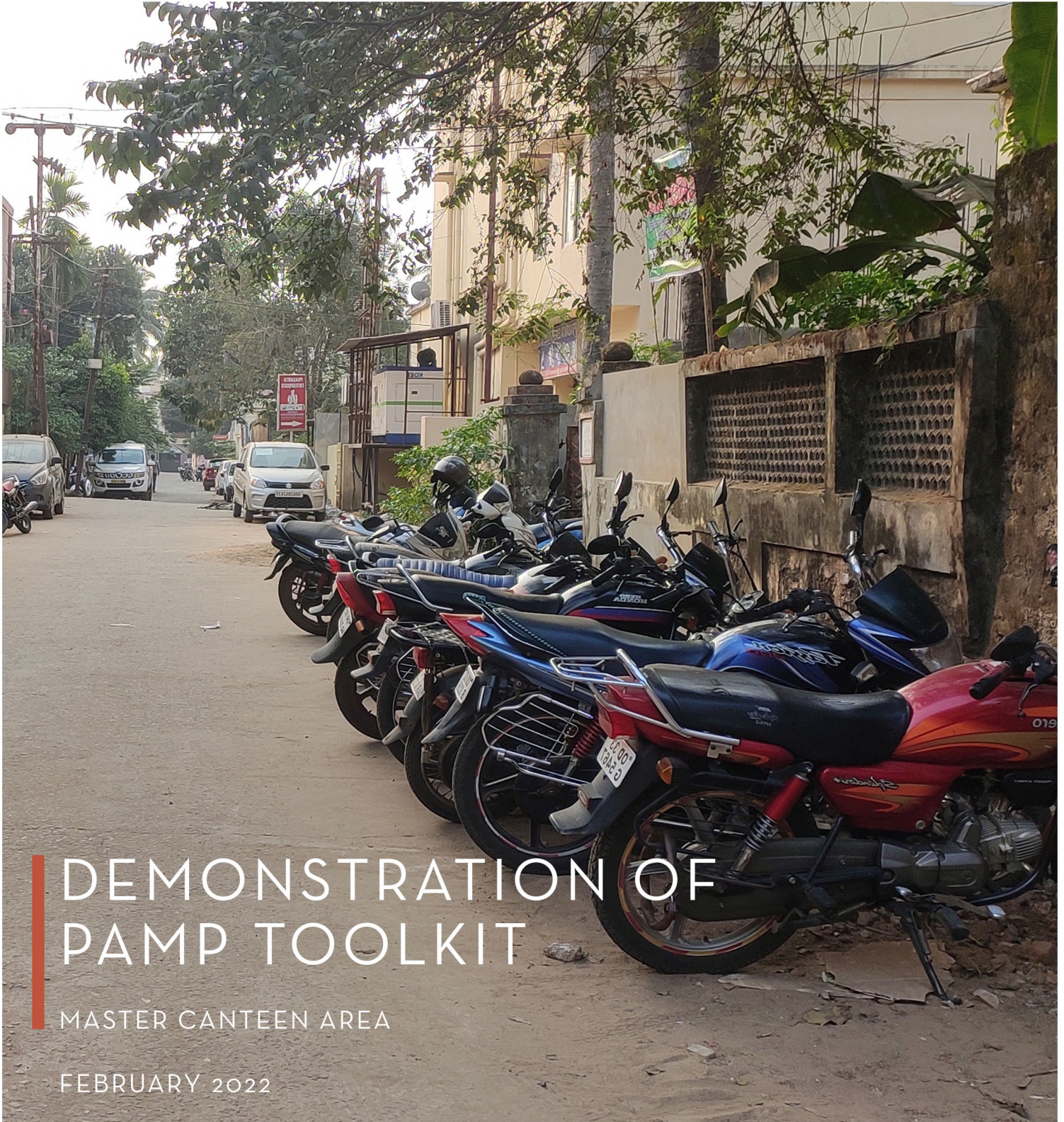




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# DEMONSTRATION OF PAMP TOOLKIT

MASTER CANTEEN AREA

FEBRUARY 2022

**CoE-UT** CENTER OF EXCELLENCE IN URBAN TRANSPORT

**CRDF** CEPT RESEARCH AND DEVELOPMENT FOUNDATION

**CEPT UNIVERSITY**

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New Delhi, India

February 2022

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The team would also like to thank all Parking Project Steering Committee (PPSC) members present throughout the course of this study for providing all necessary information and valuable feedback. We are also grateful to all the stakeholder participants present during the PAMP meetings.

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## ABOUT THIS REPORT

This toolkit has been prepared to support the implementation of the "Parking Policy for Bhubaneswar" in cooperation with the responsible agencies. The objective of the study is to prepare a guiding document for understanding the existing parking situation and defining a mechanism to monitor, implement and enforce the strategies proposed for parking management plan. The project has been supported as part of the bilateral technical cooperation project "Integrated Sustainable Urban Transport Systems for Smart Cities (SMART-SUT)" commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ) and jointly implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and Ministry of Housing and Urban Affairs (MoHUA), Government of India.

Volume 1 : The toolkit focuses on the process of demarcating the Parking Area Management Plan (PAMP) area, analysing the existing situation by conducting various primary and secondary surveys, strategies to be used based on parking issues and area characteristics and, evolving guidelines for implementation of prepared PAMP to improve the parking situation in the area. Survey format and stakeholder consultation questionnaire has been included in the Annexure.

Volume 2 : Step by step details for preparing PAMP for Master Canteen Area.

Volume 3 : Step by step details for preparing PAMP for KIIT University Area.

The toolkit would provide guidance to city officials and consultants involved in the preparation of Parking Area Management Plans. Using the two areas as examples, the application of the toolkit is shown in detail step by step.

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Source : CoE-UT, 2021

# ABBREVIATIONS

<b>BBSR</b>	Bhubaneswar Bus Rapid Transit System
<b>BDA</b>	Bhubaneswar Development Authority
<b>BMC</b>	Bhubaneswar Municipal Corporation
<b>BSCL</b>	Bhubaneswar Smart City Limited
<b>BUKC</b>	Bhubaneswar Urban Knowledge Centre
<b>BU</b>	Building use
<b>CAGR</b>	Compound Annual Growth Rate
<b>CCTV</b>	Closed Circuit Television
<b>CPMC</b>	City Parking Management Committee
<b>CoE-UT</b>	Center of Excellence in Urban Transport
<b>CRDF</b>	Cept Research and Development Foundation
<b>CRUT</b>	Capital Region Urban Transport
<b>FGD</b>	Focus Group Discussion
<b>GDCR</b>	General Development Control Regulations
<b>GPS</b>	Global Positioning System
<b>IPT</b>	Intermediate Public Transport
<b>ITS</b>	Information Technology Services
<b>KPI</b>	Key Performance Index
<b>LCMP</b>	Low Carbon Mobility Plan
<b>LCV</b>	Light Commercial Vehicle
<b>LRT</b>	Light Rail Transport
<b>MAV</b>	Multi-Axel Vehicle
<b>NMT</b>	Non-Motorised Transport
<b>OSRTC</b>	Odisha State Road Transport Corporation
<b>PAMP</b>	Parking Area Management Plan
<b>PBS</b>	Public Bicycle Share
<b>PPP</b>	Public Private Partnership
<b>PPSC</b>	Parking Project Steering Committee
<b>PT</b>	Public Transport
<b>PWD</b>	Public Works Department
<b>ROW</b>	Right of Way
<b>RTO</b>	Regional Transport Office
<b>UMTA</b>	Unified Metropolitan Transport Authority
<b>UTF</b>	Urban Transport Fund



Source : CoE-UT, 2021



## BACKGROUND

Bhubaneswar city has been experiencing heavy vehicular growth leading to high parking demand for some time now. The registered vehicles have increased at a CAGR of 16% from 2015 to 2019 with vehicle ownership growing at 12%<sup>(01)</sup>. In the last five years, the city has also seen a reduction in vehicular speed from 28 kmph to 26 kmph, implying increased congestion on roads.

The LCMP aims on improving the public transport and NMT mode share to 40% and 18% from a current mode share of 8% and 12% respectively. Overall, LCMP strategies promote the usage of sustainable modes of transport and discourage unauthorised parking through pricing and design interventions. The LCMP identified the need for a Parking Policy that provides guidelines for effectively managing on- and off-street parking in the city. The Parking Policy also identified the need to develop a local area level toolkit for defining and prioritising parking management strategies with an implementation framework. This toolkit has been further demonstrated for two areas as suggested by Bhubaneswar city authorities, based on their location in the city (city centre and peripheral location) and activity characteristics (commercial, institutional, industrial, etc.).

1. Master Canteen Area – It is the core of the city with a Railway Station, major bus station, major commercial area (Unit I & Unit II markets) and state secretariate building located in the area.
2. KIIT University Area – Located in the northern periphery of the city, it is an educational hub with major universities like KIIT University, CIPET, NIFT, LV Prasad Eye Institute and KIMS Hospital. The area also has major industries namely Kurl-on and Lisa plastics.

## DEMONSTRATION AREAS

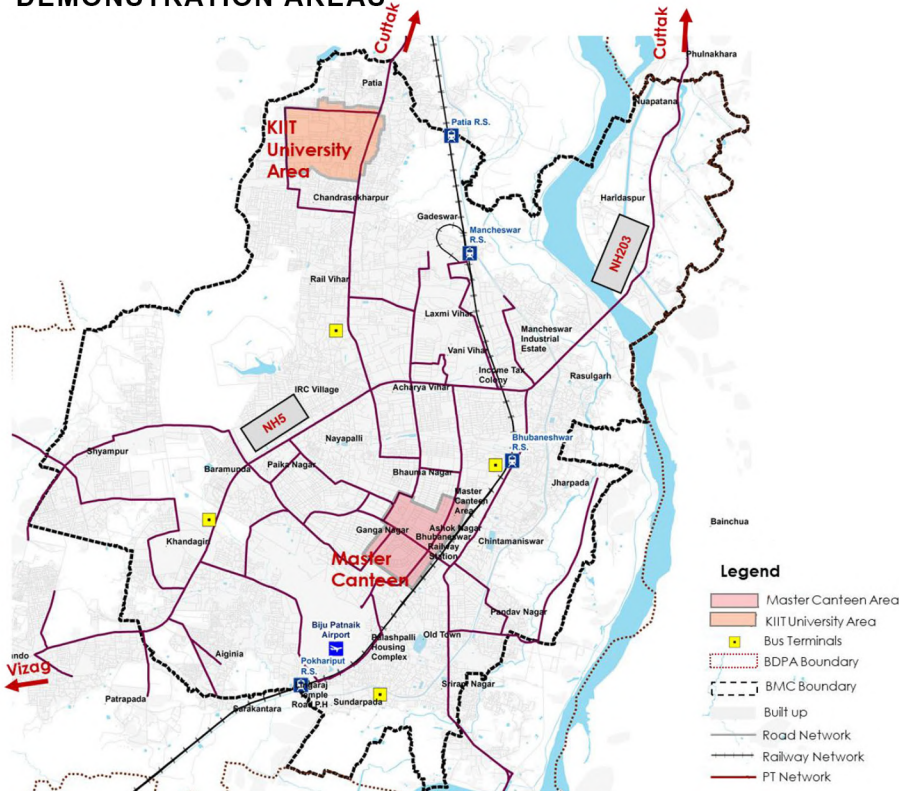


Figure 1 : Bhubaneswar PAMP demonstration areas

Source: Map from Service Level Benchmarking, 2019 – CoE-UT, CRDF

As suggested by BMC officials, the plan has been prepared considering strategies and measures to manage the overall parking supply and user information strategies. The strategies and measures to manage parking demand, specifically, parking permit and parking pricing will be finalised in house by BMC officials at a later stage and hence are not detailed out for these areas.

<sup>01</sup> Source: <https://vahan.parivahan.gov.in/vahan4dashboard/> and CoE-UT

# 01 DESCRIPTION OF MASTER CANTEEN AREA

Located in the heart of Bhubaneswar, the Master Canteen area is a planned Central Business District (CBD) in the city. The main railway station, bus station and commercial areas of Unit 1 and Unit 2 markets are located here. In addition, this area also includes the Odisha State Secretariat and government residential areas and is well-connected by city bus services with 22 buses passing in an hour at Master Canteen bus stop. Owing to the importance of the railway station and requirement of infrastructure to integrate different modes, there are plans to develop it as a Multi-Modal Hub (MMH).

Though this area has good PT connectivity, congestion on major streets is observed along with encroachment on footpath and public spaces, leading to safety concerns. Hence, it is important to have a parking management plan with measures to improve existing parking situation and road safety. It also promotes sustainable travel modes in view of increasing the PT and NMT mode share as proposed in LCMP,2020 for Bhubaneswar city.

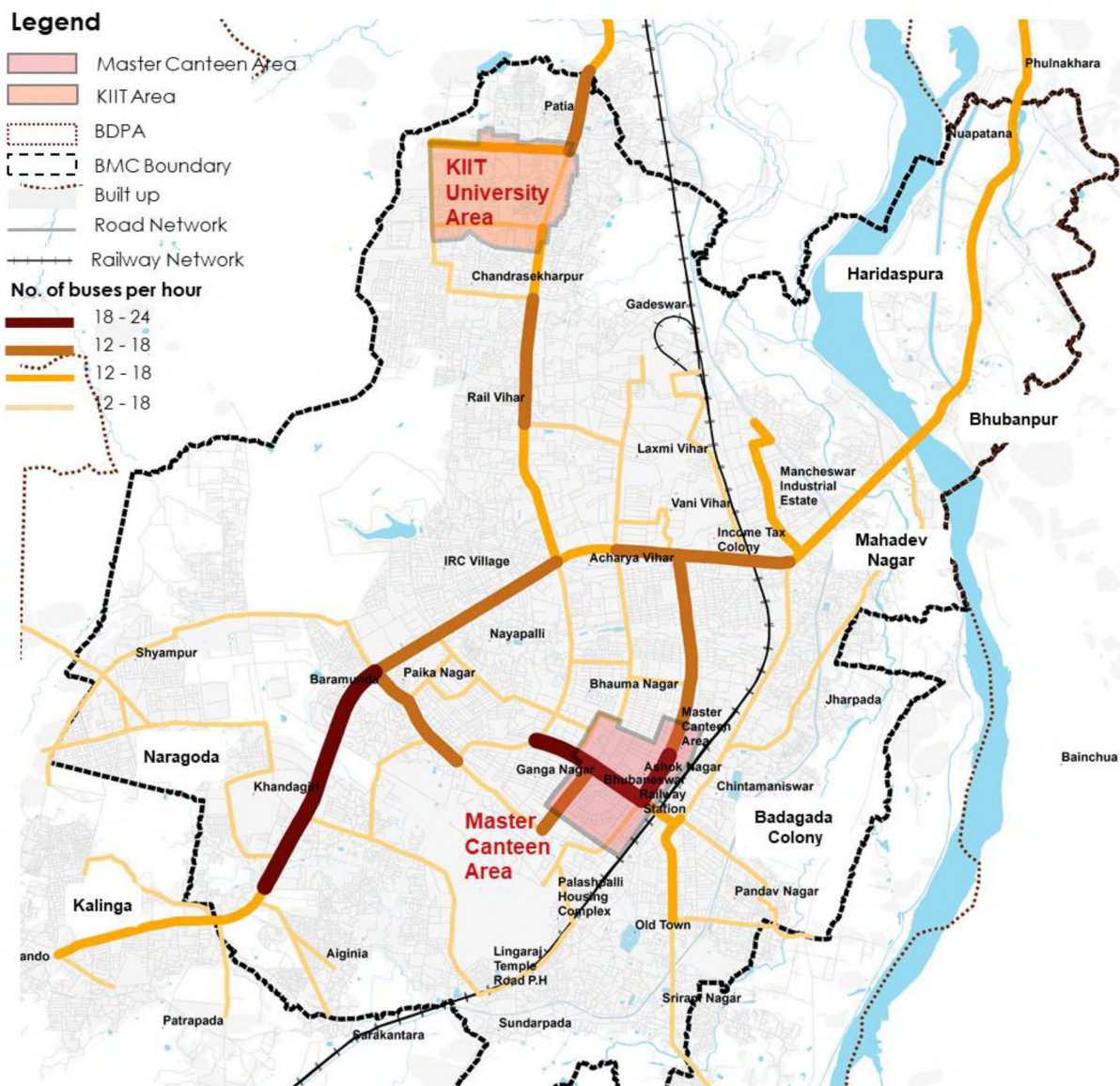
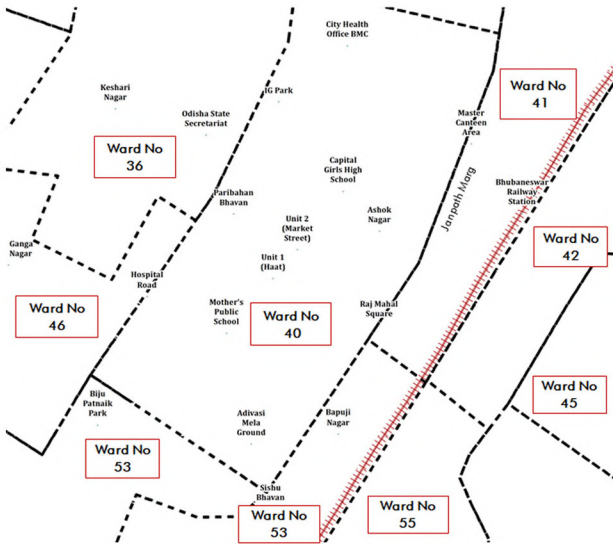


Figure 2 : Public Transport Connectivity in Bhubaneswar City

Source : MO Bus Network – CRUT, 2020

# 02 DEFINING PAMP AREA

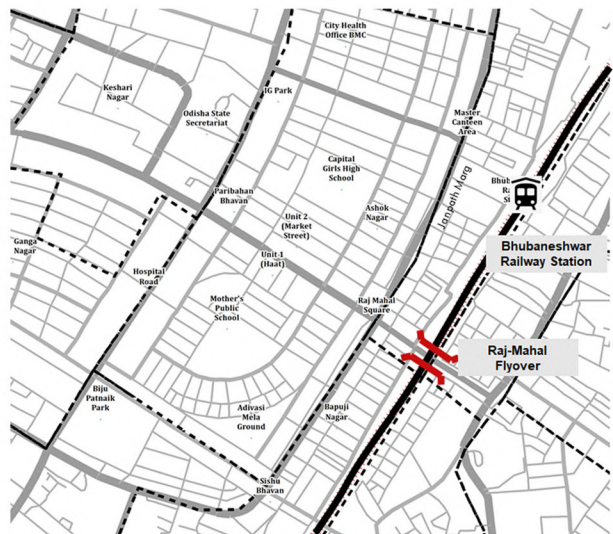
As mentioned in Part A of the Toolkit section 3.2.1, the PAMP area has been delineated by considering administrative boundaries, road network, transit network and other major activities in the area. The study area considered is around 2.6 sq. km consisting of ward nos. 40, 41 and some part of ward no. 53.



Source: Administrative Boundary – Bhubaneswar One website

## STEP 1 Administrative Boundary (Ward)

Ward number and Area  
 40 – 1.86 sq.km  
 41 – 1.09 sq.km  
 53 – 0.89 sq.km

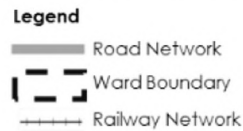


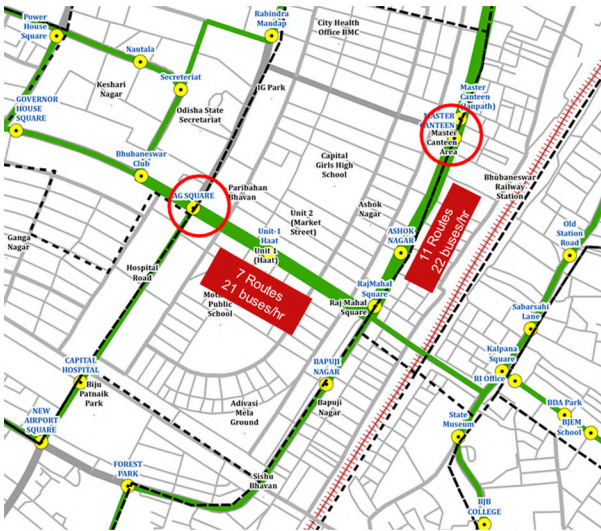
Source: Road Network – Primary Survey, 2021

## STEP 2 Road Network

Janpath road and Rajpath road ( RoW> 36m) are the major arterial roads connecting the area to other parts of the city. Hospital road and Sachivalay road are also important roads connecting state secretariate buildings and capital hospital.

The nearby minor roads have also been considered as they might be experiencing parking spillover from the main road. Railway Line dividing the city into East & West Zones. Only Raj-Mahal Flyover is connecting East-West zones in this area.





Source: Transit Network – Bhubaneswar One website

### STEP 3 Transit Network

The Master Canteen area with the Railway station, bus station and IPT stands functions as a transport hub and the area is already well connected by a bus network.

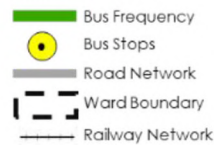
High Bus Frequency

1. Master Canteen
2. Ashok Nagar
3. Raj Mahal Square
4. Unit 1 Haat
5. AG Square

**Master canteen stop- Effective headway 2 mins; wait time 1 min**

**AG square - Effective Headway 3 min and wait time 1 min**

Legend



### STEP 4 Land Use / Built Use

Commercial along the Janpath Road, Rajpath road

Institutional (Schools) in Unit 1 and 2

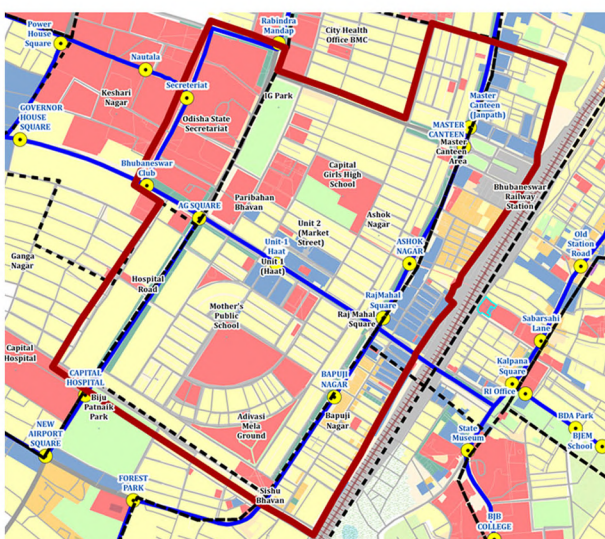
Government office along Sachivalay Marg

Majorly Residential (42%) and Institutional (20%) with few Commercial (15%) pockets at Unit 1 & Unit 2 and along Janpath Marg

Legend



Source: Land Use – Primary Survey, 2021



Source: Land Use – Primary Survey, 2021

### STEP 5 PAMP Boundary

Master Canteen Area - CBD of the city with railway station, major bus stops (master canteen and AG square) and major market areas. Area of 2.6 sq. km is considered and PAMP study area.

