



PARKING POLICY FOR SURAT CITY

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Abbreviations

BRTS - Bus Rapid Transit System
CMP - Comprehensive Mobility Plan
CMS - Changeable Message Signs
DCR - Development Control Regulations
ECS - Equivalent Car Space
FSI - Floor Space Index
GDP- Gross Domestic Product
GPMC - Gujarat Provincial Municipal Corporation
IPT - Intermediate Public Transport
IRC - Indian Road Congress
ITS - Intelligent Transport Systems
JnNURM - Jawaharlal Nehru National Urban Renewal Mission
NUTP- National Urban Transport Policy
PGI - Parking Guidance and Information
PPP - Public Private Partnership
RFID - Radio Frequency Identification
SMC - Surat Municipal Corporation
SUDA - Surat Urban Development Authority
TDM - Travel Demand Management
TEO - Traffic Enforcement Officer
UMTC - Urban Mass Transit Company
VMS - Variable Message Signs

1. INTRODUCTION TO SURAT

Surat is the second largest city of Gujarat and the ninth largest metropolitan area in India. It is ranked the third cleanest city in India and is also one of the top 10 contributors to the national GDP. The Surat Municipal Corporation (SMC) and Surat Urban Development Authority (SUDA) are responsible for its planned and systematic development. The area under SMC is 326.515 sq.km. Surat is recognized as one of India's fastest growing cities, with its population almost doubling between 2001 and 2010. As per the 2011 census, the city had a population of 44,62,826 with a density 13,680 persons per sq.km. Surat's GDP growth rate has been the fastest in the country. Over the past seven years Surat has averaged a GDP growth rate of 11.5%. It is widely known for its diamond and textile industries. It houses 70% of India's and 42% of the world's total rough diamond cutting and polishing business. The diamond and textile industry put together provides employment to more than a million people.

1.1 MOTORIZATION

The number of registered vehicles in Surat has grown from 4 lakh in 1994 to 36 lakh in 2011 ((SLB Urban Transport). Of this, 40% are 2-wheelers, while close to 18% are cars. In January 2015, vehicle growth rate in Surat was estimated as 34.84%. With high per capita income, there is a trend of high growth rate of private vehicles. However, the last three years have seen a significant change in the public transportation system. BRTS was introduced in 2014 for 10 km route which has expanded to 65km. There are 60 buses carrying 35,000 passengers every day. A total network of 105 km is planned. When complete, this will be the second largest BRTS in Asia. The city bus service operates on 43 routes with 126 buses. It carries about 66,880 passengers every day. SMC has finalized plan for introduction of 2000 city buses and 300 BRTS buses in the next three years (Smart City proposal). A metro too is being planned for the near future. It is expected that all these modes will have high quality integration facilities. These public transport initiatives will have a positive impact on formulation of the parking policy.

A dominant Intermediate Public Transport (IPT) service in the form of auto rickshaws also provides commuters with point to point services. It has been estimated that the IPT caters to around 7.7 lakh passengers per day (SLB Urban Transport).

2 PARKING IN SURAT

As part of the study, UMTC has conducted various parking surveys in Surat in September, 2016. This section looks at the present parking situation in Surat.

2.1 PARKING SUPPLY

Surat presently has 37 authorized parking sites. Of these, 15 are surface parking, 9 are multi-level car park facilities and the remaining 13 are either below flyovers or on-street parking. The total area devoted to authorized parking is 1,39,000sqm. It is estimated that there are 7775 authorized parking bays in Surat presently. Figure 1 shows parking supply in different parts of Surat. The city center account for almost half of the city’s parking supply.

