

Chapter 19 Parking

19.1 Introduction

Drivers usually assume that they will be able to park their vehicles within a reasonable distance of their final destination, accepting that sometimes, in congested areas, this might involve some time searching for a space.

Drivers' personal judgements of what constitutes an acceptable place to park vary considerably in terms of location, size of space and whether or not parking fees are charged. Judgements are influenced by the purpose and urgency of the trip, the ownership of the car and personal affluence, as well as by individual attitudes and behaviour patterns. Drivers will also consider the security of their cars and, possibly, their own personal security when choosing where to park, for example, late at night.

Parking availability and characteristics can strongly influence a driver's choice of destination. The success of out-of-town shopping centres is often attributed to the provision of large areas of free car parking near the shops. Competition for retail business between town centres and out-of-town shopping malls, and also between different towns in the same region, is such that adequate car parking may be an important factor in securing the future economic viability of a town centre, provided that the availability of parking does not attract more traffic into the centre than the road network can accommodate. Traffic congestion, of course, will detract from the attractiveness of the centre (DOE, 1996) [NIa] [Sa].

The growth of vehicular traffic, with its associated problems of congestion, accidents, noise and pollution, has led to a significant reappraisal of transport policy. It is no longer considered either feasible or desirable to cater for unlimited growth of traffic in many town centres. Management of the amount and type of parking is, therefore, an important means of influencing overall levels of traffic demand, as well as the balance between different purposes of car trips which are generated, such as shopping journeys being given preference over journeys to work (DOE/DOT, 1994 [Sb] and 1995 [NIb] [Sc]). Parking regulations, as a means of influencing traffic demand, have been in use for many years and are understood and accepted by most vehicle-users. Regulation of on-street parking may also be used for traffic management reasons, to

reduce the risk of accidents and to safeguard the traffic-carrying capacity of the carriageway. For example, the introduction of Priority (Red) Routes in London is intended to reduce traffic congestion caused by inappropriately and illegally parked vehicles (LAA, 1992). Effective enforcement is essential if the objectives of introducing parking controls are to be achieved (see also Chapter 14).

19.2 Types of Parking

On-street kerbside parking space is usually regarded as the most convenient place to park, particularly for physically disabled people who are unable to walk long distances. Where there is no provision for servicing off-street, space for loading and unloading on-street is also required for delivery and service vehicles.

Publicly available off-street parking spaces are normally provided and operated either by local authorities or by private operators, to cater for demand in town centres and at other major destinations. Whereas private parking spaces are available only to authorised users and may include private residential garages and forecourts, as well as private non-residential parking (PNR) attached to, or incorporated within, commercial and public authority buildings.

For each type of parking, spaces may be provided for pre-defined classes of vehicle, including bicycles and motor-cycles, as well as cars or coaches, and/or other classes of users.

19.3 Parking Policy

Parking policy should be determined as an integral part of a local authority's transport policy and within the planning framework provided by structure plans, local plans and unitary development plans [NIc]. The objectives of local parking policies should be clearly identified and may include those which contribute to wider transport policies, such as traffic restraint or accident prevention. Parking policies can be particularly effective in helping to achieve overall traffic restraint whilst, at the same time, providing adequate parking spaces for, say, residents and customers of local shops. Parking for motor cycles and bicycles should be considered as part of an

overall policy, especially if these modes are to be encouraged.

The total amount and balance of parking 'stock' in an area should be considered in devising appropriate parking policies. On-street parking and off-street parking, including private parking, should be considered together, as complementary parts of the total parking stock available.

In dense urban areas, where the demand for spaces at peak parking periods is likely to exceed the supply, policy decisions are needed on the allocation of the available space amongst the various categories of potential users. Priority is often given to the demands of local residents and short-stay shoppers first, with long-stay parking for commuters and local workers being regarded as less essential. The need for new off-street car parks should also be considered within overall transport policy and the adequacy of the local highway network.

The establishment of clear parking policies should lead to plans for the effective management of both on-street and off-street parking. Time limits may be imposed on different categories of parkers and differential charges levied to optimise the use of the available space. When demand exceeds supply and where a local authority's policy is to give priority to short-stay parking, it may be necessary to impose maximum parking stays at on-street spaces and to adopt steeply graduated charges at off-street car parks to discourage long-stay parking. Where it is necessary to provide some long-stay parking, a system of car park season tickets can be introduced, to enable the allocation of parking spaces to be better targeted, perhaps by limiting the issuing of season tickets to the occupants of commercial premises with little or no off-street parking provision. However, the extent of privately controlled and operated 'public' car parks in an area may limit an authority's ability to implement its parking policies. The extreme case is where local authorities have no control over existing private non-residential (PNR) parking which often accounts for a large proportion of the parking stock (ADC, 1993).

Supply and Demand

Regular assessment should be made of the existing and projected future demand for parking spaces in an area, both on-street and off-street. A comparison of supply and demand figures, preferably broken down into short-stay and long-stay parking, enables the likely overall balance, surplus or deficit, to be established at any time. The parking requirements of local residents should be assessed separately and appropriate provision identified. The use of a simple

computer spreadsheet model should enable alternative scenarios to be evaluated quickly and easily.

The intensity of demand for parking and the duration of stay will vary with the time of day, day of week and season as well as by the type of vehicle and the purpose of the journey. For example, parking demand by short-stay shoppers is likely to be at its peak on weekdays at 11 am and 3.30 pm, Saturday mornings and during the Christmas season, whereas long-stay parking demand by residents tends to be greatest early in the morning and in the evening. Future parking demand should be quantified in the light of planning policies and anticipated developments in the area. The effects of future development on the existing parking stock, for example by the possible loss of temporary off-street parking sites due to rebuilding or the need to restrict on-street parking on a busy road, should also be assessed. Account should also be taken of any existing and projected additional private non-residential (PNR) parking in the area.

Public Consultation

Parking policies have direct, and often significant, effects on people's lives. In particular, the availability of parking spaces, both on-street and off-street, is of great concern to local residents, retailers and other local businesses. Residents may be concerned about the accident-potential and environmental implications of indiscriminate on-street parking in their streets, as well as the availability of parking for their own and their visitors' use. It is important, therefore, to consult widely before embarking on any significant changes in parking arrangements, not least to avoid the risk of having to alter costly measures after their introduction because they prove to be unpopular. Moreover, legal requirements for some types of measures, such as on-street parking controls and some off-street parking charges, have to be publicised before they can be implemented. Local authorities may find it helpful to carry out more extensive public consultation exercises when major changes are proposed. Some examples of consultation leaflets are shown on Montage 19.1 (see also Chapter 10).

Parking Standards

Under planning legislation, local planning authorities have extensive powers to control development, including the provision of parking [NId]. Redevelopment presents opportunities to bring parking provision into line with land-use and with parking policies for the area. For example, the minimum adequate parking can be stipulated for a new residential development or, conversely, the

Details of the Controlled Parking Zone (CPZ)

The purpose of the CPZ would be to reduce and control the problems of all day parking by commuters and office workers between 8.30 a.m. and 6.30 p.m, Monday to Saturday. The CPZ would make it easier for residents, short-stay visitors and shoppers to find parking spaces. CPZ schemes are in operation in Richmond and Hampton Wick.

