

## **Report No 96**

### **Parking Management Plan for Residential Areas in Delhi: in compliance with directions of the Hon'ble Court dated 6.3.2019 and further to EPCA report No 94**

**March 28, 2019**

#### **Environment Pollution (Prevention and Control) Authority for NCR (EPCA)**

##### **1. Background**

---

The Hon'ble Supreme Court directed on 6.3.2019 that a joint meeting of EPCA, Municipal bodies, secretaries of the transport department and Delhi Police and other incumbents/functionaries be convened to prepare a parking plan for providing both residential and commercial parking and to find out as to what kind of parking – spiral type or other, can ease out various problems caused by haphazard parking while planning the need of today as well as future requirements of Delhi be taken into consideration.

This directive came as a result follow up on the earlier report that was filed by EPCA on February 15, 2019 (Report No 94) in response to the Delhi Government's proposed amendments to the finalised (but not notified) Delhi Maintenance and Management of Parking Rules, 2017. EPCA convened a meeting on March 14, 2019 to discuss the above directions of the Hon'ble Supreme Court (see Annexure 1 for list of participants). At this consultation all key implementing agencies that are involved with parking management in the city were in attendance: South Delhi Municipal Corporation, North Delhi Municipal Corporation, New Delhi Municipal Council, Delhi Development Authority, Delhi Traffic Police and Delhi Transport Department.

##### **2. Issues examined by EPCA**

---

In this report EPCA has specifically examined the following issues:

1. Global experiences for the regulation and management of residential parking
2. The current situation of parking in residential areas of Delhi, current best practices and ways to regulate, manage and enforce parking management in colonies
3. Different options for providing multi-level parking lots in Delhi, associated costs and issues

### **3. Global experiences on residential parking management**

---

As directed by the Hon'ble Court EPCA has also reviewed the global practice of managing and pricing residential parking in other global cities including London, Hong Kong, Singapore and key US cities (See Annex 2 for details). All global best practices for managing residential parking involve several major ways to regulate and price residential car parking, as given below:

- a. Applying for purchasing a parking permit, usually for a short term, from the city's transport agency, to park one's car within a designated space earmarked by the transport agency. This is renewed periodically. Residential parking permits are used to discourage other commuters or visitors from parking long-term in residential areas. Jurisdictions require a permit to park in designated areas in order to ensure on-street parking spaces for local residents. Parking permits are often used in mixed-use neighbourhoods with high commercial activity and low availability of off-street parking for area residents. Most permit programs charge a fee and require vehicles to be registered to addresses within the permit area. The permit is affixed to the vehicle in some cases, whereas in some other cases the permit sheet has to be posted on the vehicle.
- b. Restricting parking supply by applying maximum parking spaces that can be allowed or cap the availability to discourage developers from creating oversupply of parking. There are also maximum parking requirements that limit the number of parking spaces that may be built and prevent the developer from building additional spaces to contain demand in residential development. In addition, parking requirements are often reduced for newer construction closer to transit options like metro so that people use the transit and reduce dependence on cars. All of these are aimed at encouraging fewer vehicles ownership to begin with.

### **4. Assessment of current residential parking scenario in Delhi**

---

A rapid assessment of the ground realities was carried out in few randomly selected residential neighbourhoods of Delhi. This was done to review the current crisis of parking induced congestion, current practices of parking management in residential colonies; and the current practices of residential parking pricing in Delhi.

The survey found serious crisis of night-time parking, which was in turn leading to obstruction on roads and problems with the movement of emergency vehicles, including ambulances. This creates serious risks for all residents and undermines their right to access essential services to ensure safety and wellbeing. This requires immediate attention and management of on-street parking on public roads in residential areas.

**Practice of parking charges has begun inside residential colonies:** This review has also revealed that for better management of parking at the colony level the Resident Welfare Associations (RWA) have started to demarcate parking lots inside the colonies for rational allocation of parking slots to the residents in an organised manner to prevent chaos and conflicts. Moreover, they have also linked the amount that residents pay to the RWA for services to the parking needs. They have started to price parking inside the colonies.