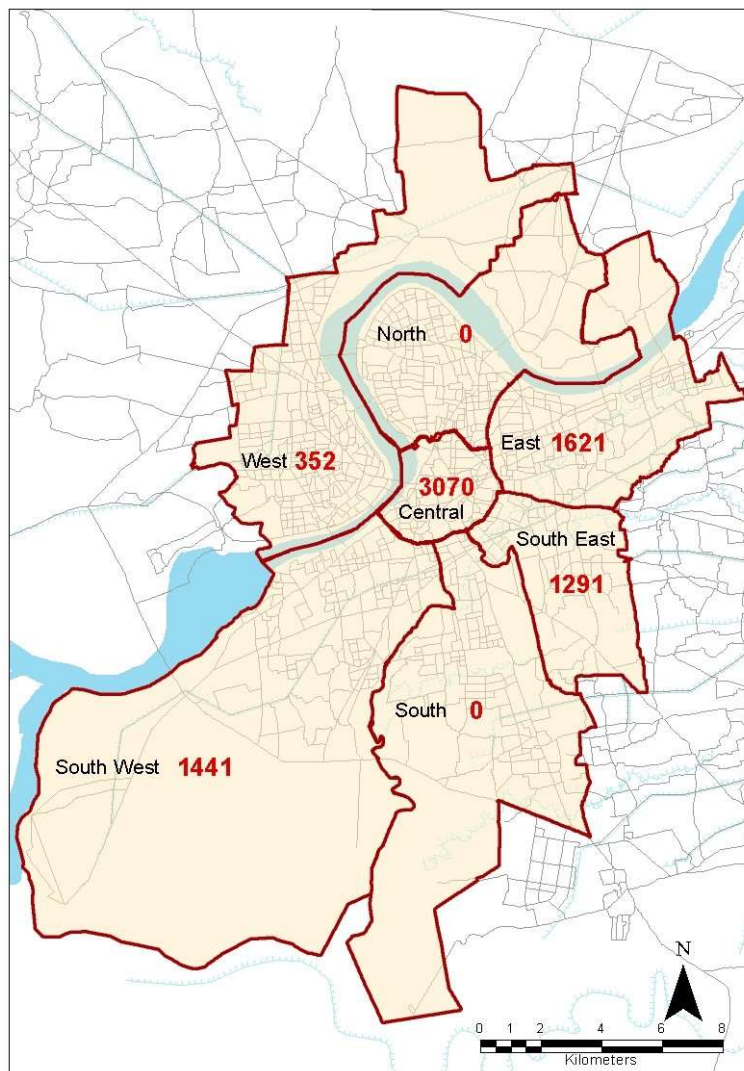


FIGURE 1 ZONE WISE PARKING SUPPLY

2.2 PARKING DEMAND

Parking lineup on most of the corridors, creating congestion, chaos and pollution. This negatively impacts the mobility and livability in the city and saturates the central area. Double lined parking along the streets is a common site with clogged up unorganized parking at intersections and on footpaths. As per the survey, Central Surat (with the exception of ring road and railway station) has designated on-street parking facility for 56 vehicles whereas the parking demand reaches to about 12,160 vehicles. This leads to encroachment of access paths, traffic disruption and an unsafe walking environment.

While on street parking is fully occupied, the off-street parking is underused. There are 16 off-street parking areas (including below flyover) accommodating around 3014 vehicles. However, at most times of the day, these are unoccupied. It is estimated that about 47.5% of the road space is lost to parking. In terms of value, land worth Rs.14.39 Crore is used in parking.

The parking surveys show that maximum parking demand in the central area is for a short stay. About 80% vehicles are parked for less than an hour. There are mostly two wheelers which are parked randomly along the road. In terms of percentage, 47% of the parked vehicles were two wheelers and 28% were cars followed by 23% three wheelers. Trucks and light commercial vehicles are also commonly observed for freight and goods supply. The worst impacted areas due to high parking demand are commercial areas like Bombay Market, GhodDhod road, Ring road, Varacha road, Lambe Hanuman, Athwa gate, Bahumali, Chowk area, Rander road, Anand Mahal Road etc. School, hospitals, temples, stadium and other areas experience high parking demand at particular time period. Most of this parking is free or nominally charged. Observing the scenario, it can be concluded that irregularity and accumulation of parking is result of completely free or nominal parking fees.

The existing parking charges in Surat vary based on vehicle type and duration of parking. It is interesting to note that bicycle parking is also charged. However, the rates for two-wheelers and cars are not exceptionally high. The table below shows indicative pricing of parking.

TABLE 1: PARKING RATES IN SURAT, 2016

Vehicle Type	Hourly Parking Charge (INR)
Cycle	1 - 5
Two-wheeler	5 - 10
Auto rickshaw	10 - 20
Car	10 - 70
Heavy vehicles	50 - 150

Source: SMC, 2016

These issues of parking management have caused a huge impact on the city's quality of lifestyle. The ever-increasing traffic congestion and resultant air pollution, road accidents due to ignorance and inconvenience caused to commuters, and constant noise pollution has made the city's environment stressful.

3 PARKING ENFORCEMENT

As per the legal provisions specified in the GPMC Act, 1949, SMC owns the public street. However, it has limited power over parking management and enforcement.

The Gujarat Provincial Municipal Corporation (GMPC) Act of 1949 establishes Section 458 that providing and maintaining parking facilities is the local government's responsibility. However, parking enforcement is done by the Traffic Police. They fine and/ or tow away illegally parked vehicles. Often, they cannot enforce due to lack of adequate traffic policemen or lack of equipment to tow away vehicles. In most cases, traffic police are stationed at major intersections and not along the roads/ streets. This leads to situations where parking violations occur frequently, leading to traffic congestion, safety issues for all users and a general sense of chaos and disorder on streets. Contrastingly, it has been found that local bodies' across the globe partners with their respective traffic police department to enforce parking policy for efficient management. Thus it is recommended that for parking management efficiency, enforcement responsibilities should be shared with the MC.

4 EXISTING LITERATURE

4.1 GLOBAL APPROACHES

There has been extensive research in the area of parking policy and management around the world. Within the multiple debates, Paul Barter¹, has identified three clear approaches to how cities have attempted to manage parking as seen in figure 2. These approaches are:

1. The **conventional approach**. The salient features are:
 - a. Parking policy should aim to provide supply to meet demand
 - b. Parking is infrastructure that needs to be provided by government – plentiful, free and conveniently located

Within this approach, some cities go for a pure demand and supply based approach, where supply must fulfil demand, while others go for a variation where demand is estimated after considering land use and activities, public transit and economic characteristics. However, both variations are demand based.

2. The **management approach**. The salient features are:
 - a. Parking policy is considered a tool to manage larger issues of transport policy and demand management
 - b. Programs are created that aim to make more efficient use of available parking space

There are two variations to this approach. The approach may be towards multiple objectives of increasing efficiency; urban regeneration, mobility and conflict reduction or the approach may be towards a single objective of constraining parking demand.

3. The **market approach**. The salient features are:
 - a. Parking is considered equivalent to other market commodities
 - b. Spillover is not considered to be negative; it is an indicator of price sensitivity
 - c. Pricing will achieve equilibrium between demand and supply
 - Too high a price, more spaces would remain vacant
 - Too low a price, queuing and cruising would happen

The third approach is advocated strongly by Donald Shoup², a leading researcher in USA. It has also been advocated in the 1960s by G J Roth in England.