The main features of the CPZ are:

1. All kerbside space where it is safe and convenient to park, would be marked out with special parking bays for residents, shoppers, visitors and business parkers. Everywhere else would be covered by yellow lines where parking would be banned. Council contractors would enforce the bays, and the Police and Traffic Wardens would continue to enforce yellow lines.

2. Residents who might want to park in 'residents only' bay, or in a 'dual-use' visitor bay would need to buy a permit. The proposed charge for the residents' permit is £25 a year (pence per day) to cover printing, administration and monitoring the permit scheme. The cost of enforcing and administering the bay including, if necessary, parking offenders.

parking would be provided in the off-street car parks, and in some business spaces on-street, with the exact balance still to be decided. Season tickets would be available for long term parking at a proposed charge of £90 per quarter. There should be enough spaces for all those working in the area (including Council staff) who use their cars at work or can't use public transport. However, about 6 out of every 10 motorists who park long term now, including many commuters and many Council staff, would have to find alternative public parking space in Twickenham to make alternative

WHAT ARE YOUR VIEWS

We would like to find out your views about the proposed controlled parking scheme in North Kensington. You can make your views known by filling in this questionnaire and returning it to us using this prepaid return slip, by the 20th October.

Do you think there are parking related problems in your area?

Yes ☐ No ☐ Don't know/No opinion ☐

Would you like to see a controlled parking scheme introduced to help alleviate these problems?

Yes ☐ No ☐ Don't know/No opinion ☐

Comments _____

If controlled parking is introduced in North Kensington, between which hours do you think it should operate?

9.00am-5.00pm Monday to Friday ☐

8.30am-6.30pm Monday to Friday ☐

8.30am-1.30pm Saturday ☐

8.30am-8.30pm Monday to Friday ☐

8.30am-1.30pm Saturday ☐

Other (please specify) _____ ☐

It would be best if _____ ☐

THE ROYAL BOROUGH OF NORTH KENSINGTON

North Kensington Controlled Parking Scheme

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Montage 19.1: Some examples of consultation leaflets on parking proposals.

maximum allowable parking provision for a new office block in a congested town centre with good public transport access can be restricted to that required for operational and service needs only (see also Chapter 30).

Parking standards prescribe the amount and type of parking provision required by the Local Planning Authority for different categories of development. The requirement can be expressed as an absolute figure, per unit of floor area of development or

similar parameter, or as a permissible range. Some local planning authorities have refined their parking guidelines further, by relating them to the characteristics of the area. For example, a larger number of spaces might be required per unit of floor area of new office space to be located at some distance from public transport services than would be required (or permitted) near a major public transport interchange (see also Chapter 28). The proximity and quality of public transport services at a particular location can be quantified and summarised in the form of public transport accessibility indices. Careful monitoring is required to ensure that such standards do not provide an incentive for developers to seek out sites that are less well served by public transport, so that they will be allowed more parking provision.

Where it is not desirable or feasible for parking spaces to be provided actually on the site, it is possible for the developer to pay an agreed sum of money to the Local Planning Authority, to be used by the Authority to fund the provision of the required parking off-site. Such payments, known as 'commuted' payments, are provided for by planning legislation and are negotiated between a developer and a local planning authority. Further details are included in Chapter 27 (see also DOE/DOT, 1995) [Sc].

In order to reduce dependence on private cars for a large proportion of trips, local planning authorities are encouraged to adopt reduced requirements for parking for locations which have good access to modes of transport other than the private car (DOE/DOT, 1994) [Sb]. Strategic policies on parking should be included in Regional Planning Guidance and Structure Plans to avoid the potential for competitive provision of parking by neighbouring authorities [NIe].

19.4 Legislative Background and Responsibilities

The Road Traffic Regulation Act 1984 (RTRA)

The powers to control waiting and loading and to provide and charge for on-street parking are provided by the Road Traffic Regulation Act 1984 (HMG, 1984) amended by the Road Traffic Regulation (Parking) Act 1986, the Road Traffic Act 1988, the Parking Act 1989, the Road Traffic Act 1991 and the Road Traffic Regulation (Special Events) Act 1994 (HMG, 1986; 1988; 1989; 1991 and 1994a) together with their associated Regulations and Orders [NIf].

Highway authorities may prohibit waiting, on-street,

for all or part of the day and may limit the duration of any waiting permitted. Restrictions may also be applied to prevent loading/unloading. Usually, loading restrictions are only applied during peak traffic hours but they can be used more extensively if necessary. A traffic Order must be made in accordance with the requirements of the current procedure regulations (see Chapter 13).

The RTRA 1984 (HMG, 1984) also contains powers to enable the enforcement of parking controls at off-street parking bays. These powers are used by many local authorities to enforce the traffic Orders associated with 'pay and display' control (see Section 19.9) in off-street car parks. Further details are set out in Chapter 13.

The Road Traffic Act 1991

Under the Road Traffic Regulation Act 1984 (HMG, 1984), all parking offences were regarded as criminal offences and subject to criminal law. The Road Traffic Act 1991 (HMG, 1991) provides for the decriminalisation of most non-endorsable parking offences in London and, subject to the approval of the appropriate Secretary of State, elsewhere in the United Kingdom [NIg]. The Department of Transport's Circular 1/95 (DOT, 1995a) [Se] gives guidance to local authorities outside London seeking to apply for decriminalised enforcement powers.

The essence of the Road Traffic Act 1991 is that, in those areas where the new arrangements apply, parking offences are no longer criminal [NIg]. Other provisions are that:

- enforcement of non-endorsable offences ceases to be the responsibility of the police and becomes the responsibility of the Local Traffic Authority [NIg];
- parking attendants, also known as Parking Control Officers or PCOs, are empowered to place parking tickets (Penalty Charge Notices or PCNs) on vehicles contravening parking regulations and can, in appropriate cases, authorise the towing away or wheel-clamping of vehicles [NIg];
- the penalty charges associated with PCNs are civil debts, due to the Local Authority and enforceable through a streamlined version of the normal civil debt recovery process [NIg];
- vehicle owners wishing to contest liability for a penalty charge may make representations to the Local Authority and, if these are rejected, they may have grounds to appeal to independent adjudicators whose decision is final. Groups of local authorities, such as the Parking Committee for London, are responsible for setting up and operating the adjudication arrangements [NIg]; and

❑ the Local Traffic Authority retains the proceeds from the penalty charges, which are used to finance the adjudication and enforcement systems. Any surpluses must also be used for traffic management purposes, under the provisions of section 55 of the Road Traffic Regulation Act 1984 [NIg].

However, criminal law and police enforcement remain applicable to endorsable parking offences (broadly those involving dangerous or obstructive parking), to parking in areas outside those where decriminalised parking applies and to some other specific parking offences.

