

**Parking supply
Management as
Strategy to reduce
congestion and
improving
mobility in core
area: Case study
of Bhopal city**



Presented by:
Jawale Madhuri Vasudev
Paulose N Kuriakose

Presentation has been divided into six sections.

1

- Negative impact of minimum parking requirement.

2

- Shift in parking policy in European countries & USA.

3

- Study area characteristics and methods used for various analysis.

4

- Analysis and Assessment of Parking Supply & Demand in the study area.

5

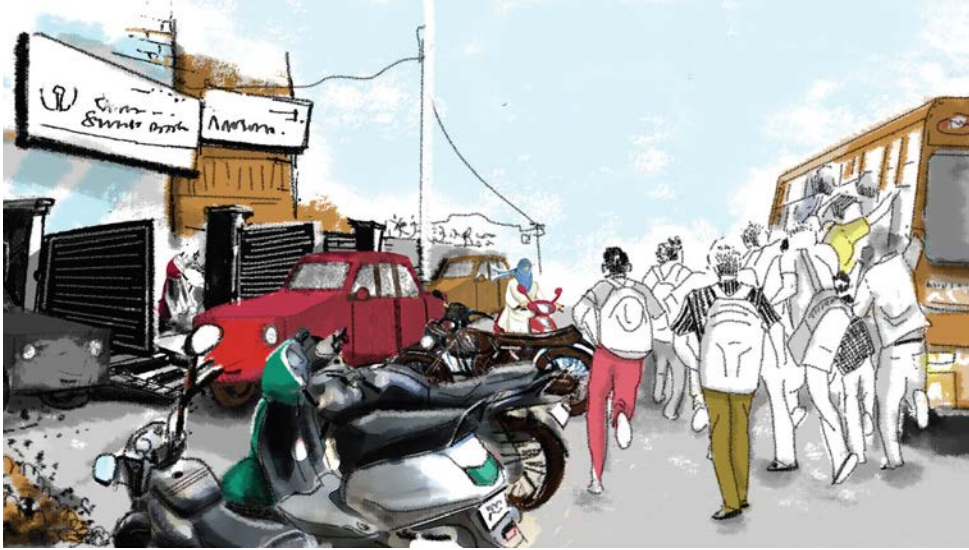
- Recommendation are given to increase parking charges, penalty for violation of DCR norms and permit system to control vehicle ownership.

6

- Conclude the overall study.

2.

WHAT IS PARKING?



Scenario on Indian streets in core area

- Parking is an essential component of the transportation system.
- Affects the ease of reaching destinations and therefore affects overall accessibility.
- one of the key links between transport network and land-use
- Private cars and two wheelers occupy most of our street space and serves less than a third of all trips.

Such problems can be often defined either *in terms of supply* (too few spaces are available, somebody must build more) or *in terms of management* (available facilities are used inefficiently and should be better managed).

2.

NEGATIVE IMPACT OF MINIMUM PARKING REQUIREMENT.



Source: Pinterest

Three methods of parking provision

Minimum Parking Requirement

Area specific Parking Standard

Flexible Parking requirement

- The average car spends about **95 percent** of its life parked (Shoup 2005) and uses several parking spaces in a day
- Out of 8760 hours in a year, the cars runs only for 400 hours on an average, leaving 8360 hours when it is parked.
- 1930s, '**Minimum Parking Requirements**' for various types of land uses came up.
- **Primary goal** – To meet the demand by adopting minimum parking standards.

Merit -

- Applied easily
- Avoid scarcity
- Provide parking space at every destination.

Demerit-

- The over provision of parking spaces
- Lowering the resultant density of commercial and residential development
- Encouraging further car dependence (shoup 1999, 2005).

3.

SHIFT IN PARKING POLICY IN EUROPEAN COUNTRIES& USA.

Understood the negative externalities of minimum based parking

Demonstrated a need to reassess transportation investment priorities and pricing mechanisms.

During the last 30 years various strategies adopted in European cities included (*Litmen 2013*) -

- Stringent on-street pricing
- CO₂ based residential parking permits
- Workplace levies
- Parking supply caps
- Parking maximums
- Smart parking meters and
- Electronic parking guidance systems and design changes.

Nottingham Council



Taxing of parking spaces at work places reduced use of motor vehicle.

UK



Doubling parking fees reduced car usage - 20%
Cutting the parking supply -30% drop in car use

A Borough In London



Implemented CO2 emission based parking in
13% to 16 % reduction in permit issuance.

Munich



Permit based residential parking systems.
Reduce the share of car trips from 44% to 32%.
27% of car commuters switched

3.

NEW PARADIGM

The unintended effects of minimum based parking strategy created far reaching negative effects on American urban fabric. (Shoup, 2005).

The new paradigm strives to provide

- Optimal parking supply and price.
- Too much supply is as harmful as too little,
- Prices that are too low as harmful as those that are too high.

Factors that influence parking demand

- The popularity of a particular establishment
- Transit proximity
- Walkability
- Land use density
- Parking management practices,
- Pricing,
- Availability of public lots.

(Litman, 2013)

Nearby transit service frequency and quality helps to reduce requirements of parking for housing and employment



10% within ¼ mile of frequent bus service.

20% within ¼ mile of a rail transit station.

5- 10% - for residential located near to the car sharing service facility.

NUTP 2006 suggested that the parking prices should be fixed based on the rental value of the land

AIM

To assess possibilities of introducing the real estate value based parking



Objective I

To assess existing parking norms, parking supply and the demand in the study area.



Objective II

To change the pricing method based on the real estate value and assess its acceptance by using a willingness to pay Survey.

