A Study on
GUIDELINES ON PARKING MANAGEMENT FOR CHENNAI

PREFACE

The study was conducted by Civitas Urban Solutions Team consisted of Sampath Simon, Madhu S, Lakshmi Ramamurthy, Dhanuraj D for Chennai City Connect Foundation. Special thanks to Editor Archana S Gayen and Jiyad KM for designing the layout, which has been instrumental in the successful completion of the project.

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THE AUTHORS

• **Shakti Sustainable Energy Foundation (SSEF)**
  The Shakti Sustainable Energy Foundation (SSEF) is an NGO whose mission is to create a secure, sustainable, and equitable future for India’s citizens by supporting policies and significantly, policy implementation that promote energy efficiency, sustainable transportation, and renewable energy. Shakti aims to catalyze policy development and implementation, including India’s National Action Plan for Climate Change and Integrated Energy Policy. As part of this mission, SSEF has funded this study by Chennai City Connect Foundation on Developing Parking Policy for Chennai.

• **Chennai City Connect Foundation (CCCF)**
  Chennai City Connect Foundation (CCCF) is an initiative which brings together various urban stakeholders including residents of the city, employers across the entire range of industries, small and medium firms, bodies like Rotary, Industry Associations, NGOs, Community organizations and other entities outside the Government onto a single platform. This helps the Government respond in a constructive, collaborative manner to voices coming from outside, to create value-added partnerships. The aim of CCCF, among other things, is to assist governmental agencies by providing them with a knowledge base and support system to help in the development of urban infrastructure and services.

• **Civitas Urban Solutions**
  Civitas Urban Solutions is a specialised entity of Civitas Consultancies working in the area of Urban Research and Urban Advisory. Civitas specialises in three categories: Urban, legal, and advisory. They have a consortium of experts working in various fields. Civitas has its research wing in the Centre for Public Policy Research (CPPR) and has partnered with infrastructure companies and urban planners. Composite solutions, supported by rich research experience, help Civitas in its pro-active role in urban infrastructure development. Their core strength is in conducting research; integrating newer developments across the globe and customizing knowledge. Civitas has worked in various projects namely Study on Auto-rikshaw sector in Chennai for Chennai City Connect Foundation, Mobility Hub Study Report for Confederation of Indian Industry; and is currently involved in Para-transit studies in Chennai.
NEED FOR THE GUIDELINES ON PARKING MANAGEMENT IN CHENNAI

There are about 3.4 million vehicles in Chennai; and parking is a major issue that the city is faced with. There is much confusion and uncertainty over how to deal with the issue. This study titled ‘Guidelines on Parking Management for Chennai’ is aimed at reviewing the current system of parking management in the city and suggests measures to improve it. The aim of the study is provide a framework on which Parking shall be viewed in the city of Chennai.

Parking is essentially a subject of public policy in two ways. On-street parking occupies land which is highly valuable and off-street parking has a direct linkage with building regulations. Both affects land use pattern in Chennai. On-street parking is more prevalent and the city is in its nascent stages as far
as off-street parking is concerned. However, the demand for parking is insatiable and therefore cannot be met by merely providing more and more parking facilities. Various studies have estimated that 230 square feet of land area is required for a car to be parked on-street. Going by that, 7 per cent of the total land area of Chennai will be needed just to provide parking for all the cars in Chennai. On the other hand, a dwelling place for the poor and needy in Chennai is only 200 square feet, as per Development Control Rules. Off-street parking is guided by the Minimum Parking Requirements set in the building rules. The minimum requirement policy approach is widely criticised by experts, for it makes even a non-driver pay for parking. Cost of providing parking is ‘Bundled’ into the price of apartments and commercial spaces which ultimately leads to overall increase in the prices of commodities. Such a policy, in fact, promotes the use of private modes of transportation over public transportation. Based on the above two facts, it can be inferred that the development path that Chennai follows does not revolve around its people, but is centered on the vehicles plying in the city.

The overdependence on private vehicles to meet travel demands points to a sub optimal public transportation system. In a city with 4.6 million people, the fleet size of MTC, which is the major provider of public transportation, is 3,427. Para transit modes like Auto-rickshaws and Share-autos play a significant role in plugging the gaps in public transportation. The lack of public transportation and its low quality services force people to depend on private modes to meet their travel demands. Encouraging people to use public transport shall ease the congestion.

Parking management strategies can be in the form of economic mechanisms, regulatory interventions or innovative street design with the aim of curbing the demand for parking. Parking is a potential source of revenue for the city administration. Since on-street parking occupies scarce and valuable urban land it should be charged an appropriate price. However, it is not the case presently as the pricing is kept low.

Pricing of parking is the major economic measure used in parking management in Chennai. The current pricing system charges a low fare of Rs. 5 per hour in metered parking lots and Rs. 5 for six hours in pay ‘n’ park lots. Moreover, two-wheelers are offered free parking except in railway stations and bus stands. By charging such low prices and offering free parking, the city is forgoing a viable source of potential revenue. The first step shall be to charge two wheelers which constitute around 76 percent of the vehicles in Chennai. Abolishing free parking and reducing free parking at various locations can go a long way in curbing demand. Differential pricing and classification of parking
areas into High, Medium and low parking density areas based on the vehicle count and the occupancy rate will help in streamlining parking in Chennai. Further technological interventions in parking lots, allowing short term parking in identified areas, allowing shared parking shall help in achieving a successful parking management.

Parking should be considered as a service, not as an infrastructure facility. Once a service, it can be treated as a commodity like any other and an optimal quantity can be supplied at equilibrium price based on the forces of demand and supply. People tend to be responsive to economic stimuli and hence when parking is charged at a market determined price, in all likelihood, the demand will bear an inverse relation with price. But, currently there is no mechanism to coordinate among the stakeholders of parking to have such a competitive pricing framework.

Parking management in the city must be approached from short, medium and long term perspectives with clearly defined goals and milestones. Chennai, unfortunately has a dismal track record in managing parking. Except for policing, none of the other parking levers are applied effectively to mitigate the parking crisis. When cities of comparable size but with far more cars have adopted novel parking management methods, Chennai is lagging way behind. The city administration and the planning authority view the parking problem as a supply side deficit and are getting ready to provide more parking. Monitoring of parking through a cell under the proposed Unified Metropolitan Transport Authority (UMTA) shall help in effective implementation and enforcement of parking strategies. Currently identification of parking, erecting parking signs, managing parking etc are done by different entities, the centralised entity shall co-ordinate all departments effectively implement things related to parking. The cities development plans shall integrate such strategies co-ordinated through the cell which go a long way in enabling a better planned development of an emerging city like Chennai.

**Defining parking:** Parking can be defined as the act of a vehicle stopping, standing or loading along a street. When this occurs on the road, it is termed on-street parking and elsewhere, it is termed off-street parking. Vehicles cannot be in a state of motion; it needs to stop at places as per the motorist’s requirements, since vehicles are used for transporting people or goods from one point to another.
Since every vehicle needs parking at all destinations, the demand for parking space has started to put immense pressure on the urban landscape. Increase in personalised modes of transport, including two wheelers and four wheelers, have caused demand for parking facilities to increase manifold.

The availability of parking is an essential component to gauge the development of a city. However, most city development plans of various cities fail to address the need of a holistic understanding of parking. Parking should provide sufficient spaces for cars and bikes and at the same time utilize public spaces effectively. It is said that a vehicle is in motion only for about 4 per cent of its lifetime; the rest of the time is spent in a parking place. Vehicles are parked either in an off-street facility or else on the street at all times when not in motion. Thus parking of vehicles consumes space and when parked on the road it hinders free flow of traffic, especially when the parked vehicle enters moving traffic or when a vehicle is trying to enter a parking space. Parking becomes an important aspect of land use pattern and transport in urban areas.

Parking becomes a major problem faced by the city due to distortions in land use, encroachments, rising private vehicle ownership and longer trip lengths. Also the easy availability of credit contributes to rising ownership of vehicles. Unauthorised construction and the conversion of parking spaces within commercial buildings for other uses cause the severity of the problem to increase to critical levels. It deserves immediate attention by way of formulating a comprehensive parking policy which is in keeping with the larger goals of development that the city has set for itself. In the absence of such a policy, and along with the acute shortage of parking space, more often than not, valuable road space is being used as parking space by vehicles. It results in traffic congestion and subsequently increased travel time.