Several such examples have been brought to the notice of the EPCA. In Anupam Apartment complex in Saket the RWA has chalked out a formula to charge monthly subscription based on the size of the flat and number of cars owned (see Table: RWA parking rates in Anupam Apartments in Saket). The association even has differential pricing for residents in middle floors. The circular from the RWA in 2016 further stated that residents who have given out their garages on rent for residential or commercial purposes and if the tenant has cars that will also be counted as the cars of the owner for the above calculation. Even if the car is junk status and not in use, it will be counted. This is an important management principle that the Municipalities should also follow.

**Table: RWA parking rates in Anupam Apartment in Saket**

	<i>Ground and top floor residents (Rs)</i>	<i>Middle floor residents (Rs)</i>
<i>No Car (the minimum amount that the residents have to pay to the RWA. This amount increases with the number of cars owned as follow:</i>	<i>800</i>	<i>600</i>
<i>1 car</i>	<i>900</i>	<i>700</i>
<i>2 car</i>	<i>1100</i>	<i>900</i>
<i>3 car</i>	<i>1400</i>	<i>1200</i>
<i>4 car</i>	<i>1800</i>	<i>1600</i>

Yamuna Apartment in Alaknanda requires a resident to pay Rs. 300 per month for one parking space. The colonies have also adopted the principle and practice in which the parking charges for second and third cars are higher. Another Apartment block, Kaveri in the same locality ***charges Rs 150 per month for the first car and Rs 1000 for the second car as space is extremely limited and this second car charge is also allowed only if space is available.*** **The problem is that because there is no regulation or pricing for parking on public land outside the colonies, car owners simply shift to parking here, adding to congestion on the road.**

Other places that do not charge are running out of space, creating safety hazard by leaving no room for fire-engines to access buildings in case of an emergency and often they are allocating as much space to parking as much as to parks.

While it is now quite common inside residential colonies especially in apartment blocks for the local residents to self-organise, demarcate and sometime price parking, the lack of parking regulations implies that local agencies (municipal corporations) cannot regulate the residential parking spill over on public road.

## **5. Multi-level car parks as an option to meet residential parking demand**

---

Delhi government has proposed that to ease the crisis it will build more multi-level car parks to be able to meet the residential parking demand. EPCA has therefore examined this issue.

The rapid assessment shows that currently built Multi-Level Car Parks (MLCPs) are priced but yet under-utilised. This is because there is no parking charge on public land.

All existing MLCPs have priced parking and it is available for residential parking as well. Field investigation shows that in multi-level car parking (MLCP) near several residential locations, local residents have already started to use them and are also paying for long-term and night term parking. For instance, existing MLCP's such as those being managed by SDMC at Kalkaji, Hauz Khas, Munirka and Rajouri Garden already accommodate residential car parking, but it is against certain prescribed fees. Residents are legitimately paying monthly charges of Rs 2000 for cars and Rs 1000 for two-wheelers for parking as per the notified rates (See Table 1 Parking fees at MLCP at Kalkaji, Hauz Khas, Rajouri Garden & Munirka). **However, these parking lots remain under-utilised as per**

the information provided by SDMC and this is because parking in residential areas is not regulated or priced. There is therefore, no incentives to use the multi-level parking lots or to pay for these.

**Table: Parking fees at MLCP at Kalkaji, Hauz Khas, Rajouri Garden & Munirka**

Type of vehicle	Applicable fees	Cost of monthly pass	Concessional monthly fees
Car	Rs 20/- per hour subject to a maximum of Rs 100/- per day	Rs 2000/- per vehicle per parking site	1500/ (1100/- at Munirka)
Two-wheeler	Rs 10/- per hour subject to maximum of Rs 50/- per day	Rs 1000/- per vehicle per parking site	750/- (NA for Munirka)
Commercial vehicle, tempos, mall carrier	Rs 50/- per hour subject to a maximum of Rs 250/- per day	Rs 3000/- per vehicle per parking site	NA

Source: Based on rate-lists put out at the parking lot

Note:

- Concessional fees are applicable for RWA members.
- The MLCP charges at Sarojini Nagar is Rs. 13 for every hour and part thereof.