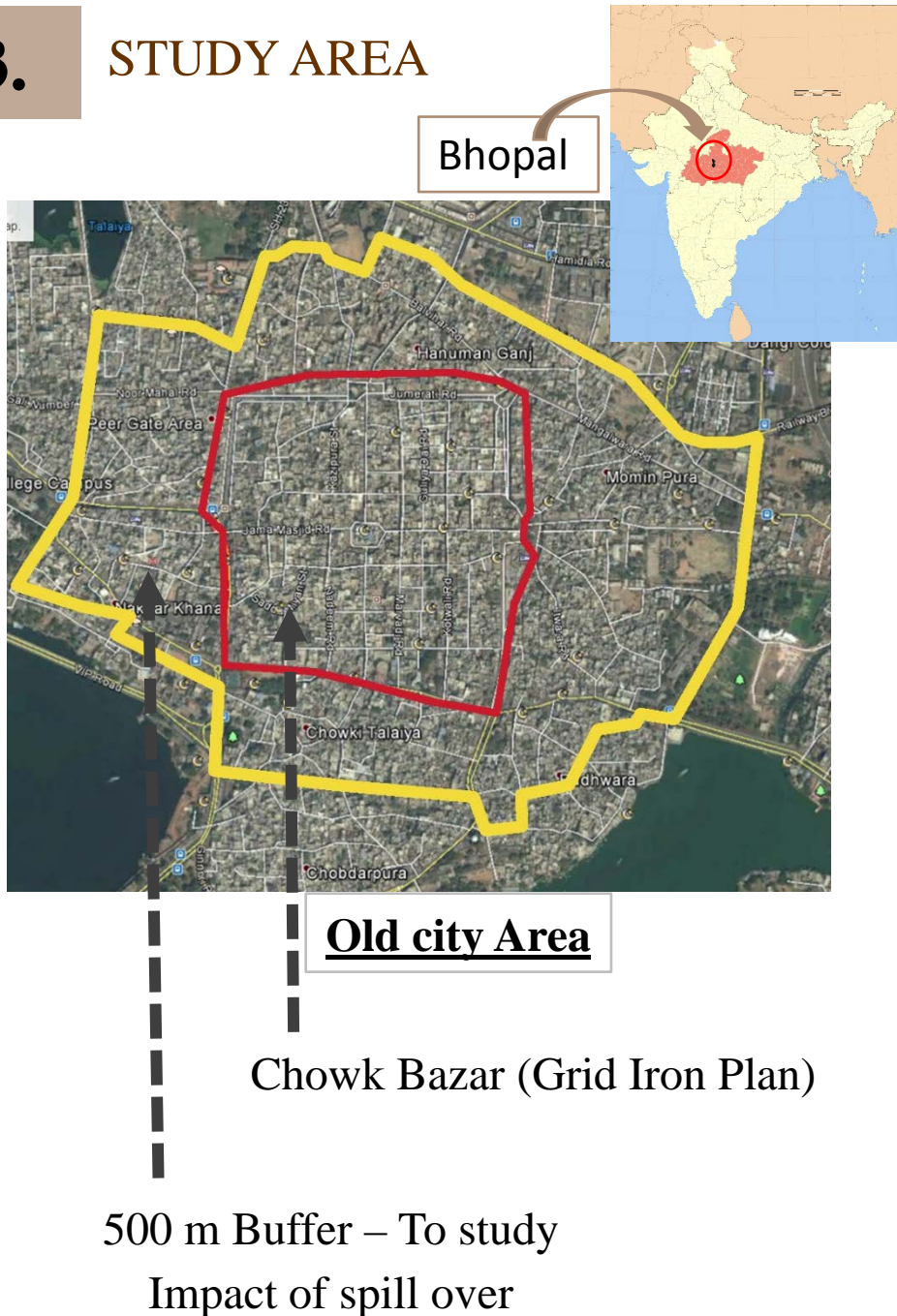


Objective III

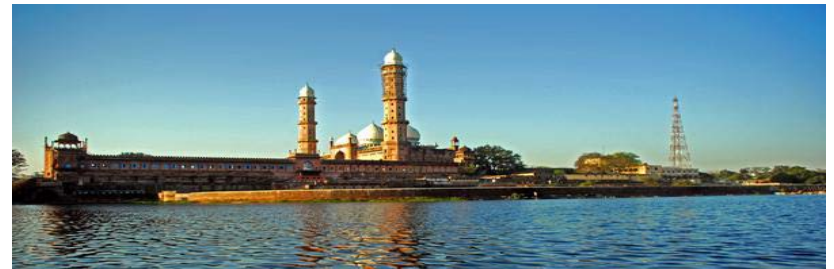
To probe the possibilities of introduction of penalties in the case of development control violations and to give recommendations

3.

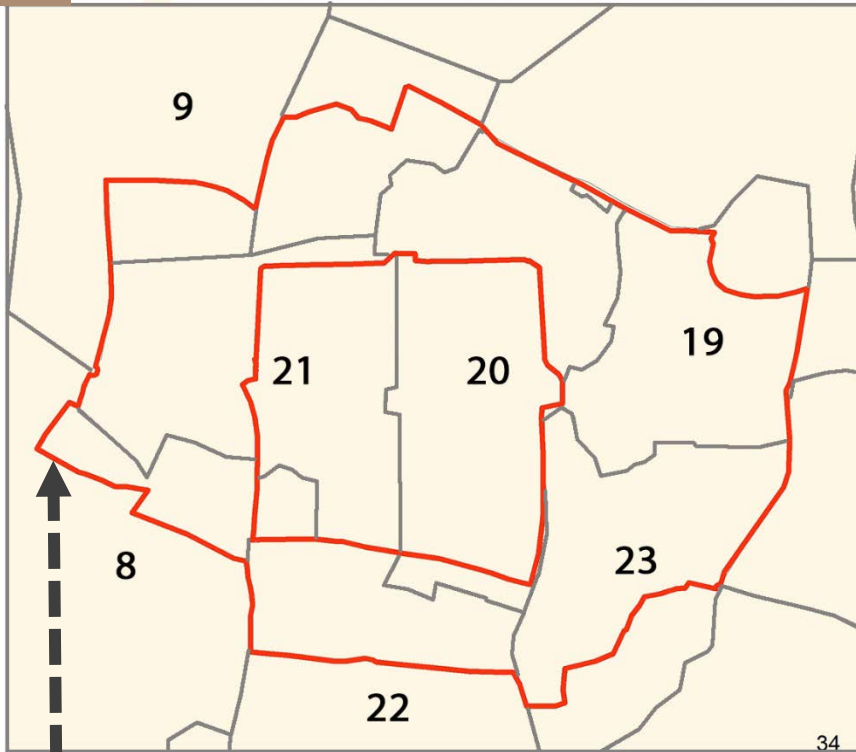
STUDY AREA



- Every vehicle needs three parking spaces:
one at home,
one at work
and the other on the commercial streets.
- Taking the facts into consideration, an area having diverse land uses has been selected predominately with lots of activities happening under it.
- Chowk bazaar area is one of the most famous business and social meeting center of Dhaka in Mughal period.
- The grid iron planning is around 400 years old, still famous as commercial hub but was design for pedestrian movement.



3. STUDY AREA



Ward Map

A 500 buffer is taken for studying the impact of spill over in surrounding neighbour.

- The site selected for study is the Old City core of Bhopal.
- Area is 1.52 sq. km. and it falls under 7 wards of Bhopal.
- Accommodates 88740 people 17747 households.
- The core area is having majorly mixed land use.
- Mixed use area with predominantly commercial public and semipublic use and residential areas have been selected to understand the complexities of existing parking characteristics on the commercial streets.

3. METHODOLOGY

Stage 1

The existing demand and supply of parking was established through various surveys.

- **20 streets were selected.**
- **The registration plate method** survey - on the working day for 6 hrs.
- **The total trips** - TAZ and per capita trip rate in the city.
- **200 Household** survey - 24x7 parking demand of resident
- **A parking user characteristic survey** - 500 sample.
- **Parking supply** - length of the roads under parking.

Stage 2

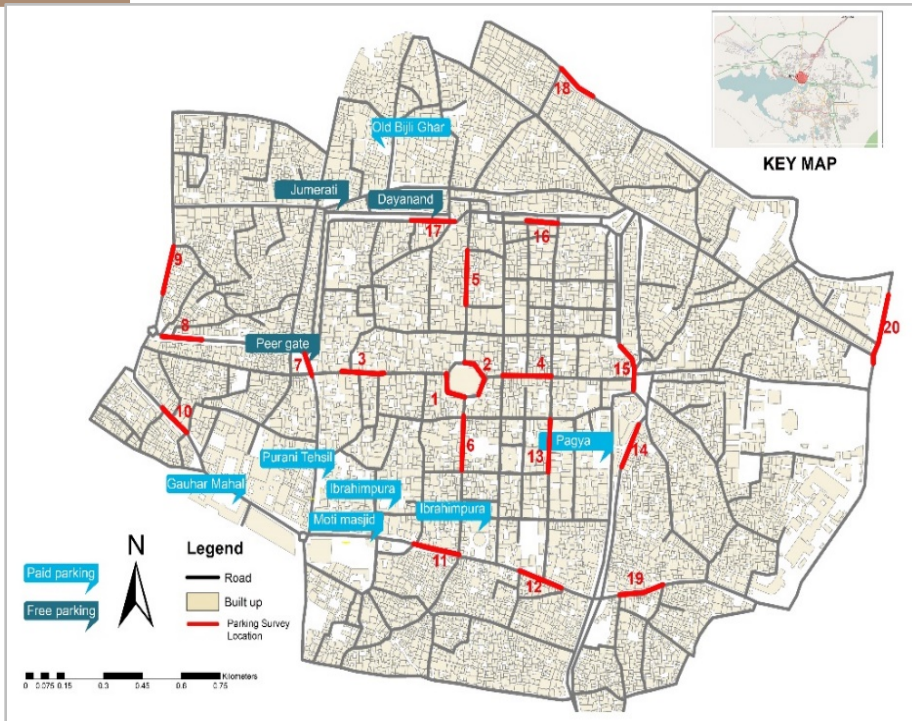
- **A pricing mechanism** is derived based on the land value
- **Parking charges** were computed for each wards.
- **The AGC of trip**
- **Three scenarios** were generated.
- **A willingness to pay survey** - willingness to shift