Road network - Area including major roads namely Janpath Marg, Rajpath Marg, Sachivalaya Marg, Udyan Marg and MG road. The area has a total 48 km road network.

Legend



Figure 3 : PAMP area delineation

## 03 DATA COLLECTION

In line with the PAMP Toolkit section 3.2.3, primary and secondary data were collected for the area. Details regarding administrative boundary, organizational structure for parking management, contracts for parking management, parking locations in the area, upcoming development and proposals have been collected as secondary data. The primary surveys were conducted in the month of January 2021.

Table 1 : List of secondary data collected

Sr no	Data Required	Purpose	Data collected
1	Details of parking locations with parking charges	To know the existing supply in the area and existing parking charges	List of 18 locations with their area and parking capacity <a href="https://www.bmc.gov.in/">https://www.bmc.gov.in/</a>
2	Tender / Contract with parking management agencies for different parking locations including contract period, timeline, agency responsible	To understand the existing operations and parking management system adopted in the city. To understand roles and responsibilities of each agency, penalties levied etc.	Auction Sale notice from BMC for Master Canteen Area was received.
3	Other documents / plans under consideration for technology improvement (ITS, AFC etc.)  MLCP and MMHT (Railway Station) in Master Canteen Area	To understand the upcoming developments in the area and steps taken by city authorities to manage the existing parking situation	Plans / documents / PPT collected on: 1. MMHT 2. PMP for 40 km corridor
4	Vending zones in the area  Location of vending zones, no. of vendors accommodated, type of vending activity	To know the legalised vending zones in the area and land requirement for parking in the nearby areas	Data collected from Bhubaneswar One and BMC website.
5	Roles and responsibilities of different agencies involved in parking planning, management, and operations  Details on enforcement and regulations for parking in the area	To analyse gaps in the existing institutional setup for parking management  To understand existing parking management system and propose improvements in terms of enforcement of rules and regulations	Details regarding roles and responsibilities of different agencies was collected by discussing with BMC officials and from BMC website - <a href="https://www.bmc.gov.in/">https://www.bmc.gov.in/</a> Enforcement details have been discussed with Traffic police and data also received from website <a href="https://bhubaneswarcuttac.kpolice.gov.in/policestations/traffic/">https://bhubaneswarcuttac.kpolice.gov.in/policestations/traffic/</a>

Sr no	Data Required	Purpose	Data collected
6	Information on vacant Government land	Land parcel on map with area and ownership was required in case of need for providing more parking supply in the area	Data unavailable
7	Ward wise property tax information <ul style="list-style-type: none"> <li>• Registered properties by different categories in each ward.</li> <li>• Non-residential properties by category and land area (sq. m)</li> </ul>	Data required for proposing parking charges as proposed in Parking Policy Bhubaneswar	Data unavailable

Table 2 : Primary surveys conducted in Master Canteen area

Sr no	Survey Type	Master Canteen Area (Samples)	Details collected
1	Road Network Inventory	47.3 km	Carriageway width, availability of median and footpaths with width, presence of parking bays, encroachment details, availability of streetlights and abutting land-use
2	Land use & Built Use Survey	2.61 Sq.km	Information on abutting land use and built use- including building height, ground floor use and parking details
3	Parking Inventory & Registration Plate Survey (off street & on street parking locations)	18 locations	Sample surveys on major roads in the area with non-residential abutting land use. Surveys were conducted at each location for 15 min duration in peak hour of a working day
4	Activity Surveys (Commercial Use)	100 samples	Samples from each of the built use category which is non-residential to assess trip attracted per day and mode used - Regular and visitors

## 04 SITUATION ANALYSIS

Based on the data collected and primary surveys, further analysis was carried out to understand the major issues and potentials from the parking perspective. It is observed that the NMT infrastructure (footpath and cycle track) are encroached by parked vehicles. Minor roads near Janpath Marg experience heavy spill-over of unorganised parking due to lack of enforcement and free parking. Further, to analyse the parking situation in the area, detailed information was collected, and surveys were conducted for analysing the existing eighteen off street parking locations (parking bays) near the major activity centres in the Master Canteen area.

Table 3 : Data analysis for finalising strategy mix in PAMP

Sr no	Data Analysed	How it is used	Strategies
1	Overall parking demand in the area and along major corridors	It is used in analysing parking requirement in the area and efficient allocation of the road space for parking	Managing parking demand
2	Parking turnover and duration at activity centres (commercial, recreational, etc.)	To understand short term/long term parking demand and vehicular composition at a particular location	<ol style="list-style-type: none"> <li>1. Parking pricing based on short/long term parking,</li> <li>2. Parking permit to prevent spill-over</li> <li>3. Street designing for efficient allocation of space for different modes</li> </ol>
3	Impact of parking on PT and NMT other infrastructure facilities	To identify gaps in existing street designs in terms of faculties for NMT infrastructure the encroachment details and efficiency of existing enforcement regulations in the area	<p>Street designing to manage parking and efficient allocation of space.</p> <p>Enforcement and regulation strategies</p>
4	Reviews of existing institutional setup, roles and responsibilities specific to parking management	To understand and analyse gaps in the existing setup.	Integrated setup for planning and implementation of PAMP in an area.

## 4.1 LAND USE AND MAJOR ACTIVITY CENTRES

Major activity centres have been identified to understand the nature of the activities and parking requirements. The major activity centres in the area are Unit 1 & 2 markets, residential blocks, State Secretariat, retail markets along Janpath Marg, Adivasi Mela ground and educational buildings namely Utkal university and Kamala Nehru Women College.

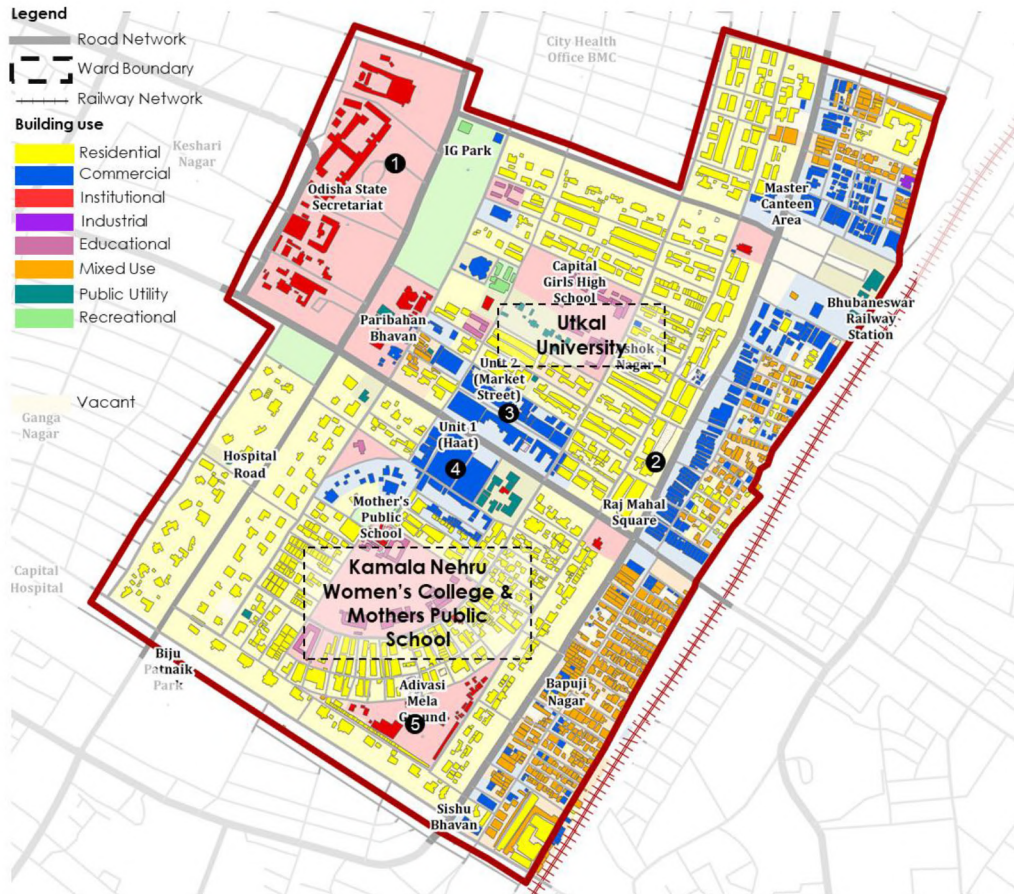


Figure 4 : Major activity locations, Master Canteen area

Source: Site Reconnaissance Survey, 2020



1. Odisha State Secretariat



2. Major Commercial Corridor – Janpath Marg



3. Unit 2 Market



4. Unit 1 Market





5. Adivasi Mela Ground

Figure 5 : Major activity locations, Master Canteen area  
Source: Site Reconnaissance Survey, 2020

Further, the built use and ground floor use along these activity areas have been analysed. It is observed that most of the residential use typology is row house, with available parking spaces within the premises. Since commercial and mix use buildings generally lack parking facilities, on-street parking is prevalent in these locations and, as a result, spill-over of parking happens on the carriageway and the footpaths. Organized parking is neither available for private modes nor for IPT modes in the vicinity (within 100 m buffer) of bus stops.



Figure 6 : Built use and ground floor use details  
Source: Primary Survey, 2020

## 4.2 PARKING ANALYSIS

This section details out analysis of parking along major commercial area, authorized and unauthorized on-street parking in the area. Existing situation has been analyzed in terms of parking utilisation, occupancy, duration, vehicular composition, and pricing.

### 4.2.1 PARKING AT COMMERCIAL AREAS

Activity surveys were conducted by interviewing shop/ factory owners/ employees on a working day to know details about availability of parking, parking duration of a customer, employee, and freight vehicles in case of loading and unloading. The area is dominated by residential use but has high commercial usage abutting major corridors (Janpath and Rajpath Marg). Also, major wholesale and retail markets (unit 1 & Unit 2 markets) are in the area. Of total 15% commercial use in the area, around 75% is under retail, 16% is under wholesale and 9% is under hotels and restaurants. Institutional buildings account for the rest (20%).

As per the activity survey, it was found that 95% of the people visiting the commercial areas occupy about 5000 ECS/ day as parking, which is mostly short-term of less than 30 minutes. The remaining 5% owners and workers have full day parking requirement, occupying around 100 ECS.

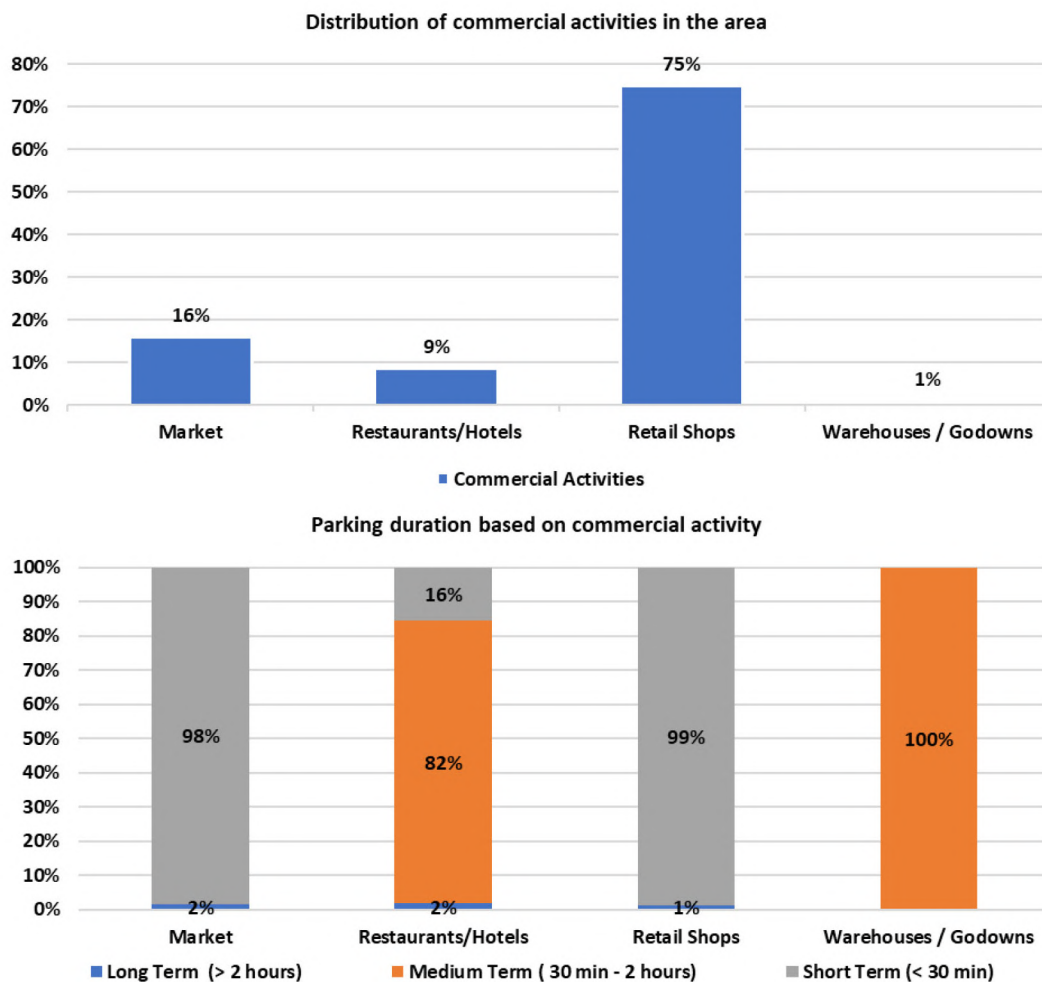


Figure 7 : Distribution and parking duration of commercial activities in the area

Source: Activity Survey, 2020

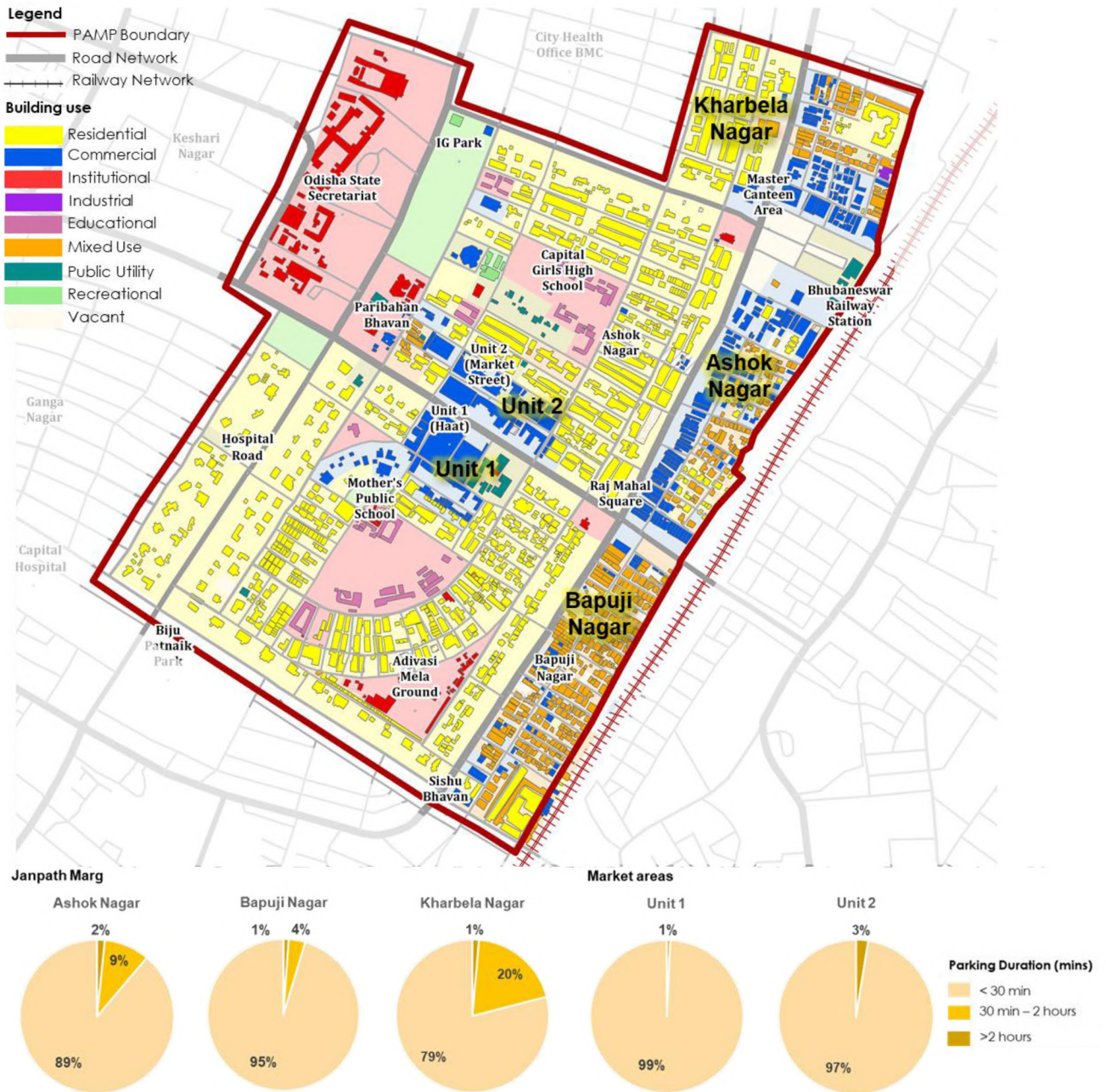


Figure 8 : Parking duration at activity survey locations

Source: Primary Survey, 2020

About 90% of the parking in the commercial areas is for short-term parking (< 30 min), 8 % is for medium-term parking (30 min–2 hours) and 2 % is for long term parking (> 2 hours).

## 4.2.2 UNAUTHORISED ON STREET PARKING

The road widths and encroachment details that of the total network length of 47.3 km, more than 46% has been encroached upon by parking (as seen along Janpath Road) and 12% by both vending activities and parking (as evident along roads between Unit 1 and 2 market areas).

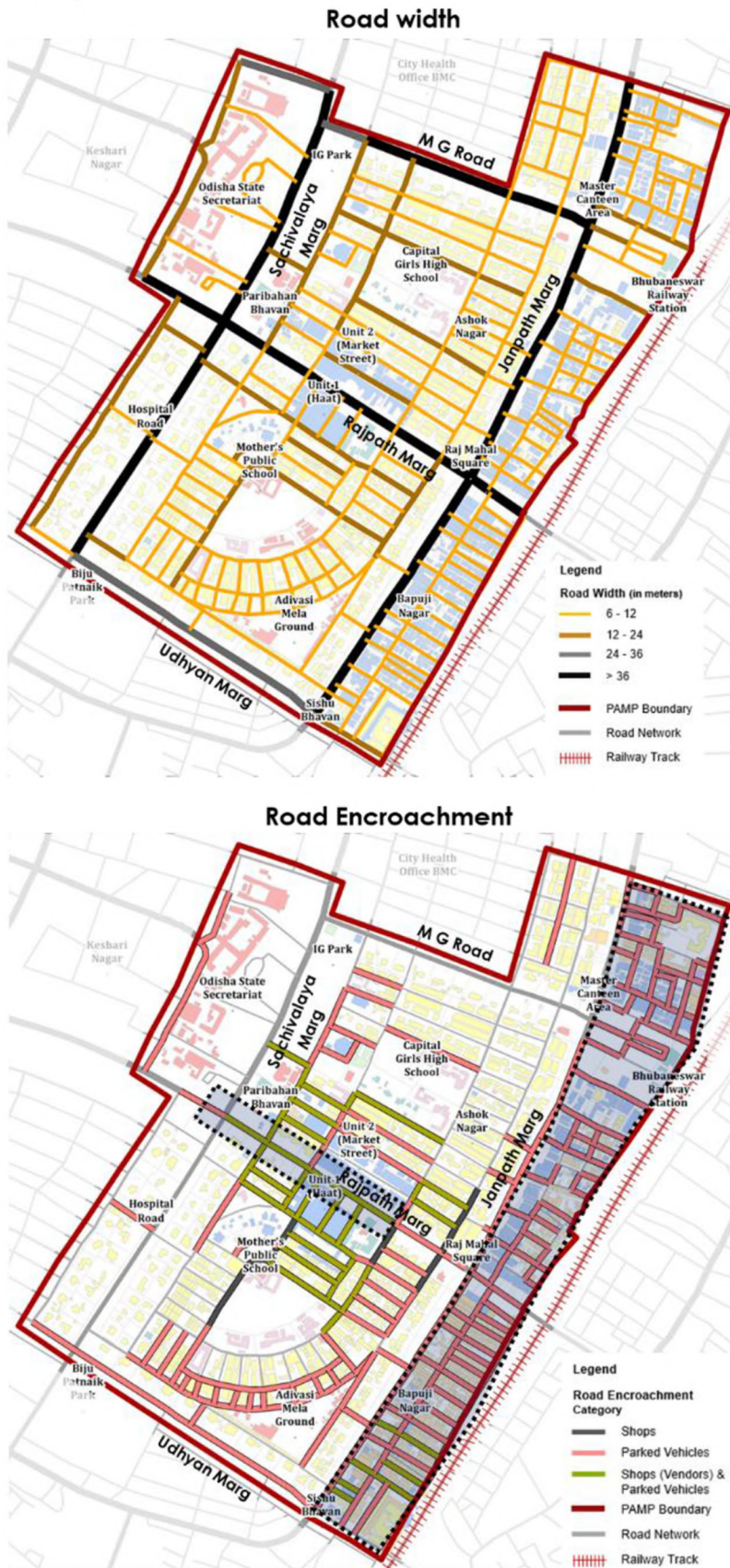


Figure 9 : Road width vs road encroachment  
Source: Road Network Inventory – Primary Survey, 2020

Table 4 : Road width distribution and encroachment

Road Width (m)	Road Encroachment (Road Length in km)			No Encroachment (Road Length km)	Total Road Length (km)	% Road Width
	Parked Vehicles	Vendors & Parked Vehicles	Shops Stalls			
6-12	15.6	3.23	0.5	12.2	31.6	67%
12-24	2.9	1.7	0.4	3.3	8.3	18%
24-36	0.9	-	-	0.4	1.3	3%
> 36	2.5	0.6	-	2.9	6.1	13%
Total	21.9	5.6	1.0	18.8	47.28	-
<b>Road Encroachment (%)</b>	<b>46%</b>	<b>12%</b>	<b>2%</b>	<b>40%</b>	-	<b>100%</b>

The table shows details of footpath encroachment. About 76% of the road network in the area has footpaths out of which 50% are in good condition. It is observed that 25% of the total footpath length has been encroached upon and 15% of the encroachment is by parked vehicles. Around 22% of the footpaths with width < 2.5 m are encroached upon by parked vehicles. Vendors and parked vehicles are the main encroachers along the footpaths of Rajpath Road. On the other hand, footpaths along the Janpath Road from Rajmahal Square to Shishu Bhawan are mainly encroached upon by parked vehicles.