Residents are also paying monthly or night time charges on surface level legal parking areas (for instance in local market areas) that are located in the vicinity of the residential colonies. This has been observed in Alaknanda colony, where residents are using the market legal shopping and paying for it. Residents are paying night time and monthly charges as per the rates fixed by the municipalities. This clearly, shows that there is a growing body of residents who are utilising the legal parking facilities either on surface or in MLCPs, that the municipalities have created and are paying the notified fees. **But this best practice and legal usage of parking facilities is being undercut by the unhindered availability of infinite free parking on public streets and roads.**

## 6. Economics of multi-level parking

There are different models for building the multi-level parking, including stack and spiral parking. The cost varies, based on the type of parking that is being built, with the most expensive being underground and automated parking (like in Sarojini Nagar).

**The question before EPCA was to examine the costs of building the multi-level parking and who should bear the cost of subsidy to car users.** It has particularly looked at some of the MLCPs that accommodate residential parking. Based on the data provided by SDMC it is evident that:

- The capital cost of the multi-level parking already built in the city (**excluding the cost of land**) is between Rs 10-50 crore, depending on the number of vehicles it can accommodate.
- The better measure of cost is to take it in terms of ECS (Equivalent Car Space) – in this case the cost is between Rs 5-12 lakhs per ECS, depending on the cost of the structure.

**Table: Capital cost of Multi-level parking**

Parking	ECS	Cost per ECS (Rs)	Capital Cost (Rs)
Hauz Khas	320	₹ 5,00,000	₹ 16,00,00,000
Munirka	200	₹ 5,00,000	₹ 10,00,00,000
Kalkaji	380	₹ 8,06,000	₹ 30,62,80,000
Jangpura	308	₹ 8,06,000	₹ 24,82,48,000
New Friends Colony	602	₹ 8,06,000	₹ 48,52,12,000
Subhash Nagar Block 6	330	₹ 12,13,000	₹ 40,02,90,000
Subhash Nagar Block 10	200	₹ 12,13,000	₹ 24,26,00,000
Rajouri Garden	230	NA	NA

Source: SDMC

### **Operational costs of multi-level parking**

Over and above this, the operational cost is around Rs 50-60 lakhs per year, which includes electricity, staff and maintenance of lifts.

However, when this is compared to revenue, then it is found that all these parking lots are working at a loss – which ranges from Rs 4 to 14 lakh per year.

If it is assumed that this operational loss is a hidden subsidy to car users, then the loss per ECS is roughly Rs 2000 to Rs 4000 per year. In addition to this, the entire capital cost has to be borne as subsidy, given the fact there is no room to cover up capital costs through profits. In best case scenario, Kalkaji MLCP, which amongst 4 MLCPs (for which data is available from SDMC) is the only one making profit, will take almost 78 years to recover its capital cost based on its present profit levels.

Furthermore, these costs do not account for the price of land, which is exorbitant as these parking lots are located in prime residential areas.

**Table: Operating cost, revenue and profit/loss of MLCPs**

	Hauz Khas	Munirka	Kalkaji	Rajouri Garden
<b>Average Annual Operating Cost</b>	₹ 62,54,847	₹ 53,37,603	₹ 50,13,044	₹ 54,85,188
<b>Average Annual Revenue</b>	₹ 48,52,417	₹ 49,30,251	₹ 53,39,619	₹ 44,59,125
<b>Average Annual Profit/ Loss</b>	-₹ 14,02,431	-₹ 4,07,352	₹ 3,26,575	-₹ 10,26,063
<b>Years to cover capital cost</b>	NA	NA	78	NA
<b>Operating Subsidy per ECS per year</b>	-₹ 4,382.60	-₹ 2,036.76		-₹ 4,461.14

Source: SDMC

\*Based on data available from April, 2017 to Jan, 2019

**Car users enjoy higher parking subsidy than bus users for cost of journey:** This deficit in the cost of operation as well as the non-recovery of the capital costs of building the multi-level parking must be viewed as a subsidy to car owners in the city. If this is compared to the subsidy given to bus passengers, then it is clear that there is a distortion in policy. As per the government's own data, the average subsidy extended to DTC is a mere Rs. 10-15 per user per year. This is happening at a time when there is urgent need to promote usage of public transport and personal vehicles are worsening pollution and congestion.