The Road Traffic Act (RTA) 1991 makes a distinction between 'Permitted Parking Areas' (PPAs), where contravention related to parking places, such as meter bays, are decriminalised, and 'Special Parking Areas' (SPAs), where other parking offences, such as parking on yellow lines or on cycle tracks, are decriminalised. The latter offences also include contravention of off-street parking Orders, which means that off-street parking enforcement is brought into a decriminalised parking regime. In practice, local authorities usually find it necessary to apply for Orders creating both SPAs and PPAs, with the same boundaries, in an area to be controlled, in order to achieve efficient and effective enforcement [NIg].

Further details relating to the RTA 1991 are set out in Chapter 13. The Act also deals with local authorities' setting parking charges and parking penalty charges. These issues are covered under Parking Finance in Section 19.10 below and in Chapter 14.

19.5 Management of On-Street Parking

Waiting Restrictions

Waiting restrictions and parking-control regulations should complement each other. Restrictions can govern where and when drivers are prohibited from waiting, whereas parking controls can establish places where drivers may park, subject to stipulated conditions. These measures can influence, directly, the volume and nature of traffic in an area, by giving more roadspace to moving vehicles or by providing sufficient parking spaces to avoid cruising and reversing manoeuvres by drivers searching for parking spaces. The function and character of a road can be greatly affected by determining where and when different categories of vehicles are permitted to park (see Chapter 20).

Waiting and loading restrictions are used widely in urban areas but care should be taken to ensure that

they are used only where they are really needed and at times when they are justified. Measures of this kind are most beneficial in shopping streets and near junctions. They can also protect bus stops, allow vehicles access to the kerb to pick up and set down passengers and allow loading and unloading to take place at the kerb during defined periods. Restrictions, introduced incrementally over many years in response to isolated circumstances, should not be inconsistent with each other. For the same reason, it is beneficial to standardise on the hours of operation. Waiting restrictions should be signed and marked in accordance with the current Traffic Signs Regulations and General Directions (HMG, 1994b) [NIh].

Time Limits and Charges

Time limits may be imposed and charges levied so as to maximise the use of the space available. This also ensures that those who use the facilities contribute to the costs of their provision and maintenance. Where demand for parking exceeds supply, demand can be regulated and reduced by raising the level of parking charges. However, care should be taken not to raise charges to levels which might excessively discourage vehicle-users from visiting the area.

Particular kerbside areas may also be designated for use by specified classes of users, such as doctors or diplomats, or groups of people, such as residents or disabled persons. Appropriate charges can generally be made within schemes of this kind.

Other areas may be designated for bicycle or motor-cycle parking. Cycle parking needs to be considered carefully in relation to the desired destinations. Further information on cycle parking is given in Chapter 23 (see also IHT, 1996).

Shared Spaces

Spaces can be designated for more than one use at different times with or without charges. This provides a flexible form of management in which, for example, residents exhibiting a permit might park free of charge, or with a charge, and visitors might have a time-limit and/or have to pay (HMG, 1986 and DOT, 1986). It should be noted that the more complex the arrangements are the more difficult they are to sign and hence to be understood by drivers. This can lead to problems of enforcement.

Control and Collection of Charges

Any device for control and collection of charges for the use of parking spaces should:

- ❑ be reasonably cheap to install and to maintain, in relation to the estimated revenue;
- ❑ be simple to use and easily understood by drivers;

Method	Advantages	Disadvantages
Parking meters.	<ul style="list-style-type: none"> <input type="checkbox"/> Enforcement is straightforward. <input type="checkbox"/> Help to impose physical parking discipline. <input type="checkbox"/> Generate revenue. <input type="checkbox"/> Useful for short-stay. <input type="checkbox"/> Help match demand to supply. <input type="checkbox"/> Potential of electronic versions. 	<ul style="list-style-type: none"> <input type="checkbox"/> Relatively expensive to install, operate or adjust to new charges. <input type="checkbox"/> Environmentally intrusive. <input type="checkbox"/> Cannot be used to favour specific user-groups.
Ticket dispensing machines (Pay and Display meters).	<ul style="list-style-type: none"> <input type="checkbox"/> Enforcement is relatively easy. <input type="checkbox"/> Cheaper and less intrusive than meters. <input type="checkbox"/> Suitable for short- and long-stay. <input type="checkbox"/> Potential for separate residents' tariffs. 	<ul style="list-style-type: none"> <input type="checkbox"/> Drivers have to walk to meter. <input type="checkbox"/> Extra signing is required.
Parking discs.	<ul style="list-style-type: none"> <input type="checkbox"/> Relatively cheap to operate. <input type="checkbox"/> Environmentally unobtrusive. 	<ul style="list-style-type: none"> <input type="checkbox"/> Enforcement is difficult. <input type="checkbox"/> Generate no revenue. <input type="checkbox"/> Can discriminate against visitors.
Parking permits/ Season tickets.	<ul style="list-style-type: none"> <input type="checkbox"/> Enforcement is easy. <input type="checkbox"/> Availability can be restricted to specific types of user. <input type="checkbox"/> Generate revenue. <input type="checkbox"/> Can be issued for varying time-periods. 	<ul style="list-style-type: none"> <input type="checkbox"/> No control over duration. <input type="checkbox"/> Fraud is possible as holders can allow others to use them. <input type="checkbox"/> Fraudulent requests. <input type="checkbox"/> Administration efforts is required.
Pre-purchase cards cancelled and displayed by user.	<ul style="list-style-type: none"> <input type="checkbox"/> Enforcement is relatively easy. <input type="checkbox"/> Cheap to implement and operate. <input type="checkbox"/> Environmentally unobtrusive. <input type="checkbox"/> Generate revenue. <input type="checkbox"/> Price can be changed easily. 	<ul style="list-style-type: none"> <input type="checkbox"/> Risk of fraud. <input type="checkbox"/> Need for outlets to sell cards reduces income.
Limited waiting.	<ul style="list-style-type: none"> <input type="checkbox"/> Cheap to install and modify. 	<ul style="list-style-type: none"> <input type="checkbox"/> Enforcement is very difficult. <input type="checkbox"/> Markings and signs can be environmentally intrusive. <input type="checkbox"/> Generates no revenue. <input type="checkbox"/> Need substantial patrolling.
Specific permitted-vehicles (eg vehicles for disabled, motorcycles, car pools).	<ul style="list-style-type: none"> <input type="checkbox"/> Spaces can be marked out. 	<ul style="list-style-type: none"> <input type="checkbox"/> Enforcement can be difficult <input type="checkbox"/> Permits need to be displayed when vehicles are used in a specific way.

Table 19.1: Control devices and systems for on-street parking.

- ☐ be secure and reliable;
- ☐ be capable of providing information for management and auditing purposes;
- ☐ deter fraud and assist enforcement;
- ☐ comply with relevant regulations; and
- ☐ be flexible enough to allow the charges and time periods to be readily adjusted and possibly to allow payment by debit/credit cards and/or stored value smart-cards.

