-9 pm every day; pickup/set down: no parking anytime, ambulances excepted.

B5.3 Sign position

At the change from one restriction to the other.

B5.4 Panel arrangement

Use panel arrangement P.22 (see Paragraph A4) as the controls do not overlap. Consider arrangement P.23 with panel size W2 (see Clause 3.5) only if there is insufficient space on narrow panels.

B5.5 Panel components

(See Paragraphs A2.2 to A2.6.)

Component	Details
Panel 1	
Type of control	1 1/2-hour parking
Times	9 am-9 pm
Arrow	Left
Panel 2	
Type of control	No parking anytime
User limitation	Ambulances excepted
Arrow	Right

B5.6 Panel sizes

From the dimensions in Clause A2, the minimum depths and consequent panel sizes are as follows:

Panel	Minimum depth	Panel size
Panel 1	235 mm	N1
Panel 2	300 mm	N1

B5.7 Layout of signs

Figure B4 shows the sign layout which would occur when the panels are made on the one plate. It also shows the layout when the panels are made separately. Unlike Example 1, both methods produce panels of the same depth. In both cases panels of size N2 (see Clause 3.5) may be used instead.

(a) Panels on one plate

(b) Panels on separate plates for mounting side by side

Figure B4 LAYOUT OF SIGNS - EXAMPLE 4

B6 EXAMPLE 5: SIGN 7 IN FIGURE A2

B6.1 Location description

Close to an intersection, where there is a weekday loading zone. The space is available for one-hour parking on Saturday mornings. A new pm peak No Stopping area is proposed, approaching the intersection.

B6.2 Parking control desired

As shown in Figure B5 with the Loading Zone time of operation altered to be consistent with the new restriction.

B6.3 Sign position

Figure B5 shows the required position of the sign.

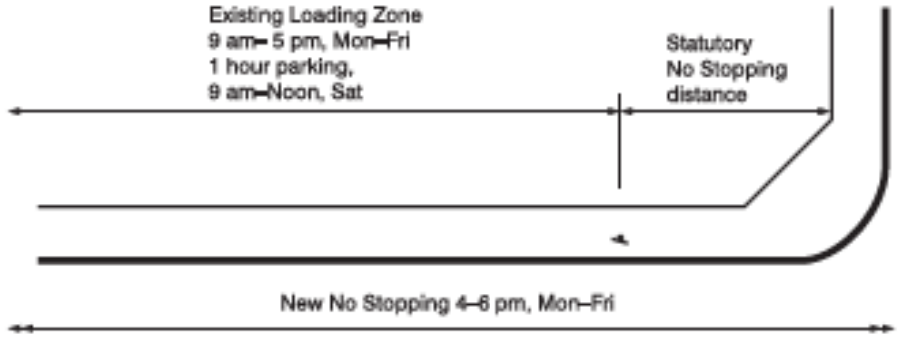


Figure B5 POSITION OF SIGN – EXAMPLE 5

B6.4 Check for consistency

Check that new No Stopping times and existing times do not overlap. No Stopping Anytime is already signed to the right, so only sign the new pm No Stopping to the left.

B6.5 Panel arrangement

The four separate controls require four panels. Three panels point to the left and one to the right (see Clause 3.4.2(a)). From Example 1, the No Stopping Anytime control will fit into panel size N1. If one other control also fits into panel size N1, then panel arrangement P.42, P.43 or P.44 will result in a smaller sign than P.45. Panel arrangement P.41 is not suitable (see Paragraph A4).

B6.6 Panel components

Establish the minimum depth of the three left-pointing panels in narrow format (see Paragraphs A2.2 to A2.6).

Component	Details
Loading Zone panel	
Type of control	Loading zone
Times	9 am–4 pm, Mon-Fri
Arrow	Left
Parking panel	
Type of control	One-hour parking
Times	9 am-12 noon, Sat
Arrow	Left
PM No stopping panel	
Type of control	No stopping
Times	4-6 pm, Mon-Fri
Arrow	Left

B6.7 Panel sizes

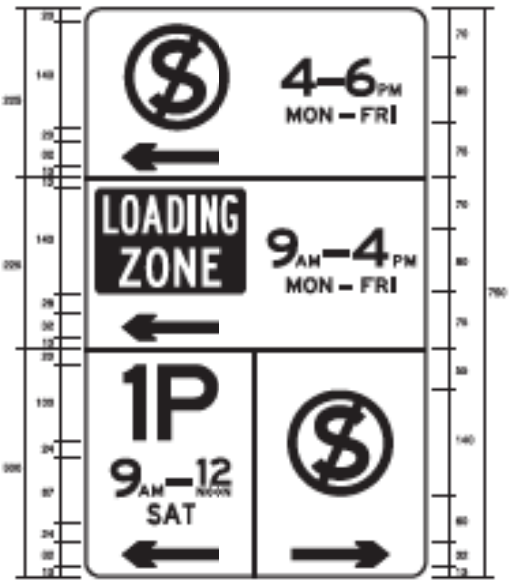
From the dimensions in Clause A2, the minimum depths and consequent panel sizes in narrow format are as follows:

Panel	Minimum depth	Panel size
Loading Zone	300 mm	N1
Parking	272 mm	N1
PM No stopping	300 mm	N1

NOTE: The legend 'SAT' on the parking panel is 27 mm high as the panel has no Mon-Fri components (see Clause 3.3.3(b) (iii) and (iv)).

B6.8 Layout of sign

All three left-pointing panels can fit into panel size N1. They can also all fit into the larger area of panel size W1. Consider Clause 3.4.2 and place controls requiring greater emphasis into the wide panels in panel arrangement P.42, P.43 or P.44 (see Paragraph A4). Locating the more restrictive controls in the W1 panels results in using panel arrangement P.42, for example. This is shown in Figure B6. Refer to Figure A2, Clause 3.4.1 for layout of wide panels.



NOTE: Other layouts are possible within the design rules.

Figure B6 LAYOUT OF SIGN - EXAMPLE 5

B7 EXAMPLE 6: SIGN 8 IN FIGURE A2

B7.1 Location description

In a business area, with an a.m. peak No Stopping restriction. Once this restriction ends, motor bikes may park in one area, located in advance of short-term parking for other motor vehicles, 5 1/2 days a week.

B7.2 Parking control desired

No Stopping 7-9 am, Mon-Fri; Parking, all other times, motor bikes only; one-hour parking 9 am-6 pm, Mon-Fri, 9 am-12 noon, Sat.

B7.3 Sign position

At the change from one restriction to the other (see Part 1 of this Manual). No Stopping control is continuous on both sides of the sign.

B7.4 Check for consistency

The motor bike parking control requires a time of operation, to avoid overlapping the No Stopping restriction.

B7.5 Panel arrangement

The No Stopping restriction should be located at the top of the sign (see Clause 3.4.2). Arrangement P.32 is preferred over P.31 (see Paragraph A4) as the division between restrictions is more obvious. If P.32 provides insufficient space on any panel, use arrangement P.31 with wide panels of size W2.

B7.6 Panel components

(See Paragraphs A2.2 to A2.6.) Panel arrangement P.32 is used.

Component	Details
Panel 1 (Wide)	
Type of control	No stopping
Times	7-9 am, Mon-Fri
Arrow	Double
Panel 2 (Narrow)	
Type of control	Parking
Times	All other times
User limitation	Motor bikes only
Arrow	Left
Panel 3 (Narrow)	
Type of control	One-hour parking
Times	9 am-6 pm, Mon-Fri 9 am-12 noon, Sat
Arrow	Right

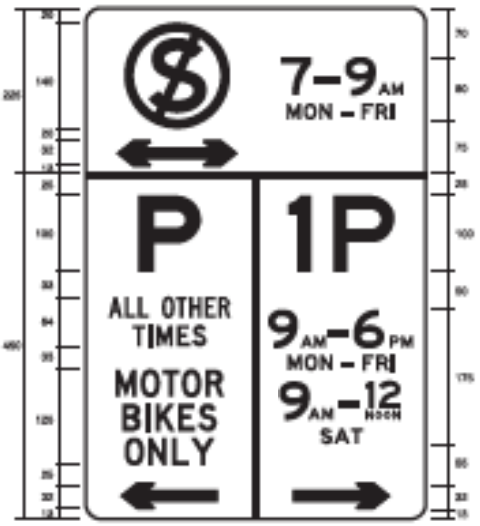
B7.7 Panel sizes

From Figure A2, Clause 3.4.1 and the dimensions in Clause A2, the minimum depths and consequent panel sizes are as follows:

Panel	Minimum depth	Panel size
Panel 1	210 mm	W1
Panel 2	389 mm	N2
Panel 3	360 mm	N2

B7.8 Layout of sign

The panels fit with panel arrangement P.32 (see Paragraph A4). The sign layout is shown in Figure B7.



