

# PROJECT STRUCTURE FOR PARKING POLICY AND PLAN FOR BETTER MOBILITY IN THE CITY OF NAGPUR

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# PRESENTATION OVERVIEW

- Background
- Need for the study
- Objectives
- Observations
- Methodology/Approach
- Data collection and analysis
- Finding for costing

# BACKGROUND

- Fastest Developing Metro Cities in Central India
- Third largest city in State (Second Capital)
- Area 227 sq.kms.population 2.4 million (2011)
- Location-in center of India North-South and East-West rail corridors pass through the city apart from the two major national highways, NH-7 and NH-6 also pass through Nagpur
- International Airport provides connectivity with various part of the world
- Road network 1150 km and the presence of inner and outer ring road
- Rs. 8680 Crore Metro rail project commence with 2 corridors North-South and East-West Corridors 36 stations length 38.21 kmsl

# NEED FOR THE STUDY

- Rising standard of living and affordable pricing strategy study of car manufactures led to
- An Unprecedented increase in private vehicle, Increase in population since 2011 to 2014 is 5% whereas the increase in Vehicle population in the same period is 19%.
- High demand of parking
- Parking management is a valuable tool for encouraging more efficient use of road space
- Current DCR is having uniform off street parking requirement needs change i.e. less parking in properties in influence zone of public transport corridors
- All the above are the indicative reasons for the study.

# Current Parking Situation in Nagpur



## Gandhibagh Park

- Road Side parking reducing the effective RoW
- Congestion due to unorganized parking



## Along Taj Bagh Road

- Roadside encroachment, reducing the effective RoW
- This also reduces the on-street parking space



## Dosar Bhavan bus stop

- Bus queue shelter used for parking by 2 W and 4Ws



## Near Telephone Exchange Chowk

- Unethical on-street parking practice causing serious RoW concern along the minor road



## Near Lokmat Square

- Parking at **No Parking zone**, though NMC authorized paid parking available nearby

# OBJECTIVE

- “To provide safe, convenient, user friendly and accessible parking system and facilities that are sustainable (economic, financial and environment) and mitigates traffic congestion, promote public transport throughout the city, by enforcing parking regulations”.
- Also promote use of Non Motorized Mode of Transport as the maximum trips having trip length of 1.5kms.

# Observations regarding Core Issues

- Encroachment of Footpath by parked vehicles.
- Unorganized parking along the road side leading to reduced ROW.
- Under utilization of paid parking Facilities.
- Misuse of Support Infrastructure for Parking.
- Unethical parking leading to Safety Concern.
- Congestion of major and minor roads due to parked vehicles.

# Need for Parking Policy and Master Plan

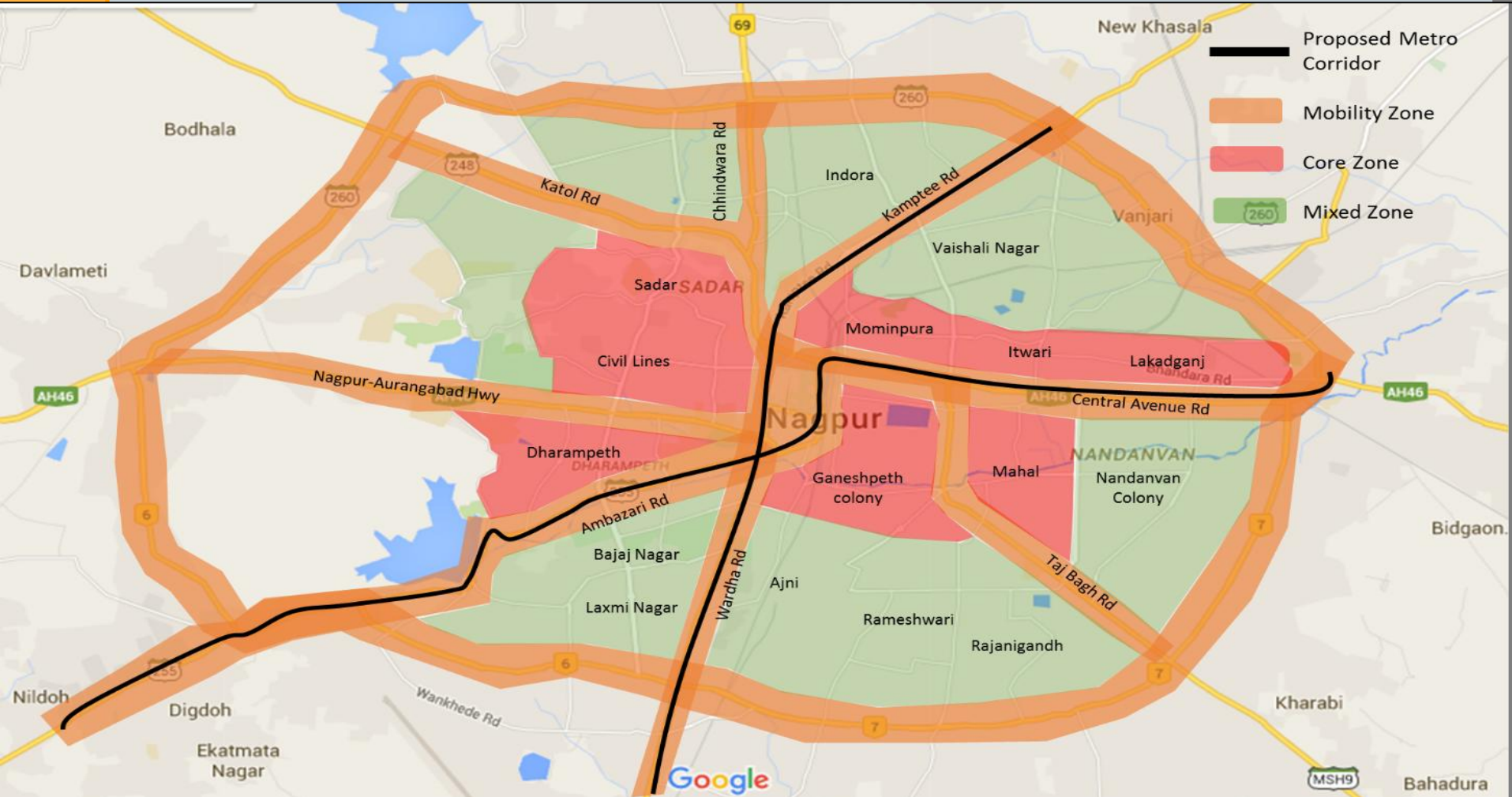
Scenario	Private Vehicle Share	IPT Share	PT Share
Do Nothing – 2032	86%	9%	5%
Bus Augmentation + Route Rationalization + Rapid Transit System + TOD	64%	6%	30%