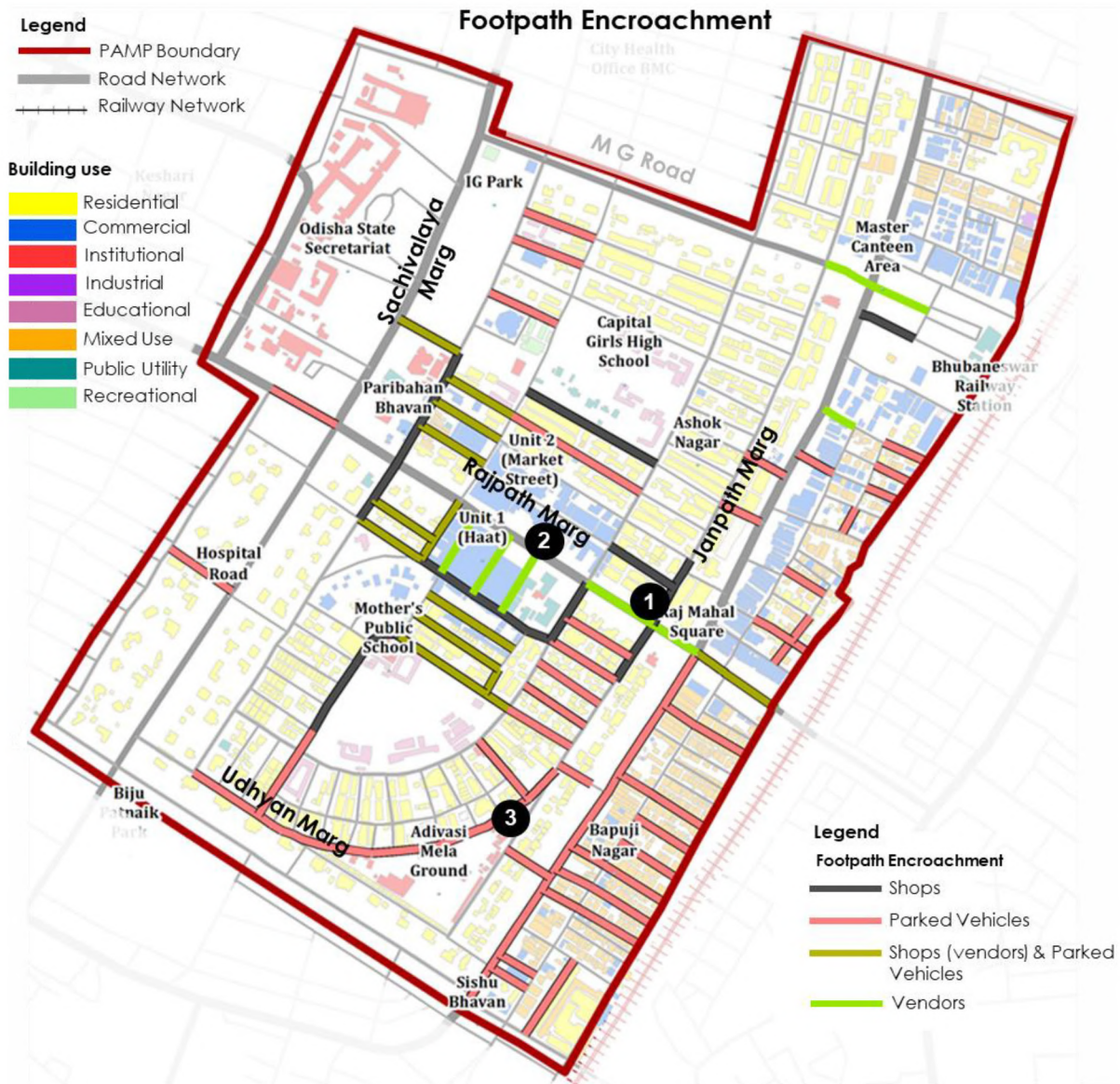


Figure 10 : Encroachment on footpath

Source: Road Network Inventory – Primary Survey, 2020



1. Janpath Marg (near Raj-mahal Square) Encroached by shops and parked vehicles



2. Rajpath Marg (near Raj-mahal Flyover) encroached by vendors and parked vehicles



3. Janpath Marg (near Bapuji Nagar bus stop) - encroached by parked vehicles

Figure 11 : Pictures of footpath infrastructure in the area  
Source: CoE-UT, CRDF, 2021

Table 5 : Details of footpath encroachment by footpath width

Footpath Width (m)	Footpath Encroachment (Road Length in km)			No Encroachment (Road Length in km)	Total Road Length (km)	% Footpath Width
	Parked Vehicles	Vendors & Parked Vehicles	Shops Stalls			
1.5	3.78	0.27	0.58	8.12	12.75	27%
2.5	2.17	1.22	1.69	8.96	14.03	30%
3		0.01	0.16	3.34	3.51	7%
> 3	1.05	0.35	0.41	1.79	3.61	8%
No Footpath		0.22	0.3	12.86	13.37	28%
<b>Total</b>	7	2.08	3.14	35.07	47.28	
<b>Footpath Encroachment (%)</b>	<b>15%</b>	<b>4%</b>	<b>7%</b>	<b>74%</b>		<b>100%</b>

Source: Road Network Inventory – Primary Survey, 2020

### 4.2.3 AUTHORISED ON STREET PARKING LOCATIONS

Registration plate surveys at an interval of 15 min duration for peak hour on a working day was conducted at the 18 parking locations detailed in table below. These parking locations are designed parking bays along Janpath Marg and operated by a private agency under BMC. The section details out parking demand in terms of turnover, parking duration and vehicle composition at each location.

Table 6 : Details of BMC parking locations, Master Canteen area

S No	Location Description	Parking Space (sq.m)
<b>Shishu Bhawan to Raj Mahal Junction (designed parking bays)</b>		
1	Parking lot from in front of Raj Electronics to Suzuki showroom, Ashok Nagar	61.2
2	In front of Casino Lodge to Raj Electronics, Bapuji Nagar	102.4
3	In front of Raj Electronics to Great Eastern, Bapuji Nagar	52.0
4	Infront of Bharat furniture, Bapuji Nagar	19.5
<b>Raj Mahal to Master Canteen Junction (designed parking bays)</b>		
5	In front of Khadim shoes to Shree Leather	61.3
6	Hotel Royal Midtown to Arya Palace Drain No-6	22.3
7	Ashoka market to City Residency	63.4
8	Infront of Royal Midtown Hotel to Narayan Ayurved Bhawan Showroom	28.8
16	Parking lot in front of Rabindra Medical Hall	54.0
<b>Master Canteen Junction to Kotak Bank (On-street Parking)</b>		
9	Parking Space opposite Hotel Swosti, Kharvel Nagar	42.4
17	On-street Parking lot from City Jewellery to in front of Lalchand Jewellery	51.2
<b>Access Road to Railway Station (On street Parking)</b>		
10	Parking space in front of Hotel Keshari, Kharvel Nagar (on-street)	47.4
<b>Rajpath Marg (Unit 1 &amp; Unit 2 markets) (On street Parking)</b>		
11	Unit I Hatt Cycle Stand, (Only for 2W), Unit-I	119.7
12	Outside of Unit 1 Haat (Only for 4W), Bapuji Nagar	118.4
13	Parking space in front of Keshri Mall, unit II, Ashok Nagar	60.4
14	Parking Lot at Back side of Kalamandir, Unit-II, Ashok Nagar	63.0
15	Parking Space in Between IG Park and jayadev bhawan, unit II, Ashok Nagar	34.7
18	Old Bus stand to Durga mandap on-street parking	120.0

Source: Bhubaneswar One website

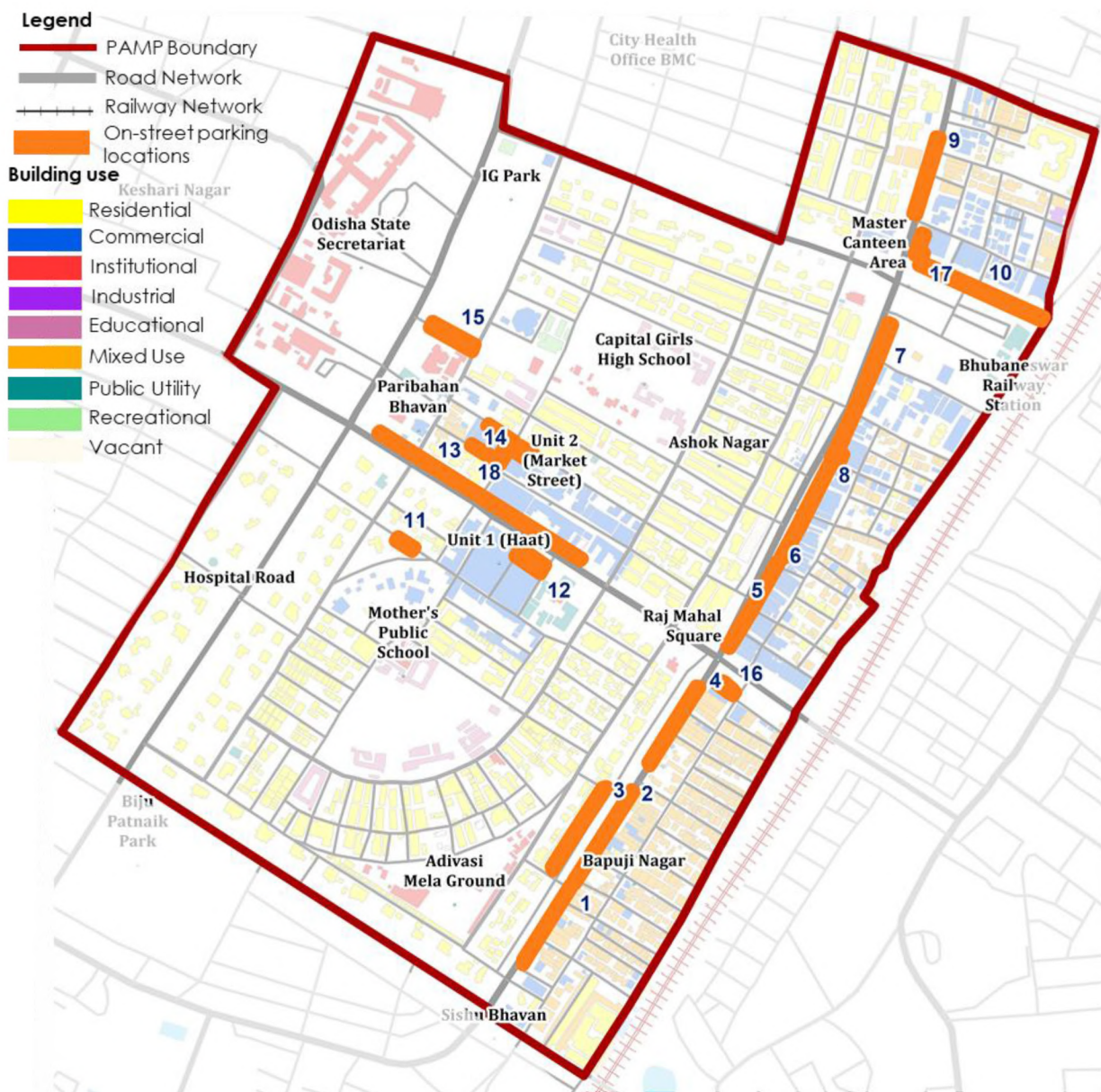


Figure 12 : BMC parking locations in Master Canteen area  
 Source: Parking locations, Bhubaneswar Smart City website

### 4.2.3.1 PARKING UTILIZATION AND DURATION

Based on the turnover values, the parking location seems to be overutilized on Janpath Marg (major commercial corridor) while those in other areas (residential, IG Park) seems underutilized. On Rajpath Marg, the parking supply is adequate for the current condition as the occupancy is between 85–100% but this might not be sufficient in the future and hence management is required.



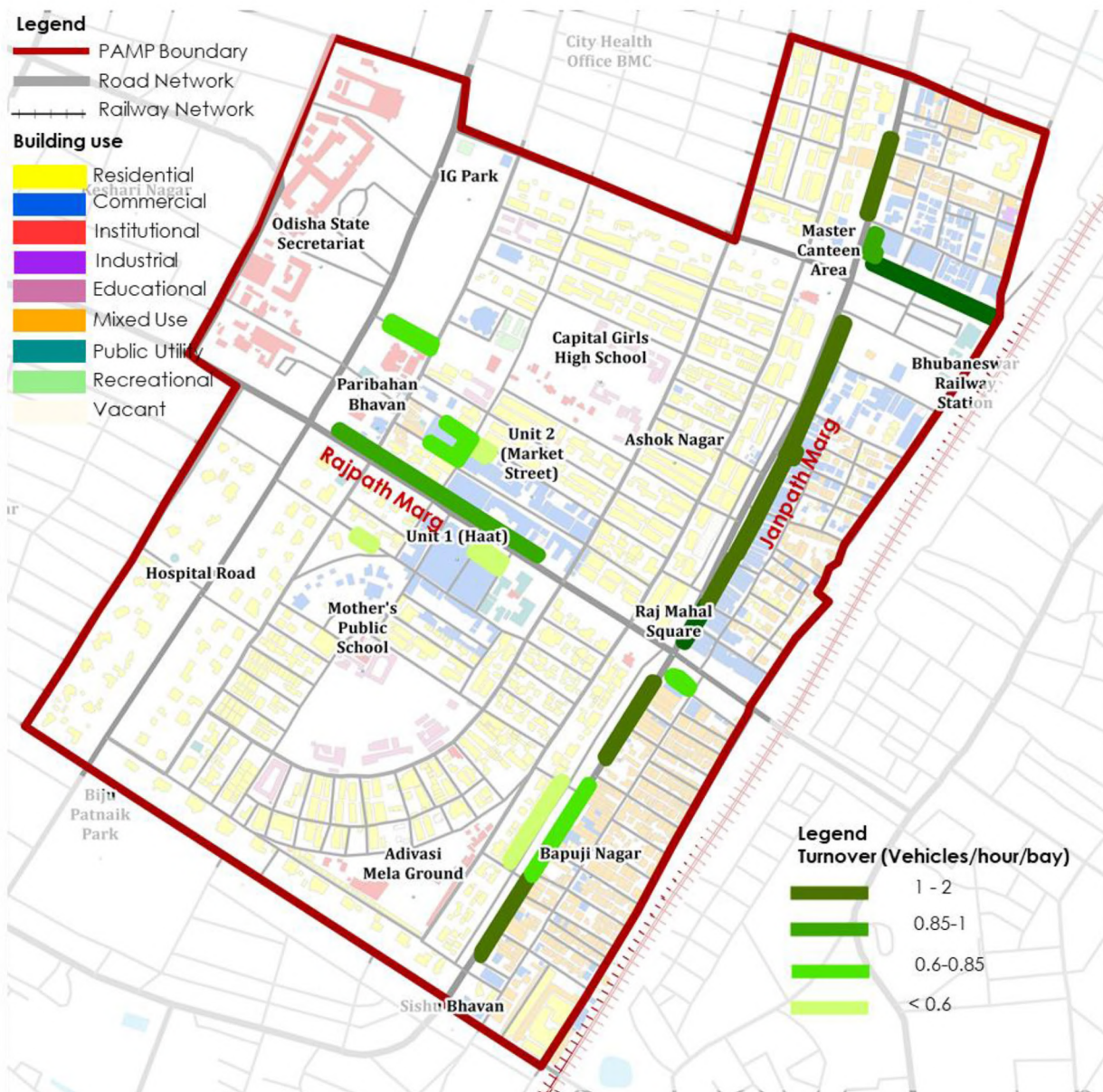


Figure 13 : Parking turnover at BMC owned parking locations

Source: Parking Data – Primary Survey, 2020 & Parking Data from LCMP, 2019

The peak hour near market locations is 12:00–2:00 pm while at Janpath Marg it is 3:00–5:00 pm. The average duration of parking in the Master Canteen Area is around 32 min and 70% of the vehicles parked for more than 30 mins till 2 hours. The freight vehicles are mainly parked on the common plot behind Unit 1 market area for 30–45 mins between 12:00–1:30 pm.

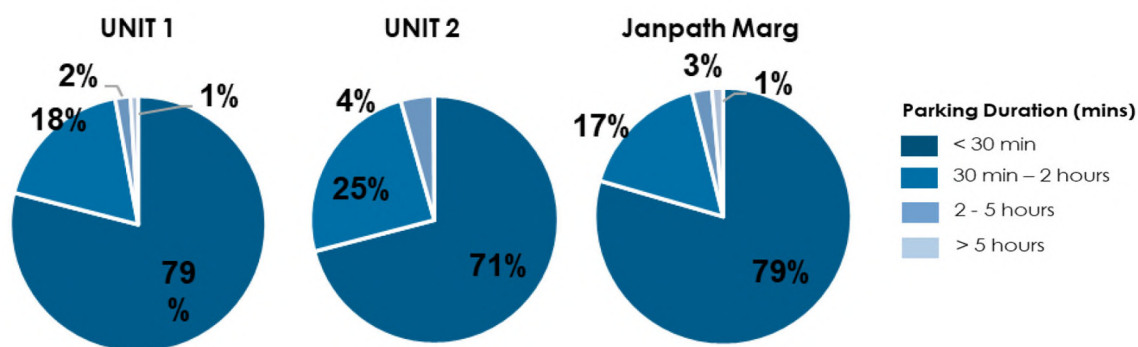


Figure 13 : Parking duration at major locations

Source: Parking Data – Primary Survey, 2020 & Parking Data from LCMP, 2019

### 4.2.3.2 VEHICULAR COMPOSITION AT PARKING LOCATIONS

The vehicular composition at major parking locations in the area is presented below. It is observed that in market areas, two-wheeler parking dominates most of the parking with about 40% – 48% share. However, near the Master Canteen area, the proportion of cars is higher at 46%. Parked autos (autorickshaw) vehicles are almost the same at all the locations. The share of parked autorickshaws is around 19% in all the areas.

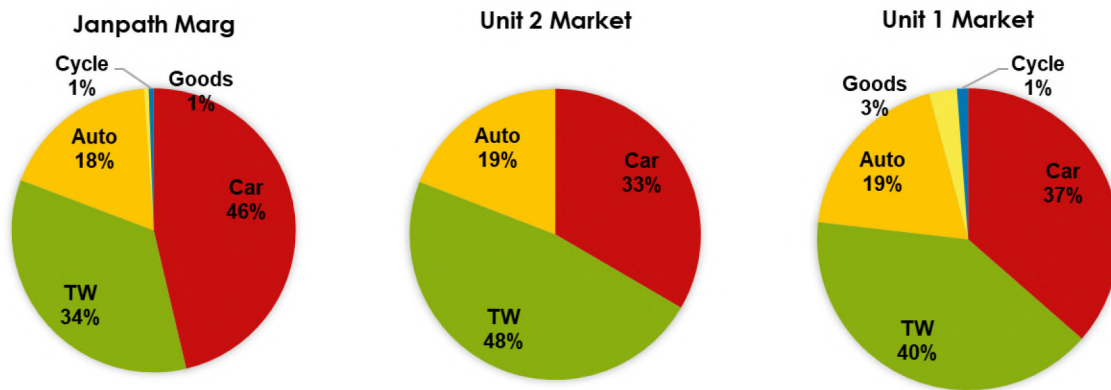


Figure 14 : Vehicle Composition at major parking locations

### 4.2.3.3 PARKING CHARGES

The minimum rate for 0–2 hours for 2W is INR 5 and for car it is INR 20. The BMC provides 40% discount for electric vehicles and no parking charges for cycles. The authority has also reserved 10% of the total parking area for NMT at Unit 1 parking and 5% at other areas.

Table 7 : Existing parking charges in the area

Hours	2-Wheeler	Auto Rickshaws	Cars/LCVs	Trucks/MAVs
	Base rate in INR			
0–2 hours	5	5	20	25
2–3 hours	15	20	40	50
3–4 hours	25	35	60	75
4–5 hours	35	50	80	100
> 5 hours	extra Rs. 20 for every hour			

## 4.2.4 WALKING AND CYCLING INFRASTRUCTURE

The details on cycle tracks, Public Bike Sharing (PBS) stops and footpath in the area have been collected in the road inventory survey. It is observed that all major roads have cycle tracks (segregated or painted). Segregated cycle tracks, about 9 km in total, are available only along Janpath Marg and Hospital road, along with four PBS stops (three on Janpath Marg and one near AG square). Other major roads, namely Rajpath Marg, Sachivalaya Marg and Udhyan Marg, have painted cycle tracks but lack PBS facilities. Mahatma Gandhi road does not have cycle tracks and PBS facilities.