A number of generic control devices and systems for levying parking charges are listed in Table 19.1, together with some of their advantages and disadvantages.

Controlled Parking Zones (CPZ)

The purpose of a Controlled Parking Zone (CPZ) is to provide a uniform set of waiting restrictions over a given length of road or a street network and to reduce sign clutter by removing the need for 'time-plates' within the zone, except on lengths of road where the restrictions apply at different times from the rest of the zone. The zone-entry signs give details of the times and the days when the restrictions operate and yellow line-markings indicate where waiting restrictions are in force. Designated parking bays within the zone can provide for a variety of different types of waiting or loading facilities.

It is important that CPZs should not cover too large an area, as this can lead to problems for drivers who find it difficult to remember the restrictions listed on the zone-entry signs. CPZs should be limited to, for example, shopping areas or similarly well-defined areas. Conventional time-plate signing, without zone-entry signs, should be used with the yellow line markings where the waiting restrictions are complex or the areas subject to control are too large.

Restricted Zones

In environmentally sensitive areas, such as special heritage or conservation areas, the Department of Transport [Se] may authorise a restricted zone-signing scheme which dispenses with the use of yellow line markings to denote waiting restrictions. This type of dispensation tends to be confined to old and picturesque town or village high streets, where there are uniform restrictions and adequate provision for adjacent off-street parking. In environmentally sensitive areas, where this dispensation is not allowed, conventional yellow line waiting restrictions can nevertheless use a narrower paler line (see Chapter 13).

Loading/Unloading

Consideration should be given to providing other

designated spaces to meet particular needs. For example, loading bays may be necessary along streets with commercial and/or industrial premises. Special provision may also be required at places where cash, mail or other valuables are delivered or collected.

Doctors and Diplomats

Medical practitioners with residences or surgeries in densely built-up areas may also need designated spaces (DOT, 1975) [Sf] and some parking spaces, in central London and elsewhere, are reserved for the use of diplomats. Schemes also exist, in some areas, whereby parking attendants have discretion in relation to vehicles parked illegally by doctors, nurses and midwives when visiting patients.

Public Transport

Vehicles used to provide public transport services, for example for tourists, often need to wait for extended periods, apart from the usual requirement for stopping places for picking up and setting down passengers. In some cases, it may be appropriate to designate particular places on-street for use as bus stands, to serve as crew-change, terminus or schedule adjustment points. Special facilities, preferably off-street, should be provided near places attracting many tourists or visitors and on-street coach meters may be appropriate in some circumstances. Each case should be treated on its merits and useful guidance is provided in the ALBES Code of Practice (ALBES/DOT, 1986).

Lorries

Lorries, and especially large goods vehicles (HGVs) away from their base and particularly overnight, require properly designated parking accommodation. They can create access and environmental problems if they are parked indiscriminately on-street, especially in residential areas. Where local authorities identify lorry-parking as a problem in an area, then customised off-street lorry parks should be provided and signed and/or appropriate on-street lorry-parking areas designated, for example in industrial estates (see Chapter 25).

Layout of Parking Spaces

Careful consideration must be given to the siting of any on-street parking places:

- ☐ to avoid creating a road safety hazard, by obstructing visibility near bends, junctions or places where significant numbers of pedestrians cross the road;
- ☐ to create suitable crossing points for pedestrians, to avoid the inconvenience and danger caused by long unbroken rows of parked vehicles;
- ☐ to avoid danger to cyclists from vehicular traffic

passing close to the designated parking bays, especially where a narrowing of the carriageway results;

- ❑ to avoid impeding the free flow of traffic at places where this is important to the role of the street in question;

- ❑ to maintain reasonable and adequate access to premises, including access for loading and unloading, particularly where there are security considerations, for example for mail or bank deliveries; and

- ❑ to avoid obstructing access to fire hydrants and interfering with detection loops or other traffic monitoring equipment.

Individual bays should be large enough to permit drivers to park reasonably quickly, thereby reducing the risk of significant interruption to traffic flow. If individual bays are not marked, the number of cars that can park in a length of road may be greater than if it were marked out. If there is a charge for use of a particular bay then the bay must be marked. Parking spaces should be signed and marked in accordance with the current Traffic Signs Regulations and General Directions (HMG, 1994b) [NIh].

Size and Position of Bays

Parking bays can be parallel to the kerb or angled to it. Typical layouts for waiting and parking controls applied to different categories of road are indicated in Table 19.2. The minimum size for a bay, parallel to the kerb, should be 1.7 m in width and 4.5 m in length but variations up to 2.5 m and 6.0 m respectively are common, to allow for different site conditions and sizes of vehicles. Wider bays should be provided where the space is for the use of those with a physical disability (IHT, 1991). In addition, there may be some local need for bicycle and motorcycle parking (HMG, 1994b and DOT, 1980) [NIh].

Wide streets give scope for both moving and stationary vehicles to be accommodated and making streets one-way can often allow additional parking spaces to be provided. Layouts should minimise environmental intrusion, for example, by arranging parking on one side of a street only and using appropriate landscaping.

Clear Road-Widths for Traffic

The extent to which it is necessary to preserve a clear width of carriageway for traffic flow depends on the type of road in question (see Chapter 11 on Road Hierarchy). Suggested widths for locations remote from road junctions, where some disruption to traffic movement may be more safely accommodated, are:

- ❑ on district distributor roads, with 24-hour flows

in excess of 5000 vehicles, and roads carrying HGVs with three or more axles and/or frequent two-way bus flows, the minimum clear running width should preferably be seven metres, with 6 metres as the absolute minimum;

- ❑ on local distributor roads, with 24-hour flows between 2000 and 5000 vehicles, the preferred minimum clear running width is six metres, with five metres as the absolute minimum;

- ❑ on access roads, with 24-hour flows between 500 and 2000 vehicles, the preferred minimum clear running width is six metres, with 4.5m as the absolute minimum; and

- ❑ on minor residential access roads, including short culs-de-sac, with 24-hour flows less than 500 vehicles, the clear running width should be at least 3.5m. This does not permit the free flow of two-way traffic but it is sufficient to allow unhindered access for emergency and service vehicles.

19.6 Residents' Parking Schemes

Residential streets on the fringes of town centres, near suburban railway stations and other significant destinations, often attract commuters, shoppers and other visitors to park for long periods. This results in local residents having difficulty in parking near their homes, if they do not have sufficient space in private driveways or garages.

Although there is no inherent legal right for any vehicle owner to park on the public highway, residents' parking schemes are often introduced to assist those living in the area and to make town centres and fringe areas more attractive places in which to live. They are particularly applicable to areas with older terraced housing, where there is seldom any off-street parking available within the curtilage of the dwellings. These schemes impose constraints on both residents and non-residents and considerable care must be taken to ensure that they are justified (DOT, 1974) [Sg].