The need for a well thought out parking policy therefore becomes an inevitable need for every Indian city that aspires to become a sustainable and successful development story. Parking policies have a direct bearing on traffic growth, vehicular growth, transportation, public space, congestion on roads, urban development pattern including land use pattern and emission of green house gases and the likes. Therefore, a parking policy is much more crucial than it is usually thought to be and therefore needs to be well planned and detailed. A wrong footed policy to govern parking in a city can cause considerable harm to the overall development path of a city. On the other hand, a wise parking policy can present remedies to the pressing problems in a city.
1 TRANSPORTATION SCENARIO IN CHENNAI

Table 1: Chennai Road Map

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Population in Chennai</td>
<td>46,81,087</td>
</tr>
<tr>
<td>Area</td>
<td>181.06 sq km</td>
</tr>
<tr>
<td>Population Density</td>
<td>26,903/sq km</td>
</tr>
<tr>
<td>Road length</td>
<td>2847 km</td>
</tr>
<tr>
<td>Total vehicles</td>
<td>34,22,647</td>
</tr>
<tr>
<td>Vehicle per person</td>
<td>0.73</td>
</tr>
</tbody>
</table>

Chennai has a sprawling road network of about 2,847 kms which is classified into Arterial, Sub Arterial, Collector and Feeder Roads (Corporation of Chennai). Transportation in Chennai is provided by public and private modes. Metropolitan Transport Corporation (MTC) is the sole provider of bus service in the city. Southern Railway runs a suburban railway service and MRTS system, and there are autos and taxis that together provide public transport. Major private modes of transportation include four-wheelers (cars and jeeps) and two-wheelers. However, the growth of population has put a strain on the existing public transportation and is causing demand to outstrip supply. There are only 3,427 MTC buses in Chennai providing transportation services to a population of 4.6 million. It clearly shows that growth of public transport system has been lagging with respect to the population. Lack of public transport often causes people to depend on private modes to meet their transportation requirements.

As per the Dept. of Transport, Tamil Nadu, there are 34, 22,647 vehicles in Chennai as on June 1, 2011. 32, 26,622 are privately owned vehicles while the remaining 1, 96,025 or 6 per cent constitute public transport vehicles plying in Chennai city limits. Therefore, 1,202 vehicles need to be accommodated per kilometer on Chennai roads.
The total number of vehicles (i.e. private and public together) to total population ratio in Chennai is 0.73 vehicles per person residing within Chennai city limits as on 2011. This statistic is often misleading as it tries to project a very progressive picture. The extent of severity of this issue is brought to the fore only when it is stated that, of the total number of vehicles 94% belong to privately owned category. At the same time the number of people walking or using non-motorised transport system like cycles/tricycles has dwindled. The percentage modal share of trips in Chennai city is 31 per cent for public transport, 22 per cent walking and 9 per cent cycles.

There are about 2.6 million two wheelers registered in Chennai which accounts for roughly 81 per cent of total number of private vehicle population in Chennai and 4 wheelers account for 18 per cent and the rest by other vehicles including tractors, road rollers and three wheelers. Together the different types of private vehicles constitute nearly 94 per cent of the total number of vehicles in Chennai city.

Figure 1: Bike parking in Beach MRTS station
Of the total 1,96,025 only stage carriages and contract carriages are meant for passenger commute. Together they constitute nearly 59 per cent of total number of vehicles in Chennai, the overcrowding in buses is easily understandable. When the total allowed capacity in buses is 73, most of them run with much more passengers than that. Such appallingly low availability of public transport is explicitly insufficient for a metropolitan city with a population of over 4.6 million. It often encourages people to depend on private vehicles to meet their transportation needs.

<table>
<thead>
<tr>
<th>Traffic Volume on major intersections</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Name of Road/intersection</td>
<td>Traffic Volume (In Passenger Car Unit (PCU))</td>
<td></td>
</tr>
<tr>
<td>Intersections</td>
<td>Average Daily Traffic (ADT)</td>
<td>Peak Hour</td>
</tr>
<tr>
<td>Madhya Kailash</td>
<td>-</td>
<td>10,246</td>
</tr>
<tr>
<td>Porur</td>
<td>-</td>
<td>13,180</td>
</tr>
<tr>
<td>Vadapalani</td>
<td>2,07,995</td>
<td>14,233</td>
</tr>
<tr>
<td>Thirumangalam</td>
<td>1,88,452</td>
<td>26,838</td>
</tr>
<tr>
<td>Halda</td>
<td>-</td>
<td>18,330</td>
</tr>
<tr>
<td>Moolakadai</td>
<td>-</td>
<td>8,525</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Traffic Volume on major roads</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Road/intersection</td>
<td>Traffic Volume (In PCU)</td>
</tr>
<tr>
<td>Arterial roads within the city</td>
<td>ADT</td>
</tr>
<tr>
<td>Anna Salai (NH45)</td>
<td>1,57,856</td>
</tr>
<tr>
<td>Periyar EVR Salai (NH4)</td>
<td>1,62,160</td>
</tr>
</tbody>
</table>
The figures suggest that transportation demand in Chennai is overwhelmingly dependent on privately owned and operated motor vehicles. High intensity of private vehicles leads to congestion on roads, another major issue. On an average 78,155 vehicles cross the city limits as per Comprehensive Traffic and Transportation Study, 2008. The Volume Capacity Ratio (V/C) is more than one in most of the stretches. It also poses a challenge to the city in terms of making parking facility available for all these vehicles.

2 DEMAND FOR PARKING IN CHENNAI

Parking has now been given due consideration by authorities owing to the tremendous growth of the city. However, like any other metropolitan state, it has not been able to manage parking in tune with the demand. With the roads getting congested by the day and public spaces getting less, the situation is imminent for a strategy to solve the parking woes of the city.

Studies conducted by Victoria Transport Policy Institute (VTPI) on parking have suggested that a typical automobile is used only for an hour each day and parked for 23 hours. With more than 3.2 million private vehicles, finding or allotting parking on the road is impossible and moreover...
impractical too. Though Chennai city land area is only 0.139 per cent, it accounts for 24 per cent of vehicles plying in the state. Parking demand has always been high in Chennai since it is provided free of cost or priced very low. It is also revealed by prior studies by Chennai Metropolitan Development Authority (CMDA) that on an average, 1,780 new vehicles are put on the roads every day without a corresponding increase in motorable road space. At the same time, the increase in road space accounts for only 3 to 4 per cent of the total area of the city, when compared with 11 per cent in Bangkok and 20-25 per cent in developed cities such as London, Paris or New York, 21 per cent in New Delhi and 11 per cent in Coimbatore. The increased traffic without a corresponding increase in road space has been one of the significant factors for bottlenecks in Chennai. The average speed of a vehicle in CBD area is 15 kmph and 20 kmph in other major roads.

According to the CMDA report, the demand for parking in the Central Business District is two times the supply. The study found that an acute shortage of parking supply was witnessed in commercial areas of Anna Salai, T Nagar, Purasawalkam and Mylapore. Unauthorised and indiscriminate parking impedes free flow of traffic and causes accidents. Peak parking demand, as per a study in 2003, was 13,000 PCE as against the supply of 5,100 PCE. For example, the supply in T Nagar was 794 PCE against a demand of 2,151 PCE and the supply in Parrys was 704 PCE against a demand of 4,426 PCE. The haphazard parking has led to loss in the road capacity that ranges between 15 to 60 per cent. Demand for parking thus exerts tremendous pressure on land use pattern in Chennai, particularly urban spaces which otherwise can be put to better uses.

It can be inferred from the various statistics that parking is a major problem in Chennai, however the severity of parking problem in the city increases manifold when it is noted that nearly 76 per cent—which constitute two wheelers—of the total vehicles in Chennai are entitled to free parking. The number of two wheelers as on June 1, 2011 is 26, 14,821 which includes motorcycles, scooter and mopeds, while the car population is 5, 75,137.

### 3 POLICIES AND RULES GOVERNING VEHICLE PARKING IN CHENNAI

The location, pricing and availability of parking influence travelers making travel decisions. It affects decisions on the choice of mode, destination and also trip frequency too. Parking plays a major role in determining land use, attractiveness and economy of the location. The parameters mentioned here forms the crux of parking policies and parking management. A policy regarding parking needs to be
responsive with increased attention to detail since parking is not only a matter of demand and supply functions. For this same reason, it is imperative that a parking policy be aptly assisted by a set of management strategies that aid in achieving larger policy goals. Like other metropolitan cities, Chennai follows National Urban Transport Policy (NUTP), Jawaharlal National Urban Renewal Mission (JnNURM) policy framework, Indian Road Congress Standards (IRC), 1988 and 1996 and Motor Vehicles (MV) Act of 1988 while dealing with parking.

Generally, parking policies across countries aims at facilitating urban development through better and efficient transport, traffic and parking management. A holistic parking policy needs to understand the demands and constrains of transport and traffic at the local level. The fact that the state governments in India have empowered the local self-government or urban local bodies to frame parking policies in tune with the national policy is noteworthy. At the same time, the National policy relating to parking needs to be based on principles and concepts which shall govern the entire country and direct the states for a better Transport Demand Management (TDM).