NOTE: P and 1P are lined up horizontally to balance appearance.

Figure B7 LAYOUT OF SIGN – EXAMPLE 6

APPENDIX C

GUIDELINES FOR THE APPLICATION OF PARKING CONTROLS

C1 SCOPE

This Appendix sets out guidelines for the provision of on-street parking facilities. It includes provisions for special classes of vehicles and for people with disabilities together with guidelines for the control of parking.

C2 INTRODUCTION

C2.1 General

The amount of road that can be used for parking in any city is limited and the proportion available usually decreases as the city increases in size. As stopping and parking demands grow, it is necessary to regulate parking in the following ways:

(a) By allocating some parking space to particular types of vehicles, to the exclusion of others (see Clause C7).

(b) By placing time limits on parking (see Clause C8).

(c) By implementing clearways and No Stopping restrictions (see Clauses 3.3.2 and 4.3).

Further parking demands may be satisfied by providing angle-parking or centre-of-road parking, but opportunities to provide these safely are usually limited. Eventually, off-street parking facilities may become the only remaining alternative.

C2.2 Types of parking

Parking may be classified into the following types:

(a) Kerbside parking:

  (i) Parallel-kerbside parking (see Clause C3).

  (ii) Angle-kerbside parking (see Clause C4).

(b) Centre-of-road parking (see Clause C5).

(c) Off-street parking (see Clause C6).

The type of kerbside parking allowed in a road depends on a number of factors including -

(a) width of road;

(b) volume, speed and type of traffic; and

(c) functional classification of the road.

C2.3 Dimensions of design vehicle and bay sizes

The lengths and widths of parking bays are related to vehicle dimensions. In Australia, 85 percent of cars have dimensions less than those listed below (see AS 2890):

(a)	Overall length	4740 mm
(b)	Overall width	1860 mm
(c)	Front overhang	813 mm
(d)	Rear overhang	1100 mm

Bay widths and bay lengths for parallel-kerbside parking and angle-kerbside parking are shown in Figures C1 and C2.

Recommended minimum bay widths for angle-kerbside parking are related to the parking turnover. This concept was developed for AS 2890 and relates to the frequency of parking and unparking manoeuvres and the requirements of various car doors to be opened. Table C1 is a compilation of information provided in AS 2890.

Table C1 ANGLE-PARKING SPACE WIDTHS RELATED TO PARKING TURNOVER

Use Category	Examples of users	Required door opening	Space width m
1 Low Turnover	Tenant, employee and commuter parking, universities (generally all-day parking)	Front door, opened to first stop	2.4
2 Medium Turnover	Long-term and short-term city and town centre parking, sports facilities, entertainment centres, hotels, motels, airport visitors (generally more than 2 hour parking)	Front door, opened to second stop	2.5
3 High Turnover	Shopping centres, department stores, supermarkets, hospitals and medical centres (generally short-term parking and where children and goods can be expected to be loaded into the vehicles)	Rear door, fully opened	2.6
a	For situations where parking turnover is high or where wider bays are possible.	Front door, fully opened	2.7
People with disabilities		Front door, fully opened plus wheelchair manoeuvre space	3.2 min 3.8 des.

NOTE: The above examples are not rigid classifications and higher standards of door openings (and wider bays) may be required when designing some facilities.

C2.4 General principles for allocation of parking space

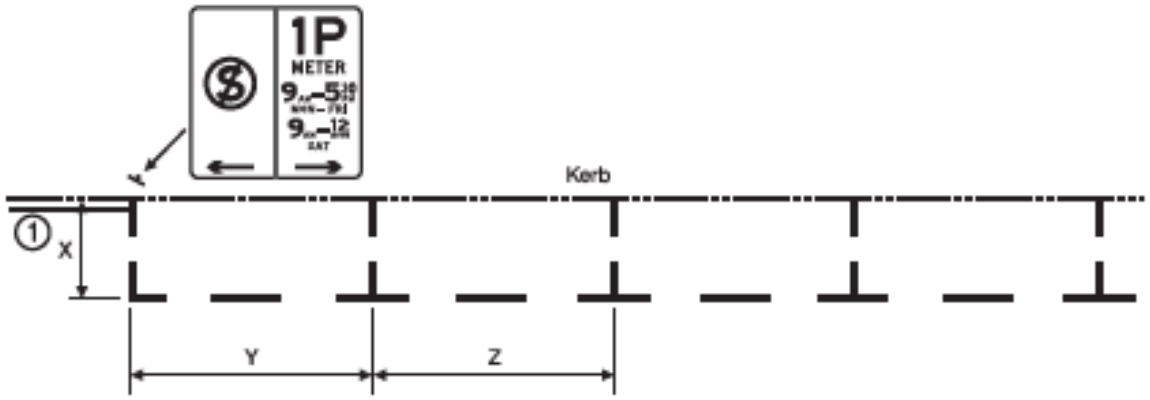
In many areas of intense residential, business or industrial activity, demand for on-street stopping and parking space exceeds supply. Space available for stopping and parking must therefore be allocated on a priority basis. In such cases, the responsible authority will need to estimate the total demand and allocate priorities amongst the competing interests. This will need to be done over a sufficiently large area to ensure that a parking problem is not simply transferred to an adjacent street.

In residential areas, residents' demands for long-term parking near their homes is usually paramount. This can be provided, subject to regulations, by implementing time-limit parking with exceptions for vehicles displaying a Resident Parking permit, or by implementing a Permit Zone for the exclusive use of permit vehicles. In such areas it is important to provide sufficient space for visitors' vehicles and other non-permit vehicles.

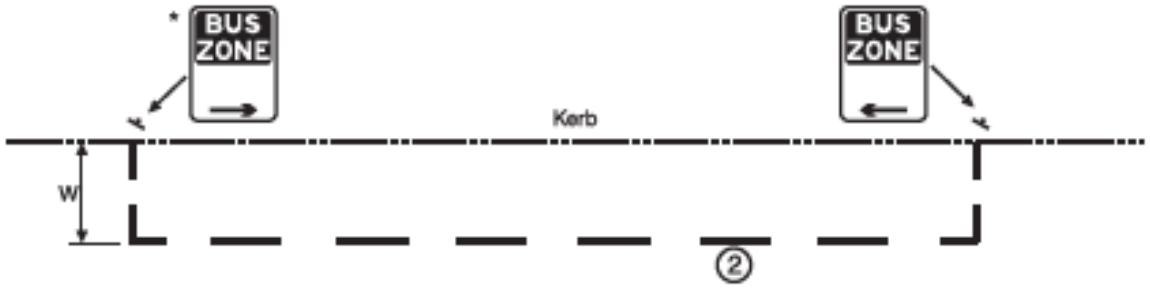
In business areas, parking associated with the conduct of business usually takes priority. This includes short-term parking for clients or customers, bus stops and taxi ranks for clients and customers who do not drive and loading zones for the delivery and picking up of goods or passengers. The exact priorities for the allocation of parking and stopping spaces can only be decided by study and consultation. Parking of increasing duration is usually located at increasing distances from the main activity areas to provide greatest convenience to the greatest number of people wishing to gain access to the area.

In industrial areas, depending on the extent of off-street parking, priority is given to short-term parking for clients and long-term parking for employees, to avoid a spill of all-day parking into adjacent non-industrial areas. Loading facilities are usually provided off-street, but No Stopping restrictions may be necessary to ensure that large vehicles can negotiate access roads.