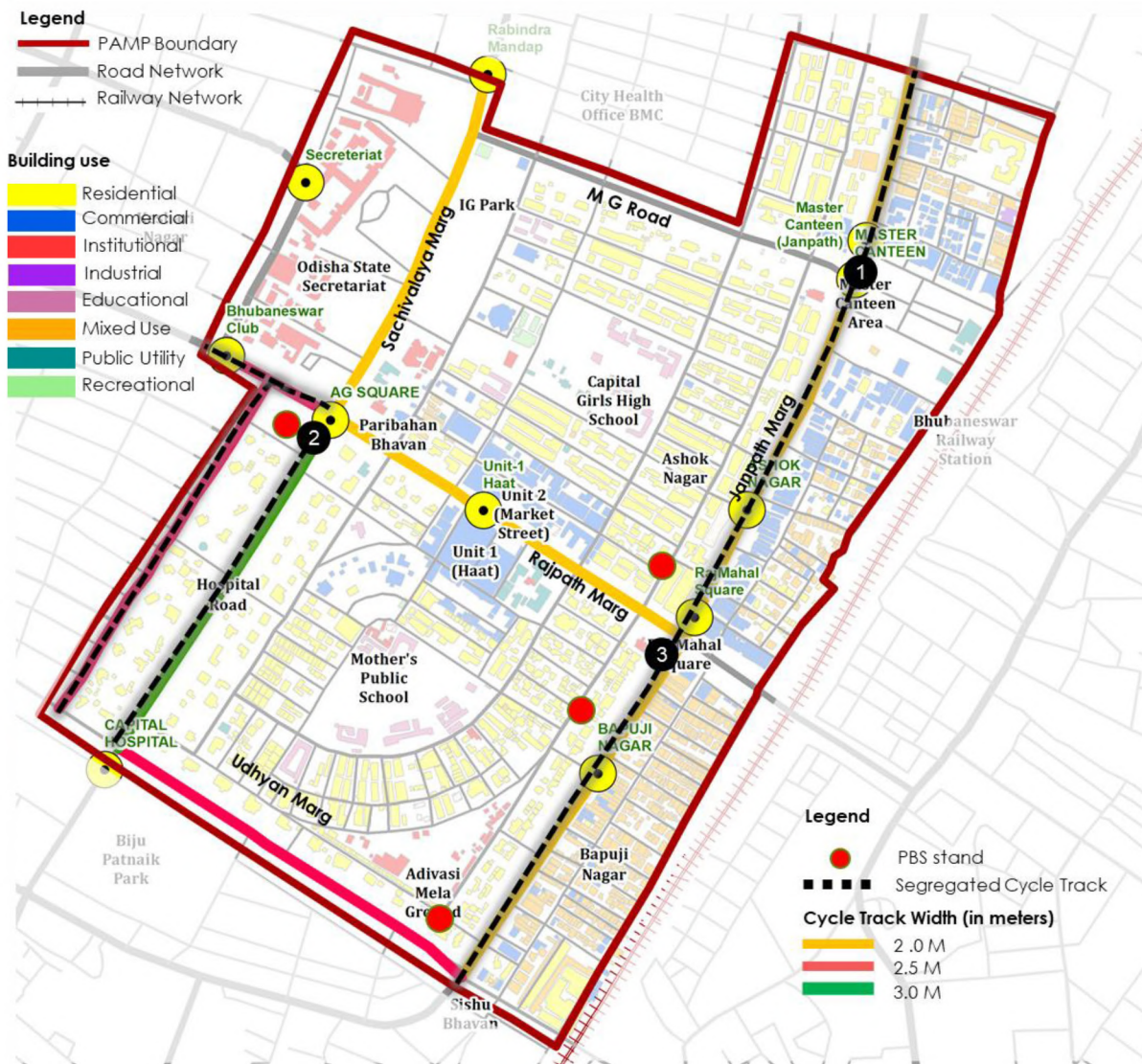


Figure 15 : Existing cycle track details

Source: Road Network Inventory – Primary Survey, 2020



1. Janpath Marg (near Master canteen square)



2. Hospital road (between AG square to Capital Hospital)



3. Janpath Marg (between Rajmahal square to Shishu Bhawan square)

Figure 16 : Pictures of existing NMT infrastructure

Source : CoE-UT, CRDF, 2021

All the major roads have good lux level with streetlights available on both sides. But the internal roads have poor lux levels, leading to safety concerns in these areas. The availability of streetlights in the area is presented in the figure below. Also, as mentioned in Street Design Guidelines Bhubaneswar 2017, details of providing streetlights based on RoW are:

Road Width (m)	Streetlight
< 9 m	One Side
9–18 m	Both Sides
18–30 m	Median & Both Sides
> 30 m	Median & Both Sides + On Multi-utility Zone

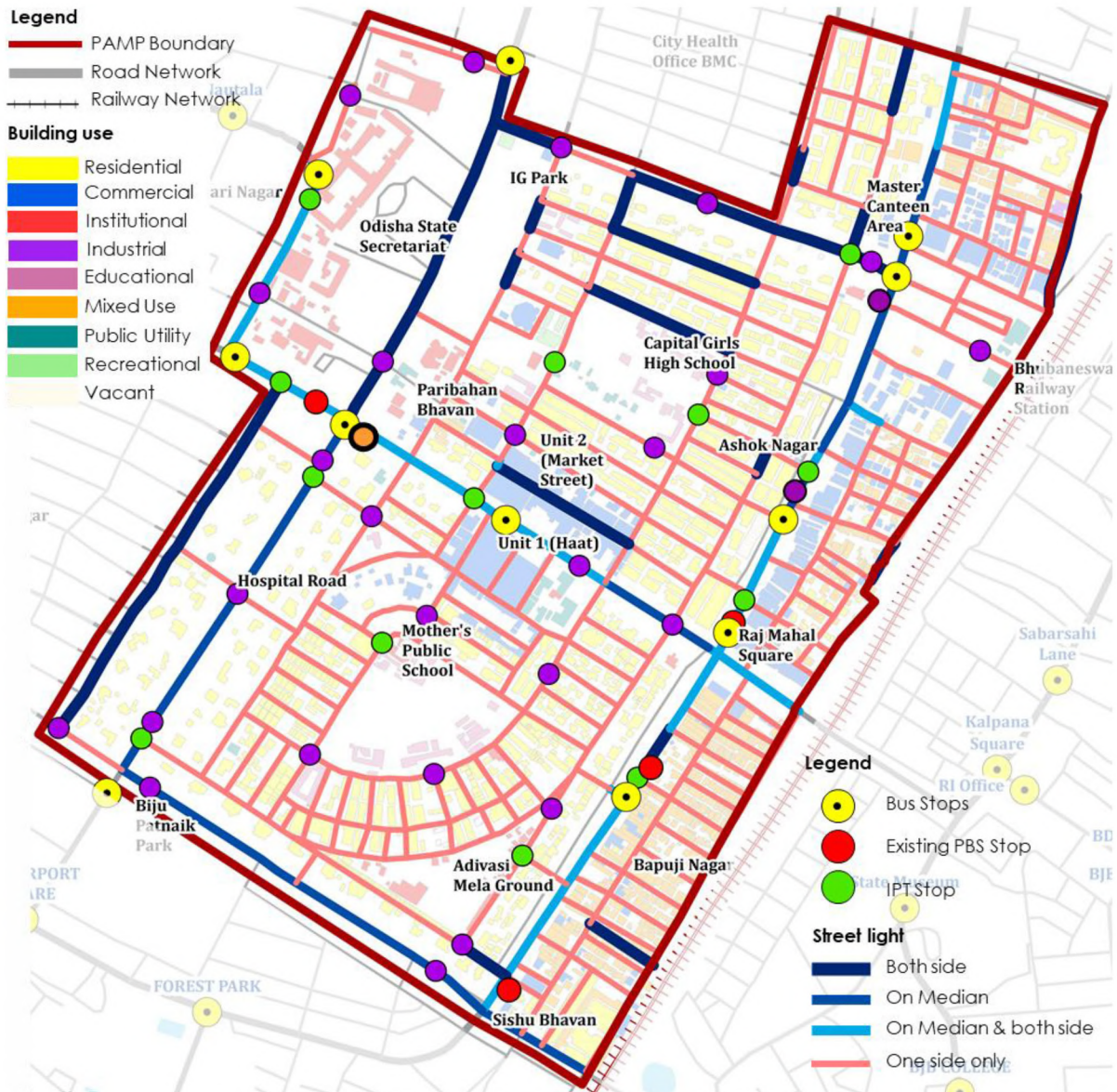


Figure 17 : Street light details in the area

Source: Road Network Inventory – Primary Survey, 2020

## 4.2.5 PROPOSALS IN THE AREA

The city authorities have proposed a Multi-Level Car Parking (MLCP) near Unit 2 market and a Multi-Modal Hub (MMH) is proposed at the Railway Station as part of the Bhubaneswar Smart City Project.

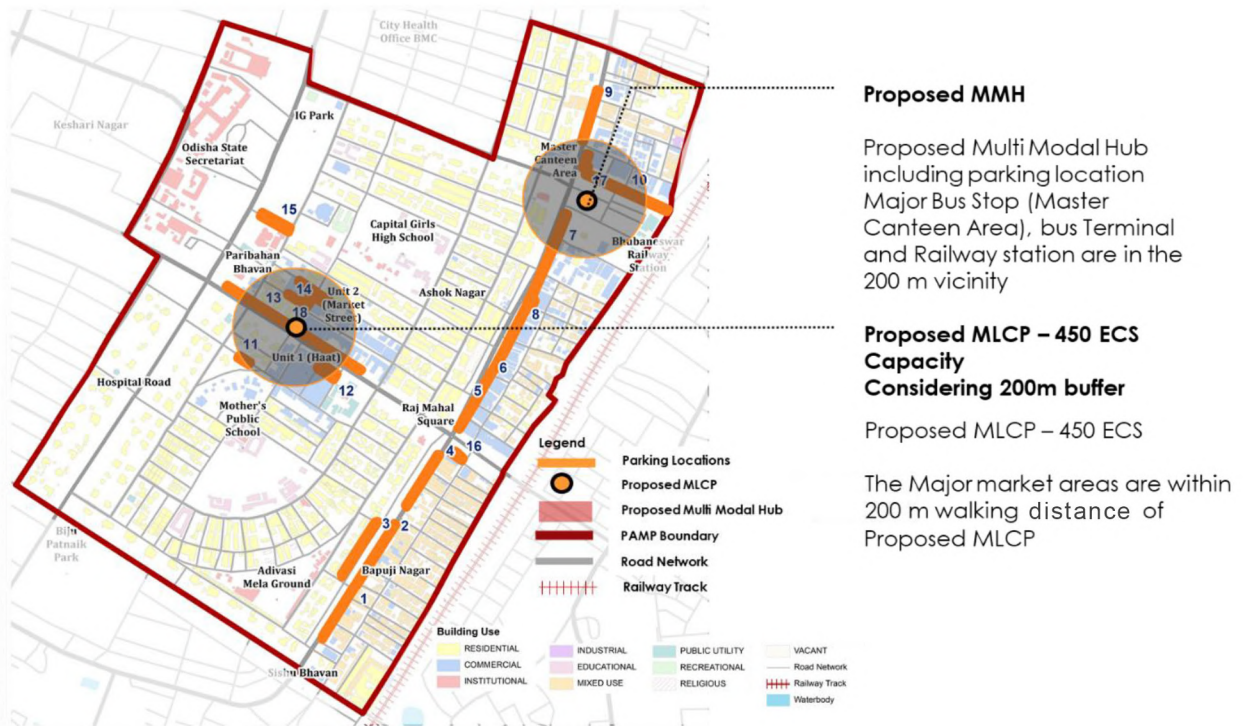


Figure 18 : Parking proposals in the area



Figure 19 : MMH proposal at the railway station in the area



Figure 20 : Details of MMH proposed at railway station

### 4.3 INSTITUTIONAL SET-UP AND ENFORCEMENT DETAILS

Bhubaneswar city is divided into three zones for administrative functioning - North Zone, South West Zone and South East Zone. Master Canteen PAMP area falls under ward no. 40, 41 and 53 of South East Zone. The institutional setup and roles and responsibilities of parking management authorities in the city was discussed with BMC officials.

#### 4.3.1 ORGANIZATION DETAILS OF THE BHUBANESWAR MUNICIPAL CORPORATION

The Bhubaneswar Municipal Corporation (BMC) is responsible for undertaking work in various fields and is the principal provider of services to provide a better quality of life to the residents of Bhubaneswar.

Existing Institutional Arrangement

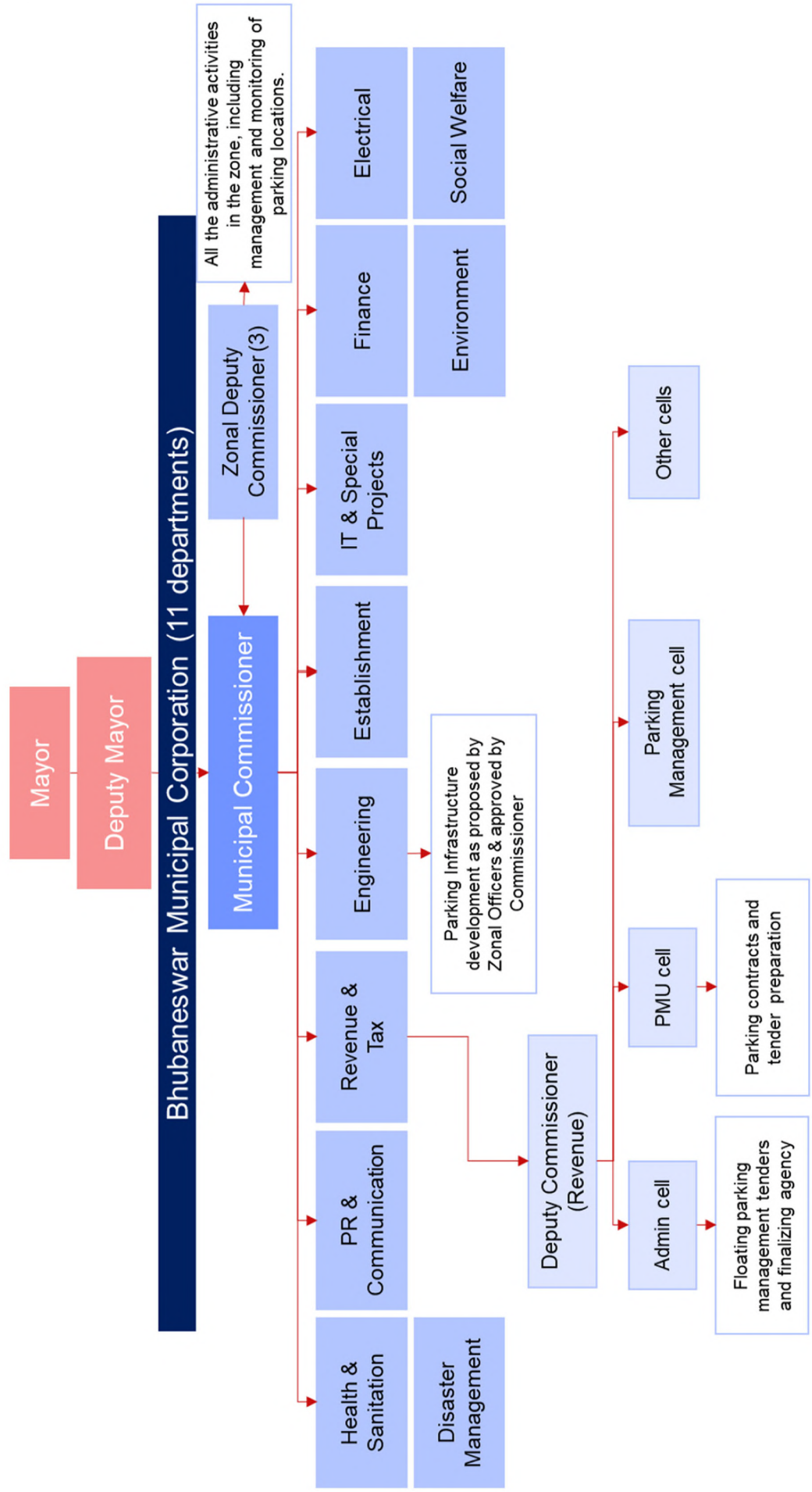


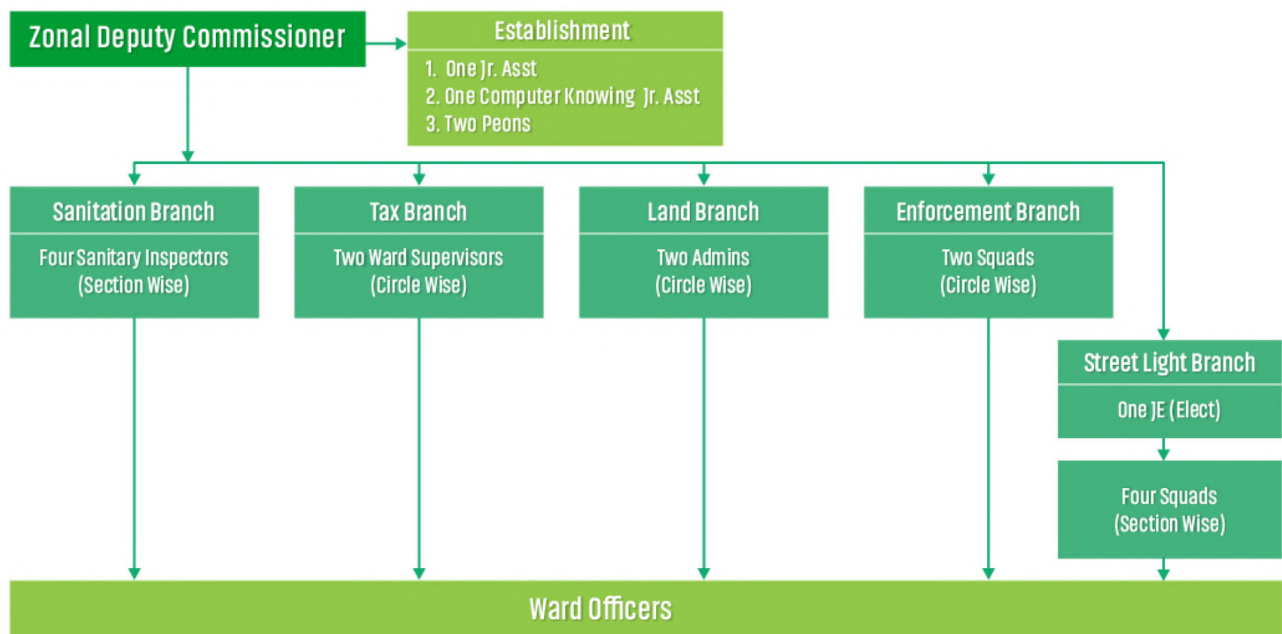
Figure 20 : Organizational details of parking management in Bhubaneswar  
 Source: <https://www.bmc.gov.in/>



The parking contract management and tendering is done by the Parking Management Cell with the help of the Parking Management Cell under approval of the Dy. Commissioner, Revenue and Tax Department. The procedure of tendering and contract finalization is done by the administration cell with approval of the Dy. Commissioner and work orders are issued by the BMC HQ with the approval of the Commissioner.

The Engineering department of the BMC develops the parking lot areas as suggested by the Zonal officers and approved by the Municipal Commissioner.

Once the work order is done, the management and monitoring of the parking is done by the Zonal officers. The organizational structure of zonal administration is mentioned below. The Zonal Deputy Commissioner is responsible for all the administrative activities in the zone and report directly to the Commissioner.



## 4.4 ISSUE IDENTIFICATION IN THE AREA

As discussed in PAMP Toolkit, this section details the issues related to the parking infrastructure supply, parking demand, parking management and enforcement. Issues in the area are presented in the table below.

Table 8 : Identified issues for Master Canteen area

CLASSIFICATION	ISSUES
 <p>Infrastructure Provision</p>	<ul style="list-style-type: none"> <li>• Absence of organized parking infrastructure in the along major corridors leads to haphazard on-street parking and parking spillover.</li> <li>• Under-pricing of parking along Janpath road and Rajpath Road.</li> <li>• Absence of signages and wayfinding near bus stops.</li> </ul>
 <p>NMT Infrastructure &amp; Lux Level</p>	<ul style="list-style-type: none"> <li>• 26% of the road network does not have footpaths and 49% of the available footpaths</li> <li>• Footpaths are encroached upon by vendors and parked vehicles.</li> <li>• Existing cycle tracks encroached by parked vehicles</li> <li>• Parking areas near unit 2 market area and Adivasi Mela ground are not well-lit affecting safety of users.</li> </ul>
 <p>Enforcement</p>	<ul style="list-style-type: none"> <li>• Enforcement is done only by the traffic police and lacks strict regulations</li> </ul>
 <p>Parking Demand</p>	<ul style="list-style-type: none"> <li>• The current parking is overutilized along all the major roads, implying lack of supply.</li> </ul>
 <p>Institutional, Parking Management and Pricing Issues</p>	<ul style="list-style-type: none"> <li>• Lack of coordination between parking management contract and parking enforcement agency.</li> </ul>

## 4.4.1 ISSUES ALONG THE JANPATH MARG

Janpath Marg is a well-designed smart street, with average parking duration of 30 mins and turnover > 1.0 (high demand for short-term parking). The major issue along this corridor is that despite good public transport facilities, the existing parking demand seems to be high while the parking prices are not high enough to regulate the demand, coupled with inefficient enforcement. Also, the parking areas are not clearly demarcated and signages are missing.



Figure 22 : Picture of Janpath Marg (RajMahal to Master Canteen) from RajMahal bridge

Source: Site Reconnaissance Survey, 2021



Figure 23 : Picture of Janpath Marg (RajMahal to ShishuBhawan) from RajMahal bridge

Source: Site Reconnaissance Survey, 2021



## 4.4.2 ISSUES ALONG THE MARKET AREAS

Unit 1 Market Area – It is a major wholesale market spread over 1.93 ha of area. The market is unplanned and has around 600 registered vegetable vendors. The market area has more than 500 other retail vendors. The major issue in the area is poor parking infrastructure, with inadequate number of signages and wayfinding boards. There is a need to strengthen regulation enforcement within the market area as people tend to park their vehicles near shops making the area more congested.



Figure 24 : Pictures of Unit 1 Market

Source: Site Reconnaissance Survey, 2021

### UNIT 2 MARKET AREA

This is a pedestrianised planned retail market spread over a 3.8 ha area. A multi-level car parking is also proposed beside this market area, with a capacity of 450 ECS parking. Presently, parking is done along Rajpath Marg, from Old Bus Stand to Durga Mandap and behind Kalamandir. The major issue in the area is spill-over of parking to nearby areas and poor availability of signages.



Figure 25 : Picture of Unit 2 Market

Source: Site Reconnaissance Survey, 2021

# 05 PAMP – MASTER CANTEEN AREA

## 5.1 OBJECTIVE OF PAMP

The objective and strategies adopted have been discussed and finalised in consultation with the key stakeholders. The main objectives of PAMP for Master Canteen area are:

1. Promote PT and NMT usage by improving existing infrastructure in the area.
2. Provide good PT and NMT connectivity to the commercial/ institutional buildings and markets in the area.
3. Provide strategies to avoid spillover of parking in neighborhoods
4. Provide strategies for better parking management and improve enforcement in the area.
5. Manage freight circulation and loading/unloading activities

## 5.2 STRATEGIES FOR PARKING MANAGEMENT

The Master Canteen area is the core city area, with good connectivity of public transport to all parts of the city. Hence, the PAMP strategies for this area will focus on demand management measures and making sustainable modes attractive to the public. As a part of the strategy, the emphasis is on managing the parking demand in the area by using its good public transport connectivity as a premise to limit the parking supply in the area by 70% and adopting pricing as a tool to manage parking demand.