3.1 NUTP – National Urban Transport Policy

The National Urban Transport Policy (NUTP) formulated in 2006 by the Ministry of Urban Transport envisages putting people at the centre stage in Indian cities; so plans and policies would be towards making our cities most livable and enable them to become engines of growth. Moving in that spirit, NUTP further directs state governments and planning bodies to look into parking as an essential part of city/town development. According to NUTP, parking occupies prime land/space in Indian cities. Therefore while framing parking policies; care must be taken to reflect the true cost of providing parking. The policy also throws it weight around public transport and specifically emphasizes the need to promote it in the sustainable growth of Indian cities. NUTP further emphasizes the need for relevant amendments to building bylaws to promote off-street parking. At the same time, the need for multi-level parking facilities in million plus cities and adoption of better technology to manage parking facilities has been stressed upon.

NUTP is the sole document relied upon by various state entities for governing parking. However, a closer analysis of the document leads to the inference that the government lacks clarity on the road map set for parking. It emphasizes the need to create more parking spaces off-street and built more multi-layer parking while at the same time mentions that land shall be effectively utilised. The NUTP has not been able to see parking as an essential part of urban or rural development, with less clarity
on how to implement various steps to mitigate parking issues in various cities in India. Such a policy shall reflect on the developing a sustainable eco friendly city with due emphasis on cycling and walking. However, the central government has failed to heed to the needs of pedestrians and cyclists which should be read in the light of an automobile parking policy.

3.2 JnNURM – Jawaharlal Nehru National Urban Renewal Mission

JNNURM aims at giving a facelift to urban India by way of making Indian cities smarter in terms of transportation, mobility and urban amenities. The Ministry of Urban Transport has emphasised that all states give importance to parking improvements and proper land utilisation while sending proposals under the JnNURM Scheme. The Ministry vide its Notification dated March 28, 2007 directed all States to incorporate specific provisions on parking in various cities and towns in tune with the local conditions. States implementing various parking strategies in line with NUTP is given funding as per JnNURM Scheme. The policy identifies road as prime urban space and also discourages on-street parking in clear terms. The policy suggests enforcing stricter parking norms through higher fees, banning parking as land is a precious commodity which is eaten up by providing parking.

Unfortunately, very few states/cities have taken an initiative to frame parking policies as per the direction. Detailed guidelines to aid State and municipal planners and decision makers with regard to urban transport development are also provided by the Ministry of Urban Development through “the Guidelines and Toolkits for Urban Transport Development in Medium sized cities in India”, funded by Asian Development Bank (ADB). A separate module on parking policy and strategy discusses the issue of parking and the need to control it. It also suggests ways of mitigating the issue and specifically puts the responsibility on Urban Local Bodies.

Table 2: Parking policies in India

<table>
<thead>
<tr>
<th>S.No</th>
<th>City</th>
<th>Status</th>
<th>Concerned agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>New Delhi, Delhi</td>
<td>2007 Parking policy to be reworked</td>
<td>Delhi Development Authority</td>
</tr>
<tr>
<td>2</td>
<td>Bangalore, Karnataka</td>
<td>Draft policy as per NUTP framed</td>
<td>Bangalore Municipal Corporation/Bangalore Development Land</td>
</tr>
<tr>
<td>No.</td>
<td>City, State</td>
<td>Status/Remarks</td>
<td>Responsible Authority</td>
</tr>
<tr>
<td>-----</td>
<td>-------------</td>
<td>----------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>3</td>
<td>Mumbai, Maharashtra</td>
<td>Draft policy framed, submitted for approval by State government</td>
<td>Brihanmumbai Municipal Corporation/Mumbai Metropolitian Regional Development Authority</td>
</tr>
<tr>
<td>4</td>
<td>Kolkata, West Bengal</td>
<td>Not framed</td>
<td>Kolkata Metropolitan Development Authority</td>
</tr>
<tr>
<td>5</td>
<td>Chennai, Tamil Nadu</td>
<td>Not framed</td>
<td>Chennai Metropolitan Development Authority. Municipal Corporation of Chennai</td>
</tr>
<tr>
<td>5</td>
<td>Kochi/Kerala</td>
<td>Draft policy framed. Specifications send to local bodies</td>
<td>Cochin Municipal Corporation/ Greater Cochin Development Authority</td>
</tr>
<tr>
<td>6</td>
<td>Pune, Maharashtra</td>
<td>Draft policy to be framed, consultants invited</td>
<td>Pimpri-Chinchwad Municipal Corporation (PCMC)</td>
</tr>
<tr>
<td>7</td>
<td>Ahmedabad, Gujarat</td>
<td>Draft policy to be framed</td>
<td>Ahmedabad Municipal Corporation</td>
</tr>
<tr>
<td>8</td>
<td>Aizwal/Mizoram</td>
<td>Final notification for proof of parking</td>
<td>Mizoram Municipal Corporation</td>
</tr>
<tr>
<td>9</td>
<td>Gangtok/Sikkim</td>
<td>Final notification for proof of parking</td>
<td>Gangtok Municipal Corporation</td>
</tr>
<tr>
<td>10</td>
<td>Gurgaon/Haryana</td>
<td>Draft policy to be framed, consultants invited</td>
<td>Haryana Urban Development Authority</td>
</tr>
</tbody>
</table>
3.3 Indian Road Congress Standards

The Indian Road Congress (IRC) Standards is an important document relied upon by Centre/State government institutions while designing and constructing roads across the country. IRC Standards of 1988 and 1997 contains provisions relating to parking while laying roads. While the 1988 guidelines mentions the requirements relating to off-street/building parking, the 1997 guidelines mention the road marking requirements for parking on-street.

Therefore, while making or allotting parking spaces in Chennai, the said IRC standards are to be followed and implemented. However, there is no evidence to whether standards have been complied with by the concerned authorities, in this case the Corporation, when it comes to parking.

Figure 2: Road Marking in Haddows Road

As per the Tamil Nadu Motor Vehicle Rules, parking signs form part of Informative Signs while No-Parking signs form part of Mandatory Signs. This signage can be erected by the Commissionerate of Traffic in consultation with the Corporation. However, in National Highways, the signage can be erected only in consultation with the Divisional Engineer (Highways) concerned.
Where the signage is for motor cabs or buses/lorries, the Regional Transport Authority also needs to be consulted.

It is interesting to note the relevance of this 1988 standard in the present context, especially where IRC Standards have been followed and those that have not been implemented or executed. There is no study done to assess the efficiency of IRC Standards in Indian roads. The government is yet to evolve a better mechanism for road and street design incorporating modern best practices.

3.4 Motor Vehicle Act, 1988
The Motor vehicle Act, 1988 passed in October deals with traffic and parking area regulations and enforcement. It prohibits parking at or near road crossings, on a footpath, obstructing another vehicle etc. Section 117 of the Act authorizes the State Government or any other authority on its behalf may, in consultation with the local authority having jurisdiction in the specific area, determine places at which motor vehicles are allowed to park. The Motor Vehicles Act empowers the Traffic Commissioner of Chennai to regulate traffic and parking in Chennai. The traffic police are given the power to fine, lock and tow vehicles found violating the provisions of the MV Act.
Following are the various violations related to parking, in general:

1) Obstruction of traffic (Parking obstructing movement of vehicles on road)
2) Obstruction of pedestrian movement (Parking in pavements)
3) Parking in No-parking area/zone (Parking in areas prevented)
4) Wrongful parking (Parking in a wrongful manner, Angular parking in Parallel parking areas)
5) Damaging or obstructing other vehicles parked (Preventing other vehicles to move out of parking areas)
6) Unauthorised parking (Parking in space reserved for Autos or Buses etc)

The Motor Vehicles Act and the Rules empowers the Traffic Police to monitor traffic and regulate parking on-street. This extends to monitoring of parking spaces and waiting sheds of Auto-rikshaws and taxis.
Enforcement of traffic and parking is a major highlight of the traffic police often questioned by the public. Lack of personnel to monitor parking areas, lack of resources, such as towing vehicles, locks etc, and the inability to penalize for violations owing to various factors are some of the maladies that have been affecting the traffic police department. These are coupled with the slow awareness among the public towards parking and traffic rules.

The traffic police is given the mandate to fine persons found violating traffic rules. For parking in a No-Parking area, they can fine the offender `100, and `200 for offenders repeating the same offence. On the other hand corruption in the form of bribing has been often cited and reported in the newspapers but no action is taken by the concerned authorities. The study found that in many instances the traffic police do not charge or issue receipts to the violator but take money and let off him/her.

### 3.5 Tamil Nadu Motor Vehicle Rules 1989

The Tamil Nadu Motor Vehicle Rules 1989 (TNMVR) clearly mandates the Commissioner of Police, Madras to approve parking places within Chennai city limits for the purpose of parking motor vehicles other than public service vehicles and goods carriages. However the application to demarcate such spaces within city limits must come from the Commissioner, Corporation of Chennai. The Rule makes it mandatory that such applications should contain the advantages of allotting the location under consideration, type of vehicles allowed to park and parking charges to be collected. The Traffic Commissioner may approve of the parking locations identified by the Corporation Commissioner considering the above mentioned factors.