## **7. Land availability for multi-level parking**

Even leaving aside the issue that building parking provisions on public land will mean taking away land from other essential needs, it is clear that the sheer demand for ever-growing parking needs will be difficult to provide for. Therefore, the policy must be designed to restrain the growth of demand, as much as it is designed to manage the supply. This is the key learning from global experiences.

The annual additional demand for land to park cars is already massive in Delhi. Taking 2016-17 figures for car registration in Delhi (roughly 1.66 lakh new cars were registered) as a benchmark, Delhi annually needs an additional 382 hectares of area under car parking every year. For a sense of scale, this is roughly equivalent to 2.8 times the size of entire IIT Delhi campus. If two-wheelers are added, an additional 277 hectares of area is required every year (6 lakh two-wheeler were registration in 2016-17).

**In other words, each year, an additional 660 hectares of area will be required in the city just for parking of its newly registered vehicles.**

In contrast, it may be recalled that when the issue of buses in Delhi not being able to be procured due to lack of parking space was brought up before the Hon'ble Court in 2015, DDA had cited lack of availability of land to develop bus depots. EPCA was directed by the Hon'ble Court to work with the land-owning agencies to find spaces for bus depot that in itself was very challenging. This still remains a serious constraint when scaling up of public bus transport is one of the important action points of the comprehensive clean air action plan that the Hon'ble Court is monitoring.

It is evident there is therefore limit to how much land can be devoted to car parking without compromising the other essential needs like schools, hospitals, minimum requirements of green spaces per capita, affordable housing, old age homes that have already been mandated by the MPD 2020-21. For instance, land requirement for building new housing is also equivalent to almost 450-500 hectares every year for building around 75,000 housing units as mandated by the MPD 2021. As land of that scale is not available inside the city the EWS housing is getting pushed 40-50 km away from the city, away from the job centres of the poor.

In other words, the land requirement for parking the annually registered private vehicles (cars and 2-wheelers) is more than the land requirement for housing for over 75,000 households. This clearly shows the enormity of the problem, as well as the inequity in scarce land use management.

Therefore, even while policy must be directed to manage the existing parking demand in an organised and a planned manner it is also important to find ways to reduce demand for parking, through restrictions and pricing.

## 8. Key highlights of the consultation and findings

---

The views of the agencies represented in the meeting on March 14, 2019 were as follows:

**Implementing agencies are unanimous that residential parking will have to be regulated and managed.** Implementing agencies – Municipal Corporations and Delhi Traffic Police unanimously agreed that residential parking will have to be regulated and managed. In fact, as per discussions with Delhi Police officials, parking related law and order problem has assumed serious proportion in residential areas. A high number of police complaints and even deaths are reported due to parking disputes. This cannot be ignored and will require strong intervention and management.

**Parking spill over from residential buildings will require management:** The Master Plan for Delhi (MPD) 2021 has already made sufficient and substantial provision for parking spaces in residential buildings. For instance, for group housing, 2 parking slots per 100 sqm of built up are required to be provided and in plotted housing 1 slot per 100 sqm is allowed (for plots above 300 sqm). This means if a plotted building of 500 sqm is built to the maximum allowable floor area ratio (FAR) level and has four storeys, each floor is required to have two parking slots. What makes this even more lenient for the house makers is that these parking spaces are not counted within the FAR of the building so that they can create enough parking spaces without it interfering or taking away space from the other usages of the building.

Even after this generous provision parking is still spilling over beyond the building due to uncontrolled car ownership and availability of abundant free parking on public roads. Parking provisions within buildings are not either being effectively utilised or are being put to other usage. Availability of unlimited free parking on public land and public roads is also encouraging this trend.