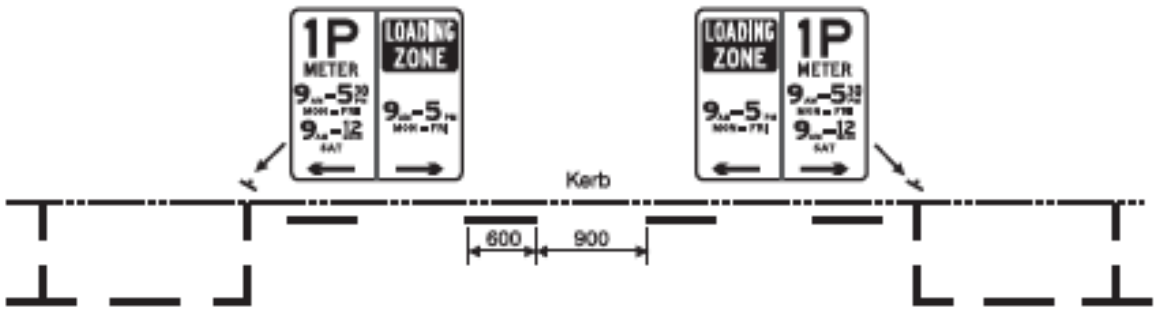
In all the above areas, consideration must be given to the design of parking spaces for disabled drivers or passengers. This can include the provision of reserved spaces as well as other concessions provided through regulations, such as extensions to posted parking time limits. The design of parking facilities for people with disabilities is covered by AS 2890 and AS 1428.



(a) Parking bays



(b) Zones - layout (A)



(c) Zones - layout (B)

LEGEND:

W = 2.3 m, or 2.6 m at zones intended for use by wide vehicles viz. Bus zone, loading zone.

X = 2.3 m. This may be reduced to 2.1 m where it may assist the movement of traffic and where parking turnover is low and there are unlikely to be any wide vehicles parking.

Y = 5.4 m minimum where vehicles may enter or leave the parking space directly.

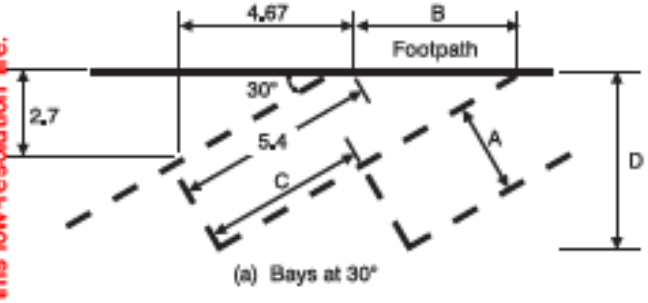
Z = 6.0 m to 6.7 m for intermediate bays, depending on parking turnover and traffic volumes.

NOTES:

1. 'No Stopping' restrictions may be indicated by a yellow line, 80-100 mm wide, close to the kerb, (see Clause 7.2).
2. Yellow bay markings should be used in lieu of white markings for parking bays with restricted use (see Clause 7.1).
3. For dimensions of pavement marking see Clauses 7.1 and 7.2.

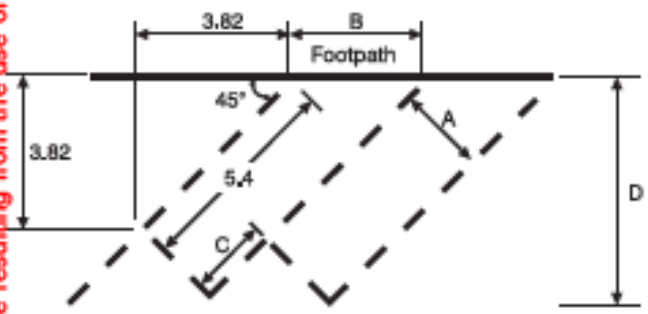
DIMENSIONS IN MILLIMETRES

Figure C1 TYPICAL LAYOUTS FOR PARALLEL-PARKING AND STOPPING AREAS



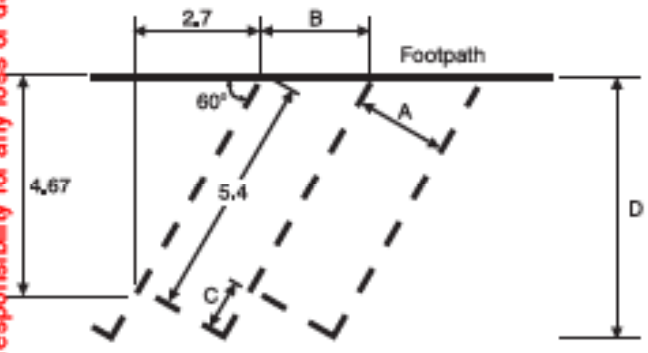
(a) Bays at 30°

User category Note 5	A	B	C	D	D*	Aisle Note 6
				Note 3		
1	2.1	4.2	3.65	4.5	4.2	3.1
2	2.3	4.6	3.95	4.7	4.3	3.0
3	2.5	5.0	4.30	4.85	4.5	2.9
3a	2.7	5.4	4.65	5.0	4.7	2.8
4	3.2	6.4	5.55	Note 4		<2.8



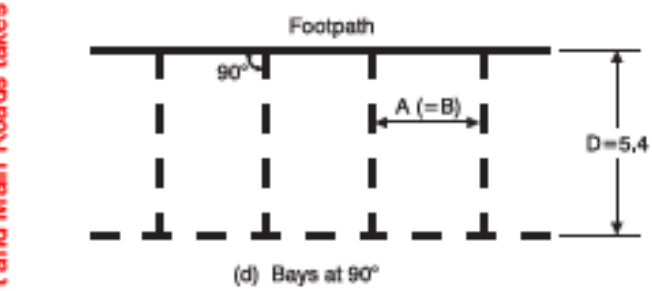
(b) Bays at 45°

User category Note 5	A	B	C	D	D*	Aisle Note 6
				Note 3		
1	2.4	3.4	2.4	5.5	5.0	3.9
2	2.5	3.5	2.5	5.6	5.1	3.7
3	2.6	3.7	2.6	5.65	5.15	3.5
3a	2.7	3.8	2.7	5.75	5.25	3.3
4	3.2	4.5	3.2	Note 4		<3.3



(c) Bays at 60°

User category Note 5	A	B	C	D	D*	Aisle Note 6
				Note 3		
1	2.4	2.75	1.4	5.9	5.25	4.9
2	2.5	2.9	1.45	5.95	5.3	4.6
3	2.6	3.0	1.5	5.95	5.35	4.3
3a	2.7	3.1	1.55	6.0	5.4	4.0
4	3.2	3.7	1.85	Note 4		<4.0



(d) Bays at 90°

User category Note 5	A	B	C	D	D*	Aisle Note 6
				Note 3		
1	2.4	2.4	–	5.4	4.8	6.2
2	2.5	2.5	–	5.4	4.8	5.8
3	2.6	2.6	–	5.4	4.8	5.4
3a	2.7	2.7	–	5.4	4.8	5.0
4	3.2	3.2	–	5.4	4.8	<5.0

NOTES:

1. Rear-in angle parking bays slope in the opposite direction.
2. All dimensions are in metres.
3. Where vehicles overhang the end of the bays, e.g. over the footpath, D may be reduced to D*. In this case, the overhang area should be clear of all obstructions and be not needed for use by pedestrians.
4. D and D* are the same as adjacent bays for other use categories. For additional information refer to AS 2890.5.
5. Refer to Clause C2.3 for use category. Width of 30° angle-parking bays are narrower than other angled parking bays due to reduced conflict of open doors against adjacent vehicles.
6. Aisle column gives minimum width for manoeuvring in and out of parking space. Circulating or through traffic needs also should be considered.

Figure C2 LAYOUTS FOR ANGLE-PARKING BAYS

C3 PARALLEL-KERBSIDE PARKING

C3.1 General

Parallel-kerbside parking in the direction of traffic flow is the basic method of parking provided for in regulations. It presents, under properly controlled conditions, the least impediment to the orderly and regular flow of traffic along a road. The number of vehicles able to parallel-park along any given length of kerb is not as high as in angle-parking, but it has the advantage that it minimises accidents associated with parking and departure manoeuvres. Parallel-parking is also the best system for use where parking must be provided and street capacity must be kept to a maximum, because it requires a lesser width of roadway for parking and manoeuvring.

To promote orderly parking, it is generally desirable to mark the parking bays in areas of high demand and turnover. (See Clause 7.1)

C3.2 Controlling factors

A decision to control parallel-kerbside parking should be based upon –

(a) functional classification of the road;

(b) width of roadway;

(c) abutting land uses;

(d) speed characteristics;

(e) traffic volumes; and

(f) parking turnover.