One of the major provisions of the TNMVR 1989 is that it prohibits parking of a vehicle in a parking place beyond one hour. It is however an interesting provision as currently parking is allowed in parking areas from one to six hours. Instances of people parking overnight and for days are noted even in the major commercial centres of the city.

Rule 380 provides that the Traffic Commissioner is authorised to approve parking places in Chennai city other than for public vehicles and goods carriages. The Commissioner of Chennai Corporation needs to apply to the Traffic Commissioner for getting approval of the parking lots in Chennai. The application for approving parking lots should identify:
(i) The advantage of fixing the parking places;
(ii) The class of motor vehicles for which the parking place is to be fixed;
(iii) The extent of the place to be fixed and the nature of the roads in the locality;
(iv) The number of vehicles likely to use the parking places;
(v) The maximum number of vehicles that can be parked at any one time;
(vi) The particulars of the staff to be employed and the duties of such staff;
(vii) The arrangements to be made for maintenance of the parking place and to keep the place in clean condition;
(viii) The fee that will be charged for the use of the parking place; and
(ix) any other matter relevant to the proposed parking places.

3.6 Tamil Nadu Municipal laws
As per the dictate of the Constitution and the decentralization process, the states have delegated various powers to the municipal corporation, municipalities and other local bodies. The state government through relevant municipal laws has given administration of municipal area, including its roads to the municipal corporation. Determination of parking, on-street and off-street, is an important administrative function of Municipal Corporations.

3.7 Rules relating to on-street parking in Chennai
As per provisions of the Chennai City Municipal Corporation Act, 1919 the Chennai Corporation has regularly enforced and promulgated various notifications for identifying parking spaces, managing parking and building parking infrastructure. The Bus Route and Roads (BRR) Department of the Chennai Corporation is given the authority to identify parking spaces in Chennai municipal limits in consultation with other departments or relevant authorities. After identification, generally the Council of the Corporation sanctions on-street parking lots and directs BRR to invite tenders from reputed institutions for managing the parking lots. The BRR in consultation with the Revenue Department and the Land & Estate Department prepares the Tender document (Request for Proposal and Request for Qualifications) with the qualifications required and expectations. The tendering process is administered by the BRR and the lowest bidder awarded the contract as per the conditions and contract entered into mutually. The revenue sharing shall be done as per the terms of the agreement. The awardee is mandated to follow the parking charges prescribed by the BRR and share revenue with the Revenue Department on a monthly basis (as determined).
3.7.1 Rules relating to Pay ‘n’ Park

Corporation of Chennai has 135 Pay and Park lots which are administered through ticket by appointing attendees. The Tamil Nadu Ex-servicemen Organisation (TEXCO), a group formed by ex-servicemen has been given the contract to manage 135 Pay and Park slots as per agreement on a 70:30 per cent revenue sharing basis. As per the contract, TEXCO can appoint parking attendants, publish tickets/receipts and manage parking slots from the 30 per cent of the amount collected and share 70 per cent revenue proceeds with the Corporation every month. Management of the parking areas shall be administered by TEXCO as per the Contract.

3.7.2 Rules relating to Metered parking

Parking fees collected through automated meter systems were introduced in Chennai in 2009. The metered parking has been found to be efficient by the Corporation which has planned 51 more metered parking sites within the city on September, 2011. M/s Millenium Synergy, a Bangalore-based company, has been given the mandate to run metered parking at three locations in Mylapur, Pondy Bazar and Ascendas at Taramani. Initially, the Corporation had sought Expression of Interest (EoI) for 12 parking slots for implementing parking meters. The company is operating through its specialized parking management entity, M/s Smart Parking Ltd. The company signed a MoU with the Corporation wherein the Corporation have given the company full rights to manage the lots and share the revenue initially on a 16:84 ratio. This has been revised and presently the parking fee revenue is shared on a 20:80 ratio between the Corporation and M/s Millenium Synergy. Unlike in the ‘pay and park’ slots, the company is also given the power to lock cars or fine persons who have violated the rules as per the concessionaire agreement between the Corporation and the company. As per the agreement, the company will manage and monitor all the parking meters installed in the locations for seven years. On completion of the concessionaire
period, the same has to be returned to the Corporation, who will be then manage its functioning. While the parking receipts are produced automatically on inserting coins, because of the lack of knowledge in operating the meters and technical issues (recognition of coins), attendants are appointed to assist car drivers for issuing receipts while parking.

3.7.3 Rules pertaining to Off-street Parking

Regulation and licensing of buildings and other establishments comes under the jurisdiction of the Corporation. The Tamil Nadu Town and Country Planning Act, 1971, distinguishes structures in Chennai into commercial and residential, depending on the land use and landscape patterns. While these are governed by the National Building and Housing policy, the Corporation can come up with suitable changes or alterations with regard to the local area.

As per the Development Control Regulations, a car parking space requirement is 12.5 sq. m for angular parking or 15 sq. m for parallel parking. It is noteworthy that, the same document also prescribes 20 sq. m for housing for economically weaker section of population / poor residing within Chennai city limits. This approach which benefits vehicle owners over the poor is unjust and unfortunate; one is forced to understand that Chennai’s development path is vehicle-centred and does not revolve around its people. Such a paradigm of development is not sustainable in the long run.

While applying for a license, a builder must comply with building rules and pay appropriate fees prescribed by the Corporation/CMDA. The Development Control Regulations has detailed provisions on the minimum parking space which a building requires determined according to the Floor Scale Index (FSI), ground area, land use pattern and the type of building (shopping complex, mall, office space, residential apartment etc). The minimum parking space requirement changes according to the type of building viz, commercial or residential. The town planning officer of the Corporation/ CMDA inspects the building and verifies whether appropriate parking space is provided as per the requirements. All suitable alterations or changes are noted by the officer and the builder must make arrangements to rectify the same. This has been the bone of contention for builders inviting legal proceedings, as many flats and commercial establishments had flouted the norms by not providing adequate parking space or converting parking space for other purposes. Frequent inspections are therefore done by town planning officers to check violations.
4 PARKING IN CHENNAI- ISSUES AND CHALLENGES

A population of about 4.6 million coupled with a vehicular population of 3.2 million in a city spread over an area of about 181 sq km presents a rather gloomy picture. Congestion, gridlocks and traffic at a virtual standstill are common scenes in most parts of the city. Parking spaces are hard to find and parking itself causes hardships to vehicular movement and pedestrians. Supply–demand mismatch of parking is prevalent in Chennai as in any other metropolitan city in India.

Getting a space to park on the road is one of the major difficulties faced by motorists in cities. Lack of parking and congestion are distinguishing characters of urban centres in India. In Chennai, one often comes across vehicles roaming around looking for parking space. Vehicles trying to find parking space sync into the moving traffic and result in slowing traffic. This phenomenon, termed as ‘cruising’, is not easily distinguished and further adds to congestion and gridlocks in urban centres.

Chennai is no different on this aspect, finding parking is difficult and cruising is a general phenomenon observed on roads here. The severity of the problem increases as a result of the lack of off-street facilities in the city. One of the initiatives of the Chennai Corporation to ease congestion was to utilize school playgrounds for parking after school hours. Recently, a plan to build an underground parking facility below Venkatanarayana play ground was struck down in the Madras High Court.

The CMDA Report, 2008, has brought out a general picture of parking in Chennai city. The study estimated that demand for parking is increasing in Chennai over the years. High demand for parking is observed in T Nagar, Purusawalkam, Anna Nagar and Vadapalani. As per the report, out of 100 persons travelling in Chennai 26 travel by bus 2 by train, 33 by walk, 13 by cycle, 19 by two wheeler, 4 by car and 3 by other modes. With a total population of cars reaching 5, 75,137 and two wheelers reaching 26, 14,821, the strain on parking is immense.
4.1 Multilayer Car Parking:
To mitigate parking problem and cater to the high demand for parking in the city, the Corporation of Chennai is promoting Multi Level Car Parking (MLCP) systems. Construction of MLCP’s is encouraged as per the NUTP and given fund allocation under the JnNURM Scheme. Two MLCP were proposed in the city by M/s Wilbur Smith Consultants, one each at Wallace Garden, Apollo Hospital and Broadway respectively. All the projects are now being carried out on PPP model, with Apollo Hospitals and IVRCL Pvt Ltd funding the MLCP’s. Meanwhile, the proposal to set up MLCP at Panangal Park, Near Bashyam Road at Thyagaraya Nagar is put on hold.