¹Dr Paul Barter, a leading researcher on parking and public policy is an Adjunct Professor in the LKY School of Public Policy at the National University of Singapore..

² Donald Curran Shoup is regarded as an expert in the economics of parking. He is Distinguished Research Professor in the Department of Urban Planning at UCLA.



FIGURE 2:GLOBAL APPROACHES TO PARKING

Source: *Parking Policy in Asian Cities*, Paul Barter(2011)

The conventional response to high demand for parking is to provide additional parking to accommodate increasing private car use. Abundant parking supply, especially at travel destinations, promotes increasing private car use which results in the need for more parking. This is referred to as the cycle of private car dependency. Proactive use of Travel Demand Management (TDM) strategies can break the cycle of private car dependency and assist with establishing more sustainable travel patterns e.g. use of public transport (bus and rail services).

With an established set of minimum parking requirements in the DCRs and an eagerness to build more multistoried parking lots, Surat seems to be following the conventional approach. However, with strong initiatives in public transport and a general willingness to consider parking pricing, Surat can also be said to be moving towards the management and market based approach. These diverging approaches lead to confusion on the long term parking vision and management strategies.

4.2 PARKING ECONOMICS

Many researchers believe that parking has an economic value attached to it and thus shall be treated as a commodity for which the user must pay. Land in the current rush of urbanization is a limited resource for which there is unlimited demand. In such cases, to whom should such a scarce commodity be allocated? Should it be to them who have greatest demand or should it only be allotted to the highest bidder?Undoubtedly, there is need for prioritization of scarce road space.

The next issue is the availability of parking at low rates. As observed, parking is either cheap or nominally charged while it occupies a valuable asset of the city. Subsidy is for users who have the limited means and choices, and people demanding parking do not fall in this category. Social and economic motives do not justify subsidies in parking. As soon as parking becomes ‘free’ it loses its value. Spaces fill up rapidly and queues are formed causing spill over. People cruise for parking leading to increase in vehicle km travelled leading to congestion and pollution.

Such inequality presents a pressing need for decision makers to look at parking as a valuable economic asset rather than as a solution to infrastructure issue.

4.3 PARKING STANDARDS

Cities set parking requirements which specify minimum amount of parking that has to be provided, commonly known as parking minimums. These parking minimums are mandated under building by-laws of the urban area. The amount of parking varies in relation to the land use and activity present for a given region. Thus, by-laws specify the parking requirements for apartments, offices, theatres, schools, hospitals and so on. The requirements can be either specified in terms of Equivalent Car Space (ECS) per unit area or in ECS for number of students in a school or number of seats in an auditorium. Different cities use different measures to mandate requirements. The figure below compares the trends in ECS for commercial car parking in different Indian and foreign cities. The figures are in ECS/ 100 sq. m.

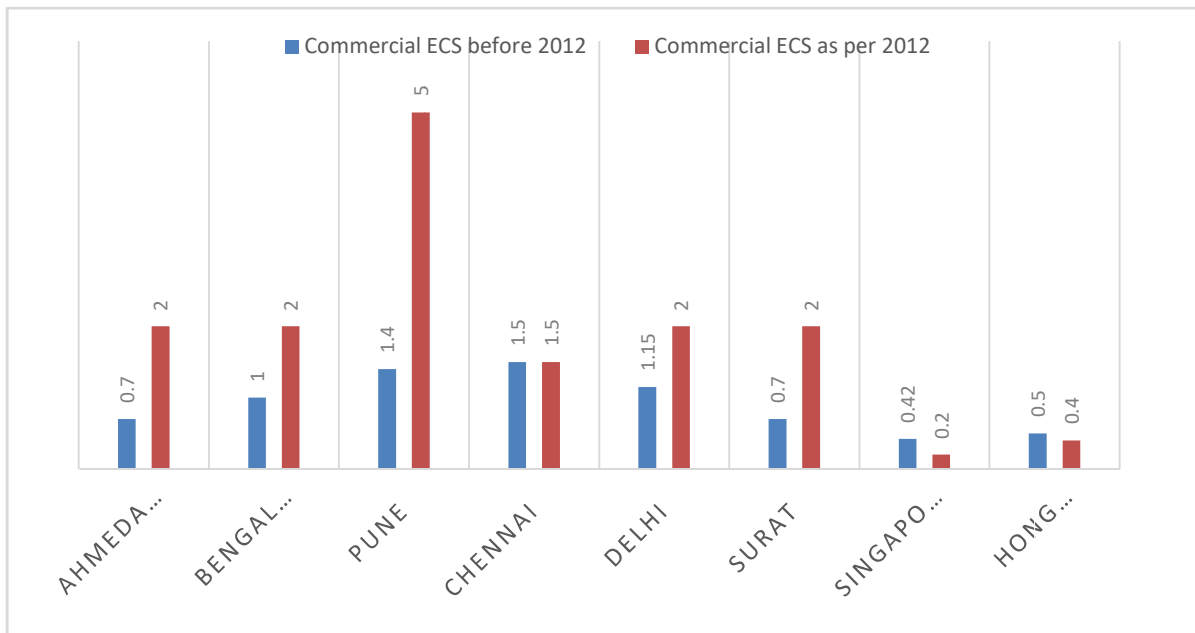


FIGURE 3: COMMERCIAL ECS IN INDIAN CITIES AND OTHER CITIES

Source: *Parking Strategies: Evolution and Strategies for Future*, Lokre, Abhijit (2013)

As the trend depicts, most Indian cities including Surat have a tendency to provide more parking than required - they have increased the parking minimums over the years. This approach is in contrast to cities around the world, which are reducing minimum parking requirements. Singapore and Hong Kong have considerably reduced the already low parking requirement to prevent congestion. Parking minimums provided in building by-laws lead to an increase in parking supply. This puts developers under pressure to underutilize an economically valuable asset. These standards are based solely on land use and do not take into account factors such as proximity to transit, cost of land or the potential for parking sharing and the role for the private sector.