C3.3 Layout and marking of parking bays

Figure C5 shows typical layouts for parallel-parking bays. Where pavement marking is used, it should be in accordance with Section 7 which also details pavement messages that may be marked on the road to supplement parking sign controls and help motorists recognise the applicable parking restrictions.

C4 ANGLE-KERBSIDE PARKING

C4.1 General

Angle-kerbside parking can accommodate up to twice as many vehicles per unit length of kerb as parallel-kerbside parking. The advantage is a function of the parking angle and the length of kerb between driveways and other interruptions. Small angles (less than 30 degrees) give little advantage, while the maximum advantage occurs at 90 degrees. However, all forms of angle-kerbside parking present a greater hazard to road users than parallel-parking. Studies show that when parking is changed from angle-parking to parallel-kerbside parking the accident rate along a length of road decreases substantially and the traffic capacity is greatly increased.

The use of angle-kerbside parking may therefore need to be considered in conjunction with other measures designed to lessen the adverse effects.

The parking manoeuvre is generally more easily accomplished with angle-parking than with parallel-parking, and is easier with small angles than with large. As the angle of parking increases so does the width of roadway which is required for parking and unparking manoeuvres.

Angle-parking may be either 'front-in' or 'rear-in'. Long vehicles are usually unable to make use of angle-parking spaces. In commercial areas, for example, adequate parallel loading spaces should also be provided to cater for long vehicles and commercial vehicles.

C4.2 Controlling factors

A decision on whether to permit angle-parking on any roadway should be based upon –

(a) functional classification of the road;

(b) width of roadway;

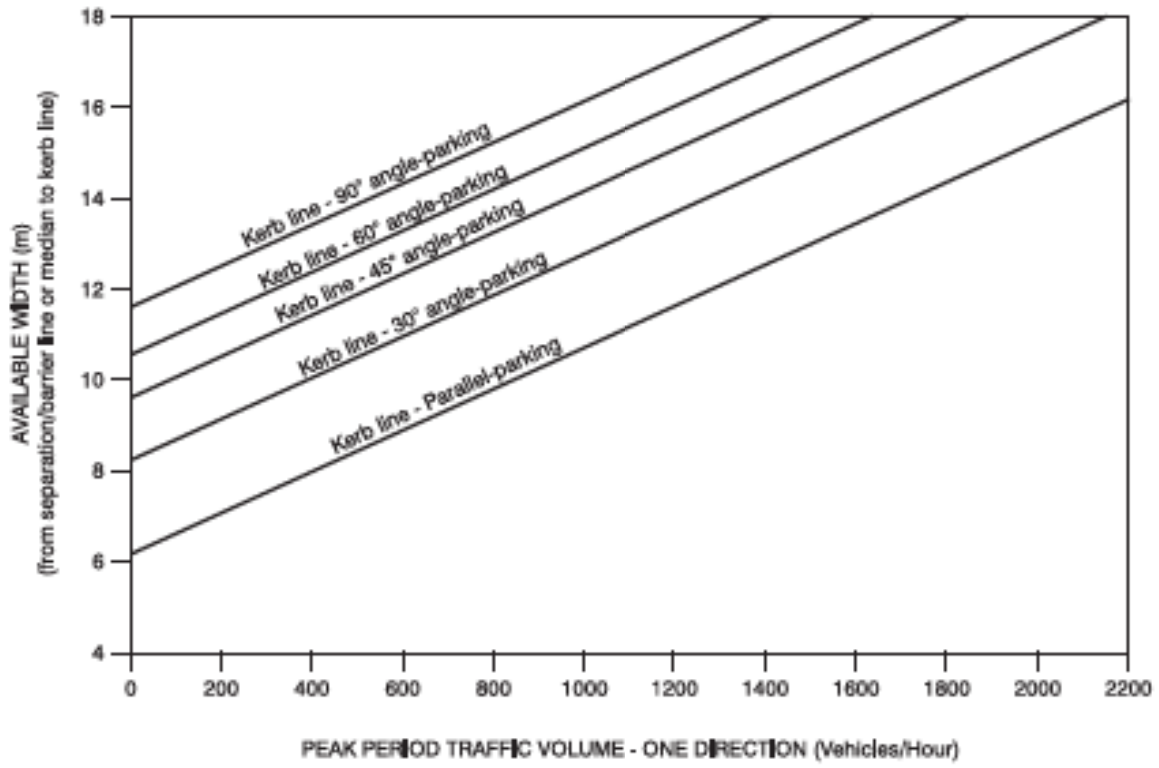
(c) abutting land uses;

(d) speed characteristics;

(e) vehicle dimensions; and

(f) traffic volumes.

Figure C3 indicates the minimum recommended width between the separation line or the median and the kerb related to traffic volume and speed which should be available before angle-parking is permitted. Additional information relating to roadway width limitations for parallel and angle-parking is provided in AS 2980.5.



NOTES:

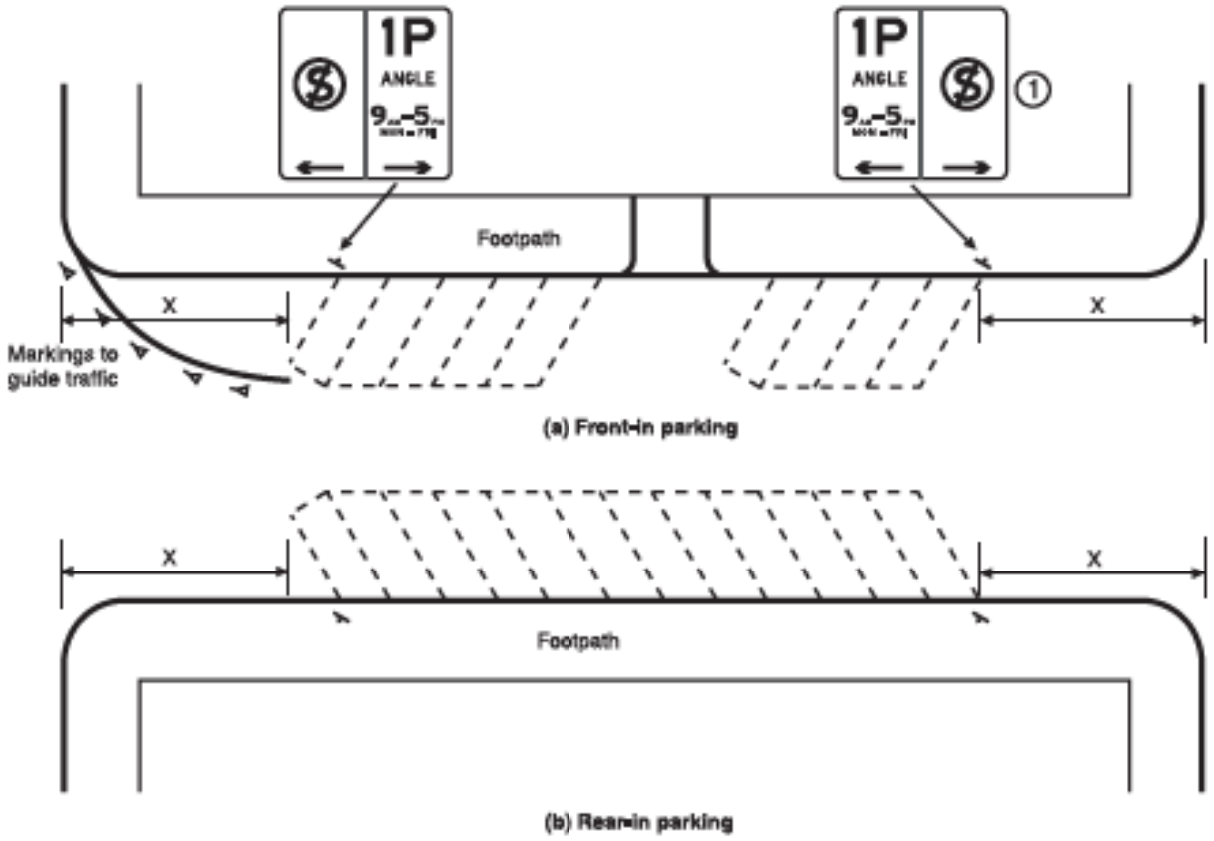
1. The graph is based on a kerb overhang of about 0.5 m for angle-parking and some encroachment into adjacent lane for manoeuvring purposes.
2. For average speed > 50 km/h add 1.2 m to values.