The parking charges for the MCLP’s are however fixed by the Corporation which is estimated to cost around Rs. 40 crores. According to official sources, parking is provided for 400 four- wheelers and 500 two wheelers in Broadway MLCP, while 200 four wheelers and 290 two- wheelers can be parked in Appollo Hospital, Wallace Road MLCP. Private institutions have also shown interest in constructing MLCP, with an eye on the market advantage in spite of its huge cost. Saravana Stores in Purusavakkam has constructed an MLCP with car parking facility for 200 cars at a cost of Rs 15 Crores. Will the MLCP help ease congestion in the roads and reduce parking issues? Considering the huge cost of building the infrastructure, low returns and restrictions in supply, it is advisable to have a parking management system directed to reduce private car usage in the long run.
4.2 Parking fees

**Corporation pay ‘n’ park lots:** As per the Corporation’s official data, there are 138 on-street parking lots in Chennai. Occupants parking vehicles, other than two-wheelers and auto-rikshaws are charged a fee for using parking facilities. Currently parking charges in parking lots are Rs.5 for a period up to 6 hours and Rs.20 for 24 hours.

**Table 3: Car parking fee structure in Corporation and metered parking lots in Chennai**

<table>
<thead>
<tr>
<th>Parking hours</th>
<th>Pay and park (In `)</th>
<th>Metered parking (In `)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 hour</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>2 hours</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>3 hours</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Upto 6 hours</td>
<td>20</td>
<td>Not allowed</td>
</tr>
</tbody>
</table>

**Table 4: Parking fees in Corporation pay and park lots according to type of vehicles**

<table>
<thead>
<tr>
<th>Type of vehicle</th>
<th>Tempo van, private buses, tractor/trailers</th>
<th>Lorry</th>
<th>Bus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parking hours</td>
<td>Charge (In Rs.)</td>
<td>Parking hours</td>
<td>Charge (In Rs.)</td>
</tr>
<tr>
<td>12 hours</td>
<td>Rs. 15</td>
<td>12 hours</td>
<td>Rs. 25</td>
</tr>
<tr>
<td>24 hrs</td>
<td>Rs. 30</td>
<td>24 hrs</td>
<td>Rs. 50</td>
</tr>
</tbody>
</table>

The Corporation of Chennai has entered into a parking management contract with TEXCO to manage 135 parking lots wherein TEXCO personnel collect parking fees and share the revenue proceeds as determined by the contract (70:30). 70 per cent of the total revenue earned from the slots shall be paid to Corporation after deducting their expenses (30 per cent) for paying the parking fees.
attendants and for the overall management of the parking lots. 70 per cent of the total fees collected are deposited at the concerned revenue offices in the locations wherein the lots are situated. There have been frequent news reports mentioning that pay-and-park slots are not managed properly and that the attendants charge illegally or do not issue parking receipts to customers who have parked their cars. On interviewing the parking lot attendants and persons concerned with TEXCO, it was found that the attendants were given a target amount of Rs. 500 on an average to be collected as parking fees every day. Whatever is in excess is kept by them as an incentive. Because of the lack of official date pertaining to the revenue source from each parking lots; an assessment has been made from the figure given by the parking lot attendants and those involved with parking.

Consider the collections which a parking attendant can obtain from lots in major centres like T Nagar, where around 500 cars use parking facilities. Even if they park only for one hour, the charge being Rs.5, the revenue generated would turn up to Rs. 2,500 per day. With a more efficient mechanism to monitor parked vehicles, the Corporation can increase its revenue. This shows the gap in the financials earned per parking lot, keeping in track the market value of the land where the parking lot is situated.

As per the study on the parking slots conducted by the Corporation of Chennai, the new parking slots had the potential to earn Rs.3.71 crore for the Corporation; TEXCO’s annual collection is now Rs.2.01 crore. The total revenue estimate from the 138 parking slots for 2009-2010 is Rs.1.25 crores. Therefore, the Corporation earns around Rs. 33,333 per day from all slots which means it earns Rs. 241 per day from one slot, ie. Rs.7,246 per month. The cost of maintaining and marking of the slots is an additional cost. Considering the total space provided on-street for parking and the land value in these areas, the expected return is far less than the actual. This mismatch needs to be understood and suitable steps taken to improve the situation. The financial viability of the parking locations can be improved by tying with the land value as envisaged by NUTP. The consequent increase in parking fares will disincentivise private transport and encourage people to utilize public or non-motorised transport. Apart from the revenue generation, such a move would stabilise the environmental patterns of the city through decrease in pollution, and help improve roads and streets.
4.3 Metered on-street parking:
Parking meters are installed in three locations: Pondy Bazaar, North Mada Street in Mylapore, Pondy Bazar in Thyagaraya Salai Road and Tharamani, CSIR road near Ascendas IT Park. The first parking meter was installed in Mylapore on October, 2009 with much fanfare. Multi-space parking meters are run by M/s Smart Parking as per the BOT contract with the Corporation.

4.4 Parking meter
The fares to be charged and also the time limits of operation of parking lots in metered parking are decided by the Corporation. A fee of Rs.5 per hour is charged for cars for using the parking lots allowing a vehicle to be parked at the same spot for not more than three hours at a stretch. Failing to comply to it, the attendant can lock the vehicle with a chain and lock provided by the company. As per unofficial records, a metered parking stretch in one location generates around Rs.1,500 (four parking meters installed). The output of metered parking is more compared to conventional parking, since all cars are issued tickets and no car can be parked for more than three hours. The cost of one meter is around Rs.5 lakhs, which would mean that the cost can be ideally recovered in four-and-a-half years taking into account Rs.1500 as the average revenue generated on a daily basis. This does not include the maintenance cost and interest which can arise from the payments made. However the Corporation has not made an assessment of the potential revenue generation from the parking meters. The data related to parking receipts issued and revenue generated where not available for the purpose of a financial assessment.
Figure 4: Meter Parking in Mylapur

As per the concession agreement between Corporation of Chennai and M/s Millenium Synergy, the revenue generated needs to be shared on a 20:80 basis; initially it was on 16:84 basis. In pursuing with the discussions with the authorities of the Corporation, in the proposed 51 locations which has been identified for implementing the metered system, the Corporation is claiming 20 per cent of the revenue proceeds from the meters. The Corporation has found favour with metered parking systems owing to better management and more revenue compared to conventional parking systems currently managed by TEXCO. With instances of unauthorised fees and misbehavior reported from TEXCO managed slots, the Corporation has been encouraging metered parking and MLCP’s in spite of the cost incurred.
4.5 Off-street parking in malls, shopping complexes

Parking in buildings, such as malls, shopping centres, offices etc, are determined by the building owner. Generally, restaurants provide parking space for a fee which is reimbursed from the bill and in shops; the parking fee is returned on showing receipts of purchase. Mall spaces often charge at a higher level, such as in Express Avenue Mall which collects Rs. 80 for premium parking for the first three hours and Rs. 50 for ordinary parking. Inspite of that people are willing to park their cars in here without raising an objection. This highlights that people are willing to pay for good parking facilities. Assured and safe parking are one of the major drivers for people to pay.

However, parking charges in buildings are not based on market value. Many offices and shopping centres provide free parking which acts as incentive for people to use their cars. In such spaces, cars are parked for long duration which is wastage of the economic value of the land. Off-street regulations by the Corporation or traffic police are often scuttled by the building or shop owner as affects business. According to many shop owners, levying of high parking fee detracts customers from their shops. Considering the cost of land given for parking, shop owners need to be incentivised through other means.

4.6 Lack of Enforcement

Enforcement is a key issue in traffic and parking management systems in Chennai, as in many other cities, with a lack of resources to monitor parking and instances of bribing. There is also a lack of coordination between various stakeholders of parking. As a result, there exists a serious lacuna in the overall parking management framework in Chennai. A stronger enforcement in terms of strictly enforcing traffic and parking rules and penalising violations has been instrumental in modulating the traffic etiquette.

It was found that in pay and park parking slots, there is a serious gap between the Corporation which manages parking and the traffic police who enforces parking discipline, resulting in poor parking management. The failure to tow a vehicle parked illegally or parked beyond the prescribed limits will encourage users to park without discipline, leading to loss for the exchequer, as the price is not tagged with the duration of parking.
The parking attendant of the metered parking lot is entitled to fine Rs. 300 for cars exceeding the prescribed time limit. However, from discussions with the parking lot attendants and supervisors of metered parking lots, it was found that they do not penalize or lock/chain the vehicle owing to a backlash from car drivers. Even the traffic police do not tow the vehicles parked for more than three hours. The vehicles are let off with a fine of less than the prescribed Rs. 300.