4.4 NEED FOR A PARADIGM SHIFT

Globally, parking stories are depicting the need of a paradigm shift in how cities should manage parking issues. The table below shows comparison between the old and new paradigms.

TABLE 2: THE OLD AND NEW PARADIGM OF PARKING

Old Paradigm	New Paradigm
Parking problem means inadequate parking supply	There can be many types of parking problems, including inadequate or excessive supply, too low or high prices, user information, and inefficient management
Abundant parking supply is always desirable	Too much supply is as harmful as too little
Parking requirements should be applied rigidly, without exception or variation	Parking requirements should reflect each particular situation, and should be applied flexibly
Parking management is a last resort, to be applied only if increasing supply is infeasible	Parking management programs should be used to prevent parking problems
It is the government’s responsibility to provide parking; it is a social infrastructure	The market should respond to the demand. Government should stay out of the business of providing parking
Subsidies in parking are inevitable; government should assist private operators through gap funding and tax incentives	Subsidies in parking are similar to the poor subsidizing the rich and should not be allowed
More off-street parking provision is key to solve spillover problems. Parking charges do not matter	Off-street parking without charges does not work. Multi-storied parking lots lie unused

Source: *Parking Strategies: Evolution and Strategies for Future*, Lokre, Abhijit (2013)

The new paradigm is based on the management and market based approach. It advocates moving away from the conventional demand based approach.

5 EXISTING POLICIES AND PLANS

5.1 THE NATIONAL URBAN TRANSPORT POLICY

The National Urban Transport Policy (NUTP) of 2006 states that parking can be used as a demand management tool. It says that parking price should truly represent the value of land occupied and should be used as a tool to make public transport more attractive. The policy recommends giving preference in allocation of parking spaces to public transit vehicles and non-motorized transport and a graded scale of parking fee. It says that **“The price should be fixed based on the value of land.”**

It asks cities to amend their by-laws to ensure that 'parking is available to all residents' and that 'multi-level parking complexes should be made mandatory in city centers with high rise commercial complexes'. The NUTP also states that such parking complexes would be given priority for funding under the JnNURM funding scheme. Unfortunately, cities have looked at this as a source of funding infrastructure projects without relating it in with the larger objectives of urban transport and parking policy.

The table below shows that the NUTP policy has a few contradictions for providing a clear direction for parking. It talks of increasing parking infrastructure as well as moving towards paid parking for reducing private vehicle usage.

TABLE 3: NUTP APPROACH TO PARKING

Policies/ Plan	Approach		
	a. Conventional	b. Management	c. Market
NUTP	<ul style="list-style-type: none"> State governments should amend building by-laws in all million plus cities so that adequate parking space is available for users of such buildings Multi-level parking complexes should be a mandatory requirement in city centers Minimize the impact of on-street parking and encourage off-street 	<ul style="list-style-type: none"> Provide park and ride facilities for bicycle users with convenient interchange Improve safety for pedestrians by reducing illegal parking Utilize parking controls to regulate car usage Optimize existing parking capacity, before creating new parking facilities Develop public-private partnerships (PPP) for the operation of either on-street or (more often) off-street parking facilities 	<ul style="list-style-type: none"> Levy of a high parking fee that truly represents the value of the land occupied Introduce paid parking as a method to dissuade car use and/or raise revenue Utilize fees and fines from parking to invest in the building of car parks and to improve public transport

5.2 COMPREHENSIVE MOBILITY PLAN

Surat is currently preparing a new Comprehensive Mobility Plan (CMP). The last CMP was prepared in 2008 and was the first CMP to be prepared in India. In the 2008 plan, preparation of a parking policy and a demand management system were identified as key strategies to realize objectives. A small section on a draft parking policy suggests a sustainable parking management system for Surat. Some of the actions it suggest are:

- Elimination of parking on all arterial roads
- On-street parking restrictions on local streets
- Separate short-stay parking facilities may be required for business users, entertainment and tourist visitors, office visitors, visitors to residential unit’s etc.
- Protection from long-stay parkers should be by means of time restrictions and/or by appropriate pricing structures.
- Prevent/discourage parking of vehicles by owners and employees of establishments in short-stay parking lots for long-stay purposes
- Discourage overnight parking of buses, trucks, omni buses, tourist buses, vans, water tankers, container lorries and mandate provision of areas for HMV’s and creation of transport hubs/ truck terminals
- All parking lots- on-street or off-street should be licensed by the competent authority (SMC/ Urban Mass Transit Authority)
- Parking pricing should be judiciously devised to manage the parking problem on the demand side and seen in the context of encouraging use of public transport

TABLE 4: CMP APPROACH TO PARKING

Policies/ Plan	Approach
	b. Management
CMP	<ul style="list-style-type: none"> • Control the amount of on-street parking to improve traffic flow and safety, and minimize interference with access and servicing • Prevent overnight parking of heavy vehicles on the major roads • Develop short-stay and long-stay parking sites for all type of vehicles operated in the city • Design suitable system for effective management of parking facilities, supported by sustainable parking standards.