Figure C3 MINIMUM RECOMMENDED ROADWAY WIDTHS FOR ANGLE- PARKING

Example: Consider a road in a business district carrying 400 veh/h in each direction where width from separation line to kerb in one direction is 8 m and in the other 12 m. From the graph only parallel-kerbside parking should be permitted in the 8 m width, but 45-degree angle kerbside parking could be permitted in the 12 m width.

C4.3 Layout and marking of parking bays

Figure C2 shows the bay dimensions for the various angles of 'front-in' angle-parking. A typical treatment for end-angle-parking bays is shown in Figure C4.

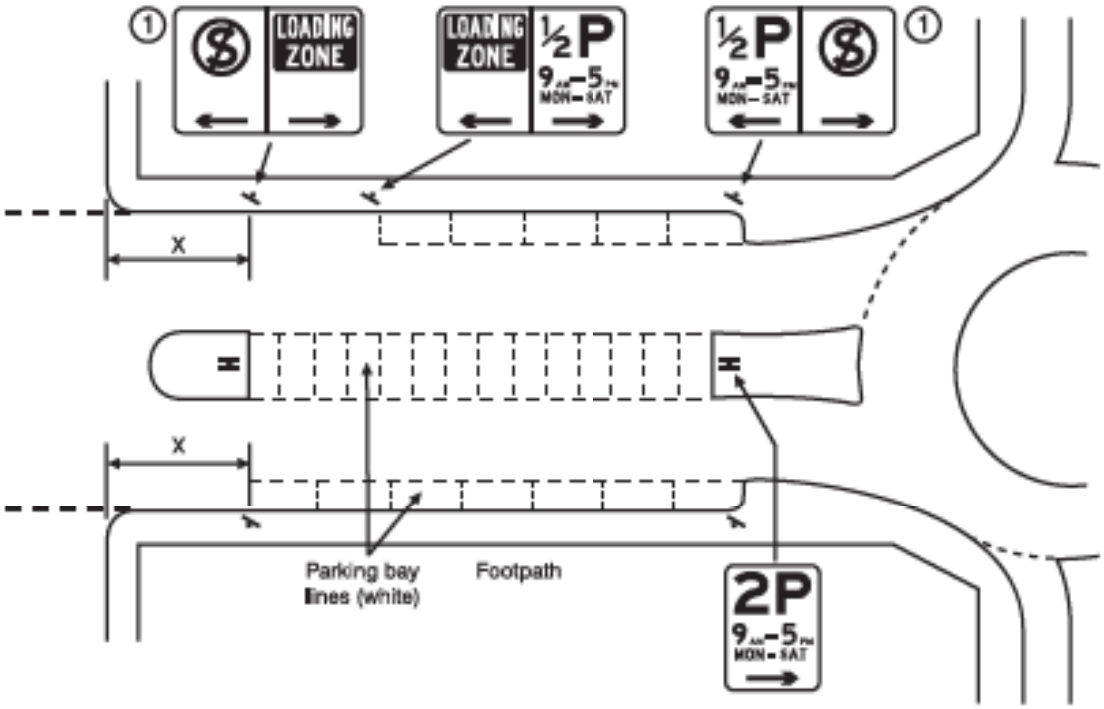


X = the Statutory no stopping distance from the nearest point of an intersecting road.

NOTE:

1. Where X is the Statutory no stopping distance, this panel is optional for isolated parking arrangements.

Figure C4 TYPICAL END TREATMENTS FOR ANGLE-PARKING



X = the Statutory no stopping distance from the nearest point of an intersecting road.

NOTES:

1 Where X is the Statutory no stopping distance, these panels are optional for isolated parking arrangements.

Figure C5 TYPICAL END TREATMENTS FOR PARALLEL AND CENTRE-OF-ROAD PARKING

C5 CENTRE-OF-ROAD PARKING

C5.1 General

Unprotected centre-of-road parking should be considered only in streets with little through traffic and where all traffic moves slowly. The central line of parked vehicles separates opposing traffic flows and provides a continuous refuge for pedestrians, but this type of parking generates additional pedestrian movements across the road.

It is essential that adequate visibility be preserved at intersections. Hazardous conditions would be brought about by permitting centre-of-road parking too close to the cross-street traffic lanes.

A combination of kerbside-parking and centre-of-road parking provides a large number of street parking spaces per unit length of street. Angle-kerbside parking is rarely possible where centre-of-road parking is permitted.

If time limits are introduced, the combination of kerbside and centre-of-road parking allows time limits of different periods and durations to be instituted on the road. Short-term parking demands at the kerbside may be satisfied by imposing a time limit of, say, half an hour or less on parking. Longer limits may be set in the centre-of-road parking area to accommodate drivers requiring longer parking periods. This arrangement minimises turnover of parking in the centre of the road.

C5.2 Layout and marking of parking bays

Figure C5 illustrates a combined parallel and centre-of-road parking layout. It will be necessary to choose a bay width for the centre-of-road parking which suits the position on the roadway from which vehicles can turn.

A preferred alternative treatment is shown in Figure C6. However, as this arrangement needs a greater width of roadway (because of the internal aisle) than centre-of-road parking where vehicles have direct access from the main traffic lanes, it can only be implemented where there is a wide median. This alternative layout limits access to the centre of the parking area with a corresponding reduction in number of conflicting traffic movements.

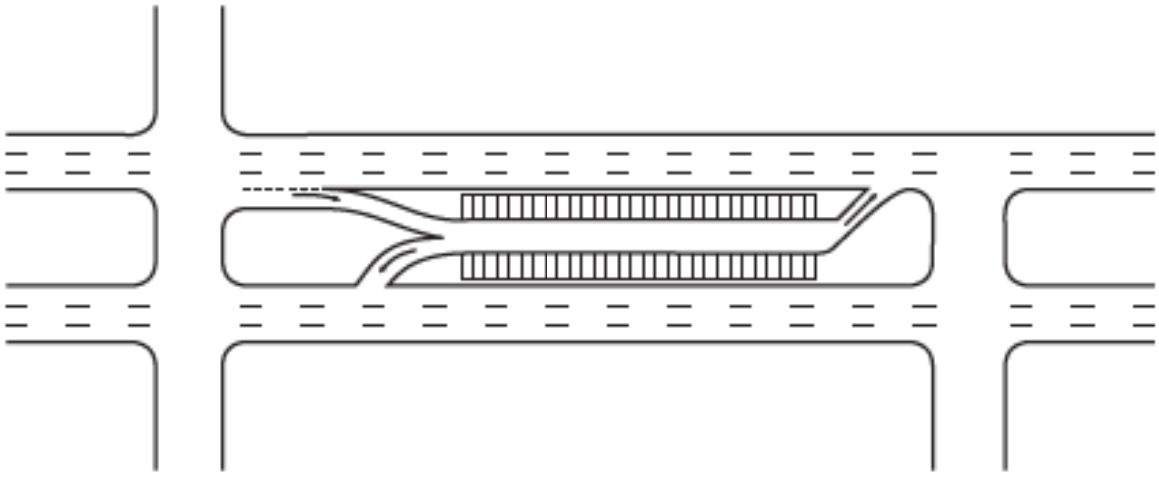


Figure C6 ALTERNATIVE LAYOUT FOR CENTRE-OF-ROAD PARKING

C5.3 Road width requirements

Table C2 gives a guide to the minimum recommended roadway width, related to traffic volume, which should be available before centre-of-road parking is permitted. For traffic volumes greater than those shown in Table C2, no general criteria can be applied and a traffic engineering assessment should be made of the conditions in every instance.

Table C2 CENTRE-OF-ROAD PARKING – MINIMUM RECOMMENDED ROADWAY WIDTH

One-way flow vehicles per hour	Minimum roadway width m
Up to 400	23
401–800	29

NOTE: The table is applicable to a two-way roadway with kerbside parallel-parking both sides and a 5.4 m wide, 90 degrees, centre-of-road parking area.

C6 OFF-STREET PARKING

Off-street parking areas, whether they be surface car parks, or part or all of a multistorey building, involve considerations beyond those relating to the movement of street traffic. The subject is covered by AS 2890. Off-street parking areas should be adequately separated from the street system and connections between the two should be designed so that congestion within the parking area is not transmitted to the street system. Consideration should be given to the proximity of intersections or major developments and the form of intersection control or access control to be used.