Based on this review EPCA is of the view that the city is paying high cost for free parking. The crisis of unsustainable parking pressure in residential neighbourhoods has created serious law and order problem, local congestion and toxic exposure and erosion of wellbeing and liveability. It is important to address management of parking in residential areas. Concerned implementing agencies that EPCA has consulted have also agreed with this.

## **9. Recommendations for the consideration of the Hon'ble Court**

---

It is clear that the parking management plan will have to be made for each locality and colony of the city, based on its local needs and character.

Therefore, it is recommended that while the Delhi government may be directed to notify the Delhi Maintenance and Management of Parking Rules, 2017 that provide for the parking management and pricing in residential areas, the following clarification can be introduced to provide the roadmap for implementing residential parking management in the city.

**1. Parking in residential areas must be the joint responsibility of local agencies, namely the municipal corporations, DDA and other land-owning agencies and RWAs and shop-keepers associations. Based on the parking management plan, the role and responsibility of RWAs and other community organisations, like local shop-keeper associations should be clearly identified. The area must be jointly managed so as to ensure that there is coordination between different road types – service roads and residential lanes and commercial and mixed land use areas. If, this is not done, then there will be problems of spill over – if residential areas demarcate parking and provide permits, but this is not done in mixed land use areas, then vehicles will simply move from one to the other and add to congestion and law-order problems. It is also clear that multiplicity of responsibility is at the core of the problems of governance in the city and parking regulations must not add to this.**

**2. There should be integrated management of multi-level car parks and surface/on-street legal parking areas for efficient utilisation and improve access of the residents to the public parking facilities.** EPCA review has shown that because of lack of this integrated management approach and availability of free parking in surface areas, the parking facilities that are being created are not being fully utilised and free parking in the vicinity is still clogging roads. Such management will help to contain night time spill over of residential parking.

**3. The pricing for residential parking should be determined jointly by the local agency and RWA/shop-keepers association but it must be based on the principle of charging differential and higher rates for additional cars.**

**4. The local parking plan must ensure that there is provision for movement of emergency vehicles and green areas, parks and footpaths may not be allowed to be used for parking.**

**5. The Delhi Police may be directed to greatly improve enforcement against illegal and unauthorised parking through state-of-the art equipment, including cameras and automated challans.**

## Annexure 1

### List of attendees of EPCA meeting dated March 14, 2019

<b>Name</b>	<b>Designation/Dpt</b>
Abhishek Arora	Transport Consultant
Varsha Joshi	Commission, NDMC
Aman Rajput	AC (RP Cell), EDMC
Anil Banka	Spl. Commissioner, Transport Department
Ankita Anand	DC, EDMC
Anumita Roychowdhury	ED, CSE, and member of drafting group for parking policy
Atanu Ganguli	Dy. ED, SIAM
C.L. Meena	EE (Civil)
Devender Singh	CE, EDMC
Shivledhari Meena	UTTIPEC
Jagadesan Kannan	Jt. CP, Traffic
M. Dwarakanath	Department of Environment, Delhi
Namrita Kalsi	CA, EDMC
P.S. Jha	Deputy Commissioner, SDMC
Pankaj Gupta	EE, UTTIPEC
Rajiv Yeduvanshi	Pr. Secretary (UD), GNCTD
Rajesh Kumar	AC (RP Cell), SDMC
Ramanand Bhagat	NDMC
Ravinder Soni	ACP, Delhi Traffic Police
S.N. Singh	CE (HQ), DDA
Sunita Kushwaha	Ministry of Urban Development, GOI
Umesh Tyagi	Addl. Commissioner, SDMC
Vikas Jain	PCO, Transport
Bhure Lal	Chairman, EPCA
Sunita Narain	Member, EPCA