The 2008 CMP recognized the need to limit parking and start charging for parking. It focuses on a **management based approach for parking**. It favored short term parking over long term parking and also favored complete ‘no parking’ on arterial roads. This document takes these crucial suggestions from the CMP to formulate Surat’s Parking Policy.

6 NEED FOR PARKING POLICY

Private vehicles require enormous terminal capacity. They stay parked for long periods. A private vehicle, typically, stays parked for 20-22 hours in a day (80-92% of time). Other modes of transport spend more time in transit than parking. A car parked on street consumes 15 sq.m., while a car parked off street requires 23 sq.m. These figures are startling when seen in the context of minimum sizes of dwelling units specified in Development Control Regulations (DCR) of most cities – 18-25 sq.m. If we consider that each car requires three parking spaces per day, the total area required by a car each day is between 45 to 70 sq.m. Certainly, it proves that **providing for more and more parking is not a sustainable solution.**

The absence of a comprehensive parking policy in Surat, has resulted in independent dealing of the parking issues by multiple stakeholders. This lack of a coherent approach has led to plans and projects that are contradictory in nature and often end being infrastructure projects that require high investment and attempt to solve a short-term parking problem. Surat needs a parking policy that has a holistic vision, with strategic objectives and is in sync with Surat's overall transport policy and objectives, as well as the statutory Development Plan.

7 STRATEGIC INTENT

The strategic intent of any policy is critical, since it lays down the ground rules for further actions to be taken by the city. The strategic intents of Surat's Parking Policy are:

1. To manage demand through pricing and other means.
2. To reduce private vehicle usage and dependency through "Travel Demand Management (TDM)" strategies.
3. To support public transport use wherever possible.

This document sets out the broad principles for Surat's parking policy, the specific areas and conditions in which the policy would operate, the strategies for parking management and the implementation framework. The formulation of the policy will be the starting point for the making of programmes and specific plans. The Policy has been devised based on discussions held with the stakeholders and review of international/national practices.

8 GUIDING PRINCIPLES

The overarching principle for parking in Surat is “**to progressively reduce the demand for parking and facilitate organized parking for all types of vehicles**”.

- Surat shall actively pursue a policy of demand management rather than capacity augmentation to manage its parking requirements.
- Surat shall promote high quality public and non-motorized transport.

9 PARKING POLICY DIRECTIVES

The parking policy is articulated through **Policy Directives**. They provide policies and actions to address on-street parking, off-street parking, loading bays, bus bays, parking permits, reserved parking, motorcycle and bicycle parking. The policies have been derived from the issues that were highlighted earlier and support the guiding principles.

9.1 POLICY 1: CHARGING FOR PARKING

Parking pricing and time limits are important parking management mechanisms to enhance turnover of parking bays and ensure access to limited on-street parking in high parking demand areas.

This policy directive states that all parking in Surat shall be charged. In Surat, pricing shall be differentiated based on demand. The entire area under SMC shall have similar parking charges, except certain areas designated as 'premium areas'. It is based on the premise that parking demand is highest in areas with high land value or rentals and parking prices must pay its share of land rent (Barter, On Street Parking Management - An International Toolkit).

BOX 1: IMPACT OF PARKING FEES

In one of the studies carried out by Todd Litman, financial charges were found to be the most effective way of travel demand management. People are found to be more sensitive to this mainly because it is a direct fee one has to pay. Compared with other out-of-pocket expenses, parking fees are found to have the greatest effect. (Litman, 2013)

There are many areas in Surat which have very high parking demand due to their land use and activity pattern. Such areas will be classified as premium areas or streets. A higher parking charge will be applicable here. The list of premium areas and streets shall be updated regularly based on recommendations of the Standing Committee and Municipal Commissioner. The premium areas and streets recommended in this policy are:

- Textile Market Area
- Ring Road
- Railway Station
- Surat Dumas Road
- Raj Marg
- Varachha Road upto Mini Bazaar
- GhodDod Road
- Surat Bardoli Road upto APMC
- KotSafil Road
- Adajan road
- Lambe Hanuman Road
- Singanpore Road
- Majura Gate Road
- Udhna- Navsari Road

It is recommended to have time based parking charge for all categories of vehicles. The premium areas will have a higher hourly increment as compared to the normal areas. Any road less than 12m shall not be permitted to have parking. A 12 m road shall have parallel parking on one side of the road only. The side shall be finalized based on day of the week. (i.e, on Mondays, Wednesdays and Fridays, parking shall be permitted on one side of the road. On rest of the days, it shall be permitted on the other side). Any road more than 12 m shall have parking as and when decided by municipal commissioner and would be implemented accordingly.

There will be differential pricing based on vehicle size and duration of parking. Bicycles and handi-capped modified vehicles shall not be charged for parking. A base rate shall be finalized for 2 wheelers, auto rickshaws (passenger and commercial), LCVs and HCVS. The parking charges shall be directly related to the on-street space occupied by the vehicles and the demand. The initial charge for all vehicles shall be for 3 hours.

The off street parking shall be less expensive than on street parking. The rates for off street parking shall increase at a reduced rate compared to on street parking. For the first 3 hours, off street parking shall be less expensive than on street parking. This shall encourage people to use off street parking for short and extended hours and reduce dependency on on-street parking.