Stage 3

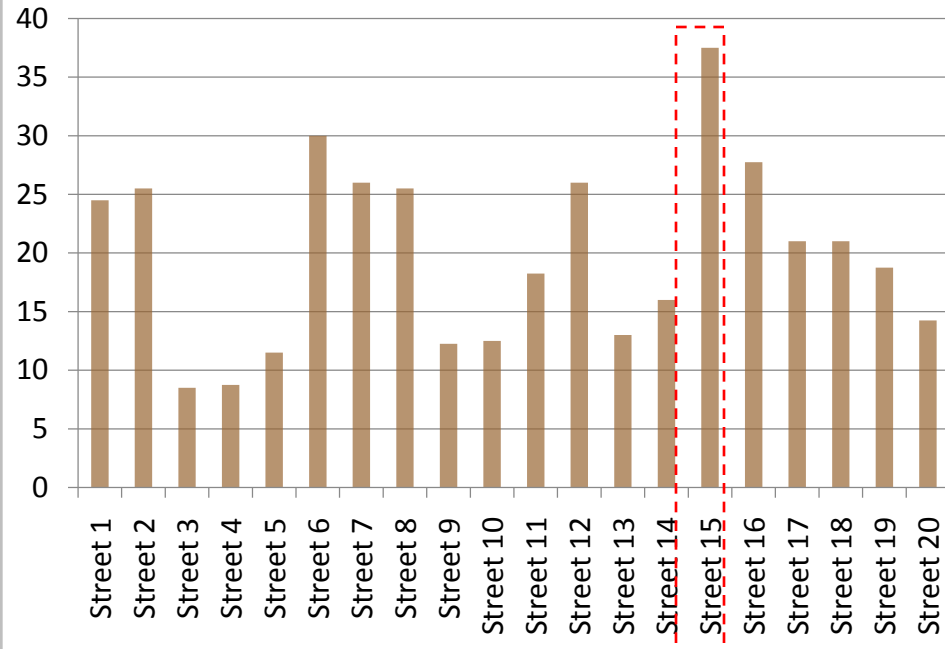
- **Surveys of 200 buildings** - To assess the building control regulation in terms of parking space construction
- **Penalty** is calculated on basis of land value.

4.

DEMAND FOR PARKING (COMMUTERS)– on street Demand, on weekdays

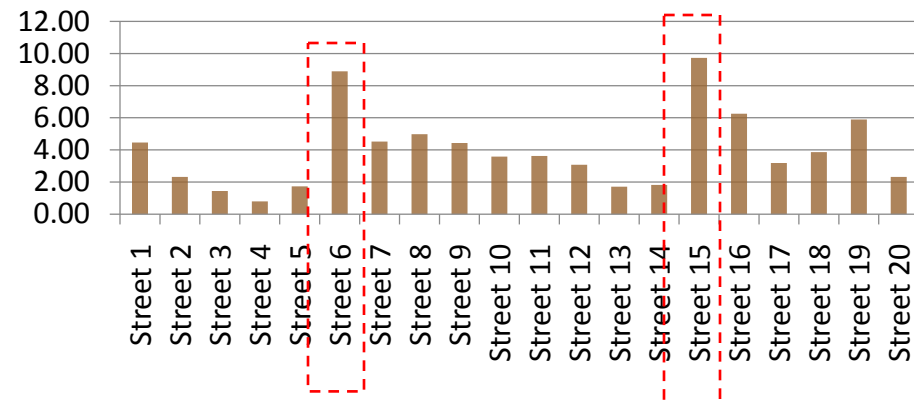


Accumulation



- To estimate the parking demand - parking accumulation is calculated.
- Highest parking accumulation is observed on street 15 ie. 37.5 followed by 30 at street 6. There is no significant variation in terms of duration of parking
- The average turnover in study area is 3.93.

Turnover for 6 hr.



4.

DEMAND FOR PARKING (COMMUTERS)– on street Demand

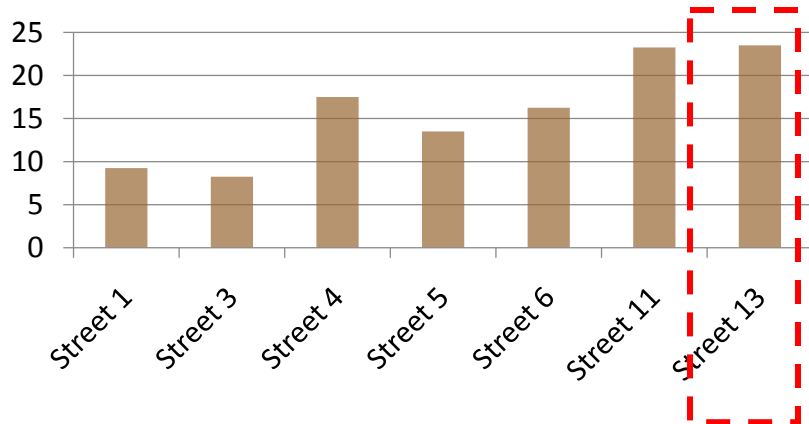
	Accumulation	Supply (L/2.5)	Occupancy/ parking Index	Load for 6 hrs. (Veh.hr)	Parking Volume (veh/day)	Turnover for 6 hr.	Parking Duration (mins)
Street 1	24.5	30	81.67	147	133.75	4.46	65.94
Street 2	25.5	30	85.00	153	69.75	2.33	131.61
Street 3	8.5	30	28.33	51	43.25	1.44	70.75
Street 4	8.75	30	29.17	52.5	24	0.80	131.25
Street 5	11.5	30	38.33	69	52	1.73	79.62
Street 6	30	30	100.00	180	266.75	8.89	40.49
Street 7	26	30	86.67	156	135.5	4.52	69.08
Street 8	25.5	30	85.00	153	149.25	4.98	61.51
Street 9	12.25	30	40.83	73.5	133	4.43	33.16
Street 10	12.5	30	41.67	75	107.5	3.58	41.86
Street 11	18.25	30	60.83	109.5	108.75	3.63	60.41
Street 12	26	30	86.67	156	92.25	3.08	101.46
Street 13	13	30	43.33	78	51.5	1.72	90.87
Street 14	16	30	53.33	96	54.75	1.83	105.21
Street 15	37.5	30	125.00	225	291.75	9.73	46.27
Street 16	27.75	30	92.50	166.5	187.75	6.26	53.21
Street 17	21	30	70.00	126	95.5	3.18	79.16
Street 18	21	30	70.00	126	116	3.87	65.17
Street 19	18.75	30	62.50	112.5	176.75	5.89	38.19
Street 20	14.25	30	47.50	85.5	69.5	2.32	73.81

4.

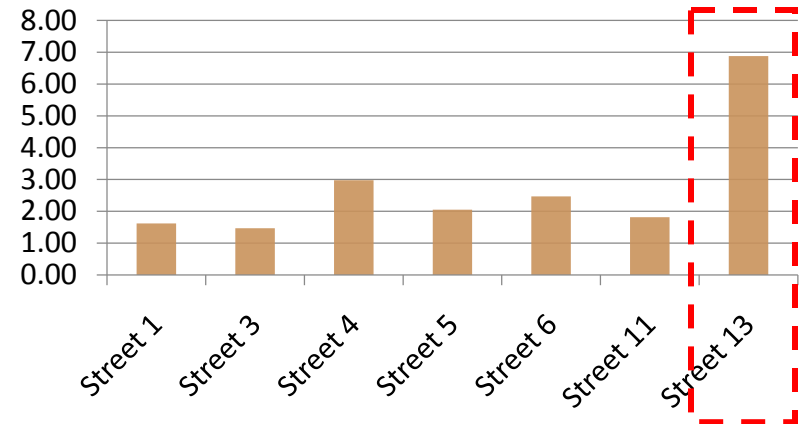
DEMAND FOR PARKING (COMMUTERS)–On street Demand, on weekends

	Accumulation	Supply (L/2.5)	Occupancy/ parking Index	Load for 6 hrs. (Veh.hr)	Parking Volume (veh/day)	Turnover for 6 hr.	Parking Duration (mins)
Street 1	9.25	30	30.83	55.5	34.25	1.62	97.23
Street 3	8.25	30	27.50	49.5	33.75	1.47	88.00
Street 4	17.5	30	58.33	105	35.25	2.98	178.72
Street 5	13.5	30	45.00	81	39.5	2.05	123.04
Street 6	16.25	30	54.17	97.5	39.5	2.47	148.10
Street 11	23.25	30	77.50	139.5	76.75	1.82	109.06
Street 13	23.5	30	78.33	141	20.5	6.88	412.68

Accumulation



Turnover for 6 hr.