## Annexure 2

### *Global experiences in regulating residential parking*

Place	Residential Car Parking Permit Price	Parking permit & conditions
Hong Kong <sup>1</sup>  (Authority: Hong Kong Housing Authority)	<ul style="list-style-type: none"> <li>- Monthly Rs. 2,02,300 (\$2890) covered shed</li> <li>- Monthly Rs. 1,67,300 (\$2390) for open space</li> </ul>	<ul style="list-style-type: none"> <li>- Mandatory parking permit on application basis</li> <li>- It is subject to eligibility determined by HK HA</li> <li>- On fulfillment, a resident is given Parking pass</li> <li>- Any breach of parking pass results in strict legal action</li> <li>- Applicable for Estates/Shopping Centers/Courts/Factories and parking owned by Housing Authority</li> <li>- Only Monthly parking lease</li> <li>- Monthly fees are revised annually</li> </ul>
Singapore <sup>2</sup>  (Authority: Housing Development Authority, Singapore)	<p>Designated Zone (kerbside)</p> <ul style="list-style-type: none"> <li>- Monthly Rs. 5600 (\$80) and Rs. 10,500 (\$150) for tier 1 and tier 2 car respectively</li> </ul> <p>Restricted Zone (kerbside)</p> <ul style="list-style-type: none"> <li>- Monthly Rs. 5600 (\$80) and Rs. 11,550 (\$165) for tier 1 and tier 2 cars respectively</li> </ul>	<p>Residential Parking (Season Parking tickets) for HDB Parking areas</p> <ul style="list-style-type: none"> <li>- Application is eligible for only first vehicle of residents within nearby dwelling unit</li> <li>- HDB Parking ticket is available up to 12 months, subject to availability of parking lots</li> <li>- One can apply for second vehicle only after 18 months</li> </ul> <p>For public parking</p> <ul style="list-style-type: none"> <li>- Only on occasion, festival or religious events</li> <li>- On any other day, resident must apply at least one working day before usage</li> </ul>

<sup>1</sup> HD640C Application for Monthly Parking Permit & HKHA Car park charges, 2019

<sup>2</sup> [www.hdb.gov.sg](http://www.hdb.gov.sg), [www.ura.gov.sg](http://www.ura.gov.sg)

Place	Residential Car Parking Permit Price	Parking permit & conditions
	-Parking Coupons (short term parking)	<ul style="list-style-type: none"> <li>- Use of public parking lots without prior approval is subject to enforcement action</li> </ul>
Washington DC <sup>3</sup>  (Authority: Department of Motor Vehicles, DC)	\$35.00/year	<ul style="list-style-type: none"> <li>- The Residential Permit Parking (RPP) program was established in the 1970s</li> <li>- Residents obtain the RPP sticker from authorities at mandatory fees</li> <li>- Parking is limited to two hours during the hours of operation for those vehicles without the appropriate zone RPP sticker.</li> </ul>
Cambridge <sup>4</sup> , MA	\$25 per vehicle annually	<ul style="list-style-type: none"> <li>- The purpose of the City's Resident Parking regulation is to maximize the availability of parking for Cambridge residents while discouraging long-term parking on residential streets near commercially zoned areas or transportation access points.</li> <li>- Applicable for pan city locations</li> <li>- Residents are also eligible for one visitor parking permit</li> </ul>
Chicago <sup>5</sup> , IL	\$24.00 – or 45 permits – per household per 30-day period	<ul style="list-style-type: none"> <li>- Annual and daily permits can be purchased by residents to allow parking in Residential Parking Permit Zones. A city vehicle sticker and proof of residence are required to purchase permits</li> </ul>
Seattle <sup>6</sup> , WA	-\$ 65 per year for residents - \$ 30 for guest permit	<ul style="list-style-type: none"> <li>- Residents residing in congested areas can request for considering their area under RPZ to ensure fixed parking for residents. It is made through a formal application for it</li> </ul>

<sup>3</sup> District Department of Transportation Website, DC

<sup>4</sup> Traffic, Parking & Transportation, [www.cambridgema.gov](http://www.cambridgema.gov)

<sup>5</sup> <http://www.chicityclerk.com>

<sup>6</sup> Seattle Department of Transportation, [www.seattle.gov](http://www.seattle.gov)

Place	Residential Car Parking Permit Price	Parking permit & conditions
		<ul style="list-style-type: none"> <li>- Restricted parking zone permits exempts time limit parking prohibition for residents in certain zones</li> <li>- Its non-transferable</li> <li>- Residents are also eligible for one guest permit</li> </ul>
Los Angeles <sup>7</sup> , CA	<ul style="list-style-type: none"> <li>- \$ 34 per year</li> <li>- \$ 15 for overnight parking permit per year</li> </ul>	<ul style="list-style-type: none"> <li>- Annual preferential parking permit</li> <li>- Any resident who has frontage access or side frontage on a block can apply for preferential visitor permit</li> </ul>