The violations relating to parking can be generally classified as those which affect movement of traffic and those which affect car owners entitled to park. Parking in no-parking areas, double parking or parking outside the yellow line, parking in pedestrian pavements are some of the major violations which affect the movement of traffic. Such instances are very common in Chennai roads. The latter comprises of car owners who cause car/bike owners to lose parking which he is otherwise entitled to. Enforcement is a key element this case, with penal provisions attached to the violations. Obstructing parking space has a lot do with the road etiquette of the car/bike users. Enforcement can be done through imparting lessons on road use, use of signs, right manner to park etc. While the traffic police are responsible for on-street road behavior, it is also imperative for the Motor Vehicles Department to provide proper training, like keeping lane discipline and obeying road signs, before handing out a license.

4.7 Traffic congestion

With the increase in the number of vehicles congestion and traffic jams have become a feature of Chennai. In spite of constructing new roads and flyovers, and widening existing roads, the flow of traffic has been affected by various factors like unorganised and unauthorised parking. The demand has always been outweighing the supply both on-street and off-street, as can be seen from the CMDA Report. This has resulted in spillover from off-street to on-street, with vehicles parking in no-parking areas, double parking, parking in areas not allowed etc. The traffic situation is aggravated when cars cruise slowly to find parking.

4.8 Building violations

Building violations in the form of not providing parking space, not complying with minimum parking requirements and converting parking space for other purposes have been commonly sighted in Chennai. In spite of the strict penal and regulation in the Rules, instances are replete as to the gross violations in various parts of Chennai. With the CMDA “master plan” prescribing the norms for licensing of new buildings, there has been a check on such violations. However, old buildings
located in the main centres of the city have been the major culprits for creating parking issues. These centres attract huge traffic, but in not providing sufficient parking space, it leads to spillover and traffic congestions in the locality. The issue is grave during peak hours with the traffic police finding it difficult to monitor the traffic.

The Corporation/CMDA is the authority for enforcing parking regulations off-street. This responsibility runs from providing license to builders as per the development control rules, regular checks to see that sufficient parking space are provided without been misutilised or converted for purposes other than parking. Unfortunately, many builders have openly violated the provisions with the knowledge of the authorities. Huge buildings with no parking space are constructed in areas with very less built-up space, such as in T Nagar. These violations are largely ignored or left unnoticed by the concerned authorities. Even if they are caught, the builders get a court stay, stopping from sealing or locking the buildings in spite of it being a blatant violation. The Corporation/CMDA lacks the expertise in managing parking; off-street and on-street. Identifying parking areas and managing parking areas need expertise and a holistic understanding of parking management strategies and techniques. It is therefore required to have a specialised body to cater to the demand and supply of parking.

4.9 Proper Road markings

Road marking and signage are important factors in parking management. Issues arise in locations which does not have proper road markings, proper signage for parking and no-parking areas etc. While IRC standards prescribe the measurements for parking areas and the manner in which it has to be parked, many places in Chennai do not follow proper markings or have defaced
markings. Erecting of boards is the combined responsibility of the Corporation, the agency running the parking lot and the traffic police. However, due to a lack of co-ordination, boards are not erected or are improperly maintained.

Improper signage often causes issues for vehicle owners who violate them unintentionally. It was observed from various discussions with car owners that they were fined for parking in areas which they were unaware was a no-parking zone. The traffic police are often blamed for charging such people, or even taking bribes. The placing of boards need to be done in such a manner that all users are aware of the regulations. Cars parked in bike-parking areas or vice versa, due to improper signage and absence of road markings, are a common feature in Chennai. People commuting in Chennai are not aware of places where they can park on-street. While people are aware of off-street parking sites in buildings; but often the parking lots in such areas are fully occupied leading to a spillover. This is as a result of failure of the concerned authority to clearly demarcate the parking slots in each area and also determine the supply through various technology interventions.

4.10 Coordination amongst Administrations

Multiple agencies handle parking in Chennai, which only seems to add to the chaos. The Corporation of Chennai, which is the main authority in identifying and managing parking lots, have difference departments to look into parking; Bus Route and Road Department, Revenue Department and Land and Estate Department. All decisions by these departments are subject to the approval of the Corporation Council. So, in effect, the process of parking management faces many bottlenecks.

Further, on the street, the Traffic police, under the Commissioner, is responsible for enforcing traffic and parking regulations in all parking lots run by the Corporation. It is the responsibility of the Corporation to erect boards and mark the parking areas. At the same time, it is the traffic police who erect no-parking boards in other areas. Often, the lack of co-ordination between these authorities leads to people violating traffic rules, as parking and no-parking stretches are unmarked or undefined.

The need for parking space is arbitrarily determined by the Corporation with or without consultation with the traffic police. The traffic police steps in only at the point when traffic is affected by improper parking. The lack of resources is one of the major difficulties faced by traffic police.
Currently, 2,238 traffic police personnel of Chennai City Traffic Police is given the mandate to managing the entire city, including major junctions, traffic points and parking bays; one traffic police for 2,092 Chennaites and 1,442 non-transport vehicles.

Handling of off-street parking is another major issue which the Corporation/CMDA needs to tackle. In the present regime, licenses shall be issued only if the minimum parking requirements are met by the builder/developer. However, enforcement against building violations often takes a long time due to the litigations. The judicial mechanism does not meet the pace of development.

With the proposed Unified Metropolitan Transport Authority (UMTA) yet to take off, the need for a single window system to manage parking has not been fructified. The challenge lies in coordinating all the concerned authorities to decide on parking and related matters.

5  CASE STUDY FINDINGS AND OBSERVATIONS

5.1 T Nagar
T Nagar is the retail hub which operates as a center for many textile and jewelry chains and huge number of people flocks to this place on daily basis. Vehicular movement in T Nagar has increased many folds over the period of time which has led to the traffic congestion and subsequently the supply of parking has over shadowed the demand for parking. Hence it becomes important to analyze the parking present parking conditions in T Nagar and further understand the parking problems faced by commuters.
5.1.1 Recommendations

- **Limit duration of parking** - Parking problem can be managed effectively if time limits of occupying a parking space are reduced. Current time limits are unnecessarily promoting long duration parking as around 25 percent of the cars are parked for 3 to 4 hours in a day at an area where the occupancy rate is as high as 90 percent. It is advisable to bring down the current minimum duration from six hours to at least 3 hours.

- **Increase pricing** - Parking is priced extremely low inducing people to park for the whole day. It has two major negative externalities, one, valuable space is occupied all day for a miniscule fee and second, it leads to reduced parking turnover. Parking fees which are currently ranging from Rs 5 to Rs 15 for 1 hour and 6 hours shall be increased to at least Rs 30 per hour and Rs 100 for 3 hours (as mentioned above) by calculating with the land market value and built up area in T.Nagar.

- **Charge two wheelers** - Two wheelers constitute majority of vehicles in T Nagar and is not charged for parking. Two wheeler parking spills over into car parking area and pedestrian footpaths which need to be eradicated by means of strict enforcement. Free parking for two wheelers should be removed and it must be charged like other vehicles.
• **Implement Pick ‘n’ Drop system** - Introducing pick ‘n’ drop facility will be effective in reducing private vehicle inflow to T Nagar. If provided free, it will be beneficial for the local businesses also, as more people will be attracted to the area. Pick ‘n’ Drop system may be funded by the contributions made by local businesses.

**5.2 Case study - Purassawalkam**

Purassawalkam or Purasai, is a major commercial area in Chennai. It lies close to the Northern part of Chennai and attracts a lot people from the adjoining areas. Like most other parts of the city, Purassawalkam also exhibits a mixed land use pattern with residential settlements, educational institutions and busy commercial streets intertwined together. Being close to Northern Chennai, it attracts a lot of visitors from that area. The major attractions in Purassawalkam are various textiles shops located on Purassawalkam High road, Jewelers on Tana street, Abhirami Mall and Saravana stores. Congestion and traffic blocks are common sights in this part of the city. Prevailing traffic conditions have prompted the authorities to design a system of one-way traffic in Purassawalkam.

![Figure 6: Pay ‘n’ Park slot opposite MadarSha](image)
5.2.1 Recommendations

- **Introduce meter parking**: Present system of charging is not effective in influencing parking demand and therefore not able to curtail trips in private vehicles. There are nearly 150 two wheelers parked illegally compared to around 270 legal parking during peak hour of 12 am-1 pm in this area, which shows the strain on parking. With virtually no possibility to expand on-street parking, it is advisable to introduce meter parking system and charge on an hourly basis.

- **Introduce remote parking**: Considering the inherent capacity of this area to attract shoppers, it presents a good case to have a ‘Remote Parking’ facility. Such a facility must be augmented with supplementary amenities like better walkways and safer walking conditions. The cost of which can be shared by the commercial institutions in the location.

- **Enforcement to be strengthened**: Encroachments are at an alarmingly high rate here. Vehicles encroach into roads as well as pedestrian walkways. It can be controlled through strict enforcement alone. Towing and imposing fines on vehicles violating parking norms need to be stepped up in an effort to improve enforcement.