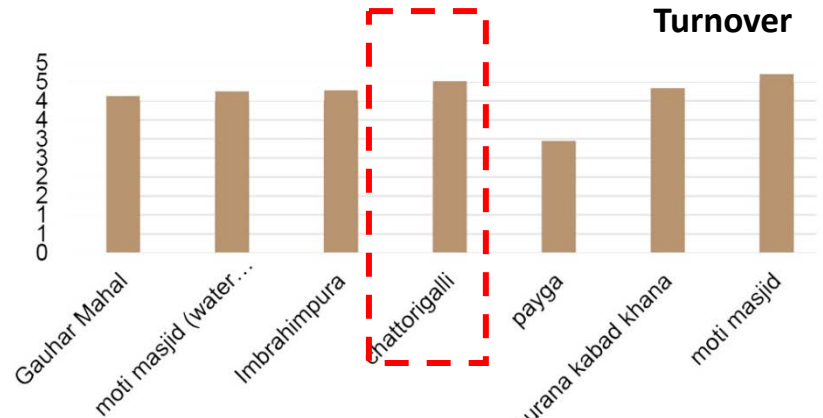
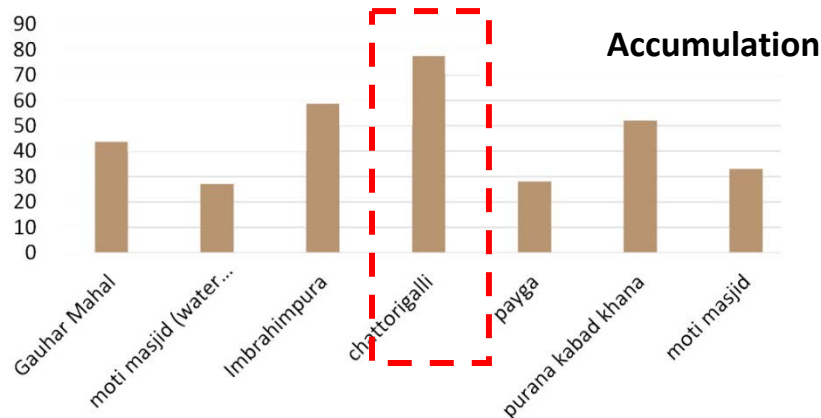


- Highest parking accumulation is observed on street 11 followed by street 13. **Longer Duration commuter ie. Shopkeepers are found more.**
- There is less requirement of parking spaces on weekends as the market is closed on weekends.
- The average turnover in study area is 2.75.

4.

DEMAND FOR PARKING (COMMUTERS)–Off street Demand, on weekdays

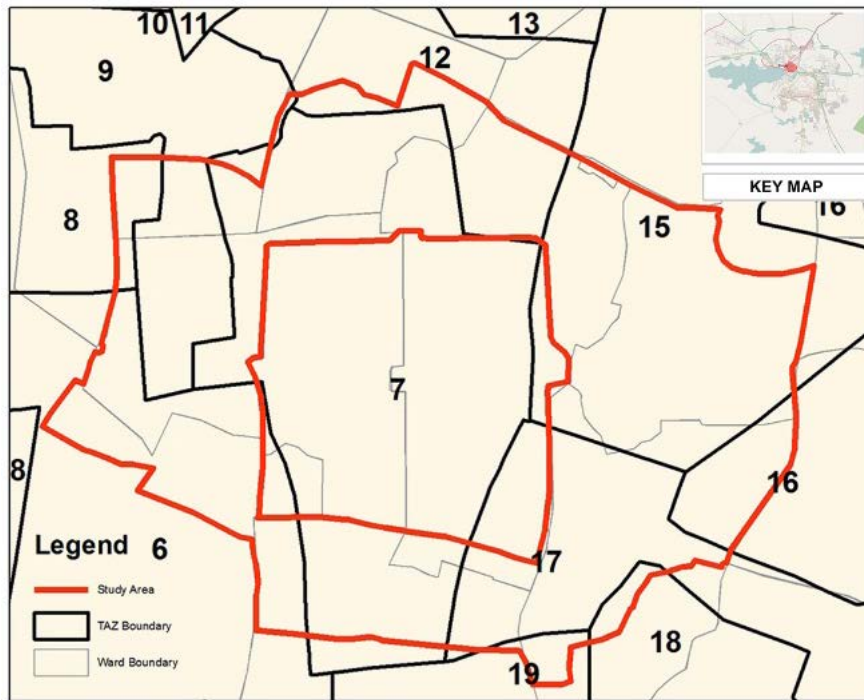
	Accumulation	Supply (L/2.5)	Occupancy/ parking Index	Load for 6 hrs. (Veh.hr)	Parking Volume (veh/day)	Turnover for 6 hr.	Parking Duration (mins)
Gauhar Mahal	43.75	47.5	92.11	262.5	63.5	4.13	248.03
Moti Masjid (Water Tank)	27	27	100.00	162	38	4.26	255.79
Imbrahimpura	58.75	68.75	85.45	352.5	82.25	4.29	257.14
Chhattorigalli	77.5	102.5	75.61	465	102.75	4.53	271.53
Payga	28	30	93.33	168	57	2.95	176.84
Purana Kabad Khana	52	60	86.67	312	72	4.33	260.00
Moti Masjid	33	35	94.29	198	42	4.71	282.86



- Highest parking accumulation is observed at Chhattorigalli Multi Level Parking Plaza as the location is near to chowk bazaar road.
- More than 50% of vehicles were parked for more than 4 hrs.
- Gauhar Mahal parking lots is not used after 6:00 pm. as it is away from from Chowk Bazaar.
- The average turnover of off street parking lots is around 4.9.

4.

TOTAL DEMAND FOR PARKING (COMMUTERS)

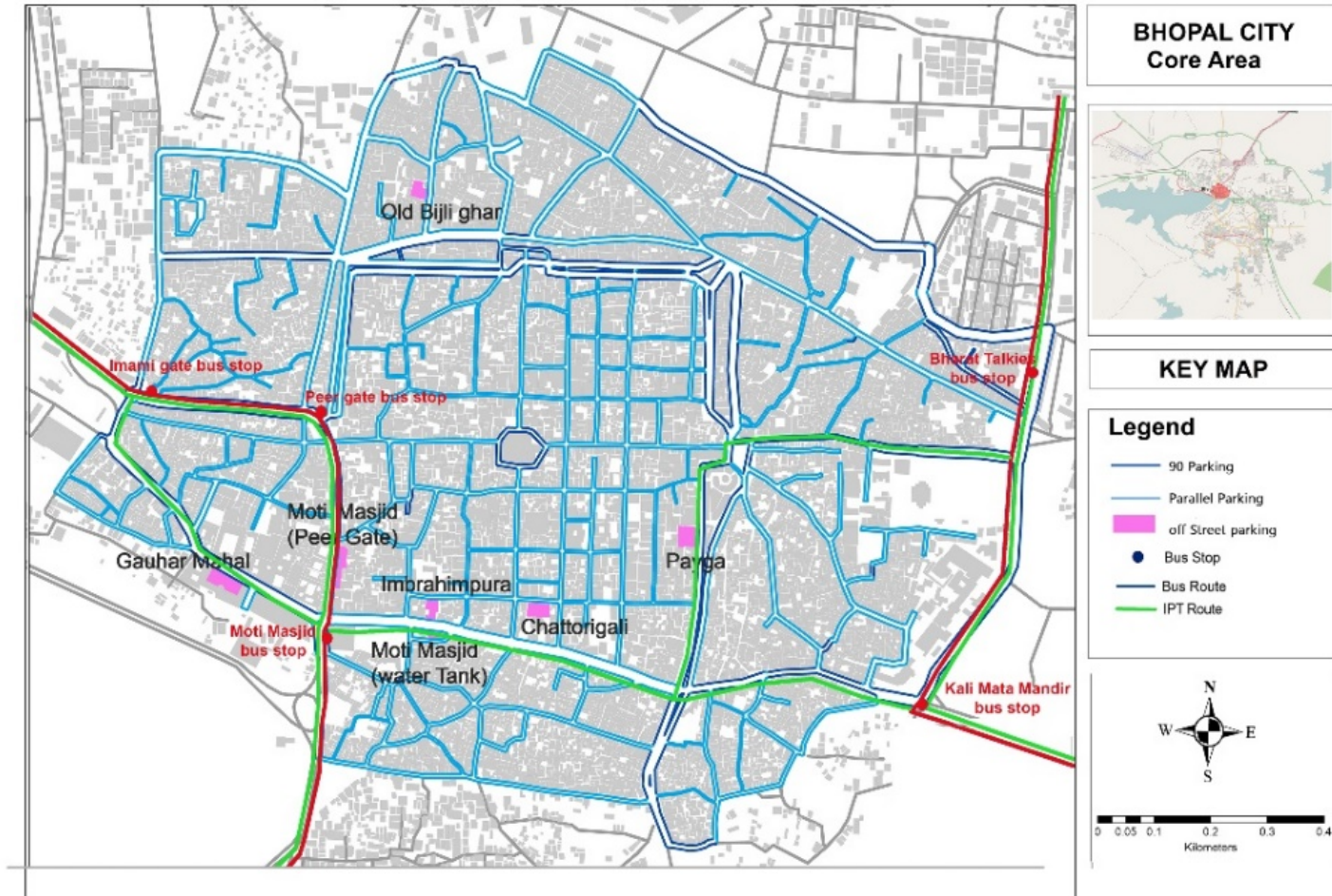


- According to CMP 2012, there are 70 TAZ in Bhopal city out of which **9 TAZ** are in study area.
- **8.02%** of total trips are attracted in the study area. (O-D matrix).