This will be further supported by robust pedestrian and NMT infrastructure in the area to make last mile connectivity seamless. The strategies adopted for parking management in the area are:



## 5.3 DEMONSTRATION PLANS

### 5.3.1 PARKING PLAN

Under consideration of the Parking Policy and Street Design Guidelines following measures are planned for parking management:

- No parking within 50 m from major junction and 30 m from minor junctions (as per the Draft Parking Policy).
- No parking within 50 m from bus stops.
- No parking within 200 m from MLCP and MMTH
- No parking on Sachivalaya Marg and Rajpath Road.
- No parking on road width < 9m (as per Street Design Guidelines for Bhubaneswar, 2017).
- Pay and park with high charges on transit corridor and roads with RoW > 15m

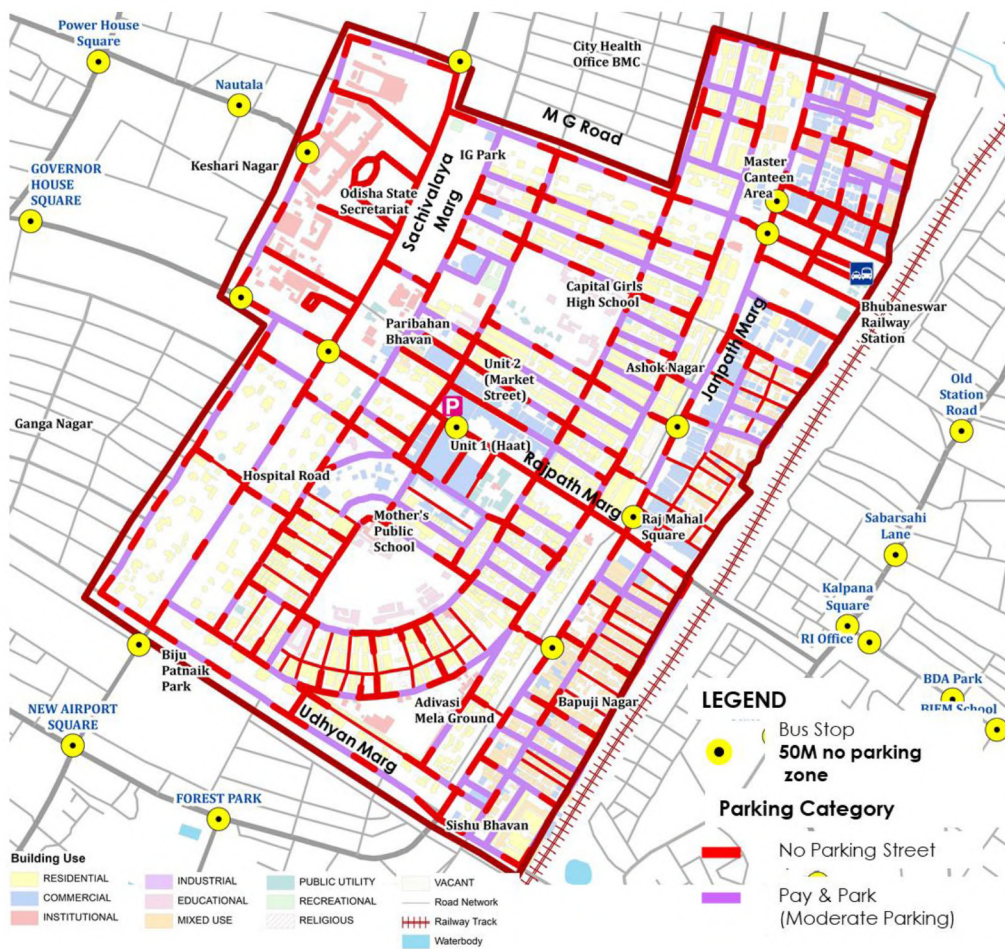


Figure 26 : Parking Strategy Plan

Parking facility to be provided on one side or both sides of the road has been detailed based on the Street Design Guideline for Bhubaneswar, 2017.

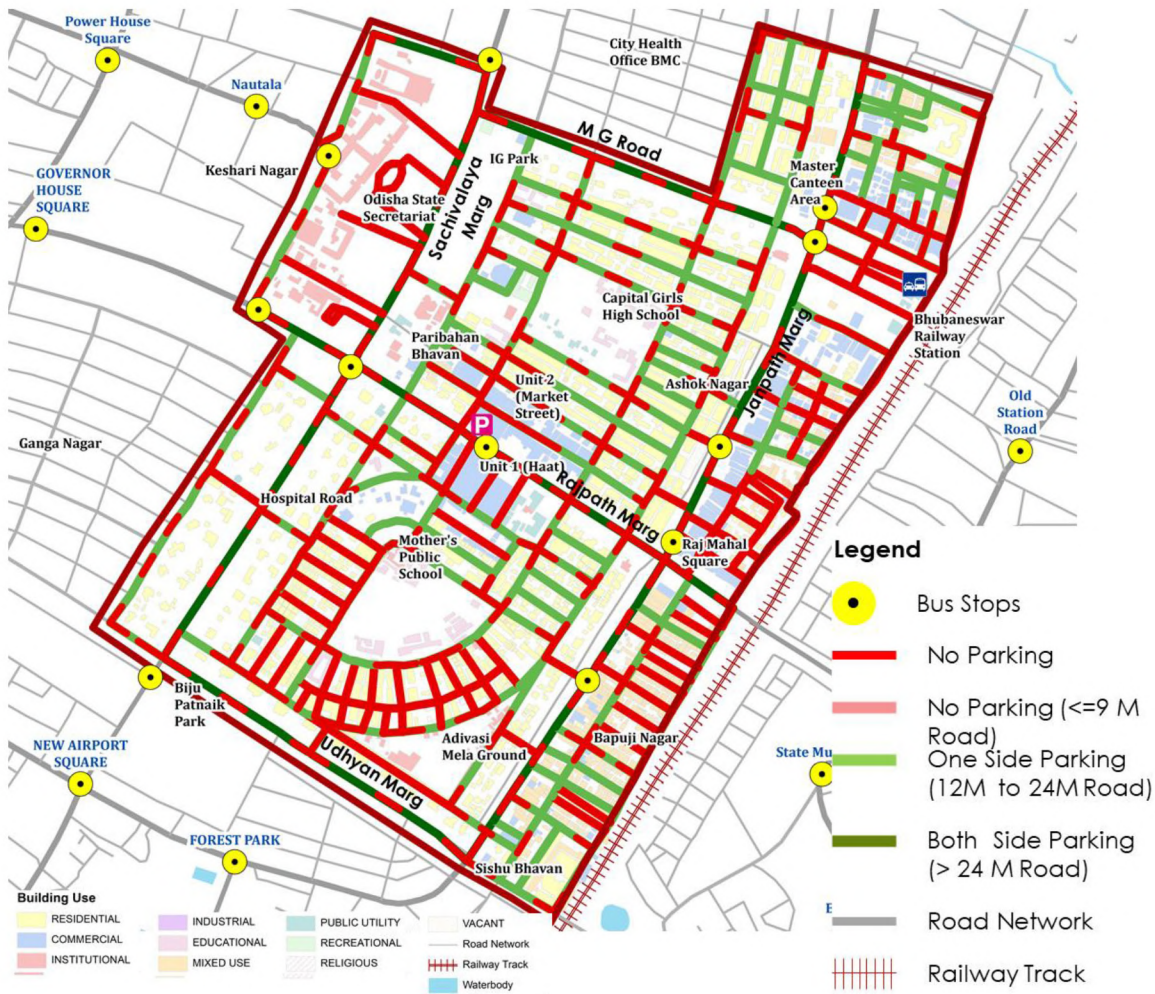


Figure 27 : Parking strategy based on road width

The parking details include parking supply in the area in terms of ECS along each corridor. Various assumptions for calculating the ECS are mentioned below:

- No parking for RoW < 9m; Only one parking for RoW 12– 24 m; both sides parking for RoW > 24m (from Street Design Guidelines for Bhubaneswar, 2017).
- No parking for private modes on Raj Mahal Road as an under construction MLCP is going to cater to the demand
- No parking on Secretariat Road (existing condition)
- Minimum freight parking on Rajpath and Janpath Road
- Vehicle composition considered from primary surveys
- Parking bays for disabled people and pregnant women to be available on major corridors, near market area/event centres

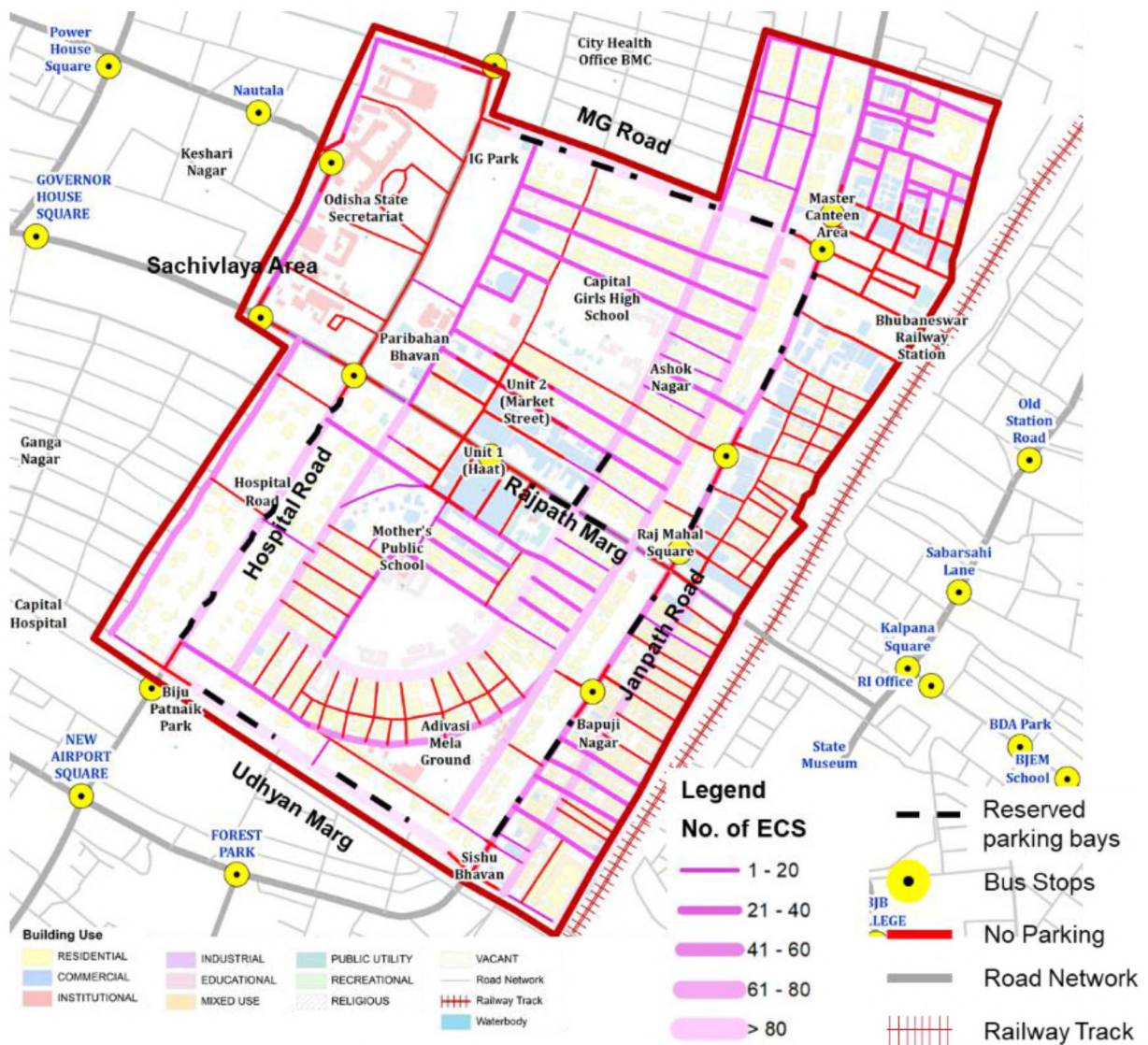


Figure 28 : Proposed parking ECS details in Master Canteen area

Table 9 : ECS on major corridors, Master Canteen area

Road Name	ECS (Equivalent Car Space) (Area = 5m * 2.5 m)						Reserved Parking Spaces (ECS)
	Car (1 ECS)	Two-wheeler (0.25 ECS)	Cycle (0.10 ECS)	Auto-Rickshaw (0.5 ECS)	Freight (LCV = 1; HCV = 2.2)	Total	
Rajpath	8	8	0.7	17	2	35	4
Hospital Road	40	40	0.7	17	0	97	20
Sachivalaya	0	0	0	0	0	0	0
Janpath	38	38	2	25	18	119	19
Mahatma Gandhi	40	40	2	8	0	88	20
Udhyan Marg	40	40	2	8	0	88	20
Others	996	996	15	21	0	2013	-
<b>Grand Total</b>	<b>1162</b>	<b>1162</b>	<b>22.4</b>	<b>97</b>	<b>26</b>	<b>2440</b>	<b>83</b>



### 5.3.2 NMT PLAN

The NMT plan for the area has been prepared to provide a comfortable and safe network for pedestrian and cyclist between public hot-spots and transit stations for the residents and visitors / commuters in the area. The steps for preparing the NMT plan can also be used for a step-wise implementation of the proposed measures. These measures for NMT improvement should be implemented on priority.



Identifying clusters of different activities like schools, colleges, markets, event centers, malls, etc.

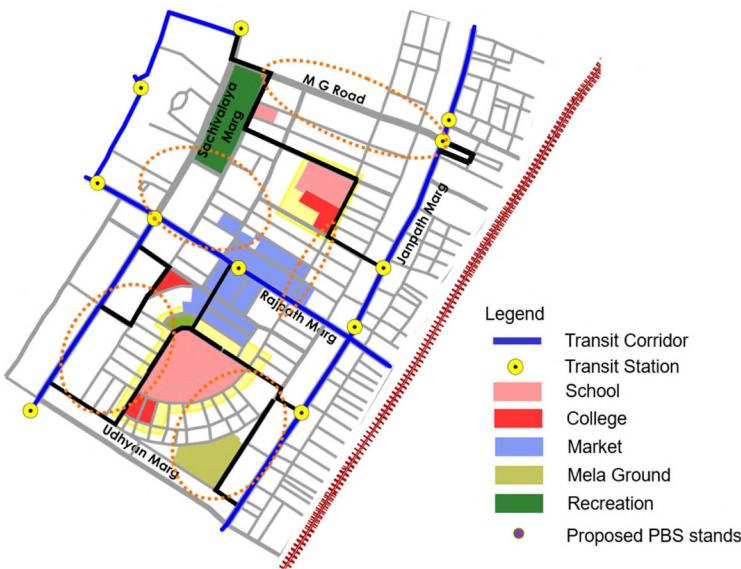


Connecting all the activity centres to the nearest transit stop with footpaths to improve last mile connectivity.



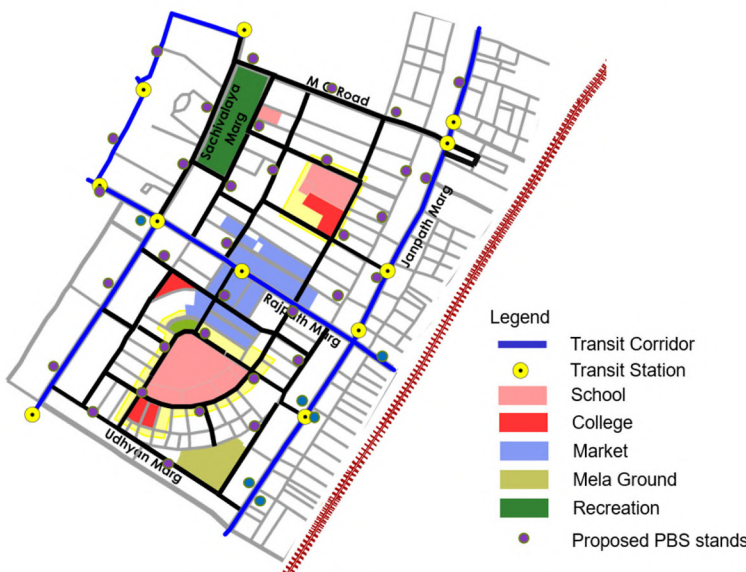
- Identifying Clusters
- Connecting clusters to nearest Station
- Connecting amenities
- Creating Loops

Creating loops to provide nearest option to reach the destination.



- Identifying Clusters
- Connecting clusters to nearest Station
- Connecting amenities
- Creating Loops
- Identifying missing Links between singular loops and Clusters

Completing the NMT network by adding missing links between loops and clusters.



- Identifying Clusters
- Connecting clusters to nearest Station
- Connecting amenities
- Creating Loops
- Identifying missing Links between singular loops and Clusters
- Completing Pedestrian networks

Proposing PBS stops tentatively at every 400 m on the network.

## PROPOSED CYCLE TRACKS AND PBS STOPS

Cycle tracks on major roads need to be segregated to reduce conflict with other vehicles. New cycle tracks with lane markings are proposed on the internal roads. A total of 18.6 km of cycle tracks with 26 PBS stops located at about 400m distance are proposed near transit stops and activity areas such as school, college, market area, mela ground and major commercial area.

Table 10 : Details of proposed cycle track in Master Canteen area

Cycle Track Width (m)	Road Length (km)		Grand Total
	Painted	Segregated	
1.8 – 2	9.2	1.2	10.4
2	-	5.5	5.5
2.5	-	1.8	1.8
3	-	0.9	0.9
<b>Grand Total</b>	<b>9.2</b>	<b>9.4 (4 km existing)</b>	<b>18.6</b>

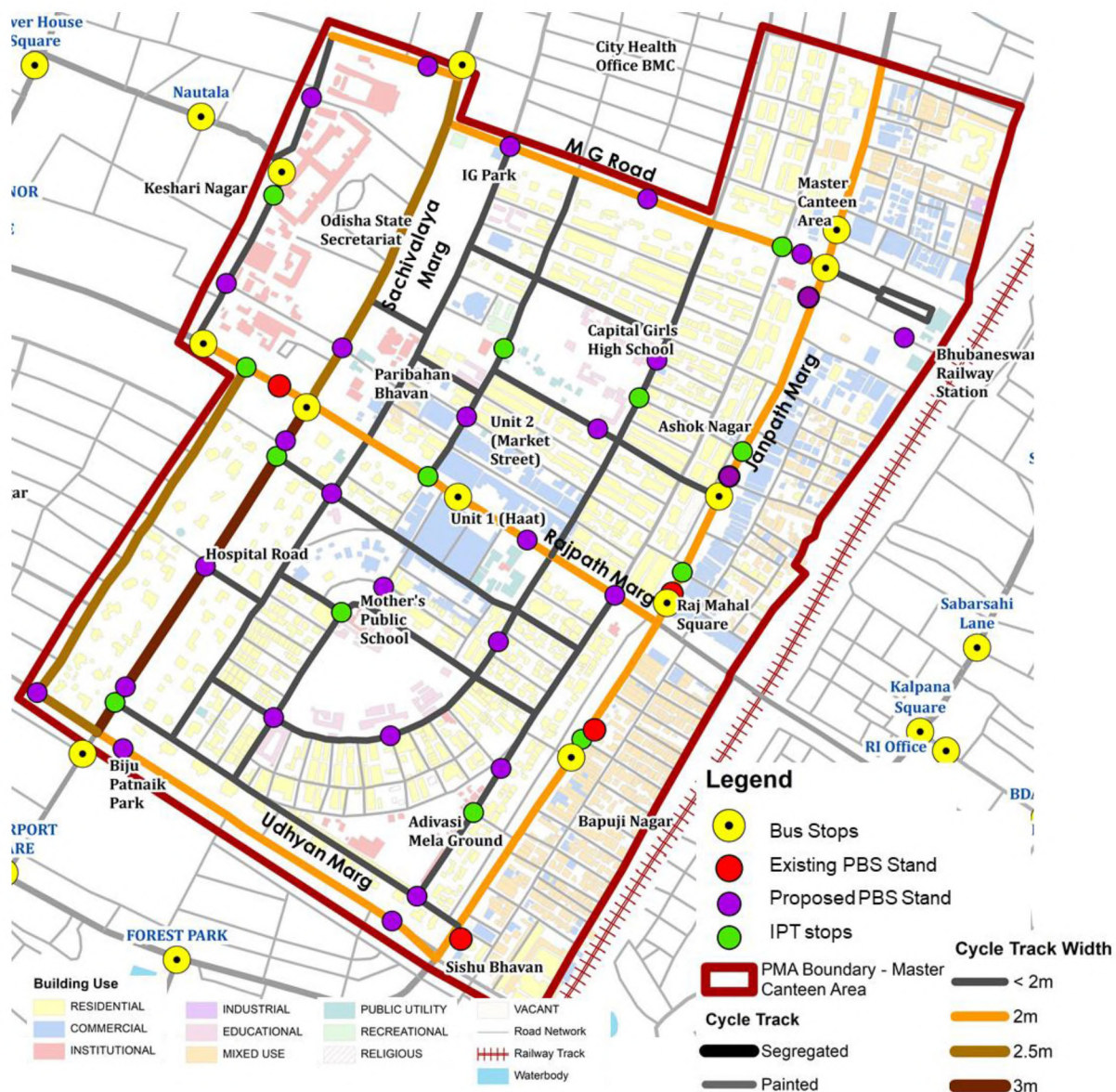


Figure 29 : Proposed cycle track

# FOOTPATH IMPROVEMENTS

A total of 72% (34 km) of road network has footpaths. Major roads have well designed and good condition footpaths while the condition of the footpaths on internal roads needs improvement. Footpaths are not proposed on road with RoW < 9 m (as per Street Design Guideline for Bhubaneswar, 2017).