**Drastic reduction in PT Share and increase in Private Vehicle Share !!!**

Source: CMP Nagpur-2013



# Study Area Zoning



# Methodology

The Ideal Methodology for the preparation of parking Master plan for the complete city must contain the following:

- Stage 1: Preparation of Parking Policy.
- Stage 2: Parking Demand supply Gap Analysis.
- Stage 3: Forecast Future Parking Demand.
- Stage 4: Parking Master Plan.

The study is restricted upto preparation of parking policy proposal and case studies.

# Data Collection

- Reconnaissance Survey Findings

Parking Facilities in Nagpur are Inadequate.

City roads are clogged with parked vehicles.

Encroachments due to parked vehicles reduces the ROW (Mangalwari Bazaar).

Currently the city buses also face shortage of parking locations (Eternity Mall) causing public Hazard.

Designated parking lots under flyovers for two wheelers.

Maximum on street parking lots are free hence attracting the commuters to park on-street.

Two Wheeler Charges Rs 5-10 and Four Wheeler Rs 15-20 for 6-8 Hrs.

Average Parking charges per hour is far less in Nagpur.

Parking charges for Public places like railway station and Airports is also very less.

Lower Parking charges resulting in increase in private vehicle share compared to public transport

A Total of 72 Sites have been reserved for parking across the city having total area of 33.2 Hectares..



(a) Parking near Mangalwari Bazar Rd



(b) Parking near Gandhi Bagh Park



(c) Parking near Chitnis Park



(d) Parking at Dosar Bhavan bus stop



(e) Parking Near Eternity Mall






(f) Parking below the Fly-over

# Existing Parking Fares Within the City limits

Location	Type	Ownership	Mode	Fare	Period
SP Office, Rajay Mahithi Ayog Bhavan	Off-Street	-	2W, 4W	Free	
High Court	On-Street	-	2W, 4W	Free	
WCL Office	On-Street	-	2W, 4W	Free	
Mangalwari Bazar Rd.	On-Street	-	2W, 4W	Free	
Jaswant Tuli Mall	Off-Street	Private	4W	₹ 30	No time limit
			2W	₹ 10	No time limit
In-Front of Gandhi Bagh Park	Off-Street	Private	4W	₹ 10	24Hrs
			2W	₹ 5	24Hrs
Around Gandhi Bagh Park	On-Street	-	2W,4W	Free	
MEO Hospital	Off-Street	Hospital	2W,4W	Free	
Empress Mall	Off-Street	Private	4W	₹ 30	24Hrs
			2W	₹ 15	24Hrs

# Existing Parking Facilities and Fares

Site Location	Photograph	Parking Type	Parking Fare	General Observation
Parking near Gandhi Bagh Park		On-Street Parking	-	Unorganized Parking around the Gandhibagh park have led to reduced ROW of the double lane road.
Parking at Wardha Road		Off-Street Parking	Cycle- Rs. 5/12Hrs 2W- Rs. 10/12Hr 4W- Rs. 30/12Hr	This is an open piece of land where parking is done.
Parking opposite ST Bus Stand (Next to Hotel Rahul Delux)		Off-Street Parking	2W- Rs. 10/12Hrs 3W- Rs. 30/12Hrs 4W- Rs. 30/12Hr	This facility mainly serves the section of the public transport users. A large number of two-wheelers can be seen parked for longer duration.