Total Population Of Bhopal City (M. Corp) 2011	1798218.00
Per Captia Trip Rate In Bhopal City (CMP2012) Including Intra-zonal Trips	1.37
Total Trips Of Bhopal	2463558.66
Total Trips Attracted In Study Area(%)	8.02
Total Trips Attracted In Study Area	197577.40

Mode	Modal split (%)	Trip generated in study area	ECS
2 wheeler	25	49394.35	12348.58
car	3	5927.32	5927.32
Total parking Demand in Study area			18275.90

4. PARKING SUPPLY AND ROAD CHARACTERISTICS

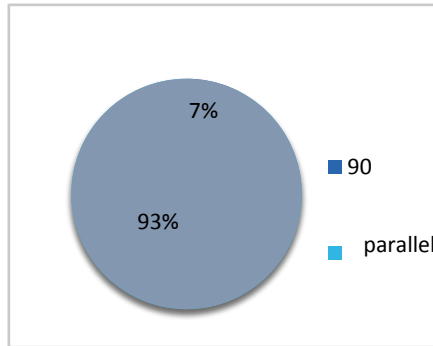


- **Rich** in **connectivity** to all the directions via road.
- The total length of road in study area is **39.54 km**
- Only **two bus routes** in study area
- IPT covers **half parts** of the study area.

- Public Transport do face problems in driving as most of the road space is occupied with the parking.
- Need to remove or reduce parking spaces and implement BRT lanes to increase speed of public transport.

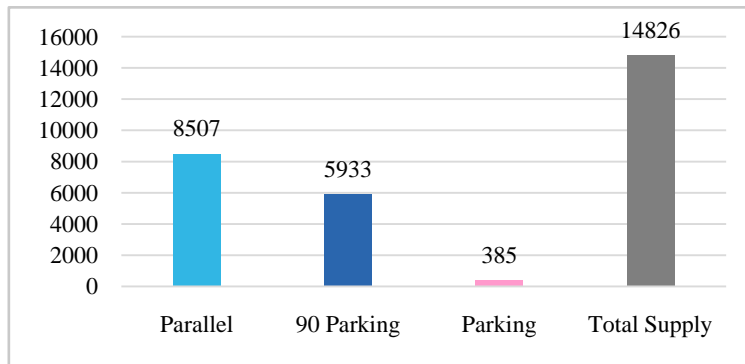
4.

PARKING SUPPLY AND ROAD CHARACTERISTICS



Only 0.25% has legal parking supply.

	2 Wheeler	4 Wheeler	Total ECS
Gauhar Mahal	30	40	55
Moti Masjid		27	27
Imbrahim Pura2	15	65	72.5
Chattori Galli	10	100	105
Payga Parking		30	30
Purana Kabad Khana		60	60
Moti Masjid (Peer Gate)		35	35
Total Off street Parking Supply			385



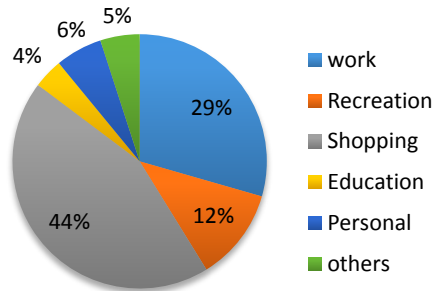
Total area of Road in study area	276407 sq.m
Area of 1 parking in commercial area (2.5x5)m	12.5 Sq.m
Total no. of on street parking	14440
Total area under parking	180500 sq.m
Total area of road under parking	65.3%

- Total parking supply - 14826
- 385 ECS is legal off street supply which is owned by the corporation and managed by private contractors.
- Parking lots are having only parking for four wheeler
- Thus all two wheeler parking ends up on the road.
- This creates obstruction in free vehicular movement.

4.

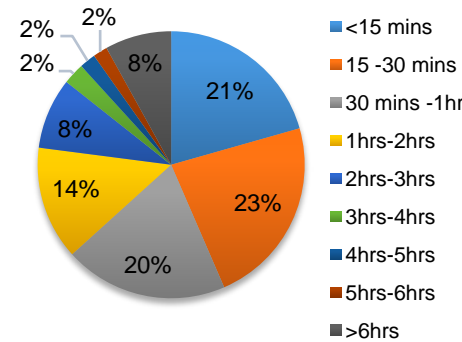
PARKING USER CHARACTERISTICS SURVEY

To understand demand of parking, parking user survey were conducted.



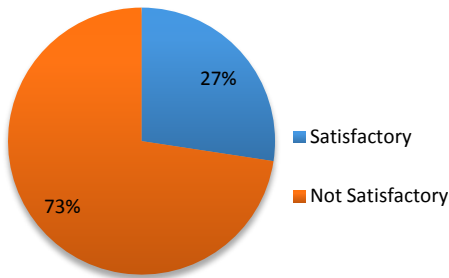
Purpose of Trip

44% of trips are for shopping and 29% of trips are for work purpose.



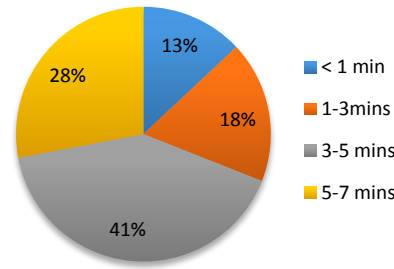
Duration of Parking

Duration of parking for 43% of trips is between 15 mins to 30 mins.



Availability of Parking space

73% of the total users are non-satisfied with availability of parking space.