- **Erect sign boards**: Information dissemination is poor, therefore it needs to be augmented at the earliest. New signboards that direct drivers to designated parking lots need to be erected in places that catch their attention.

- **Provide more connectivity**: Purassawalkam is fast becoming a major commercial district and will attract more people in the days to come. Lack of parking facility could significantly tarnish the commercial attraction of this place. Therefore it is highly desirable to enhance connectivity to Purrasawalkam by having more bus services and share auto service.

- **Rearrange bus stops and bays**: Most of the bus stops are located close to intersections and shops. It warrants a rearranging of bus stops in Purassawalkam so as to ease traffic flow. However when bus stops are relocated, due care must be taken to provide better amenities for passengers. Better designed bus stops and passenger waiting areas are essential in this regard.

- **Better management of parking facilities**: The driver survey result show that a sizable portion of respondents faced difficulties in retrieving vehicles and also encroachments of other type of vehicles in parking spaces. More than 30 percent of the vehicle users found it difficult to retrieve their vehicles from the parking lots while 20 percent found that
encroachment by bikes in car parking spaces as a major issue. These violations pose serious questions on the effectiveness of parking management. It clearly warrants that parking attendants need to be empowered with the power to penalize vehicles violating parking rules and regulations by way of locking and collecting fines.

- **Limit duration** - Since on-street parking facilities are limited, longer duration parking must be discouraged. It can be achieved by bringing down the present time limits on duration of parking from six hours to three hours, being a commercial area.

5.3 Case study: R K Salai

R K Salai or Radha Krishnan Salai is a posh commercial area situated near Mylapore. Unlike T Nagar, one will find numerous branded stores, business establishment, financial institutions and malls. In fact, City Center a popular mall in the city is situated on R K Salai. In short it can be summarized that, R K Salai is a retail hub in the city. Due to the presence of various types of commercial establishments, the parking behavior patterns of commuters differ. Therefore it is essential to understand parking problems associated with such a land use pattern to aid in better planning and effective management.
5.3.1 Recommendations

- **Provide pedestrian facilities like walkways etc** - Usage of existing pedestrian facility must be promoted while better street amenities are developed, it will help reduce parking demand as people would walk from one shop to another instead of driving their vehicles. Improved street and pedestrian infrastructure will improve the attractiveness of the entire area and induce people to walk. When more and more people walk, chances of them stopping by at shops increases thus proving beneficial to the local economy.

- **Allow share autos and introduce more buses** - Over dependence on private modes can be reduced only by enhancing connectivity, therefore it is advisable to promote para transit services like share autos in R K Salai. It will also replace short vehicle trips using private vehicles which ultimately will help to reduce demand for parking. Providing more bus facilities will facilitate and augment the traffic flow to this location.

- **Allow Short term parking** - Exceptions can be made to the blanket ban on parking. Short term parking (>1/2 hrs) can be allowed on-street, it will be helpful to customers visiting
financial institutions but do not get parking in those buildings. Such a move can also reduce spillover from these institutions. For e.g; the stretch in front of the HDFC Bank ATM shall be allowed for short duration parking. This will benefit people who want to use the ATM, who are currently forced to park illegally (being a No Parking area) or parking in the adjacent streets.

- **Implement Parking permit system** - Spillover of parking into by-road is a nuisance which need to be arrested immediately. By implementing a parking permit system which entitles only residents to park on the streets will be useful. Such a system will be effective only if non-residents parking on any of the by-roads are charged heavily vis-à-vis permit holders.

5.4 Case Study: Mylapore

Mylapore is considered as a cultural centre in Chennai city. It is also one of the older settlements of the city. The major attraction in Mylapore is one of the popular temple, Kapaleeswar Temple to which devotees and tourists flock in large numbers. Though the temple is the largest crowd attractor, commercial attractions like jewelers, shops and eateries also attract a fair amount of passenger traffic to this part of the city. It is also one of the most well connected places with, MTC buses and MRTS rail line passing which Mylapore offers wide variety of travel options for commuters. However, we find that such modes are not been utilized by the commuters coming to this location. Given this fact, it is worthwhile to carefully examine the ground reality in Mylapore as it faces a lot of traffic and parking issues.
Figure 8: Occupancy rate in Mylapur

5.4.1 Recommendations

- **Increase Parking fees** - Although being a well-connected area, commuters still prefer coming by personal modes. The trend can be arrested only by way of higher pricing of parking. When parking is priced high it will increase the cost of using private modes of transportation. The parking fees shall be Rs 30 per hour and Rs 100 for 3 hours based on the market value of the land (as mentioned above). As people respond to economic stimuli, with a hike in parking charge it is likely to reduce demand for parking.

- **Introduce Pick and drop facilities** - The temple authorities and the commercial establishments shall pool in money to provide pick and drop facilities for people coming to the location. This shall incentivize people not to take their private cars out.

- **Demarcate spaces for parking and street vendor’s facilities** - Spaces shall be clearly demarcated with appropriate road markings for parking and street vendors. Since the vegetable market is a major attraction, they shall be accommodated without obstructing the public spaces.
• **Utilise other avenues**- Since temple is the main attraction, it makes sense to have plans to deal with overflows and spillover that are likely to occur on auspicious days. Making temporary arrangements for such days in nearby undeveloped land or using off-street facilities of commercial buildings in the area are two possibilities that can be pursued in the short term.

Severe parking crisis during festivals and special days can be overcome by smarter utilization of existing space. It is advisable to have special plans to deal with parking problems on such days. On that line it is preferable to demarcate parking space opposite to the temple exclusively for two wheelers. It will prevent spill over of two wheelers to four wheeler parking spaces elsewhere.

• **Extend meter parking system**- Extending the meter system to the other stretches will help in accommodating and managing the parking system in the location. Long duration parking can be restricted through this process.

6 **POLICY RECOMMENDATIONS AND SUGGESTIONS**

6.1 **Abolish or reduce free parking for two-wheelers:**
Statistics show that two-wheelers constitute 76 percent of the vehicle population in Chennai. The present study found that the two-wheelers were not charged for parking in any of the allotted parking spaces in Chennai. Since parking is predominantly on-street, providing free parking for two-wheelers actually increases the cost of parking. Since it is free, the cost gets added into prices of other commodities and services, and affects even those who do not own or use vehicles. However, two-wheelers should be charged less than cars considering the fact that they occupy less space. It will also spread awareness among vehicle users that driving within the city is not free.

6.2 **Parking charges shall be raised:**
Legal parking on-street is restricted to 138 parking slots provided by the Corporation. Rest of the parking sites is illegal and not charged. Where parking is charged, it is only a token amount of Rs 5. Needless to say that it is highly inadequate and does not reflect the true cost incurred by the society for providing parking. Pricing should be based on user pay principle and the city must go for full cost recovery pricing. Pricing shall be designed to reduce peak demand for parking and congestion.
It shall discentivise people who regularly take their private vehicles and encourage them to use public transport.

6.3 Differential pricing:
Demand for parking is not similar throughout the day in Chennai as is evident from the data at each location. There are peak and lean hours with the general trend that 9 am- 10am, 12 am-1 pm and 5pm-7pm as a peak hour. Pricing mechanism can be used to effect changes in the distribution of peak and lean hours. Prices shall be fixed at various parking lots in such a manner that the parking demand is reduced at peak hours. This shall help in avoiding traffic congestions as in Mylapur caused due to excessive demand of parking induced by low pricing. This shall help in distributing the demand for parking evenly throughout the day and prevent bundling of parking.

6.4 Classification of parking areas:
The parking rates for commercial areas shall be different from residential areas. Classification of parking areas shall be done taking into consideration the land use pattern, built-up area and trip attractions. Based on the volume count of vehicles and the high occupancy rate of parking spaces during the day, each area shall be classified as high parking density area, Medium parking density area and low parking density area. The parking charges shall be more in the High Parking density area in relation to the low parking density area. Restriction to parking and other interventions especially in peak hours shall be applied to control excess demand of parking. A separate study for an assessment of the parking zones needs to be made.

6.5 Encourage public transportation:
As a long term measure, encourage use of public transportation. The new parking structures being built and new surface parking lots being allotted should be used innovatively to promote use and integration of public transportation system. By providing parking facilities near public transport systems like metros and bus stations, city can develop park and ride system and reduce parking demand within the city limits.
Parking fee should be lower at park and ride facilities so as to influence commuter’s choice of mode of transport. It can be used to target long-term parkers and prevent them from occupying valuable on-street space.
6.6 Better use of technology:
Presently there are two varying systems of parking pricing being used in Chennai, the pay and park and the meter parking facility. Pay and park follows the conventional method of drivers paying for parking and getting a receipt whereas the meter parking is technologically advanced and parking is monitored by multi-space parking meters installed at various points throughout the length of the parking lot. It is observed that people prefer to park in pay and park facilities since it allows longer duration stay than meter parking lots.