Table 11 : Footpath details and improvements required

Footpath Width (m)	Road Length (km)	
	Needs Improvement	Good Condition
1.8 – 2 m	5.0	1.3
2 – 3 m	15.2	7.6
3 – 5 m	1.2	1.8
> 5 m	0.9	0.9
<b>Grand Total</b>	<b>22.3</b>	<b>11.7</b>

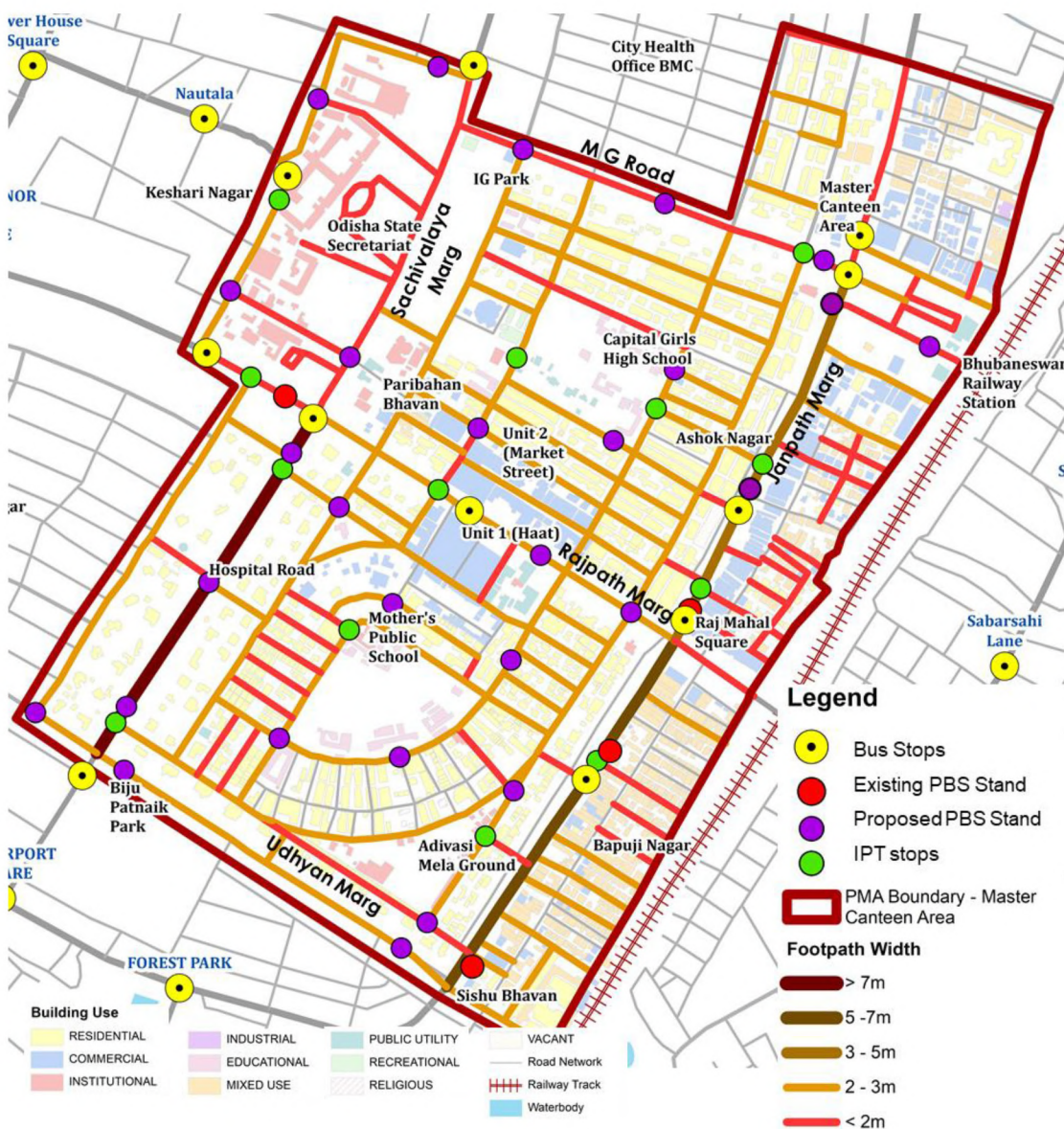


Figure 30 : Proposed footpath improvements

### 5.3.3 FREIGHT MANAGEMENT PLAN

The movement of heavy freight vehicles in the area is allowed only for 11 hours during the night (from 9:00 pm–8:00 am). The parking of heavy vehicles shall be allowed only on the vacant plot behind Unit 1 market.

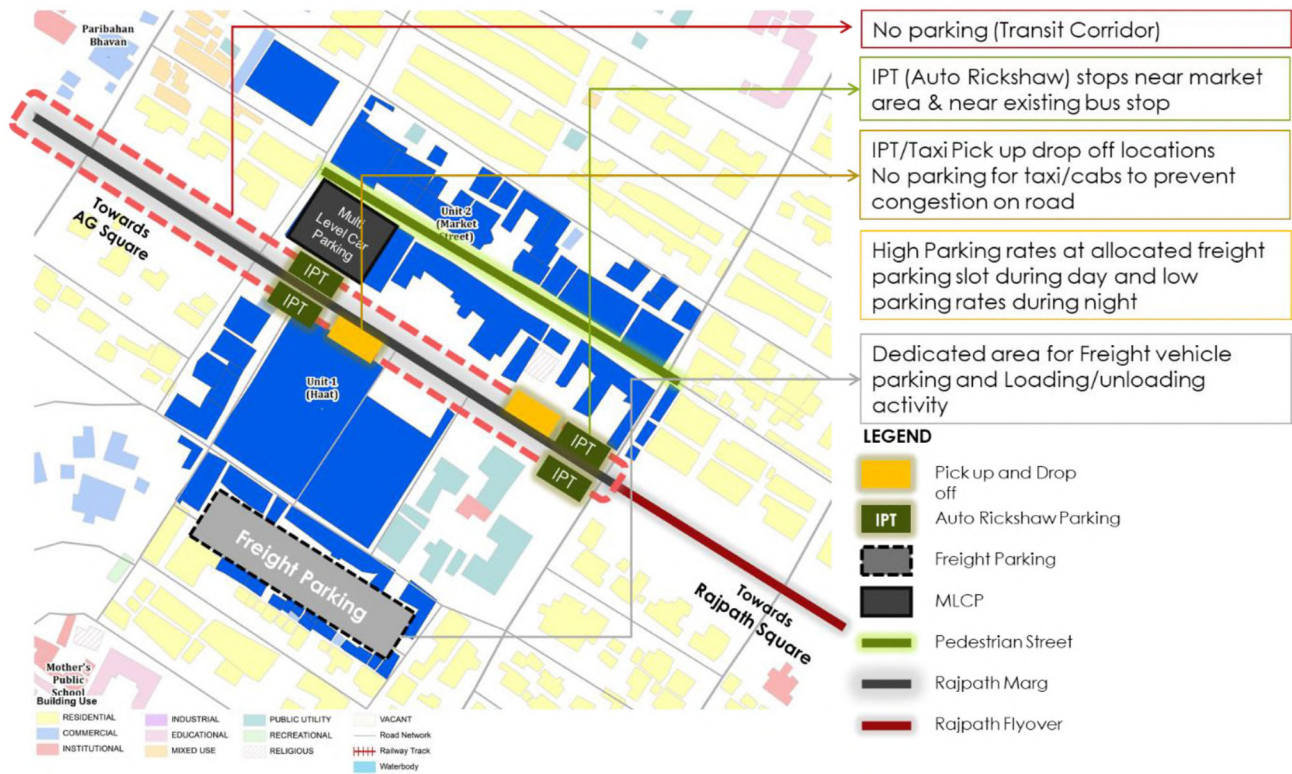


Figure 31 : Proposed freight management plan

### 5.3.4 IPT PARKING PLAN

IPT stops are proposed at 50 m distance from each transit stop location. The major IPT parking area near the Railway Station shall be relocated, with developments of MMH. Taxi pick up/drop off point is proposed near the market area, Railway Station, Secretariate area, events ground and commercial areas. A total of 13 IPT stops (ECS 97) are proposed in the area. Signages and wayfinding boards shall be available at each location.

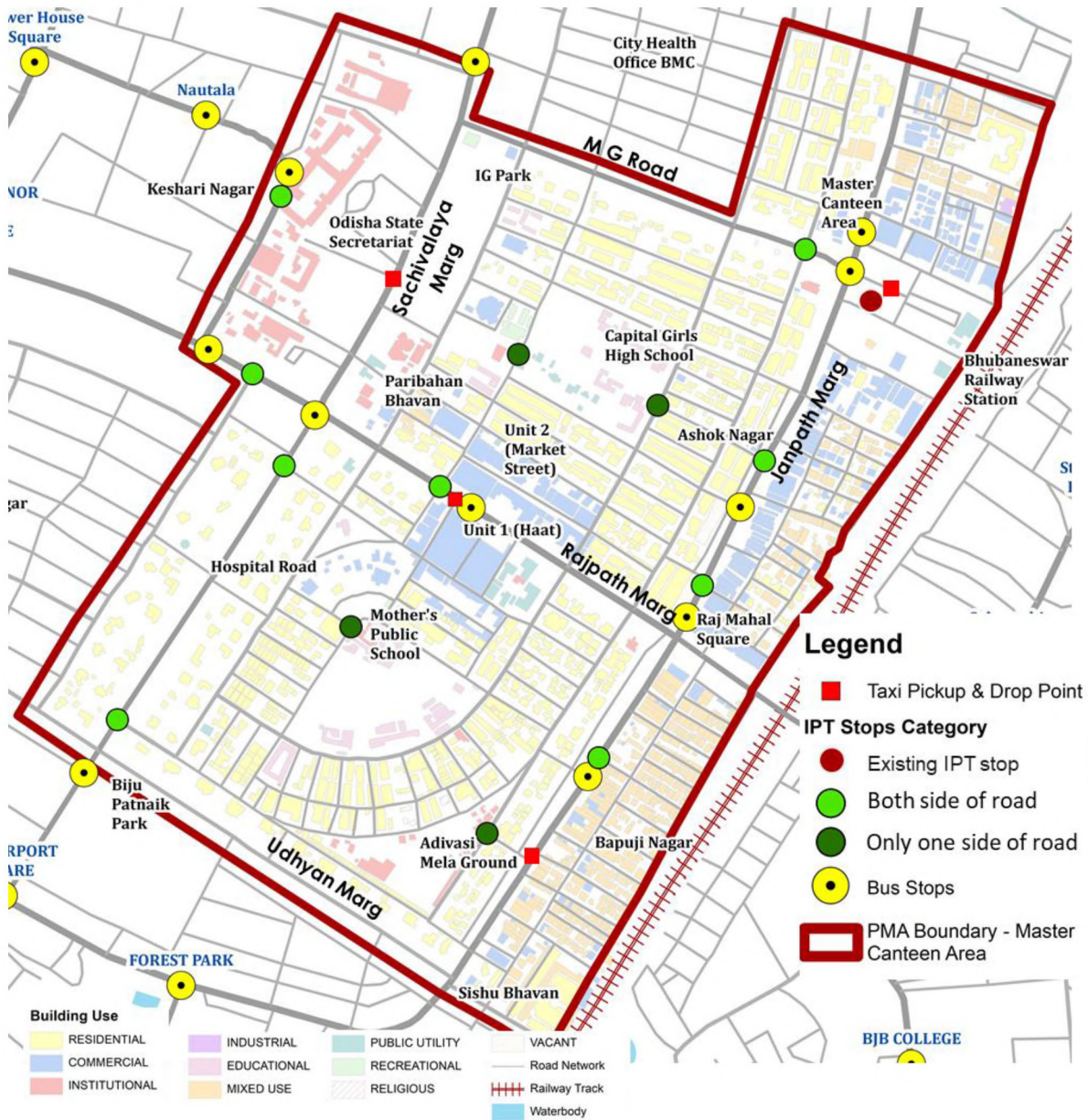


Figure 32 : Proposed IPT stops

### 5.3.5 VENDING ZONE PLAN

The strategies to manage vending activities along Rajpath Marg are mentioned below:

- Unauthorized vendors shall be accommodated in the market areas to prevent encroachment on the road.
- No vending shall be allowed on Rajpath Marg.

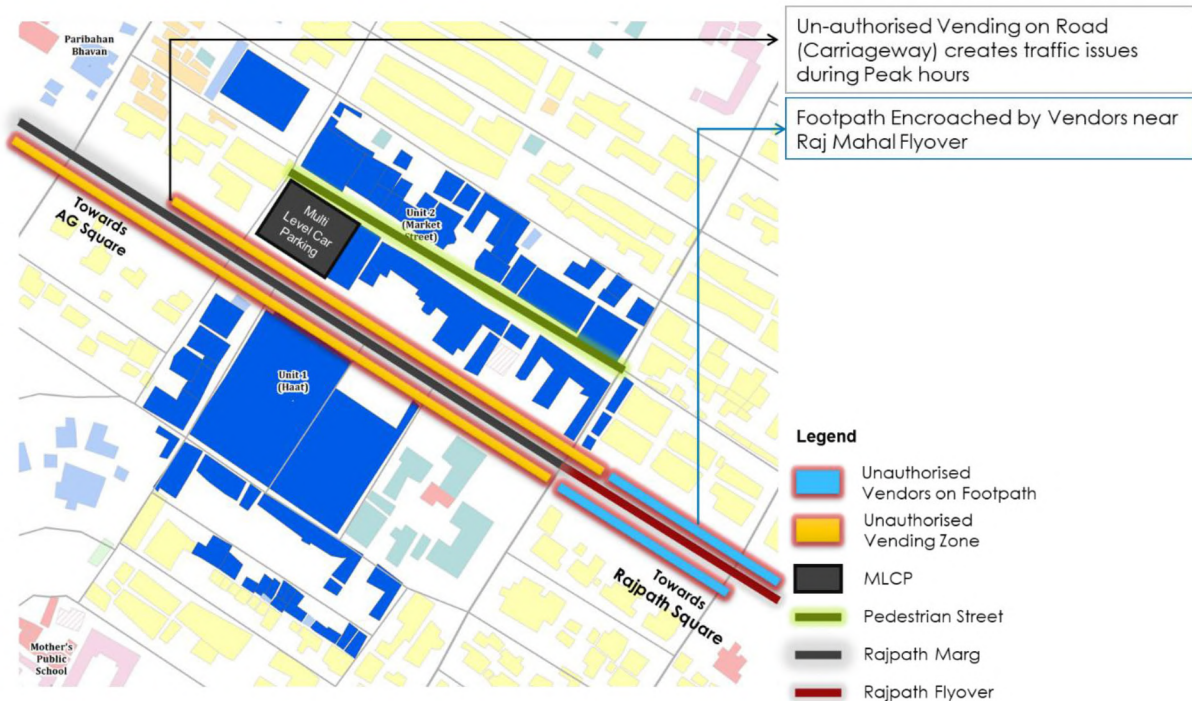


Figure 33 : Vending zone details along Rajpath Marg

### 5.3.6 WAYFINDING AND SIGNAGE PLAN

Wayfinding refers to the information system that guides people through the physical environment—particularly complex, unfamiliar and ever-changing environments like hospitals, airports, campuses, mixed-use developments and transport systems.

Wayfinding shall be available at all the bus stop locations and near parking locations to help the customers find their way to the nearby landmarks. The Master Canteen PAMP area should have minimum 13 wayfinding boards either near the bus stops or IPT stops.

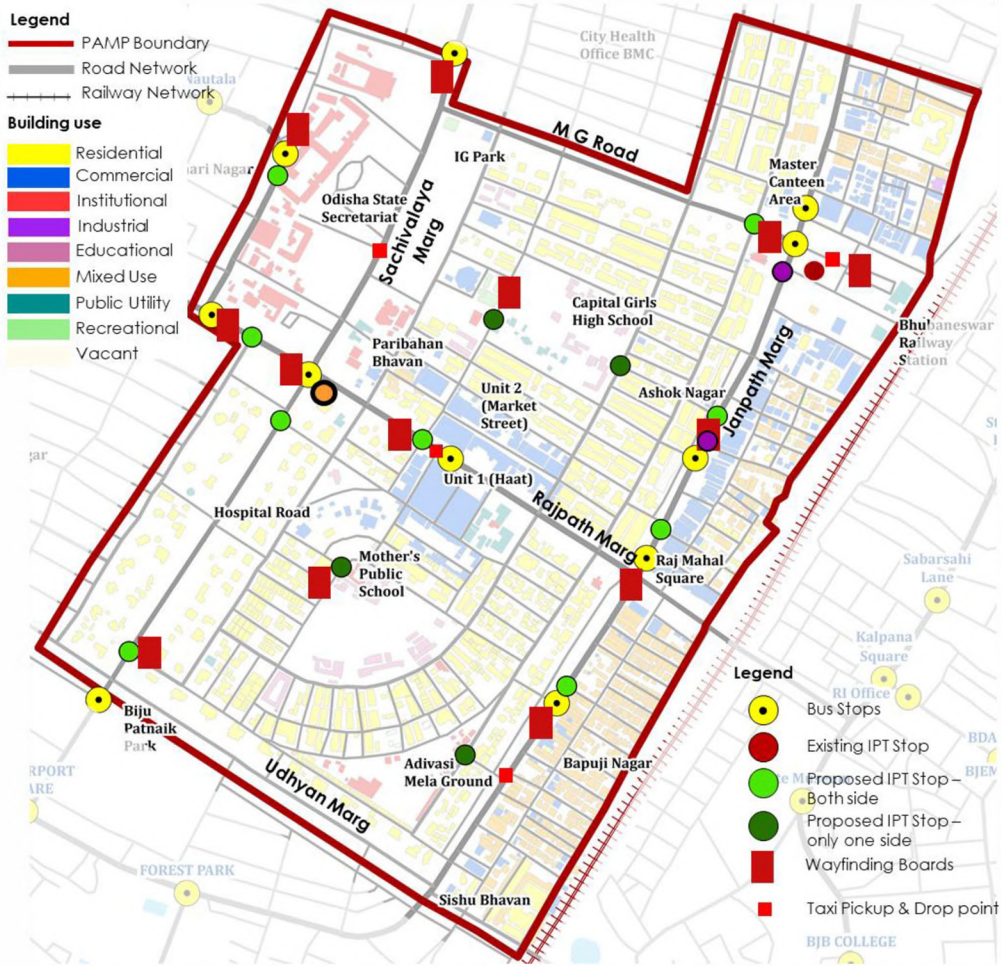


Figure 34 : Wayfinding Board locations in Master Canteen area

The boards providing clear and simple information such as route and system maps, schedules, real time travel information and ridership procedures makes the system more attractive and simpler to use, thereby improving rider satisfaction. An example of a wayfinding board is presented below.

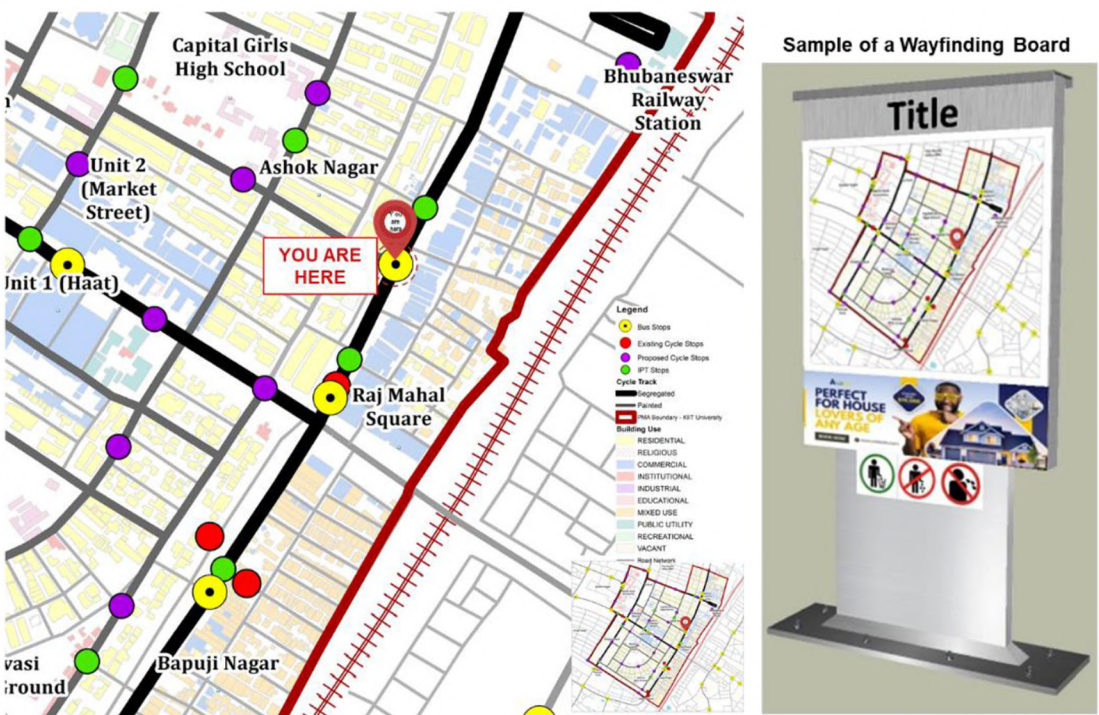


Figure 35 : Example of wayfinding board



### 5.3.7 SERVICE LANE IMPROVEMENTS

About 3.7 km of service lanes are available on Janpath Marg, Rajpath Marg and MG Road. The improvements in service lane are mentioned below:

1. The service lane on Janpath Marg is newly designed and in good condition. Enforcement measures are, however, required for removal of illegal parking and vending activities.
2. The service lane on Rajpath Marg is encroached upon by vendors and parked vehicles. Improvement in terms of infrastructure and enforcement measures is required.
3. The service lane on MG Road is under construction.