# Proposed Parking Strategy based on Zones

## Delineation of Study Area

- **Mobility Corridor**

- This region includes all the parking areas falling under the Mobility Corridors
- The proposed Metro alignment, the State & National Highways running in the Nagpur fall under this zone

- **Core Area**

- The core area is the Central Business District (CBD) of the city
- Regions like Sitaburdi, Sadar and other commercial areas are categorized under this region

- **Mixed Zone**

- Areas not categorized under the above zones fall under the Mixed Zones
- Residential and other institutional or public areas are considered under this region

# Proposed Parking Strategy based on Zones

Zone No	Zone Description	Zone details	Strategy
a	City Core area / Business District	Sadar, Civil Lines, Mominpura, Itwari, Lakadganj, Mahal, Ganeshpeth Colony & Dharampeth	<ul style="list-style-type: none"> <li>Discourage use of private vehicles by means of restricting on-street parking at most of the locations.</li> <li>Encourage vehicle free zones</li> <li>No parking spillover should be allowed for railway station/terminals/bus stands</li> </ul>
b	Area along the mobility corridors	All Metro Corridors and the Radial Roads connecting the city	<ul style="list-style-type: none"> <li>Promote park and ride system at terminals, interchange points</li> <li>Keep at least 50m to 75m no parking zone near Metro Station and from important junctions on the approach roads</li> <li>If required, off-street parking facility may be given near Interchange points with minimum requirements. The initial supply may be based on the existing demand but can be further controlled based on the pricing strategy.</li> <li>The integrated fare system can be introduced to minimize use of parking bays from subordinate landuse.</li> </ul>



# Proposed Parking Strategy based on Zones

Zone No	Zone Description	Zone details	Strategy
c	Area near Mobility corridors	500 m stretch for roads approaching mobility corridors.	<ul style="list-style-type: none"> <li>Roads with more than 24M RoW and V/C ratio less than 0.7 may be considered for one side alternate day parallel parking</li> <li>Roads with more than 30M RoW and V/C ration less than 0.7 may be considered for two side parallel parking</li> <li>The 75m portion near junction of approach road and mobility corridor should be no parking zone.</li> </ul>
d	Residential Streets	Collector streets, internal residential roads	<ul style="list-style-type: none"> <li>Alternate day paid parallel parking should be provided for road more than 12m RoW</li> <li>No on street parking for roads with RoW less than 9m</li> </ul>
e	Sensitive Areas	Area near Hospital, Schools, Administrative buildings, Worship places, Heavy industries	<ul style="list-style-type: none"> <li>The sufficient parking should be provided within the plot boundary and the spillover on approach roads should be strictly banned</li> <li>Paid, time based off-street parking may be reserved for parking purpose t selected locations.</li> <li>In case of higher demand the area of parking plot should be capable for developing multi-storey parking facility. The area requirement varies based on the preferred technology for multi-storey parking.</li> </ul>

# Case Studies

- **Parking policy along the Metro Corridor**
  - On-street parking strictly prohibited
  - Parking to be allowed in controlled numbers in the off site locations
  - Park & drop and park & ride spaces to be created for hired vehicles (Rickshaws, NMT vehicles, Battery operated Cars , Taxi's, Auto Rickshaws etc.
  - Parking charges to be steep, and shall be time based.
  - Parking space for Rent a bicycle Scheme should be kept reserved incase concept to be launched in future
  - All parking sites to be equipped with Parking occupancy and Information system & with dynamic digital signage system.
  - Parking sites to be equipped with automatic parking charges collection system
  - Loading & unloading of goods to be allowed in night time only with clearly demarcated space
  - Incentives for employees
    - Initially for parking for small period
    - Monthly pass for PT mode
  - Extremely stringent enforcement of parking rules and penalties shall be stiff

# Gandhi Bagh Park

## Issues:

- Unregulated On-Street parking on both sides of North, East and West sides of the park
- 2 lane road to the West side of the park is reduced to a single lane road due to the presence of parked vehicles (**Fig. 1**)
- The Bus Stop present at the West side of the park is hidden by the parked vehicles (**Fig. 2**)
- The presence of Off-Street parking is unable to cater to the existing demand (**Fig. 3**)