Investigations into such schemes should consider:

- ❑ the size of the area which would need to be treated, bearing in mind the alternative locations which might be used by displaced parkers and the effects on streets just outside the area, whose residents may not have hitherto experienced any parking problems and are likely to resent what they may see as unnecessary controls;

- ❑ the types of measure to apply, whether they should be applied to whole streets or only to short lengths of street and whether restrictions by time of day are appropriate;

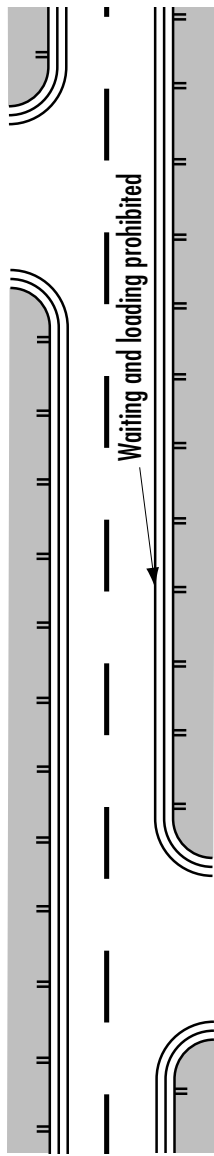
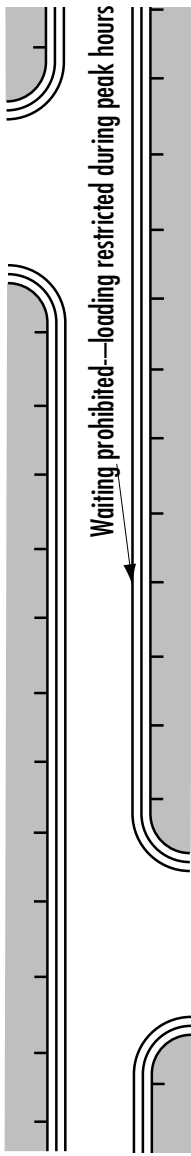
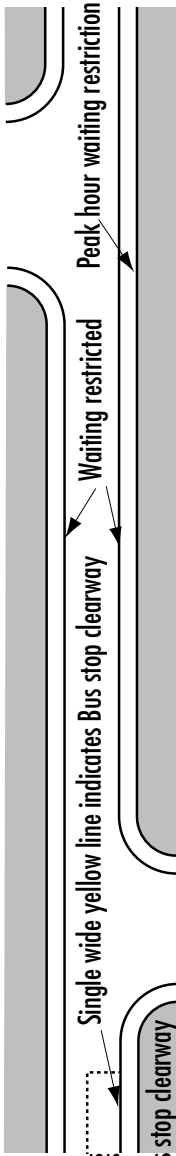
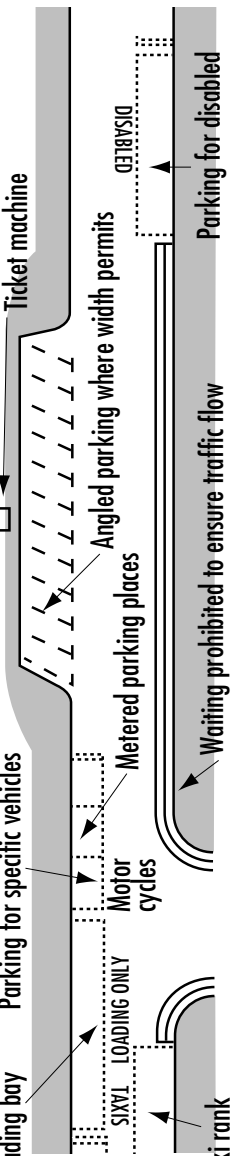
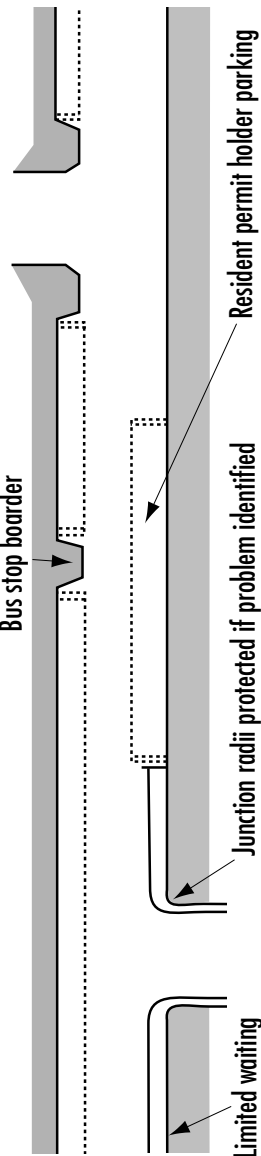
ROAD HIERARCHY	TYPICAL CONTROLS WHICH MAY BE APPLIED	TYPICAL LAYOUTS
PRIMARY DISTRIBUTOR	Waiting and loading prohibited to ensure traffic flow. Clearway arrangements may also be considered	
DISTRICT DISTRIBUTOR	Waiting prohibited to ensure traffic flow. Loading ban may also be applied especially during peak hours. Urban Clearway arrangements may be considered.	
LOCAL DISTRIBUTOR	Waiting prohibited or restricted on at least one side to ensure traffic flow where parking demand is sufficient. Peak hour controls may be sufficient where parking is less. Bus stops may be protected by waiting restrictions or Bus Stop Clearway.	
SHOPPING OR COMMERCIAL STREET	Waiting may be prohibited or restricted on at least one side to ensure traffic flow. Waiting may be limited and/or charges applied to ensure adequate turnover of space. Charging by parking meter or pay & display meter. Spaces reserved for Orange Badge holders should be provided at points most convenient for the source of parking demand. Loading bays may be provided at intervals or where a particular problem has been identified. Bus stops may be protected by waiting restrictions or Bus Stop Clearway. Taxi ranks may be provided where a local demand has been identified. Similarly, parking places for special users e.g. motor cycles, could be provided.	
RESIDENTIAL ACCESS ROAD	No restrictions where parking demand is low. Elsewhere junction radii and other sensitive sites may be protected by localised restrictions. Where parking demand is high resident permit holder spaces may be provided. Adjacent to, for example town centres or commuter railway stations, peak hour or limited waiting may be applied to deter long stay parking.	

Table 19.2: Typical waiting and loading controls applied to a hierarchy of roads.

Not to scale.

- ❑ the enforcement implications resulting from the types of measure to be introduced, including the cost;
- ❑ the advantages and disadvantages to residents and any inconvenience to non-residents;
- ❑ criteria for allocating permits for residents, for example allocating permits only to the occupants of dwellings with no off-street parking available, and whether or not to charge for the parking permits; and
- ❑ how to cater for visitors' cars, service deliveries and emergency vehicles.

Four methods of control are described in Table 19.3, together with their advantages and disadvantages.