City	Policy restrictions														
London <sup>8</sup>	<ul style="list-style-type: none"> <li>- TFL have removed minimum parking requirement in 2004. Now parking spaces are capped that limits the availability.</li> <li>- Maximum parking provision in a development in any area is linked to the PTAL (Public Transport Accessibility Level) of the area as given below (6 being the best and 0 indicating no public transport supply):</li> </ul> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Public transport accessibility level (PTAL)</th> <th>Maximum parking space per unit</th> </tr> </thead> <tbody> <tr> <td>All areas of PTAL 5-6 Inner London PTAL 4</td> <td>Car free residential development</td> </tr> <tr> <td>Inner London PTAL 3</td> <td>0.25</td> </tr> <tr> <td>Outer London PTAL 4 Inner London PTAL 2</td> <td>0.5</td> </tr> <tr> <td>Outer London PTAL 3 Inner London PTAL 0-1</td> <td>0.75</td> </tr> <tr> <td>Outer London PTAL 2</td> <td>1</td> </tr> <tr> <td>Outer London PTAL 0-1</td> <td>1.5</td> </tr> </tbody> </table>	Public transport accessibility level (PTAL)	Maximum parking space per unit	All areas of PTAL 5-6 Inner London PTAL 4	Car free residential development	Inner London PTAL 3	0.25	Outer London PTAL 4 Inner London PTAL 2	0.5	Outer London PTAL 3 Inner London PTAL 0-1	0.75	Outer London PTAL 2	1	Outer London PTAL 0-1	1.5
Public transport accessibility level (PTAL)	Maximum parking space per unit														
All areas of PTAL 5-6 Inner London PTAL 4	Car free residential development														
Inner London PTAL 3	0.25														
Outer London PTAL 4 Inner London PTAL 2	0.5														
Outer London PTAL 3 Inner London PTAL 0-1	0.75														
Outer London PTAL 2	1														
Outer London PTAL 0-1	1.5														

<sup>7</sup> Los Angeles Parking Violation Bureau, [prodpci.etimspayments.com](http://prodpci.etimspayments.com)

<sup>8</sup> The London Plan, 2017, [www.london.gov.uk](http://www.london.gov.uk)

	<ul style="list-style-type: none"> <li>- Residential developments should not exceed maximum parking standards</li> <li>- Communal car parking facilities (including basement) should be leased rather than sold</li> <li>- Large scale built shared living, hostel etc. should be car free</li> <li>- Provision of car parking should not be a reason for reducing the level of affordable housing in a proposed development.</li> </ul>
New York City <sup>9</sup>	<ul style="list-style-type: none"> <li>- In 1982, New York City established a parking cap in the heart of Manhattan for both residential and CBD in central areas to control parking supply</li> <li>- Housing developments were allowed a parking maximum of 20-35 percent of residential units depending on their location</li> <li>- As a result, the total number of parking spaces was reduced from 127,000 to 102,000 from 1978 to 2010</li> </ul>
San Francisco <sup>10</sup>	<ul style="list-style-type: none"> <li>- Since 1973<sup>11</sup>, the downtowns adopted parking maximum instead of minimum and residential parking maximums range from 0.5 to one space per unit, depending on neighborhood factors such as access to transit and density</li> <li>- Residential Parking Permit Evaluation &amp; Reform Project by SFMTA introduced maximum parking requirement in 2018</li> <li>- The permits that allowed 4 car per residence address reduced it to 2 car per address at the price of \$128 each</li> </ul>

---

<sup>9</sup> ITDP\_US\_Parking\_Report.

<sup>10</sup> Residential Permit Parking Proposals for Reform, 2017, [www.sfmta.com](http://www.sfmta.com)

<sup>11</sup> ITDP\_US\_Parking\_Report.