Cruising Time

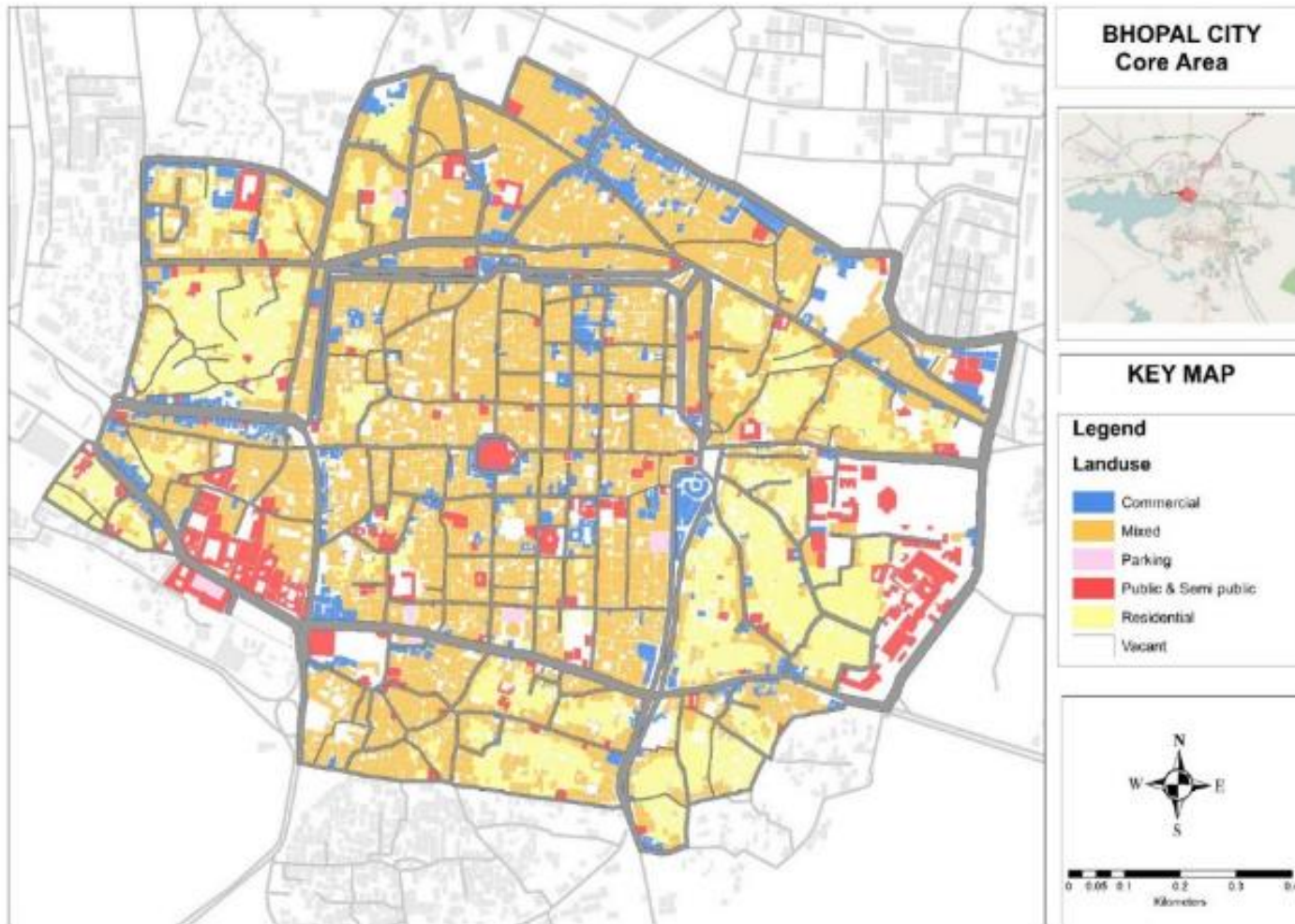
During evening peak hour cruising time increases. 28% of total parking user's cruising time is 5 - 7 mins.

On street Parking Charges

No one pays for on street parking.

During non-peak parking space is easily available thus it is observed that 13% of parking users cruising time is less than 1mins.

4. RESIDENTIAL PARKING DEMAND

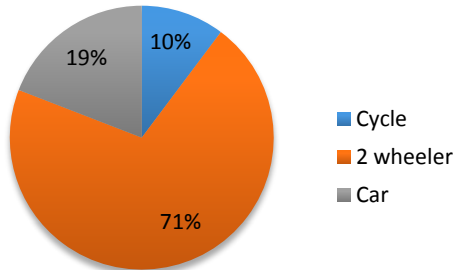


- The **density is 585** person per hectare.
- The core part is majorly contributing to mixed land use.
- 57% of total structures are mixed use while residential around 23%.
- The core part of the study area ie the grid iron plan has very old structure.
- 70% building are old and 30 % are new structure.

Old buildings constructed before the Bhumi vikas rules 1984 are without parking space but it is observed that many new buildings that are constructed after 1984 has violets the existing norms.

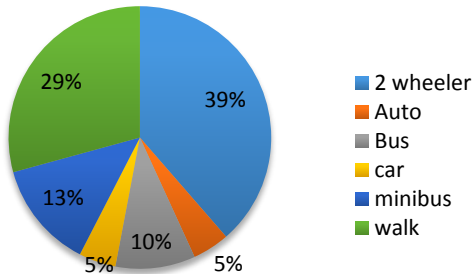
4.

RESIDENTIAL PARKING DEMAND



71% of families have a two wheeler.

Vehicular Ownership

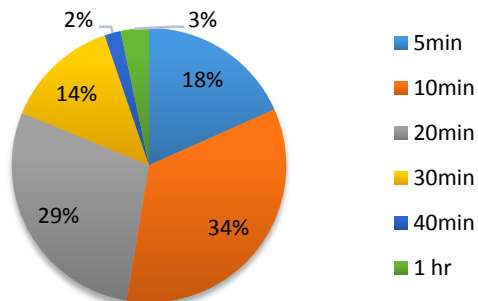


39% of the total population uses 2 wheeler as a mode of transportation which is highest among all.

Trips by car is low which is around 5% .

By bus is 10%

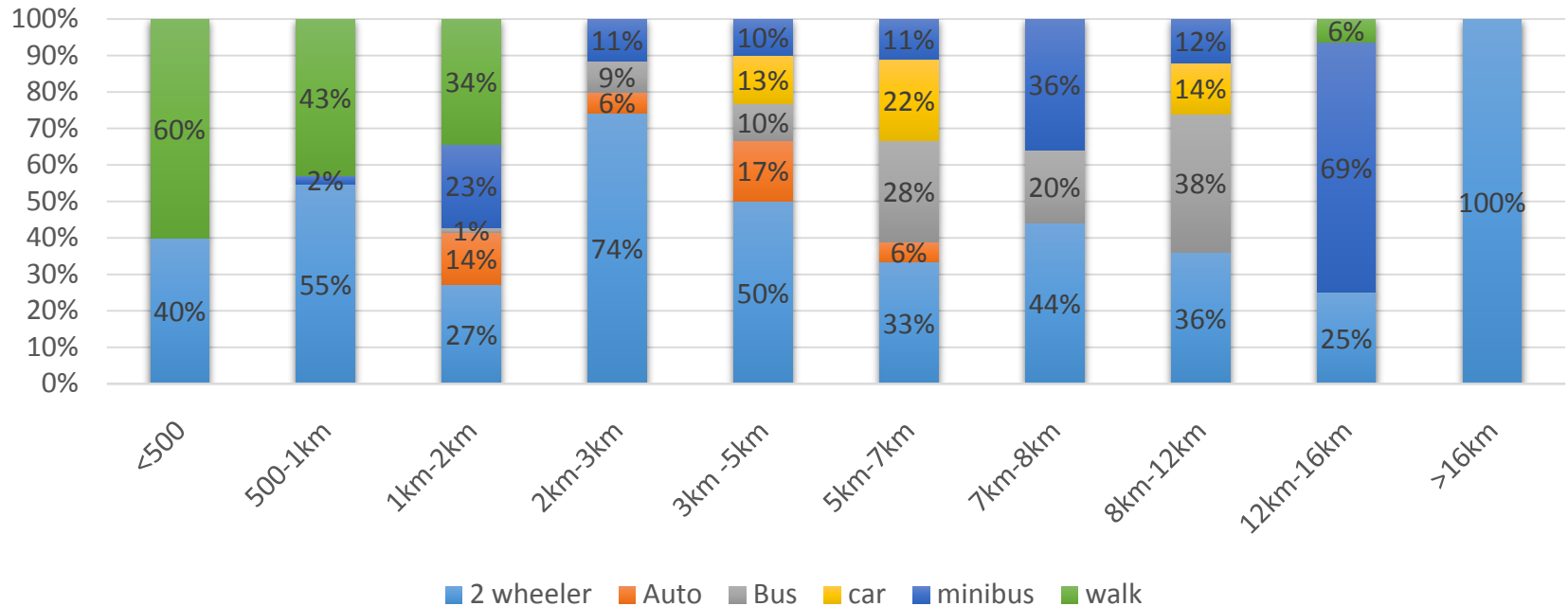
Mode choice



52% of the total population has **Travel time upto 10 min.** These are the people working in same area.

Travel Time

4. RESIDENTIAL PARKING DEMAND



- 24 percent of the two wheeler users have an average trip length of less than one kilometer.
- The average trip length of cars, auto minibuses and buses are about 4.97 km each.
- Overall the average trip length has been estimated as 3.71 km.

4. VEHICULAR OWNERSHIP IN STUDY AREA

		2 WHEELER OWNERSHIP				
CAR OWNERSHIP		1	2	3	4	Total
	0	38%	23%	4%	0%	65%
	1	9%	13%	6%	1%	29%
	2	5%	1%	0%	1%	6%
	Total	52%	37%	10%	2%	100%

- 65% of total household has two wheeler while 35 % of total household has car as well as 2 wheeler.