Parking revenue shall not be considered as a source of revenue and profit making. The revenue shall be used for local road improvement schemes within the area in consultation with local stakeholders. The traffic cell in SMC shall manage the revenue generated from parking. These charges shall be subject to revision once every three years.

BOX 2: PARKING REVENUE AND PUBLIC SPACE IMPROVEMENT

Use of parking revenue for public space improvement

Mexico city's EcoParq pricing initiative allocates 30% of the revenue to public space improvements chosen by the community through the Public Space Authority. For example, of the estimated USD 492,000 monthly meter income for Colonia Condesa, USD 150,000 is allocated for providing quality accessible sidewalks, improving local parks, rejuvenating the lighting, and so on.

Source: Rios Flores et al, Practical Guidebook, p88; GIZ guidebook

9.2 POLICY 2: ENFORCING PARKING

Unregulated and illegal parking are rampant in Surat. Provision and maintenance of streets, among other public infrastructure is under the purview of the SMC.

Surat's parking policy shall enable SMC to enforce parking through following mechanisms.

Legal provisions for empowering SMC to enforce parking management in the city shall be done by framing new rules and regulations under sub-section 36 of section 458 of The Gujarat Provincial Municipal Corporation (GMPC) Act of 1949.

The Municipal Commissioner shall form a "Traffic Cell" within SMC. It shall be headed by Director (Traffic) of the rank of Executive Engineer or above. A team of Traffic Enforcement Officers (TEOs)

shall be appointed and shall report to the Director or concerned higher official. All cases of parking violations in SMC area shall be monitored by traffic cell through frequent surveys.

SMC shall declare the permitted and prohibited areas for parking. No parking areas shall be defined for smooth flow of people and vehicles. The places for parking of different kinds of vehicles and the rules shall be prominently published in local newspapers. Leaving a motor vehicle at rest in any public place in such a way as to cause or likely to cause danger, obstruction or undue inconvenience to others will be considered an offence. Such vehicles can be towed away or clamped by the SMC.

SMC shall determine the towing and fining charges. The charges for towing and the offence shall be borne by the defaulter. Traffic Enforcement Officers of SMC shall have the authority to tow away and/ or clamp vehicles which violate parking norms. Towing vehicles and/ or clamps shall be procured by the SMC. The vehicle shall be unclamped after the correct fine has been deposited to the SMC. In case of towing, the vehicle shall be removed to the nearest impound lot and released after the correct fine has been paid to the SMC.

Private agencies can be appointed through transparent and competitive bidding process for collection of fees, penalties, towing and no parking charges in the city. SMC shall ensure that all on-street parking areas, parking lots under bridges and flyovers, parking lots in municipal plots are clearly marked and easily identified. Specifically, the following standards shall be followed:

- 1 On street parking spaces shall be designed as per IRC:SP:12:2015
- 2 Boundaries of all on-street parking spaces will be marked by white line as indicated in IRC:35-1997
- 3 Signage clearly marking parking and no parking areas shall be marked as per IRC:67-2001
- 4 10% of all parking space – off street or on street – shall be reserved for senior citizens and people with disabilities

SMC will follow certain guidelines while defining no parking areas. These will include:

- 1 Prohibition of parking for at least 75 m from all junctions
- 2 Prohibition of parking at least 10 m from all zebra crossings

To bring clarity to road users, SMC shall begin a process of demarcating on-street parking areas. All roads with RoW greater than 24m shall be taken up first, followed by 12 – 24 m and finally less than 12m.

9.3 POLICY 3: PROVIDING PROOF OF PARKING

Currently, parking is free or inexpensive. The cost of parking is not a big factor during decisions of vehicle purchase.

The Central and State Government (2017) have already declared their intention of framing new rules and regulations that shall make it mandatory for new vehicle owners to furnish proof that a parking area is available with the purchaser to park the vehicle. SMC shall also consider this policy based on rules and regulations that shall be formulated by the Central and State Government.

These rules shall be ratified by the Municipal Commissioner. Purchasers shall have to provide proof to SMC that they have a place to park in a 250m radius of the address mentioned during purchase.

9.4 POLICY 4: SHARING PARKING

Often, it is observed that certain off street parking remains vacant at specific times of the day. This happens near schools, office buildings and residential areas. Other vehicles to that area are unable to use that parking due to ownership and jurisdiction issues.

SMC shall encourage sharing of parking space amongst different buildings and facilities which are in the same locality or proximity. For example, schools, hospitals, factories and banks have peak parking demand during weekdays while places like parks and malls have their peaks during weekends. Shared parking in the nearby areas will allow efficiency in terms of parking management and space allocation. This shall happen with the mutual consent of both parties and subject to a “no objection” from the president/ chairman/ secretary of the premises.

9.5 POLICY 5: REDUCING PARKING MINIMUMS

Free and excessive parking encourages vehicle ownership. Studies have established that growing supply of free parking also results in more vehicles –kilometers. In addition, minimum parking requirements also add to development costs and make+s housing expensive.