## Solutions:

- Introduce Odd-Even parking along the sides of the park (due to constrained road width)
- Regularize On-Street parking introducing pay-park facility
- Strict enforcement to be taken up by Traffic Police to regularize the parking
- As suggested in CMP Nagpur, 2013; underground Off-Street parking, at Gandhi Bagh park, could be provided to cater the demand



# • Mangalwari Bazar Road

## • Issues:

- The street lies along a major commercial and public/semi-public area
- Short term unorganized On-Street parking is observed (**Fig. 2**)
- The presence of a junction near-by this location coupled with short term parking characteristics creates frequent traffic chaos
- The effective RoW off the 2L road is further reduced to Intermediate lane as a result of the parked vehicles maneuverability (**Fig. 1**)

## • Solutions:

- Introduce No-Parking zone at a distance of 75m from the junction
- Introduce On-Street Pay-Parking facility along with telescoping rates to ease out the congestion and avoid long-term parking by students from the educational institution
- Remove encroachment of the parking space by hawkers and strict law enforcement



# Strategic Intent and Objectives

Sl. No.	Policy objective	Strategies
1	To relieve congestion on roads	<ul style="list-style-type: none"> <li>▪ Banning of excessive parking on roads</li> <li>▪ Ensuring all the parking spaces are paid</li> <li>▪ Promotion of Metro &amp; NMT</li> </ul>
2	To ensure the safety of the pedestrians	<ul style="list-style-type: none"> <li>▪ Preventing the misuse of footpath for parking</li> <li>▪ Ensuring that places for parking of vehicles are used for the purpose</li> </ul>
3	Safety and utilization	<ul style="list-style-type: none"> <li>▪ Create organized and regulated parking services to defined parking lots</li> <li>▪ Using appropriate engineering standards – lighting, security, shelter</li> </ul>
4	To prevent misuse of parking space	<ul style="list-style-type: none"> <li>▪ Licensing of parking lots</li> <li>▪ Release the parking spaces which are being diverted for other uses</li> <li>▪ Promote parking for short duration (hourly duration)</li> <li>▪ Permit only authorized vehicle parking certificate holders to park in designated lots</li> </ul>
5	Parking facilities to help with mobility and transit	<ul style="list-style-type: none"> <li>▪ Parking lot at very inter-change point transport point of Metro corridor and stations</li> <li>▪ Feeder services need to be extended to all localities such that people are required to walk less than 250 m to access the transport</li> </ul>
6	To promote private participation in the establishment of a public parking facility	<ul style="list-style-type: none"> <li>▪ Modify building byelaws to promote private and public parking lots</li> <li>▪ Promote establishment of private parking lots, both at-grade as well as at multi-level</li> <li>▪ Encourage land owners to establish through tax, TDR for viability</li> <li>▪ Private landowners can be involved in the development of transport hubs, bus stands, bus bays and truck terminals</li> </ul>
7	To use parking management as a tool to reduce the demand for private mode of transport	<ul style="list-style-type: none"> <li>▪ Device suitable policies to promote the use of public transport facilities</li> <li>▪ Promote the use of shared vehicle</li> </ul>
8	Awareness and education	<ul style="list-style-type: none"> <li>▪ To identify “zero tolerance zones” for creating the sensitization. Gradually this can be scaled to the entire city</li> </ul>

# Need for Parking Pricing

- The pricing of parking can impact the vehicle travel patterns and assist in streamlining the traffic flows
- A variable pricing based on the location of parking linked to land price is a desirable model – Parking in the center of the city will be costlier than parking on the periphery as the value of the land is different
- Variable prices based on an hourly basis during the peak hours and lower prices during the off peak periods is recommended
- Fee collection can be through automated methods or manual means. This must be carried out within the guidelines drawn up by the authority
- Variable parking fee needs to be based on the size and type of vehicle – the larger the vehicle, the fee will be higher
- The increase of tariff for the number of hours parked will be cumulative scale with every increase of hour parked-the fee will be higher

# Proposed Zone wise Parking Charges

Duration / Mode wise multiplication Factor	Two Wheeler	Car	SUV	Auto Rickshaw	Mini Bus	2 Axle Truck	Private Bus
Up to an hour	1	2	3	2	2	4	3
Up to Two hours	1	3	4	2	3	6	4
Two to four hours	3	7	8	4	5	11	9
Four to Eight Hours	4	9	11	6	7	15	12
Eight to 12 Hours	5	11	14	7	9	18	15
12 to 16 Hours	5	12	15	7	10	20	16
16 to 24 Hours	5	13	16	8	11	22	17

Zone No	Zone Description	On Street parking	Off street parking
A	City Core area / Business District	3.55 X	2 X
B	Area along the mobility corridors	2.5 X	1.5 X
C	Area near Mobility corridors	1.75 X	1.25 X
D	Residential Streets	1.5 X	1X
E	Sensitive Areas	NA	1X

# Parking Fees Collection Equipments





# Thank You!