Vehicle ownership	% of Household	Total no of household	Ownership in ECS	Total ECS
1 Two wheeler	38%	6794	0.25	1698.44
2 Two wheeler	23%	4021	0.5	2010.40
3 Two wheeler	4%	693	0.75	519.93
4 Two wheeler	0%	0	1	0.00
1 Two wheeler + 1 car	9%	1525	1.25	1906.42
2 Two wheeler + 1 car	13%	2357	1.5	3535.54
3 Two wheeler + 1 car	6%	1109	1.75	1941.08
4 Two wheeler + 1 car	1%	139	2	277.30
1 Two wheeler + 2 car	5%	832	2.25	1871.75
2 Two wheeler + 2 car	1%	139	2.5	346.62
3 Two wheeler + 2 car	0%	0	2.75	0.00
4 Two wheeler + 2 car	1%	139	3	415.95
Total	100%	17747		14523.42

- Total ECS requirement of the study area is calculated according to vehicle ownership.
- Total number of **Household** in study area is **17747**.
- The **total ECS required** in study for residential is **14523.42**

ECS - various combination of vehicular ownership

4. CONCLUSIONS FROM ANALYSIS

- DCR is violated while constructing new buildings.
- As there is no provision in old buildings, residential parking ends up on the street.
- Thus these spaces should be charged and also penalty should be charged for violating norms.

Recommendations are given on following lines as mentioned in Bhopal CMP.

- Revision of charges may be explored to reduce the parking demand at certain locations.
- High penalty may be imposed to avoid violation of building by laws which led to induced on street parking.

The Thumb Rule for arriving at parking Rates for Cars:

$$\text{Parking charge per hour} = \text{Rate per sq. m} \times 100 \times \frac{5}{100} \times \frac{1}{12} \times \frac{1}{200} \times 2$$

The rental for car space should be at 5-6% of the capital cost in the area.

Land value (average circle rate) in ward 21	51329.78	per sq.m
Therefore for 12.5 sq.m, the cost of the parking space	641622.34	
Taking 5% of the cost of the parking space as the rental value per year, the cost per annum	32081.12	per annum
Cost per month	2673.43	
At 25 working days a month, and 8 hours utilization, i.e. for 200 hours per month, the cost of parking space at 100% utilization :	13.37	per hour
The parking rate charged are based on 50% utilization		
Therefore the charges per hour at 50% utilization	26.73	per hour

ward no	Average circle rate per sq.m.	Parking charges per hour (Day Time Parking Charges)						Parking charges per Night (Day Time Parking Charges)					
		For two wheeler			car			For two wheeler			car		
		4%	5%	6%	4%	5%	6%	4%	5%	6%	4%	5%	6%
8	50120.97	5	7	8	21	26	31	20	28	32	84	104	124
9	33100.00	3	4	5	14	17	21	12	16	20	56	68	84
19	40670.73	4	5	6	17	21	25	16	20	24	68	84	100
20	57139.42	6	7	9	24	30	36	24	28	36	96	120	144
21	51329.79	5	7	8	21	27	32	20	28	32	84	108	128
22	22708.33	2	3	4	9	12	14	8	12	16	36	48	56
23	25346.72	3	3	4	11	13	16	12	12	16	44	52	64

Case study of Mumbai.

For day time parking charges- The cost of built-up area of locality be used for computing the parking charges and not the cost of the road.

Case study of Japan.

For Night time parking charges - Two or three times less than the total charges during day time.

Applicable from 10:00 pm to 10:00 am for residents only.

Day time (commuter) and Night time (Resident) parking charges in Study area

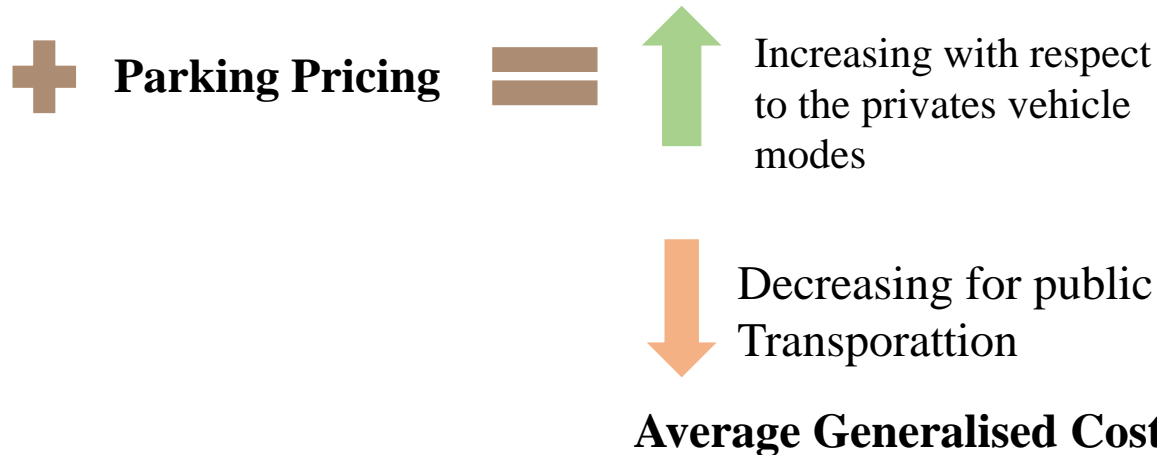
3 scenarios were generated with varying parking charges ward wise

AVERAGE GENERALISED COST (AGC)

Considering average travel length of 5 km and monthly income of 30000 (through household survey).

for 5 km	Existing AGC
2W	53.57
4W	64.42
Buses	56.62

The existing AGC for private vehicle is less as compared to the public transit modes.



The major components used for estimating AGC are

- In vehicle time
- In vehicle cost
- waiting time
- Time taken from home to station & from station to destination,
- cost to reach destination
- cruising time
- **parking charges.**

- Thus parking charges can be used as tool to increase AGC for private modes.
- Willingness survey in each ward were conducted on basis of various scenario.

5

WILLINGNESS TO PAY

- Three scenarios for each wards were generated
- AGC of public buses was calculated to compare with AGC of private modes.

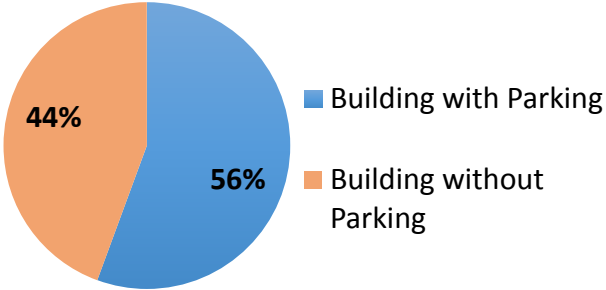
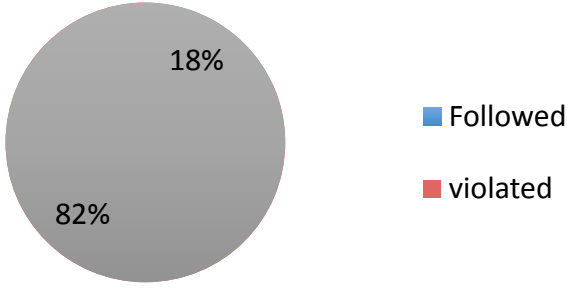
	Travel time	Travel cost per % km	Headway	AGC
Option 1	12	12	7	46.8
Option 2	11	12	5	46.1
Option 3	10	12	3	45.5

Analysis	commuter	Resident
Samples collected	110	16 (each ward)
Willingness to pay	93%	52%
Scenario accepted	Scenario 1 Scenario 2	scenario1
Ready to shift to PT	53%	41%