Surat shall look at progressively reducing its minimum parking requirements. Minimum parking standards shall be linked to land use, transit proximity, presence of off-street parking facilities in the vicinity, and sharing of parking. Currently, Surat’s parking standards reflect the fact that the house owner must bear the cost of parking – even if he does not own a vehicle. This is an unfair burden on someone who does not wish to own a vehicle and prefers public transport or other modes instead. These standards shall be modified in the following manner:

- Reducing demand by lowering parking standards
The prevailing practice of linking standards with land use shall be discouraged. The parking standards will be lowered through a systematic study of land use, distance from transit, distance from city center and densities.
- Reducing the parking requirements near transit
Developers may further reduce the amount of parking along transit corridors by 25%. This will ensure that public transport is incentivized.

BOX 3: EUROPEAN EXAMPLES OF PARKING NEAR TRANSIT

If a development is 500 meters from a metro stop, there is no obligation to build parking, though it is allowed. Every 500–600 meters there is a metro in Paris and every 1.5–2 kilometers a regional rail station. Minimum requirements were eliminated while maximum parking for housing is one spot for every 100 sq.m. (Europe’s Parking U-Turn: From Accommodation to Regulation). Similarly, in Strasbourg, the developer can

provide 50% of the mandated parking if it is less than 500m from a public transit stop.

Netherlands has the ABC policy for regulating parking.

A – In proximity PT (1 space per 10 employee)

B – PT is at a particular distance (1 space per 5 employee)

C – PT is rarely available (1 space per 2 employee)

The current parking minimums in the city's DCR shall be used to benchmark the limit for the coming 5 years.

SMC shall publish a map of Surat indicating the revised parking minimums. The Commissioner may with the approval of the Corporation amend the DCR. All new developments in Surat shall supply parking as per the revised minimums.

9.6 POLICY 6: ISSUING PARKING PERMITS

Overnight and long duration on-street parking, especially on residential streets are a threat to effective use of street space. Free parking on such streets not only causes problems relating to access, but also results in high car ownership.

SMC shall issue parking permits to authorize vehicle owners to park in designated parking zones near their home or work area. People shall be able to purchase parking permits on a monthly or annual payment basis. The parking permits will be renewed yearly. It will serve as an authorization to occupy the designated parking areas in the locality. Surat shall adopt an exhaustive system of parking permits by identifying the varying needs of different user groups. These will include:

Resident permits: The SMC shall issue a residential parking permit in the following cases:

- The applicant's residence is situated in a section of the road where parking is regulated by time and price.
- The applicant's residence does not have access to adequate off-street parking facilities.
- The applicant's residence is in an area hosting an event – example stadium, or any such facility where there might be frequent cordoning off of vehicles.

Work Zone permit: The SMC may issue work zone parking permit to an applicant if it is convinced that:

- The applicant's work place is adjacent to or nearby to the parking space in consideration.
- The applicant shall display the permit on their windshield while the vehicle is left parked in the parking space.
- Work zone permits shall be valid for specified duration on specific days of the week.

The traffic cell within SMC shall issue parking permits to users. The parking permits maybe procured on an annual or semi-annual basis. Car owners shall have to furnish either residential or workplace address, against which SMC shall issue permits. Within the old city, free on street parking shall be permitted against the display of a residential permit attached to a nearby

address. Permit holders shall display their permits on the windshield failing which they shall be liable for appropriate action. A residential parking permit shall also serve as proof of parking.

9.7 POLICY 7: REGULATING IPTS PARKING

Surat had 84,099 auto rickshaws in 2011. It has only been increasing since then. This policy directive shall apply to all demarcated areas for IPT in the city.

Surat shall have designated on-street spots for parking taxis and auto rickshaws. These spaces shall be specifically demarcated by the SMC. No IPTS parking shall be provided near junctions. No charges shall be recovered from IPTS for using these spaces. Other vehicles shall not be permitted to park in these areas. IPTS shall not be allowed to park in spaces designated for other vehicles.

Higher priority shall be given for IPTS parking in areas within 300m from transit stations. Any IPT parking in an undesignated area shall be liable for appropriate parking charges or suitable measures.

SMC shall initially demarcate IPT parking areas on all streets within its jurisdiction. IPT parking near commercial and transit hubs such as malls, bus terminals and railway stations shall be prioritized over parking for other modes. Such parking shall be restricted to only auto rickshaws and city taxis.

9.8 POLICY 8: MANAGING FREIGHT

In Surat, allowing freight vehicles to ply on internal streets during all times of the day has resulted in reduced capacity and efficiency of streets. In order to control this, the policy recommends managing movement and parking of freight vehicles.

In order to manage freight parking, it is essential to prepare a city-wide freight vehicle management plan. Apart from decongesting parts of the city's road network, such a step also gives way to regulate on-street loading and unloading areas, parking of cargo vehicles etc. This section aims to address the unregulated parking of heavy trucks and other cargo vehicles on-street.

Freight vehicle parking shall be allowed only in such demarcated zones as described earlier. In order to ensure efficient utilization of street capacities, freight parking shall be limited to specific hours of the day, which shall be decided by SMC.

For the first phase, SMC shall outline streets on which movement of heavy freight vehicles shall be completely restricted. Subsequently, a detailed freight management plan shall be prepared. This shall also entail a system for providing vehicle-parking certificates manage all registered freight vehicles.

9.9 POLICY 9: PROMOTING NON-MOTORIZED TRANSPORT NEAR TRANSIT AND OFF-STREET PARKING FACILITIES

SMC is upgrading its public transport through BRTS, city buses and the proposed metro. Many users have given feedback that last and first mile connectivity is an issue. Therefore, SMC shall facilitate transit users by planning a city-wide Public Bicycle Sharing system (PBS) or a bicycle rental scheme. Such stations may also benefit users who wish to park and ride. SMC shall work towards implementing an appropriate bicycle scheme. All planned parking facilities within 300m from transit facilities shall have free parking for bicycles.