19.7 Parking for Disabled People

The most convenient spaces, on-street and in public car parks, should be allocated for the exclusive use of people who are physically disabled. Lowered kerbs at adjacent footways should be introduced to assist wheelchair users and advice should be sought from this group in designing and installing equipment, such as parking meters and ticket machines (DOT, 1984b [Sh] and IHT, 1991).

Provision of on-street parking for disabled people is also made under the Orange Badge Scheme, whereby vehicles being used by a badge-holder may park for up to 3 hours on yellow lines, without time-limit, where others may park only for limited periods and without charge or time-limit at parking meters. However, parts of Central London are excluded from



Photograph 19.1: Unauthorised parking on footways.

this scheme (DOT, 1982 [Si], 1984a [Sj] and 1995b [Sk]).

In cases of special hardship, holders of Orange Badges may apply to the local Highway Authority for a designated disabled person's space outside their home or business premises. Even if such a space is provided, however, it does not give an exclusive right to park and must be available for use by other badge holders. A possible alternative to overcome this problem (though not yet tested in the courts) might be to designate the space for permit holders only and then to issue only one permit.

19.8 Parking on Footways and Cycleways

Unauthorised parking on footways and cycleways causes problems (see Photograph 19.1). Parked vehicles obstruct pedestrians and are a hazard to cyclists and to disabled, blind and elderly people. Heavy vehicles can damage pavements and underground services. Moreover, it is illegal to park on the footways where yellow line waiting restrictions operate, if the vehicle is a heavy commercial or if a vehicle of any kind is left in a dangerous or obstructive position. It is also an offence under section 72 of the Highways Act 1835 to drive along footways or cycleways [NIi].

London, Worcester and Hereford have taken private Act powers to ban pavement parking. Only the London ban has so far been introduced (1966), although some other authorities have used traffic regulation Orders under the Road Traffic Regulations Act (HMG, 1984) to achieve the same end [NIj].

Under the 1991 Road Traffic Act (HMG, 1991), the parking of heavy goods and other kinds of vehicles on the footway becomes a decriminalised offence, in those areas where a local Act of Parliament is in force. In addition, local authorities are able to make traffic regulation Orders banning footway-parking, which can be enforced by them under a decriminalised system [NIg].

When contemplating the introduction of footway or cycleway parking bans, it is important for local authorities to consider the wider effects, including the availability of alternative legal parking facilities, especially in older areas where off-street parking space may be limited.

The installation of bollards, guardrail or planting of trees can provide an effective physical means of preventing parking on footways or cycleways.

Method	Description	Advantages	Disadvantages
Parking for residents or permit holders only.	<input type="checkbox"/> Permits to park are issued with or without charge to residents.	<input type="checkbox"/> Usually ensures that residents can park in the streets at any time, subject to total residential demand.	<input type="checkbox"/> Inflexible <input type="checkbox"/> Can be over-restrictive and affect normal activities, such as servicing and visitors' parking. <input type="checkbox"/> Does not necessarily guarantee residents a space.
Limited waiting exemptions (not recommended, see DOT Circular Roads 31/74).	<input type="checkbox"/> A Traffic Regulation Order is made, imposing waiting restrictions in the area, with specific exemptions for residents.	<input type="checkbox"/> Permits reasonable level of access for other vehicles. <input type="checkbox"/> Sometimes preferred by the police, as it reduces the number of complaints from residents about offenders.	<input type="checkbox"/> Does not necessarily guarantee residents a space <input type="checkbox"/> Residents still subject to the laws of obstruction and under certain circumstances, they may be prosecuted. <input type="checkbox"/> Parked vehicles on a restricted street may encourage other drivers to disregard restrictions. <input type="checkbox"/> May be difficult to enforce.
Parking places with exemption from charges (or separate charges) for residents.	<input type="checkbox"/> Parking places are designated by a Regulation Traffic Order, with exemption from charges, or separate permit charges, for residents.	<input type="checkbox"/> Does not remove all the kerbside parking from the on-street parking stock. <input type="checkbox"/> Offers considerable flexibility.	<input type="checkbox"/> Does not necessarily guarantee residents a space <input type="checkbox"/> Equipment costs are incurred
Restriction by time of day.	<input type="checkbox"/> Waiting is limited for specific periods (for example, during a morning peak period to discourage commuter parking).	<input type="checkbox"/> Relatively easy to enforce. <input type="checkbox"/> Does not impinge too heavily on normal activities.	<input type="checkbox"/> Only effective where problems are caused by all-day parking. <input type="checkbox"/> Residents are also unable to park during the restricted periods.

Table 19.3: Measures to implement resident's parking schemes.

19.9 Coach Parking outside London

Many towns, but particularly those with historic attractions, suffer from coach-parking problems. Several requirements should be considered, apart from the mere provision of adequate space and where they can set down and pick up passengers. These include:

- ☐ information for drivers;

- ☐ facilities for parking;
- ☐ facilities for passengers; and
- ☐ waste disposal.

The provision of adequate facilities for coaches, drivers and passengers are an important factor in attracting visitors by coach to a particular town or city. It is worth remembering that coach drivers frequently have considerable discretion as to where they stop to let their passengers spend money.

Drivers' Information

Coaches are large vehicles which require considerable room to manoeuvre. Annoyance can be caused to residents when coaches use unsuitable roads for access or parking. Drivers should therefore be provided with adequate, clear, information on routes into and around the urban area, including where they can park, for how long, what facilities are available and any charges that will be made.

Clear signing should be provided to coach parks with, if possible, current information on the availability of spaces. It is important that, if one park is full, the route to the next available one is clearly signed and easily accessible by a coach. Attention must be given to routeing, particularly in respect of any height restrictions. Many single-deck coaches are 3.5m high and double-deckers, at 4.0m or 4.2m, are quite prevalent.

Special information leaflets should be made available to interested organisations and operators. A limited on-street survey will provide information on the more common operators entering the urban area. The Confederation of Passenger Transport (CPT) (see Section 19.14) is an organisation which can give advice as to who else should receive information leaflets. Liaison with the organisers and operators of major tourist attractions in the locality may be a useful source of information, in identifying the likely demand for coach parking.

Parking Charges

If designated parking spaces are provided, either on-street or off-street, authorities may wish to levy a charge. It is important that drivers do not perceive any charge as being excessive for the facilities provided, otherwise they will attempt to park free, usually at an unsuitable location. Since coach parking charges are usually higher than equivalent car parking charges, it is important that payment meters give change or that there is a change facility close by.

Passenger Facilities

A high proportion of coach passengers have impaired mobility. Facilities at coach parking places should therefore be carefully considered or, alternatively, the parking place relocated to a more suitable site. Toilet facilities, shelter and seating are needed close to the set-down point. Refreshment kiosks or cafes should be encouraged, especially if passengers are numerous or likely to be faced with a long wait.

Clear pedestrian signs to the town centre or other attractions are important, with distances clearly stated. Information on facilities available, together with

simple maps, is useful but it should be remembered that many people find maps difficult to understand.