	Day time parking charges				Night time charges (3 times less from case study of Japan)				
	charges per hour		AGC		charges per Night		AGC		
	2w	4w	2w	4w	2w	4w	2w	4w	
WARD NO 8									
option 1	5	21	58.57	85.42		20	84	73.57	148.42
option 2	7	26	60.57	90.42		28	104	81.57	168.42
option3	8	31	61.57	95.42		32	124	85.57	188.42
WARD NO 9									
option 1	3	14	56.57	78.42		12	56	65.57	120.42
option 2	4	17	57.6	81.4		16	68	69.57	132.42
option3	5	21	58.6	85.4		20	84	73.57	148.42
WARD NO 19									
option 1	4	17	57.57	81.42		16	68	69.57	132.42
option 2	5	21	58.57	85.42		20	84	73.57	148.42
option3	6	25	59.57	89.42		24	100	77.57	164.42
WARD NO 20									
option 1	6	24	59.57	88.42		24	96	77.57	160.42
option 2	7	30	60.57	94.42		28	120	81.57	184.42
option3	9	36	62.57	100.42		36	144	89.57	208.42
WARD NO 21									
option 1	5	21	58.57	85.42		20	84	73.57	148.42
option 2	7	27	60.57	91.42		28	108	81.57	172.42
option3	8	32	61.57	96.42		32	128	85.57	192.42
WARD NO 22									
option 1	2	9	55.57	73.42		8	36	61.57	100.42
option 2	3	12	56.57	76.42		12	48	65.57	112.42
option3	4	14	57.57	78.42		16	56	69.57	120.42
WARD NO 23									
option 1	3	11	56.57	75.42		12	44	65.57	108.42
option 2	3	13	56.57	77.42		12	52	65.57	116.42
option3	4	16	57.57	80.42		16	64	69.57	128.42

5 PENALTY- For violating DCR norms

Total 200 building approvals parking details were analyzed ward wise (BMC, 2016)

Required parking space	DCR parking Norms												
 <p>A pie chart illustrating the distribution of parking space requirements for approved buildings. The chart is divided into two segments: a blue segment representing 'Building with Parking' at 56%, and an orange segment representing 'Building without Parking' at 44%.</p> <table border="1"><thead><tr><th>Category</th><th>Percentage</th></tr></thead><tbody><tr><td>Building with Parking</td><td>56%</td></tr><tr><td>Building without Parking</td><td>44%</td></tr></tbody></table>	Category	Percentage	Building with Parking	56%	Building without Parking	44%	 <p>A pie chart showing the compliance with DCR parking norms. The chart is divided into two segments: a grey segment representing 'Followed' at 82%, and a red segment representing 'violated' at 18%.</p> <table border="1"><thead><tr><th>Category</th><th>Percentage</th></tr></thead><tbody><tr><td>Followed</td><td>82%</td></tr><tr><td>violated</td><td>18%</td></tr></tbody></table>	Category	Percentage	Followed	82%	violated	18%
Category	Percentage												
Building with Parking	56%												
Building without Parking	44%												
Category	Percentage												
Followed	82%												
violated	18%												
56% of approved building need to construct required parking space acc. to DCR norms	7% of building approvals were surveyed. In this it was observed that 82% of building has violated the norms.												

- The total demand for on street parking has increased.
- As there is no restriction on vehicle ownership, there is much more demand.
- Thus Penalty should be charged for violating development control Rules.

5 PENALTY- For violating DCR norms

Standard construction Rate in India

- C class construction costs – 700 to 800 Rs/sq.ft
- B class construction costs - 1000 to 1100 Rs/sq.ft
- A class construction costs -1500 to 2500 Rs/sq.ft

$$\text{Penalty for violating DCR norms space} = \text{cost required to build required parking (Require parking space is calculated according to DCR norms)} + \text{Land value}$$

Therefore cost of one parking space ie 15 sq.m considering Typical B class construction cost ie. 1100 per sq.ft

Per sq. feet rates (0.09 sq.m)	1,100 Rs
Per sq. meter Rate	12,222 Rs
Total cost to construct 1 parking ie 15sq.m	1,83,333 Rs

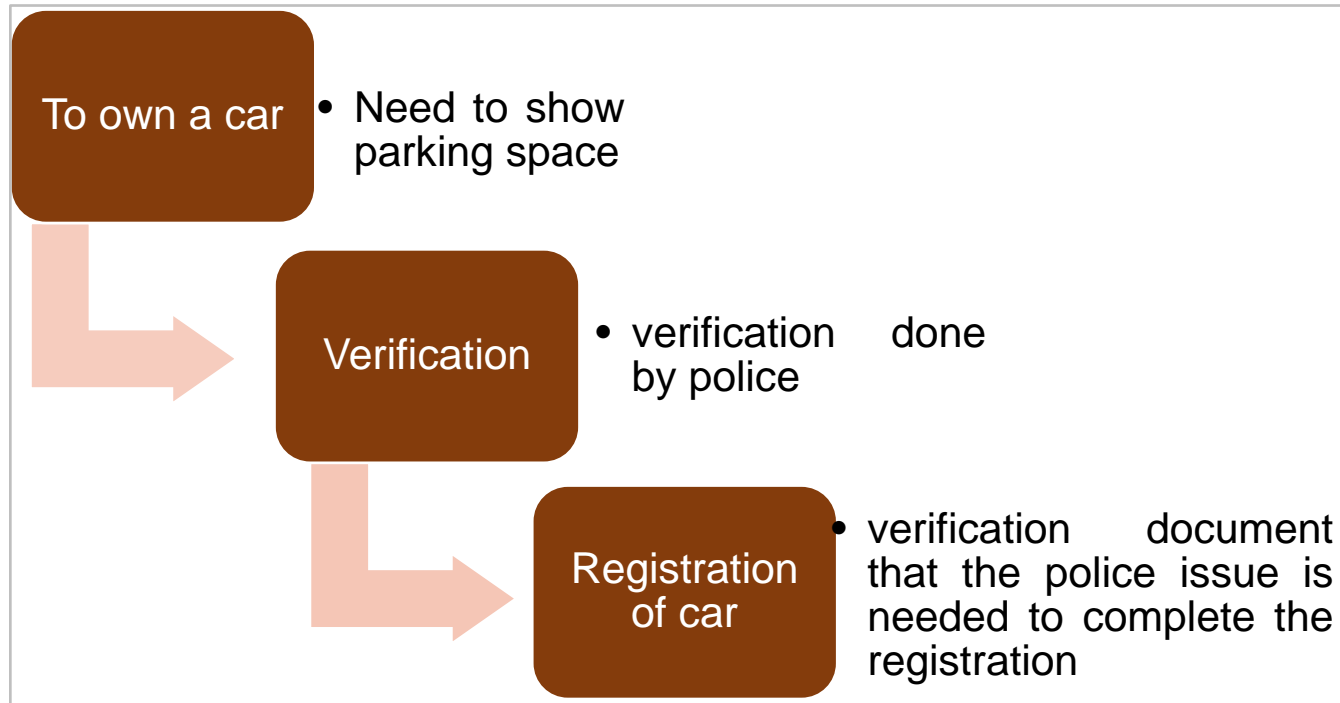
Ward no.	Land value (Average circle rate per sq. m)	Total penalty for violating DCR norms (for one parking space)
08	50120.97	935148
09	33100.00	679833
19	40670.73	793394
20	57139.42	1040425
21	51329.79	953280
22	22708.33	523958
23	25346.72	563534

Penalty for violating DCR norms-

To reduce vehicular ownership and also demand in study area.

Permit system should be made compulsory to those who have not violated the parking norms (do not required parking space as the built up area is less) but wish to own a vehicle.

No Registration of parking space = force to follow all other on street charges and penalties.

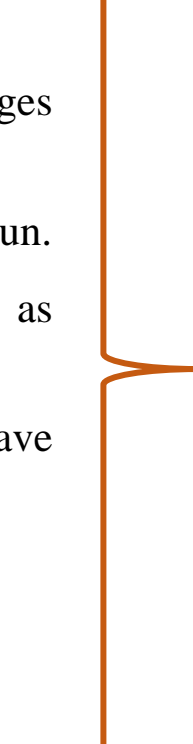


Source: case study of Japan

[http://www.deepjapan.org/a/976Parking in Japan](http://www.deepjapan.org/a/976Parking%20in%20Japan)

6. RECOMMENDATIONS AND WAY FORWARD

Demand for parking increases as vehicle ownership increases. Based on various studies and practices cited in the study following recommendations are drawn.

- **Need of maximum parking standards** for new development
 - **Legislation is needed** to set a framework for parking charges and fines.
 - Need to **introduce paid parking** to manage demand on long run.
 - **Parking fees should be higher for on street parking** as compare to off street parking
 - **Detailed ward wise study** needs to be conducted to have **parking norms and parking** according to requirement.
 - Need to impose **penalty for violating building bye laws.**
 - **Permit system** should also be introduced.
 - Increase Public transit facility
- 
- **Reduction in Vehicle ownership**
 - **Reduction in congestion**
 - **Shift to Public Transportation**
 - **Revenue collected can be Utilize to improve public Transportation and footpaths.**

THANK YOU