In certain cases, especially around the old city and congested areas, SMC shall promote bicycle schemes around off-street parking facilities to enable visitors to park their vehicles there and use bicycles to access such areas.

10 PARKING TECHNOLOGIES-SMART PARKING

SMC shall implement ITS strategies as detailed in this section. The overarching objective shall be to charge users of parking facilities, while also incentivizing those who are successful in reducing their demand for parking. The smart parking facilities shall enable a citizen of Surat to (1) find a free parking spot in the city center; (2) be advised of the probability for the parking spot to be still available upon his arrival in the city center and (3) decide on reserving and pre-paying for such a parking spot. The other benefits of implementing smart parking systems in Surat shall be improvement in vehicle circulation, space usage and unified fee processing system.

To sum up, smart parking management in Surat shall have three main objectives:

- a) To control access to parking areas and to set-up advanced payment systems
- b) To reduce the time spent while searching for available parking space
- c) To improve the service efficiency of parking lots

The following section details out the possible applications of smart parking technology.

10.1 ADVANCE INFORMATION ON AVAILABILITY OF PARKING LOTS

It has been estimated that up to 30% of traffic in the city center is made up of vehicles cruising for parking spaces. By displaying dynamic information on the availability of parking spaces in Surat, the extent of driving around in search of parking areas can be significantly reduced. These can be installed at critical decision points such as malls, commercial centers and even around shared parking facilities. Such a strategy will also lead to increased faith in the parking management system. Such information can also be disseminated to users through the internet and phone. SMC shall actively implement the parking meter technology, to charge the parking fees and to keep transparency in the transactions. Like discussed in the previous sections, pricing is one of the most effective strategies to manage on-street parking spillover and congestion. These parking meters shall display dynamic prices varying with time of day. The mode of payment shall range from cash to online payments, including smart cards.

SMC may, in the long run also consider seamless integration of public transport facilities with a travel card that could also be used to pay parking charges. SMC shall also consider pay by phone technology through a dedicated web and mobile application. This offers additional benefits, including lower costs since SMC can do away with the cost of meters on the curb.

10.2 PARKING GUIDANCE AND INFORMATION SYSTEM

Parking Guidance and Information (PGI) systems are based on the use of message signs to give drivers information regarding parking availability. PGI systems are designed to aid in the search for vacant parking spaces by directing drivers to car parks where occupancy levels are low.

The availability of parking spaces in each facility is obtained from sensors that count the number of cars entering and exiting or, in other cases, by comparing the tickets issued at machines or cash registers to the capacity of the facility. This information is sent to a central or main computer that processes it, determining the locations of available parking. Availability is generally expressed in terms of "full" or "empty," but in some cases the actual number of spaces is given.

For Surat, the PGS aims to encourage a more efficient use of existing parking facilities and reduce the amount of parking search traffic by providing information to drivers concerning the locations and availability of parking spaces.

ANNEXURE 1

The tables below show on and off street parking charges in normal and premium areas.

On Street Parking - All areas					
	0 to 3 hours	3 to 6 hours	6 to 9 hours	9 to 12 hours	12 to 24 Hours
3-wheelers	20	25	35	45	60
Cars	25	30	45	60	80
LCV	35	50	70	90	110
HCV	60	100	150	200	250

On Street Parking – Premium Areas					
	0 to 3 hours	3 to 6 hours	6 to 9 hours	9 to 12 hours	12 to 24 Hours
3-wheelers	25	30	45	65	80
Cars	30	40	60	90	110
LCV	40	60	80	110	130
HCV	90	110	165	250	300

Off street Parking - All areas				
	0 to 6 hours	6 to 12 hours	12 to 18 hours	18 to 24 hours
3-wheelers	15	25	35	45
Cars	20	30	45	60
LCV	30	50	70	90
HCV	50	100	150	200

Off Street Parking – Premium Areas				
	0 to 6 hours	6 to 12 hours	12 to 18 hours	18 to 24 hours
3-wheelers	20	30	45	65
Cars	25	40	60	90
LCV	35	60	80	110
HCV	75	110	165	250

On and Off Street Parking - All areas					
	0 to 3 hours	3 to 6 hours	6 to 9 hours	9 to 12 hours	12 to 24 Hours
2 wheelers	10	15	20	25	40

Note: For more than 24 Hours, parking charges shall be computed based on the additional duration of parking as increment from 0. Bicycles and Handicapped Modified Vehicles shall not be charged for parking.

ANNEXURE 2

The table below shows parking permit charges.

TABLE 5: PARKING PERMIT IN EXTERNAL AND CORE ZONE

Parking District	Vehicles	Subsidy Scenarios					
		90% Subsidy			95% Subsidy		
		Cost_RP/y ear	Cost_WP/y ear	Cost / month	Cost_RP/y ear	Cost_WP/y ear	Cost / month
External	2W	2920	1600	243	1460	800	122
	Car	8760	4800	730	4380	2400	365
	LCV	14600	8000	1217	7300	4000	608
	HCV	20440	11200	1703	10220	5600	852
Core	2W	5840	3200	487	2920	1600	243
	Car	17520	9600	1460	8760	4800	730
	LCV	29200	16000	2433	14600	8000	1217
	HCV	40880	22400	3407	20440	11200	1703

RP : Residential Permit

WP: Work Permit