

**مركز البيان للدراسات والتخطيط**  
Al-Bayan Center for Planning and Studies



# Efficient On-Street Parking Controls – Key to Urban Traffic Management

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**Al - Bayan Center Studies Series**

## **About**

Al-Bayan Center for Planning and Studies is an independent, nonprofit think tank based in Baghdad, Iraq. Its primary mission is to offer an authentic perspective on public policy issues related to Iraq and the neighboring region. Al-Bayan pursues its vision by conducting autonomous analysis, as well as proposing workable solutions for complex issues that concern academia and policymakers.

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# Efficient On-Street Parking Controls – Key to Urban Traffic Management

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## 1. INTRODUCTION

Statistics show that the private car, when measured against the space it occupies, as the most costly and extravagant mode of transport from land use perspective. This stems from that fact that the average car is only in use for around 10% of time. The private car not only requires a parking space where it is normally housed (near the owner's residence) but it also requires others at its intermediate terminals (e.g. workplace, shops, etc.).

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 as well as by individual attitudes and behaviour patterns. Drivers will also consider the security of their cars and their own personal security when choosing where to park.



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The overwhelming increase in the use of private car has resulted in diminishing the social and economic benefits created by the road infrastructure. This is especially true in the Middle East region where a combination of cultural and travel behavioural factors and the low cost of motoring have resulted in excessive congestion in urban centres with the associated parking problem.

Therefore, managing stationary vehicles is as important element of Urban Traffic Management as managing moving traffic. An efficient parking management would not only reduce obstructions to the movement of other users but help reduce congestion and pollution resulting from illegal and inconsiderate parking.

Moreover, the use of parking controls is recognised as an essential traffic restraint tool, especially for journeys to Central Business Districts. Parking restrictions assist the safe and free flow movement of people and goods that help achieve a wider set of environmental, social and economic objectives.

It is important to note that the management of parking should not unnecessarily adversely affect the viability and vitality of the area under consideration. It is usually appropriate when designing a parking scheme to ensure a compromise is reached through provision of alternatives such as off-street parking.

## 2.EFFECTS OF PARKING

It is important to fully understand the effects of parking on the road network and its various users. The following paragraphs discuss the main impacts.

### 2.1.Network Capacity

Studies indicated that the presence of small number of stopped vehicles (whether parked or Loading/ Unloading) result in relatively large reduction to road capacity. The Table below shows some indicative statistics.

No. Of Parked Vehicles per km Length of Road (both directions)	10	50	100	200
Loss of Capacity (car/hr)	340	550	640	730

It is important to note that the above should not be taken at face value as the distribution of parked vehicle along the road represents an important factor. To this end; a few vehicles that are well distributed along the road can have as much impact as a larger number that stretches along the same length. In fact it is more

or less the length covered by the parked vehicles that could determine capacity loss. It is for this reason a Clearway designation of major arterial corridors is required to guard against loss of capacity.

The effect of parked vehicles at junctions on capacity is more pronounced and therefore regulation should be in-place to ensure uninterrupted traffic discharge through the junction whenever priority is granted.

## **2.2.Network Safety**

Statistics show more than 60 % of accidents on the road are associated with parked vehicles. This is more obvious where vehicles are parked illegally at places where proper design would ban parking due to high degree of conflict or lack of sight distance.



Inconsiderate parking not only exposes vehicle occupants to danger but it obstructs the path of the most vulnerable road users such as pedestrians and cyclists and sometimes force them into the path of moving traffic.

## **2.3.Business Viability**

Parking availability and characteristics can 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, 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.

For businesses to function, they require delivery and collection of goods and to be accessed by clients who need to park their goods vehicles close to the premises. This would not be possible should these businesses are situated in an uncontrolled heavy parking area where long-stay commuters leave their vehicles for long hours. This situation should be prevented especially in a dense heavily developed area such as that of old parts of cities where the roads are narrow.

### **2.4.The Environment**

Road traffic is usually associated with high impact on the environment through air pollution, noise as well as visual intrusion. As congestion increases with uncontrolled parking, the impact on the environment and public health increases. Modern traffic analysis tools provide accurate and detailed measurements of pollution resulting from congestion including that associated with parking.