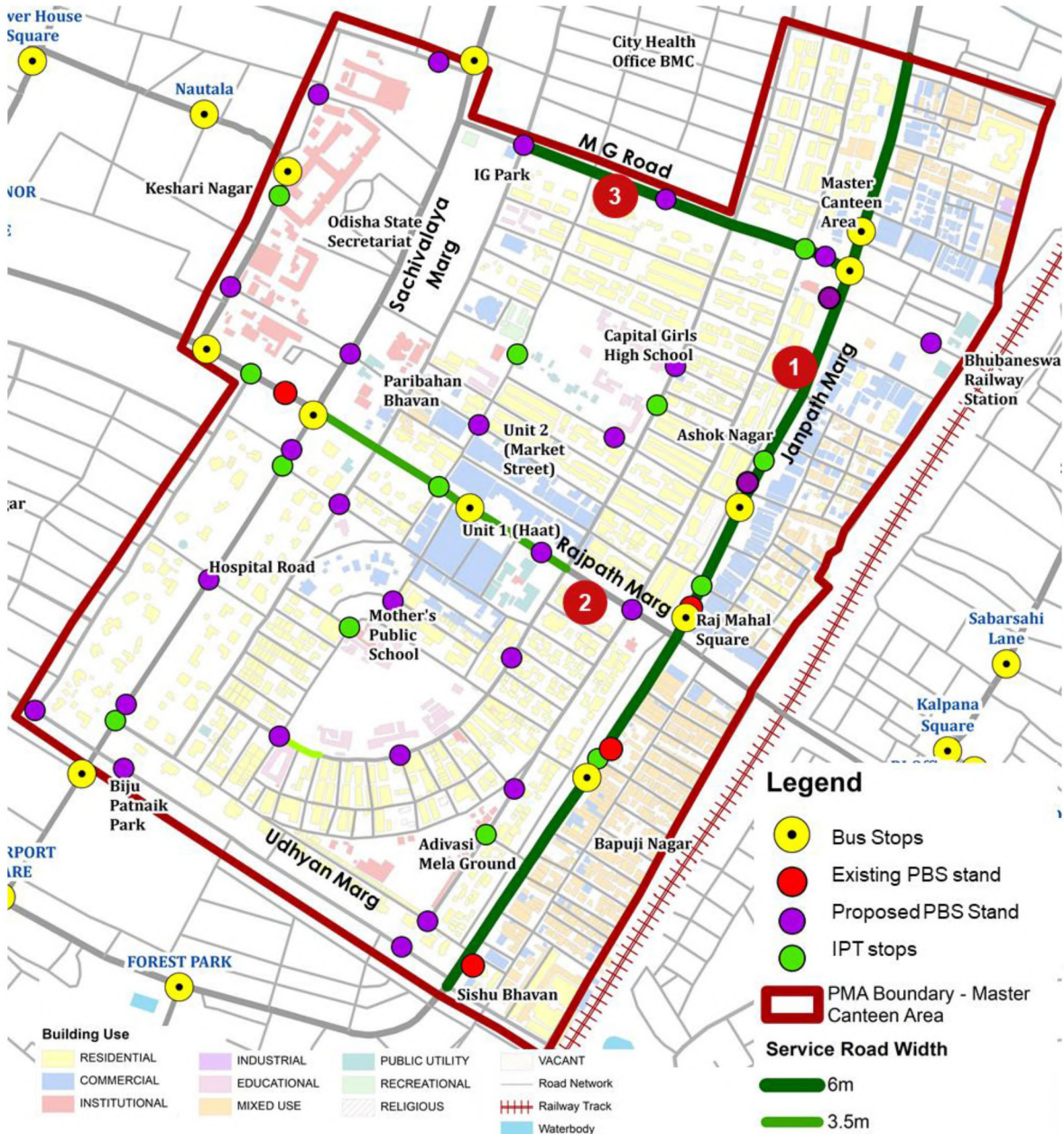


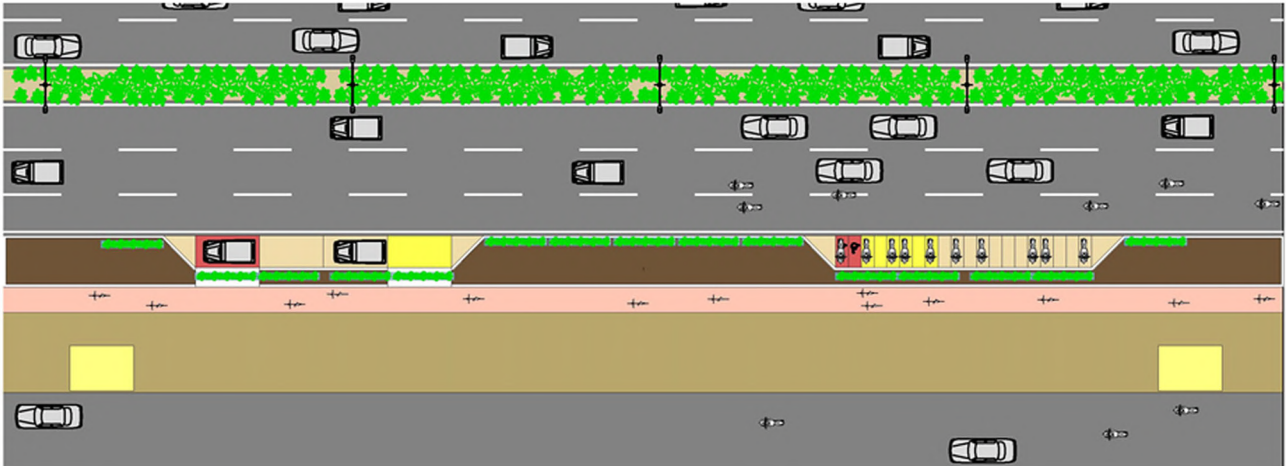
Figure 36 : Service Lane facilities in Master Canteen area

### 5.3.8 DETAILED DESIGNING FOR THE MASTER CANTEEN AREA

Street design layouts including parking infrastructure for all the major roads and typical layout for roads with RoW less than 18 m is presented in the section below.

#### JANPATH MARG Shishu-Bhawan to Raj Mahal Square

##### Moderate Parking

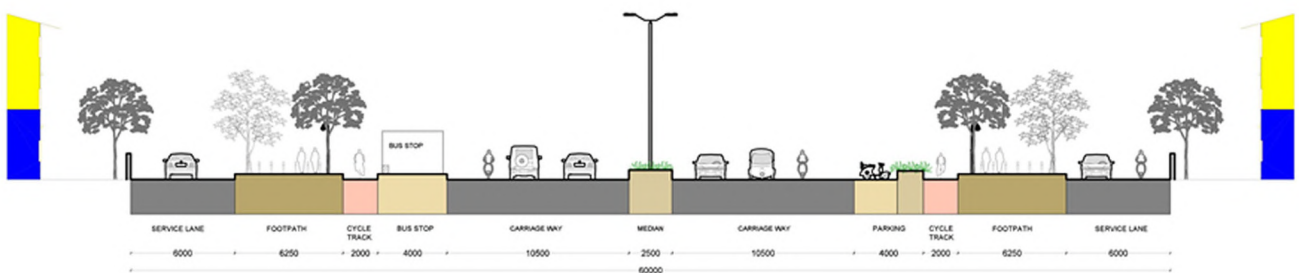


**Legend**

- Reserved for Handicapped person
- Reserved for pregnant ladies and women
- Parking bays for all
- Cycle Track
- Landscaping and multi-utility zone
- Footpath and Vending zone (only legal)



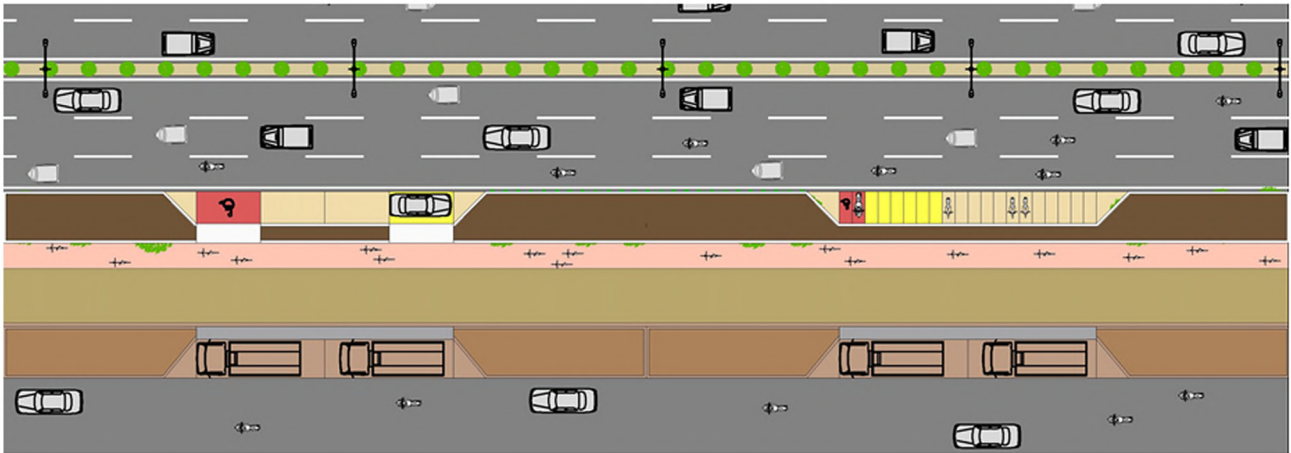
Key plan



SISHU BHAVAN SQUARE TO RAJ MAHAL SQUARE CROSS SECTION FOR 60MT. MID BLOCK

**JANPATH MARG**  
**Rajmahal Square – Master Canteen Square**

**Moderate Parking**



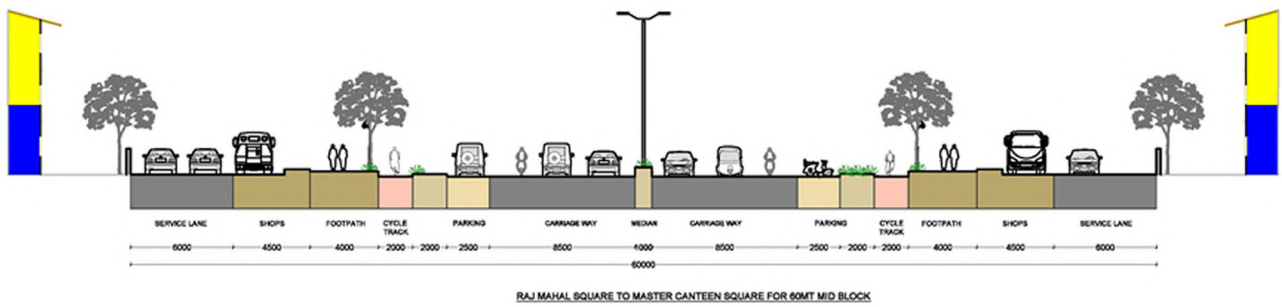
Moderate & Parallel Parking at Janpath Marg; Auto Stops (for 7 autos) near Bus stands

**Legend**

- Reserved for Handicapped person
- Reserved for pregnant ladies and women
- Parking bays for all
- Cycle Track
- Landscaping and multi-utility zone
- Footpath and Vending zone (only legal)

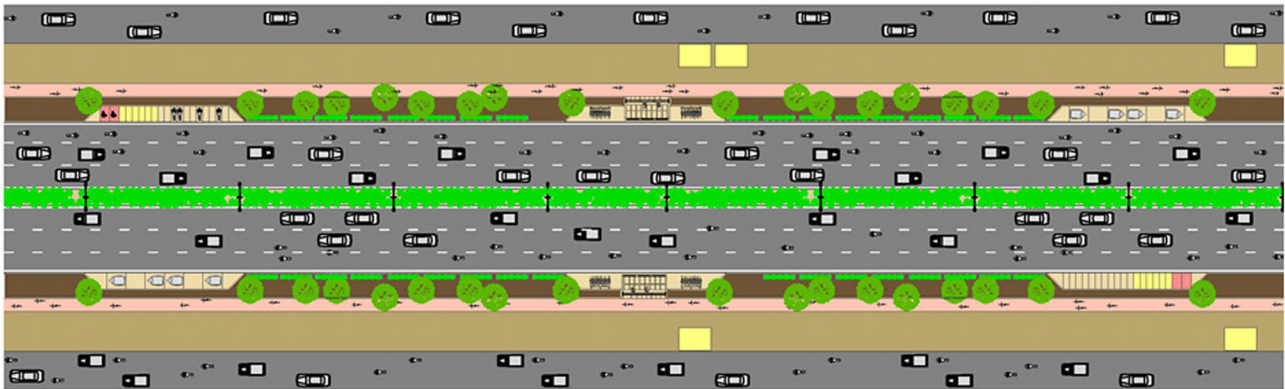


Key plan



**JANPATH MARG**  
**Rajmahal Square – Master Canteen Square**

**Moderate Parking , Bus stop and IPT**



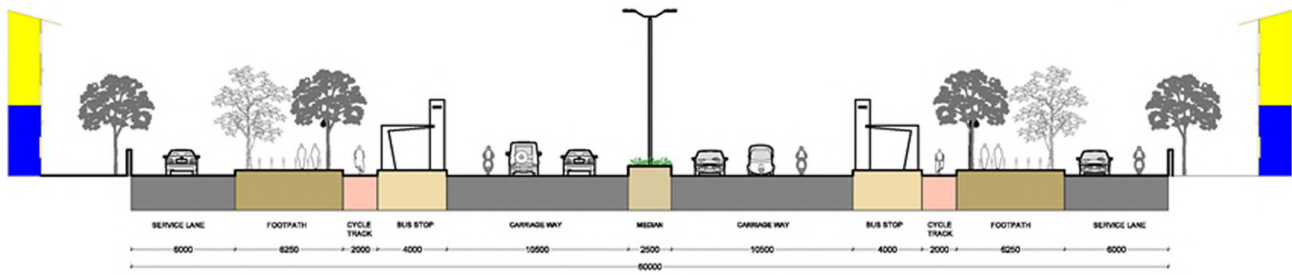
Moderate & Parallel Parking at Janpath Marg; Auto Stops (for 7 autos) near Bus stands

**Legend**

- Reserved for Handicapped person
- Reserved for pregnant ladies and women
- Parking bays for all
- Cycle Track
- Landscaping and multi-utility zone
- Footpath and Vending zone (only legal)



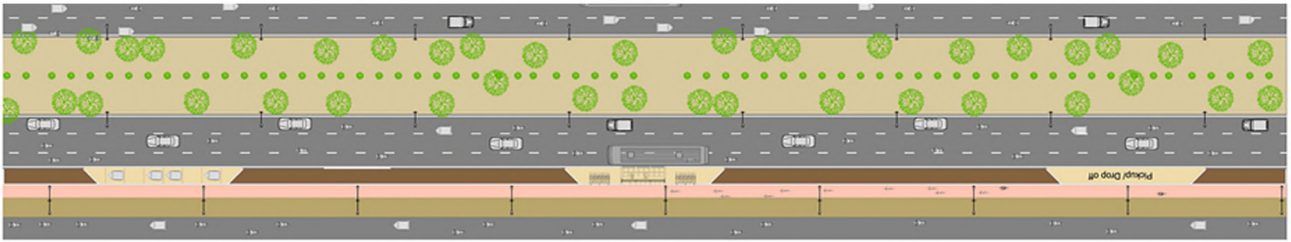
Key plan



SISHU BHAVAN SQUARE TO RAJ MAHAL SQUARE CROSS SECTION FOR 60MT. MID BLOCK

# RAJPATH MARG Rajmahal Square – AG Square

## Moderate Parking

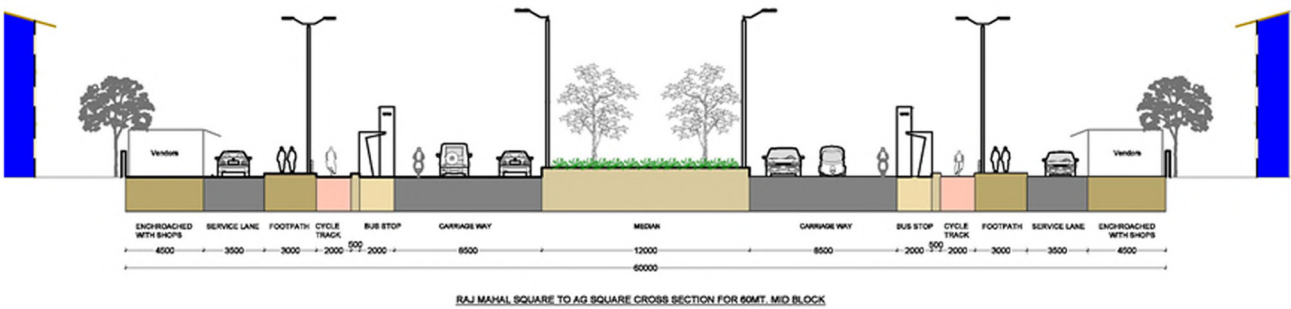


### Legend

- Reserved for Handicapped person
- Reserved for pregnant ladies and women
- Parking bays for all
- Cycle Track
- Landscaping and multi-utility zone
- Footpath and Vending zone (only legal)



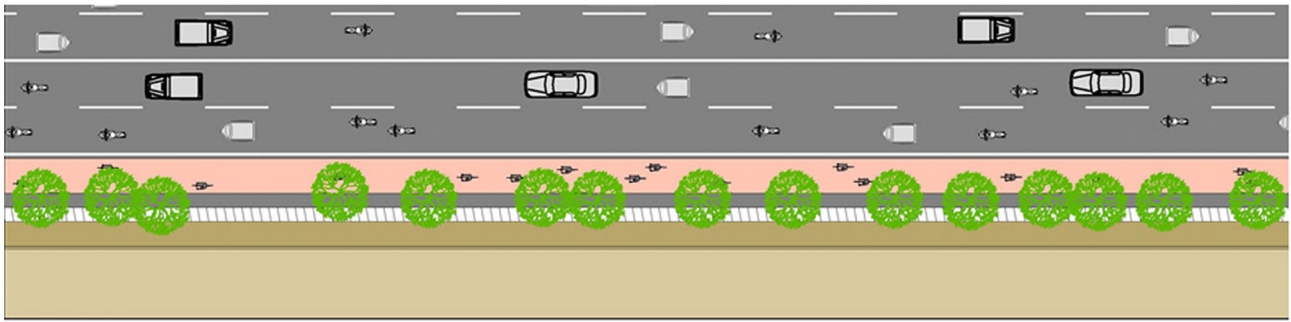
Key plan



# SACHIVALAYA MARG

## No Parking

Plan- No Parking zone

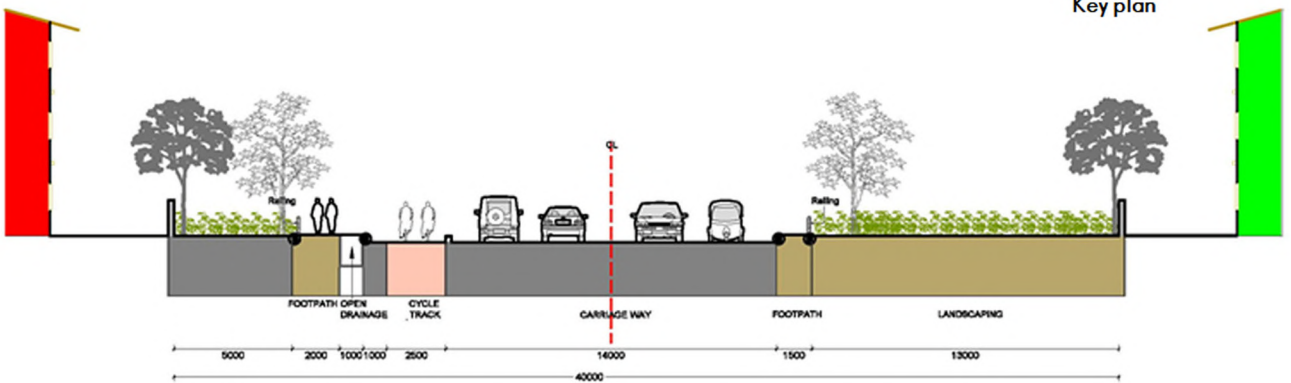


### Legend

- Reserved for Handicapped person
- Reserved for pregnant ladies and women
- Parking bays for all
- Cycle Track
- Landscaping and multi-utility zone
- Footpath and Vending zone (only legal)



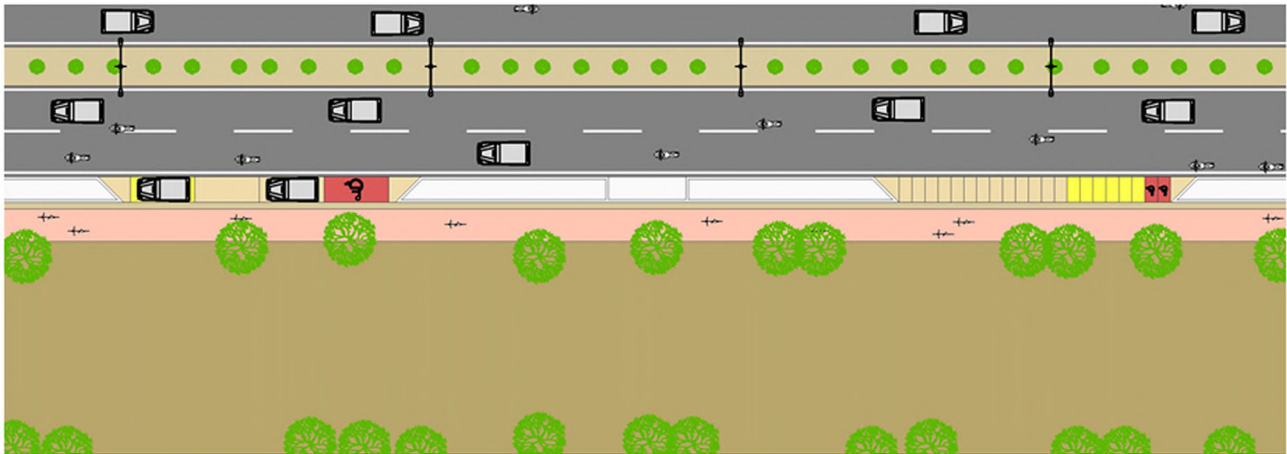
Key plan



AG SQUARE TO PMG SQUARE FOR CROSS SECTION FOR 40MT. MID BLOCK

# AG Square to Hospital Road

## Moderate Parking

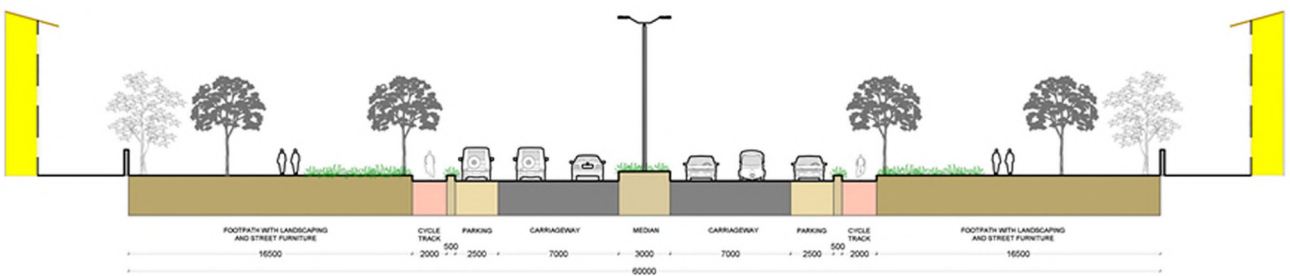


### Legend

- Reserved for Handicapped person
- Reserved for pregnant ladies and women
- Parking bays for all
- Cycle Track
- Landscaping and multi-utility zone
- Footpath and Vending zone (only legal)