C7 SPECIFIC PARKING PROVISIONS

C7.1 Bus stops and bus stands

Picking-up or setting-down of passengers on a bus route occurs at fixed locations (bus stops) which are defined by signs.

Bus stops may be located mid-block between intersections or on the far-side or nearside of intersections. Where bus stops are required on both sides of the road, they should be staggered except on median divided roadways or where a stationary bus does not impinge upon the normal flow lanes.

At intersections, far-side stops offer advantages in avoiding stationary vehicles on approaches to intersections, and in improving intersection capacity. However, depending on the form of intersection control, there may be a need to stop twice, first to give way to cross-traffic and second to pick up or set down passengers. This may be avoided by using a nearside stop, especially if it is located very close to the intersection. Where a bus has to turn right at an intersection, the far-side location is preferred since less interference to through-traffic results. Alternatively, stops could be located well away from the intersection, so long as the location is convenient for passengers.

Far-side locations are preferred for bus stops near school crossings, pedestrian-actuated signals and marked pedestrian crossings as buses are less likely to obscure the visibility of pedestrians on such facilities.

At railway and tramway level crossings, far-side bus stops are preferred. However, they should be designed and located in a manner which prevents vehicles queuing behind stationary buses, thus blocking the crossing (see Part 7 of this Manual).

The mid-block stop uses more kerb space, but removes the run-in/run-out manoeuvres as far from intersections as possible, generally causing less interference to traffic. Where the full width of the roadway between kerbs is required for moving traffic, bus bays can be indented into the adjacent footpath or reservation up to a depth of 3.7 m over an appropriate length. Run-in and run-out tapers should be provided for deceleration and acceleration.

The length of a bus stop depends upon the number of buses likely to use it at any one time. Minimum lengths may be obtained from the following expressions:

(a) For nearside or far-side of intersections: $18 + l\,(n - 1)$

(b) For mid-block stops in parallel-parking areas: $24 + l\,(n - 1)$

(c) For mid-block stops in angle-parking areas: $27 + l\,(n - 1)$

where

l = the length of bus, in metres

n = number of buses likely to use a stop at the one time

Bus stands are areas where buses may remain for some time before commencing a trip. They should be located clear of the through traffic lanes or at a more distant location where parking demand is not high and obstruction of traffic does not occur.

C7.2 Taxi stands and feeder stands

Taxi stands should be provided in locations convenient for patrons.

It is desirable that taxis stop parallel to the kerb, facing in the direction of the main traffic stream so that waiting taxis may progress from the tail of the taxi queue to the head. Minimum length of taxi stands should be (5.4n + 1.0) metres, where n is the number of taxis to be accommodated.

Should demand exist for greater allocation of space at any particular location, the main stands should be fed from feeder stands established at a reasonable distance from the main stand. The feeder stand should be so placed that the lead taxi in the rank can observe when a space becomes vacant at the main stand. A feeder stand may feed one or more main stands.

C7.3 Loading zones

Loading zones should be provided where it is necessary to allow commercial or other vehicles to stop for the picking-up or setting-down of goods or passengers. They should allow stopping parallel to the kerb and should have a length which will accommodate the vehicles which normally use them (generally not less than 9 m). Bearing in mind the need to locate loading zones close to the premises being served, consideration should be given to placing loading zones at the beginning or end of a section of parking, rather than in the middle, to reduce the need for awkward vehicle manoeuvring.

Loading zones may be reserved for commercial vehicles.

(a) Commercial vehicles (in relation to stopping in a loading zone). These are defined in the Transport Operations (Roads Use Management), or TORUM, Act as: –

(1) Any horse-drawn vehicle constructed, fitted or equipped for the carriage of goods;

(2) Any motor vehicle (excluding any motor car or motor bike) constructed, fitted or equipped for the carriage of goods; and

(3) Any motor vehicle constructed, fitted or equipped for the carriage of persons to which is affixed a form of identification as an approved commercial vehicle.

(b) Commercial Vehicle Identification Label. The form of the identification is specified in Figure C7.

It shall be prominently displayed on the left-hand side front of the vehicle. The label shall be affixed to the hinged ventilation window if fitted. If no hinged ventilation window if fitted, the label shall be affixed on the lowest most left-hand section of the windscreen.

In the case of vehicles not equipped with a windscreen, the label shall be affixed to a prominent position on the vehicle so that it is clearly visible at all times.

Identification labels shall be issued by a local government.

Colours –
Black legend with vehicle registration number, year and serial number on white block imposed on yellow background which will vary annually in a cyclic order through the following AS2700 standard colours Y22, Y24 and Y15.

Figure C7 COMMERCIAL VEHICLE IDENTIFICATION LABEL

C7.4 Parking for people with disabilities

Power to issue permits for the identification of vehicles used for the carriage of people with disabilities is contained in the TORUM Act. Vehicles displaying a people with disabilities permit are generally permitted to be parked longer than the posted time limit. Such parking spaces are not convenient for all people with disabilities, especially where parking demand is high, parking is parallel to the kerb or there is no useable ramp between road and footpath level. In these circumstances, consideration should be given to providing parking spaces for the exclusive use of vehicles displaying a people with disabilities permit, issued by the appropriate authority. The design and location of such spaces shall be in accordance with AS 1428, AS 2890.1 and AS 2890.5 and shall take account of the –

(a) demand for spaces with wheelchair access;

(b) proximity of the spaces to the activity to be assessed; and

(c) ease of access from the spaces by wheelchair.

C7.5 Other specific parking demands

The demand for other types of parking restriction depends on the types of adjacent activities to which people wish to gain vehicle access. Temporary signing may be necessary for works zones, to allow construction vehicles to deliver materials and goods to building construction sites. Permit schemes may be introduced, for example, to allow residents to park their vehicles in the street in which they live, for periods longer than the duration indicated on parking panels. In these schemes, one of the primary aims of introducing short-duration parking is to increase the likelihood of unoccupied parking spaces being available for permit vehicles, whilst at the same time minimising inconvenience to visitors and others with legitimate business in the area. Permit zones may also be established for similar purposes.

However, these prohibit visitors' vehicles and other non-permit vehicles from parking even for short durations. Other special requirements may be provided for by using No Stopping or No Parking signs with appropriate exceptions. Each case should be considered on its merits, but the number of special provisions should be kept to a minimum to avoid motorist confusion or the expectation that special exceptions are easy to obtain.

C8 TIME-LIMIT PARKING

Where the available space meets the demand for parking without rationing, there is no reason to place a time limit on parking. Where demand exceeds supply, it is necessary to impose rationing to increase the turnover and so allow more people to use the more sought-after spaces to gain access to the adjacent facilities. The limits to be applied in any locality should be determined only from a proper study of parking patterns. Generally, with adequate enforcement, an efficient time-limit results in some spaces being vacant at any time.

In business districts, turnover demands are usually too high for long-term, on-street parking. Limits of increasing duration are usually applied at increasing distances from the heart of the district. This ensures the highest turnover for premium-demand areas while allowing longer-term parking at greater walking distances.

The usual periods provided for are half, 1, 2, 3 and 4 hours, but in the vicinity of post offices, banks, or other 'errand' type locations, limits as low as 5 minutes may be used to advantage.

Time limits may be introduced by the exercise of powers given to a local government by the TORUM Act.

C9 FEE PAYMENT PARKING

C9.1 General

If time-limits are to operate successfully they have to be adequately enforced. A very small number of consistent violators parking for lengthy periods will reduce the advantages of any scheme. Where competition for parking is intense and satisfactory enforcement is difficult to maintain, meter parking or ticket parking should be implemented.

Properly designed fee-payment parking schemes provide the following benefits:

(a) Increased turnover in parking spaces, which often has the effect of reducing traffic volumes by eliminating vehicles circulating in search of parking places.

(b) An accurate time check on parking duration, thereby simplifying enforcement.

(c) Discouragement of all-day or other long-term parkers from parking in areas restricted to short-term parkers.

(d) Reduction in the number of people required for time-limit enforcement.

(e) The opportunity to impose price controls on the demand for kerbspace. Maximum charges can be imposed where demand is greatest while lower charges can assist in redistributing demand to less competitive areas.