Waste disposal

Waste from coaches can include toilet waste, as well as general litter. Drivers also often like to use stop-overs to wash the outside of their vehicle. If large numbers of coaches are attracted to a particular location, it is worth providing waste disposal facilities, since this will obviate unauthorised disposal and assist in keeping the area clean and attractive.

19.10 Coach Parking in London

In central London, there is a high demand for coach facilities, particularly at the major tourist attractions. However, these locations are generally not suitable for providing facilities for coaches and their passengers. In particular, the provision of overnight parking is inappropriate in central London and, as a result, authorities have introduced a number of coach bans in residential areas. Authorities do have the ability to wheel-clamp coaches that park illegally.

The London Coach-Parking Map is produced on a regular basis by the Metropolitan Police, including translations into the major European languages, to assist coach drivers in the area. Parking facilities should be provided, where possible, and the needs of coaches should be considered when new developments, adjacent to areas with high coach usage, are being considered. There are, however, particular difficulties in collecting parking charges, due to the number of foreign coach operators.

19.11 Off-Street Parking

Off-street parking is normally provided, either in the form of open surface car parks, in purpose-built multi-storey car parks or within buildings on one, or more, parking floors of a mixed-use building, such as an office building.

Surface car parks are relatively inexpensive to construct and are generally preferred by car-users, although some prefer the protection of a roofed building in both hot and cold weather. However, they do not make efficient use of land, in terms of the area that has to be devoted exclusively to parked vehicles.

Multi-storey car parks permit a more intensive use of space, which is important in areas where land is in short supply and land values are high, but their construction, operating and maintenance costs are



Photograph 19.2: Example of a well-designed multi-storey car park building. Courtesy: David Nicholls.

significantly greater than those of surface car parks. However, it may not be necessary to justify the cost of construction independently if a multi-storey car park is being provided as an integral part of some other development, such as high density housing, a retail centre or a prestige public building.

In the design of car parks, close attention must be given to the external appearance and to the operational characteristics and efficiency. There are many examples of well-designed, bright and efficient multi-storey car parks (see Photograph 19.2).

Size and Layout

The minimum practical size of site suitable for a multi-storey car park is determined by the need to provide ramps between floors and is generally accepted to be 35 m square. The size of a multi-storey car park will be determined by such factors as:

- ❑ the amount of land available;
- ❑ the number of spaces required, bearing in mind the need to justify, at least in part, the capital costs involved in terms of the expected net revenues; and
- ❑ the impact of the traffic generated by the car park on the external road network.

Short-stay, usually higher-priced, parking in the more central locations will have a greater turnover for a given level of occupancy and will therefore attract more traffic throughout the day. Long-stay parking,

especially when directly associated with a large office or factory building, will produce high traffic flows only in the morning and evening peak periods.

The number of spaces provided in any single facility will be constrained by the following:

- ❑ the generally accepted maximum capacity for an integrated car park, with several aisles accessed directly by ramps, should be 1600 spaces and a single search path should not exceed 500 spaces;
- ❑ local planning authorities often impose a limit on building-heights and, hence, the number of parking levels for a particular site, on planning and environmental grounds; and
- ❑ the costs of construction underground are likely to be significantly greater than those above ground.

The total number of spaces available in a car park is termed the storage, or static, capacity, as distinct from the dynamic capacity, which is the maximum in-flow or out-flow of vehicles from the whole car park (DOE/DOT/TRL, 1969). The most important determinant of dynamic capacity is usually the type of control employed at entry and exit, including the method of collecting any charges. With minimal formalities on entry or exit, the dynamic capacity is determined by the capacity of the circulatory aisles, 800 to 900 vehicles per hour for most layouts. As a general rule, the dynamic capacity should be sufficient to permit up to 25% of the static capacity to



Photograph 19.3: VMS signing for car parks.

enter or leave the car park within 15 minutes (ie up to 100% turnover in an hour).

The maximum practical occupancy is likely to be lower than the theoretical static capacity, particularly where there are no marked-out bays or car park staff to ensure disciplined parking. In addition, since cars are arriving and departing simultaneously, newly-vacated spaces may be missed by those already in the car park searching for a space. Where entry is controlled, deliberate under-capacity margins of about five per cent, depending on size and turnover, are sometimes introduced to overcome this problem. Where parking discipline is particularly poor and spaces between columns are badly designed, actual occupancy can be as much as 50 % below the theoretical storage capacity. Conversely, in some small private parking areas, where drivers are known to one another and parking is even tolerated in circulation areas actual occupancy may be up to 125% of static capacity.

Entry and Exit Controls and Payment Systems

The type of control, if any, to be used on entry and/or exit is most important and usually determines, or will be determined by, the method of collecting any charges. In general, entry to a car park should not be permitted unless an appropriate space is available. Entry may be controlled by a lifting-arm or a rising-step barrier. Rising-step barriers should be supplemented by traffic signals, which show red when the barrier is raised to reduce the chance of damage either by equipment malfunction or driver error. Exits may be controlled in a similar way or by using collapsible plates, hinged on their leading edge, to ensure that vehicles can only pass over them in one direction. Where parking is free, or where payment is

made on entry or using a pay-and-display system, exits need not be controlled.

A variety of payment systems is in common use, including:

- ❑ 'Fixed Charge' – where payment of a fixed charge is made to a cashier or using an automatic machine on entry to, or exit from, the car park;
- ❑ 'Pay-On-Exit' – where a ticket is issued on entry and payment is made to a cashier or automatic machine on exit, according to the scale of charges and the time spent in the car park. When automatic machines are in use the failure of a driver to have the correct change, or mechanical breakdown in the system, can result in serious congestion. Equipment is available which allows payment by an electronic device, such as a stored-value smart card;
- ❑ 'Pay-and-Display' – where, after a space has been found, a ticket is purchased from a machine within the car park and displayed on the vehicle. This system eliminates delays at the entrances and exits but, where parking is permitted for more than one fixed period, the driver must decide how much time to purchase before leaving the vehicle. A Traffic Order is required to enable those drivers who do not pay the correct charge to be fined and, if necessary, prosecuted. This system is often



Photograph 19.4: VMS signing for town centre car parks.

criticised because it penalises drivers who may genuinely have misjudged their length of stay; and □ 'Pay-On-Foot' – where a ticket is issued on entry and payment is made to a cashier or using an automatic machine on departure before the driver returns to his vehicle.

Credit cards and decrementing cards are increasingly being used for payment of car-park charges and new devices, such as in-car transponders with smart cards, are likely to become available in future (see also Chapter 18).

Parking charges should be clearly displayed at the entrances to car parks along with other information about the terms and conditions of use, such as maximum length of stay, excess charge offences, and whether Orange Badge holders may park free. An 'escape route' should also be provided for drivers who choose, at the last moment, not to enter and pay.