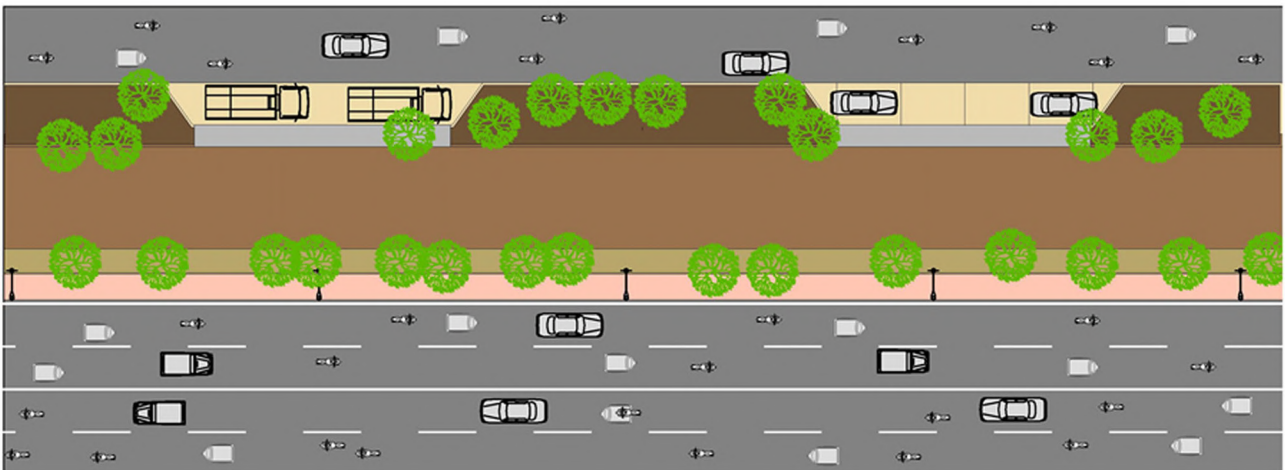
Key plan



CAPITAL HOSPITAL SQUARE TO AG SQUARE CROSS SECTION FOR 60m MID BLOCK

# Mahatma Gandhi Road

## Moderate Parking

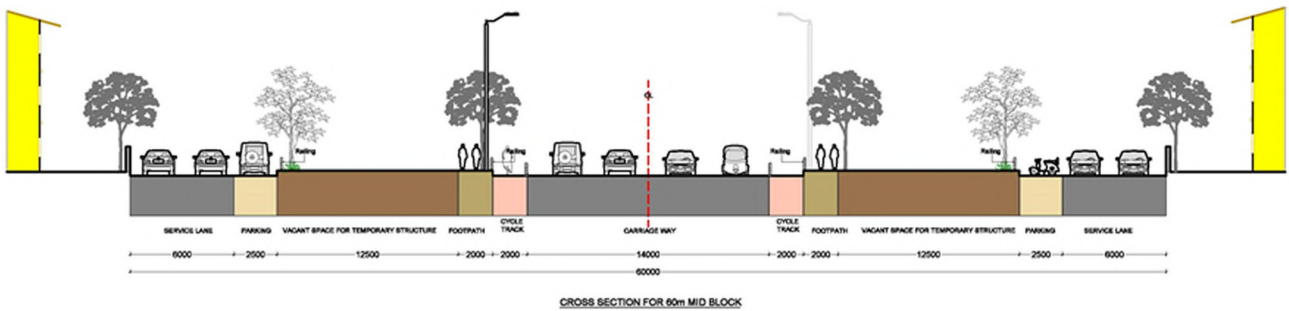


### Legend

- Reserved for Handicapped person
- Reserved for pregnant ladies and women
- Parking bays for all
- Cycle Track
- Landscaping and multi-utility zone
- Footpath and Vending zone (only legal)



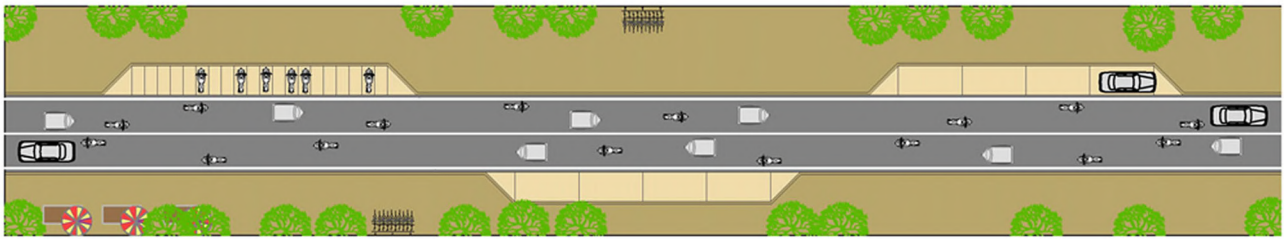
Key plan



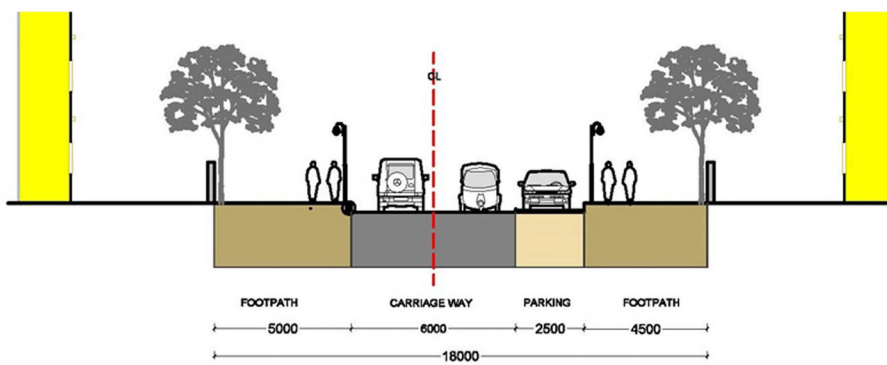


## LEVEL 3 ROADS

### Moderate Parking



### Alternate side parking

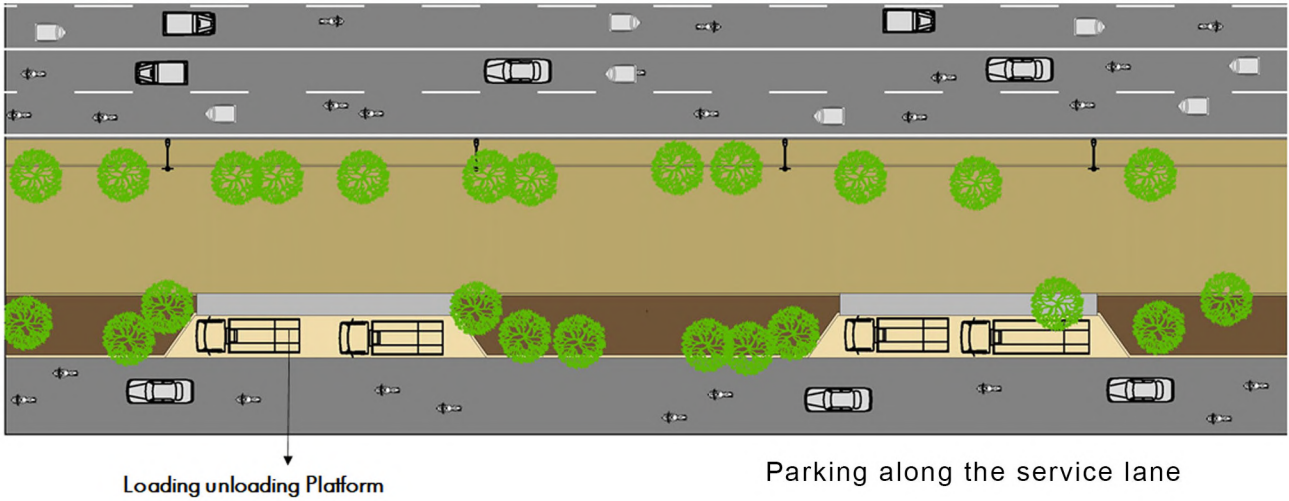


Key plan

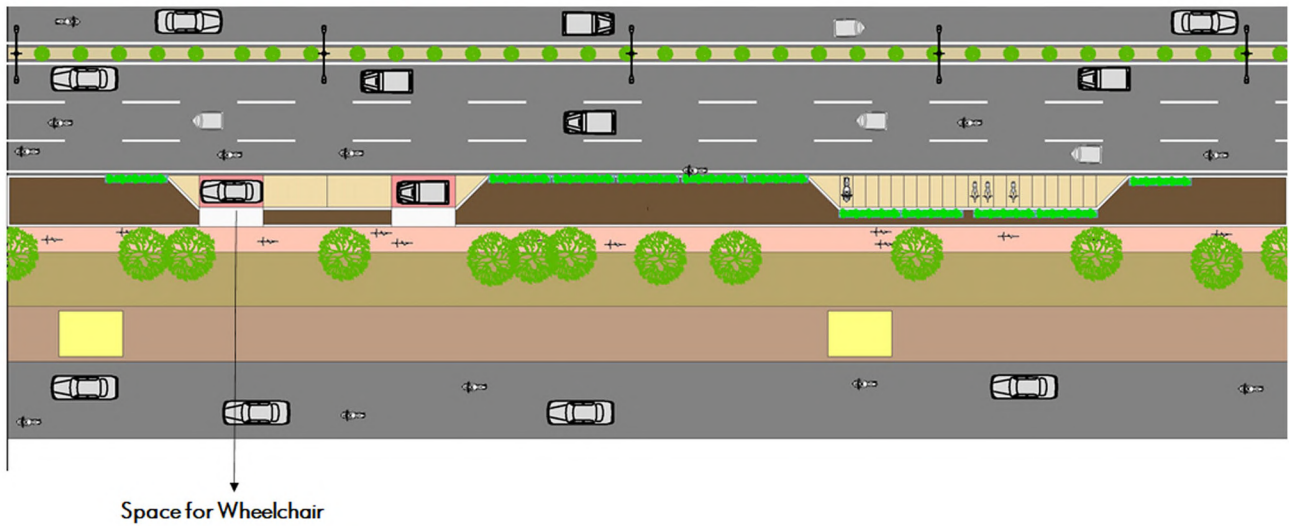
### Legend

- Reserved for Handicapped person
- Reserved for pregnant ladies and women
- Parking bays for all
- Cycle Track
- Landscaping and multi-utility zone
- Footpath and Vending zone (only legal)

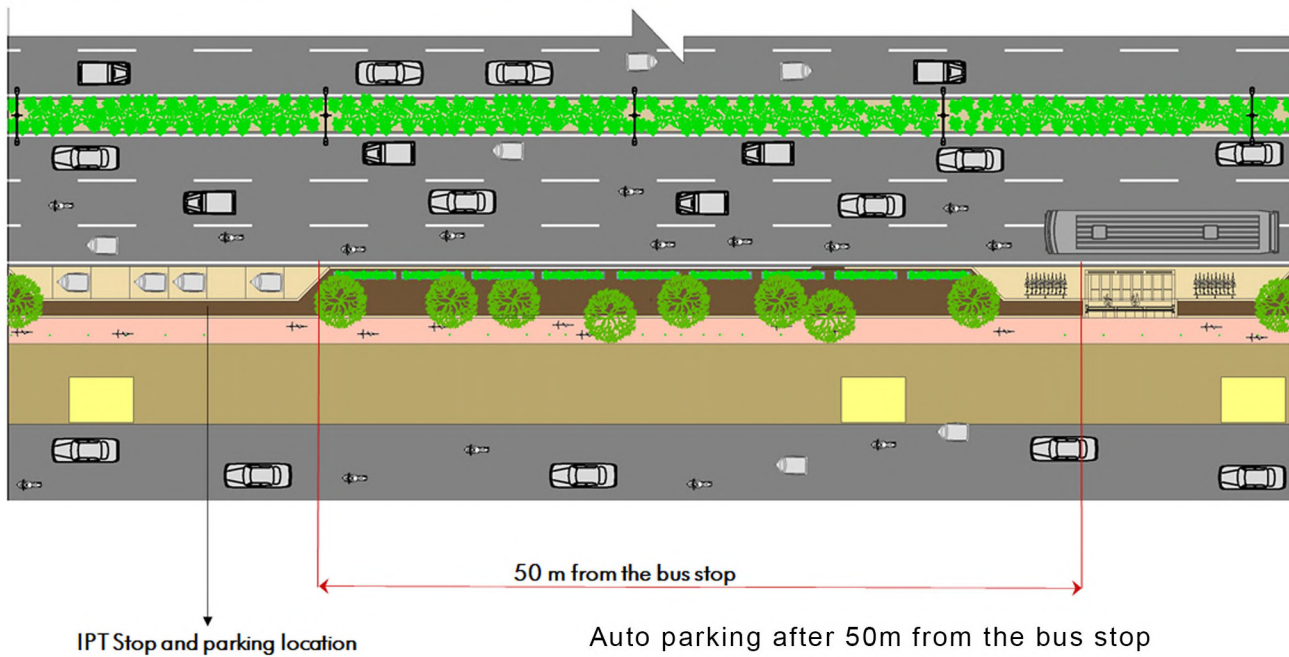
### TYPICAL LAYOUT FOR FREIGHT LOADING AND UNLOADING



### LAYOUT FOR DISABLED PARKING

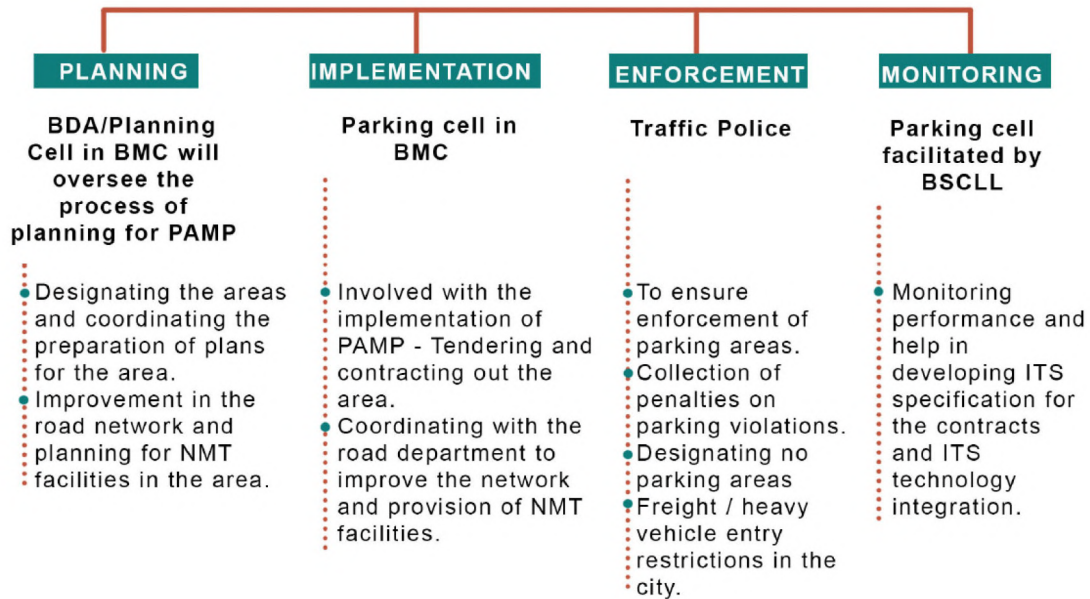


### TYPICAL LAYOUT FOR IPT STOP LOCATIONS



## 5.4 PROPOSED INSTITUTIONAL ARRANGEMENT

The proposed institutional set-up shall involve all the direct and indirect stakeholders to work together for the better management and implementation of the Parking Area Management Plan.



Enforcement shall be the responsibility of the traffic police which can be supported by parking wardens appointed by the BMC. Enforcement measures are detailed in Parking Policy point 4.13 along with monitoring to be done at the control centre of the BSCLL.

## 5.5 PARKING CONTRACT MANAGEMENT

As mentioned in Parking Policy, delegation of private contractor, the parking tender document shall define the zone boundaries, designated parking area in each zone (both on-street and off-street). The model of operation with private operator shall be based on the PAMP Toolkit. Accordingly, the functions of the private contractor shall include:

- Operate the designated parking bays as per the specifications offered by the BMC.
- Collect parking fees on behalf of the BMC Parking Cell using various payment mechanisms.
- Monitor parking occupancy daily.
- Employ parking wardens for monitoring the illegal parking.
- Adopt appropriate actions against illegally parked vehicles.

The revenue collected shall be the property of the BMC and an annual rate shall be defined for the private contractor.

As mentioned in the Parking Policy (Section 5), the BMC in consultation with UMTA shall create a city parking management committee to monitor the daily implementation activities of the parking policy. The various functions of the implementation committee are discussed along with the policy directives which include fixation of parking prices, review and revision of prices, review of PAMPs, routine monitoring, revision of the policy, etc. The CPMC shall be the appellate authority in case of any disputes between private operator and BMC.

The CPMC may meet regularly as required to take key decisions related to parking. The members of the CPMC are

- Municipal Commissioner, BMC, Chairman
  - Planning Member, BDA
  - CEO, BSCL
  - City Police Commissioner – DCP Traffic
  - MD, CRUT
  - Deputy Commissioner, Parking Cell, BMC
  - Regional Transport Officer
  - OSRTC
  - Public Works Department
  - Account's head, BMC/or any other person responsible for credits from parking revenue
  - Representative from cab aggregators
  - Representative from freight vehicle operators
  - Expert from NGO:
  - Nominee of Expert from NGO
  - NGO for women/child-friendly element in the city
  - Academic expert
  - Professional expert?
  - Vendor Association representative
- Assessment of the parking area management plan implementation shall be conducted every 1–2 years as mentioned in section 3.6.4 of PAMP toolkit.

# 06 IMPLEMENTATION STRATEGY

## 6.1 ACTION PLAN

The proposals identified have been phased depending upon urgency and ease of implementation. The major corridors are given priority as they are most affected due to parking issues and needs urgent interventions. The roads near this major corridor are kept second in the priority as they experience spillover of parking and will be affected with interventions on major corridors. The phasing of strategy implementation is done according to Long Term, Medium Term and Short-Term requirements.

Proposals, along major corridors that require only few interventions would prove useful in providing instant relief to the parking problem in the area. These are given high priority and fall under Short-Term. The implementation of strategies on minor roads within 500m buffer of the major corridors shall be carried out just after implementation of Short-Term strategies and hence can be considered as Medium-Term strategies. And the strategies on other minor roads can be implemented at later stage as they will majorly be along residential zone in Master Canteen area and does not cater to the parking issues in the area.

The implementation along each corridor shall be carried out step by step as

1. Construction of new road design including parking bays
2. Improvement of walkability around each bus stop (500 m) – improve footpath condition and lux levels
3. Improvement of walkability – cycling infrastructure to major activity centers
4. PBS stops and IPT stands close to bus stops and major activity centers
5. Providing way finding boards at all specified locations
6. Implementation of parking pricing along major roads and on roads within 500 m buffer of major roads to prevent parking spillover.

Table 12 : Proposal summary in Master Canteen area

Road Name	Length (km)	IPT / Taxi pickup stops	PBS Stops	Wayfinding Boards	Cycle Track			Footpath Length (m)	Existing Footpath Width (m)	Proposed Footpath Width (m)	Existing Footpath Condition	Parking ECS (reduced parking in the area)
					Segregated (km)	Painted (km)	Width (m)					
<b>Janpath Marg</b> (designed street, infrastructure is existing and in good condition)	2.5	4	3 existing + 2 proposed	2	2.23 existing	0.0	2 existing	2.5	4 - 8	-	Good existing	134
<b>Streets nr. Janpath Marg</b>	23.5	3	3	1	0.40	3.3	<2	12.8	1.5	2.5	Needs improvement	1160
<b>Rajpath Marg</b> (street improvement required)	1.4	3	2	4	1.20	0.0	2	1.4	3	3	Good existing	16
<b>Streets nr. Rajpath Marg</b>	7.5	2	5	0	0.65	2.9	<2	6.5	1.5 - 2.5	2.5 - 3	Needs improvement	360
<b>Sachivalaya Road</b>	0.8	1	1	1	0.80	0.0	2.5	0.8	2	2	Good existing	24
<b>Streets nr. Sachivalaya Road</b>	3.6	1	3	2	0.82	1.1	2	3.3	1.5 - 2	2.5	Needs improvement	104
<b>Hospital Road</b>	0.9	2	3	1	0.86 existing	0.0	3	0.9	3	3	Good existing	80
<b>Streets nr. Hospital Road</b>	3.0	0	1	1	0.61 existing	1.4	2.5	2.9	1.5	2.5	Needs improvement	184
<b>Mahatma Gandhi Road</b>	0.9	1	3	1	0.90	0.0	2	0.9	2	2	Good existing	88
<b>Streets nr. Mahatma Gandhi Road</b>	1.3	0	0	0	0.00	0.3	<2	0.6	2	2.5	Needs improvement	152
<b>Udhyan Marg</b>	0.9	0	3	0	0.90	0.0	2	0.9	2	2	Good existing	88
<b>Streets nr. Udhyan Marg</b>	1.0	0	2	0	0.00	0.2	<2	0.4	2	2.5	Needs improvement	24
<b>Total</b>	<b>47.3</b>	<b>17</b>	<b>31</b>	<b>13</b>	<b>9.4</b>	<b>9.2</b>		<b>33.9</b>				<b>2414</b>

## 6.2 SUMMARY OF THE PROPOSALS AND COSTING

The costs of road infrastructure facilities have been considered from DSR rates. The total amount for improving the parking facility and road infrastructure in the area is around Rs. 64.9 million.

Table 13 : Costing of proposal in Master Canteen area

Road Name	Length (km)	PBS Stops	Wayfinding Boards	Footpath Improvements	Cycle Track	Parking Infrastructure & Kerb	Total
Block Cost (INR)		<ul style="list-style-type: none"> <li>Rs. 1,00,000/- cost per station</li> <li>Rs. 25,000/- per bicycle cost</li> </ul>	<ul style="list-style-type: none"> <li>INR 5,000/- per board</li> </ul>	<ul style="list-style-type: none"> <li>Rs. 50 lakh per km for new footpath</li> </ul>	<ul style="list-style-type: none"> <li>Rs. 1500 per m2 for cold applied cycle tracks</li> <li>Rs. 8000 per m<sup>3</sup> of median kerb</li> </ul>	<ul style="list-style-type: none"> <li>Rs. 300/- per m<sup>2</sup> for bitumen sections</li> <li>Rs. 950 per m<sup>2</sup> for paver blocks</li> <li>Rs. 960 per m<sup>3</sup> for WMM</li> <li>Rs. 8000 per m<sup>3</sup> of median kerb</li> <li>Rs.700/- per m<sup>2</sup> for marking</li> </ul>	-
Janpath Marg (designed street, good condition infrastructure existing)	2.24	550,000	15,000	0	0	0	565,000
Rajpath Marg (Street improvement required)	1.34	550,000	20,000	0	2,998,573	11,766,933	15,335,507
Sachivalaya Road	0.8	275,000	5,000	0	18,928,923	0	19,208,923
Hospital Road	0.87	825,000	-	0	0	5,465,600	6,290,600
Mahatma Gandhi Road (Under construction)	0.9	825,000	5,000	0	0	0	830,000
Udhyan Marg	0.9	825,000	5,000	0	17,056,939	5,573,600	23,460,539
Railway Station access road	0.6	275,000	-	0	0	0	275,000
Other roads	39.65	3,850,000	10,000	9,250,000	52,685,652	7,146,667	72,942,319
<b>Total</b>	<b>47.3</b>	<b>7,975,000</b>	<b>60,000</b>	<b>9,250,000</b>	<b>91,670,087</b>	<b>29,952,800</b>	<b>138,907,887</b>

## 07 SUMMARY

The prepared PAMP for Master Canteen area shall help the local authorities in identifying parking related issues in the area and introduce strategies to manage parking supply and demand. The area being CBD of the city, includes railway station, major wholesale and retail markets, and administrative building, witness's encroachment, and enforcement issues. The strategy adopted promotes other sustainable modes like NMT and PT by improving existing infrastructure and reducing the parking supply in the area. The institutional setup and enforcement measures will help the local authorities to properly plan, manage and implement the proposed PAMP plan.



This report was undertaken as a part of the “Integrated Sustainable Urban Transport Systems for Smart Cities (SMART-SUT)”, a project implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and the Ministry of Housing and Urban Affairs (MoHUA), Government of India and commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ). Under the aegis of the Green Urban Mobility Partnership between Germany and India, SMART-SUT aims to facilitate and improve the planning and implementation of sustainable urban transport systems in Indian states and cities.