However, if fee-payment parking schemes are not properly designed or effectively enforced, possible disadvantages of such schemes are as follows:

(a) Many users may not pay the fee.

(b) Strong public resentment may be generated.

(c) Meter feeding (exceeding the posted time limit by paying the fee again) may be encouraged.

C9.2 Guidelines for the implementation of fee-payment parking areas

The implementation of fee-payment parking may be considered under the following conditions:

C9.2.1 Time-recording meters

(a) Where an insufficient turnover of spaces is indicated by short-term parkers resorting frequently to illegal parking or double-parking.

(b) Where a high demand is indicated by the continuous usage of at least 70 percent of available parking bays during business hours, a parking limit of one hour or less may be introduced by parking meters. Where 50-70% of available-space hours are used, the limit may be increased up to two hours.

(c) Where studies reveal insufficient off-street parking facilities within reasonable walking distance from large generators of high short-term parking demand, such as stores, banks or other commercial centres.

C9.2.2 Non-time-recording meters (parkatareas)

(a) Where traffic surveys show that 90 percent of all parkers park for periods of 4 hours or greater.

(b) Where the installation of time-recording meters is not warranted.

C9.3 Delineation of fee-payment parking areas

Signs and pavement markings are used to delineate fee-payment parking areas. Typical layouts for parking meters are shown in Figures C8, C9 and C10. To reduce the number of footpath obstructions, double-head meter stems may be used. Centralized (or multi-bay) parking meters, ticket or coupon parking schemes provide alternative methods of minimising footpath obstructions or minimising the number of fixtures in a sensitive environment. Centralised (or multi bay) parking meters, ticket issuing machines or coupon purchase locations are required at regular intervals along a parking area. The spacing and location of ticket issuing machines will depend on the parking angle, the convenient walking distance and the location of any intersecting footpaths. On all roads except those with low traffic volumes, a user should not have to cross a road to purchase a ticket or coupon.

It is important that the time-limit applicable to a fee-payment area is prominently displayed. This shall be indicated on the Parking Control sign and should also be indicated on each parking meter or ticket-issuing machine. Where centralized parking meters are provided, consideration may be given to the installation of a MULTI-BAY METER PARKING sign at the entrance(s) to the street.

C9.4 Parking meters

C9.4.1 General

Meters permit reasonable and effective enforcement of time-limits by displaying a signal to an enforcement officer indicating whether or not the limit has been overstayed.

Meters may be time-recording or non-time-recording. The former indicate unexpired time by a pointer on a graduated time scale or other indicator. The latter (parkatareas) have a coin window to expose the required parking fee to an enforcing officer. Non-time-recording meters are usually restricted to long-term (day or half-day) restrictions. Meters are only installed in areas where regulated parking has been established in accordance with the TORUM Act (see Clause 5.1).

C9.4.2 Temporary prohibition of use of parking meters

Where a local government desires to temporarily prohibit the use of a metered space, the meter shall be covered with a suitable hood on which a legend shall indicate that parking is prohibited in that space.

C9.4.3 Installation of parking meters

Where parking meters are to be installed the following procedure shall be observed: –

(i) Pavement marking shall be made in accordance with this Part of the Manual.

(ii) Standard signs shall be erected in accordance with this Part of the Manual.

(iii) The meter should be installed relative to the bay as shown in Figure C8, C9 or C10 (for single or double bays) as appropriate.

(iv) The height of the coin slot shall be 1.2 m-1.4 m above the footpath.

C9.4.4 Time-recording meters

Where metered parking has been duly authorised and parking meters are to be installed, they shall comply with at least the following: –

(i) They shall be so designed and constructed that –

(a) operation of the time mechanism requires the insertion of a coin and compliance with other directions, if any, for the effective operation of the meter as specified on the meter;

(b) unexpired time is indicated by scale and needle or other indicator;

(c) a red 'expired' flag or equivalent indicator is easily visible to an enforcing officer checking the meter by vehicle.

(ii) A plate and sign shall be attached to the meter showing –

(a) the period for which the meter may be actuated;

(b) the denomination of the coin or coins the meter will accept;

(c) the hours of day which are subject to metered parking operation;

(d) any further directions for the effective operation of the meter.

C9.4.5 Parkatareas

Where parkatarea parking has been duly authorised and parkatareas are to be installed, they shall generally comply with the following: –

(i) They shall be so designed and constructed that –

(a) Each parkatarea should be capable of applying to two consecutively marked spaces and each face of the meter should comprise a hinged door incorporating two coin slots. These coin slots should be suitable for the insertion of coins prescribed on the plate and sign attached to the meter.

(b) Below each of these slots there should be a coin window of sufficient height to expose a minimum amount of the appropriate coins.

(c) The coin slots and windows should be designed in both width and thickness to receive the appropriate coins. The arrangement of the slots and windows should permit the coins to fall freely under gravity immediately upon insertion, to a stop provided to hold the coins in a visible position until released by a coin release device.

(d) The top section of the parkatarea should be fitted with a key-operated lock and cam, to release and open the hinged coin slot and window sufficiently to allow the deposited coins to fall into the coin receptacle below.

(e) The coin receptacle should be mounted below the hinged windows and coin slots, and be fitted with a suitable lock.

(ii) A plate and sign shall be attached to the parkatarea showing-

(a) the hours of operation;

(b) the denomination of the coins accepted by the parkatarea;

(c) the amount to be inserted for any period of parking.