### **3.THE NEED FOR A NATIONAL PARKING POLICY**

To ensure a successful implementation of efficient parking controls, a national parking policy is needed to be in-place that is consistent with other elements of an Integrated Transport and Land Use Planning policies. Parking strategies will then be formulated at local level by the highway/ parking authorities to describe how the national policy is to be implemented while taking into consideration the local needs both in detail and programme.

Also, it is no longer considered feasible 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.

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 users 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.

#### **4.REVIEW OF EXISTING SITUATION AND DEVELOPMENT OF STRATEGIES**

In order to implement the parking policy, a thorough assessment should be made of the times and places where stopping needs to be restricted and the places and times where it can be allowed. At Urban sections of the road network, vehicles will want to stop, park and load or unload to meet the needs of people, therefore, a range of controls will be needed to ensure safe traffic movement. The range of controls on these sections should, in particular, balance the needs of non-local traffic with local development and activity.

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 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 midday, weekend mornings and during the public holidays as well as Ramadan and Eid, 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 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.

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.

## 5.MPLEMENTATION, ENFORCEMENT AND MONITORING

### 5.1.Implementation

Once a controlled Parking Scheme has received its approval following proper assessment that includes public consultation, the fine details will have to be determined. These details will cover but not limited to the following:

- Definition of the Controlled Parking Zone(s),
- Hours of operation by section,
- Type of Control (signs and Marking, Meter, Pay and Display), extent,
- Parking Permits (Residents, Traders, Disabled, Doctors, etc.), and;
- Enforcement Party (Police or Contractor)

## 5.2. Enforcement



As the police and the highway authorities all share the common interest in ensuring effective and consistent enforcement of the controls to guarantee that the parking management systems meet their objectives, full cooperation between these parties should be established. If necessary, the private sector could be involved to provide the enforcement service through parking decriminalisation.

To ensure efficient service, the party responsible for enforcement should be set targets through clear performance indicators.

Whenever possible, best use should be made of state of the art technology such as CCTV and image recognition in parking enforcement that will increase

efficiency and accuracy.

### 5.3. Monitoring

The primary aim of monitoring is to provide periodic performance assessment of the implemented controlled parking scheme to ensure meeting or exceeding its goals and objectives. This assessment will also provide the information to enable periodic reviews and amendments.

The most effective assessment process usually involves setting Key Performance Indicators (KPI) that are Specific, Measureable, Achievable, Realistic and Time bound (SMART). The Monitoring process should:

- Commence immediately before the start of the implementation (to capture the Before status), and;
- Continue after (to capture the full improvements as well as the sustainability over time).

The Monitoring process is ideally carried out in annual cycles whereby data are collected during a predefined periods to ensure direct comparison between cycles. While the monitoring exercise can extend to cover collecting data on level of congestion, safety and environmental elements, more emphasis is usually placed on collecting data that is more directly related to parking e.g. supply, demand, length of stay, enforcement efficiency etc.. This can take one of the two following forms:

- The first type of parking survey is designed to provide a ‘snapshot’ of what happens on the entire scheme during peak and off-peak periods. This survey is carried out either on-foot or from a video-equipped moving car with an observer who accurately locates the position of every stationary vehicle. This survey is carried out in regular intervals (beats) to provide information on parking turnover patterns during the day.
- The second type of parking survey is highly detailed and carried out at a representative sample of parking parades. Every section of kerb, both on the network itself and on short lengths of adjacent side roads, is recorded in great detail over a continuous 12-hour (or longer) period. This information is used to evaluate changes in stopping activity, such as length of stay and details of enforcement activity and actions against offending vehicles together with identifying major parking attracting destinations.

## 6. CONCLUSIONS AND RECOMMENDATIONS

Available literature, worldwide observations in particular those specific to the Middle East region suggest the following:

- Efficient parking controls on urban roads should be a high priority in our cities due to the undesirable high reliance on the car. This should be achieved through the development of National Parking Policy and Local Strategies to facilitate the implantation.
- It is envisaged, based on data collected so far, that the urgently needed National Parking Policies should no doubt include extension of the existing Controlled Parking Zones and creation of new ones.
- Due to the special condition prevailing in our countries that would make achieving a modal shift from the Car to Public Transport a relatively more challenging task than elsewhere in the world, the highway authorities and the private sector should cooperate to provide alternatives in the form of multi-storey off-street car parks to support the proposed parking policies.