Access and Circulation

To prevent queueing at the point of entry, the entry capacity should be equal to, or greater than, the maximum anticipated arrival rate. An access road should provide a queueing reservoir, for those occasions when the entry to the car park is operating at or near its dynamic capacity, and it should be designed to assist the transition from the higher speed travel on the external road network to walking speed within the parking area. Access roads should be used exclusively for entry into the car park so that traffic on the adjacent roads is not unnecessarily delayed.

The rate of out-flow at the exit from the car park should not exceed the reserve capacity of the road onto which it discharges and priority must be retained on the external road system, so that any queueing takes place within the car park (IHT/IStructE, 1984).

Floor Levels and Ramp Arrangements

The circulation system within a multi-storey car park depends upon the type of structure. There are four main types: flat deck, split level, ramped floor and warped slab (IHT/IStructE, 1984).

Ramps may be used solely to distribute traffic between levels (so-called 'clearway ramps') or they may also act as parking aisles, giving direct access to parking bays. Ramps may be one-way or two-way, although the latter generally require higher design standards for visibility and clearance to structures.

Aisles give direct access to individual parking-bays.

The minimum recommended width for a one-way aisle is six metres, and 6.95m for two-way operation, although this may be reduced if parking bays are angled. Parking-bay widths will depend on the use made of the parking facility; 2.3m is the minimum, 2.5m is desirable for shoppers and between 3.2m and 3.6m for use by disabled people.

Increased bay-width permits easier and quicker manoeuvring into and out of the bays, does not impair aisle-capacity and makes getting into and out of vehicles more convenient. Any columns between bays should be positioned so as not to obstruct the opening of car doors. The additional width for disabled parkers may be shared between two adjacent bays.

Signing

It is important that public car parks are adequately signed to assist and direct drivers who are unfamiliar with the area. This helps to avoid congestion and reduces the amount of time and fuel wasted while searching for places to park. Where a choice of car parks is available, signs should direct drivers to the one most appropriate for their purpose, such as long-stay or short-stay or parking provided in conjunction with a particular event. Consideration could be given to introducing computer-controlled variable message signing (VMS), linked to entry and exit, to direct drivers to car parks where spaces are still available. Two types of variable message signs are illustrated in Photographs 19.3 and 19.4. It is essential that the information given by variable message signs is reliable if drivers' confidence and compliance is to be maintained (see Chapter 15). Direction signs to car parks should not be used as a means of advertising for the benefit of the operator, whether public or private.

A comprehensive system of signing and road marking should be provided on routes within the car park to assist circulation, to achieve the most appropriate search path and to find the quickest exit. Where several search paths are available, it may be helpful to indicate which levels have spaces available.

Automated Car Parks

A number of different mechanical devices have been developed for parking and storing cars, although they have not been widely adopted in Britain. These range from simple devices for placing one car above another to complex computer-controlled systems, which usually require the cars to be placed on pallets or plates, which are then closely stacked using a combination of lifts and rollers, thereby reducing, or even dispensing with, the need for circulation ramps

and aisles. The disadvantages of these devices are the increased costs of maintenance and, particularly, the delay in parking and recovering vehicles, especially at peak times.

Pedestrian Facilities in Multi-Storey Car Parks

A new car park may affect existing pedestrian routes and there may be a need for replacement or additional footpaths, pedestrian crossings and signing for pedestrian routes.

Within the car park, ticket machines and entrances to lifts and stairways should be demarcated from parking areas. Signs should direct pedestrians to the appropriate exit and each level should be given a unique identity to help drivers to find their cars on their return. Letters or numbers are often used but colour schemes or pictorial signs such as animals or flowers may be easier to remember.

The holders of Orange Badges for disabled people (see Chapter 13) should have the most convenient spaces in a car park reserved for their use and ticket machines must be easily accessible to them, unless charges for them are waived. Care must be taken to ensure that disabled people can leave the car park easily, preferably without having to rely on lifts as these may occasionally be out of order.

Management of Car Parks

Car parks must be carefully managed if they are to provide a high standard of service to users. Long-term maintenance plans, covering the fabric of the building, running surfaces and equipment, must be drawn-up so that appropriate budgetary provision can be made. Day-to-day attention to cleansing, removal of graffiti, repair of defective lights, signs, lifts and ticket machines is essential. Carefully drawn-up maintenance contracts can ensure that service levels are maintained at relatively low cost. Staff training is also important and specific training courses for parking attendants are available.

19.12 Parking Finance

Parking policy should be regarded as an integral part of traffic management and not simply as a revenue-raising activity. Nevertheless, substantial costs and revenues are often involved and these require careful financial management.

Monitoring of income, occupancy levels and ticket sales is essential, as car parks are valuable assets which should be intensively used. However, a car park which is frequently full may indicate a need for

parking charges to be increased to bring demand more closely into line with available supply. In principle, it is desirable that, at the very least, the costs of providing and maintaining parking facilities should be met by the users of those facilities. Revenues in excess of this 'break-even' should be set to fulfil transport policy objectives.

Off-street car parks are normally provided and funded either by local authorities, under powers contained in the Road Traffic Regulations Act 1984 (RTRA) (HMG, 1984) [Nif], or by the private sector, as commercial ventures or in conjunction with other developments which the car park serves, or jointly by the private and public sectors in partnership. Local authority funding sources include accumulated funds provided by developers as commuted payments (see Section 19.2), as well as funds arising from surpluses from on-street or off-street parking operations.

Under the RTRA 1984, local authorities are entitled to retain the net revenues resulting from on-street parking charges, after allowing for maintenance and, where appropriate, local authority enforcement costs. These revenues derive from normal parking charges and excess charges. Revenues from fines imposed by the courts on vehicle-owners who contravene the regulations accrue to the Exchequer, although prosecution costs may be awarded to the Local Authority in certain circumstances. The proceeds of Fixed Penalty Notices (FPNs), issued by the police, also accrue to the Exchequer. Some local authorities, who carry out their own on-street enforcement, have adopted the practice of issuing 'Notices of Intent to Prosecute' (NIPs), which offer the offenders the opportunity to pay a fixed amount to the Local Authority, so as to avoid being prosecuted for the offence.

Under the RTA 1991 (HMG, 1991), local authorities are able to retain the revenue they receive from decriminalised parking penalty charges and to use it to fund their enforcement activities [NIg]. Any surpluses can be used to improve off-street facilities in their area or, where this is unnecessary or undesirable, for certain other transport-related purposes. Circular 1/95 (DOT, 1995a) [Sd] requires that each local authority operating a decriminalised parking regime '...should aim to make the new system overall at least self-financing as soon as practicable'. In assessing its performance against this objective, a local authority may take into account costs and revenues from its off-street parking operations. However, the attainment of this objective should not be '...at the expense of the safety and traffic management objectives of decriminalised parking enforcement or be achieved by setting unreasonable levels of penalty and other charges'.

Authorities are thereby encouraged to treat their off-street and on-street parking operations as a single financial account, which they should seek, at least, to balance. '...Local authorities should avoid using parking charges as a means of raising additional revenue or as a means of local taxation' (Circular 1/95) (DOT, 1995a) [Se].

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