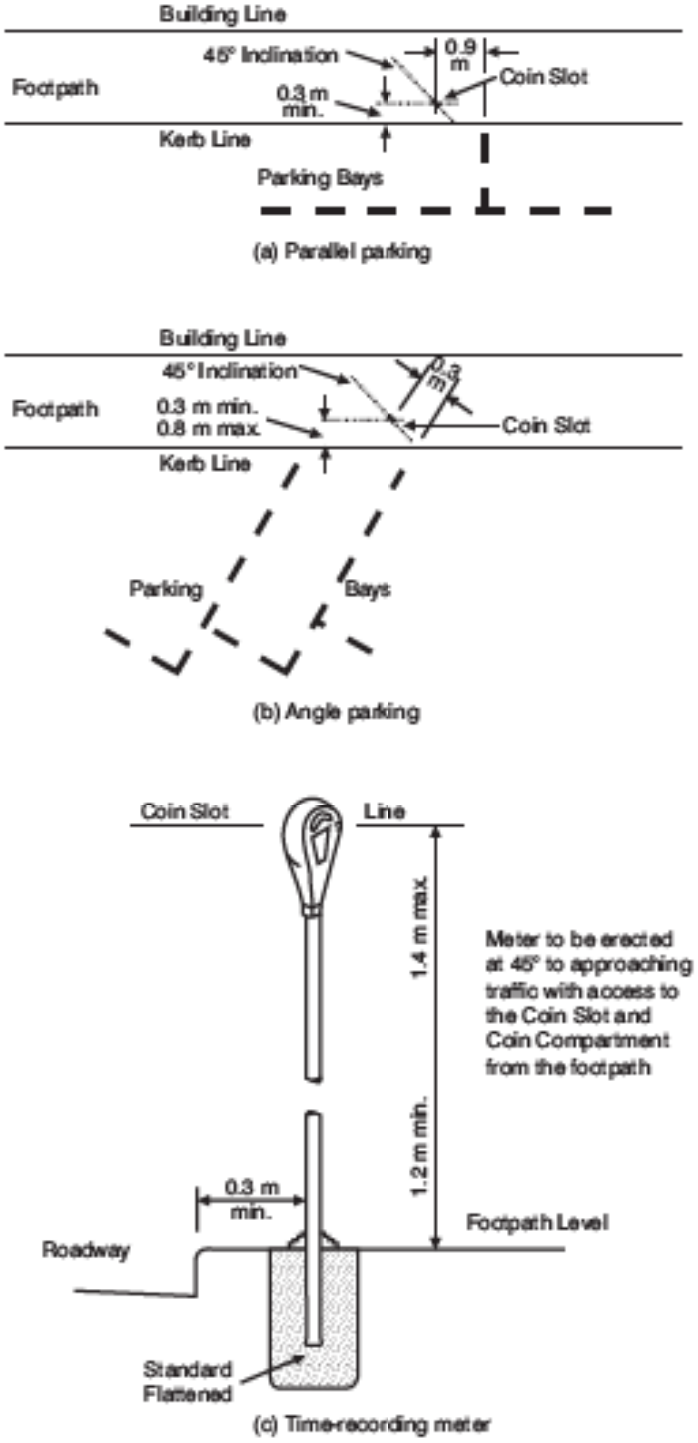
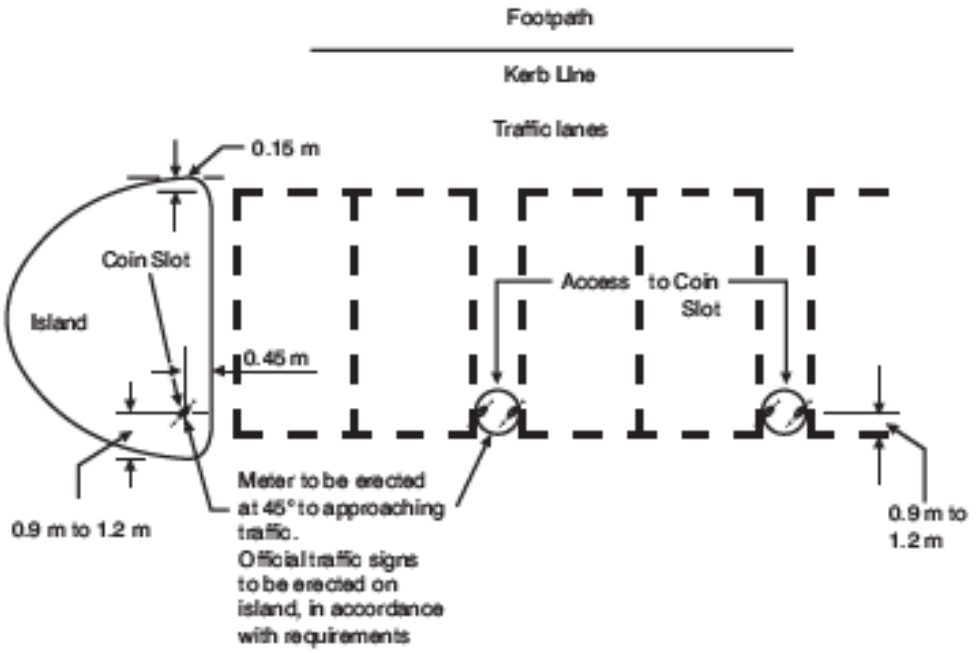
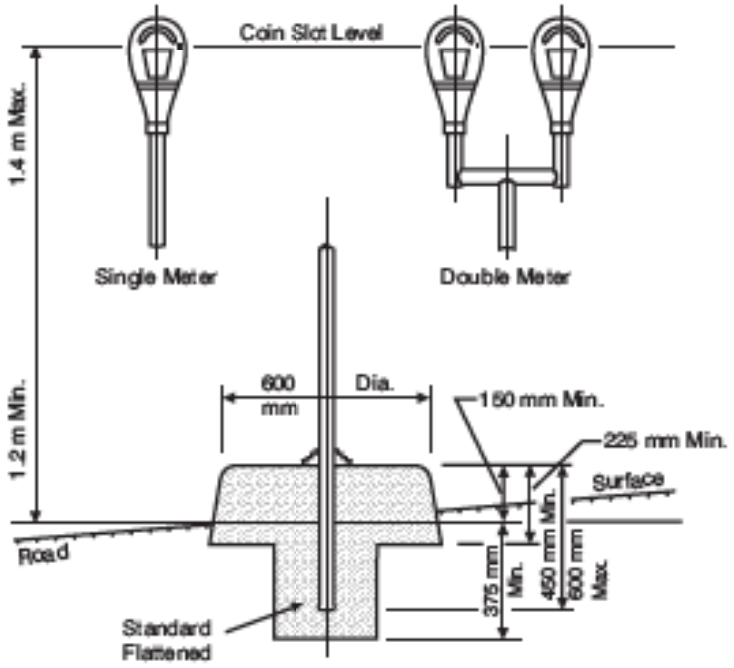


Figure C8 ERECTION OF PARKING METERS FOR PARALLEL AND ANGLE-PARKING – TYPICAL ARRANGEMENT



(a) Centre-parking



(b) Time-recording meters

Figure C9 ERECTION OF PARKING METERS FOR CENTRE-PARKING – TYPICAL ARRANGEMENT

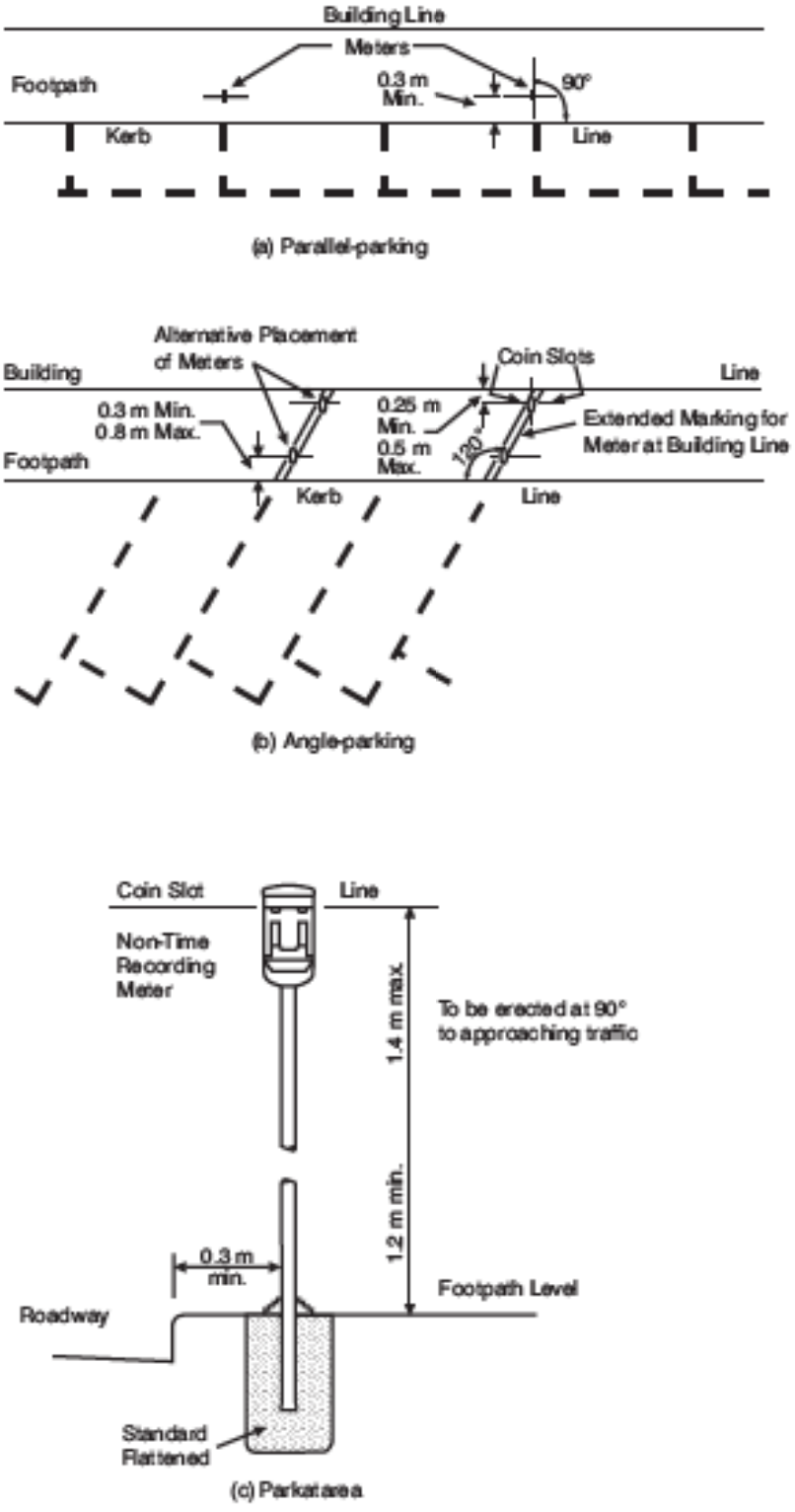


Figure C10 ERECTION OF PARKING METERS (PARKATAREAS) FOR PARALLEL AND ANGLE-PARKING – TYPICAL ARRANGEMENT