It is imperative to have a similar parking fee in both systems of parking else it could be counterproductive. Meter parking is relatively better than pay and park since parking is priced on an hourly basis with limits in duration of parking. Currently parking attendants are employed to aid car owners to use the meter’s. This shall be discontinued, as the purpose of the meter system is failed. Other mechanisms like machines to provide parking receipts by hand can be employed.

The parking meters shall be attached to a single server and connected to the traffic police information server. Any violations of parking shall entail a message passed to the Information system of the traffic police who can intervene to penalise the violator.

6.7 Encourage short-term parking:
The proportion of short-term and long-term parkers varies from site to site although short-term users dominate in most places. In places like R K Salai this trend is unambiguously clear. Short term parking can be encouraged by making parking free for the first 30 minutes and then charging for every subsequent hour. It will also ensure better parking turnover rates and can also benefit local businesses. Busy streets that are not shopping attractions can benefit from such a system of limiting parking. In places like R K Salai such a measure is suitable. Allowing short-term parking for a maximum of half an hour will benefit people who would want to go the ATM or similar kiosks.

6.8 Stricter enforcement:
With most of parking levers either absent or not being utilised, enforcement is the first line of defense. In the survey conducted, it was observed that chances of people violating parking rules are very high in the city. It calls for an immediate step up in enforcement. However, this can be effectively done by involving private entities like in South Africa and Ecuador. Private entities
managing parking should be given the authority to penalise vehicles that violate time limits or other parking rules by means of fining, towing the vehicle or locking it. Surveillance cameras can be installed at parking lots to monitor parking. Violations of parking can be spotted by capturing the vehicle number, with the fine receipts send to the violator’s address. Refusal to pay shall lead to confiscation of the vehicles and termination of license. All these are monitored centrally with appropriate messages sent to the relevant authorities like traffic police, corporation, parking management agency etc.

6.9 Enhancing connectivity:
It was noted that commuters choose private modes of transportation due to a lack of connectivity of public transportation system. To increase connectivity, it inevitably takes time but that should not be an excuse for having limited connectivity. Para transit modes can help plug leaks in connectivity by providing first mile and last mile connectivity. Therefore it is advisable to have para transit services specifically targeting commercial areas and nodal points of public transportation.

6.10 Parity of pricing between MLCP and surrounding parking areas:
The city is making a transition to multi-level parking structures from lowly priced surface parking. MLCP involves high cost and therefore there should be a definite plan to recover the cost incurred in construction. If cost of structured parking is to be recovered by means of higher parking charge then it will affect parking charges in rest of the city also. When investments made to build MLCP are recovered by means of higher parking charges, it is imperative that parking charge in the surrounding on-street facilities must also be hiked or drivers will certainly prefer the comparatively low priced on-street facility. Therefore, a revision of parking fee is required to recover investment and it will also reduce demand for parking. Moreover investments in such projects cannot be justified without a proper plan of recovery. Parity in charges is thus warranted.

6.11 Encouraging shared parking:
Unlike its European and South East Asian counterparts, Chennai lacks off-street parking facilities that are open to public. Mostly off-street facilities are linked to shopping malls, textile showrooms or hotels and restaurants and are invariably reserved for its customers. These facilities need not be full at all times, hence there is a good scope for having a ‘Shared Parking’ arrangement. Highly congested areas like T Nagar where most of big stores have their own parking facilities which if made open to
commuters visiting T Nagar can go a long way in reducing congestion and easing traffic by removing a significant proportion of parking from the street. In order to make it attractive for the shop owners to allow parking, they should be allowed to charge the existing parking charges as set by the city administration.

6.12 Erecting of signboards and road marking:
One of the major findings of the survey is that most commuters do not get any assistance to find parking lots. It is also the root cause of parking violations. Lack of parking signboards and the dilapidated state of existing signboards have rendered them useless in many places. Improved signboards that provide real time information on availability of parking spaces are available now. It is very useful in minimizing cruising especially in busy downtown areas. Experiences from cities like London also suggest the same.
Such signboards should clearly mention parking spaces available in a lot, if it is digital then real time information about vacant spaces can also be provided. The positioning of signboards should be properly planned so as to ensure clear visibility for drivers.

6.13 Managing parking under “Unified Metropolitan Transport Authority:
Parking is an issue which is essentially localised in nature. Hence an important characteristic is that parking problems prop up in different places at different times. Therefore it is advisable to monitor parking by a cell under the Unified Metropolitan Transport Authority (UMTA), the cell should be competent in determining trends of vehicle movement and likely parking demands all over the city.
The body should be able to analyse trends and suggest strategies to manage parking related issues. The central idea being that, since parking is a localised issue, it must be resolved by taking into consideration all necessary conditions prevailing in that particular area.
A parking audit shall be conducted on a periodic basis to estimate demand and supply of parking, the result of which will be published in the public domain. The results from the audit can be used to analyse trends in parking and make changes in the parking management strategies. The cell shall be responsible for framing a parking policy for the city.

6.14 Integrating parking with city development and mobility plans:
With the pressure on land increasing by the day, it will be difficult to allocate parking without understanding the land use pattern at the micro level. Therefore, it is highly desirable to conduct
extensive topographic survey and GIS mapping at the street level in an area before deciding on allotting parking spaces. It is very crucial since mostly parking is on-street in Chennai. The same information can also be used to plan parking provisioning in tune with the availability of public transportation modes, thus integrating parking with the overall mobility plan of the city.

6.15 Need for planned growth:
Mixed land use pattern is a challenge when it comes to managing parking in the context of Chennai. The city with its mixed land use pattern and high population density is aptly suited for public transportation-oriented growth. Unlike cities like Singapore where mixed land use areas are well planned, Chennai has been developing without any planning. Parking pressure is a major cause of congestion in most of the commercial as well as residential areas within the city. The situation can be improved by implementing parking management strategies like shared parking. In order to maximise the utilization of existing parking facilities, it should be treated as common areas that can be shared by commuters irrespective of their destinations. Improvements in pedestrian amenities and efforts to promote non-motorised modes of transport have proved to be extremely useful to mitigate parking problems in mixed land use pattern areas. Chennai should also promote walking and cycling by improving standards of footpaths and also by providing dedicated cycle tracks.

6.16 Review off-street parking requirements:
The real estate sector is poised to grow at a faster rate in the years to come. It is believed that with the increase in the income levels of people, the demand for housing as well as commercial spaces will grow significantly. A similar trend is visible in Chennai, with almost 20 new malls under construction and an expanding IT sector, the demand for parking is set to increase. The need to review off-street parking regulation is warranted.

6.17 Ensure participation of private players in parking management:
Parking can be managed in an efficient manner if the proposed parking cell under the UMTA sets rules and private players follow it. UMTA shall determine the principles of the cooperation in a temporary skeleton agreement as similar to the Budapest Parking management method. It shall determine the public service tasks to be performed by the operating company; and it shall provide cover for the concrete tasks to be performed in the given year on the basis of the accepted annual business plan under the annual agreement.
CONCLUSION

In Chennai, like in most Indian cities, a parking policy is by and large non-existent and poorly coordinated among the stakeholders. Even more unfortunate is the fact that the present policy promotes private vehicles by making the option of driving more convenient through cheap and easily available parking. Rapid increase in the number of personal vehicles and the resultant demand for parking at home, at work and at all shopping destinations remains a major challenge. Chennai does not have enough land resources to provide parking for the ever growing number of private vehicles, and yet the city has allotted considerable amount of scarce urban space for parking. It entails an enormous cost in terms of real estate and parking infrastructure which is borne by everybody, irrespective of whether they own or use personal vehicles. It leads to distorting the equitable allocation of scarce urban land area among competing needs.

A growing number of cities in other parts of the world are using parking policies to meet larger developmental goals like improving air quality, making pedestrian friendly streets, reducing greenhouse gas emissions and congestion. But Chennai does not even limit parking to levels that can be supported by the existing road infrastructure. The parking demand is insatiable and will grow out of proportion if not controlled. The case studies included in this exploratory study clearly point to this scenario. Parking provision should be guided by the overarching objective of discouraging personal vehicle usage. The same principle should also guide future policy interventions as far as parking is concerned.

Using pricing to ensure better parking turnover rates in all the allotted parking lots and ensuring the efficient management of the limited parking space should be given the most emphasis. In order to achieve these objectives it is imperative that the current system of parking management undergoes some major changes. At the grassroots level, parking attendants must be empowered to take action against violations. It can go a long way in improving adherence to parking regulations. Improvements in enforcement can be brought if certain activities are outsourced to private third party vendors. For example, towing can be outsourced to a private entity subject to strict conditions that ensures transparency. It will make the whole traffic scenario more efficient and also allow optimal allocation of traffic police personnel. In general parking management can be considered as an integral part in making Chennai a better and competitive city.
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